

Race-ethnic discrimination, Major Depression, and Alcohol Use Disorder among US-born and immigrant minorities: Using a nationally representative sample to test the moderating relationships of cultural and social factors

Amy Sheila Kapadia

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## ABSTRACT

Race-ethnic discrimination, Major Depression, and Alcohol Use Disorder among US-born and immigrant minorities: Using a nationally representative sample to test the moderating relationships of cultural and social factors

Amy Sheila Kapadia

This dissertation used data from The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) to expand upon what is known about the relationship between perceived race-ethnic discrimination and mental health outcomes while uniquely comparing race-ethnic groups across both US-born and immigrant populations. Specifically, two DSM-IV disorders, Major Depressive Disorder (MDD) and Alcohol Use Disorder (AUD) were examined as outcomes. The dissertation sample ( $n = 13,914$ ) was drawn from Wave II of the data and included Black, Hispanic, and Asian respondents. The first question addresses the associations between perceived race-ethnic discrimination and the mental health disorders. Question two examined the risk and protective roles of four cultural-social factors for both disorders as well as their moderating roles in the race-ethnic discrimination-mental health relationship.

Prevalence analysis revealed that almost 20% of minorities experienced past-year race-ethnic discrimination. Results from logistic regressions found that minorities who experienced race-ethnic discrimination were about two times as likely to have MDD or AUD than minorities who did not experience race-ethnic discrimination (ORs = 2.0 and 1.8, respectively). Comparisons across sub-populations of US-born, immigrant, Black, Hispanic, Asian, and gender groups found a few differences in terms of the effects of discrimination and mental health disorders. While moderation analyses failed to yield significant results for race-ethnic

discrimination, the four cultural and social factors appeared to moderate the relationship between MDD and AUD, respectively. Findings corroborate and expand upon previous work demonstrating a consistent, strong, and positive relationship between perceived race-ethnic discrimination and mental health outcomes across minority populations yielding practice and policy implications. Further research is needed to examine causal associations using longitudinal data as well as to elucidate upon the role of protective and risk factors given cultural and community-based factors.

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## CHAPTER 1: INTRODUCTION

### I.I. Problem Statement

This dissertation explored the relationship between perceived race-ethnic discrimination and the mental health outcomes of Major Depressive Disorder [MDD] and Alcohol Use Disorder [AUD] while uniquely comparing race-ethnic groups across both US-born and immigrant populations and further identifying potential cultural-social factors as moderators of this relationship. Race-ethnic comparisons are critical given that much of the literature on discrimination compares African Americans to white individuals (Williams, Neighbors, & Jackson, 2003). The three race-ethnic groups that were compared include Black, Hispanic, and Asian. First, the relationship between perceived race-ethnic discrimination and each disorder was explored specifically denoting the variations in prevalence and association given immigrant status and race-ethnicity. Second, the dissertation examined whether four cultural and social moderated the relationship between the predictor and outcomes. The four cultural and social factors included ethnic identity and social support as potential protective factors and, social integration and stress as potential risk factors. This secondary analysis utilized data from Wave II of The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). The National Institute on Alcohol Abuse and Alcoholism (NIAAA) conducted the longitudinal survey between 2001-2002 (Wave I) and 2004-2005 (Wave II) to enhance the understanding of the prevalence, consumption, treatment and a large range of associated factors of alcohol use disorders and other related conditions (Grant & Dawson, 2006).

MDD and AUD are important disorders to study given their prevalence and negative sequelae among minority US-born and immigrant populations (Hasin, Goodwin, Stinson, &

Grant, 2005; Kessler et al., 2003; Dentino et al., 1999). Moreover, differential rates of MDD and AUD exist within minority US-born and immigrant populations within the United States (Alegria et al., 2008; McGuire & Miranda, 2008; Smith et al., 2006; Grant et al., 2004b). Research has consistently shown a pattern in which some immigrants of diverse ethnic groups fare better in terms of mental health than their US-born counterparts (Alegria et al., 2002; Breslau & Chang, 2006; Breslau, Borges, Hagar, Tancredi, & Gilman, 2009; Takeuchi et al., 2007). However, the reasons for these variations remain unclear (Smith et al., 2006). Further, the severity of mental health disorders and their persistence among minority groups appears to be stronger than for their white counterparts when they are ill (Breslau, Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005). As such, it is important to increase our understanding of the variability and severity of mental illness across race-ethnic groups among both US-born and immigration populations in order to inform the development of prevention and intervention strategies that can be tailored to specific minority groups. And, further elucidation of cross-ethnic differences may uncover underlying mental health determinants among minority populations.

The term discrimination has its roots in the Latin word *discriminare* which implies an unequal behavior that either enhances or limits social situations for individuals (Spring, 2011). Typically, it is understood as an unfair and damaging treatment of an individual or a group based upon prejudice. Discrimination is based on the rejection of one group over another based on particular personal attributes such as race-ethnicity, gender, age, sexual orientation, class, etc., that deems one group as a lesser being or holding lesser status (Spring, 2011). Perceived race-ethnic discrimination is a potentially important determinant that may explain race-ethnic differences in mental health outcomes and severity among US-born individuals and immigrants (Williams, et al., 2003; McLaughlin, Hatzenbuehler, & Keyes, 2010).

Exposure to race-ethnic discrimination has harmful effects on mental health including psychological distress, decreased self-esteem, depressive symptoms, anxiety, and early initiation of substance use (Banks, Kohn-Wood, & Spencer, 2006; Hwang & Goto, 2008; Kessler, Michelson, & Williams, 1999; McLaughlin et al., 2010; Williams et al., 2003; Pascoe-Smart-Richman, 2009). External factors related to an individual's culture and social environment might contribute to differences in mental health outcomes across race-ethnic and immigrant groups especially in the presence of discrimination (Crocker, Luhtanen, Blaine, & Broadnax, 1994; Keyes et al., 2011; Stansfeld, Rael, Head, Shipley, & Marmot, 1997). Therefore, it is important to look beyond biological and genetic factors to assess for determinants of mental health. External factors may explain race-ethnic group differences in mental illness prevalence rates and severity as well as potentially increase vulnerability to discrimination as well as enhance coping (Williams et al., 2003; Phinney, 2003).

## **I.II. Questions and Hypotheses**

Drawing upon the risk and resilience framework (Luthar & Cicchetti, 2000) this dissertation will expand on what is known about the relationship between perceived race-ethnic discrimination, and two diagnostic outcomes, Major Depressive Disorder (MDD) and Alcohol Use Disorder (AUD) while uniquely comparing race-ethnic and immigrant status groups using a nationally representative dataset. Further, an examination of four social-cultural factors will illuminate the potential role of risk and protective factors in this relationship between race-ethnic discrimination and the mental health outcomes.

Table 1. Variables in dissertation study

Predictor Variable [X]	Outcome Variables [Y]	
1. Race-ethnic discrimination	1. Major Depressive Disorder [MDD] 2. Alcohol Use Disorder [AUD]	
Cultural & Social Factor Variables [Z]	Covariates	
1. Ethnic identity	Immigrant status	Income
2. Social support	Gender	Education
3. Social integration	Race-ethnicity	MDD [for AUD model]
4. Stress	Age	AUD [for MDD model]

Question 1: What is the association between perceived race-ethnic discrimination and outcome variables (MDD and AUD) when comparing group differences across race-ethnicity and immigrant status among a representative sample of minorities in the United States? Hypotheses are tested separately for MDD and AUD.

Hypothesis 1a. Perceived race-ethnic discrimination would be positively associated with MDD among minorities, both US-born and immigrants (Kessler, Mickelson, & Williams, 1999; McLaughlin et al., 2010; Williams & Mohammed, 2009).

Hypothesis 1b. Perceived race-ethnic discrimination would be positively associated with AUD among minorities, both US-born and immigrants (Kessler, et al., 1999).

Hypothesis 1c. The odds of MDD would vary across race-ethnic and immigrant status groups given the effects of the exposure to perceived race-ethnic discrimination.

Hypothesis 1d. The odds of AUD would vary across race-ethnic and immigrant status groups given the effects of the exposure to perceived race-ethnic discrimination

Question 2: First, what is the association between four cultural-social factors and the outcome variables (MDD and AUD)? Second, what role do the two cultural factors, *ethnic identity and social integration*, and the two social factors, *social support and stress*, play in enhancing

resilience or increasing vulnerability between race-ethnic discrimination and outcome variables (MDD and AUD)? Hypotheses will be tested separately for MDD and AUD.

Hypothesis 2a. High ethnic identity would be negatively associated with the outcome variables.

Hypothesis 2b. High social support would be negatively associated with the outcome variables.

Hypothesis 2c. High social integration (with one's own ethnic group) would be positively associated with the outcome variables.

Hypothesis 2d. High stress would be positively associated with the outcome variables.

Hypothesis 2.e1. Ethnic identity would moderate the relationship between perceived race-ethnic discrimination and the outcome variables (Crocker et al., 1994; Lee & Davis, 2000).

Hypothesis 2.e2. The associations between perceived race-ethnic discrimination and the outcome variables would be weaker at higher levels of ethnic identity for race-ethnic minorities, both US-born and immigrant. Thus, ethnic identity would play a protective role.

Hypothesis 2.f1. Social Support would moderate the relationship between perceived race-ethnic discrimination and the outcome variables (Cohen & Hoberman, 1983; Glass & Maddox, 1992; Paykel, 1994).

Hypothesis 2.f2. The associations between perceived race-ethnic discrimination and the outcome variables would be weaker at higher levels of social support for race-ethnic minorities, both US-born and immigrant. Thus, social support would play a protective role.

Hypothesis 2.g1. Stress would moderate the relationship between perceived race-ethnic discrimination and the outcome variables (Brady & Sinha, 2007; Pearlin, et al., 1981).

Hypothesis 2.g2. The associations between perceived race-ethnic discrimination and the outcome variables would be stronger at higher levels of stress for race-ethnic minorities, both US-born and immigrant. Thus, stress would be a potential risk factor.

Hypothesis 2.h1. Social integration would moderate the relationship between perceived race-ethnic discrimination and the outcome variables (Phinney, 2003).

Hypothesis 2.h2. The associations between perceived race-ethnic discrimination and the outcome variables would be stronger at higher levels of social integration with one's own ethnic group for race-ethnic minorities, both US-born and immigrant. Thus, social integration would be a potential risk factor.

### **I.III. Dataset**

The NESARC longitudinal survey was conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) in 2001-2002, to enhance the understanding of the prevalence, consumption, treatment and a large range of associated factors of alcohol use disorders and other related conditions. NESARC includes questions that operationalize the criteria put forth in the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) for several psychiatric disorders including mood, anxiety, and personality disorders and substance use disorders. NESARC consists of two waves. Wave I data was collected from 2001 to 2002, and Wave II data (used for this analysis) was collected from 2004-2005. Please refer to Grant, Kaplan, Shepard, & Moore (2003) for more information on the source and purpose of the NESARC dataset.



NESARC is a strong dataset to utilize because it is a nationally representative face-to-face epidemiologic survey with an unparalleled sample size, general population-based sampling scheme, and careful measurement of DSM-IV diagnoses of substance use, mood, and anxiety disorders (McLaughlin, et al., 2010). With such an extensive sample size (Wave I n = 43,093; Wave II n = 34,653) it is possible to achieve stable estimates for several clinical, socioeconomic, demographic, and geographic covariates (Grant & Dawson, 2006).

## CHAPTER II: REVIEW OF THE LITERATURE

MDD and AUD are highly prevalent across all ethnicities within the United States (U.S. Department of Health and Human Services, 1999 (USDHHS); Smith et al., 2006). A recent nationally representative study indicated that the 12-month prevalence rate for Major Depression was 5.28% (Hasin, et al., 2005) while the 12-month prevalence rate for Alcohol Use Disorder (includes abuse and dependence diagnoses) was 8.46% (Grant et al., 2004a). The impact of these disorders is far-reaching for both US-born and immigrant minority populations and not only affects individuals and family members but communities and society (USDHHS, 1999). Their impact may lead to innumerable challenges across domains of functioning including, difficulty in caring for oneself, relationship struggles, financial issues, diminished workforce capability, strong negative emotions, and risk for suicide (USDHHS, 1999).

Mental health issues for minorities among both US-born and immigrant populations are particularly salient and unique. There is significant variation across racial and ethnic groups in rates of mental health disorders (Alegria et al., 2002; Abe-Kim, 2007). Some racial-ethnic groups experience poorer outcomes whereas other groups experience mental health advantages (Grant et al., 2004c). For example, some immigrant groups, such as Mexican immigrants, have lower risk for mood disorders than their US-born counterparts (Breslau, et al., 2009; Alegria et al., 2008).

A significant challenge specific to minorities, both US-born and immigrant populations, is perceived race-ethnic discrimination. Research suggests that perceived discrimination is a mechanism of significant importance given its ubiquitous nature and striking influence upon the health and wellbeing of individuals (Coll, et al., 1996; Williams, et al., 2003). Discrimination

experiences may, in fact, explain mental illness prevalence differences observed between racial and ethnic groups within the United States. Several studies have emphasized the deleterious effect that discrimination has on individuals' trajectories increasing vulnerability for development or exacerbation of mental health conditions (Hwang & Goto; 2008; Williams, et al.; McCabe, Bostwick, Hughes, West, & Boyd, 2010; McLaughlin, et al., 2010). Notably, in a study conducted by Banks, Kohn-Wood, and Spencer (2006) using data from the 1995 Detroit Area Study, African American respondents who reported experiencing perceived "everyday" discrimination based on race-ethnicity had higher rates of depression and anxiety symptoms. Using national data, McLaughlin et al., (2010) found that discrimination was associated with higher odds of both 12-month mood and substance use disorders.

Despite the negative consequences of race-ethnic discrimination among minorities, most individuals do not develop psychiatric disorders (McLaughlin, et al., 2010). This is indicative of the presence of protective mechanisms that may buffer the negative effects of discrimination. By drawing upon the resilience framework, this dissertation will examine cultural and social factors that may moderate the relationship between race-ethnic discrimination and mental health outcomes among minorities, US-born and immigrant populations. In this dissertation study, the term immigrant refers to individuals who were not born in the United States. Another term used in the literature is foreign-born.

The following literature review will provide a rationale for examining MDD and AUD; discuss the associations and impact of discrimination across race-ethnic groups, both US-born and immigrant; review extant literature on cultural and social factors including their roles as risk and protective factors; and finally, discuss what is known about their relationship with race-ethnic discrimination and mental health outcomes.

## Chapter II.I. Mental Health Disorders

### Major Depressive Disorder

MDD is a frequently occurring and potentially immobilizing mental health disorder (Hasin, et al., 2005; Williams, et al., 2007; Murray & Lopez, 1996). MDD entails one or more major depressive episodes (See Appendix A), each lasting at least two weeks (American Psychiatric Association [*DSM-IV-TR*], 2000). The principal symptoms of major depressive disorder include depressed mood and anhedonia. Although 80-90% of individuals will remit within two years of the first episode, about 50% of individuals will experience a recurrence of depression (Kapur & Mann, 1992). Notably, an initial episode of major depression may advance over time into a more recurrent illness (Thase & Sullivan, 1995). Each new episode confers new dangers of chronicity, disability, and suicide.

MDD has been studied extensively dating back to the early 1980s when the first national study was conducted, the Epidemiologic Catchment Area Study (ECA) (Eaton et al., 1984). The ECA examined the prevalence of MDD based on DSM-III criteria in a large sample of 18, 571 individuals from five communities within the United States (Eaton et al., 1984). The lifetime and current rates for MDD were 5.2% and 3.0%, respectively. Currently, approximately 16.5 million Americans suffer from MDD at least once in their lifetime (Kessler, Berglund, Demler, Jin, Walters, 2005). Hasin and colleagues (2005) determined more recent prevalence estimates from NESARC reporting lifetime (13.23%) and past year (5.28%) rates of MDD within the general population. A troubling fact is the striking increase in the rates of MDD noted by several cross-sectional, retrospective studies (Klerman & Weissman, 1989). Compton and colleagues (2006) compared data between two large national studies to assess the change and found that

overall, MDD had increased from 3.33% (1991-1992) to 7.06% (2001-2002). This trend was evident among several sub-populations including Whites, Blacks, and women in each age category. MDD poses a significant economic burden given the major impairments that go along with the diagnosis (Goetzel, Hawkins, & Ozminski, 1999; Greenberg et al., 2007). Globally, it is the fourth leading cause of disability and the leading cause of nonfatal disease burden (Ustun, Ayuso-Mateos, Chatterji, Mathers, & Murray, 2004). Projections from the Global Burden of Disease report indicate that by 2020, MDD will be accountable for a larger burden of disease than any other disease (Murray & Lopez, 1997).

For minorities, subgroup analyses of MDD yield differential results. Women and Native Americans show a higher risk of MDD while men, Asian, Hispanic, and Black individuals show a lower risk than their White counterparts (Hasin et al., 2005). Several nascent studies published prior to the 1990s using community and national samples have found that African Americans have higher rates of MDD than White individuals (Somervell, Leaf, Weissman, Blazer, & Bruce, 1989; Neighbors, Jackson, Bowman, & Gurin, 1983; Warheit, Holzer, & Arey, 1975). Newer avenues of research, however, have observed the opposite associations. Several large-scale national studies including the ECA, the National Comorbidity Survey (NCS) (Blazer, et al, 1994) and its replication study (NCS-R) (Kessler et al., 2003) all found that compared to non-Hispanic White individuals, Black individuals have lower life-time rates of MDD and equal or lower 12-month rates. More recently, in 2005, the National Health and Nutrition Examination Survey – III (NHNES – III) confirmed these results finding that the prevalence of MDD for Black individuals was lower than for Whites (Riolo et al., 2005).

However, despite lower rates of depression among several minority groups, once diagnosed, the picture is considerably different (Blanco et al., 2007; USDHHS, 2001). For

example, Black, Asian, and Hispanic individuals experience a more persistent and oftentimes, more severe, illness than their White counterparts (Kessler et al., 2003; Abe-Kim et al., 2007; Alegria et al., 2007b; Williams et al., 2007).

Black individuals experience a more persistent illness than their White counterparts (Kessler et al., 2003). The National Comorbidity Survey Replication (NCS-R) found that Black individuals experienced more days in which they were unable to meet daily obligations than the national average for people with MDD (Kessler et al., 2003). Moreover, a study conducted by Williams et al., (2007) using the National Study of American Life (NSAL), the largest study of mental health among the Black population, examined the prevalence, persistent, and sociodemographic correlates of MDD. Their findings corroborated previous studies demonstrating the protective factor of the Black race against development of MDD (Robins & Regier, 1991; Blazer et al.; Kessler et al., 2003) but supported its risk of a more chronic condition developing once a diagnosis is made (Demyttenaere, 2004; Blazer et al.; Kessler et al., 2003). It has been well documented that Black individuals have less access to care and often do not receive the same level of care when they do seek help (USDHHSb, 2001).

Furthermore, whether an individual is US-born or an immigrant influences both prevalence and persistence of MDD (Williams et al., 2007; Abe-Kim et al., 2007; Alegria et al., 2008; Szaflarski, Cubbins, & Ying, 2010). For example, studies have shown that Hispanic immigrants experience better mental health than those born in the U.S (Alegria et al., 2007a). In particular, according to Alegria et al., (2007b), Mexicans who immigrated to the United States after age six had a lower prevalence of depression than Mexicans who were born in the U.S. or who arrived prior to their sixth birthday. In keeping with this finding, Grant et al. (2004b) found that foreign-born Mexican Americans and foreign-born non-Hispanic Whites experienced lower

risk for substance use and mood disorders compared to Mexicans and non-Hispanic Whites who were born in the United States. Specifically, 12.2% of US-born Mexican Americans experienced MDD compared with 7.7% of Mexican immigrants. For Asian immigrants, while nativity is associated with better physical health (Frisbie, Cho, & Hummer, 2001) findings are not consistent for MDD (Sue, Sue, Sue, & Takeuchi, 1995). In a study conducted among Asian college students Asian immigrants experienced higher rates of depression than US-born Asians (Sue et al.). However, when community samples were utilized, the Asian cultural appears to protect against depression as lower rates of MDD were found among Asian immigrants (Sue et al.; Takeuchi et al., 1998).

The Black race is not synonymous with a homogenous group as often assumed by researchers (Williams & Jackson, 2000). While there are commonalities with being Black in the United States, there are also significant ethnic variations with the population that may impact prevalence, persistence of illness, as well as overall functioning (Williams et al., 2007). 6% of the Black population is foreign-born (Schmidley & Gibson, 1999). Black individuals from the Caribbean make up the largest sub-group of Black immigrants (Schmidley & Gibson). Mental health rates differ between Black immigrants and those born in the United States (Williams, 2003; Cohen, Berment, & Magai, 1997). However, results across studies are inconsistent (Williams et al.; Miranda, Siddique, Belin, & Kohn-Wood, 2005). Two studies have found that Black immigrants have higher levels of depression symptoms than Black individuals born in the United States. On the contrary, Miranda et al., (2005) established that among poor women of Caribbean descent, immigrant women fare better than their US-born counterparts. Williams et al., (2003) illustrated that while African American and Caribbean blacks had lower rates of

lifetime MDD than Whites, Caribbean immigrants experienced the lowest rates (12.9% compared to 10.4% and 17.9%, respectively).

Taken together, the extant literature demonstrates variation in the prevalence and severity of MDD across minority populations, both US-born and immigrant, that warrants exploration as to mechanisms that contribute to these differences. The potential for MDD to lead to significant burden is due to its associations with considerable impairment in functioning (Hasin et al., 2005; Kessler, et al., 2003), poor health outcomes (Dentino et al., 1999), significant comorbidity with other mental health and substance use disorders (Kessler et al.), and mortality (Insel & Charney, 2003). Of utmost importance and relevance to the present study, the relationship between perceived race-ethnic discrimination and its association with MDD is consistently positive and significant across race-ethnic groups both US-born and immigrant populations (Araujo & Borrell, 2006; Williams, et al., 2003; Dion, Dion, and Pak 1992; McLaughlin et al., 2001; Hwang & Goto, 2008).

### **Alcohol Use Disorder**

AUD incorporates both alcohol abuse and dependence (See Appendix B for DMS-IV criteria). A recent large national study has shown that past year alcohol abuse and dependence is prevalent among 4.7% and 3.8% of adults within the United States (Hasin, Stinson, Ogburn, & Grant, 2007). The same study reported lifetime rates for alcohol abuse and dependence (17.8% and 12.5% respectively). Alcohol dependence is associated with chronic health conditions such as liver and cardiovascular disease and higher rates of alcohol-related mortality (Dawson, 2000; Rehm et al., 2003). The social consequences from alcohol-related disorders are also significant and impact several domains of functioning including psychological, employment, financial, legal, and relationships (Dawson, 2000).



Overall, Blacks and Hispanics are less likely than Whites to develop alcohol dependence across their lifetime (Hasin et al., 2007; Eaton et al., 1984; Blazer, Kessler, McGonagle & Swartz, 1994; Kessler et al., 2003). Asian Americans also share a similar health advantage to other minority groups (Smith et al., 2006). However, once alcohol dependence occurs, minorities have a higher prevalence than Whites of recurrent or persistent alcohol dependence (Dawson et al., 2005b). Studies demonstrate that Blacks and Hispanics experience a greater health burden of alcohol-related health problems compared to Whites; higher rates of liver disease as well as overall alcohol-related mortality (Greenfield, 2001; Ye & Kerr, 2011).

Similar to MDD, research suggests that some immigrant minorities may be less at risk for AUD than their US-born counterparts (Grant et al., 2004c; Alegria et al., 2007a; Brown, Council, Penne, and Gfroerer, 2005). For example, similar to findings regarding MDD, studies show that Mexican immigrants experience less heavy drinking episodes and less risk AUD than US-born Mexican Americans (De La Rosa et al., 2011; Borges et al., 2006; Grant et al.). Consistent with these findings, Breslau and Chang (2006) found that Asian immigrants had lower risk of AUD than their US-born counterparts. However, there is considerable heterogeneity across minority immigrant groups and little is known about various sub-group populations in relation to drinking patterns and AUD (De La Rosa et al.; Takeuchi et al., 2007). Acculturation factors, including age and reason for immigration, may explain variations in the prevalence and severity of AUD across immigrant minority populations (Takeuchi et al.; Lara, Gamboa, Kahramanian, Morales, & Hayes-Bautista, 2005). For example, research suggests that the longer immigrants reside in the United States, the greater their risk for development of alcohol abuse (Szaflarski, et al., 2010).

Race-ethnicity appears to be related to drinking as a way to cope with the stress of minority status and discrimination (Martin, Tuch, & Roman, 2003; Mulia Ye, Zemore,

Greenfield, 2008; Williams, Yu, Jackson, & Anderson, 1997). While there is less known about the impact of discrimination on negative alcohol behaviors such as binge drinking (Williams, Neighbors, & Jackson, 2003), studies show that the relationship between discrimination and AUD varies across minority populations, both US-born and immigrant. A review by Gee, Ro, Shariff-Marco, and Chae (2009) identified several studies that point to a positive association with discrimination and risk of alcohol use among Asian Americans while other studies signify that immigration-related factors may moderate the association between discrimination and negative alcohol behaviors for Asian immigrants. Further, discrimination was associated with 12-month AUD among US-born Hispanics and Blacks (McLaughlin et al., 2010). In a study conducted by Tran, Lee, and Burgess (2010) the number of discrimination experiences was positively related to the number of drinking days (in past month) among African-born Black, Hispanic and Southeast Asian immigrants. Notably, discrimination was associated with past month binge drinking for the sample as well. While African-born Black individuals experienced a significantly lower number of drinking days/binges compared to the other minority immigrant groups, discrimination was still positively associated with drinking. Therefore, although this population may not be at an increased risk for drinking behaviors, this study importantly highlights the role of discrimination in increasing the risk for drinking. In addition, another compelling finding was that Hispanic immigrants reported the greatest number of binge drinking episodes associated with discrimination experiences.

## **Chapter II.II. Discrimination and Mental Health Associations**

Results from a national study demonstrate the pervasiveness of discrimination in the United States. Kessler and colleagues (1999) found that across the U.S., 35% of individuals experienced major lifetime discrimination and an alarming 60.9% experienced everyday

discrimination. While an alarming 25% of African American individuals reported experiencing discrimination across their life course (Kessler, Michelson, & Williams, 1999), discrimination is experienced by members of all minority groups and may pose a constant struggle that impacts health and well-being (Kessler, et al.; Ying, Lee, & Tsai, 2000; Asamen & Berry, 1987). Race-ethnic discrimination can provide an explanation for existing health disparities through multiple pathways including access to social and economic resources and in particular, by resulting in mental health problems (Williams and Mohammed, 2009). Discrimination experiences may, in fact, explain mental illness differences observed among race-ethnic and immigrant-US-born groups. Several studies have emphasized the deleterious effect that discrimination has on individuals' trajectories increasing vulnerability for development or exacerbation of mental health conditions (Hwang & Goto; 2008; Williams, et al.2003; McCabe, Bostwick, Hughes, West, & Boyd, 2010; McLaughlin, Hatzenbuehler, & Keyes, 2010). These relationships may be especially salient for minority groups (Banks, Kohn-Wood, & Spencer, 2006; Lee, 2003; Hwang & Goto; Williams & Mohammed, 2009; Gee, Ro, Shariff-Marco, & Chae, 2009; McCabe, et al.; You & Lee, 2005) given the unrelenting and subtle daily struggles with racism, various cultural factors that may lead to inadequate understanding of mental illness and challenges with access to quality care often due to discriminatory practices (USDHHS, 2000).

The following sections will elucidate upon discrimination as an important contributor to disparities in mental health. First, a discussion of discrimination from a political viewpoint will provide background for a full understanding of the definition and context. Second, the discrimination-health relationship will be discussed by conceptualizing discrimination as a stressor. Finally, evidence will be presented delineating a positive association between discrimination and mental health outcomes across minority populations.

## **Discrimination as political**

In contemporary U.S culture, racism and racial discrimination holds very powerful social meaning and elicits responses that are emotionally-driven. Racial discrimination is seen as a form of oppression in which certain individuals, groups, or social institutions deny rights of others, equality of opportunity, or access to resources (Dovidio, 2000). In this dissertation, for purposes of clarity, racial-ethnic discrimination will be defined as the act of impeding equality and can be viewed as a process that in conjunction with prejudice and stereotyping incorporates racism. In short, discrimination describes the unequal treatment of majority-group members against minority group members (National Research Council, 2004). The dissertation specifically examines the impact of perceived race-ethnic discrimination which can be referred to as an individual's subjective perception of unfair treatment because of their race-ethnic identification, and based on racial prejudice manifest at the individual, cultural, or institutional levels (Jackson, Brown, & Kirby, 1998). One reason that *perceptions* of discrimination are frequently the target of research is because racial discrimination is often subtle and hard to pin down, and thus, difficult to document outside of the experiences of victims' (Dovidio and Gaertner 1991, 1998; Gee, Spencer, Chen, Yip & Takeuchi, 2007).

American society is marred by a complex paradox encompassing a history of slavery and ensuing racist ideologies along with a foundational vision of equality and justice for all individuals. The latter is embodied by the Civil Rights Act of 1964, the single-most important piece of legislation in the U.S., whose objective is to end discrimination (Civil Rights Act, 1964). It came into fruition because of a need to regulate and rid society of acts of discrimination. This legislation would ensure the equality of opportunity and treatment of individuals residing in the United States. The Civil Rights Act defines discrimination based on race, color, religion, sex, or

national origin as unlawful. It guarantees equal voting rights, prohibits segregation, condemns discrimination by unions, schools or employers, and ensures that funding under federally assisted programs is fairly distributed. The Act has led to other federally supported organizations and policies including the Equal Employment Opportunity Commission and affirmative action practices. The Civil Rights Act of 1964, and its resultant amendments have led to profound changes in American society and improvements in access to opportunities for minorities.

Since the 1960s, members of the majority group have supported integration in schools, housing, employment, and interracial marriage. National movements have enhanced cultural awareness as well as an understanding of historical and social struggles of race-ethnic minority groups. However, discrimination continues to remain pervasive across all levels of society and although there has been a decline in overt prejudice, racial disparities remain consistent across domains of society including but not limited to infant mortality, wages, access to and quality of healthcare, and education (Pearson, Dovidio, & Gaertner, 2009). In recent years, discrimination has taken a different, less violent, albeit equally if not more debilitating turn. One explanation of this *new racism* is due to surging immigration trends that have created significant challenges economically and socially as differences in values, beliefs, religions, customs, and cultures among immigrants and citizens merge and at times, collide (Pearson, et al., 2009). More recently, cultural norms in the U.S. (along with laws as described above) have dictated egalitarian ways that discourage bias; thus, subsequently prejudice has been expressed less blatantly, oftentimes unintentionally, and in more subtle ways.

Racial stereotypes are so deeply embedded in American society that not all individuals will recognize their behavior or the behavior of others' as discriminatory. This *hidden* discrimination exists on multiple levels of society including within housing, criminal justice, and

labor market sectors, and within the education system (Blank, Dabady, & Citro, 2004). Aversive racism, the term for this newer *hidden* form of racism, is a type of prejudice characterizing thoughts and behaviors of well-intentioned and seemingly non-prejudiced individuals but no doubt has a psychological impact on those afflicted (Pearson et al., 2009). In their discussion of aversive racism, Dovidio, Gaertner, Kawakami, and Hodson (2002) have drawn upon the term microaggressions to refer to everyday discrimination experiences that are understated yet denigrating to people of color. These everyday snubs, insults, dismissive looks, tones and gestures are carried out unconsciously by members of majority groups who are unaware of the hidden messages being communicated in decision making and social interactions. The aversive framework has garnered significant support in research and policy settings demonstrating that contrary to blatant expressions of racism, such as hate crimes, subtle biases often go unrecognized and therefore, persist unchallenged over time. Minorities may be able to navigate through experiences of obvious racism more easily than when confronted with micro-aggressions that appear vague and elicit uncertainty, self-doubt, low self-esteem, and effect well-being (Solorzano, Ceja, & Yosso, 2000; USDHHS, 2000). Perceived race-ethnic discrimination, as measured in NESARC captures both obvious and more subtle forms of race-ethnic discrimination as it asks about experiences pertaining to accessing healthcare, obtaining employment, and being called a racist name or being physically assaulted (the measure is discussed in greater detail in Chapter IV: Methodology).

### **Discrimination as a stressor**

The literature on health disparities in the U.S. points to factors associated with race-ethnicity that effect health negatively for minorities. In other words, the social construction of race-ethnicity is a health burden, a disadvantage that leads to significantly worse health outcomes

for a whole gamut of issues including heart disease, obesity, hypertension, kidney disease, major depression, alcohol use and premature death (Williams & Mohammad, 2009; Krieger, et al., 2003). One critical area of interest that may explain racial disparities in health is racism and subsequent race-ethnic discrimination and the mechanisms by which discrimination adversely impacts health (Williams, 2004; Ahmed, Mohammed, & Williams, 2007). Racism leads to negative beliefs and attitudes (prejudice) towards racial groups deemed culturally inferior. Subsequently, these beliefs lead to differential treatment (discrimination) of individuals within these groups by those in dominant, majority groups.

The abundance of discrimination-stress literature provides an explanation for the deleterious impact of discrimination on health and mental health (Williams and Muhammad, 2009; Cohen, Janicki-Deverts & Miller, 2007; Pascoe & Smart-Richman, 2009). Discrimination can be understood as an acute and chronic, stressor (independent of stress due to other life circumstances) that individuals of minority groups experience. While this dissertation is not focused on discrimination as a stressor per se, it is important to understand a central mechanism by which stress impacts health outcomes. In turn, it will enable an understanding of how perceived race-ethnic discrimination exerts its effects on mental health and specifically, MDD and AUD. Furthermore, it will highlight the deleterious health and mental health consequences of perceived race-ethnic discrimination often not addressed within the political, research, and clinical arenas.

According to Epel et al., (2006) stress speeds up the aging of cells. Further, stressors within the environment can activate nervous system responses including the immune and cardiovascular systems. In simple language, heightened levels and prolonged activation of these systems can result in wear and tear on the body (McEwen, 1998) leading to premature illness and

mortality (Seeman et al., 2004). To understand this stress-health relationship more closely, a brief discussion of the impact of chronic stress will follow. Chronic stress leads to an increased level of cortisol in the body, an important regulating hormone (Miller, Chen, & Zhou, 2007). Elevated cortisol levels that remain in the body can lead to dysregulation of biological processes (Cohen, Kessler & Underwood, 1995). Studies have shown an association between sustained cortisol levels and diseases such as depression, heart disease, metabolic disease, and even schizophrenia (Nemeroff, 1996; Smith et al., 2005; Walker & Diforio, 1997). Further, allostatic load, a term denoting the wear and tear, or cost of increased hormone levels, (i.e. cortisol) in the body, can lead to obesity and cardiovascular disease – thus, providing a link to mortality (Schulkin, McEwen, & Gold, 1994).

In some detail, stress affects health in two other ways (Cohen, Kessler & Underwood, 1995). First, stress heightens emotional states leading to mental health distress and in turn, negative health outcomes. Second, there is evidence that lifestyle choices or negative health behaviors and coping mechanisms (such as smoking, over-eating, and excessive drinking) lead to negative health outcomes (USDHHS, 2004; CDC, 2008). Often, in tandem, healthy behaviors are ignored or decreased (exercise, appropriate sleep). Negative lifestyle choices are associated with increased mortality. For example, excessive alcohol use is the third leading lifestyle-related cause of death in the US (CDC, 2006) and is associated with illness (i.e. liver disease). It is also associated with poor judgment, decreased reaction time and other abnormal functioning that in itself leads to accidental death (i.e. motor vehicle-related, drowning) (Smith, Branas, & Miller, 1999).

While most individuals who experience stressful situations (including discrimination) do not experience long-term physical or mental health consequences, there are those who do. For



example, it is estimated that 20-25% of individuals who experience stress develop depression or substance use issues (Cohen, Janicki-Deverts, & Miller, 2007). Given that some individuals do not experience negative effects of adversity but others do, indicates that when considering the relationship between discrimination and mental health outcomes, certain characteristics of the discrimination experience or certain characteristics unique to the individual may prolong or exacerbate the negative impact of discrimination. It is important to examine these dimensions. Thus, the resilience framework is useful and enables an examination of potential risk and protective factors that exacerbate or buffer the discrimination experience among minorities.

### **Mental health impact of discrimination across race-ethnic groups**

Historically, race-ethnic minorities have been subjected to institutional and interpersonal discrimination. Extant literature clearly demonstrates a positive association between discrimination and physical and mental health outcomes in which minorities, both US-born and immigrant, are at risk (Williams & Mohammad, 2009; Pascoe & Smart-Richman, 2009). Studies have shown positive associations between discrimination and various chronic health problems including mental health (Gee et al., 2007a), cigarette smoking (Borrell, Jacobs, Williams, Pletcher, Houston, 2007) and increased blood pressure and cardiovascular disease (Smart-Richman, Pek, Pascoe, & Bauer, 2010; Harris et al., 2006). Studies have been conducted using national and community-based samples within and outside of the United States elucidating the relationship between discrimination and mental health outcomes among African Americans (McLaughlin, Hatzenbuehler, & Keyes, 2010; Banks, Kohn-Wood, & Spencer, 2006; Williams et al., 2003; Williams & Williams-Morris, 2000; Klonoff, Landrine, & Ullman, 1999), Asian Americans (Spencer, Chen, Gee, Fabian, & Takeuchi, 2010; Gee, Ro, Shariff- Marco, & Chae, 2009; Hwang & Goto, 2008; Noh, Beiser, Kaspar, Hou, & Rummens, 1999), Hispanic

individuals (McLaughlin, et al., 2010; Araújo, & Borrell, 2006), Native Americans (USDHHS, 2000) and immigrants (Tran, Lee, & Burgess, 2010). More specifically, MDD (Banks et al., 2006; Gee et al., 2009; Hwang & Goto, 2008) and AUD or excessive drinking (Tran et al., 2010; Chae et al., 2008; Borrell et al., 2006) are two outcomes which have lasting and pervasive consequences that impact quality of life among these at risk individuals.

Historically, African Americans have been exposed to the most severe forms of discrimination which have had significant and lasting affects across generations. As a consequence, African Americans tend to report higher levels of discrimination based on race compared to other race-ethnic groups (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006; Kessler, Mickelson, & Williams, 1999; Thompson, 2002). For example, Kessler et al., (1999) found that 89.7% of African Americans attribute discrimination to race-ethnicity. Further, studies show that African Americans report higher levels of discrimination at every level of age, gender, education, and income (Forman et al., 1997) compared to other groups. More recently, Borrell and colleagues (2006) found that an alarming 75% African Americans in their study reported perceived discrimination. Their hypothesis that perceived racial discrimination would be associated with worse physical and mental health in both men and women was confirmed even when controlling for age, education, and income. Consistent with previous studies on mental health, depressive symptoms among those who had experienced discrimination were greater among women than men (Borrell et al. 2006; Finch, Kolody, & Vega, 2000; Gee, 2002).

Increasingly, health outcomes have been studied and worth a brief mention to explain the pervasive impact of discrimination on individuals' trajectories. In particular, the relationship between discrimination and blood pressure has been examined among African American adults. While findings have been inconsistent, most studies show a positive relationship between

discrimination and high blood pressure (Williams & Neighbors, 2001; Brondolo, Rieppi, Kelly, Gerin, 2003). Likewise, the Black Women's Health Study Cozier et al., (2006) found a positive association between discrimination and blood pressure among immigrant women.

Although the impact of discrimination on mental health has been profound within the African American community and it is extremely important to continue researching, attention must be broadened to other race-ethnic groups who also hold minority status. In the United States, race-ethnic discrimination is ubiquitous and subsequently, all ethnic minority groups in the U.S. are exposed to some form of discrimination based on their race-ethnic identification (Gee, 2002; Williams et al., 2003; Klonoff, Landrine, and Ullman, 1999; Jones, 1997). However, less is known about the impact of race-ethnic discrimination on other race-ethnic minorities (USDHHS, 2001; Williams, et al., 2003). Further, current research on race-ethnic discrimination often compares African Americans to White individuals while failing to make comparisons with other race-ethnic groups (Williams et al., 2003; Williams & Williams-Morris, 2000). A study by Gee and colleagues (2007a) found that discrimination was a more consistent and stronger predictor of mental illness than acculturative stress. Moreover, the most direct way to mortality is through hate crimes resulting from prejudice and discrimination (Gee et al., 2009). Recent political backlash against illegal Latino immigration and growing economic competition between the U.S. and Asian countries make it essential to examine the impact of discrimination among these minority groups (Lopez, Morin, & Taylor, 2010). Previous research on discrimination often compares minorities to White individuals who hold majority status (Hwang & Gotto, 2008). It is critical to draw comparisons across groups who hold minority status in order to further elucidate upon the far-reaching effects of discrimination.

Despite the tremendous within-group heterogeneity of minority groups, such as Hispanic and Asian Americans, because of cultural, historical, immigration, and demographic differences, race-ethnic minorities in the United States share important factors that make comparisons across these diverse groups meaningful. First, people of color are visible minorities and therefore, they cannot hide their minority status. Second, many members of minority groups specifically those from Hispanic and Asian cultures are collectivistic and thus, may have similar responses to discrimination (Hwang and Gotto, 2008). Collectivistic cultures that highlight intergroup harmony and interdependence may be more sensitive to discrimination and therefore, experience negative outcomes more severely. Third, Hispanic and Asian cultures in particular, represent a large number of immigrants in the United States and thus, may become targets of xenophobia (Hwang & Gotto, 2008) especially given the current vacillating and contentious views on immigration the U.S. While many studies often conclude that immigrants experience a health advantage over their US-born counterparts, it appears to decrease over time (Breslau & Chang, 2006). This trend may be attributed to exposure to discrimination (Takeuchi, Uehara, Maramba, 1999).

It is not a simple task to examine discrimination among ethnically diverse minorities in the United States given the heterogeneity that exists relating to race, ethnicity, immigration history, and status. Race-ethnic categories no longer have to do with a simple dichotomy of Black and White, which have been used in the past to categorize individuals in the United States. For example, in the 2000 U.S. Census (U.S. Census, 2003) 47% Hispanic individuals identified themselves as *Other* – not White Hispanic or Black Hispanic. Consequently, some minority groups may classify themselves differently than those purported by typical U.S. racial classifications making it more challenging to capture discrimination. Nonetheless, some studies

have been conducted that demonstrate the deleterious effects of race-ethnic discrimination for minorities by using measures that at least identify race-ethnic discrimination as a particular type of discrimination and enable participants to choose broader ethnically-based categories.

The National Survey of Latinos (2002) found that 83% of Hispanic individuals reported experiencing discrimination. 41% reported receiving poor treatment in stores and restaurants while 30% reported being called names. Further, 14% reported not being hired or promoted because of racial or cultural discrimination. Similarly, research has consistently shown that discrimination is associated with psychological distress and increased symptoms of depression (Moradi & Risco, 2006; Hwang & Gotto, 2008) Using the Experiences of Discrimination scale, Stuber, Galea, Ahern, Blaney, and Fuller (2003) conducted phone interviews with 382 Hispanic individuals and found that those who experienced discrimination were more likely to report poor overall mental health. In a comparative study, Hispanic women who identified as Black experienced more depressive symptoms than African American and Latino men (Ramos, Jaccard, & Guilamo-Ramos, 2003). Some studies have explored within-group outcomes. For example, skin color, in particular darker skin tones, led to more discrimination experiences (Hall, 2002; Ramos, et al., 2003). Cultural factors, such as language acquisition, have been shown to be a discriminatory factor among Hispanic individuals as well (Mason, 2004).

According to the National Latino Asian American Study (NLASS) 64.4% of Asian Americans experience race-ethnic discrimination. Even though race-ethnic discrimination was measured with a relatively limited instrument that incorporated only three items, this is a compelling finding given that the sample was nationally representative (Chae et al., 2008). Asian Americans experienced decreased psychological well-being and distress as a result of discrimination (Lee, 2003; Yoo & Lee, 2005). The burgeoning literature has shown that Asian

Americans experience more subtle forms of discrimination like micro-aggressions (Sue, Bucceri, Lin, Nadal, & Torino, 2007a). Moreover, the notion that Asian Americans are a model minority (doing 'so well' compared to others that they require little intervention) further enhances distancing, stereotyping, maltreatment, or neglect in providing treatment among a population where it is needed (Hwang & Gotto, 2008). The model minority view began in 1996, when an article in the NY Times portrayed Asian Americans as having successfully assimilated into U.S. society and overcome barriers others minorities face. While this stereotype may appear to be positive it masks the challenges many Asian Americans endure including language acquisition, access to resources, socio-economic challenges, and in particular, discrimination (Kagawa-Singer, 2000). In fact, the National Latino and Asian American Study (NLASS) showed that an alarming 74% of Asian Americans experience every day, unfair treatment due to their ethnicity across their lifetime (Sue et al., 2007a).

Hwang and Goto (2008) in an attempt to bridge the gap in knowledge among Asians and Latinos, conducted a study among college students examining the impact of perceived race-ethnic discrimination on various mental health outcomes including depressive symptoms. Results showed that higher discrimination scores were significantly associated with higher psychological distress. Moreover, students who experienced discrimination were 1.62 times at greater risk for depressive symptoms. A compelling finding was that perceived discrimination was associated with increased risk for suicide ideation among Asian and Latino college students. Further, among those who experienced discrimination, college-age women were over three times more likely to experience clinical depression than their male counterparts. While the authors found no differences across ethnic groups in terms of risk for psychological distress, they did find that

younger students were at higher risk for distress. The study demonstrates that there are major and deleterious consequences for minority college students who experience discrimination.

### **Discrimination and Immigrant Status**

The American Community Survey (ACS) data in 2010, showed that immigrants make up 13% of the total population (U.S. Census Bureau, 2012). Recent estimates suggest that immigrants may account for a major majority of the population by 2050 (Tran, Lee, & Burgess, 2010). Individuals from Latin American make up the largest immigrant group in the U.S. accounting for about half of the immigrant population (53%) followed by Asian immigrants who make up about 28% (U.S. Census Bureau, 2012). Few studies have compared immigrants and US-born individuals in terms of experiences of discrimination. Finch, Kolody, and Vega (2000) found that more acculturated Mexican immigrants reported higher levels of discrimination than their US-born Mexican counterparts. However, a study conducted by Kuo (1995) found the opposite in which individual born in the United States reported higher frequency of discrimination.

Some research suggests that immigrants may experience a health disadvantage due to the acculturation process and in fact, as time spent in the U.S. increases, the number of negative health issues increase (Marin & Posner, 1995; Zamboanga, Raffaelli, & Horton, 2006). While there are many hypotheses as to why this relationship exists (e.g. acculturative stress, see Salgado de Snyder, 1987), discrimination has been shown to be a leading factor attributable to negative health outcomes (Szaflarski, Cubbins, & Yin, 2010; Williams & Mohammad, 2009; Hwang & Gotto, 2008).

The burgeoning immigrant population, considerable cultural and demographic diversity, and unique needs of immigrants as they acculturate within the host environment provide important

impetus to examine the ways in which immigrants are effected by discrimination. In particular, it is crucial to examine cultural-social factors that may enhance or exacerbate the experiences of discrimination.

### **Immigrant status and negative alcohol behaviors.**

The significance and risk for substance use are pertinent public health issues for minority immigrants, however, associations between discrimination and substance use (in particular, AUD) has not garnered significant attention among immigrant populations (Williams et al., 2003). While extant research shows that some immigrant groups have less risk of alcohol-related disorders than their US-born counterparts (Szaflarski, Cubbins, & Yin, 2010; Brown, Council, Penne, & Gfroerer, 2005; Grant et al., 2004c) other immigrant groups do experience issues with binge drinking and AUD. Research has shown that alcohol retailers are more prevalent in communities with higher proportions of immigrants (Alaniz, 1998) demonstrating that these populations are targets for alcohol consumption. Several immigrant-related factors can be attributed to alcohol use such as acculturation, length of stay in the U.S. and reason for immigration (Breslau et al., 2007; Gfroerer & Tan, 2003). Notably, discrimination, as it contributes to increased stress due to minority status, may also explain greater risk of substance use in minority immigrant populations (Williams et al., 2003; Gee, Spencer, Chen, & Takeuchi, 2007c; Jones, 2000; Kessler, et al., 1999). Because discrimination is present among so many domains of life, immigrants are often faced with coping with its effects. Thus, turning to alcohol may be a common coping mechanism for immigrants who must contend with discrimination.

Tran, Lee, and Burgess (2010) conducted a secondary analysis using county data in Minnesota to examine the associations between discrimination and substance use behaviors among 1, 387 African-born Black, Southeast Asian, and Hispanic immigrants. Their diverse



sample underscores the ever-changing race-ethnic composition in the U.S. and sheds light on how discrimination influences various populations. They used Krieger's (2005) Experiences of Discrimination scale also utilized in NESARC and found that 30% of immigrants in the whole sample perceived discrimination in the past year. Over 80% of the sample reported experiencing past-year discrimination due to race-ethnicity. Hispanic immigrants reported the most past-year discrimination (35.2%) followed by Southeast Asians (33%) and African-born Blacks (23.4%). Individuals cited "race, color, ethnicity, and country of origin" as the reason for being discriminated against (Tran et al., 2010, p. 230). Moreover, discrimination was significantly and positively related to the number of days participants drank in the past month as well as recent binge drinking.

African-born black individuals reported the fewest days of binge drinking compared to their Southeast Asian and Hispanic counterparts. Perhaps this finding is due to cultural factors such as religion. Many immigrants from African countries are Muslim (Association of Religious Data Archives, 2008) and it may be culturally frowned upon to drink or many may maintain abstinence based on religious beliefs. While African-born Blacks reported less frequent drinking, discrimination was still positively and significantly associated with the number of drinking days. This finding importantly suggests that discrimination has a negative impact on alcohol behaviors, and further, factors related to post-migration (e.g. discrimination) may amplify the risk for alcohol use even among individuals where drinking is not condoned.

#### **Immigrant status and mental health outcomes.**

Contrary to what may be expected given the stressors of acculturation, several studies since the 1980's have demonstrated that immigrants fare better in terms of psychiatric outcomes than their US-born counterparts (Grant et al., 2004c; Alegria et al., 2008; Breslau & Chang,

2006). This apparent paradox has led researchers to believe that something within the environment in the U.S. may be to blame for these conclusion and further, cultural characteristics, values, and/or customs have served as protective mechanisms against potential environmental onslaughts (Scribner, 1996; Breslau & Chang, 2006; Vega et al., 2004; Koya & Egede, 2007). Analyzing NESARC data, Grant et al., (2004c) found that Mexican immigrants were at lower risk for depression, anxiety, and substance use compared to US-born Mexicans. Furthermore, US-born Mexicans were at significantly lower risk than their US-born counterparts. This latter finding points to potential cultural factors at work in mitigating risk of mental health disorders and as the authors posit, further exploration is needed.

Breslau and colleagues (2008) using NESARC as well, delved into the paradox more closely to determine that the health advantage does not exist for all immigrant groups. Hispanic immigrants from Puerto Rico and non-Hispanic Whites from Western Europe had similarly high levels of risk as their US-born counterparts. Moreover, the lower risk for psychiatric disorders among immigrants who arrived to the U.S. at the age of 13 years of older held true but not for immigrants who arrived prior to the age of 13 years. It appears that children who immigrate to the United States early on in their development have similar risk profiles to US-born individuals of similar race-ethnicity. Perhaps, cultural characteristics ingrained in older immigrants serve as protective mechanisms against acculturation and discrimination where as children who come to the US at a very young age are socialized in the US and thus, succumb to similar environmental stressors as their US-born counterparts. The importance of determining potential risk and protective cultural factors is paramount in light of these results.

### **Discrimination and Socio-demographic Factors**

Race-ethnic discrimination and several socio-demographic factors including gender, age, socio-economic status, and educational attainment have unique associations among minorities indicating that individual characteristics are important considerations when examining the negative sequelae of discrimination. Although few, findings from studies that examine these factors have major implications as they show the complexity involved in capturing all the factors that interplay with discrimination.

Studies involving discrimination and socio-economic status (SES) and educational attainment are inconsistent. A few studies have shown a positive relationship between perceived discrimination and income and educational attainment (Allen, Telles, & Hunter, 2000; Espino & Franz, 2002). Allen and colleagues (2000) observed that Mexican individuals with lighter skin earned \$69 more per level of lightness than darker skinned Mexicans. Using secondary data with a large sample ( $n = 1722$ ) Borrell and colleagues (2006) found that income moderated the relationship between mental health outcomes and discrimination among women. Women with low income experienced lower mean scores in the mental health indicator associated with discrimination than women with high income. Perhaps this indicates that women who have higher incomes have more social and material resources to cope with discrimination and in fact, buffer the negative mental health effects of discrimination. Similarly, a review by Paradies (2006) suggests that discrimination may be more impactful for individuals in lower socio-economic brackets because other stressors are at play. On the other hand, social factors such as SES can effect the relationship between discrimination and mental health due to the perceived threat to individuals' status thus, providing an explanation as to why higher income individuals perceive more discrimination as some studies suggest (Jackson, Kubzansky, & Wright, 2006).

Broman, Mavaddat, and Hsu (2000) conducted a study using survey data of 312 African American adults to understand more about discriminatory experiences and personal outcomes such as mastery and psychological distress. Contrary to the aforementioned studies, they found that more highly educated individuals perceived more discrimination than those with less education. Not surprisingly, they also found that Blacks who had low income levels were more susceptible to job discrimination.

It is evident that discrimination has deleterious effects not just in terms of mental health but also in the ability to earn fair wages and to be hired or promoted. These alarming results underscore the urgent need for further research and attention given to the detrimental impact of discrimination on life opportunities that are driven by economic and educational attainment.

Despite being correlated with discrimination and mental health outcomes, respectively, little attention has been given to gender as a moderator. Instead, gender is often looked at as a covariate rather than a variable of interest that may shed light on experiences of discrimination among minority men and women. Previous literature has uncovered four important factors relating to gender and discrimination. First, men reported experiencing discrimination more frequently than women (Kessler et al., 1999; Sellers & Shelton, 2003). Given gender stereotypes that view men as more threatening, this is not surprising (Carter, 2007). Second, gender influences individuals' appraisals of discrimination and ways of coping with it (Miller & Kaiser, 2001; Rusting & Nolen-Hoeksema). Third, gender has found to be a correlate of mental health problems. Accordingly, USDHHS (1999) suggests that women report higher levels of distress and depression than men. Further, African American women experience higher levels of mental health problems than men (Jackson et al., 2006). Fourth, research has found a stronger positive relationship between discrimination and mental health among women compared to men (Kessler

et al., 1999). Given the literature demonstrating the relationship between discrimination and mental health outcomes, it is important to look at the intersectionality between discrimination and other variables such as race-ethnicity, immigrant status, and gender.

Consequently, Banks, Kohn-wood, and Spencer (2006) took a closer look at gender differences in the mental health effects of daily discrimination among African Americans using the 1995 Detroit Area Study (DAS) data. Results were consistent with previous research showing that men experienced more discrimination than their female counterparts. While women reported more anxiety there were no gender differences with depression which is not in keeping with previous literature where women have reported experiencing more depression than men (Kessler et al., 1994). However, in keeping with previous findings, discrimination was associated with depression for both men and women (Kessler et al., 1999; Noh, Morton, Kaspar, Hou, & Rummens, 1999). Importantly, Banks and colleagues found that gender moderated the relationship between discrimination and anxiety although not for discrimination and depression. African American women who experienced discrimination were more likely to experience anxiety compared to men. The authors concluded that the moderating effect of gender on the association between discrimination and mental health may vary among African Americans but considering gender is an integral component when examine how discrimination may be related to mental health outcomes.

### **Chapter II.III. Culture and Minorities**

Central to any examination of minority populations is an understanding of culture. Culture can be broadly defined as a dynamic and fluid concept that embodies group values, norms, experiences, histories, as well as individual originality and experiences (López & Guarnaccia, 2000). Culture may provide individuals and communities with a unique identity that

enhances their sense of self, overall well-being, as well as group cohesion. A considerable body of evidence supports connections between mental health disorders and cultural factors among minority populations (McGuire, & Miranda, 2008; Takeuchi et al., 2007; Abe-Kim et al., 2007; Alegria et al., 2008; USDHHSb; 2001; Perron et al., 2009; ). Cultural factors play a role in the manifestation and severity of mental health problems (Williams et al., 2007; Riolo, et al., 2005; Abe-Kim et al., 2007; Alegria et al., 2008; Szaflarski, et al., 2010) and also influence when, where, and from whom members from minority groups seek help (Blanco et al., 2007; USDHHSb).

While the association between discrimination and mental health problems has been examined and found to be positive across racial and ethnic groups for both US-born and immigrant populations, little is known about the mechanisms by which this relationship may be attenuated (McLaughlin et al., 2010; Williams, et al., 2003; Hwang & Goto, 2008; Spencer Chen, Gee, Fabian, & Takeuchi, 2010). Cultural factors may play an important buffering or exacerbating role for minorities who experience discrimination. Chapter III: Conceptual Framework will explore what is known about cultural factors and discrimination among minorities.

### **CHAPTER III: CONCEPTUAL FRAMEWORK**

The resilience framework is oriented at a systems level, taking a dynamic view of the ways in which individuals-within-their-environment facilitate adaptation to adversity (Nelson, Adger, & Brown, 2007). Adapting to one's environment in which multiple adversities exist does not take place in a bubble and thus, often results in multi-level actions and the consideration of culture, experiences, histories, and available resources of individuals. The resilience framework focuses research and clinical prevention/intervention in order to examine and enhance the ways in which individuals overcome adversity and provides a conceptual way to uncover factors associated with enhancing success or exacerbating the risk of negative outcomes.

Resilience research has been conducted since the 1970s to examine the phenomenon of children faring well despite facing challenging circumstances within their environments. Earlier investigation pointed to the extraordinary capacity of some children to overcome unspeakable odds and resilient children were touted in both academic and social cultural circles as being "Super Kids" or "invincible" (Masten, 2001). However, over time as research methodologies and theories have improved, the notion of the "phenomenal" was replaced by the "ordinary" as Masten (2001) asserted. It has been found that for children whose adaptational systems are in check and functional, healthy development often occurs despite challenging circumstances and environments. On the contrary, when adaptational systems are challenged as a result of adversity, the risk of developmental issues is greater especially when the adversity is lasting (Masten, 2001). Thus, as discussed by Luthar and Cicchetti (2000), resilience can be defined as a dynamic process by which individuals exhibit positive adaptation despite experiences of adversity.

Resilience focuses on the strengths and resources available to individuals, a contrast to a risk-based-only approach from which it was initially developed (Garmezy, 1991).

While much of the research has been conducted among children and has been focused on the longitudinal development from childhood through adulthood, studies have also been conducted to examine resilience in adults after exposure to war, terrorism, and experiences of discrimination (Bonanno, 2004; Rubin, Brewin, Greenberg, Simpson, & Wessely, 2005; Schuster, & Stein, 2001; Lee, 2003, 2005). Evidence suggests that resilience does exist in adults just as it does in children and similarly, resilience is common (Bonanno, 2004). For example, a study conducted after the terrorist attack on 9-11 in the United States, Schuster and Stein (2001) found that only 7.5% of residents living in Manhattan had diagnosable clinical problems. Despite such horrifying violence, most adults demonstrated resilience.

Researchers attribute the differences in individual outcomes (doing well or struggling) in the context of adversity to the presence or absence of psychological, social, environmental, and/or material resources called protective factors. Protective factors may include traits within an individual (self-esteem, extroversion) and within their environment (presence of a mentor, safe neighborhood) that promote psychological, behavioral, emotional competence, and well-being and reduce poor adjustment and psychopathology (Luthar, Cicchetti, & Becker, 2000). Risk factors, on the other hand, exacerbate the negative effects of adversity (Luthar & Cicchetti, 2000). Further, the resilience model purports that individual and environmental factors may modify negative mental and physical health effects of adversities (Luthar, 2006). Specifically, protective factors may modify or buffer the effects of adversity in a positive direction. Research indicates that the presence of risk factors may lead to negative health and mental health outcomes (Luthar, 2006).



Perceived race-ethnic discrimination is often described as a major life stressor, which negatively impacts adjustment, well-being, and health of minorities (Williams & Muhammad, 2009). The dissertation study conceptualizes race-ethnic discrimination as an adversity drawing from the resilience framework. In characterizing race-ethnic discrimination as an adversity it enables an examination of the ways in which to overcome its detrimental effects – given that inherent in the definition of resilience is successful adaptation despite adversity. Therefore, the lens of resilience provides the hope of positive outcomes and the rationale to examine positive outcomes and determine why these outcomes have occurred despite the adversity. The effects of discrimination may be different for different individuals or cultural groups depending on personality characteristics, external resources and other factors. Further, an important note is that discrimination does not always lead to negative outcomes among individuals (Crocker & Major, 1989; Lee, 2005). In other words, some individuals are more resilient than others. Uncovering the protective and risk factors that may impact the discrimination-health relationship is an important area of research that has garnered increasing attention (Lee, 2005; Noh, Beiser, Kaspar, Hou & Rummens, 1999; Sellers & Shelton, 2003).

Culturally-related factors may influence the effects of race-ethnic discrimination in positive and negative ways. In fact, some researchers have indicated that minorities use cultural strengths to help buffer the effects of discrimination (Lopez et al., 2002; Sue & Constantine, 2003). The dissertation study will examine four cultural-social factors that are centered on the individual's cultural heritage (ethnic identity and social integration) and external environment (social support and stress) that potentially moderate the relationship between perceived race-ethnic discrimination and MDD and AUD, respectively, among US-born and immigrant minorities.

**Ethnic identity – a potential protective factor**

Ethnic identity can be defined as the importance of one's race-ethnic group to one's self concept (McCoy & Major, 2003) and involves a focus on how individual group members understand and interpret their own ethnicity (Phinney, 1996b). Ethnic identity may be defined further as an individual's acquisition and maintenance of culturally salient characteristics that are incorporated into one's self-concept that provide a sense of belonging (Phinney, 1990; Lee, 2003).

Individuals vary in the extent to which they identify with their ethnic group and value identification with it. Some individuals have strong positive emotional connections with their ethnic group whereas others distance themselves from their group. An important consideration explaining possible distancing is that for ethnic minorities, identity acceptance comes with an understanding that one may be identifying with a lower status group as well as acknowledgement of the presence of racism and discrimination (Phinney, 1996c). However, a strong ethnic identity has been shown to increase self-esteem, positive well-being, and a sense of community (Crocker, et al., 1994; Ethier, & Deaux, 1994; Lee & Davis, 2000; Phinney & Alipuria, 1996; Yip & Fuligni, 2002). Positive feelings and a sense of connection with one's race-ethnic group may compensate for the harsh daily hassles of discrimination minorities experience (Sellers and Shelton, 2003). In other words, despite experiences of discrimination, individuals may feel good about themselves due to a positive association with their race-ethnic group affiliation.

A burgeoning literature shows a complex relationship between discrimination and ethnic identity. While many studies show ethnic identity as a resilience factor among minorities who face discrimination (Cross, 1991; Phinney, 1990, 1996b; Chae et al., 2008; Sellers & Shelton, 2003; Neblett, Shelton, and Sellers, 2004; Umana-Taylor & Updegraff, 2007) there are some studies that have found inconsistencies or nuances that suggest further research (Noh, Beiser,

Kaspar, Hou, & Rummens, 1999; Lee, 2003). Further still, some studies have found no effect of ethnic identity on the relationship between discrimination and mental health (Pascoe & Smart-Richman, 2009).

Noh and colleagues (1999) examined the role of race-ethnic identity as a moderator of discrimination and mental health outcomes among Southeast Asian refugees in Canada. They found that high ethnic identity strengthened the relationship between discrimination and depression. However, among refugees with high ethnic identification who used a forbearing (versus confrontational) coping style, the stress-moderating effect of forbearance coping was increased. Refugees with low ethnic identity were more vulnerable in the face of discrimination.

More recently, Lee (2003) conducted a study with a sample of Asian American college students to test ethnic identity as a moderating variable. While the results did not support the hypothesis that ethnic identity attenuated the relationship between discrimination and well-being, there was a moderate correlation found between ethnic identity and well-being. Lee posits that ethnic identity, therefore, may function as an asset that contributes to well-being but does not, by itself, protect against discrimination. In a follow-up study also drawing from an Asian college sample, Lee (2005) examined the relationship between perceived discrimination and various factors of psychological well-being as well as to examine the potential moderating role of ethnic identity and other-group orientation. Ethnic identity was defined in three ways; ethnic clarity, ethnic pride, and behavioral engagement. While Lee reported that power was not great given the small sample size of the study ( $n = 84$ ), results supported one aspect of ethnic identity, ethnic pride, as moderating the relationship between discrimination and social connectedness among Korean American college students.

Neblett, Shelton, and Sellers (2004) examined the relationship between racial identity, daily racial hassles and psychological well-being among 188 African American college students. They found that racial identity had a buffering effect on daily hassles and subsequent depression, anxiety, and stress. In a landmark study using a nationally representative sample, Chae and colleagues (2008b) examined the relationship between unfair treatment, race-ethnic discrimination, history of AUD and ethnic identification among Asian Americans. Their results demonstrated that ethnic identification, measured with a four-item scale, had a protective effect among individuals who experienced discrimination. Among those who reported low levels of ethnic identification, race-ethnic discrimination was associated with greater odds of having a history of AUD compared to those reporting high levels of ethnic identification.

Sellers and Shelton (2003) found further evidence of support for race-ethnic identity as a protective factor of discrimination. Specifically, they conducted a longitudinal study of 439 African American college students in the Midwest to examine the moderating role of race-ethnic identity. They found that two aspects of race-ethnic identity, racial ideology (the meaning attributed to one's group) and public regard (extent to which respondents think that other groups feel positively about their race-ethnic group) protect individuals from negative psychological distress. Although, when race-ethnic identity was measured as a composite variable, it did not have a moderating effect. Interestingly, according to their findings it appears that it is not group identification alone but also the meaning individuals place on being associated with one's group that buffers discrimination.

### **Social support – a potential protective factor**

Social support denotes resources, both material and emotional, that are accessible to an individual from friends and family members (Moak & Agrawal, 2009). Many studies have examined the relationship between social support and health and mental health outcomes and

most conclude that high levels of social support predict better health and mental health. Studies have consistently shown that individuals with higher interpersonal support are less likely to experience depression (Paykel, 1994; Stansfeld, et al., 1997) have fewer physical symptoms (Glass & Maddox, 1992) and a reduced risk for cardiovascular disease (Lett et al., 2009).

Cohen and Wills (1985) have postulated a *buffering hypothesis* providing justification for this dissertation's use of social support as a moderating variable [a protective factor]. The buffering hypothesis suggests that for those experiencing high stress, social support is important in buffering the negative mental and physical health outcomes. On the other hand, their alternate hypothesis states that low levels of social support when exposed to significant stress, is harmful (Cohen & Willis, 1985). Congruent with these findings, Moak and Agrawal (2009) using NESARC data found significant associations between mental health outcomes and social support. For example, compared with those with high social support, individuals with low social support (i.e. little ability to access friends and/or family for material and/or emotional support), were noticeably more likely to report lifetime history of Major Depressive Disorder.

The buffering hypothesis has been tested to examine the potential protective effects of social support on discrimination and mental health outcomes. A review of the literature conducted by Pascoe and Smart-Richman (2009) found that overall, social support was beneficial in decreasing mental health effects of discrimination but at times the effect was present only under certain conditions. For example, a study found that if discrimination was low, high social support was a buffer but not otherwise (Clark, 2003). Gee et al., (2006a) conducted a study among 2,241 Filipino Americans to examine whether social support was a protective factor against physical and mental health problems and whether it moderated the discrimination-health relationship. They found partial support for their hypotheses. While emotional support was

significantly associated with fewer health issues, their moderation analysis of social support, discrimination, and health conditions was not significant. On the contrary, Noh and Kaspar (2003) found that among Korean immigrants in Canada, individuals who sought out social support after experiencing discrimination had lower levels of depressive symptoms than those who did not.

### **Stress – a potential risk factor**

Stress has been associated with negative health outcomes including MDD and AUD (Moore and Burrows, 1996; Kessler, et al., 1997; Dawson, Grant, & Ruan, 2005a; Dohrenwend, 2000). Further, stressful life events characterized as normative life processes (Pearlin, Menaghan, Morton, & Mullan, 1981) have been shown to elicit mental health issues for individuals who are biologically, socially, and psychologically vulnerable (Lazarus & Folkman, 1984; USDHHS, 1999). Individuals who experience race-ethnic discrimination may be characterized as being socially vulnerable.

While perceived discrimination can be conceptualized as a chronic, acute, or daily stressor (Williams & Mohammed, 2009; Williams, Neighbors, & Jackson, 2003) the experience of stressful events occurring in an individual's life may exacerbate both the perception of discrimination as well as the negative outcomes. A growing body of research suggests that race-ethnic discrimination can be a type of chronic stressor that can negatively affect health and mental health (Pascoe, & Smart-Richman, 2009; Williams et al., 2003; Williams & Mohammad, 2009). However, stress, measured by the number of stressful life events an individual experiences, and discrimination (as a stressor) are independent constructs (Klonoff & Landrine, 2000). Initial analysis in the dissertation demonstrated that the stress variable is not highly correlated with the perceived race-ethnic discrimination variable in NESARC [ $r(13614) = .20, p < 0.001$ ]. This finding provides justifications that stress is important to examine as a separate

and specific factor that may influence the discrimination experience and subsequent mental health outcomes.

Although sparse, research has shown that different ethnic groups may manage stressors differently. For example, the prevalence of depression among Black individuals has been shown to be less than White individuals in several epidemiological studies despite the significant stress Black individuals incur due to perceived discrimination (Hasin et al., 2005; Breslau, & Chang, 2006; Williams et al., 2007). While depression is lower among Blacks, significant literature has shown that physical health is worse as compared to Whites (Williams & Jackson, 2005). Several hypotheses have been put forth to explain this paradox which include different ways of coping with stress. While outside the scope of the current study, an important note is that individuals across ethnic groups experience and manage stress differently and the ways and intensity in which stress is experienced and managed may in fact, be deleterious to physical health (e.g. drinking/smoking) while protecting individual from mental health consequence (e.g. depression) at least in the immediate time frame (Jackson, Knight, & Rafferty, 2009).

The minority stress model (Meyer, 2003, 2007) expands upon the stress model of Lazarus and Folkman (1984) to include cultural factors such as discrimination that influence the nature and frequency of stressful life events and in turn, influence physical and mental health outcomes. Race-ethnic minorities are at a dual disadvantage given their experiences with daily stressors that all individuals experience along with stressors due to their minority status such as perceived discrimination. Researchers have shown that this dual stress puts minorities at increased risk for health and mental health problems (Harrell, 2003; Flores et al., 2008). Flores and colleagues (2008) found that among Mexican Americans, perceived discrimination along with general stress increased their risk of depression. This cumulative exposure to stressors was indeed harmful.

There is some evidence supporting stress as a mediator of discrimination and mental health outcomes (Neblett, Shelton, & Sellers, 2004); Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003). However, from the current review of the literature, nothing is known about the potential moderating role of stress. Given what is known about the harmful consequences of stress and the understanding of stress proliferation (the cumulative onslaught of stressors) (Pearlin et al., 1981) it is critical to examine the potentially salient impact of stressful life events in the presence of discrimination among minority populations.

### **Social integration – a potential risk factor**

Social integration, an individual's linguistic preference and ethnic homophily (defined as the [social] preference for interactions within one's own ethnic group) (Keyes et al., 2011), is an important cultural domain that may influence discrimination experiences. An individual's level of social integration may serve as a protective or risk factor in the presence of discrimination. In this dissertation, high social integration with one's ethnic group versus other ethnic groups is hypothesized to be a risk factor for increased odds of MDD and AUD.

While there is a dearth of research on social integration, the clearest pattern of findings suggest that high levels of intergroup linguistic and social preferences predict lower service utilization for mood and anxiety disorders among Hispanic individuals (Keyes et al., 2011). Further, the ability to socialize with members from other ethnic groups may influence the negative impact of discrimination (Phinney, 2003). For example, broadening social networks to those beyond one's culture of origin may expand access to resources and emotional support. It is clear based on the dearth of information that more exploration is needed.

In conclusion, a theoretical framework is needed to understand mechanisms involved in the discrimination-health relationship (Pascoe & Smart-Richman, 2009). The dissertation study provides a useful lens from which to examine this relationship by drawing upon and expanding



the resilience framework to incorporate adults from minority backgrounds. The premise of the resilience framework is that individuals succeed despite adversity, thus, it is vital to ask the question, *why?* An exploration as to *why* some minorities fare better in terms of the discrimination-health relationship has been undertaken in this dissertation study by examining the associations between the four cultural-social factors. First, the study elucidated the relationship between these variables and the two mental health disorders. Second, the study sought to determine potential risk and protective functioning of the cultural-social factor variables in the discrimination-mental health relationship.

#### **CHAPTER IV: METHODOLOGY**

This dissertation is a secondary analysis of data from Wave II of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) (Grant & Dawson, 2006). Wave II data (2004-2005) was used to examine the association between past year race-ethnic discrimination, MDD and AUD, and the protective or risk role of four cultural and social factors among minorities in the United States.

A significant strength of the dissertation lending to its contribution to the discrimination literature comes from use of the NESARC dataset. Contrary to most studies of discrimination that have utilized community samples in specific regions of the country (Hwang & Gotto, 2008; Banks et al., 2006; Klonoff, Landrine, & Ullman, 1999), the dissertation sample included a randomized national sample of minorities not only increasing sample size but ensuring a representative sample of both US-born and immigrant minority populations.

Likewise, methodological considerations such as the use of the DSM-IV diagnostic instrument AUDADIS-IV in NESARC yielded results that ruled out potential biases that often stem from self-reports of mental health status such as social desirability (Tran, Lee, & Burgess,

2009) and in addition, it allowed for the examination of two psychiatric disorders, MDD and AUD. Moreover, the discrimination scale used in NESARC, Experiences of Discrimination (Krieger et al., 2005) captured perceived race-ethnic discrimination specifically. On the contrary, many other studies utilized measures in which discrimination was not identified in terms of the *type* of discrimination experienced but rather a vague construct of “general” discriminatory experiences (Banks, et al., 2006). The use of the EOD scale allows for an understanding of how race-ethnic discrimination in particular, is associated with mental health outcomes. A note of caution, however, is while NESARC distinguishes race-ethnic discrimination as a specific type of discrimination, it does not make the distinction between the two categories of race and ethnicity. When examining the impact of discrimination on minorities, this is an important consideration in order to capture outcomes based on *either* race or ethnic discrimination. For example, Hispanic individuals have experienced discrimination based on their ethnicity (accent; language) but also based on their race (i.e. skin tone; facial features) (Allen, Tellis, & Hunter, 2000; National Survey of Latinos, 2004; Espino & Franz, 2002). To fully understand the discrimination experienced by minorities, the methods and measures should be expanded to include items that measure racial, ethnic discrimination and discrimination based on immigrant status and acculturation levels.

Landrine and colleagues (2006) reviewed the discrimination literature and found that a majority of the studies looked at the presence or absence of global discrimination experiences with only a few dichotomous items (Gee, 2002; Jackson et al., 1996; Karlson & Nazroo, 2002). By using only a few dichotomous items, the variance in the construct of discrimination that is measured may not be captured therefore, reducing the strength of the discrimination-outcome relationship (Landrine & Klonoff, 2000). While the dissertation study created a dichotomous

predictor variable it was based upon the Experiences of Discrimination measure with several items assessing perceived race-ethnic discrimination experiences enabling a more accurate measurement of discrimination (see below for more details).

#### **IV.I. NESARC Design**

The target population surveyed represents the civilian, noninstitutionalized adult population (18 and older) in the United States. It includes people living in households, military personnel living off base, and those living in group quarters such as boarding homes, shelters, group homes, and college quarters. According to Ruan et al., (2008), Wave I response rates were 81%, and 86.7% for Wave II, yielding adequate representation and meaningful interpretation of the data (O'Rourke, 1999). Black and Hispanic individuals were oversampled at the design phase of the survey in order to increase the representation of Black households from 12.3 percent to 19.1 percent and the representation of Hispanic households from 12.5 percent to 19.3 percent. NESARC also oversampled young adults ages 18–24 at the household level at a rate of 2.25 to 1 (Grant et al., 2003b). Oversampling of these populations generated enough minority respondents to enable sufficient analysis and to address important issues relating to race-ethnicity and disparities in alcohol and drug use disorders, mental health disorders, comorbidity, and service utilization (Grant & Dawson, 2006). Because of the complex multistage sampling design, the NESARC sample was weighted to adjust for non-response at the household and person levels, the selection of one person per household, and oversampling of young adults, Hispanics, and Blacks. The data was then adjusted to be representative of the U.S. population for various sociodemographic variables, including region, age, sex, race and ethnicity.

The NESARC sampling frame included households and non-institutionalized group quarters (listed above). The sampling frame for the housing units portion of the sample was taken

from the Census Supplementary Survey (C2SS). This national survey conducted by the Bureau of the Census surveyed approximately 78,000 household surveys per month in 2000-2001 (Grant, et al., 2003b). The Census 2000 Group Quarters Inventory made up the sampling frame for the group quarters sample in NESARC.

A multistage stratified sampling design in which primary sampling units (PSUs) were stratified according to socio-demographic criteria was used to obtain the NESARC data (Chen et al., 2006). PSUs (also called clusters) are comprehensive, mutually exclusive categories containing all individuals of interest, and make up the first stage of a multistage sampling design (Grant & Dawson, 2006). The NESARC sampling design was based on the design of C2SS, which included about 2,000 PSUs representing all 3,142 counties and county-equivalents in the United States (Grant & Dawson, 2006). For the first stage of NESARC's sampling design, 655 PSUs were selected, which included 401 self-representing and 254 non-self-representing PSUs. Self-representing (SR) is a term used to describe PSUs that are selected with certainty into the sample, usually because of their large size. On the contrary, non-self-representing (NSR) refers to PSUs that are randomly selected or selected with a particular known probability other than certainty for inclusion into a sample. According to Grant and Dawson (2006) all SR PSUs within NESARC were selected with certainty because of their population of 25,000 or more in 1996; for the NSR sample, two PSUs were selected per stratum, with probability proportional to the size of the estimated 1996 population of the stratum. To protect respondent identification, the 401 SR and 254 NSR PSUs were collapsed into 305 SR and 130 NSR PSUs (Grant & Dawson, 2006).

At the second stage of sampling, housing units and group quarter units were systematically sampled within the PSUs (Chen et al., 2006). Non-Hispanic Black and Hispanic housing units were selected at higher rates than other housing units. At the third and final stage,

within each household, one person was selected randomly from a list of people living in the household. For group quarters, respondents were selected based upon the position of their name on the list obtained by interviewers (Chen et al., 2006). Young adults ages 18–24 were sampled at a rate of 2.25 times that of other members of the household. More details about the NESARC sampling design and methodology can be found in “Source and Accuracy Statement for Wave 1 of the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions” (Grant et al., 2003b).

#### **IV.II. Dissertation Sample**

The overall sample size of Wave II NESARC data from which the dissertation sample was drawn from is 34,653 (Grant & Dawson, 2006). The sample for the dissertation included Black, Hispanic, and Asian respondents, both US-born ( $n = 9,479$ ) and immigrants ( $n = 4,435$ ). Thus, the total sample included 13,914 respondents. 1,148 minorities have MDD and 1,063 have AUD. 2,643 minorities in the dissertation sample experienced past-year race-ethnic discrimination. Please see Table 3 in Chapter V: Results, for further information on the dissertation study sample.

#### **IV.III. Data Collection Measures**

Measures used in NESARC were standardized, rigorous and designed for experienced lay interviewers (Grant, Dawson, & Hasin, 2001). The measures used in this dissertation are described below including descriptions about how the variables are coded for the dissertation study analyses.

#### **Alcohol Use Disorder and Associated Disability Interview Schedule-DSM-IV**

A unique feature of NESARC is that used the Alcohol Use Disorder and Associated Disability Interview Schedule-DSM-IV Version (AUDADIS-IV), a semi-structured diagnostic interview schedule that classifies mental health and substance use diagnoses according to DSM-IV symptom criteria. Psychological disorders included major depressive disorder, dysthymia, mania and hypomania, panic disorders, social phobia (with or without agoraphobia), specific phobia, generalized anxiety disorder, post-traumatic stress disorder, and seven personality disorders. Ten classes of drugs were assessed including sedatives, tranquilizers, opiates, stimulants, hallucinogens, cannabis, cocaine or crack cocaine, inhalants or solvents, heroine, and misuse of prescription drugs (Grant & Dawson, 2006). All diagnoses ruled out substance-induced disorders and those due to general medical conditions. The diagnosis for major depression ruled out bereavement, following the DSM-IV (American Psychiatric Association [APA], 2000).

The AUDADIS-IV has been utilized in other major surveys within the United States (Grant, Harford, Dawson, Chou, & Pickering, 1995). The reliability and validity of the AUDADIS-IV has been documented among diverse populations within the U.S. (Canino et al., 1999; Grant et al., 2003a) and world-wide (Chatterji et al., 1997; Vraști et al., 1998) among both clinical (Hasin, Carpenter, McCloud, Smith, & Grant, 1997) and general populations (Grant & Dawson, 2006). Ruan et al. (2008) found that the AUDADIS-IV demonstrated good test-retest and internal consistency reliability for several risk factor measures including acculturation and race-ethnic orientation, discrimination, stressful life events, perceived stress, and interpersonal support and social networks.

The reliability and validity of the alcohol and drug diagnoses are discussed in many studies using clinical and general populations (Grant et al., 2003a; Grant et al., 1995) as well as

world-wide (Chatterji et al., 1997). The reliability for the alcohol consumption measure of both usual and largest quantity and overall frequency of drinking were found to be good (Inter-Correlation Coefficient [ICC] = .69) to excellent (ICC = .84) for both past year and heaviest lifetime drinking time periods (Grant et al., 2003b). ICC coefficients for the frequency of drinking five or more drinks were good (.69) for past year and fair for period of heaviest drinking (.47) (Grant et al., 2003a). Reliability coefficients obtained from general population samples within the United States for DSM-IV mood disorders is good (Kappa = .58-.65) (Ruan et al., 2008). The reliability of DSM-IV Axis I disorders can be examined in Table 2 (Grant et al., 2003a).

Table 2: Reliability of DSM-IV axis I disorders for past year and lifetime frames

Diagnosis	Past year	Lifetime
	Kappa (S.E.)	Kappa (S.E.)
Alcohol abuse & dependence	0.07 (0.09)	0.70 (0.06)
Tobacco dependence	0.63 (0.06)	0.60 (0.06)
Major depression	0.59 (0.14)	0.65 (0.10)
Dysthymia	-	0.58 (0.09)
Panic disorder	0.52 (0.18)	0.42 (0.14)
Social phobia	0.44 (0.09)	0.46 (0.09)
Specific phobia	0.40 (0.16)	0.48 (0.14)
Generalized anxiety disorder	0.41 (0.13)	0.42 (0.09)

*Adapted from Grant et al., (2003a)*

The following information on drug use reliabilities was reported in Grant et al., (1995). The AUDADIS IV demonstrated good to excellent reliability for major alcohol consumption measures and drug use measures (sedatives, tranquilizers, amphetamines, opioids, heroin, cannabis, and cocaine). The kappa coefficients for “ever use of” amphetamines, heroin, cannabis, and cocaine at least twelve times in one’s lifetime were excellent (>.78). Reliabilities for sedatives, tranquilizers and opioids were fair to moderate (.46-.66). These findings are similar for the former drug types for use in past twelve months. For past year diagnoses for any drug,

cannabis, and cocaine abuse and dependence, reliabilities were excellent. While for alcohol and heroin abuse and dependence, reliabilities were good. For the ‘prior to past year’ time frame, reliabilities of all diagnoses were generally lower but overall, good ( $\kappa = .50 - .80$ ).

### **Major Depressive Disorder (MDD) and Alcohol Use Disorder (AUD)**

For this dissertation, past-year Major Depressive Disorder (MDD) was operationalized with a dichotomous variable as having a past-year diagnosis of MDD (coded as 1) or not, following the work of McLaughlin et al., (2010). To assess for past-year Alcohol Use Disorder (AUD), the alcohol use and dependence variables were combined to create a dichotomous ‘Alcohol Use Disorder’ variable following McCabe et al., (2010) where “1” indicated “Yes, AUD”.

### **Experiences of Discrimination**

Overall, six separate discrimination scales contained within the AUDADIS-IV were utilized in NESARC to assess six types of discrimination experienced by individuals. Perceived discrimination was assessed using questions from the Experiences of Discrimination (EOD) Scale (Krieger, Smith, Naishadham, Hartman, & Barbeau, 2005) shown in Appendix C. Krieger et al. (2005) examined discrimination experiences related to gender, sexual orientation, and race-ethnicity separately. Drawing from the EOD, NESARC also assessed experiences of discrimination relating to physical disability, being overweight, and religion. Two time periods were assessed that included the past 12 months and, prior to the last 12 months. A Likert scale was used to assess experiences of discrimination that included the following values: 0 = “never”, 1 = “almost never”, 2 = “sometimes”, 3 = “fairly often”, or 4 = “very often”. Participants were asked if they have experienced discrimination in several domains; when accessing health care, in public settings, obtaining employment, and if they were called racist/sexist names, made fun of,



or hit. Reactions to unfair treatment or discrimination were also assessed within each scale via the following questions; “do something/talk to others” coded as “engaged” and, “do something/keep to self” coded as passive (Stancil, Hertz-Picciotto, Schramm, & Watt-Morse, 2000).

Krieger et al., (2005) have conducted extensive tests for reliability and validity for the EOC scale and found it to be a sound measure of perceived discrimination experiences (for scale reliability, the Cronbach’s alpha was .74 or greater; test-retest reliability was .70). Rual et al. (2008) examined the test-retest reliability for the discrimination scales used in NESARC and found that all scales demonstrated at least good reliability with excellent reliability for the sexual orientation discrimination scale. Kappa coefficients for the discrimination scales in the NESARC ranged from good (.58) to excellent (.82) (Ruan et al.). Kappas for the two reactions to discrimination questions ranged from .58 to .63.

The dissertation study used the past-12 months perceived race-ethnic discrimination variable for its analysis. First, a race-ethnic discrimination composite index variable was created using STATA’s *egen* command that included the six questions from the Hispanic/Latino race-ethnic discrimination sub-scale and six questions from the “Not Hispanic/Latino” race-ethnic discrimination sub-scale. The internal consistency measured by Cronbach’s alpha (Cronbach, 1951) was 0.85, indicating very good scale reliability (Gliem, & Gliem, 2003). Second, following McLaughlin et al. (2010) a dichotomous variable was created in which respondents who reported past year race-ethnic discrimination “sometimes”, “fairly often”, or “very often” were coded as 1, and “almost never” or “never” experiencing race-ethnic discrimination in the past year was coded as 0.

### **Social Integration**

Questions from the Language Orientation and Ethnic Social Relations subscales of the Short Acculturation Scale (SAS) (Marin, Sabogal, Otero-Sabogal, Perez-Stable, 1987) were used to measure social integration. Some researchers have defined this set of variables as proxies for acculturation (Blanco et al., 2013; Coronado, Thompson, McLerran, Schwartz, & Koepsell, 2005). The seven items making up the Language Orientation subscale refer to the respondents' preferred spoken language (i.e. Spanish as opposed to English). Some examples of the items include "What languages do you read and speak?" and "In what language do you speak with friends?" The four-item Ethnic Social Relations subscale measures social preference of one's own ethnic group over a preference of other ethnic groups. Questions ask about the ethnic background of the respondent's close friends and individuals the respondents have spent time with when socializing. NESARC expanded the assessment initially focused on Hispanic individuals to include Asians/Pacific Islanders as well as a separate category of "all others" to assess race-ethnic categories including White, Black, and American Indian/Alaskan Native. In their work, Ruan and colleagues (2008) determined the interclass test-retest reliability ( $ICC = .79$ ) and internal consistency reliability (Cronbach's  $\alpha = .93$ ) to be excellent for the social integration questionnaire.

For the dissertation, following Keyes et al., (2011), the social integration variable was created by summing 11 items of both sets of social integration questions for Hispanic, Asians, and *Other* race-ethnic groups to form a continuous composite scale. In other words, the distinct questions asking about social integration for Hispanic, Asian, and "Other" race-ethnic groups were all summed into one scale. Some items were reverse coded so that higher scores indicate greater language preference for one's birth language relative to English and greater social interaction with one's own ethnic group in daily life. Thus, higher scores indicate a stronger

connection with one's birth culture versus the host culture. Scores range from 5 to 55. The internal consistency reliability was 0.91 which can be described as excellent according to Gliem and Gliem, (2003).

Due to a non-normal distribution, the composite scale variable was dichotomized. For ease of conceptual interpretation of this variable, the social integration variable can be defined as follows; high social integration with one's own ethnic group is indicated by 1 and high social integration with others' ethnic group is indicated by 0. As a note, operationally, high social integration with one's own ethnic group was defined as "low" social integration (still coded as 1). The cut-off between the "high" and "low" levels is based on the mean score.

### **Ethnic Identity**

The ethnic identity scale used in NESARC expanded upon the 3-item Ethnic Identity Scale (EIS) from the National Comorbidity Survey-Replication and the NLAAS (Guarnaccia, et al., 2007) to assess ethnic identity among difference racial and ethnic groups (Barry, 2002; Phinney, 1992; Rahim-Williams et al., 2007). The eight-item scale in NESARC measured participants' knowledge of or association with a particular social group (Ruan et al., 2008). Concepts included race-ethnic identification, race-ethnic pride, importance of race-ethnic heritage, role of race-ethnic background in interactions with others, and shared race-ethnic values, attitudes, and behaviors. The scale was scored using a six-point Likert scale (1 = strong agree to 6 = strongly disagree). Interclass test-retest reliability was excellent (ICC = .78) (Ruan et al., 2008). According to Blanco et al., (2013) internal consistency of the scale was excellent (Cronbach's  $\alpha = 0.90$ ).

For this dissertation, following Keyes et al., (2011) the ethnic identity variable was created by summing the eight items to form a continuous scale. Certain items were reverse coded

so that higher scores indicate a higher degree of ethnic identity. The score ranges from 6 to 48. The Cronbach's  $\alpha = 0.87$  is close to excellent according to Gliem and Gliem (2003). Similar to social integration, the distribution was non-normal for ethnic identity scale variable and thus, a dichotomous variable was created and used in analyses where 1 indicates high ethnic identity and "0" indicates low ethnic identity. The cut-off between high and low levels was based on the mean score.

### **Social Support**

In NESARC, social support is described as the perceptions of the current availability of one's potential social resources. Social support is assessed by using 12 items from the Interpersonal Support Evaluation List for General Populations (ISEL) (Cohen & Hoberman, 1983). The ISEL is made up of 48 statements that assess individuals' perceived availability of social resources. Half the items are positive statements about social relationships (i.e. "If I were sick, I know I would find someone to help me with my daily chores") while half are negative statements (i.e. "If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me"). Respondents were asked to indicate on a 1 – 4 scale whether each statement was "definitely true", "probably true", "probably false", or "definitely false."

For this dissertation, a composite measure of social support was constructed by summing all 12 items (following Moak & Agrawal, 2009). Following Ruan et al., (2008) the positive items were reverse coded so that lower scores correspond to lower levels social support and higher scores reflect higher levels of social support. The Cronbach's  $\alpha = 0.83$  indicated good internal consistency reliability. Again, following the afore-mentioned coding for social integration and ethnic identity, social support variable was dichotomized where 1 indicates high

social support” and 0 indicates low social support. The cut-off between high and low levels was based on the mean score.

### **Stress**

NESARC respondents were asked about the number of stressful life events they experienced in the past twelve months. The 14-item dichotomous scale included stressors in several domains of life including work, legal, social, and health related stressors (Dawson, et al., 2005a). Cronbach’s alpha showed very good reliability (0.86) as reported by Ruan et al., (2008).

For this dissertation, a continuous scale was created based on the number of stressful life events reported (following Dawson, et al., 2005a). Higher scores indicate a higher number of stressful life events experienced and thus, indicate higher levels of stress. The alpha was 0.64 indicating a questionable internal consistency reliability according to Gliem and Gliem (2003). In keeping with the coding for the above variables, the stress variables was also coded as a dichotomous variable where 1 indicates high stress and 0 indicates low stress. The cut-off between high and low stress was based on the mean number of stressful life events.

### **Race-ethnicity**

In NESARC, a respondent’s self-reported race-ethnicity was determined by standard Census Bureau procedures that included five categories; Black; Hispanic/Latino; Asian/Pacific Islander; Non-Hispanic White; American Indian/Alaska Native. In this dissertation, dichotomous variables for Black, Asian, and Hispanic were created.

### **Immigration Status**

Immigration status was measured in NESARC by asking respondents whether they were born in the United States or not. In this dissertation, a dichotomous variable for immigration status includes immigrant [coded as 1] and US-born [coded as 0].

## **Gender**

In NESARC, a respondent's self-reported gender was determined by indicating male or female. A dichotomous variable for gender was utilized in this dissertation (female coded as 1).

## **Age**

As in NESARC, age will be assessed as a continuous variable in the dissertation. The range was ages 20 to 90. A categorical age variable was created following (Grant et al., 2003a); ages 20-24; 25-44; 45-65; 65 and older. However, the categorical variable was not used in final analyses.

## **Education level**

In NESARC, the level of education is assessed by asking, "What is the highest grade or year of school that you completed?" For the dissertation, the variable was created as a continuous variable denoting years of education. Education was also collapsed into three categories following Keyes et al., (2008); Less than high school, High school graduate/GED, and  $\geq$  College. The latter variable was not used in final analyses.

## **Income level**

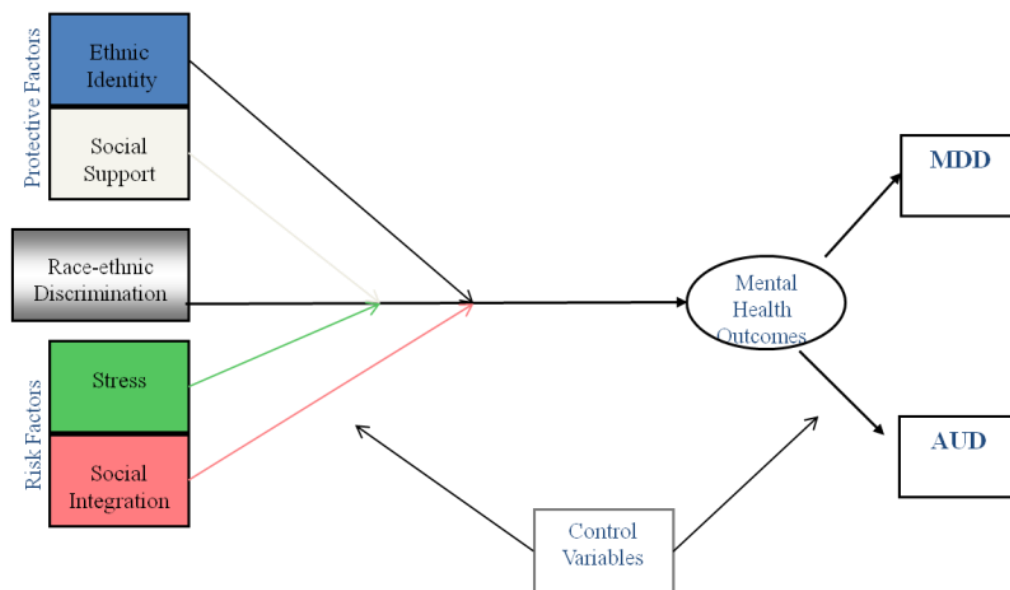
The NESARC data assesses a respondent's income level by asking about total personal income. In the dissertation, income level will be treated as a continuous variable. Some analyses, however, utilized a categorical variable that was created and comprised of four income brackets as described by McCabe, et al., (2010). They include: \$0 to \$19,999; \$20,000 to \$34,999; \$35,000 to \$69,999;  $\geq$ \$70,000. The categorical income variable was no used in final analyses.

## **IV.IV. Data Analysis**

Data analysis in the dissertation was performed with STATA /SE 12.1 to accommodate for the complex multistage sampling design that utilized stratified and cluster sampling methods

(STATACorp, 2011). STATA's *svyset* command suite was used in all analyses to appropriately tackle survey data and ensure that point estimates and standard errors were estimated correctly. By accounting for the design features in NESARC, the analyses produced appropriate standard errors (Levy & Lemeshow, 2011). Statistical analyses with NESARC were weighted to account for its complex design (Grant & Dawson, 2006). Figure 2 illustrates a path diagram of the dissertation study.

Figure 2. Dissertation Study Path Diagram



### Question 1 – Analysis Procedures

Question 1: What is the association between perceived race-ethnic discrimination and MDD and AUD, respectively, when comparing differences across race-ethnicity, immigrant status, and gender among a nationally representative sample of minorities in the United States?

Descriptive statistics are utilized to examine characteristics of the dissertation sample (e.g. % Black; mean income) including an exploration of the cultural-social factor variables.

To answer Question 1, three steps were taken. First, Chi-square tests of association were conducted to specifically compare prevalence rates of MDD and AUD among minorities who experienced past year race-ethnic discrimination and those who did not. Analyses were conducted across race-ethnic, immigrant status, and gender groups. Weighted percentages and means were reported. These analyses refer to Table 5 in Chapter V: Results.

Second, a multivariate logistic regression was conducted to examine the relationship between race-ethnic discrimination and MDD and AUD, respectively, for the whole sample. This analysis was adjusted for MDD/AUD (respective of the model), Black, Asian, gender, immigrant, age, income, and education (with Hispanic being the referent group for race-ethnicity). These analyses refer to Table 6 in Chapter V: Results.

Example of a formula for a multivariate logistic regression with covariates:

$$\text{logistic}(p) \text{ Major Depressive Disorder} = \beta_0 (\text{intercept}) + \beta_1 X_1 (\text{Race-ethnic discrimination}) + \beta_3 X_3 (\text{Immigration status}) + \beta_4 X_4 (\text{Black}) + \beta_5 X_5 (\text{Asian}) + \beta_2 X_2 (\text{Gender}) + \beta_6 X_6 (\text{AUD}) + \beta_7 X_7 (\text{Age}) + \beta_8 X_8 (\text{Income}) + \beta_9 X_9 (\text{Education}) + e_1$$

Third, 14 multivariate logistic analyses were conducted stratifying by each sub-population (Black, Hispanic, Asian, immigrant, US-born, female, male) to provide a clearer look at the association between race-ethnic discrimination and the outcomes across each sub-population. The outcomes were tested independently. These models were adjusted for MDD, AUD, race-ethnic groups, gender and immigrant status (depending on the respective analysis; e.g. gender was excluded from the gender sub-pop analysis) and all models were adjusted for age, income, and education. Adjusted odds ratios and 95% confidence intervals were reported in the final analyses (These analyses refer to Table 8 in Chapter V: Results). As a comparison, models were tested without the inclusion of covariates as well (These analyses refer to Table 9 in Chapter V: Results).



As a note, the subpopulation option (*subpop*) was used to stratify by each sub-population. In STATA analyses, this command includes only the cases defined by the particular subpopulation in the calculation of the estimate, but all cases are used in the calculation of the standard errors. This ensures that the standard errors calculated correctly (Rao, 2003).

Example of a formula for a multivariate logistic regression stratified by sub-population:

$$\text{logistic}(p) \text{ Major Depressive Disorder [sub-pop Black]} = \beta_0 (\text{intercept}) + \beta_1 X_1 (\text{Race-ethnic discrimination}) + \beta_2 X_2 (\text{Gender}) + \beta_3 X_3 (\text{Immigration status}) + \beta_4 X_4 (\text{AUD}) + \beta_5 X_5 (\text{Age}) + \beta_6 X_6 (\text{Income}) + \beta_7 X_7 (\text{Education}) + e_1$$

## Question 2 – Analysis Procedures

Question 2: First, what is the association between four cultural-social factors and the outcome variables (MDD and AUD)? Second, what role do the two cultural factors, *ethnic identity and social integration*, and the two social factors, *social support and stress*, play in enhancing resilience or increasing vulnerability between race-ethnic discrimination and outcome variables (MDD and AUD, respectively)? Hypotheses will be tested separately for MDD and AUD.

To answer Question 2, two steps were taken. First, 8 bivariate logistic regressions were conducted utilizing the full sample to examine the associations between each cultural-social variable and each outcome independently. These analyses refer to Table 11 in Chapter V: Results.

Example of a formula for a bivariate logistic regression with a cultural-social factor:

$$\text{logit}(p) \text{ Major Depressive Disorder} = \beta_0 (\text{intercept}) + \beta_1 X_1 (\text{Ethnic Identity}) + e_1$$

Second, two moderation analyses were conducted where each cultural-social factor variable was interacted with discrimination (e.g. *ethnic identity\*discrimination*) to assess a potential moderating role of the cultural-social factors on each outcome independently. These

analyses refer to Table 14 in Chapter V: Results. Detailed steps in conducting the moderation analysis are included in Chapter V: Results as well.

Example of a formula for moderation analysis following MacKinnon (2011):

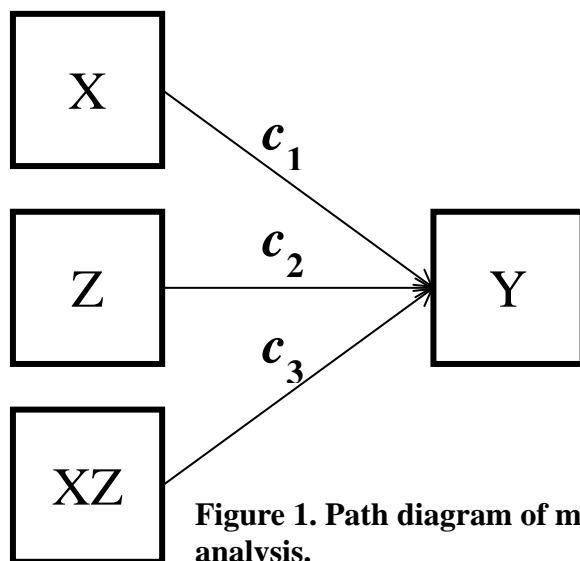
$$Y \text{ (MDD)} = i_1 + c_1X \text{ (race-ethnic discrimination)} + c_2Z \text{ (ethnic identity)} + c_3Z \text{ (social support)} + c_4Z \text{ (social integration)} + c_5Z \text{ (stress)} + c_6XZ \text{ (race-ethnic discrimination*ethnic identity)} + c_7XZ \text{ (race-ethnic discrimination*social support)} + c_8XZ \text{ (race-ethnic discrimination*social integration)} + c_9XZ \text{ (race-ethnic discrimination*stress)} + e_1$$

In the above equation, Y is the dependent variable (MDD), X is the independent variable (IV) or predictor (r-e discrimination), Z is the moderator (ethnic identity), and XZ is the interaction of the moderator and predictor variable (ethnic identity\*r-e discrimination);  $e_1$  is a residual.  $c_1, c_2, c_3$ , etc. represent the relationship between MDD and r-e discrimination, each of the four moderators, and the interaction terms, respectively (MacKinnon, 2011).

### **Moderation analysis.**

Moderation analysis was used to answer Question 2, to test whether four cultural-social factors moderated the relationship between race-ethnic discrimination and each mental health disorder. In essence, moderation analysis is an effort to enhance the external validity (generalizability) of a study by addressing how universal the effect is between the independent (predictor) variable (X) and the dependent (outcome) variable (Y) (Barron and Kenny, 1986; MacKinnon, 2011). Moderator variables are quantitative (e.g. level of ethnic identity) or qualitative (e.g. race-ethnicity) variables that potentially alter the strength and/or direction of the relationship between the independent variable (e.g. race-ethnic discrimination) and an outcome (e.g. MDD or AUD) (Frazier, Tix, & Barron, 2004). Dichotomous moderators were chosen for the dissertation study as they are easier to interpret than continuous moderators (MacKinnon, 2011). The dichotomous moderators in the dissertation study include the four cultural-social factors ethnic identity, social integration, social support, and stress.

Moderators are hypothesized to enhance, reduce, or change the influence of the predictor on the outcome (Fairchild & MacKinnon, 2009). Thus, the strength and direction of the relationship between a predictor and outcome variable depends on the level of a *third* moderating variable ( $Z$ ). The moderator effects are referred to as *interactions* because the third variable interacts with the predictor variable to change its effect on the outcome (MacKinnon, 2011). The interaction term is referred to as  $XZ$ . Unlike mediating variables, the moderating variable(s) does not denote a causal relationship, but assess whether the relationship between  $X$  and  $Y$  differ across a given level of  $Z$  (MacKinnon, 2011). The effect of  $X$  on  $Y$  for a particular value of  $Z$  (moderator) is called the *main effect* of  $X$ , when  $Z$  equals zero. The interaction between  $X$  and  $Z$  measures the moderation effect, and estimates how much the effect of  $X$  on  $Y$  changes as  $Z$  goes from 0 to 1, when the moderator is dichotomous (See Figure 1).



**Figure 1. Path diagram of moderation analysis.**

An important component of a moderator is *time*. Ideally, a moderator would be measured prior to the predictor being measured if the predictor is susceptible to change (Barron & Kenny, 1986). For example, race-ethnicity is not susceptible to change and thus, temporality would not

be an issue. In contrast, for the social-cultural variables ethnic identity, social support, social integration, and stress, timing is relevant as these constructs may be amenable to change over time. NESARC measures these variables at the same time point as the independent variable, race-ethnic discrimination, is measured. Thus, an assumption is made that these factors will not have changed during the 'past-year' time frame in which these variables were measured. This is acceptable given that these variables have not been manipulated and the moderation analysis is examining associations and not causation (Barron & Kenny, 1986).

According to Baron and Kenny (1986) there may be significant main effects between the predictor and the moderator on the outcome but such direct associations are not conceptually necessary to a moderation analysis. If the interaction term is significant then the moderation hypothesis can be supported (Baron & Kenny, 1986; MacKinnon, 2011). Further, they assert that it is sought-after for the moderator variable to be uncorrelated with both the predictor and the dependent variables (e.g. mental health disorders) for there to be a clear interaction effect. However, the interaction term in the moderation analysis may be correlated with the main effect variables that are used to estimate it. Thus, multicollinearity may exist which can cause coefficients to be estimated with inflated standard errors. Therefore, some variables may be statistically non-significant when, in fact, they should be significant resulting in a type II error. However, given the large sample size in the dissertation study, the issue of multicollinearity is not a major concern (Frazier et al., 2004). Aguinis (2004) asserts that samples larger than 200 can be considered *large*.

To address Question 2, the interaction ( $XZ$ ) between each cultural-social factor variable, ( $Z$ ) and race-ethnic discrimination ( $X$ ) was calculated to determine whether the level (high versus low) of the particular moderator variable alters the strength and/or direction of the effect of race-

ethnic discrimination on MDD and/or AUD (*Y*). A discussion on the steps taken to conduct the moderation analysis is included in Chapter V: Results.

#### **IV.V. Missing Data**

The NESARC survey tackles the issue of missing data (item non-response) by using the method of multiple imputation. Multiple imputation involves using plausible data to replace the items that are missing due to non-response (Rubin, 1987). The assumption made when conducting multiple imputation is that there is some certainty about the probable content of what is missing. There are two types of replacement used in NESARC. First, *assignment* is used when values to missing data items are related to information that is already available from the participant's record. For example, if a first name is recorded then it may be used to assign a value of sex to that individual record. Assignment is generally considered a more confident method of replacement because it is based on data that is known (Rubin, 1987). The second type of replacement is called *allocation*. When a value for missing data cannot be derived from the same person's record it must come from other respondents' believed to have similar characteristics.

According to Grant et al., (2003b) missing values in NESARC for age, sex, and marital status were imputed using both assignment and allocation. All other variables imputed in NESARC used only the allocation method. Some of these variables include race, highest grade level, present work situation, full-time/part-time student, and where lived while in school. A full list is available in the *Source and Accuracy Statement for Wave I of the 2001-2000 NESARC* (Grant et al., 2003c).

#### **IV.VI. Power Analysis**

Power is the probability of finding a statistically significant difference when one truly exists thus, appropriately rejecting the null hypothesis and avoiding a Type II error – when non-significant findings should be significant. According to Cohen (1998) power should be 0.8 or greater. The Power Analysis and Sample Size (PASS) program was used to determine how likely it would be that the statistical tests in these analyses will be able to detect meaningful effects given the sample size. The results demonstrate that a logistic regression of a binary outcome variable (e.g. Y = Major Depressive Disorder/Alcohol Use Disorder) on a binary independent variable (e.g. X = Race-ethnic discrimination) with a total sample size of 522 observations will achieve 80% power at a .05 significance level to detect a change in Prob(Y=1) from the baseline value of .050 to .120. This 7-point increase from baseline is due to a theoretical assumption that there will be a 7% difference in the presence of Major Depressive Disorder/Alcohol Use Disorder for individuals who experience perceived race-ethnic discrimination compared to those who do not experience discrimination (McLaughlin, et al., 2010).

In the dissertation, the sample size for *race-ethnic minority individuals* with MDD is 1,228 and for AUD is 1,130, indicating that power for the study may in fact, be higher than 80%. Two important considerations include: (1) some subgroup analyses will have much smaller sample sizes. For example, the number of Asians who have experienced race-ethnic discrimination is 164 and those with AUD is 48 (2) Power is often lower when testing interactions effecting the moderation analysis. Despite issues with power due to the small sample of Asians who experience discrimination and have AUD, the group will be kept in the analysis in order to add to the limited research on this population.

## CHAPTER V: RESULTS

Chapter V is made up of three main sections that describe analyses using Wave II data of NESARC collected in 2004-2005, to explore the relationship between race-ethnic discrimination, and mental health disorders (MDD and AUD), across race-ethnic and immigrant and groups as well as to determine whether a set of two cultural and two social factors are associated with and potentially moderate this relationship. Section V.I presents descriptive data of the dissertation study sample. Sections V.II and V.III describe results for Question 1 and Question 2, respectively. Both sections include sub-headings that correspond to the hypotheses and types of analyses conducted. NESARC sampling weights were employed in all analyses to account for selection and response probabilities (Grant & Dawson, 2006).

### V.I. Descriptive Statistics of Dissertation Sample

Table 3 presents descriptive statistics of the predictor variable, past year race-ethnic discrimination, the two DSM-IV disorders, MDD and AUD, as well as covariates. The dissertation sample comprised 13,914 Black, Hispanic, and Asian minorities. There were fewer Asians in the sample (16%) compared to Black and Hispanic individuals who were similarly distributed (41%, 43%, respectively). Moreover, the majority of the sample was born in the United States (60%) while immigrants made up 40%. Most individuals completed high school or received their GED (47%) and almost half of the sample (48%) was in the lowest income bracket of earning less than \$19,000 annually (the latter two sets of data are not shown in Table 2). Regarding the outcome variables, AUD was somewhat more prevalent in the sample than MDD (8.2%, 7.6%, respectively).

Past-year race-ethnic discrimination was prevalent among approximately 19.5% of the sample. African Americans reported past year race-ethnic discrimination more so than Hispanic

and Asian respondents (10.1%, 6.5%, and 2.8%, respectively). US-born individuals reported experiencing race-ethnic discrimination about two times more so than immigrants (13.0%, 6.4%, respectively). In addition, women and men experienced race-ethnic discrimination at similar rates with women reporting slightly higher rates (10.0%, 9.5%, respectively).

Table 3. Descriptive Statistics for Dissertation Sample, NESARC Wave II

	Unweighted N	Weighted % or mean	% MDD	% AUD
<b>Race-Ethnic Discrimination Predictor</b>				
Yes Discrimination	2,643	19.46	12.3	12.2
No Discrimination	11,229	80.54	6.5	7.2
<b>Ethnicity</b>				
Black/Non-Hispanic	6,587	41.08	7.8	8.8
Hispanic	6,359	43.04	7.9	8.7
Asian	968	15.89	6.5	4.9
<b>Immigrant Status</b>				
Immigrant	4,435	39.86	6.1	4.7
US-born	9,479	60.14	8.6	10.5
<b>Gender</b>				
Female	8,443	52.4	10.5	4.4
Male	5,471	47.6	5.0	12.3
Age (mean years)	13,914	43.54	--	--
Income (mean \$)	--	\$20,000	--	--
Education (years completed)	--	High school/GED	--	--
<b>Total</b>	<b>13, 914</b>	<b>--</b>	<b>7.6</b>	<b>8.2</b>

Weighted to national level using sampling weights from NESARC, Wave II (Grant & Dawson, 2006)

Prevalence information about the four cultural-social factor moderator variables in relation to race-ethnicity, immigrant status, and gender is presented in Table 4. Overall, the sample of Black, Hispanic and Asian individuals reported high ethnic identity or a strong identification with one's cultural/ethnic heritage. Immigrants reported having high ethnic identity more frequently than US-born respondents (70%, 54% respectively). The majority of



respondents reported having a strong network of social support. Differences across groups were minimal. While respondents overwhelmingly endorsed “low stress” there were some interesting across-group differences. One quarter of both men and women reported high stress. About 31% of US-born minority respondents reported high stress compared to only 17% of immigrants. Asians reported lower levels of stress compared to their Black and Hispanic counterparts (15%, 30%, and 23.5%, respectively).

Social integration varied across groups. Individuals who endorsed “low” social integration preferred to socialize with members of their own ethnic group as well as to speak their native language over English. In turn, individuals who reported “high” social integration preferred to socialize with members of other ethnic groups and to speak English over their own native language. For clarity, the operationalization of the variable, “low social integration” is from now on conceptually referred to as “high social integration with one’s own ethnic group”. And, “high” social integration is from now on referred to as “high social integration with other ethnic groups”. A help analytical note, “low” social integration/high social integration with one’s own ethnic group was coded as 1. When looking at differences across groups, more Blacks, women and US-born individuals reported high social integration with other ethnic groups whereas, more Hispanics, Asians, men, and immigrants reported high social integration with their own ethnic groups. The most striking finding was that among Black individuals, almost 93% endorsed high social integration with other ethnic groups (n = 6,163) versus high social integration with their own ethnic group (n = 424).

Table 4. Prevalence rates for cultural-social factor variables by race-ethnicity, gender, and immigrant status

	Ethnic Identity		Social Support		Social Integration		Stress	
	%		%		%		%	
	Low	High	Low	High	Low	High	Low	High
<b>Race-ethnicity</b>								
Black/Non-Hispanic	38.5	61.6	31.2	68.8	7.3	92.7	69.0	30.1
Hispanic	36.9	63.1	35.6	64.4	64.8	35.2	76.5	23.5
Asian	48.3	51.7	36.7	63.3	59.7	40.3	84.4	15.6
<b>Gender</b>								
Female	38.7	61.2	33.0	67.0	38.2	61.8	74.2	25.8
Male	40.0	60.0	35.0	65.0	42.8	57.2	75.2	24.8
<b>Immigrant Status</b>								
Immigrant	29.6	70.4	39.5	60.5	78.1	21.9	83.0	17.0
US-born	45.8	54.2	30.0	70.0	15.4	84.6	69.2	30.8

Notes. Weighted to national level using sampling weights (Grant & Dawson, 2006). Social Integration “Low” = Low social/language preference with others/high with own culture; Social Integration “High” = High social/language preference with others/low with own culture.

## V.II. Question 1. Assessing the Associations between Race-ethnic Discrimination, and Outcomes across Sub-populations

### Prevalence Rates of Outcomes across Sub-populations

Bivariate chi-square analyses across seven sub-populations (Black, Hispanic, Asian, US-born, immigrant, men, and women) were conducted in order to compare prevalence rates and statistical associations of the mental health disorders comparing minorities who had experienced past-year race-ethnic discrimination and those who did not – utilizing a nationally representative sample. First, overall, 7.6% of the full sample experienced past year MDD whereas 8.2% experienced past year AUD. Results indicate that minorities in the sample who experienced past year race-ethnic discrimination had a higher prevalence of both MDD and AUD (See Table 5) compared to minorities who did not. In detail, 12.3% of respondents who perceived race-ethnic

discrimination in the past year had MDD compared to only 6.5% of their counterparts who did not. Similarly, minorities who experienced discrimination had higher rates of AUD (12.1%) than those who did not experience discrimination (7.2%).

There were some noteworthy differences in prevalence of MDD and AUD within the sub-population of race-ethnicity. Blacks who experienced race-ethnic discrimination reported the highest rate of AUD (13.9%) compared to other race-ethnic minorities who experienced discrimination. As for MDD, Hispanic individuals who experienced discrimination had the highest rates (13.3%). There was only one exception in which the pattern of a positive association between the predictor and outcomes was not consistent. For Asians, the rate of AUD was lower (3.9%) despite the experience of race-ethnic discrimination compared to their counterparts who did not report past-year discrimination (5.1%) suggesting a negative relationship. However, this latter association was not significant.

When comparing immigrants to US-born minorities, while the positive pattern holds true between race-ethnic discrimination, and MDD and AUD, immigrants fared better across both outcomes than their US-born counterparts. For example, US-born individuals who experienced race-ethnic discrimination had the highest rates of AUD (15%) compared to immigrants who had a much lower rate of 6.4%. While the prevalence rates for MDD were closer between the two groups, there was still a difference in which 13% of US-born minorities who experienced discrimination had MDD compared to 11% of immigrants who experienced discrimination.

Finally, across gender groups, the positive pattern between race-ethnic discrimination and MDD and AUD also remained consistent. Women, who experienced race-ethnic discrimination compared to their male counterparts, had higher rates of MDD (15.5%, 9.0%, respectively) but lower rates of AUD (6.6%, 18.1%, respectively).

Table 5. Chi-square analyses – Outcomes by race-ethnic discrimination

	N	MDD % (95% CI)		AUD % (95% CI)	
		Yes Discrimination	No Discrimination	Yes Discrimination	No Discrimination
Ethnicity					
Black/non Hispanic	6,587	12.6* (10.4-15.0)	6.3 (5.6-7.1)	13.9*(11.7-16.4)	7.2 (6.2-8.3)
Hispanic	6,359	13.3* (10.0-17.5)	7.0 (6.2-7.9)	13.1*(10.0-17.0)	8.0 (6.8-9.4)
Asian	968	9.4 (5.0-17.1)	5.8 (3.8-8.8)	3.9 (1.4-10.5)	5.2 (3.5-7.6)
Immigrant Status					
Immigrant	4,435	10.9* (7.5-15.6)	5.3 (4.4-6.3)	6.4 (4.3- 9.5)	4.4 (3.3- 5.7)
US-born	9,479	13.0* (11.0-15.5)	7.4 (6.7-8.3)	15.0*(12.8-17.6)	9.2 (8.3-10.3)
Gender					
Female	8,443	15.5* (12.9-18.5)	8.8 (7.9-9.7)	6.6* (5.1-8.5)	3.9 (3.2-4.7)
Male	5,471	9.0* (6.8-11.7)	4.0 (3.3-4.9)	18.1*(14.9-21.9)	10.9 (9.6-12.4)
Total	13,914	12.3* (5.9-7.2)	6.5 (5.9-7.2)	12.2* (6.5-8.0)	7.2 (6.5-8.0)

*Note.* Data are from NESARC, Wave II, 2004-2005. Weighted to national level using sampling weights (Grant & Dawson, 2006). Parenthesis indicates 95% Confidence interval (CI). \*significant at  $p < .05$ .

#### Question 1 – Hypotheses 1a and 1b: Logistic Regressions of Race-ethnic Discrimination and Outcomes, Full Sample

Results from bivariate and multivariate logistic regressions are presented in Table 6.

First, the associations between past year race-ethnic discrimination and past year MDD and AUD were tested in the full sample of minorities to determine whether discrimination was positively associated with the mental health disorders as posited in hypotheses 1a and 1b (See Table 7).

Outcomes were tested independently. Odds ratios were significant in both analyses and were found to be slightly higher when the covariates were not included in the unadjusted model (race-ethnicity, gender, immigrant status, age, income, education, and MDD/AUD, respectively). In adjusted and unadjusted models, past year race-ethnic discrimination was associated with elevated odds of MDD (ORs =2.0-1.9, respectively) and AUD (ORs =1.8-1.4, respectively).

After adjusting for socio-demographic factors, results revealed that individuals who perceived race-ethnic discrimination were about two times more likely to meet DSM-IV criteria for MDD

and almost one and a half times more likely to meet DSM-IV criteria for AUD. These findings support hypotheses 1a and 1b that perceived race-ethnic discrimination is positively associated with both MDD and AUD.

Table 6. Hypotheses 1a-1b – Association between race-ethnic discrimination and outcomes

	MDD	AUD
Discrimination, unadjusted	2.0* (1.7-2.4)	1.8* (1.4-2.2)
Discrimination, adjusted	1.9* (1.6 - 2.4)	1.4* (1.1 - 1.8)

Note: Values presented are odds ratios (ORs) (95% CI). Adjusted model includes the following covariates: race-ethnicity, gender, immigrant status, age, income, education, and MDD/AUD, respectively. Referent category for race-ethnicity is Hispanic. \* indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

Table 7. Question 1 – Hypotheses 1a – 1b

Hypothesis	Supported/unsupported
1a Perceived race-ethnic discrimination would be positively associated with MDD among minorities, both US-born and immigrants.	MDD – Supported
1b Perceived race-ethnic discrimination would be positively associated with AUD among minorities, both US-born and immigrants.	AUD – Supported

### Question 1 – Hypotheses 1c and 1d: Logistic Regressions with Race-ethnic Discrimination and Outcomes, Stratified by Sub-population

The following analyses addressed hypotheses 1c and 1d (Table 10) that proposed MDD and AUD vary across race-ethnic, immigrant status, and gender groups given the effects of race-ethnic discrimination.

To examine the associations between race-ethnic discrimination and the outcomes across seven sub-populations (Black, Hispanic, Asian, immigrant, US-born, male, and female) multivariate logistic regressions were conducted stratifying across each sub-population using the *subpop* command in STATA. The *subpop* command allows for the odds ratios of the outcome

variables to be isolated (stratified) specifically for individuals within a particular sub-population – for the dissertation study, the associations between race-ethnic discrimination and the outcomes were examined for each sub-population, independently.

In Table 8, adjusted odds ratios and 95% confidence intervals are presented for the 14 separate models. Each model was adjusted for MDD or AUD, respectively, race-ethnic group, respectively, immigrant status, respectively, gender, respectively, age, income, and education. In other words, in the model examining the relationship between race-ethnic discrimination and MDD among the Asian sub-population, the following variables were controlled; Black, immigrant, US-born, gender, age, income, and education and AUD. To illustrate further, in the model examining the same relationship among the immigrant sub-population, the following variables were controlled; Black, Asian, US-born, gender, age, income, and education, and AUD. As a comparison, odds ratios for the unadjusted models are shown in Table 9, highlighting a few differences in significance of odds ratios.

Across almost all sub-populations, there was a significant and positive relationship between past year perceived race-ethnic discrimination and the outcomes. Hypotheses 1c and 1d were partially supported as evident by the following description that portrays some variation in odds of MDD and AUD across sub-populations given the experience of race-ethnic discrimination.

Black respondents who experienced race-ethnic discrimination compared to those who did not, had the highest odds of MDD and AUD compared to all other race-ethnic groups (ORs = 2.1, 1.7, respectively). Odds were positive and significant.

Hispanics who experienced race-ethnic discrimination were two times as likely to have MDD as their counterparts who did not experience discrimination. However, for AUD, results

were not significant in the adjusted model but in the adjusted model there was a significant and positive association between Hispanics who experienced discrimination compared to those who did not (OR = 1.7).

Immigrants who experienced discrimination had higher odds of MDD (OR = 2.2) than US-born minorities who experienced discrimination (OR= 1.9). The odds ratio for AUD among immigrants was not significant (in both adjusted and non-adjusted models). But, for US-born minorities who experienced discrimination, the odds of AUD were significant and just over one and a half times greater than for US-born minorities who did not. For US-born minorities who experienced discrimination, the risk for MDD was over one and a half times that of their counterparts who did not experience discrimination.

While a positive relationship existed for Asians who experienced discrimination and MDD (OR = 1.8), the finding was not significant. Interestingly, the discrimination-AUD relationship was negative among Asians. For Asians who experienced discrimination, the odds were 0.84 times lower for AUD than for Asians who have not experienced discrimination. These results were not significant as well. This strange pattern may be because of the small sample size of Asians who experienced past year race-ethnic discrimination (n = 164) and in particular, the very small sample size of Asians with AUD in NESARC (n= 48).

For women who experienced discrimination, the likelihood of MDD was almost two times greater than for women who did not. In the unadjusted analysis, the relationship positive and significant – with the risk of AUD being over one and a half times greater for women who experienced discrimination compared to those who did not. Among men who experienced discrimination, the odds were significant and positive for the increased likelihood of both MDD

and AUD compared to their counterparts who did not experience discrimination (ORs = 2.1, 1.5, respectively).

Table 8. Hypotheses 1c-1d – Summary of logistic regressions stratified by sub-population, *adjusted models*.

	Major Depressive Disorder	Alcohol Use Disorder
Full Sample	1.9* (1.5-2.3)	1.4* (1.1-1.8)
Black/Non-Hispanic	2.1* (1.7-2.7)	1.7* (1.3-2.1)
Hispanic	2.0* (1.4-2.8)	1.4 (0.97-2.1)
Asian	1.8 (0.78-4.2)	0.84 (0.29-2.4)
Women	1.8* (1.4-2.3)	1.7 (0.96-1.9)
Men	2.1* (1.6-2.9)	1.5* (1.1-1.9)
Immigrant	2.2* (1.3-3.6)	1.2 (.68-2.2)
Us-Born	1.9* (1.5-2.3)	1.6* (1.2-1.9)

Note: Values presented are Odds Ratios (95% CI). Adjusted for MDD/AUD, respectively race-ethnic group, respectively, immigrant status, respectively, gender, respectively age, income, and education. \* indicates significance,  $p < 0.05$ . Reference category for race-ethnicity is Hispanic. Weighted to national level using sampling weights (Grant & Dawson, 2006).

Table 9. Hypotheses 1c-1d – Summary of logistic regressions stratified by sub-population, *unadjusted models*.

	MDD ORs	AUD ORs
Full Sample	2.0*(1.67-2.44)	1.8* (1.44-2.20)
Black/Non-Hispanic	2.1* (1.70- 2.68)	2.1* (1.64-2.62)
Hispanic	2.0*(1.47- 2.83)	1.7* (1.23-2.49)
Asian	1.7 (0.72 3-0.95)	.75 (0.24-2.32)
Women	1.9* (1.51-2.39)	1.7* (1.27-2.38)
Men	2.4* (1.73-3.22)	1.8* (1.34-2.43)
Immigrant	2.2* (1.39-3.49)	1.5 (0.88-2.52)
Us-Born	1.8* 1.52-2.29)	1.7* (1.39-2.17)

Note: Values presented are unadjusted odds ratios (ORs). (95% CI). \*indicates significance,  $p < 0.05$ . Reference category for race-ethnicity is Hispanic. Parentheses indicate unadjusted ORs. Weighted to national level using sampling weights (Grant & Dawson, 2006).



Table 10. Question 1 – Hypotheses 1c-1d

	Hypotheses	Supported/Unsupported
1c	The odds of MDD would vary across race-ethnic, immigrant status and gender groups given the effects of the exposure to perceived race-ethnic discrimination.	MDD – Supported for all sub-pops except Asians.
1d	The odds of AUD would vary across race-ethnic, immigrant status and gender groups given the effects of the exposure to perceived race-ethnic discrimination	AUD – Supported for all sub-pops except immigrants and Asians.

In sum, Question 1 tested the associations between race-ethnic discrimination and two mental health disorders (MDD and AUD) to elucidate this relationship using *epidemiologic* data and in particular, to examine these relationships across race-ethnic and immigrant status groups. Findings suggest a significant and positive relationship among almost all minority groups between race-ethnic discrimination and both mental health disorders – indicating that race-ethnic discrimination is a risk for MDD and AUD among minorities.

### V.III. Question 2. Associations and Moderating Roles of Cultural-Social Factors

#### Question 2 – Hypotheses 2a-2d: Logistic Regressions with Cultural-Social Factors and Outcomes

The initial set of hypotheses for Question 2 (See Table 12) tested the associations between the cultural-social factor variables and the outcomes. This was an important first step in building up to the subsequent moderation analysis. Hypotheses 2a and 2b put forth that high ethnic identity and high social support would be *negatively* associated with the outcomes (protective factors). Further, hypotheses 2c and 2d posited that high social integration with *one's own ethnic group* and high stress would be *positively* associated with the outcomes (risk factors). Results from bivariate logistic regressions revealed potential cultural and social protective and risk factors for MDD and AUD, respectively (See Table 11).

The cultural factor, ethnic identity, can be identified as a potential protective factor for MDD and AUD. The odds of having MDD and AUD were lower (and significant) for individuals reporting a strong identification with one's own ethnic heritage (OR = 0.8) thus supporting hypothesis 2a.

Social support, a social factor, played a protective role as well for both MDD and AUD. The relationship between social support and both outcomes was negative. However, it was significant only for MDD (ORs = 0.5 and 0.9, respectively). Hypothesis 2b was partially supported.

The cultural factor, social integration with one's own ethnic group may be identified as a potential protective factor for MDD and AUD, interestingly, *in the opposite direction that was hypothesized*. In other words, social integration with one's own ethnic group indicates a potential protective effect not a risk effect as hypothesized. While not significant for MDD, social integration with one's own ethnic group was associated with lower odds of MDD than social integration with other ethnic groups (OR = 0.9). This pattern holds true for AUD where the relationship was *significant and negative* for social integration with one's own ethnic group (OR = 0.6). Given the direction of the relationship and non-significance of MDD, the results did not support hypothesis 2c.

The social factor, stress, was a strong risk factor for both mental health disorders providing overwhelming support for hypothesis 2d. The odds of having MDD were almost four times greater and the odds for AUD were over three times greater for those who endorsed high stress versus low stress.

Table 11. Hypotheses 2a-2d – Summary of findings: Outcomes and cultural-social factors

	MDD	AUD
Ethnic Identity	0.8* (0.7 - 0.9)	0.8* (0.7 - .99)
Social Support	0.5* (0.4 - 0.5)	0.9 (0.7-1.0)

Stress	3.9* (3.1 - 4.7)	3.3* (2.7-3.9)
Social Integration	0.9 (0.8 – 1.2)	0.6* (0.5 - 0.7)

Note: Values presented are unadjusted odds ratios (ORs) (95% CI). \* indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

Table 12. Question 2 – Hypotheses 2a-2d

	Hypothesis	Supported/Not supported
2a	High ethnic identity would be negatively associated with MDD and AUD, respectively.	MDD – Supported AUD – Supported
2b	High social support would be negatively associated with MDD and AUD, respectively.	MDD – Supported AUD – Not supported
2c	High social integration (with one's own ethnic group) would be positively associated with MDD and AUD, respectively.	MDD – Not supported AUD – Not supported
2d	High stress would be positively associated with MDD and AUD, respectively.	MDD – Supported AUD – Supported

## Q2, Hypotheses 2e-2h: Moderation Analysis – Cultural-Social Factors\*Discrimination

Question 2 – hypotheses 2e-2h (See Table 15) involved a moderation analysis to examine the potential moderating role of the four cultural-social factors in the relationship between the race-ethnic discrimination predictor and the outcomes. Thus, the moderation analysis examined the strength and/or direction of the relationship between the predictor and each outcome depending upon the presence or absence of each dichotomous moderator (MacKinnon, 2011). The moderation analysis was conducted following the guidelines of Baron and Kenny (1986) and MacKinnon (2011).

Step one included determining whether the predictor variable (race-ethnic discrimination) and the moderator variables were correlated (See Table 13). Findings indicate that the variables are not correlated with one another or weakly correlated (Cohen, 1998).

Table 13. Moderation Analysis, Step 1 – Correlation matrix for moderators, predictor and outcomes

	Discrimination	Ethnic Identity	Stress	Social Support	Social Integration	MDD	AUD
Discrimination	1.00						
Ethnic Identity	-0.01	1.00					
Stress	0.19	-0.06	1.00				
Social Support	-0.04	-0.01	-0.01	1.000			
Social Integration	-0.07	0.23	-0.11	-0.01	1.00		
MDD	0.08	-0.03	0.18	-0.11	0.01	1.00	
AUD	0.07	-0.04	0.16	-0.01	-0.07	0.07	1.00

Notes: all correlations are significant at the  $p < 0.05$  level.

For step two, an interaction term of each cultural-social factor variable with race-ethnic discrimination was created. Two logistic regression moderation models were tested – that included MDD or AUD, respectively, the predictor variable, the four moderator variables, and their corresponding interaction terms. The results of the moderation analysis are summarized in Table 14.

As stated in Baron and Kenny (1986) and in MacKinnon (2011), moderation hypotheses are supported only if the interaction terms are significant. In this dissertation study, none of the interactions with race-ethnic discrimination and the cultural-social factors were significant. Thus, hypotheses 2e through 2h were not supported. Cultural-social factors did not appear to play a moderating role for the relationship between race-ethnic discrimination and MDD and AUD, respectively. As a note, initially, each moderator and its interaction term was tested with the predictor and each outcome, independently. In these eight models, the interactions were not

significant. A discussion of potential reasons as to why the interactions were not significant follows in Chapter V: Discussion.

In terms of simple effects found in the interaction models, a few noteworthy points can be made. The race-ethnic discrimination predictor was not significant in either of the interaction models (MDD and AUD). To review from Question 1, race-ethnic discrimination did have a positive and significant bivariate association with the outcomes (See Table 6) in which the unadjusted odds for MDD was 2.0 and 1.8 for AUD. In light of the findings from the interaction models, it appears that perhaps the interactions may be interfering the magnitude of the race-discrimination effect on the outcomes. Taken together, these two findings point to further exploration as to which interaction relationship(s), in particular, may be diminishing with the effects of race-ethnic discrimination on MDD and AUD. In addition, many of the cultural-social factor variables in the interactions models were significant. Specifically, the MDD interaction model shows statistically significant simple effects for ethnic identity, social support stress and social integration. The AUD interaction model shows statistically significant simple effects of ethnic identity, stress, and social integration. These findings illustrate the important buffering and/or exacerbating roles of the cultural-social factors for each disorder. They strengthen results from the first analysis in Question 2, testing the main effects of the cultural-social factors and the outcomes, given that even with the interaction terms and race-ethnic discrimination added into the model, these factors still have significant effects on the outcomes.

Table 14. Hypotheses 2e-2h – Moderation analysis of cultural-social factors and race-ethnic discrimination

	MDD	AUD
Race-ethnic discrimination	1.2 (0.7-2.1)	1.3 (0.7-2.2)
Ethnic identity (EI)	0.7* (0.6-.9)	0.6* (0.5-0.8)
Social support (SS)	0.5* (0.4-.5)	1.0 (0.8-1.3)
Stress	3.8* (2.9-4.9)	3.4* (2.7-4.2)
Social integration (SI)	0.8* (0.6-0.9)	0.5* (0.4-0.6)
EI * Discrimination	1.1 (0.7-1.7)	1.4 (0.9-2.2)
SS * Discrimination	1.2 (0.8-1.8)	0.7 (0.5-1.1)
Stress * Discrimination	0.9 (0.5-1.5)	1.1 (0.7-1.6)
SI * Discrimination	1.4 (0.8-2.3)	0.9 (0.6-1.6)

Note: Values presented are adjusted odds ratios (ORs) (95% CI). \* indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

Table 15. Question 2 – Hypotheses 2e-2h

	Hypothesis	Supported/Not supported
2.e	Ethnic identity would moderate the relationship between perceived race-ethnic discrimination and outcomes. Specifically, the relationship would be weaker at higher levels of ethnic identity for race-ethnic minorities, both US-born and immigrant. Thus, ethnic identity would play a protective role.	MDD – Not Supported AUD – Not Supported
2.f	Social support would moderate the relationship between perceived race-ethnic discrimination and outcomes. Specifically, the relationships would be weaker at higher levels of social support for race-ethnic minorities, both US-born and immigrant. Thus, social support would play a protective role.	MDD – Not Supported AUD – Not Supported
2.g	Stress would moderate the relationship between perceived race-ethnic discrimination outcomes. Specifically, the relationships would be stronger at higher levels of stress for race-ethnic minorities, both US-born and immigrant. Thus, stress would be a potential risk factor.	MDD – Not Supported AUD – Not Supported
2.h	Social integration would moderate the relationship between perceived race-ethnic discrimination and outcomes. Specifically, the relationship would be stronger at higher levels of social integration with	MDD – Not Supported AUD – Not Supported

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one's own ethnic group for race-ethnic minorities, both US-born and immigrant. Thus, social integration would be a potential risk factor.

#### **Chapter V.IV. – Hypotheses 3a-3d: Exploratory Analysis of Cultural-Social Factors and Outcomes – Stratified by Race-Ethnic Discrimination**

The major component of the dissertation was to examine whether the relationship between race-ethnic discrimination and the mental health outcomes (MDD and AUD) was moderated by a set of cultural-social factors. While moderation analysis did not result in significant findings, the dissertation study did find significant and positive relationships between race-ethnic discrimination and the mental health disorders among US-born and immigrant minorities. Further, there were strong associations between the cultural-social factors and both outcomes when tested for hypothesis 2.

Thus, this exploratory analysis takes a closer look at important associations between the four cultural-social factors and the outcomes *among a sub-sample of minorities who have experienced past year race-ethnic discrimination* (n = 2,643). The goal of this exploratory analysis was to uncover potential associations that add to a risk and protective framework given the adversity of race-ethnic discrimination. Future work will include a comparative analysis between a stratified sub-sample of minorities who did not experience past year race-ethnic discrimination and those who did.

These analyses utilized bivariate logistic regressions stratified by *individuals who reported past year race-ethnic discrimination* to determine the associations between the cultural-social factors and each outcome for the three race-ethnic and two immigrant sub-populations. Hypotheses 3a-3d are stated in Table 24.

Findings showed some variations in the associations between the four cultural-social factors and outcomes across race-ethnic and immigrant/US-born groups indicating a nuanced set of risk and protective factors for minorities who experienced race-ethnic discrimination. Results for MDD (See Tables 16-19) are presented below followed by results for AUD (See Tables 20-23).

Hypothesis 3a, asserting high ethnic identity would be negatively associated with MDD was supported only for Blacks. While most odds ratios across the five sub-populations demonstrated that MDD was less likely in the presence of high ethnic identity (aside from Asians in which findings were reversed) the relationship was only significant for Blacks. The odds of MDD among Black individuals who experienced race-ethnic discrimination and reported high ethnic identity was 0.6 times lower than for their counterparts who reported low ethnic identity. Thus, for Blacks who experienced race-ethnic discrimination, strong ethnic identification is a protective factor for MDD.

Table 16. Associations between ethnic identity and MDD among those who experienced race-ethnic discrimination

	Ethnic Identity (high ethnic identity = 1)	
	ORs	95% CI
Black/Non-Hispanic	0.6*	0.4 - 0.9
Hispanic	0.7	0.4 - 1.3
Asian	1.8	0.4 - 8.2
Immigrant	0.9	0.4 - 1.9
US-born	0.8	0.5 - 1.1

Note: Values presented are unadjusted odds ratios (ORs), 95% CI. \*indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

Hypothesis 3b, high social support would be negatively associated with MDD and AUD, respectively, was found to be true for MDD. Blacks, Hispanics, immigrants and immigrant sub-populations who experienced discrimination and reported high social support had a lower risk of



MDD compared to their counterparts who reported low social support. Thus, high social support among these groups is protective.

The only note is that while the pattern held true for Asians, results were not significant. Odds ratios for Black, Hispanic, immigrant and US-born individuals were close in range from 0.4 to 0.6.

Table 17. Associations between social support and MDD among those who experienced race-ethnic discrimination

	Social Support (high social support = 1)	
	ORs	95% CI
Black/Non-Hispanic	0.6*	0.4 - 0.9
Hispanic	0.4*	0.2 - 0.7
Asian	0.5	0.07 - 3.3
Immigrant	0.6*	0.4 - 1.1
US-born	0.5*	0.3 - 0.7

Note: Values presented are unadjusted odds ratios (ORs), 95% CI. \*indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

Hypothesis 3c indicated that high social integration with one's own ethnic group would be positively associated with the outcomes for those who experienced race-ethnic discrimination. As seen in the following description, for the outcome MDD, hypothesis 3c held true for Asians only. For Asians who experienced discrimination, high social integration with one's own ethnic group was positive and significant – with odds of MDD being almost five times greater compared to their counterparts who reported high social integration with other ethnic groups. Thus, it appears that preference for socialization with one's ethnic cultural group and native language use over English may be a noteworthy risk factor for Asians.

While not statistically significant, this pattern was also true for Black, immigrant and US-born groups (ORs 1.1, 1.2, and 1.4, respectively). Interestingly, the opposite relationship was found for Hispanic respondents. In other words, the odds of MDD were lower for Hispanic

individuals who experienced race-ethnic discrimination and reported high social integration for one's own ethnic group than for their counterparts who reported high social integration with other ethnic groups. However, the odds ratio of 0.8 was not significant at the  $p = 0.05$  level.

Table 18. Associations between social integration and MDD among those who experienced race-ethnic discrimination

	Social Integration (stronger preference for socialization with own ethnic group = 1)	
	ORs	95% CI
Black/Non-Hispanic	1.1	0.5 - 2.4
Hispanic	0.8	0.5 - 1.4
Asian	4.9*	0.8 - 31.7
Immigrant	1.2	0.5 - 2.5
US-born	1.4	0.7 - 2.6

Note: Values presented are unadjusted odds ratios (ORs), 95% CI. \*indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

The social factor, stress, is a strong risk factor in the presence of race-ethnic discrimination for MDD across all sub-populations, in keeping with hypothesis 3d (*high stress would be negatively associated with MDD and AUD, respectively*). While the negative relationship remained for Asians, findings were not significant. High stress was associated with three and a half times greater risk of MDD for Black individuals who experienced discrimination compared to those who reported low stress in their lives. Similarly, the odds for Hispanic, US-born, and immigrants who experienced discrimination and reported high stress, were more than three times greater for MDD than their counterparts who reported low stress (ORs = 3.4, 3.4, and 3.3, respectively).

Table 19. Associations between stress and MDD among those who experienced race-ethnic discrimination

	Stress (high stress = 1)	
	ORs	95% CI
Black/Non-Hispanic	3.5*	2.2 - 5.7
Hispanic	3.4*	1.9 - 5.7
Asian	2.4	0.8 - 7.4
Immigrant	3.3*	1.9 - 5.4
US-born	3.4*	2.3 - 5.0

Note: Values presented are unadjusted odds ratios (ORs), 95% CI. \*indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

Analyses for AUD, cultural-social factors, and discrimination are presented in Tables 21-24. High ethnic identity and social support appear to protect against AUD in the presence of discrimination across sub-populations. First, ethnic identity plays a buffering role among Hispanics and immigrants with odds ratios (ORs = 0.5, 0.4, and 0.7, respectively) being lower and significant for AUD. These results provide support for hypothesis 3a (*a negative relationship between high ethnic identity and AUD*). However, ethnic identity was not significant for Asians, Blacks, or US-born sub-populations.

Table 20. Associations between ethnic identity and AUD among those who experienced race-ethnic discrimination

	Ethnic Identity (high ethnic identity = 1)	
	ORs	95% CI
Black/Non-Hispanic	1.2	(0.8 - 1.9)
Hispanic	0.5*	(0.3 - 0.8)
Asian	0.7	(0.1 - 8.4)
Immigrant	0.4*	(0.2 - 0.9)
US-born	1.1	(0.7 - 1.7)

Note: Values presented are unadjusted odds ratios (ORs) (95% CI). \*indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

Second, for social support, in keeping with hypothesis 3b that affirmed a negative relationship, for Black and US-born individuals who experienced discrimination, the odds of AUD were lower and significant for those who had strong support networks than for those who did not. Accordingly, lack of strong social support may be a risk factor in the discrimination-AUD relationship. The same held true for Asians and immigrants, however, the results were not significant at the  $p = 0.05$  level.

Table 21. Hypothesis 3b – Associations between social support and AUD among those who experienced race-ethnic discrimination

	Social Support (high social support = 1)	
	ORs	95% CI
Black/Non-Hispanic	0.6*	(0.4 - 0.8)
Hispanic	1.1	(0.7 - 1.8)
Asian	0.8	(0.1 - 8.0)
Immigrant	0.8	(0.5- 1.6)
US-born	0.7*	(0.5 - 0.9)

Note: Values presented are unadjusted odds ratios (ORs) (95% CI). \*indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

The findings for the relationship between the cultural factor, social integration, and AUD among those who experienced race-ethnic discrimination is not supported for any sub-population – speculating a positive relationship between high social integration with one’s own ethnic group and AUD. In fact, the hypothesis (3c) is in the *opposite direction* of what was found for two minority groups. Black and Hispanic individuals, who experienced discrimination, had lower odds of AUD compared to their race-ethnic counterparts who did not. Thus, a *negative relationship* was found indicating that *high social integration with one’s own ethnic group* may be, in fact, a *protective* factor for AUD among Blacks and Hispanics.

Table 22. Hypothesis 3c – Associations between social integration and AUD among those who experienced race-ethnic discrimination

	Social integration (stronger preference for socialization with own ethnic group = 1)	
	ORs	95% CI
Black/Non-Hispanic	0.3*	(0.1 - 0.9)
Hispanic	0.4*	(0.2 - 0.7)
Asian	1.5	(0.2 - 12.3)
Immigrant	0.6	(0.2 - 1.4)
US-born	0.7	(0.4 - 1.4)

Note: Values presented are unadjusted odds ratios (ORs) (95% CI). \*indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

In full support of hypothesis 3d, high stress was shown to be a clear risk factor for increased odds of AUD in the presence of race-ethnic discrimination for all sub-populations. Of note, Asians with a great deal of stress in their lives appeared to be particularly at risk. The odds were alarmingly 10.5 times greater for AUD among Asians who experienced discrimination and reported high stress than among Asians who reported little stress in their lives. As well, while not as high, the odds were 4.6 times greater for immigrants who experienced discrimination and reported high stress than their counterparts with little stress. For Black, Hispanic and US-born individuals who experienced race-ethnic discrimination and endured high stress, the odds were about 3 times higher for AUD than among their counterparts with low stress.

Table 23. Hypothesis 3d – Associations between stress and AUD among those who experienced race-ethnic discrimination

	Stress (high stress = 1)	
	ORs	95% CI
Black/Non-Hispanic	3.1*	(2.1 - 4.6)
Hispanic	3.1*	(1.7 - 5.4)
Asian	10.5*	(1.5 - 74.4)
Immigrant	4.6*	(2.3 - 9.5)
US-born	2.9*	(2.1 - 4.2)

Note: Values presented are unadjusted odds ratios (ORs) (95% CI). \*indicates significance,  $p < 0.05$ . Weighted to national level using sampling weights (Grant & Dawson, 2006).

Table 24. Exploratory analysis – Hypotheses 3a-3d

	Hypothesis	Supported/Not supported
3a	Among minorities who experienced race-ethnic discrimination in the past year, high ethnic identity would be negatively associated with the outcomes (Protective).	MDD – Supported for Blacks only. AUD – Supported for Hispanics & immigrants.
3b	Among minorities who experienced race-ethnic discrimination in the past year, high social support would be negatively associated with the outcomes (Protective).	MDD – Supported for all except Asians. AUD – Supported for Blacks & US-born.
3c	Among minorities who experienced race-ethnic discrimination in the past year, high social integration (with one’s own ethnic group) would be positively associated with the outcomes (Risk).	MDD – Supported for Asians only. AUD – Not supported.
3d	Among minorities who experienced race-ethnic discrimination in the past year, high stress would be positively associated with the outcomes (Risk).	MDD – Supported for all except Asians. AUD – Supported for all sub-pops.

## CHAPTER VI: DISCUSSION

The Surgeon General’s culturally-focused supplement to the landmark report on the state of mental health in the United States (USDHHS, 2000) stated that racial discrimination was an important risk factor for mental health disorders. It is critical to examine the experiences and issues that face minorities especially given the ever-changing population dynamics and consistent health and mental health disparities that exist in the United States.

Currently, 40 million, or 13% of the total US population are immigrants (US Census Bureau, 2012). According to recent census speculations (US Census Bureau, 2012), the population in the US will change significantly given the rapidly growing immigrant population. The Asian, Hispanic, and Black populations are expected to continue to increase, and White

individuals could essentially become a statistical minority. This demographic shift requires needed research and attention to the distinct experiences of immigrant and US-born minority groups. This dissertation extends research on race-ethnic discrimination to examine race-ethnic group differences beyond the Black-White paradigm and further highlights differences between US-born and immigrant minorities. Table 25 provides a numeric summary of findings from Question 1 of the dissertation study.

In its use of the resilience framework, this dissertation expands its applicability within an adult population; results highlight risk and protective cultural and social factors that may play a role in exacerbating or buffering the negative mental health effects among adult minorities who experience race-ethnic discrimination. The high prevalence of race-ethnic discrimination found in the dissertation study across multiple populations as well as the compelling evidence about its mental health association suggests a strong need for further study of discrimination, cultural factors, and mental health outcomes. The findings from this study will contribute to ideas for enhanced preventative and intervention services and promote policies that meet the unique and diverse needs of minorities.

### **Unique Contributions of the Dissertation**

While prevalence rates and associations between discrimination and mental health problems have been previously documented, the dissertation study is unique in its approach to understanding the negative association between race-ethnic discrimination and mental health in four important ways that lend legitimacy and accuracy to the understanding of the prevalence of race-ethnic discrimination. First, the dissertation utilized NESARC, drawing from data that allowed for an exploration of a large and nationally representative sample of minorities. In so

doing, it is possible to examine statistical effects among a sample of minorities and specifically, to compare across US-born and immigrant groups.

Second, the dissertation study examined the influences of discrimination on two prevalent mental health disorders according to DSM-IV diagnostic criteria. Most studies have looked at many other aspects of mental health (e.g. psychological distress, symptoms of depression) and its relationship with discrimination but have not examined disorders (Gee, Spencer, Chen, Yip, and Takeuchi, 2007). Discrimination may influence mental health disorders by leading to affective responses such as sadness and thus, shape one's appraisal or perceptions of their environment (Harrell, 2000). Further, discrimination may reinforce one's social position or social status as being secondary or less-than which in turn, may negatively impact self-esteem and one's self-concept (Coll, 1996; Marmot, 2004). Finally, given the more symbolic and subtle forms of discrimination that exists in today's world, the very nature of discrimination may lead to ambiguity, rumination, and hopelessness, which may be risk factors for depression and other mental health disorders (Harrell, 2000; Nolen-Hoeksema, Larson, & Grayson, 1999).

Third, discrimination research has often compared African Americans to Whites without exploring discrimination across other race-ethnic groups (Williams et al., 2003). By exploring and comparing the associations between race-ethnic discrimination and mental illness among Black, Hispanic, and Asian minorities, the dissertation has allowed a focus on minority issues as well as shown that Hispanic and Asian minority groups experience race-ethnic discrimination along with their Black counterparts. Further, by focusing on comparisons as well as an examination of cultural and social risk and protective factors among minority groups, unique experiences salient to being a minority may be explored. For example, immigrants tend to face similar acculturation processes that may be influenced by American societal norms such as



individualistic attitudes and behaviors (Alegría et al., 2008) and must cope with inherent and often covert discrimination toward minorities (Ahmed et al., 2007; Mohammed, & Williams, 2007).

Fourth, in contrast with many other studies of discrimination, NESARC used an instrument designed to assess discrimination specifically due to one's race-ethnicity. For example, a recent study by McLaughlin and colleagues (2010) utilizing NESARC reported prevalence rates for past year discrimination among four distinct groups, including Black and Hispanic individuals, women and those who identified as lesbian, gay or bisexual (LGB). Although the dissertation study drew from the same nationally representative sample, it focused on discrimination having to do with *race-ethnicity* in particular, whereas McLaughlin and colleagues (2010) combined three discrimination types, race-ethnicity, gender, and sexual orientation, into a composite measure of general discrimination.

### Hypothesis One – Discussion

Table 25. Question 1 – Summary of findings by race-ethnic groups and immigrant versus US-born groups

Prevalence of race-ethnic discrimination – full sample, %		19.5									
		MDD					AUD				
		D		No			D		No		
Prevalence of outcomes by discrimination – full sample, %		12.3		6.5			12.1		7.2		
Sub-populations		Black		Hispanic		Asian		Immigrant		US-born	
		D	No	D	No	D	No	D	No	D	No
Prevalence of outcomes by discrimination – %MDD		12.6	6.3	13.3	7.0	9.4	5.8	10.9	5.3	13.0	7.4
Prevalence of outcomes by discrimination – %AUD		19.9	7.2	13.1	8.0	3.9	5.1	6.4	4.4	15.0	9.2
<i>Associations between discrimination &amp; outcomes stratified by sub-pop</i>											
Odds ratios (ORs) – MDD		2.1*		2.0*		1.8		2.2*		1.9*	

Odds ratios (ORs) – AUD      1.7\*      1.4 (1.7\*)      0.84      1.2      1.6\*

Note: Values presented are adjusted odds ratios except where noted (ORs) (95% CI). \* indicates significance,  $p < 0.05$ . D indicates experienced race-ethnic discrimination. (unadjusted). Weighted to national level using sampling weights (Grant & Dawson, 2006).

### **Prevalence of discrimination**

The current study yielded significant finding in terms of the prevalence of race-ethnic discrimination. Among Black, Hispanic, and Asian minorities both US-born and immigrant, almost 20% reported discrimination because of their race-ethnicity in the past year. While a landmark study that analyzed data from a national telephone-mail survey concluded that discrimination is prevalent among 33.5% of individuals in the United States (Kessler et al., 1999) it assessed discrimination broadly, asking respondents whether they experienced discrimination due to race, ethnicity, gender, sexual orientation, religion, or physical appearance. The dissertation findings speak to the entrenched way that specifically, race-ethnic discrimination pervades American society.

It is challenging to compare prevalence rates of discrimination across studies given the complexities and differences in the measurement of discrimination. In addition, discrimination experiences may be perceived differently and thus, reported differently given the experiences and appraisals of particular populations. For example, when assessing discrimination among Hispanic individuals, unless a discrimination measure to capture specifically race-ethnic discrimination is utilized, researchers may not be able to determine whether reported discrimination is due to ethnicity, immigrant status, or language (Araújo & Borrell, 2006). When *type* of discrimination experienced is not defined it is more challenging to determine coping strategies to manage and to ultimately decrease its prevalence. The current study findings showing that discrimination *due to race-ethnicity* was prevalent among about 20% of minorities has significant indications for prevention and intervention efforts in a more thorough way than

discrimination measures that do not focus on a particular type of discriminatory experience.

What can be concluded from this dissertation is that race -ethnic discrimination, specifically, is ubiquitous among minorities both US-born and immigrants.

### **Discrimination and its Association with Negative Mental Health Outcomes**

Pascoe and Smart-Richman (2009) in a landmark meta-analysis of perceived discrimination and physical and mental health found overwhelming support for the negative association of perceived discrimination on several health-related outcomes including well-being and psychological distress. In fact, discrimination may contribute to existing mental health disparities by way of limiting access to social and economic resources (Blanco et al., 2007; Williams & Mohammed, 2009). Existing evidence ranging from community-based studies to national studies strongly supports a positive association between discrimination and mental health outcomes (Banks et al., 2006; Hwang & Gotto, 2008; Moradi & Risco, 2006; Williams, et al., 1997; Noh et al., 1999; Williams & Williams-Morris, 2000). Williams and colleagues (2003) conducted a review of empirical studies examining the associations between perceived race-ethnic discrimination and health and mental health outcomes. They concluded that discrimination is associated with many indicators of poor health status and is especially detrimental to mental health status. However, Pascoe and Richman (2009) cited only two studies that provided sufficient quantitative evidence of the negative association of discrimination with clinical levels of mental illness.

One of the studies utilizing diagnostic criteria was conducted by Gee and colleagues (2007b). They utilized the nationally representative NLAAS data that included 2,095 Asian Americans and oversampled three Asian ethnic groups in the United States, Chinese, Vietnamese, and Filipino. Gee et al. (2007b) documented an association between racial

discrimination and DSM-IV defined mental disorders among Asian respondents. However, unlike this dissertation study, they did not distinguish between Asian immigrants and Asians born in the United States. They found that discrimination was associated with greater odds of having depressive or anxiety disorders among Asian Americans. The current dissertation study advances their findings by examining race-ethnic discrimination specifically due to one's race-ethnicity comparatively across US-born and immigrant minorities.

### **MDD, AUD and Race-Ethnic Discrimination**

In this dissertation study, bivariate analyses to examine prevalence rates of two DSM-IV disorders, MDD and AUD, among minorities revealed higher rates of mental health disorders among those who had experienced race-ethnic discrimination. The prevalence of MDD among minorities who reported past year race-ethnic discrimination was two times greater compared to their counterparts who reported no race-ethnic discrimination experiences in the past year. The findings were similar for AUD. This is important given that few studies have assessed AUD as an outcome, according to Pascoe and Smart-Richman (2009). In addition, results from logistic regression analysis revealed that minorities who experienced race-ethnic discrimination were two times as likely to experience MDD and 1.8 times as likely to experience AUD as their counterparts who did not experience race-ethnic discrimination. These results compliment and add to the findings of previous studies in demonstrating the deleterious nature of race-ethnic discrimination on mental disorders among minorities.

### **Sub-population Differences in the Associations between MDD, AUD, and Race-Ethnic Discrimination**

Since many studies have either focused solely on experiences of racial discrimination of Black individuals or have made comparisons between Black and White individuals (Gee et al.,

2009; Kessler et al., 1999; Araújo & Borrell, 2006) it was critical to examine differences between minority groups as well as to make comparisons between US-born and immigrant minorities. While the dissertation study revealed little variation across sub-groups in terms of the strength of the positive association between race-ethnic discrimination and mental illness, there are some noteworthy conclusions: (1) Blacks and Hispanics who experienced race-ethnic discrimination have comparable mental health risks (2) Mental health advantages differ between US-born and immigrant minorities.

### **Blacks and Hispanics – comparable mental health risks.**

Findings from the dissertation study demonstrated that among Black and Hispanic individuals who experienced race-ethnic discrimination, the mental health risks for MDD were comparable. For AUD, the logistic regression findings were significant only for Blacks. However, prevalence analyses indicated that AUD rates were similar among Blacks and Hispanics who experienced race-ethnic discrimination.

The finding that Blacks who experienced race-ethnic discrimination had an approximate two-fold increase in risk for MDD and AUD is not surprising given the legacy of slavery that positioned Blacks as second-class citizens as well as institutional racism that continues to exist in the United States (Williams & Williams-Morris, 2000; Ahmed et al., 2007). The dissertation study findings are in keeping with the large body of evidence highlighting the significant **associations between** race-ethnic discrimination and Black individuals in the United States. For example, using data from the National Survey of Black Americans, Jackson et al., (2006) found that Blacks who reported mistreatment due to their race experienced higher levels of psychological distress. Likewise, in a national study of African American youth, perceived discrimination was positively associated with depressive symptoms and negatively associated

with self-esteem (Seaton & Sellers, 2008). Among 2,638 Black respondents in the study National Survey of Black Workers, heavy drinking and alcohol dependence was associated with racial discrimination (Martin, 2003). Finally, in a rare longitudinal study on discrimination among 2,000 African Americans, racial discrimination predicted higher levels of depressive symptoms one to two years later (Brown et al., 2000).

For Hispanics, research on race-ethnic discrimination has been sparse compared to Blacks given that traditionally discrimination research has focused primarily on Blacks. Further, the tremendous ethnic diversity within the population as well as complexities related to measuring discrimination in ways that are culturally salient have made researching discrimination among Hispanic population challenging (Araújo, & Borrell, 2006). Finally, much of the existent research has been conducted on Mexican Americans and Mexican immigrants (Araújo, & Borrell, 2006). However, a burgeoning literature demonstrates that Hispanic individuals experience negative mental outcomes when faced with discrimination. An early study of Mexican American women found that women who experienced discrimination had more depressive symptoms than those who did not (Salgado de Snyder, 1987). Another study comparing Mexican Americans and Blacks found no differences in the total level of psychological well-being between those who experienced discrimination (Ryff, Keyes, & Hughes, 2003). Further, Finch et al., (2000) found that among Mexican women, perceived discrimination was related to psychological distress when other stressors relating to acculturation were controlled. Moradi and Risco, (2006) conducted a study with a diverse sample of Hispanic Americans. They found that perceived discrimination was correlated with increased psychological distress and a low sense of personal control.

The dissertation study uniquely extends literature on perceived race-ethnic discrimination

among Hispanics as it examined mental health disorders among a large, nationally representative sample of Hispanic respondents. Taken together, findings from the dissertation on the prevalence of race-ethnic discrimination as well as the substantial risk of mental health disorders suggest that race-ethnic discrimination is a pervasive struggle for Hispanic individuals and warrants future work to explore within-group differences and discriminatory experiences unique to the Hispanic population (e.g. skin color, accent).

### **Differential Mental Health Advantages among US-born and Immigrant Minorities**

The dissertation study extends what is known about the effects of race-ethnic discrimination by assessing and comparing outcomes among US-born and immigrant minorities. Some of the extant literature does distinctly compare US-born versus immigrant groups (Grant et al., 2004c; Tran et al., 2010) but other studies are unclear about their sample make-up utilizing terms such as “Asian American” without specifying whether they are focusing on Asian American US-born individuals or Asian American immigrants (Hwang & Gotto, 2008; Gee et al., 2007b). Findings from the present study suggest that US-born and immigrant minorities who experienced race-ethnic discrimination have differential health advantages compared to one another.

First, when controlling for socio-demographic variables, dissertation study results indicate that both immigrants and US-born minorities who experience race-ethnic discrimination are at elevated risk for MDD. However, the risk is lower for US-born individuals indicating a potential protective effect of being born in the United States. This finding is intriguing because it is contrary to what many studies have found in which immigrants tend to fare better than their US-born counterparts especially regarding mood and substance use disorders (Alegria et al., 2008; Breslau et al., 2006; Breslau, et al., 2009; Vega, Sribney, Aguilar-Gaxiola, Kolody, 2004;

Grant et al., 2004d). Researchers have dubbed the phenomenon of immigrants faring better in terms of mental health outcomes (i.e. depressive symptoms, psychological distress, substance-related issues) as the ‘immigrant paradox’ (Breslau & Chang, 2006; Grant et al., 2004c; Vega et al., 2004). Thus, the dissertation findings are contrary to the ‘immigrant paradox’ for immigrants who experienced race-ethnic discrimination when risk of MDD was higher compared to their US-born counterparts.

Second, the dissertation study found a statistically significant positive association between race-ethnic discrimination and AUD among US-born and immigrant minorities which is in keeping with another study examining discrimination and alcohol issues among minorities (Martin, Tuch, & Roman, 2003). Interestingly, however, the odds of AUD were lower among immigrants group suggesting a protective effect of immigrant status and thus, lending support to the ‘immigrant paradox’. This latter pattern is consistent with research that has shown that Hispanic and Asian immigrants have a lower risk of AUD compared to Black individuals and compared to their US-born Hispanic and Asian counterparts (Grant et al., 2004b; Stinson et al., 1998; Szaflarski et al., 2010). In fact, in the dissertation sample, less than 1% of Asians had AUD compared to almost 4% of Blacks and Hispanics.

While differences in the discrimination-mental health relationship were minimal in the dissertation study between US-born and immigrant minorities, a critical look addressing the findings is warranted given limited and somewhat conflicting evidence in this area (Yip, Gee, & Takeuchi, 2008; Kuo, 1995). In light of the dissertation’s findings, the following discussion reviews literature on the ‘immigrant paradox’ both in support of it as well as instances where it does not hold true.

### **The ‘Immigrant Paradox’ – Supported**



Prevalence analysis of the rates of MDD and AUD in the dissertation study provides support for the ‘immigrant paradox’ in that immigrants had lower rates of both MDD and AUD compared to their US-born counterparts. And, further, as stated above, immigrants who experienced race-ethnic discrimination had lower odds of AUD compared to their US-born counterparts. These findings are in keeping with the extant literature on the mental health advantage among immigrants.

Alegria et al., (2008) combined nationally representative datasets, NCS-R and NLAAS, to ensure sufficiently large sample of Latino immigrants and US-born individuals. Their findings suggested that Latino immigrants fared better than their US-born Latino counterparts in terms of mental health disorders (Alegria et al., 2008). Specifically, US-born Latinos were at significantly greater risk for major depressive episode, any depressive episode, alcohol dependence, alcohol abuse, and other mental health disorders when compared to Latino immigrants. In another study supporting the ‘immigrant paradox’ Breslau and Chang (2006) found that for Asian immigrants, the risk for psychiatric disorders was lower than for their counterparts who were born in the US.

There are two oft-cited hypotheses that provide some explanations for the ‘immigrant paradox’ (Breslau & Chang, 2006; Vega et al., 2004; Koya & Egede, 2007; Takeuchi et al., 2007). One, the ‘healthy migrant effect’ hypothesis suggests that immigration is selective of healthier and more psychologically robust individuals. Two, factors related to cultural norms and values may proscribe negative health behaviors (i.e. use of alcohol) and in turn, encourage health behaviors such as better nutrition and familiar support. This latter explanation is supported by the dissertation study findings that the cultural-social factors, ethnic identity, social integration with one’s own ethnic group, and social support were protective factors for immigrants.

### **The ‘Immigrant Paradox’ – Why it May Not Always Hold True**

Despite the aforementioned evidence in support of the ‘immigrant paradox’, there are important exceptions supported by extant literature as well as the findings of the dissertation that suggest immigrants do not always fare better in terms of mental health problems compared to their US-born counterparts. Although the dissertation study findings pointed to the potential protective role of immigrant status for AUD, there are also important reasons to further investigate the relationship between AUD and immigrants given recent findings suggesting that alcohol-related disorders may be on the rise among immigrant populations. For example, a longitudinal study demonstrated an increase in alcohol use among Asian immigrants from 1990 to 2001 (Grant et al., 2004a). In addition, a study among Hispanic immigrants found an increase in binge drinking among certain Hispanic immigrant groups (Brown, Council, Penne, & Gfroerer, 2005). Four salient cultural-environmental factors will be discussed that may explain why the ‘immigrant paradox’ does not always hold true including: (1) heterogeneity within immigrant groups, (2) acculturation factors, (3) United States’ social-cultural norms, and (4) racism and discrimination. The discussion of racism and discrimination is expanded upon to include all minorities given its salience to the dissertation findings that minorities, both US-born and immigrants, experienced elevated odds of MDD and AUD due to race-ethnic discrimination.

First, ethnic heterogeneity may lead to differential mental health risks among immigrants. In the study previously discussed by Alegria and colleagues (2008) when Latinos were disaggregated by sub-ethnic group, the protective immigrant effect held true for some sub-ethnic groups but not for others. For example, Mexican immigrants reported significantly lower prevalence of mental health disorders than Mexicans born in the United States. However, for Cuban immigrants, the prevalence rates were lower only for substance use disorders. Furthermore, there were no significant differences found in the risk of any lifetime disorders

between immigrants from Puerto Rico and US-born Puerto Ricans indicating that immigrant status may not be protective.

Second, acculturation factors such as age at immigration or length of stay in the United States contribute to declining health and mental health patterns among immigrants (Szaflarski, 2010; Vega, 2004). An intriguing study using data from the National Health Interview Survey (NHIS) found that among 5,230 ethnically diverse immigrant adults, longer stay in the US was associated with increased risk of obesity and cigarette smoking (Koya & Egede, 2007). Breslau and Chang (2006) found that for Asian immigrants who arrived to the US prior to age 13, risk for illness was higher than for those arriving after age 13. Thus, the length of exposure to American culture in conjunction with developmental stage may determine risk for psychiatric disorders.

Third, social-cultural norms within the United States may further explain changes to the protective immigrant status as immigrants become assimilated to these macro-level societal behaviors and customs. For example, it is a cultural norm in the United States to self-medicate as a way to cope with hardships (Alegria et al. 2008). Self-medicating behaviors may also explain why US-born individuals have higher rates of mental health disorders. Further, other social norms including constant pressure to succeed and to increase productivity, as well as the ethos of prescribing medications to solve problems (Vuckovic & Nichter, 1997) provide other explanations for the potential waning of the immigrant paradox over time (Grant et al., 2004c; Takeuchi et al., 2007; Breslau et al., 2006; Gee et al., 2007b).

Fourth, potentially the most influential and pervasive cultural-environmental component in the lives of immigrants is the exposure to racism and perceived discrimination. Studies have shown that immigrants who experienced race-ethnic discrimination had poor mental health outcomes. For example, a community study conducted by Gee et al. (2006b) examined the

associations between discrimination and psychological well-being among African and Mexican American immigrants. They concluded that discrimination experiences may explain declining mental health status over time among immigrants. As well, Tran and colleagues' (2010) utilized a population-based public health survey in a large city in Minnesota to examine drinking patterns and discrimination among Hispanic, African-born Black, and Asian immigrants. They found that discrimination was associated with an increased number of drinking days in the past month as well as increased binge drinking behaviors.

Taken together, in light of the dissertation's findings and extant literature, these factors suggest that the 'immigrant paradox' may be more complicated and less stable especially when considering cultural and environmental factors.

### **Racism and Race-Ethnic Discrimination – Illuminating the Mental Health Relationship**

Several avenues of research have elucidated potential mechanisms by which race-ethnic discrimination **influences** negative mental health outcomes among minorities including; racism and discrimination as a 'social cause of disease', internalization of racism, and race-ethnic discrimination as a stressor.

Ahmed et al. (2007) stated, "Racism is an organizational system undergirded by an ideology of inferiority. . ." (p.318). It is this ideology that has assigned hierarchical status to groups of individuals whether it be due to race, ethnicity, class, religion, gender, etc. These social positions or attributes place individuals within a social hierarchy based on their imputed worth, utility, or importance within society (Coll, 1996). Marmot (2004) purported that the lower the status on the societal ladder, the higher risk of illness and even death. This sentiment is echoed in the seminal work of Link and Phelan (1995) who introduced the concept of social causes as fundamental causes of disease.

Social causes of disease, such as socioeconomic status (SES) act alongside more proximal, individual-level causes of disease more commonly understood to be related to illness (i.e. genetics and health promoting behaviors). In other words, social factors such as race-ethnicity, immigrant status, SES and other social positions may act as social causes and subsequently lead to disease by way of limiting access to resources that may minimize risk of disease or exacerbate the consequences once disease does occur (Link & Phelan, 1995; Ahmed et al., 2007; Marmot, 2004; Smedley, Stith, & Nelson, 2003). Many minorities must contend with social injustice and limited opportunities for social mobility, neighborhood violence, and poverty (Hochschild, 1995; Chow, Jaffee, & Snowden, 2003). Potentially, these socio-environmental challenges could lead to mental health disorders such as MDD and AUD (Cho et al., 2003; Ahmed et al., 2007). Given this understanding of social position and its ensuing challenges, racism may be conceptualized on a more macro-level as a potential fundamental cause of disease.

A more micro-level association between race-ethnic discrimination and negative mental health outcomes can be attributed to the internalization of racism and discrimination. The internalization of negative stereotypes and prejudices by groups who are stigmatized can have deleterious effects on mental health and daily life. Studies have shown that internalization of racial stereotypes leads to reactions that effect academic performance among school-age children and adolescents (Fischer et al., 1996). Other studies have found that internalized racism was associated with increased alcohol use and psychological distress (Taylor & Jackson, 1990).

Finally, race-ethnic discrimination has been conceptualized as a chronic stressor – independent of other stressors (Klonoff & Landrine, 2000) – indicating that discrimination is a stressor in its own right. As a chronic stressor, race-ethnic discrimination acts through a complex

process that ultimately restricts access to needed services including preventive services and medical care (Pascoe, & Smart-Richman, 2009; Williams & Mohammad, 2009). Further, discrimination may lead to other stressors in individual's lives when, for example, access to resources are limited or when minorities are confined to overcrowded and sub-standard living conditions (Williams et al., 2003). Pearlin et al. (1981) has defined this notion of 'stress begetting stress' as stress proliferation – a useful term when understanding the impact of multiple stressors on health and mental health status. Stress proliferation occurs when an initial stressor, such as race-ethnic discrimination, gives rise to an accumulation of stressors that affect many domains of life including relationships, employment, and health and mental health (Pearlin, Aneshensel, & Leblanc, 1997).

Thus, the relationship between race-ethnic discrimination and mental health outcomes is complex with multiple factors at play. While it is important to understand these mechanisms it is also critical to identify factors that may buffer or exacerbate this deleterious relationship.

### **Hypothesis 2 – Discussion**

Given that race-ethnic discrimination influences minorities from many different backgrounds, attention to the potential role of cultural-social factors in moderating this compelling relationship is vital. In so doing, Question 2 of the dissertation has added to the literature on resilience of mental health issues for adults by identifying culturally salient risk and protective factors among a nationally representative sample of minorities. Table 26 provides a numeric summary of findings from Question 2 of the dissertation study testing associations between the cultural-social factors and the outcomes. Most studies of risk and protective factors for mental health issues involve micro-level factors such as coping styles, perceived self-efficacy, and parenting styles (Muris, Schmidt, Lambrichs & Meesters, 2001; Resnick, 2000).

Moreover, much of the literature on risk and protective factors involves children and adolescents (Acierno, Ruggiero, Kilpatrick, Resnick, & Galea, 2006; Werner, 1993).

Table 26. Question 2 – Summary of findings: Cultural-social factors by outcomes

C-S Factors	MDD	P/R	AUD	P/R
Ethnic Identity, high	0.8*	P	0.8*	P
Social Support, high	0.5*	P	0.9	--
Social Integration, high	0.9	--	0.6*	P
Stress, high	3.9*	R	3.3*	R

Note: Values presented are unadjusted odds ratios (ORs) (95% CI). \* indicates significance,  $p < 0.05$ . P = protective factor. R = risk factor. Weighted to national level using sampling weights (Grant & Dawson, 2006).

### **Relationships between Cultural-social Factors and Mental Health Disorders**

Very little research has been done to examine associations between the cultural factors ethnic identity and social integration and mental health outcomes. One study found a correlation between high ethnic identity and other-group orientation and various measures of well-being among Korean American college students, but neither was correlated with psychological distress (Lee, 2003). The dissertation findings contribute to the resilience literature by recognizing both cultural factors as important buffers of MDD and AUD among adult minorities. Findings from this dissertation suggest that for minorities who reported high ethnic identity and high social integration with one's own ethnic group, the likelihood of both mental health disorders was lower. Thus, for adult minorities', strong identification with one's ethnic heritage as well as a greater preference for socialization with and language use of one's own ethnic group are protective factors for MDD and AUD.

Social support, defined here as resources, both material and emotional, that individuals perceive are available to them, has been found to be an important buffer of mental health outcomes in a wide variety of studies and populations (Cohen & Wills, 1985; Cohen &

Huberman, 1983; Halpern, 1993; Noh & Kaspar, 2003). In a recent study utilizing NESARC, Moak and Agrawal (2009) examined the associations between social support and DSM-IV disorders. They found a strong relationship between low social support and poorer mental and physical health. Several studies have found associations between high social support and depressive symptoms (Stansfield et al., 1997; Glass & Maddox, 1992; and Paykel; 1994). Similarly, among minorities, this dissertation study found a significant association between high social support and a decreased likelihood of MDD. Having strong social connections may lead to enhanced adjustment and ability to manage stress and, in turn, lower rates of mental health diagnoses (Moak & Agrawal, 2009). In a sample of Filipino Americans, Gee et al., (2006a) found that emotional support was associated with decreased health problems. For minorities, in particular, support networks may be beneficial in navigating through a social environment that perpetuates devaluation of one's minority identity through prejudice and discrimination (Miller & Kaiser, 2001). The dissertation findings provide further evidence that social support for minorities is a protective factor for MDD and AUD.

Beginning with the pioneering work of Holmes and Rahe in 1967, stress has been associated with mental health and physical health outcomes for almost half a century (Hammen, 2005). Not surprisingly, the dissertation found that high stress was a strong predictor of both MDD and AUD in a representative sample of minority adults corroborating findings that stress is an important risk factor for mental health disorders. An important note is that Meyers (2007) Kessler (1997) and their predecessors, Pearlin et al., (1981) and Williams, et al., (1981) asserted that the stress-health relationship is multifaceted incorporating many other factors such as socio-economic status, the number and salience of stressful events, gene-environment interactions, and the social-environmental context. The dissertation not only confirmed that stress was indeed a



powerful risk factor for both MDD and AUD among adult minorities but also examined the association between stress and mental health disorders among a sub-sample of minorities who experienced race-ethnic discrimination (discussed later) that considered the multifaceted relationship between stress and health.

Taken together, this dissertation study extended the literature on the role of risk and protective factors for mental health outcomes and thus, the resilience framework, by investigating these associations among a sample of adult minorities as well as to include cultural factors (ethnic identity and social integration) that previously have not been examined as risk or protective factors for mental health disorders.

### **Moderating Relationships of Cultural-social Factors**

Drawing upon the resilience framework, the dissertation study assessed the moderating roles of four cultural-social factors in the relationship between race-ethnic discrimination and the mental health disorders (MDD and AUD). When the cultural-social factor variables were interacted with race-ethnic discrimination and tested with each outcome, none of the interaction terms were significant. There are several noteworthy points to consider when exploring why the moderation analysis failed to yield significant results.

First, the extant literature demonstrates some inconsistencies when examining the moderating roles of various factors in the discrimination-health relationship. Some studies have found non-significant results when conducting moderation analyses. For example, drawing upon a nationally representative sample of Asians in the NLAAS data, Yip et al., (2008) failed to show a moderation effect for ethnic identity and discrimination on psychological well-being among US-born Asians. Lee (2003) found that ethnic identity did not moderate the negative psychological effects of discrimination among Asian American college students. A systematic

review by Pascoe and Smart-Richman (2009) highlighted some other studies that did not demonstrate interaction effects with factors such as social support, ethnic identity, and other-group orientation (McCoy & Major, 2003; Sellers et al., 2006).

Second, it is important to consider measurement issues having to do with the cultural-social factor variables. The range of values of the moderator variable itself may affect whether a moderator effect is detected or not (MacKinnon, 2011). In this case there were only two levels for each moderator perhaps being a reason for non-significant interactions. Further, there are multiple constructs within each cultural-social factor that operationally may have been missed, not captured in the measurement, or in the dichotomization of the variables. For example, the ethnic identity scale in NESARC included five concepts; race-ethnic identification, race-ethnic pride, importance of race-ethnic heritage, role of race-ethnic background in interactions with others, and shared race-ethnic values, attitudes, and behaviors. Any one of these dimensions could be related to the outcomes independently but not altogether (Yip et al., 2008). And, therefore, potentially, for this multidimensional construct of ethnic identity, there may be differential moderation effects for each construct.

Third, a few statistical factors may be influencing the non-significance of the interactions. Given that there was a significant association between race-ethnic discrimination and the outcomes, as mentioned in Chapter IV: Results, perhaps, the interaction terms may be interfering with the magnitude of discrimination's effect on each of the outcomes. Future work calls for a step-wise approach to assessing the interaction effects in which each step would involve adding a moderator-interaction "set", observing the effects of race-ethnic discrimination on the outcomes, and subsequently adding another moderation-interaction "set". Following this approach will help explain at which point the race-ethnic discrimination's effect no longer influence the outcomes.

Also, in light of results pointing to a strong discrimination-outcome relationship in which the odds are doubled for MDD and AUD, perhaps there is an effect of discrimination that is mediated by the four cultural-social factors. In addition, the odds ratios of MDD and AUD decreased quite a bit when the cultural-social factors were added into the model, thus providing further evidence of potential mediational roles. For example, for stress, the odds were particularly strong in all models and remained so despite additional variables (e.g. when controlling for covariates or when introducing interaction terms). Thus, stress may be mediating the association between race-ethnic discrimination and the outcomes. Future work may test for the mediating role of the factors on the race-ethnic discrimination-outcomes relationship.

Fourth, it is possible that a cultural-social factor was not particularly salient to a particular minority group given that all minority groups were assessed as one homogeneous group in the moderation analysis. Moreover, differences in their relevance may exist across age groups, generational status, and immigrant status. Lee (2005) examined the moderating role of other-group orientation among Korean American college students. Other-group orientation can be defined similarly to social integration in that it measures an aspect of acculturation that refers to a positive attitude toward and a willingness to interact with people from other ethnic groups (Lee, 2005). The author found that other-group orientation did not moderate the negative effect of discrimination among this group of Korean Americans. He postulated that Korean Americans are highly likely to identify and affiliate with members of their own group. Thus, other-group orientation may not be a relevant resource to buffer discrimination's negative effects among this population. Analogous to this example, in the dissertation study, perhaps social integration as a construct was not relevant to the unique needs and cultural values of all minorities in the sample

and thus, next steps could involve examining these factors with disaggregated minority groups. Further, perhaps in the face of race-ethnic discrimination, these factors become less influential.

A fifth explanation for non-significant findings is that there may be other variables or factors related to the moderators or discrimination predictor that influence the discrimination-health relationship such as the level of discrimination experienced. Lee (2005) found that having pride in one's ethnic group was beneficial when discrimination was low but as discrimination increased, ethnic pride had less of an effect on depressive symptoms. That is, the buffering effect of ethnic pride diminished as the level of discrimination increased. Likewise, Yoo and Lee (2005) found that ethnic identity moderated the relationship between depressive symptoms only when discrimination was low. Perhaps ethnic identity is less beneficial when discrimination is more frequent. This finding is important given that researchers have found that many members of minority groups experience daily discrimination (Kessler et al., 1999; Meyer, 2007). Therefore, when discrimination is experienced on such a pervasive level, ethnic identity may not play a protective role.

Another factor relates to the type or strength of a potential moderator. For instance, the type of social support may be an integral component in whether it has a buffering effect or not. A noteworthy example is that among a group of Asian adults, emotional support was a buffer between discrimination and mental health outcomes; however, instrumental support was not (Gee et al., 2006a). Further, McCoy and Major (2003) hypothesized that if one's ethnic identity is very strong, when an individual is then faced with discrimination, the threat upon one's core self-concept becomes overwhelming due to a perception of an attack on one's in-group. In other words, a hypothesized protective factor may actually be a risk factor for a particular ethnic group. To illustrate, in a study among Latino Americans who were exposed to a discriminatory

event, those who reported low ethnic identity experienced less depressive emotions and higher self-esteem but this was not the case for those with high ethnic identity (McCoy & Major, 2003). High ethnic identity thus, was a risk factor for these Latino Americans. Finally, perhaps the moderators function as possible mechanisms that contribute to enhanced mental health but on their own, do not protect against race-ethnic discrimination.

In sum, there were several potential reasons for the non-significant findings of moderation analysis between cultural-social factors, race-ethnic discrimination and mental health disorders. However, in light of the dissertation's findings of the deleterious nature of race-ethnic discrimination on MDD and AUD among minorities, further exploration is needed to enhance the moderation analyses in terms of measurement and conceptualization of these complex and potentially important risk and protective factors.

#### **Exploratory analysis – cultural-social factors and mental health disorders among minorities who experienced race-ethnic discrimination**

In light of the compelling literature on moderators of the discrimination-mental health relationship (see again Chapter II: Conceptual Framework) as well as the significant findings in the dissertation study demonstrating the negative association of race-ethnic discrimination on both MDD and AUD among a nationally representative sample, an exploratory set of hypotheses were proposed and tested via logistic regressions. Table 27 provides a numeric summary of dissertation findings from the exploratory analysis. These analyses focused on the associations between each cultural-social factor and the outcomes within a sub-sample of minorities who experienced race-ethnic discrimination with the goal of extending work on resilience among adult minorities who experienced race-ethnic discrimination. Results, delineated below, point to

differences in the risk and/or protective roles of these factors given adult minorities' race-ethnic group, immigrant status group, and mental health disorder.

Table 27. Exploratory analysis, stratified by race-ethnic discrimination

C-S Factors	Black		Hispanic		Asian		Immigrant		US-born	
	MDD	AUD	MDD	AUD	MDD	AUD	MDD	AUD	MDD	AUD
EI, high	0.6*	1.2	0.7	0.5*	1.8	0.7	0.9	0.4*	0.8	1.1
SS, high	0.6*	0.6*	0.4*	1.1	0.5	0.8	0.6*	0.8	0.5*	0.7*
SI, high	1.1	0.3*	0.8	0.4*	4.9*	1.5	1.2	0.6	1.4	0.7
ST, high	3.5*	3.1*	3.4*	3.1*	2.4	10.5*	3.3*	4.6*	3.4*	2.9*

Note: Values presented are unadjusted odds ratios (ORs) (95% CI). \* indicates significance,  $p < 0.05$ . Cultural-social factors (C-S): Ethnic identity (EI), Social support (SS), Social integration own group (SI), Stress (ST). Weighted to national level using sampling weights (Grant & Dawson, 2006).

First, among minorities who have experienced race-ethnic discrimination, strong identification with one's ethnic identity was associated with a lower likelihood of MDD among Blacks and a lower likelihood of AUD among Hispanics and immigrants, independently. Thus, a strong identification with one's race-ethnic identity may play a protective role for particular minority groups. Second, social support was associated with a decreased likelihood of MDD for all minority groups except Asians. Blacks and US-born individuals who reported high levels of social support experienced lower odds of AUD as well.

Third, a compelling finding was that for Asians, preference for one's own group was associated with five times greater risk of MDD. This finding reaffirms results of the study by Lee (2003) who found that Asian American college students with a lower willingness to interact with individuals from other ethnic groups were more vulnerable to discrimination's effects. In other words, perhaps integrating more with other ethnic groups protects Asians from the negative effects of discrimination by keeping them actively engaged with the White majority group and

thus, enabling them to capitalize upon resources or, in turn, to share resources from other ethnic groups who are in similar situations.

In turn, among Blacks and Hispanics, this dissertation study found a significant negative association among those who endorsed high social integration with one's own group and AUD. Thus, spending time with one's own ethnic group appears to play a potential protective role for AUD among Blacks and Hispanics who experienced race-ethnic discrimination.

Fourth, stress was a clear risk factor across groups. High stress was associated with greater likelihood of both MDD and AUD among all minority groups who experienced race-ethnic discrimination. Interestingly, for Asians who experienced race-ethnic discrimination, the risk was tremendous for AUD with the odds being 10.5 times greater. This result suggests that Asians who experience high stress are particularly vulnerable.

What the results of this important exploratory analysis points to are different ways in which the cultural-social factors *behave* given a particular minority population and a particular mental health outcome. This, in itself, is noteworthy in that it echoes previous studies by highlighting further the complexity of these relationships as to (1) whether or not these factors influence mental health outcomes in the face of discrimination, (2) what extend these factors influence mental health outcomes, and (3) which populations and which outcomes these factors are influential (Lee, 2005; Noh et al., 1999; Yip et al., 2008).

In sum, the results of the exploratory analysis provide important and nuanced findings about the ways in which cultural-social factors are associated with two mental health disorders given race-ethnic dissemination among minority groups. Importantly, these factors work differently across minority groups in terms of salience and in their associations with minimizing risk of illness in the face of race-ethnic discrimination.

## CHAPTER VII: CONCLUSION

### VII.I. Study Limitations

The study findings contribute to discrimination research by utilizing a nationally representative sample of minorities and, in particular, it expanded upon what is known about the associations between cultural-social factors, mental health disorders and race-ethnic discrimination. However, there are limitations to consider.

First, the discrimination variable must be considered. As with the majority of studies on discrimination, the NESARC data used for the discrimination measure *perceptions* of the discrimination experience. Thus, an important consideration for most discrimination studies is that it is challenging and oftentimes, not feasible to parse out perceived discrimination versus actual discrimination. However, there is significant evidence in the literature that the perception of being discriminated against is sufficient to decrease the mental health status of minorities (Landrine et al., 2006; Smedly & Smedly, 2005; Jones, 1997). Further, research strongly suggests that minority group members often minimize their experiences with discrimination and do not over report the experiences they do share (Crosby, 1984; Ruggiero & Taylor, 1997). In addition to consideration of the use of a *perceived discrimination variable*, discrimination experiences may have been underestimated given the use of a *past-year* perceived discrimination variable. Finally, the use of a *dichotomous* variable for race-ethnic discrimination did not allow for the assessment of the severity of discrimination experienced. However, it is noteworthy that the discrimination measure used in NESARC measured discrimination due to one's race-ethnicity specifically as opposed to more broadly defined discrimination variables used in other prominent studies (Kessler et al., 1999; Pascoe & Smart-Richman, 2009).



Second, the heterogeneity of race-ethnic groups was not adequately captured. Although the sample was aligned with the US Census categories for race-ethnicity and nationally representative, participants who did not speak English may have been systematically underrepresented. Further, the race-ethnic minority categories used in the dissertation study did not recognize the heterogeneity within race-ethnic groups and therefore, may inadvertently perpetuate stereotypes or ignore important differences in the experiences within ethnic groups. Likewise, by using broader race-ethnic categories, experiences of members of high-risk groups such as Asian refugees may have been missed. An important next step would be to examine associations between race-ethnic discrimination and sub-populations of Hispanic and Asian minorities using sample sizes large enough to detect statistically significant differences.

Third, given limitations of the data, the study used a single indicator for each cultural-social factor variable. However, these variables are made up of multiple constructs (Yip et al., 2008). Different dimensions may play different roles in the discrimination-health relationship that are worth exploring in future studies especially when examining race-ethnic group differences.

Fourth, like many studies of discrimination, the data was cross-sectional. Therefore, causal inferences cannot be made. The assumption when examining the data is that the causal pathway is from perceived race-ethnic discrimination to MDD and AUD. While an argument can be made that MDD and AUD can predispose an individual to perceive discrimination, it appears given previous research, to be unlikely. There have been no discussions or evidence that shows that MDD or AUD (or, other outcomes) causally predict perceived discrimination (Pascoe & Smart-Rochman, 2009; Kessler et al., 1999; Lee, 2003). In fact, a longitudinal study found that an association between psychological distress and depressive symptoms during initial waves of

data were not associated with discrimination one year later (Brown et al., 2000). This compelling finding suggests that poor mental health does not predict discrimination. Another longitudinal study found that work-related discrimination experienced by women, assessed in Wave I, was related to emotional and physical health outcomes reported seven and nine years later (Pavalko, Mussakowski, & Hamilton, 2003). Longitudinal studies should be conducted in order to examine the long-term impact of race-ethnic discrimination on the developmental trajectory of minorities.

Finally, the mental illness stigma literature may be a useful paradigm to enhance research on possible mechanisms that influence the discrimination-health relationship. Individuals with mental illness experience stigma due to misconceptions about their illness, fear, prejudice and ignorance (Watson, Corrigan, Larson, & Sells, 2007). A salient feature of stigma is that a stigmatized individual has an attribute that depicts a devalued identity (Miller & Kaiser, 2000). Thus, a parallel can be made between individuals who struggle with mental illness and members of minority groups who experience race-ethnic discrimination in terms of one's identity being 'marked' as inferior. In terms of most stigmas – such as being a member of a race-ethnic minority group, the context in which one is seen as devalued is pervasive. Discrimination, therefore, is experienced in a broad range of social contexts. Similar to the stigma of mental illness, discrimination results from being perceived as less than those in higher social status positions.

Individuals who experience stigma and discrimination are likely to internalize the stigma or discrimination they perceive or out rightly experience. In the mental illness literature, this internalization is called self-stigma (Watson et al., 2007). It has been shown to decrease self-esteem, self-efficacy and even to result in hopelessness. Minorities who experience race-ethnic discrimination may also experience a turning inward – or, internalization based upon the

stereotypes, prejudice and discrimination they experience. The mental illness stigma literature provides a useful framework in understanding both the negative outcomes resulting from discrimination but also to inform and identify potential protective factors that may diminish the negative influence of self-stigma as it applies to individuals who experience discrimination.

According to the stigma literature, the internalization of stigma does not always end up with negative outcomes (Watson et al., 2007). This sentiment is echoed in the resilience framework that guides the dissertation study. Some individuals may be fueled by the stigma and become empowered by it while others are just indifferent to it and thus, unaffected. Factors have been uncovered that may predict how individuals respond to stigma and whether they will become empowered or experience decreased self-esteem and other negative outcomes. One factor that particularly relates to minorities who experience race-ethnic discrimination is group identification (which potentially reinforces the importance of examining aspects of ethnic identity as a salient protective factor) (Watson et al., 2007).

Identifying with a group of individuals who share an identity that is stigmatized (or, discriminated against) is an influential component in how people react to stigma. Through interactions with individuals who are also stigmatized, a positive identity can be developed. Positive self-perceptions may decrease potential negative self-esteem or other aspects of wellbeing. Further, group identification aligns individuals with a support network from which to share experiences and drawn upon resources. Research on gay men and stigma has supported this notion (Frable, Wortman, & Joseph, 1997). This research points to the fact that group identification, social support, and integration into a community of support go hand in hand, and not necessarily independently, in interacting with discrimination to decrease negative mental

health outcomes. In sum, the stigma literature provides another way to frame the experiences of minorities who experience race-ethnic discrimination that is worth exploring in future research.

## **VII.II. Implications**

The study provides empirical evidence of the deleterious and ubiquitous nature of race-ethnic discrimination among a nationally representative sample of US-born and immigrant minorities. Moreover, the study examined important ways in which cultural-social factors are associated with mental health disorders and explored these relationships further among a subsample of minorities who experienced race-ethnic discrimination. These latter findings suggest that culturally-focused and specifically tailored considerations should be made when developing and implementing interventions for minorities. There are several contributions of this dissertation study to the discrimination literature and the results have important practice and policy implications.

It is important to recognize the negative associations of discrimination beyond just a Black-White paradigm given the changing socio-political landscape in the US. Acknowledging the experience of race-ethnic discrimination among various race-ethnic groups, ages, education, socio-economic levels and immigrant status is an important step in expanding knowledge on how race-ethnic discrimination is negatively associated with various and unique populations will enhance and promote the value of diversity and cultural acceptance. Culturally-focused considerations to enhance both policy and practice must be developed given the findings about race-ethnic discrimination and mental health disorders across race-ethnic groups.

### **Practice Implications**

Social work values and ethnics as outlined by the National Association of Social Workers (NASW) are aligned with providing culturally competent and respectful care to individuals from

all backgrounds. Social workers are called upon to obtain education about social diversity as well as to take active steps towards preventing and eliminating discrimination and exploitation of any individual or group. Further, social workers often work directly with individuals in communities in which race-ethnic discrimination is ubiquitous. Given the dissertation findings that highlight the prevalence of race-ethnic discrimination among minorities as well as its significant associating with mental health disorders, social workers are in a unique position to play both preventive and interventive roles on individual and community-base levels. The following section highlights ways in which social workers can work toward decreasing race-ethnic discrimination for their clients and its negative mental health impact.

First, reducing discrimination through prevention programs aimed across minority and majority groups can alleviate the mental health burden in minority communities and within society at large. Following Sue et al. (2007) it is important when providing training programs to acknowledge and overcome race-ethnic discrimination for participants to feel supported in their initial resistance and potential fear in discussions of racism and discrimination. Thus, fostering a safe and constrictive environment is crucial. Further, an important step is to guide individuals in questioning and exploring their own race-ethnic-cultural identities as well as their feelings about other groups. Individuals may not be aware of the attitudes and beliefs they hold about others that can negatively impact their perceptions of and interactions with individuals who are culturally different.

Given the significant prevalence of race-ethnic discrimination, it is vital for mental health providers and community leaders to encourage and support prevention programs that target children and adults from all communities. For example, teachers can encourage students to take a pledge in their elementary, middle, and high schools to support diversity and promote equality.

Workshops held in community centers, work-places, schools, and religious institutions can provide skill building through interactive skits to help individuals respond to discriminatory marks or actions when confronted by them or when observing them. A web-based resource, The Community Toolbox, provides strategies and activities for decreasing racism in communities. One community strategy is to organize a clean-up campaign to erase racist or other discriminatory graffiti.

Second, intervention is also a vital mechanism from which to enhance mental health among minorities. The findings draw attention to the pervasive nature of race-ethnic discrimination among all minority groups. Social work practitioners can be guided by this compelling data and thus, include assessments of race-ethnic discrimination in their work. Social workers, other mental health care providers, and healthcare professionals need to be aware that their clients and patients may have experienced discrimination and oppression in their workplace, neighborhoods, and while accessing and utilizing healthcare services. Providers should ask about these experiences and explore how they may currently influence health and mental health issues.

Assessments should include an understanding of the client or patients' worldview and cultural backgrounds. For example, assessments should ask about discriminatory experiences. Some items to explore are contexts in which discrimination has occurred; reactions to the discrimination; if the client took action at the time, how did it feel and what were the consequences.

An important consideration with mental health assessments in general is their relevance for members of minority groups (American Psychological Association [APA], 2011). For example, standardized assessment measures must be carefully considered when working with

clients of diverse race-ethnic background. These western-based tools may not be accessible because of language barriers but also because concepts such as ‘true/false’ may not be understood across cultures. Second, mental health practitioners should understand the range of normative behavior for particular race-ethnic groups and further, they should understand patterns of disorders and culturally-salient symptoms. Social workers and other providers should be aware of treatment preferences of their clients and what their clients believe the etiology of their condition to be.

Given the study findings about the associations between cultural-social factors and mental health disorders, important and tailored material can be incorporated into intervention strategies. For example, this dissertation study found that high ethnic identity was protective for Blacks but less so for other minority groups. Further, social integration with one’s own ethnic group was particularly detrimental to the mental health of Asians. Paying attention to these nuanced relationships and not making assumptions about what factors may or may not be salient to an individual are important steps in adequately addressing needs across minority populations and in promoting the value of cultural diversity.

Clients from diverse backgrounds can benefit from cultural enhancing and strength-based approaches to therapy and treatment that encourages the recognition of values and opportunities associated with their cultural identities. Workshops and support groups that enable individuals to share discrimination experiences, reactions, and ways of coping will promote empowerment and acceptance. The National Alliance on Mental Illness offers local programs and Internet support services to individuals with mental illness to help cope with stigma. Recently support groups for individuals who experience discrimination due to their sexual orientation have increased. For example, The Center, in New York City, provides many services to members of the Gay,

Lesbian, Bisexual, and Transgender community. A program at the Center that addresses unique racial-ethnic cultural needs is called the African Ancestral Lesbians United for Societal Change (AALUSC). The goal of this group is to provide space for and support for Lesbians of the African Diaspora, regardless of language, class or culture (The Center). Similar resources are needed for individuals who must cope with daily discrimination due to race-ethnicity.

The most notable organization to fight for the rights of race-ethnic minorities is the National Association for the Advancement of Colored People (NAACP) founded in 1909. The NAACP's goals are to ensure that the political, educational, social and economic equality of rights apply to all individuals. They function at the macro-level to help members of minority groups and to eradicate race-ethnic discrimination.

### **Policy Implications**

Although race-ethnic discrimination in this study is measured as “perceived race-ethnic discrimination”, capturing a more individual-level component, discrimination is perpetuated on a social-structural level (not just by individuals). Furthermore, institutional discrimination is a process enhanced within social structures (i.e. governments, social norms within societies) that trickles down to the individual level reinforcing hierarchy's based on race-ethnic status (Gee et al., 2009; McGuire & Miranda, 2008). The dissertation findings provide very strong evidence for the need for policy-level intervention; (1) race-ethnic discrimination is experienced among almost 20% of minorities both US-born and immigrant in a large nationally representative sample, (2) race-ethnic discrimination is associated with an increased likelihood of two DSM-IV disorders, MDD and AUD.

The dissertation findings provide a rationale for the enhancement of protective legislation and cultural competency on an institutional level given the strong associations between cultural-



social factors and mental health disorders among minorities. For example, among minorities, high ethnic identification and strong support networks were key factors in buffering MDD and AUD. Cultural competency policies can encourage and support the development and enhancement of programs that focus on these types of culturally salient protective factors. Further, national campaigns can bring awareness to the need for cultural competency at all levels of society including within schools, communities, business sectors, and within the law enforcement and criminal justice systems.

The field of cultural competency has developed over the years given the association of race-ethnic discrimination and its contribution to health disparities (Betancourt, Green, Carrillo, & Ii, 2003). Cultural competency literature and programming spans the healthcare field and has become a component across several care-giving domains including social work education and practice. According to the National Association of Social Workers (NASW, 2007) cultural competency can be defined as a process in which individuals and systems interact respectfully and effectively with those from diverse backgrounds such as race-ethnicity and culture, religion, class, and sexual orientation. Cultural competency values the worth of these differences and protects the dignity of all individuals. Thus, an important step in reducing the prevalence of race-ethnic discrimination in multiple settings (healthcare, law enforcement, criminal justice, mortgage lending programs) is through a systems approach in which cultural competency becomes an integral component in how needed services are accessed and conducted.

In light of staggering statistics regarding health disparities among minorities in the United States, the healthcare field has taken active steps toward adopting a system-wide framework of cultural competence (Graves, Like, Kelly, & Hohensee, 2007) and can be an exemplar for other system-based approaches. Organizational and systematic interventions within the healthcare field

have taken place to reduce disparities that have manifested in legislative changes mandating cultural competence training and development among trainees and healthcare professionals. Determining whether legislative actions have an impact on reducing disparities is difficult given multiple ways of administering trainings and defining success. However, it may be a vital step in reducing discrimination and health disparities as well as ensuring service delivery that is inclusive and meets the needs of all individuals regardless of cultural heritage. Large-scale evaluations at federal and state levels are needed to determine whether legislative actions to reduce health disparities through cultural competency programs are successful. If effective, these programs may be expanded to other fields not usually involved in healthcare provision such as business and law arenas.

Another important step in addressing needs of minorities is to increase the number of race-ethnic minority providers in the mental health field who are currently under-represented. However, in order to effectively enhance the diversity in the healthcare field, a federal commitment is needed to provide educational support for minorities. McGuire and Miranda (2008) assert that ethnic service providers will be able to provide culturally appropriate treatment as well as to provide services in other languages. Further, minority providers will be able to address their minority clients' concerns about trust, stigma, and discrimination.

The dissertation findings have the potential to contribute to the rationale for prosecuting hate crimes and has the potential to inform the domains of law enforcement and the banking/lending industry in which discrimination occurs rampantly in mortgage lending practices and racial profiling that leads to increased arrests, prosecution, and incarceration of minorities (Johnson, 20010; Rothstein, 2012). Currently, federal and state policies exist that target certain types of discrimination (i.e. discrimination based on disabilities) within particular

life domains including the workforce and military. Certain laws have been set out to protect race-ethnic minorities. For example, federal statutes enable the prosecution of hate crimes based upon individual's characteristics including race, religion, ethnicity, gender, nationality, sexual orientation, and disability. However, these statutes are not always upheld. Moreover, members of ethnic minority groups are often racially profiled by members of law enforcement and the criminal justice system itself in its enforcement and prosecution efforts are biased toward African American and Hispanic young men (Johnson, 2001).

Minorities often experience structural discrimination in the workplace, the healthcare setting, and other public arenas (Dovido, 2000; Lai & Arguelles, 2004). In addition, until recently, inaction at the federal level led to the widespread discriminatory mortgage lending practices by major entities like Bank of America (Rothstein, 2012). Earlier practices of “redlining” that contributed to racial segregation of African Americans – keeping them out of ‘white neighborhoods’ – has been replaced with “reverse redlining”, because of the exploitive mortgage lending practices (Rothstein, 2012). These practices have led to a vast number of foreclosures among predominantly African American and Hispanic homeowners (Rothstein, 2012). Thus, members of race-ethnic minorities were summarily forced to relocate to more racially isolated (perpetuating racial segregation) or become homeless.

Based on the dissertation study findings highlighting the prevalence of race-ethnic discrimination among immigrants and its negative association with mental health, more is needed to address their unique concerns. The US government has continued to maintain race-based immigration laws including strident efforts to deport undocumented immigrants despite a demand for their services (Johnson, 2001). An example of immigrant profiling can be gleaned from a Supreme Court ruling, *United States v. Brignoni-Ponce*, 422 U.S. 873, (1975), stating

that, “[t]he likelihood that any given person of Mexican ancestry is an alien is high enough to make Mexican appearance a relevant factor (p. 886-87)” . This ruling implied that members of border patrol stop immigrants of Hispanic decent based on appearance alone. Even though this ruling was in 1975, plaintiffs in lawsuits currently have alleged that patrol officers rely exclusively on race in immigrant enforcement. Further, given that almost 90% of Hispanic immigrants are legal US-citizens or hold legal residency status, Hispanic ancestry should not be upheld as a criteria for enforcing immigration law (Johnson, 2001). More recently, in an effort to free Arizona of its “illegal immigrant problem”, police in Phoenix violated the constitutional rights of U.S. citizens and lawful immigrants of Mexican ancestry by stopping individuals due to their skin color or their use of the Spanish language. Immigration policy should to be changed in order to protect individuals from diverse backgrounds from being taken advantage of due to race-ethnicity in the law enforcement arena, workplace or while accessing needed services.

### **VII.III. Future Research**

There are several opportunities for future work to consider when building and expanding upon the dissertation findings and race-ethnic discrimination literature. First, in terms of addressing limitations relating to the discrimination variable utilized in the dissertation study, future work should examine lifetime prevalence rates of race-ethnic discrimination (not just past-year discrimination) to capture the experiences of discrimination across the life course. Further, future studies should include a continuous variable of race-ethnic discrimination in order to compare the severity of discrimination with mental health outcomes and potential moderating variables.

Second, in order to capture the heterogeneity among minority groups, future research should disaggregate minority groups to observe within-group differences in discrimination

experiences and risk-protective relationships. Factors relating to immigrant status such as length of time in the US and language barriers should be examined as well. Additionally, given that the dissertation findings show major gender differences in MDD and AUD, another unique dimension would be to examine differences between men and women in terms of the race-ethnic discrimination-mental health relationship.

Third, future research should explore other culturally-related factors that moderate the relationship between discrimination and mental health outcomes including aspects of coping, such as religion and spirituality, family relationships, and intergenerational differences. Given the shame and stigma associated with mental health disorders among some minority and immigrant groups, it may be important to examine the relationship between shame and stigma in the discrimination-health relationship in order to understand barriers to service utilization (Takeuchi et al., 2007). An examination of cultural-social factors as independent variables and their relationship with race-ethnic discrimination as an outcome may be an important next step in understanding risk for race-ethnic discrimination. For example, if an individual has strong ethnic identity, what is the likelihood of perceiving race-ethnic discrimination?

In addition, potential mediating roles of the four cultural-social factors could be tested given the findings from the moderation analysis as well as findings from the main effects model of the cultural-social factors and the outcomes. There is some evidence that supports a potential mediating role for some of the cultural-social factor variables. For example, Sellers and Shelton (2003) reported that the level of perceived stress mediated the relationship between racial discrimination and mental health outcomes among African American youth. Further, Prelow, Mosher, and Bowman (2006) found support for the mediating role of the perceived availability of support between racial discrimination and the outcomes (depressive symptoms and life

satisfaction). Specifically, racial discrimination was related to lower perceptions of the availability of support.

Fourth, an examination of different outcomes that examine the association between discrimination on other domains of life including work and relationships is warranted. Further, the discrimination literature needs to be broadened to include different types of discrimination related to salient minority-focused factors including language, accent, immigrant status, and skin color. For example, discrimination due to skin color or language should be assessed distinctly from race-ethnic discrimination in order to acknowledge and understand the potentially different ways in which several types of discriminatory experiences influence minorities' mental health.

Five, future steps should also include an examination of institutional discrimination that impacts opportunities and access to resources for minorities. In general, researcher needs to recognize the importance of conducting culturally relevant research among individuals from race-ethnic, linguistic and other minority backgrounds. Traditional research approaches based on western, Eurocentric, and biological perspectives and assumptions should be adapted to incorporate and honor the diversity that exists within *western* society.

#### **VII.IV. Conclusion**

In sum, the dissertation findings provide significant evidence of the prevalence of race-ethnic discrimination among US-born and immigrant minorities in the United States. The findings enhance what is known about the associations between discrimination and mental health outcomes by demonstrating that minorities who have experienced race-ethnic discrimination are more likely to experience a two-fold increase in DMS-IV disorders (MDD and AUD) compared to their counterparts who have not experienced discrimination. They also suggest a need for attention to cultural-social factors that are associated with mental health disorders among

minorities and they highlight important relationships among those who have experienced race-ethnic discrimination.

The dissertation findings can encourage the development and enhancement of policies that are directed toward protecting the rights of minorities as well as enhancing their access to and quality of services to specifically match their needs. This includes acknowledging and addressing issues related to race-ethnic discrimination on multiple socio-environmental levels. While it is challenging to change macro-level structures that continue to perpetuate subtle forms of racism, a critical step in eliminating race-ethnic discrimination is to encourage and strengthen cultural competency within all domains – not just within the health and mental health professions – including the banking and lending systems, within the employment sector and law enforcement and criminal justice systems. Further, it is important to recognize the intertwining of social factors such as socioeconomic status and environmental hazards (i.e. pollution, neighborhood violence) along with cultural factors that influence individual's opportunities and access to resources. To truly make an impact and affect change, the outlook of institutions must continue to evolve in a manner that honors and respects diversity and subsequently, develops and enhances programs that reflect this view.

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## APPENDIX

### Appendix A: DSM-IV criteria for Major Depressive Episode

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful).

Note: In children and adolescents, can be irritable mood.

2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others).

3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day.

Note: In children, consider failure to make expected weight gains.

4. Insomnia or hypersomnia nearly every day.

5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings or restlessness or being slowed down).

6. Fatigue or loss of energy nearly every day.



7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).
  8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either subjective account or as observed by others).
  9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.
- B. The symptoms do not meet criteria for a mixed episode.
- C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- D. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).
- E. The symptoms are not better accounted for by bereavement, i.e., after the loss of a loved one; the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders*. (4th ed., Text Revision). Washington, DC: Author.

## **Appendix B: DSM-IV criteria for Alcohol Use Disorders [Abuse and Dependence]**

### **Alcohol Abuse**

- A. A maladaptive pattern of alcohol use leading to clinically significant impairment or distress, as manifested by one (or more) of the following, occurring within a 12-month period:
1. Recurrent alcohol use resulting in a failure to fulfill major role obligations at work, school, or home (e.g., repeated absences or poor work performance related to alcohol use; alcohol-related absences, suspensions, or expulsions from school; neglect of children or household).
  2. Recurrent alcohol use in situations in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by alcohol use).
  3. Recurrent alcohol-related legal problems (e.g., arrests for alcohol-related disorderly conduct).
  4. Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the alcohol (e.g., arguments with spouse about consequences of Intoxication, physical fights).
- B. The symptoms have never met the criteria for Alcohol Dependence

### **Alcohol Dependence**

- A. A maladaptive pattern of alcohol use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:
- a. Tolerance, as defined by either of the following:
    - i. A need for markedly increased amounts of alcohol to achieve Intoxication or desired effect.
    - ii. Markedly diminished effect with continued use of the same amount of alcohol.
  - b. Withdrawal, as manifested by either of the following:
    - i. The characteristic withdrawal syndrome for alcohol.
    - ii. Alcohol (or a closely related drug such as valium) is used to relieve or avoid withdrawal symptoms.
  - c. Alcohol is often used in larger amounts or over a longer period than was intended.
  - d. There is a persistent desire or unsuccessful efforts to cut down or control alcohol use.
  - e. A great deal of time is spent in activities necessary to obtain alcohol, use alcohol, or recover from its effects.
  - f. Important social, occupational, or recreational activities are given up or reduced because of alcohol use.
  - g. Alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by alcohol.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders*. (4th ed., Text Revision). Washington, DC: Author.

**Appendix C: Experiences of Discrimination Scale**

Krieger, Smith, Naishadham, Hartman, &amp; Barbeau, 2005

**Hispanic/Latino version**

1. DURING PY HOW OFTEN DID YOU EXPERIENCE DISCRIMINATION IN ABILITY TO OBTAIN HEALTH CARE OR HEALTH INSURANCE COVERAGE BECAUSE YOU ARE HISPANIC/LATINO
  1. Never
  2. Almost never
  3. Sometimes
  4. Fairly often
  5. Very often
  6. Unknown
  7. BL. NA, respondent is not Hispanic
  
2. DURING PY HOW OFTEN DID YOU EXPERIENCE DISCRIMINATION IN HOW YOU WERE TREATED WHEN YOU GOT CARE BECAUSE YOU ARE HISPANIC/LATINO
  1. Never
  2. Almost never
  3. Sometimes
  4. Fairly often
  5. Very often
  6. Unknown
  7. BL. NA, respondent is not Hispanic
  
3. DURING THE PY HOW OFTEN DID YOU EXPERIENCE DISCRIMINATION IN PUBLIC (ON THE STREET, IN STORES OR RESTAURANTS) BECAUSE YOU ARE HISPANIC/LATINO
  1. Never
  2. Almost never
  3. Sometimes
  4. Fairly often
  5. Very often
  6. Unknown
  7. BL. NA, respondent is not Hispanic

4. DURING THE PY HOW OFTEN DID YOU EXPERIENCE DISCRIMINATION BECAUSE YOU ARE HISPANIC/LATINO IN ANY OTHER SITUATION (OBTAINING A JOB, ON THE JOB GETTING ADMITTED TO SCHOOL/TRAINING PROGRAM, IN THE COURTS OR BY POLICE, OR OBTAINING HOUSING)
  1. Never
  2. Almost never
  3. Sometimes
  4. Fairly often
  5. Very often
  6. Unknown
  7. BL. NA, respondent is not Hispanic
  
5. DURING THE PY HOW OFTEN WERE YOU CALLED A RACIST NAME BECAUSE YOU ARE HISPANIC/LATINO
  1. Never
  2. Almost never
  3. Sometimes
  4. Fairly often
  5. Very often
  6. Unknown
  7. BL. NA, respondent is not Hispanic
  
6. DURING THE PY HOW OFTEN WERE YOU MADE FUN OF, PICKED ON, PUSHED SHOVED, HIT OR THREATENED WITH HARM BECAUSE YOU ARE HISPANIC/LATINO
  1. Never
  2. Almost never
  3. Sometimes
  4. Fairly often
  5. Very often
  6. Unknown
  7. BL. NA, respondent is not Hispanic

