

## ABSTRACT

Title of dissertation: FOREIGN CULTURAL GROUP IDENTITY, STRESS,  
AND THE HEALTH OF BLACK IMMIGRANT  
WOMEN

Lauren A. Doamekpor, Doctor of Philosophy, 2014

Dissertation directed by: Associate Professor Mia Smith Bynum  
Department of Family Science

This cross-sectional study investigated the within group differential in self-rated health and perceived stress among a sample of Black women from immigrant backgrounds (N = 180). Guided by Identity, the Multidimensional Model of Racial Identity (MMRI) and Social Determinants of Health theories, the relationship between age at arrival and Foreign Cultural Group Identity (FCGI) was assessed. Additionally, the utility of the FCGI measure was investigated. It was hypothesized that: 1) Foreign-born women who migrated to the U.S. as young children would identify less with their foreign culture than foreign-born women who arrived in later life, 2) foreign-born women would report lower levels of perceived stress and better self-rated health compared to U.S.-born women, and 3) FCGI would explain more of the variation in perceived stress and self-rated health than would nativity. FCGI was measured using a modified version of the Multidimensional Inventory of Black Identity's (MIBI) Centrality scale. The Cohen Perceived Stress Scale measured perceived stress and a one-item indicator measured self-rated health. Descriptive statistics, bivariate and multivariate linear regression analyses

were conducted to test for nativity-based differences in self-rated health and perceived stress.

The results revealed that age at arrival was not associated with FCGI, and significant differences in perceived stress and self-rated health by nativity were not detected. However, women with high levels of FCGI reported lower perceived stress levels and FCGI explained more variation in perceived stress than did nativity. FCGI was not associated with self-rated health, but women with low levels of perceived stress tended to report better health. Education was negatively associated with perceived stress. Generally, there was not a meaningful difference between nativity and FCGI with respect to their capacity to predict perceived stress. Nevertheless, these findings suggest important future directions for exploring linkages between comprehensive assessment of identity and immigrant health. The implications for policy, programs and epidemiological research will also be discussed.

FOREIGN CULTURAL GROUP IDENTITY, STRESS, AND THE HEALTH OF  
BLACK IMMIGRANT WOMEN

by

Lauren A. Doamekpor

Dissertation submitted to the Faculty of the Graduate School of the  
University of Maryland, College Park in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
2014

**Advisory Committee:**

Associate Professor Mia Smith Bynum, Chair

Assistant Professor Marian Moser Jones

Professor Sally Koblinsky

Associate Professor Leigh Leslie

Professor Stephen Thomas

© Copyright by  
Lauren A. Doamekpor  
2014

### **Dedication**

This body of work is dedicated to my parents; Godwin Kwasi Doamekpor and Victoria Ame Ameade Doamekpor who met as young students in a small village in the Volta region of Ghana. Without their sacrifice and hard work, I would not have the luxury of completing this degree. Without their support, I wouldn't have had the strength to continue on the journey that led me here. Without their love I wouldn't be who I am today. Mummy and Daddy: Thank you for supporting my ambition even when none of us knew what it really was. Thank you for being wonderful role models of perseverance. Thank you for reminding me that where I come from is as important as where I am going. Me lo mee pa pa. Akpe ke ke ke ke.

## **Acknowledgments**

This dissertation began as an ordinary conversation on an ordinary day. Over the past 4 years, I have been reminded every day that you cannot have a testimony without a test. The past four years were undoubtedly my test. This product is my testimony and would not have been possible without the help and support of several individuals and families. First, I would like to thank God for his grace, mercy and for giving me a clan of supportive family and friends. I thank my incredibly loving family. My parents, Godwin Kwasi Doamekpor, Victoria Ame Ameade Doamekpor, my three brothers, Reynold, Mark, and Selom, and their amazing wives. My husband and best friend, Sidney Kwesi Awotwi, who has been my rock and an amazing blessing. Thank you for keeping me sane and still loving me during my antics. To my dear friend Genielle Salazar, thank you for your wonderful friendship (12 years!), the late night conversations, the encouragement and much needed mani pedis. I thank my dear friends who supported and empowered me throughout this process: Gorkie Balthazar, Ndidi Amutah, Nyoka Joseph, Welile Datsomor and Sena Tsikata. To my wonderful UMD support system, Mili Duggal, Amanda Ginter, Ada Determan, Jessica DiBari, Kranti Vora, Barbara Singer, Hoda Sana, Damian Waters, UJ Moon, John Hart, Patty Fanflik, and Katie Hrapczynski. Thank you for the coffee breaks, philosophical conversations, venting sessions and all the love. I'm so grateful to know each one of you. I am so blessed to have a network of family friends who provided unwavering support: Joan Bryant, the Darley family, the Awotwi family.

I would especially like to thank all the women who showed interest in my study whether they participated or not. Thank you for taking the time to invest in such an important topic. I thank my team of undergraduate research assistants who eagerly assisted me with data collection: Maureen Apugo, Christiana Dorsey, Dominique Parkes, Imani Carter, Brynne Willis, Caddi Golia, Amber Travis, Shakira Collymore, and Nandi McCammon.

I am particularly indebted to my dissertation chair and mentor, Dr. Mia Smith Bynum. This dissertation is a testament to your perseverance and incredible dedication. I cannot thank you enough for your countless hours spent meeting with me, diffusing my anxiety, talking on the phone, emails, and reading multiple versions of this document. Thank you so much! To my committee members, Drs. Marian Moser Jones, Sally Koblinsky, Leigh Leslie, and Stephen Thomas, thank you for serving on my committee and for imparting such insight and wisdom.

## Table of Contents

Dedication.....	ii
Acknowledgements.....	iii
Chapter 1: Introduction.....	1
Chapter 2: Conceptual Framework.....	7
Chapter 3: Literature Review.....	13
Definitions.....	13
Growth of the Immigrant Population.....	14
Black U.S. Immigrants.....	15
Reasons for Migration.....	18
Black Identity.....	19
The Multidimensional Model of Racial Identity and Racial Centrality.....	19
Centrality among Immigrants.....	20
Black Immigrant Identity.....	21
Foreign Cultural Group Identity.....	23
Foreign Cultural Group Identity and Health.....	24
Age at Arrival and FCGI.....	26
Black Immigrant Health Patterns: The Healthy Immigrant Effect (HIE), and the Social Determinants of Health.....	27
Nativity and Self-rated Health.....	28
Nativity and Perceived Stress.....	29
Prevailing Explanations for the Immigrant Health Advantage.....	30
Selective Migration.....	31
Acculturation.....	31
Cultural Buffering.....	32
Racial Context of Origin.....	32
Control Variables.....	33
Marital Status.....	33
Age.....	34

Smoking Status .....	34
Education .....	35
Conclusions and Gaps in the Research .....	35
Significance of Study .....	36
Research Hypotheses.....	37
Chapter 4: Methods.....	39
Sample.....	39
Power Analysis.....	41
Measures.....	42
Procedure.....	48
Recruitment and Data Collection.....	49
Paper-Pencil Data Collection.. ..	50
Online Data Collection.. ..	51
Analysis Plan.....	51
Chapter 5: Results .....	54
Univariate Analyses .....	54
Demographic and Background Characteristics of the Analytic Sample.....	54
Bivariate Analyses.....	56
Psychometric Properties of Foreign Cultural Group Identity (FCGI).....	58
Multivariate Analyses .....	59
Model Assumptions.....	59
Age at arrival and Foreign Cultural Group Identity.....	60
Nativity, FCGI and Perceived Stress.....	60
Nativity, FCGI, Perceived Stress and Self-Rated Health.....	62
Post Hoc Analyses.....	63
Rationale for Variables Selected.....	64
Racial Discrimination Among Black Immigrants.....	64
Self-Reported Cultural Group Identity: Categorical Assessment.....	65
Socially Assigned Race.....	65



Where the Majority of Life Has Been Spent.....	66
Analyses.....	67
Univariate Analyses.....	67
Bivariate Analyses.....	67
Multivariate Analyses.....	70
CHAPTER 6: DISCUSSION.....	72
Age at arrival and FCGI.....	74
Nativity and FCGI as Predictors of Perceived Stress.....	75
Nativity, FCGI, and Perceived Stress as Predictors of Self-Rated Health.....	76
Limitations .....	76
Programmatic and Policy Implications .....	77
Challenging Conventional Notions About Race/ethnicity And Immigration .....	78
Directions and Recommendations for Future Research.....	78
Conclusion.....	79
Appendix A Background Information Survey Questions.....	81
Appendix B Foreign Cultural Group Identity Measure.....	87
Appendix C Health Survey Questions.....	88
Appendix D Perceived Stress Measure.....	91
Appendix E Racial Discrimination Measure.....	92
Appendix F Study Flyers.....	93
Appendix G Post Hoc Analyses Multivariate Analyses.....	95
References.....	96

## **List of Tables**

Table 1. U.S. Population by Nativity, 2010	15
Table 2. Foreign-Born by Region of Birth, 2010	16
Table 3. Foreign-Born Blacks in the U.S. by Region of Birth, 2012	17
Table 4. Demographic Characteristics for Black Population, by Nativity, 2012	17
Table 5a. Descriptive Statistics of Original Sample	40
Table 5b. Descriptive Statistics of Original Sample	40
Table 6a. Descriptive Statistics of Analytic Sample	55
Table 6b. Descriptive Statistics of Analytic Sample	56
Table 7a. Sample Characteristics by Nativity	57
Table 7b. Sample Characteristics by Nativity	57
Table 8. Sample Characteristics Correlations	58
Table 9. FCGI Psychometric Properties	58
Table 10. Pearson Correlation Coefficients for item-level FCGI.	59
Table 11. Standardized Regression Coefficients of FCGI on Age at Arrival for the Foreign-born Sample	60
Table 12. Standardized Regression Coefficients of Perceived Stress on Nativity, FCGI and Controls.	62
Table 13. Standardized Regression Coefficients of Self-rated health on Nativity, Perceived Stress, FCGI and Controls	63
Table 14. Descriptive Statistics of Post Hoc Variables	67

Table 15. Self-reported Cultural Group Identity and Socially Assigned Race by Nativity 68

Table 16. T-test Statistics for Nativity and Majority of life Spent by Racial Discrimination 69

## List of Figures

Figure 1. Conceptual Framework

12

## **Chapter 1: Introduction**

Culture and cultural identity are widely recognized as important determinants of health<sup>1-4</sup> in that the behaviors, values and practices guided by culture can be either a barrier to health or a protective factor. The need to study cultural identity is becoming increasingly relevant to the study of health and disease risk as the societies we live in become more multicultural.<sup>1</sup> The rapid growth of ethnic minority populations in the U.S., both foreign- and U.S.-born, presents an important and unique opportunity for a more nuanced examination of the link between cultural identity and health. To understand the importance of culture and cultural identity as social determinants of health, scholars often turn to immigrant populations as a way of deciphering how foreign-born status can influence health behaviors, health risks and ultimately, health outcomes. Specifically, health disparities research often investigates the health of foreign-born ethnic minorities in order to understand the underlying reasons behind race/ethnic health disparities.

Examining the health of Black immigrants living in the U.S. presents an opportunity to address this issue. As the number of Black immigrants living in the U.S. increases, understanding foreign-born health as a way to fully grasp the health of the Black population has become increasingly vital. Black immigrants from Africa and the Caribbean have steadily increased in numbers since the 1970s.<sup>5</sup> Africans immigrating to the U.S. is a recent phenomenon, most arriving after the 1980s. However, Caribbean immigrants have been arriving gradually throughout the 20th century.<sup>5</sup> Between 2001 and 2006, Black immigrants accounted for one-fifth of the growth in the Black U.S. population.<sup>5</sup> In 2011, the foreign-born accounted for close to 10% of the non-Hispanic Black population<sup>6</sup> which calls attention to the need for a focus on this population.

Public health research tends to use narrow classifications for nativity, race, and ethnicity which can mask each group's unique immigration history and experience. The Black race is often assessed as a homogenous group<sup>7-9</sup> although this group includes Black immigrants from the Caribbean, Africa, Europe, and other regions. Additionally, immigrants may have various reasons for migration and experiences in their home country prior to arrival in the U.S. that may influence health outcomes and risk factors. Recognizing the heterogeneity within the Black racial group is important because it can inform our knowledge and understanding of the distinctive exposures influencing health outcomes. This research project focuses on examining nativity-based differences in perceived stress and self-rated health among Black women with immigrant backgrounds and on understanding the extent to which the psychological process of identity explains the observed patterns in Black immigrants' self-rated health and perceived stress.

Although the literature on how Black immigrants identify culturally is limited, a few studies highlight the fact that Black immigrants do not fully identify with the prescribed Black race/ethnic category that is commonly used in the U.S. and the racial context associated with this category.<sup>10-14</sup> Studies suggest that foreign-born Blacks' adherence to their foreign culture buffers them from health risks and exposures due to the behavioral and attitudinal components associated with their culture. Considering the notion that certain aspects of culture and cultural identity can impact health points to the need for consideration of the determinants of cultural identity and the mechanisms by which cultural identity can affect health risks and outcomes. Bearing in mind that Black immigrants may not fully subscribe to the Black race/ethnic category, there is a dire need for a better understanding of the link between cultural identity and health in order to

better serve this community. Examining this association is particularly vital because public health policies and programs are often created from knowledge about a race/ethnic group based on the existing race/ethnic categories.

In general, extant studies highlight the fact that the foreign-born are generally healthier than their U.S.-born counterparts but this health advantage diminishes over time.<sup>15-26</sup> Much of the previous immigrant health literature largely focuses on immigrants of Mexican or other Hispanic origin because they are the largest group of immigrants, with much less empirical inquiry focused on Black immigrants. Although they share the same racial status, foreign-born Black individuals experience better health outcomes than their U.S.-born counterparts.<sup>15, 21, 23, 24</sup> The few studies on Black immigrants indicate that foreign-born Blacks have better health outcomes for chronic diseases such as diabetes and cardiovascular disease than U.S.-born Blacks. Further, all-cause mortality among Black immigrants across all ages tends to be lower than that of U.S.-born Blacks.<sup>27</sup>

Traditional explanations for immigrant health patterns include selective migration, cultural buffering, and acculturation.<sup>23, 24, 28</sup> *Selective migration* and *cultural buffering* explain the initial immigrant health advantage whereas *acculturation* explains the subsequent immigrant health decline. The *selective migration* hypothesis states that individuals who migrate are generally healthier and more resilient than other individuals in their home country due to the immigration screening process.<sup>23</sup> These immigrants are more willing and able to endure the task of migrating and better respond to the challenges involved.<sup>23</sup> The *cultural buffering* hypothesis suggests that, compared to U.S.-born individuals, immigrants' cultural values and norms may proscribe risky activities such as alcohol and tobacco use and promote healthy behaviors prior to migration. For example,

immigrants from developing countries may have a pre-migration lifestyle that includes a low calorie diet and higher levels of physical activity which can promote good health.<sup>24</sup> The *acculturation* hypothesis argues that immigrants lose the protective factors associated with culture over time as they adopt the behaviors, attitudes and values of U.S. culture.<sup>28, 29-31</sup> Extant immigrant health studies have relied heavily on the aforementioned explanations for immigrant health outcomes. Recently, however, scholars focused on understanding the health patterns among Black immigrants have referenced the *Racial Context of Origin* hypothesis. This hypothesis explains that Black immigrants born in majority-Black countries will experience better health outcomes upon arrival to the U.S. compared to those born in racially mixed or majority-White countries due to lower levels of pre-migration exposure to racial discrimination.<sup>32</sup> Other studies have highlighted the importance of Black immigrants' region of origin as an explanation of the observed health patterns among this group.<sup>33, 34</sup>

When considering the concept of culture and cultural identity in the context of health, public health researchers often acknowledge its importance, but rarely provide a concrete definition because of its complexity and abstract nature. Furthermore, the terms *culture*, *ethnicity*, and *race* are often used interchangeably to refer to origins, perceptions of self, values, religion and language shared by a group of people as are *cultural identity*, *ethnic identity*, used interchangeably to refer to individuals' subjective sense of belonging to an ethnicity, group or culture.<sup>1, 35, 36</sup> For the purposes of this project, culture will be defined as a set of shared learned behaviors, norms, beliefs, ways of living, traditions and values that are defined by a social group or society.<sup>2, 37</sup> The term *foreign cultural group identity* (FCGI) is used in this research to refer to an individual's cultural identity. More



precisely, it measures an individual's sense of self with regard to a foreign native culture. FCGI is based on the construct *racial centrality*, a specific component of the Multidimensional Model of Racial Identity (MMRI) that assesses the importance of membership in the Black racial group to an individual's global self-concept. Although the MMRI is a model for racial identity per se, the model is flexible enough for adaptation for use with other ethnic minority groups.<sup>38</sup> Specifically, it acknowledges that people of color have sub-cultural identities and contexts that are important. The few studies that focus on Black immigrants' identity report that Black immigrants construct their identity in distinct ways and suggest that this group may not identify with the "African American" label in the traditional way.<sup>11, 39</sup>

In this study, FCGI measures the importance of an individual's identification with a foreign culture to an individual's sense of self. Measuring FCGI can enable researchers to address some of the heterogeneity within race/ethnic groups in a more expansive way than typically seen in public health research. Studying FCGI is an avenue in immigrant health that remains virtually uncharted and offers a precise and comprehensive assessment of the meaning of foreign-born status with the constraints of race/ethnicity, and one that can help explain health patterns observed among immigrants to the U.S. who are typically classified in American race/ethnic groups.

To investigate the role that FCGI plays in perceived stress and self-rated health, three sets of research questions were explored. The first question examines the association between age at arrival and FCGI among the foreign-born independent of education level. The second investigates whether there are nativity-based differences in perceived stress and self-rated health independent of age, education, marital status, and

smoking status, and the third question considers whether FCGI explained more variation in perceived stress and self-rated health than nativity, after adjusting for age, marital status, education, and cigarette smoking.

To explore these questions, cross-sectional data were collected from a purposive sample of 214 Black women with immigrant backgrounds. In order to recruit a sample with a wide range of immigrant backgrounds, only women (1) who self-identified as Black, and (2) were foreign-born, or had at least one foreign-born parent or grandparent. Descriptive statistics and analyses using multiple linear regression models to assess the association between age at arrival, nativity, FCGI self-rated health, and perceived stress are reported. The implications of the findings for immigrant health and health disparities research are discussed.

## Chapter 2: Conceptual Framework

Identity Theory,<sup>40</sup> the Multidimensional Model of Racial Identity (MMRI)<sup>38</sup> and Social Determinants of Health (SDH)<sup>41</sup> theory provide valuable guides for understanding how adherence to a foreign culture may buffer against ill health. Utilizing SDH and the MMRI offer a venue within which to anchor Identity Theory in a context that allows for a better understanding of the determinants of FCGI and how FCGI can influence health.

Derived from symbolic interactionism and formulated by Stryker<sup>40, 42</sup> and Burke,<sup>43</sup> Identity Theory hypothesizes that an individual's self is a structure of identities organized in a hierarchical fashion. These identities are organized and ranked according to the importance an individual attaches to each identity. Stryker uses the example of a New York mayor who decided to devote more time to his children and not run for a second term of office. He states that the former mayor probably awarded more importance to his role and identity as a father compared to his role as a public official.<sup>40</sup> Stryker defined identities as "internalized sets of role expectations, with the person having as many identities as roles played in distinct sets of social relationships".<sup>40(p90)</sup>

Additionally, Stryker suggests that the roles that are associated with each identity influence behavior.<sup>44</sup> A major principle of Identity Theory is that there is a strong link between the location of various identities in an individual's identity hierarchy and the individual's behavioral performances.<sup>40, 44, 45</sup> A key concept of Identity Theory is centrality. Centrality explains how the identities that are more central and important to an individual's sense of self are the ones more likely to guide behaviors and influence the general sense of self and well-being.<sup>46</sup> Stryker's example of the former New York mayor can be used to explain the concept of centrality. The importance that the mayor placed on

his identity as a father guided his behavior and his decision to not run for office.

Centrality is a leading concept for this study and provides guidance in understanding how an immigrant woman's foreign culture can hold importance in her overall identity.

The Multidimensional Model of Racial Identity (MMRI) allows for the conversation about identity to be rooted in a racial context. The MMRI is grounded in Identity theory and builds on it by stating that the degree to which membership in the Black racial group is important to an individual's sense of self in specific situations influences behavior. The MMRI takes into account the diversity in African American culture and the contexts within which people consider their group membership.<sup>47</sup> The MMRI's Centrality scale builds on Identity Theory's concept of centrality. Identity Theory defines centrality as the degree to which race is central to an individual's sense of self. Together, Identity Theory and the MMRI provide a helpful framework for considering how immigrants' cultural identity can be an important part of how they normatively think about themselves. FCGI's foundation is borrowed from Identity Theory and the MMRI's concept of centrality and support the idea that immigrants' sense of self can be central to how they normatively view themselves.

In order to understand how the conditions in which people live can affect cultural identity and understand how cultural identity can affect health, an additional framework is needed to guide our understanding. To better understand the mechanisms by which FCGI can influence health, this study draws on the Social Determinants of Health (SDH) theory which takes into account the conditions in which individuals live, work, and develop and the effect these circumstances have on health. The SDH theory allows for a closer examination of FCGI as a determinant of health and the identification and

consideration of how structural and individual determinants can influence FCGI, which in turn affects health through intermediary determinants. The structural determinants of FCGI include aspects of the macroeconomic and social context such as immigration policies and the overall sentiment towards immigration and immigrants. The individual level determinants of FCGI may include immigration status, nativity, age at migration, religiosity, and length of U.S. residence. In turn, FCGI may influence health through several intermediary determinants that act as mechanisms that influence an individual's health status. These include factors such as health behaviors, diet, physical activity, perceived stress, health care utilization and cultural values. Values about and attitudes towards education may also create differential self-rated health status.

The structural determinants include factors that may shape the extent to which individuals with an immigrant background hold on to their cultural identity. Immigrants may desire to retain their identity if they feel that there is a positive societal attitude towards immigrants. If faced with a hostile general sentiment towards immigrants in the form of immigration policies, immigrants may downplay their cultural identity as a way to assimilate. Phinney et al. reported that the link between immigration policies and immigrant identity was weak but probable where countries with supportive and immigrant friendly policies were more likely to have immigrants with strong affinities to their cultural identity.<sup>48</sup> For example, countries such as Canada, which supports immigrants maintaining their culture of origin, tended to have immigrants that had high levels of cultural identity compared to countries such as Israel which has policies that promote immigrants' integration.<sup>48</sup>

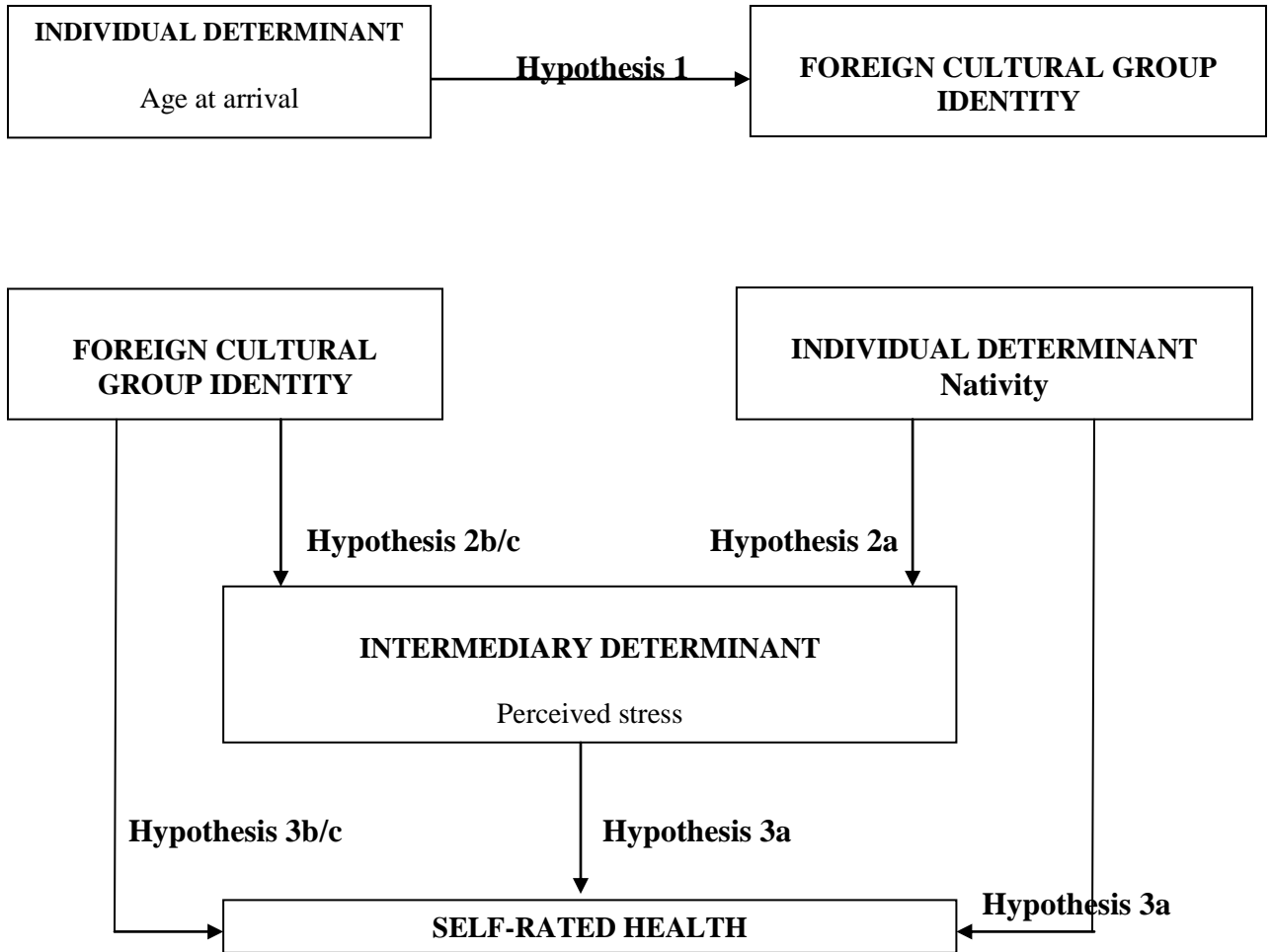
The individual level determinants of cultural identity may include immigration status, nativity, age at arrival, length of U.S. residence, and residence. Where individuals are born, the age at which they migrated, and the length of time they have spent in the U.S. are all factors that may shape an individual's FCGI. For example, foreign-born immigrants and those who arrived in the U.S. as adults may have a stronger affinity towards their foreign culture because of the time immersed in their countries' value systems. Immigration status is also an important determinant of cultural identity. For instance, immigrants on student visas are legally defined as non-U.S. residents. The immigration process and practices to which student visa holders must adhere to in order to maintain their status reinforces their foreign-status, which may result in a stronger affinity to their foreign culture. Naturalized U.S. citizens may or may not be allowed to maintain dual citizenship and are treated as U.S. citizens regardless of country of origin. This may influence the level of affinity these individuals have toward their culture of origin.

There is much evidence linking differing levels of cultural identity and the intermediary determinants to health. These include factors such as health behaviors, diet, physical activity, health care utilization, and cultural values. Some of these factors may influence social determinants such as education, income and social position, which in turn, can create differential risks for health. Studies show that upon arrival to the U.S., the foreign-born are generally healthier than the U.S.-born because of pre-migration behaviors that protect against increased disease risk such as a healthy diet and engagement in physical activity. Scholars have highlighted that certain aspects of cultural

identity such as an individual's expression of their religion, values and social support are positively associated with overall health.<sup>49-52</sup>

The combination of Identity Theory, the MMRI and SDH Theory provide guidance for the hypotheses tested in this study by allowing us to consider how a foreign culture can be important to a Black immigrant woman and how several determinants can influence her FCGI which in turn can affect her self-rated health. The centrality concept from the Identity Theory and the MMRI shape FCGI, but only a handful of individual determinants and intermediary determinants are tested in this study. Drawing from both theories and the model discussed, figure 1 (page 12) highlights the fact that we can expect the individual determinant of age at arrival will be associated with FCGI (hypothesis 1). By examining nativity-based differences in perceived stress and self-rated health (hypothesis 2a and 3a), the impact of nativity as an individual determinant on perceived stress can also be tested. The figure also shows that FCGI may be associated with perceived stress which is an intermediary determinant and it is hypothesized that FCGI will explain more of the variance in perceived stress than nativity (hypothesis 2). Additionally, whether FCGI is associated with self-rated health (hypothesis 3) and explains more of the variance in self-rated health than nativity can be tested.

**Figure 1: Study Conceptual Framework**





### **Chapter 3: Literature Review**

Previous scholars have acknowledged the importance of examining and understanding cultural identity and race/ethnicity as determinants of health as the U.S. becomes more multicultural. The difficulty with defining and measuring cultural identity has made the use of race/ethnicity the standard method to address this line of research. However, the narrow categorization of race/ethnicity does not allow for a deeper examination of how an individual's perception of himself or herself can affect health. Further, studies show that for Black immigrants, the narrow race/ethnic category does not fully or accurately capture their migration experience or their definition of themselves. For Black immigrants, identity is often more complicated than checking a box. It is proposed that measuring FCGI serves as a useful tool, allowing researchers to move beyond the traditional categories and better understand how individuals' connection and adherence to their culture can impact their health. Prior to delving into a review of the existing literature, it is important to define the terms used in this document in order to frame the narrative in the relevant context.

#### *Definitions*

The term "Black" refers to individuals of African descent. The term "Black" is used, as opposed to "African American" because the latter holds assumptions about culture and identity that do not always reflect the culture or identity of immigrants who share the same race/ethnic category. In this narrative, the term "Black" is used as an all encompassing term to describe those who have roots on the African continent. The term "Black immigrant" will be used to differentiate the population that is foreign-born, or is a 2nd or 3rd generation descendent of an immigrant.

In order to frame the discussion of immigrants accurately, clarification of how U.S. immigration law defines an immigrant is necessary. Although the terms *foreign-born* and *immigrant* are often used interchangeably, according to U.S. immigration law, an immigrant is defined quite broadly as an individual who has been admitted under the law's immigrant categories. This includes individuals who are in the U.S. temporarily.<sup>53</sup> The U.S. Census Bureau defines the foreign-born population as those who are not U.S. citizens at birth and have been born outside of the U.S. excluding those born abroad to U.S. citizen parents. This definition also includes those who have arrived under the U.S. immigration law.<sup>54</sup> However, in this body of work, the terms *foreign-born* and *immigrant* refer to individuals who are born outside of the U.S. and now live in the U.S. regardless of whether they are naturalized citizens or of their immigration status. The term *immigrant background* is used in this document to describe individuals who are immigrants themselves or are 1st or 2nd generation U.S.-born citizens.

#### *Growth of the Immigrant Population*

Immigrants are the fastest growing segment of the U.S. population.<sup>55</sup> According to the U.S. Census Bureau, between 1980 and 1991, the number of immigrants increased three-fold.<sup>56</sup> In 2000, the immigrant population represented 10.4% of the U.S. population at an estimated 28.4 million individuals.<sup>57</sup> In 2010, there were close to 40 million foreign-born individuals living in the U.S. constituting almost 13% of the U.S. population (Table 1).<sup>58</sup>

Since the adoption of the Immigration and Nationality Act of 1965 there has been a significant increase in the number of U.S. immigrants and a shift in the sending countries.<sup>17</sup> Prior to 1965, U.S. immigration laws favored immigrants from Northern and Western Europe and restricted the entry of non-Whites. As a result, the majority of U.S.

immigrants originated from countries such as Germany, Ireland, and Poland. The passage of the Immigration and Nationality Act of 1965 saw an increase in Black immigrants and other immigrants of color. Between 1960 and 1980, the proportion of Black immigrants increased by approximately 6.5 fold. Over the past three decades, the percentage of Black immigrants has increased from 3% in 1980 to 8% in 2010.<sup>58, 59</sup>

**Table 1.** U.S. Population by Nativity, 2010<sup>a</sup>

<b>Nativity</b>	<b>2010 population</b>	<b>Percent</b>
U.S.-born	269,432,814	87.1
Foreign-born	39,916,875	12.9
Total	309,349,689	100.0

<sup>a</sup> Data from the Pew Hispanic Center Tabulations of the 2010 American Community Survey<sup>58</sup>

### *Black U.S. Immigrants*

Foreign-born Blacks in the U.S. are made up of immigrants and refugees and represent a variety of origins from South America, Europe, Africa and the Caribbean. However, the majority of foreign-born Blacks living in the U.S. come from the Caribbean and Africa. Most Africans arrived after 1980, whereas immigrants from the Caribbean have been arriving steadily during the last 30 years of the 20<sup>th</sup> century. Between 1990 and 1999, immigrants from the Caribbean made up 60% of Black immigrants, followed by Africans, making up 36%. European Blacks and immigrants from elsewhere make up the smallest fraction of Black immigrants.<sup>5, 33</sup> In 2010, immigrants born in Africa accounted for 4% of the immigrant population, whereas immigrants born in the Caribbean made up 9.3% of the total immigrant population (Table 2).<sup>60</sup> In 2011, the foreign-born accounted for close to 10% of the non-Hispanic Black population. In the 1990s, Black immigration contributed to an approximately 17 percent increase in growth of the U.S. Black population. Between 2000 and 2006, this growth increased to approximately 20 percent.<sup>5</sup>

The rapid growth of the Black immigrant population underscores the need to understand the health profile and health needs of this group now more than ever.<sup>6</sup>

**Table 2. Foreign-Born by Region of Birth, 2010<sup>a</sup>**

<b>Region of Birth</b>	<b>Population (thousands)</b>	<b>Percent</b>
Africa	1,607	4.0
Asia	11,284	28.2
Europe	4,817	12.1
Central and South America and the Caribbean	21,224	53.1
Mexico	11,711	29.3
Other Central America <sup>b</sup>	3,053	7.6
South America	2,730	6.8
Caribbean	3,731	9.3
Northern America <sup>c</sup>	807	2.0
Oceania <sup>d</sup>	217	0.5
Total	39,956	100.0

<sup>a</sup> Data from the U.S. Census Bureau, American Community Survey, 2010 <sup>60</sup>

<sup>b</sup>Other Central America includes the countries of Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

<sup>c</sup>The majority of the foreign born from Northern America were from Canada (99%).

<sup>d</sup>About two-thirds of the foreign born from Oceania were from Australia and New Zealand (48%) and Fiji (18%).

Table 3 highlights the share of Blacks among all U.S. immigrants in 2012 by region of birth, emphasizing the large proportion of immigrants from Africa and the Caribbean. Compared to the total immigrant population, foreign-born Blacks differ with respect to demographic characteristics such as marital status, age, income, and educational attainment (Table 4). In 2012, foreign-born Blacks represented close to a quarter of doctorates conferred on Blacks in the U.S., held 15% of bachelor's degrees, and 16% of master's degrees. Additionally, of all U.S.-born Blacks, 20% were married and 62.2% were never married compared to 39.7% of foreign-born Blacks who were married and 38.6% who were never married. In 2012, foreign-born individuals represented 8% of the Black population.

**Table 3. Foreign-Born Blacks in the U.S. by Region of Birth, 2012<sup>a</sup>**

Birth Place	Total	Black Immigrant Population	Proportion of Blacks among all immigrants (%)
All U.S. Immigrants	38,674,773	3,283,520	8.5
Africa	1,466,454	1,090,755	74.4
Europe	4,847,078	63,659	1.3
Northern America	834,095	24,807	3
Other Northern America	8,095	4,457	55
Canada	826,000	20,350	2.5
Americas	21,399,203	2,094,532	9.8
Latin America	20,565,108	2,069,725	10.1
Caribbean	3,493,772	1,713,070	49
Central America	14,430,799	182,924	1.3
South America	2,640,537	173,731	6.6
Asia	10,747,229	31,271	0.3
Oceania	214,809	3,303	1.5

<sup>a</sup>U.S. Census Bureau. Current Population Survey data 2012. Black immigrants are those who reported being Black alone, or in combination with one or more race.<sup>61</sup>

**Table 4. Demographic Characteristics for Black Population, by Nativity, 2012<sup>a</sup>**

Totals	Total	Nativity	
		U.S.-born	Foreign-Born
		Number in Thousands (%)	Number in Thousands (%)
	39,462	36,287 (91.95)	3,175 (8.05)
<b>Educational Attainment</b>			
Less than 9th grade	1,152	945 (82.04)	207 (17.96)
9th-12th grade, no diploma	5,076	4,776 (94.09)	300 (5.91)
High school diploma or equivalent	9,488	8,646 (91.12)	843 (8.88)
Some college, no Assoc. or 4-yr degree	6,388	5,899 (92.34)	489 (7.66)
Associate degree	2,467	2,162 (87.62)	305 (12.38)
Bachelor's degree	3,471	2,962 (85.34)	509 (14.66)
Master's degree	1,342	1,123 (83.67)	219 (16.33)
Professional degree (such as DDS or JD)	214	155 (72.66)	58 (27.34)
Doctorate (such as PhD or EdD)	226	171 (75.76)	55 (24.24)
<b>Marital Status</b>			
Married, Spouse Present	8,766	7,506 (85.63)	1,260 (14.37)
Married, Spouse Absent	556	417 (74.95)	139 (25.05)
Widowed	1,717	1,589 (92.53)	128 (7.47)
Divorced	3,320	3,043 (91.63)	278 (8.37)
Separated	1,316	1,170 (88.91)	146 (11.09)
Never Married	23,786	22,563 (94.85)	1,224 (5.15)
<b>Age</b>			
< 17	11,667	11,383 (97.57)	284 (2.43)
18 to 64	24,178	21,591 (89.3)	2,588 (10.7)
65 to 80+	3,617	3,314 (91.62)	303 (8.38)

**Table 4. Demographic Characteristics for Black Population, by Nativity, 2012<sup>a</sup>**

Totals	Total	Nativity	
		U.S.-born	Foreign-Born
		Number in Thousands (%)	Number in Thousands (%)
	39,462	36,287 (91.95)	3,175 (8.05)
<b>Family Income in 2011</b>			
No Income	1,434	1,355 (94.49)	79 (5.51)
\$1 to \$4,999 or loss	1,615	1,538 (95.27)	76 (4.73)
\$5,000 to \$9,999	2,848	2,679 (94.05)	169 (5.95)
\$10,000 to \$14,999	3,019	2,789 (92.38)	230 (7.62)
\$15,000 to \$24,999	5,508	5,124 (93.04)	383 (6.96)
\$25,000 to \$34,999	4,723	4,344 (91.99)	378 (8.01)
\$35,000 to \$49,999	5,210	4,874 (93.56)	335 (6.44)
\$50,000 to \$74,999	6,357	5,827 (91.66)	530 (8.34)
\$75,000 and over	8,750	7,757 (88.65)	993 (11.35)

<sup>a</sup>U.S. Census Bureau. Current Population Survey data 2012. Black immigrants are those who reported being Black alone, or in combination with one or more race.<sup>61</sup>

### Reasons for Migration

Generally, there is diversity in the reasons why the foreign-born migrate to the U.S. Those of Caribbean descent generally come to the U.S. to join family living in the U.S.<sup>62</sup> The close proximity to the U.S. and the fact that there is a large proportion of Caribbeans living in the U.S. who are citizens help ease the migration process. Further, many Caribbeans migrate to the U.S. in search of better paying jobs.<sup>62</sup> A very small portion of Caribbeans come to the U.S. under asylum or refugee status. In 2012, approximately 7% of all refugee admissions were of individuals from Latin America and the Caribbean.<sup>63</sup>

Among African immigrants, there has been an increase in the number of immigrants arriving as international students to institutions of higher education. Furthermore, the diversity visa program, which was created to increase the number of underrepresented immigrants in the U.S., has been a significant avenue for the entry of highly skilled African immigrants. Between the 1980s and the 1990s, it was estimated

that close to half of the increase in migrants from Africa came through the diversity visa program.<sup>64</sup> Lastly, nearly 16% of all asylum entries were from Africa.<sup>63</sup>

### *Black Identity*

#### The Multidimensional Model of Racial Identity and Racial Centrality

Primarily studied among African Americans, racial identity theory can serve as a useful framework for thinking about Foreign Cultural Group Identity (FCGI) in groups that are not considered racial categories per se. The project draws in part upon ideas and concepts outlined in the Multidimensional Model of Racial Identity (MMRI), a racial identity theory based on the African American experience and membership in the African American racial group.

The MMRI and other identity theories argue that identities are hierarchically ranked, and that certain identities, such as race, can be more central to an individual's sense of self than others. In general, a strong identification with one's racial group serves as a buffer against stressors related to discrimination and racism.<sup>65</sup> The MMRI is a useful theory for examining the concept of identity among immigrants. Sellers et al. conceptualized the MMRI to examine how important being Black is to an individual's sense of self and what it means to be part of the Black racial group. The MMRI identifies four dimensions of racial identity, one of which is of interest to the current project. Racial centrality is defined as the extent to which individuals normatively define themselves in terms of race. In this project, the centrality dimension is reformulated to apply to the nationality of women from immigrant backgrounds and is hence labeled FCGI.

Studies show that individuals who strongly identify with their cultural group engage in health promoting behavior<sup>66</sup> and have better management of stress.<sup>67</sup> In a

Michigan sample of African American adults, Yap et al. found that when African Americans defined themselves strongly with regard to race, they reported higher life satisfaction.<sup>68</sup> Sellers et al. reported that for individuals for whom race was more central to their identity, the association between racial discrimination and perceived stress was weaker.<sup>69</sup> Following similar reasoning, features of an immigrant's strong identification with a foreign cultural group could be protective against the stressors inherent in living in the U.S.

#### Centrality among Immigrants

In a recent search of the literature in 2013, no studies were found that examined centrality among Black individuals with immigrant backgrounds. However, a handful of studies have successfully used the centrality measure among other ethnic minority groups with immigrant backgrounds and as a measure of an individual's adherence or affinity to his or her foreign culture. Scholars in this area use various characterizations for centrality. For example, the terms ethnic centrality and ethnic identity are used in reference to centrality. Fuligni et al. modified the original centrality scale and replaced the word "Black" with the phrase "a member of my ethnic group" to assess the degree to which Mexican, Chinese and European adolescents' ethnic labels were central to their sense of self. The study concluded that foreign-born adolescents were more likely to select national labels to describe themselves. Further, those who chose national labels reported higher levels of ethnic centrality.<sup>70</sup> Rivas-Drake and colleagues found that youth from immigrant backgrounds reported higher levels of centrality compared to White youth.<sup>71</sup> Drawing from a Latino sample, Rivas-Drake also examined how centrality mediated the relationship between cultural socialization and self-esteem. The authors



reported that students who reported higher levels of centrality reported higher self-esteem.<sup>72</sup> Kiang et al. also reported that ethnic identity was higher among those with ethnic minority backgrounds.<sup>73</sup> Considering the use of centrality among ethnic immigrant groups as highlighted in the studies above, the applicability of centrality among Black immigrants seems logical. Further, the lack of studies examining centrality among Black immigrants underlines the need for the application of this measure and extension of this line of research in this understudied group.

#### Black Immigrant Identity

As noted, studies show that Black immigrants do not identify with all aspects of the prescribed U.S. racial categories generally or in the ways many public health researchers assume. Black Caribbeans often do not identify with the "African American" label and assert their national origin.<sup>11, 14, 74</sup> As such, faulty assumptions are likely when public health researchers rely solely on prescribed racial categories among Black study participants. For example, first generation Caribbean Black immigrants are apt to distance themselves from African American culture.<sup>11</sup> In a study of Haitian Americans, the author found that although first generation Haitians emphasized their differences from African Americans, second generation Haitians were more likely to identify as African American.<sup>12</sup> Similar to Caribbeans, sub-Saharan Africans emphasize their own culture through their distinct cultural practices, food, belief systems and language and thus, do not identify with African American culture.<sup>13, 14</sup> Interestingly, Rivers found that U.S.-born Africans identified more as African American or with both their country of origin and the U.S. than as African. She found that newer immigrants did not identify with U.S. culture or subculture and identified more with their country of origin culture.<sup>10</sup>

These findings regarding Black immigrants' cultural backgrounds, cultural attitudes, and patterns of behavior have relevance as potential individual determinants of FCGI that have been discussed earlier. Where an individual is born may reflect the socialization that has occurred in a specific culture depending on the length of time spent in that culture. In the case of the foreign-born, the socialization occurs in a cultural environment that is distinct from African American culture. For the U.S.-born with immigrant backgrounds, exposure to African American culture during the formative years may shape their identity. The length of time spent in the U.S. may also shape identity, illustrating an acculturation effect where over time, identities may shift.

For example, Benson showed that the identity of Black migrants from the Caribbean and Africa is connected to their country of origin, although over time, they tend to identify with African Americans. Benson also found that for Black immigrants in her sample, their identity was linked to education, neighborhood ethnic density, and employment status drawing attention to the individual level determinants of FCGI discussed earlier. Specifically, Black immigrants with higher levels of education identified less with their foreign culture and those who lived in ethnically dense neighborhoods were more likely to hold on to their culture of origin.<sup>74</sup> Benson suggested that the link between education level and identity may be a function of highly educated and employed Black immigrants sharing a "common fate" with other Black individuals, and thus, identifying less with their own distinct culture. Ethnically dense neighborhoods may serve as conduits for the maintenance of cultural practices and beliefs, aiding in the preservation of cultural identity, directing behavior, and influencing health.<sup>74</sup>

### Foreign Cultural Group Identity

As noted, in this study, the concept of FCGI is borrowed from Sellers' model of centrality and is defined as an individual's sense of self with regard to his or her foreign native culture. Specifically, this study uses the concept of centrality to assess adherence to cultural group identity among individuals with an immigrant background.<sup>38</sup> The idea is that individuals have multiple identities (e.g. wife, mother, professor) which are hierarchically ranked in order of importance, and that certain identities, such as race, can be more central to an individual's sense of self than others.<sup>38</sup> In this way, the concepts of racial centrality, and FCGI mirror each other. Both concepts refer to the way that individuals define themselves in relation to a group that they belong to.

Studies focused on racial centrality among African Americans show that centrality influences several outcomes that can impact health. African Americans who have a strong sense of self with regard to their race are able to buffer discrimination- and race-related stress,<sup>65</sup> and have been found to engage in health promoting behaviors,<sup>66, 75</sup> have healthier eating habits,<sup>76, 77</sup> and manage stress better.<sup>67</sup> Further, racial centrality is positively associated with positive health behaviors,<sup>66, 75</sup> stress management, and life satisfaction.<sup>68</sup> Following similar reasoning, features of an immigrant's strong identification to a foreign cultural group can be protective against the stressors inherent in living in the U.S. Several studies lay the ground work for the importance of examining the association between cultural group identity and health and how it can help to explain the foreign-born health advantage.<sup>49-52</sup>

### Foreign Cultural Group Identity and Health

Several studies have highlighted the importance of examining the association between FCGI and health and how it can explain the foreign-born health advantage. In his seminal study, Marmot et al. found that among Japanese men living in the San Francisco Bay area, those with a stronger connection to their original Japanese culture in childhood and adulthood experienced a lower prevalence of coronary heart disease (CHD).<sup>49</sup> Marmot et al. measured the prevalence of manifestations of CHD as well as prevalence of definite CHD among “traditional” and “non-traditional” Japanese men. The authors suggested that intermediary determinants of health inherent to Japanese culture, such as community strength, group cohesion and social stability may be stress reducing and act as protective factors against CHD. Franzini et al. considered how several cultural factors such as religion and social support may affect health in a sample of foreign- and U.S.-born Mexicans. The authors found that the foreign-born Mexicans and those in the U.S. for the shortest duration of time reported better physical health compared to U.S.-born Mexicans. Additionally, social support and religiosity were positively associated with health, shedding light on the pathways through which cultural identity impacts health.<sup>50</sup>

A small number of studies have examined cultural identification in relation to adolescent psychological well-being. Research on Mexican and West Indian adolescents showed that those youth who identified with their parents’ cultural origins performed well academically and were more attached to school than students who identified with a more American identity.<sup>14, 78</sup> Further, Matute-Bianchi found that among immigrant and non-immigrant Mexican students, academic success was more likely among Mexican-

oriented students who maintained strong positive identities about being Mexican including immigrant perspectives about the value and importance of education. Furthermore, some findings highlight the association between identification with American culture and behavior problems among Mexican immigrants.<sup>78</sup> Dinh et al. found that children and adolescents who identified less with Mexican culture reported less parental involvement and exhibited more behavior problems.<sup>79</sup> Gil et al. investigated how nativity impacts alcohol involvement among Latino adolescent males. Alcohol use was more prevalent among U.S.-born adolescents than foreign-born adolescents. With the use of structural equation models, the authors showed that among U.S.-born youth, acculturation influences alcohol use through the breakdown of traditional Latino family values, such as parental respect and the use of family networks as sources of social support.<sup>51</sup> Unger et al. discovered that Hispanic adolescents who identified with U.S. culture engaged in less physical activity and more fast-food consumption.<sup>52</sup> The authors suggested that these adolescents may be attempting to become more American and fit in with peers and in the process adopt many activities and foods that are considered “American” such as eating fast-food and engaging in sedentary activities.<sup>52</sup>

The link between foreign cultural group identity and health is evident. Although several instruments measuring different constructs related to cultural group identity have been used, there is variation across different studies making it difficult to compare multiple studies. The studies cited above use various methods to measure cultural group identity such as nativity status, language use,<sup>79</sup> and length of time in the U.S.<sup>51</sup>

### Age at Arrival and FCGI

Age at arrival in the U.S. provides valuable information about an individual's cumulative exposure to U.S. culture and potentially, racial-ethnic group subcultures. Individuals who migrate at younger versus older ages are intrinsically different based on the reasons for migration.<sup>80</sup> Those who migrate as children or adolescents often move with family and do not have a choice in whether to migrate or not. Immigrants who move later in life, as adults, often move to join family or move for economic reasons.<sup>81</sup> It is logical to assume that those who migrate at earlier ages spend most of their developmental years in the U.S., and will be more similar to the U.S.-born with regard to identity and health.<sup>82</sup>

Age at arrival has been shown to be associated with an individual's reference identity and the levels of exposure to his or her culture of origin.<sup>82</sup> Understandably, if an individual migrates at a later age, his or her exposure to the values, customs and behaviors in their foreign culture may be different from someone who migrated to the U.S. as an infant. The patterns of socialization and affinity to culture may vary significantly.<sup>83</sup> Among Latino immigrants, Kimbro et al. found that age at arrival was positively correlated with identification with traditional values as measured by language.<sup>84</sup> Individuals who migrate as adults may hold on to their foreign culture more strongly. Although no studies were found that examine the relationship between age at arrival and strength of identification with country of origin among Black immigrants specifically, insight can be gained by examining this relationship that has been reported among other race/ethnic minority immigrants.

*Black Immigrant Health Patterns: The Healthy Immigrant Effect (HIE) and the Social Determinants of Health*

A plethora of studies highlight the fact that the foreign-born fare better than U.S.-born individuals of the same race/ethnic background across multiple health outcomes. Although immigrants have higher rates of some infectious diseases, compared to U.S.-born individuals, they generally experience better birth outcomes<sup>18-21, 85-89</sup> and mental health outcomes.<sup>16, 90-94</sup> The foreign-born also have lower age-adjusted mortality rates compared to U.S.-born individuals.<sup>17, 95, 96</sup>

The few studies of Black immigrants indicate that Black immigrants experience a health advantage as well. Foreign-born Blacks generally have better health outcomes for chronic diseases such as diabetes and cardiovascular disease than U.S.-born Blacks.<sup>27, 97</sup> All-cause mortality among Black immigrants is lower than that of U.S.-born Blacks.<sup>27</sup> Additionally, Singh et al. found that this health differential existed for cardiovascular and respiratory diseases, as well as cancers<sup>98</sup> whereas other studies have found better self-rated health, lower rates of inactivity, and fewer bed disability days among foreign-born Blacks compared to those who are U.S.-born.<sup>32, 97</sup>

Foreign-born Black women experience more positive reproductive health outcomes, better health status, and engage in fewer risky health behaviors compared to U.S.-born Black women.<sup>18, 86-88</sup> Even after adjusting for socioeconomic status and age, infants born to foreign-born Black women were heavier, longer, and had larger head circumference compared to the infants of U.S.-born Black women.<sup>88</sup> Additionally, several studies demonstrate that infants of foreign-born women have lower risks of low birth weight, moderately low birth weight, and infant mortality than their U.S.-born counterparts.<sup>21, 85</sup> Specifically, Pallotto et al., found that Caribbean-born Black women

had more positive reproductive health outcomes, including giving birth to fewer low birth weight and moderately low birth weight infants compared to U.S.-born Black women.<sup>99</sup> Further, Howard et al. found a distinct difference in the incidence of low birth weight and preterm birth, with foreign-born Black women experiencing lower rates of both outcomes compared to U.S.-born Black women.<sup>100</sup> Howard et al., suggested the HIE as a possible reason for this health differential.<sup>100</sup>

The health advantage observed among foreign-born Black women is also documented among foreign-born Black men. In a longitudinal study of immigrant Black men, Lucas et al., examined the health and health care utilization patterns among foreign-born and U.S.-born non-Hispanic Black men. Foreign-born Black men were in significantly better health than U.S.-born Black men. Additionally, their health status was similar or better than the health status of U.S.-born White men across several health measures and health behaviors. The authors concluded that the difference in health status between foreign and U.S.-born Black men may be explained by the selective migration of healthier individuals to the U.S.<sup>101</sup> The SDH theory also allows for the consideration of foreign-born status as a determinant of FCGI, which in turn, influences health through intermediary determinants, aiding in our understanding of the mechanisms driving the health differential between foreign- and U.S.-born Blacks.

#### Nativity and Self-rated Health

Self-rated health is frequently used to broadly assess health and immigrant health because it is predictive of mortality and describes the overall health status well.<sup>102</sup> Self-rated health is commonly measured using one question such as, “How would you rate your overall health,” with responses of “excellent,” “very good,” “good,” “fair” and



“poor.” Acevedo-Garcia observed that foreign-born Blacks reported better self-rated health than the U.S.-born.<sup>102</sup> Dey et al. found that a slightly larger percentage of U.S.-born adults rated their health as “excellent” or “very good” compared to their foreign-born counterparts (64% and 61%). However, a larger proportion of foreign-born Blacks rated their health as “excellent” or “very good” compared to U.S.-born Blacks (64% and 51%).<sup>16</sup> Lucas et al. reported that compared to U.S.-born Black men, foreign-born Black men were less likely to be in fair or poor health.<sup>101</sup> Krieger et al., also found that foreign-born Blacks were less likely to report fair or poor health compared to U.S.-born Blacks.<sup>103</sup> These findings illustrate that there is strong effect of nativity on self-rated health for non-Hispanic Black individuals and allow us to consider that foreign-born status might influence FCGI which can shape the determinants of self-rated health contributing to the nativity-based differences observed. Further, it has been reported that foreign-born Caribbeans have better self-rated health compared to U.S.-born Caribbeans and African Americans. U.S.-born Caribbeans are also more likely to report poor or fair self-rated health compared to their foreign-born counterparts.<sup>104</sup> Read et al. also found that Black immigrants from Africa, South America and the Caribbean reported better self-assessed health compared to U.S.-born Blacks.<sup>8</sup>

#### Nativity and Perceived Stress

Perceived stress is defined as the degree to which situations in an individual's life are assessed as stressful.<sup>105</sup> Nativity-based differences in various forms of psychological stress have been well documented among Latinos and specifically focus on acculturative stress. However, a thorough search for articles examining the relationship between nativity and perceived stress came up with only a handful of studies that focus on Black

individuals. Research shows that psychological stress can jeopardize the physical and mental health of an individual.<sup>106, 107</sup> Without a doubt, because they share the Black race/ethnic category, Black immigrants may experience high levels of stress from prejudice and racial discrimination.<sup>33</sup> This source of stress may not have been experienced in their countries of birth or origin. The evidence related to this association is mixed. Studies that disaggregate Blacks by region of origin, suggest that nativity-based disparities in experiences of stress and sources of stress exist among Black individuals living in the U.S.<sup>108</sup> Lashley et al. found that Caribbean immigrants experienced stress related to the immigration process that African Americans did not encounter.<sup>109</sup> Further, research shows that compared to African Americans, Caribbean Americans reported higher levels of overall stress. Nwadiora found that among a sample of African and Caribbean immigrants, female and Caribbean immigrants reported higher levels of stress.<sup>110</sup> However, Dey et al., found that U.S.-born Blacks were more likely to experience psychological distress than Black immigrants.<sup>16</sup> There is a clear need for more research in this area.

#### Prevailing Explanations for the Immigrant Health Advantage

There are three dominant explanations for why the foreign-born fare better than the U.S.-born. The prevailing explanations for the HIE are selective migration<sup>15, 23, 111-113</sup> acculturation,<sup>29, 114-117</sup> and cultural buffering.<sup>22, 24</sup> It is important to note that these explanations are heavily focused on literature examining populations of Hispanic origin, particularly the acculturation hypothesis. A fourth explanation that has garnered attention specifically when considering Black foreign-born is the racial context of origin

hypothesis which highlights region of origin as an important function in the observed Black immigrant health patterns.<sup>33, 34</sup>

#### Selective Migration

According to this hypothesis, individuals who migrate to the U.S. are healthier and more resilient than individuals in their home country.<sup>15</sup> Immigrants are more willing and able to risk the task of migrating and respond better to the challenges involved.<sup>23, 112,</sup>

<sup>113</sup> Similarly, Akresh et al. examined how health selection among immigrants varies by country of origin and found that once immigrants arrived in the U.S., they were healthier than U.S.-born individuals sharing the same race/ethnic background.<sup>111</sup> Selective migration is consistent with findings on birth outcomes showing that foreign-born women have a decreased risk of low birth weight and moderate low birth weight than U.S.-born women of the same racial and ethnic background.<sup>85, 118, 119</sup>

#### Acculturation

Acculturation refers to the complex process where immigrants adopt the beliefs, values, behaviors, and norms of the host culture.<sup>120</sup> The acculturation hypothesis implies that the health of immigrants declines as a result of the loss of health-related practices related to culture over time.<sup>29</sup> Strong evidence in support of this hypothesis indicates that the adoption of the eating habits, norms, physical activity levels and attitudes of the host country's residents contributes to the health deterioration of immigrants.<sup>28-31, 121</sup> Extant studies show that high levels of acculturation are associated with mortality<sup>17, 114</sup> and an increase in behaviors such as tobacco and alcohol use.<sup>29, 30, 115-117</sup> Research on Black immigrants indicates that over time, their health declines but the specifics of how and why acculturation occurs among Black immigrants is lacking.

### Cultural Buffering

The cultural buffering hypothesis suggests that compared to U.S.-born individuals, immigrants from the same racial and ethnic background are more likely to engage in healthier behaviors and embrace values that do not encourage risky behaviors prior to migration.<sup>24</sup> In other words, there are norms and values related to health behaviors that are part of an immigrant's cultural background that are protective. This hypothesis has been examined among Hispanic populations and proposes that pre-migration lifestyles may include a diet that is low in fat and empty calories, high levels of physical activity, and strong family connections and support networks.<sup>22, 27</sup> Additionally, immigrants may use tobacco and alcohol less than U.S.-born individuals.<sup>22</sup>

### Racial Context of Origin

The Racial Context of Origin hypothesis states that the racial context of immigrants' country of origin can affect their health upon arrival to the U.S. by enabling differential levels of racial discrimination. Specifically, Black immigrants born in majority-Black nations will experience better health outcomes compared to those born in racially mixed or majority-White countries due to less pre-migration exposure to racial discrimination. Read et al. originally posed this hypothesis and reported that Blacks migrating from majority-Black regions of the world (Africa or South America) had better self-rated health compared to immigrants from racially mixed regions (Caribbean) and majority-White (Europe).<sup>32</sup> Elo et al. and Hamilton et al., found similar results and highlighted the region of origin pattern.<sup>33, 34</sup>

These hypotheses are not necessarily competing, but rather complement each other.<sup>122</sup> However, a singular focus on examining these and other explanations with the

Black population is lacking. If immigrants to the U.S. are selectively healthier, then it follows that they will be healthier than the U.S.-born upon arrival with all things being equal. It also seems appropriate to state that as they adjust to their new environment over time, immigrants may lose their health advantage. What is missing from this conceptualization of immigrant health is an in-depth examination of the role of identity among Black individuals with immigrant backgrounds, and whether an individual's affinity to his or her foreign culture may act as a buffer despite being U.S.-born.

The aforementioned explanations for immigrant health patterns lay the ground work for an investigation of hypotheses that provide a more in-depth understanding of the factors at work. The literature validates the notion that the health of the foreign-born is initially buffered by cultural factors connected to being born outside of the U.S. Exploring FCGI as a related but alternative explanation of Black immigrant health patterns provides an opportunity to understand the health differential beyond the concept of nativity for this group.

#### Control Variables

The control variables measured in the current study are identified as variables that may influence the relationship between nativity, self-rated health and perceived stress and the relationship between age at arrival and FCGI. The control variables represent variables that have traditionally been adjusted for in analyses of population health differences because of their strong associations with health.<sup>5, 123-126</sup>

#### Marital Status

The relationship between marital status and health outcomes including self-rated health has been well established. Most studies find that compared to single, divorced, or

widowed, married individuals report better self-rated health.<sup>123</sup> In general, unmarried individuals are at a higher risk of fair/poor self-rated health compared to those who are married.<sup>124</sup> Marital status can affect self-rated health through several pathways. Those who are unmarried may lack emotional and structural support that can mitigate the harmful influence of stress. Further, marriage may increase the likelihood of receiving health-related information that can shape health behaviors to reduce risk of disease and maintain over health.<sup>127, 128</sup> Overall, the foreign-born are more likely to be married compared to their U.S.-born counterparts.<sup>16, 98</sup>

### Age

The majority of studies control for age because it is one of the strongest predictors of health and has also been linked to perceived stress. Age is negatively associated with health.<sup>125, 129</sup> Findings concerning the relationship between age and perceived stress are mixed. Hamarat et al., found that perceived stress levels were higher among younger adults than older adults.<sup>130</sup> However, Almeida et al., reported that older adults experienced more stress than younger and middle-aged adults.<sup>131</sup> Clearly, more investigation in the relationship between age and perceived stress is warranted.

### Smoking Status

National studies show that the foreign-born have better behavioral risk factor profiles than the U.S.-born and are less likely to be smokers than their U.S.-born counterparts.<sup>98, 126</sup> Specifically among Black individuals, the foreign-born are less likely to smoke. The latter are also more likely to report never smoking.<sup>132</sup> Not surprisingly, smokers and former smokers are more likely to report poor or fair self-rated health.<sup>124, 133</sup> Limited studies examine the relationship between smoking status and perceived stress.

Fernander et al. reported that smokers reported higher levels of perceived stress and non-smokers.<sup>134</sup> However, knowing that those who smoke are more likely to have lower education and income, higher levels of psychological stress may accompany smoking behavior.<sup>135</sup>

### Education

Education differentials by nativity are evident among the Black population. Black immigrants are more likely to attain a college degree than Black U.S.-born<sup>98</sup> and generally, a higher proportion of the foreign-born had higher levels of education compared to U.S.-born Blacks.<sup>5, 126</sup> In fact, Read et al. highlighted education differences by origin. The authors found that Black immigrants from South America and the Caribbean had lower levels of educational attainment compared to their African-born counterparts.<sup>8</sup> A gradient effect has been reported in the association between education and health where individuals with higher education are more likely to report very good or excellent health.<sup>22, 124, 133, 136</sup> Higher education is also negatively associated with psychological distress.<sup>103</sup> The relationship between higher education and self-rated health may reflect the increased ability of individuals with more education to understand health information in order to make healthier choices and obtain adequate health care.<sup>124</sup> The relationship may also indicate an underlying health status where those with lower education are more likely to have health conditions.

### *Conclusions and Gaps in the Research*

The literature clearly underscores the existing relationship between nativity and health and the need to use measures that fully capture how Black immigrants situate themselves in the U.S. cultural context. Extant literature highlights that Black immigrants

often identify in ways that do not fit in with the current race/ethnic categories. The need to examine the link between cultural identity and health is ever more pressing due to this fact. This line of research may better explain why the Black foreign-born are generally healthier than their U.S.-born counterparts. Although current explanations of the immigrant health advantage provide a useful framework through which to understand immigrant health, the review of the literature highlights important gaps in this knowledge. First, no study, to my knowledge, has examined the role of FCGI in the health of Black immigrants. Secondly, there is a void in our empirical knowledge of the relationship between nativity and perceived stress. This research project aims to add to the existing literature by using a novel approach to shed light on the utility of FCGI in better understanding the reasons behind the immigrant health advantage.

#### *Significance of Study*

This study makes an important contribution to the immigrant health literature. The gaps in the literature show that although extant literature provides valuable insight into the overall portrait of immigrant health, there is a need for a more nuanced examination of how an individual's identity fits in to the picture, specifically among Black immigrants. The value of this information is not restricted to the foreign-born. Investigating tools to better measure immigrant health provides a venue for interventions and programs targeting the U.S.-born as well. Understanding what it is about foreign status that leads to improved health upon arrival to the U.S. can aid in understanding racial disparities in the U.S. because the foreign-born share the same racial category as the U.S.-born.



This project is important for three reasons. Firstly, the foreign-born segment of the U.S. Black population has almost tripled from 3% in 1980 to 8% in 2005<sup>5</sup> and continues to grow. Despite this marked increase, very little is known about the health of this population. Secondly, the health decline observed among immigrants is believed to be partly due to an adaptation to U.S. culture and a decreased adherence to an individual's original cultural patterns and behaviors. Understanding the protective processes among Black women will provide insight for methodological and theoretical development. Lastly, by illustrating the diversity in foreign-born Black women, knowledge acquired from this study will inform research on other immigrant groups in the U.S. A deeper theoretical understanding of the mechanisms driving nativity-based health differentials is needed in order to create programs and interventions targeting immigrants. This approach will undoubtedly provide a methodological foundation for other studies focused on immigrant populations.

### *Research Hypotheses*

Based on the conceptual framework and previous literature, the following hypotheses were examined:

*Hypothesis 1:* After controlling for education among the foreign-born, age at arrival will be positively associated with FCGI.

*Hypothesis 2a:* After controlling for age, marital status, education, and cigarette smoking, the foreign-born will report lower levels of perceived stress compared to the U.S.-born.

*Hypothesis 2b:* FCGI will be negatively associated with perceived stress.

*Hypothesis 2c:* FCGI will explain more variation in perceived stress than nativity.

*Hypothesis 3a:* After age, marital status, education, and cigarette smoking are controlled for, it is expected that the foreign-born will report better self-rated health compared to the U.S.-born and that perceived stress will be negatively associated with self-rated health.

*Hypothesis 3b:* It is also expected that FCGI will be positively associated with self-rated health.

Hypothesis 3c: FCGI will explain more variance in self-rated health than nativity.

## Chapter 4: Methods

This chapter outlines the methodological approach utilized in this study including descriptions of the sample, measures, recruitment strategies and analytical plan.

### *Sample*

In order to participate in the study, women had to identify as Black, and be foreign-born, or if U.S.-born, the criteria required that they have a parent or grandparent who was foreign-born. A total of 214 participants completed the surveys. Of the 214 participants, 32 women completed the surveys in person on the University of Maryland campus and the remainder completed the survey online. The participants represented a diverse group. U.S.-born women represented 52% of the sample while the remainder was foreign-born. Sixty percent of the foreign-born subsample identified their background as African and 28% came from Caribbean backgrounds. The majority of women were unmarried and enrolled in college or graduate school at the time of participation in the study. Almost all of the women in the sample were current non-smokers. Seven participants did not fit the study criteria and were excluded from the analytic samples. Three age outliers were also removed from the final samples because they were significantly older than the rest of the sample. These participants were aged 55, 62, and 72 and respectively. Tables 5a and 5b provide a summary of these descriptive statistics.

<b>Table 5a. Descriptive Statistics of Original Sample (n = 214)</b>		
<b>Characteristic</b>	<b>n</b>	<b>percent</b>
<b>Nativity</b>		
Foreign-born	100	46.73
U.S.-born	112	52.34
Missing	2	0.93
<b>Citizenship</b>		
U.S. Citizen	167	78.04
Non-U.S. Citizen	44	20.56
Missing	3	1.40
<b>Immigrant Background</b>		
African	129	60.28
Caribbean	60	28.04
No response	20	9.35
Other <sup>a</sup>	4	1.87
Missing	1	0.47
<b>Marital status</b>		
Single	162	75.70
Engaged	9	4.20
Married	26	12.10
Separated	2	0.90
Divorced	3	1.40
Divorced and remarried	2	0.90
Other	3	1.40
Missing	7	3.27
<b>Highest level of Educational Attainment</b>		
High school graduate/GED equivalent	27	12.62
Some college/Associates Degree	72	33.64
College graduate or above	114	53.27
Missing	1	0.47
<b>Current Undergraduate or Graduate Student</b>		
Yes	165	77.10
No	48	22.43
Missing	1	0.47
<b>Family Income</b>		
Less than \$19,999	11	5.14
\$20k-\$39,999	25	11.68
\$40k-\$59,999	35	16.36
\$60k-\$79,999	36	16.82
\$80k-\$99,999	23	10.75
\$100k or more	45	21.03
Missing	39	18.22
<b>Cigarette smoking status</b>		
Current Non-smoker	199	92.99
Current smoker	6	2.80
Missing	9	4.21
<b>Maternal Nativity</b>		
Foreign-born	194	90.65
U.S.-born	18	8.41
Missing	2	0.93
<b>Paternal Nativity</b>		
Foreign-born	193	90.19

**Table 5a.** Descriptive Statistics of Original Sample (n = 214)

<b>Characteristic</b>	<b>n</b>	<b>percent</b>
U.S.-born	18	8.41
Missing	3	1.40
<b>Majority of life spent in the U.S.</b>		
Yes	149	69.63
No	56	26.17
Missing	9	4.21
<b>Culture most identified with</b>		
African American	40	18.69
African	87	40.65
Caribbean	47	21.96
Other	30	14.02
Missing	10	4.67
<b>Foreign Culture is important to overall identity</b>		
Yes	194	90.65
No	9	4.21
Other	4	1.87
Missing	7	3.27

<sup>a</sup> Other included individuals who endorsed a Caribbean/Latin, African/Portuguese, Greek and Middle East/European background

**Table 5b.** Descriptive Statistics of Original Sample (n = 214)

<b>Characteristic</b>	<b>Mean</b>	<b>N</b>	<b>Missing</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Age</b>	25.79	212	2	18	72
<b>Age at arrival</b>	14.91	98	116	0.83	46
<b>Racial Discrimination</b>	12.91	202	12	5	30

### *Power Analysis*

A power analysis for multiple regression was conducted to calculate the necessary sample size in order to detect significant differences based on the power level, alpha level, effect size and number of independent variables.<sup>137</sup> Setting the alpha level to 0.05, power to 0.95, and medium effect size of 0.15, a sample size of 89 participants per group was required. Considering that significant differences between the foreign- and U.S.-born were anticipated, a total of 178 participants were needed to detect medium effect sizes.

### *Measures*

*Nativity.* This variable measured whether an individual was born in the U.S., or born elsewhere, and was dichotomized (U.S.-born = 0, Foreign-born = 1). It can be found in the Demographic Background Questionnaire, which is located in Appendix A

*Age at arrival.* Respondents born outside of the U.S. indicated their age at arrival by responding to the question, “*At what age did you arrive in the U.S.?*” This item was used as a continuous variable. It can be found in the Demographic Background Questionnaire, which is located in Appendix A.

*Foreign Cultural Group Identity (FCGI).* FCGI was defined as the extent to which membership in a foreign cultural group was central to the woman's sense of self. A modified version of the Centrality subscale from the Multidimensional Inventory of Black Identity (MIBI) was used to measure FCGI.<sup>38</sup> The MIBI was created to measure three of the constructs outlined in the Multidimensional Model of Racial Identity (MMRI). The original Centrality scale contains eight items assessing the extent to which respondents believed that being Black was important to an individual's sense of self.

Portions of the MIBI have been modified and used successfully among other ethnic groups<sup>138</sup> and found to have good reliability and validity.<sup>139</sup> In the modified version used in this study, participants were asked to indicate their agreement on eight items assessing how important their foreign cultural group is to their sense of self. The following prompt was provided to respondents:

For this questionnaire, please think about your country of origin and the cultural upbringing you have received. The questions below are designed to measure how you view your identity as a part of your cultural group with regard to your country of origin. Please read the statements below. Answer each question regarding the extent to which you identify with your cultural upbringing. For

example, if your country of origin is Ghana, or Jamaica, we are asking you to think about what it means to be a part of this cultural group.

The response options for each item ranged from strongly agree to strongly disagree on a 7-point scale. Scores ranged from a possible 8 to 56 where higher scores denoted a stronger affinity to the participants' foreign culture. The FCGI measure instructed the respondent to respond to statements using their country of origin as a reference as well as the cultural upbringing she received. The term "Black" was replaced with the term "cultural group." Identical to the response format for the original Centrality scale, respondents answered on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). A higher score denotes a greater affinity towards a particular foreign cultural group. Sample items of the FCGI measure include; "*In general, being a part of my cultural group is an important part of my self-image,*" "*My destiny is tied to the destiny of other people in my cultural group,*" and "*I have a strong attachment to other people in my cultural group.*"

The Centrality scale of the MIBI has been found to have moderate reliability and validity.<sup>139</sup> The predictive validity and reliability of the MIBI as a whole and the centrality measure specifically<sup>38</sup> have been assessed among African Americans and have recently been used among various immigrant populations. The original Centrality scale was a ten-item measure but two of the items were dropped during the validity and reliability testing of the instrument. In a sample of African American college students, the authors reported a Chronbach's alpha of 0.77 with a mean of 5.23 for the Centrality scale.<sup>38</sup> Furthermore, the Centrality scale was associated with race-related activities. For example, individuals who had an African American best friend tended to have higher centrality scores.<sup>38</sup> Other researchers have used a modified version of the scale for use

with other ethnic minorities and immigrant groups.<sup>70, 72, 138</sup> The measure was found to have good overall internal consistency ( $\alpha = 0.77$ ) and was reliable for the three ethnic backgrounds that were investigated (Mexican:  $\alpha = 0.71$ , Chinese:  $\alpha = 0.79$ , European:  $\alpha = 0.75$ ).<sup>70</sup> The authors replaced the term "Black" with "my ethnic group." Similar  $\alpha$  levels have been observed among a sample of Latino and Chinese adolescents ( $\alpha = 0.86$  to  $0.89$ )<sup>138</sup> and Latino college students ( $\alpha = 0.90$ ).<sup>72</sup> The authors vary in their use of the four-item, seven-item and eight-item scale. Correlation coefficients for the FCGI items ranged from 0.20 to 0.80 and the standardized Chronbach's alpha was 0.90 in the current sample. These scores are consistent with the aforementioned versions of the Centrality scale. The FCGI measure can be found in Appendix B.

*Self-Rated Health.* Respondents' self-perception of their global health was measured by the item "Would you say your health in general is excellent, very good, good, fair or poor?" The response categories were as follows: 5 = *Excellent*, 4 = *Very good*, 3 = *Good*, 2 = *Fair*, and 1 = *Poor*. This item can be found in the Health Questionnaire located in Appendix C.

*Perceived stress.* A shortened version of the Perceived Stress Scale (PSS) was used to measure perceived stress which is based on Lazarus's theory of stress appraisal<sup>140</sup> Originally developed by Cohen et al. as a 14-item measure, the PSS assesses the extent to which individuals evaluate situations in their lives in the past month as stressful.<sup>105</sup> The predictive validity and test-retest reliability of the original 14-item scale was tested resulting in alpha coefficients ranging from 0.84 to 0.86 for the individual items. The scale was tested in two college student samples and one additional sample that was selected from a smoking cessation program. The test-retest reliability alpha coefficients



were similar for all three groups 0.83, 0.85, and 0.86.<sup>105</sup> The shortened version has 10 items. In this study it assessed participants' feelings and thoughts during the past month and participants were asked to choose responses on a five-point scale from 0 (*never*) to 4 (*very often*). Example questions include: "*In the last month, how often have you felt confident about your ability to handle your personal problems?*" and "*In the last month, how often have you been upset because of something that happened unexpectedly?*" A total score was obtained by reversing the four positive items (items 4, 5, 7, 8) and then summing all 10 items. Scores ranged from a possible 0 to 40. Higher scores denote greater stress.<sup>105, 141</sup>

The 10-item PSS has evidence of good validity and reliability.<sup>142</sup> In a sample of college students, the authors reported that the measure was valid and reliable based on tests of internal consistency as well as convergent and divergent validity.<sup>142</sup> The 10-item PSS has been found to be a valid predictor of various health outcomes such as psychological distress, depression, and self-rated health and is in wide use.<sup>143-145</sup> The 10-item version has been translated into several languages and used among Turkish,<sup>143</sup> Asian,<sup>144</sup> and Arabic<sup>145</sup> populations. The Perceived Stress Scale is located in Appendix D.

*Participant age.* Age was defined as the participant's age in years at the time of the data collection. This item can be located in the Demographic Background Questionnaire in Appendix A.

*Participant education.* Education was based on the question, "*What is the highest level of education you have received?*" Respondents had 4 options: 1 = *Less than high school*; 2 = *High school*; 3 = *More than high school*; and 4 = *College and above*. This item can be located in the Demographic Background Questionnaire of Appendix A.

*Participant marital status.* Participants were asked to respond to nine categories related to their marital status: 1 = *I am single*; 2 = *I am engaged*; 3 = *I am currently married*; 4 = *I am separated*; 5 = *I am divorced*; 6 = *I was divorced and I am now remarried*; 7 = *I am a widow*; 8 = *I was a widow and I am now remarried* and 9 = *Other*. This variable was classified into a new dummy-coded variable to permit comparisons between married individuals and individuals of other marital statuses. Women who were single, divorced, separated, engaged, or had a domestic partner were coded as single (1) and all others as (0). There were no widows or remarried widows in the sample so there were no recodes for these categories. This item can be located in the Demographic Background Questionnaire of Appendix A.

*Smoking.* A question asked whether participants currently smoked. Participants responded to the options; *Every day*, *Some days*, or *Not at all*, in order to determine whether participants were current non-smokers or current smokers. This question was referenced from an item used in the National Health and Nutrition Examination Survey, a publicly available dataset managed by the Centers for Disease Control and Prevention.<sup>146</sup> Current non-smokers were defined as those who responded to *Not at all*. Current smokers were defined as those who responded to *Every day* and *Some days*. This variable was recoded into a 2-level categorical variable: 0 = *Non-current smoker*, 1 = *Current smoker*. This item can be found on the Demographic Background Questionnaire in Appendix A.

*Racial Discrimination.* The short version of the Everyday Discrimination Scale was used to measure self-reported racial discrimination in this study. The original scale, created by Williams et al. was designed to assess discriminatory treatment across a variety of domains and so the items do not refer to race, gender ethnicity, or any other

demographic characteristics.<sup>147</sup> The original scale consisted of 9 items and has been found to have adequate to good internal consistency of approximately 0.85 in large racially and ethnically diverse samples of adolescents and adults.<sup>149</sup> In the original development work of the scale, a 4-point response format for the 9 items was used: *never* (1), *once* (2), *two or three times* (3), *four or more times* (4). The shortened version of the Everyday Discrimination Scale, used for this study has 5 items and assessed the frequency of participants' everyday experiences with racial discrimination. This version was adapted for this study and includes the reference to race. Participants were asked to choose responses on a 6-point scale from 0 (*never*) to 6 (*almost every day*). The prompt was as follows: *In your day-to-day life, how often do any of the following things happen to you because of your race?* Example response options include: "You are treated with less courtesy than other people are" and "People act as if they are afraid of you." A total score was obtained by summing all 5 items. Scores ranged from a possible 5 to 30. Higher scores denote more frequent experiences with racial discrimination. This item was included in the post hoc analyses and can be found in Appendix E.

*Culture Participants Identified With the Most.* The culture that participants identified most with was measured by the question, "Which culture do you identify the most with?" Participants were asked to respond to 5 options: 1 = *African American*; 2 = *African*; 3 = *Caribbean*; 4 = *European*; and 5 = *Other*. This item was included in the post hoc analyses and can be found in the Demographic Background Questionnaire in Appendix A.

*Where respondents had spent the majority of their lives.* All participants responded to the question, "In what country have you spent the majority of your life?"

Respondents had 2 options: 1 = *USA*; and 2 = *Other*. This item was included in the post hoc analyses and can be found in the Demographic Background Questionnaire in Appendix A.

*Socially Assigned Race*. Socially assigned race was based on the question, "*How do other people usually classify you in this country?*" Respondents had 6 options: 1 = *Black or African American*; 2 = *Hispanic or Latino*; 3 = *Asian*; and 4 = *Native Hawaiian or other Pacific Islander*; 5 = *Native American or Alaska native*; and 6 = *Other group*. This item was included in the post hoc analyses and can be found in the Demographic Background Questionnaire in Appendix A.

#### *Procedure*

This study protocol was approved by the University of Maryland Institutional Review Board. Using a purposive non-probability sampling technique, 5 questionnaires were used to collect data from this sample via a self-administered survey. Participants either completed the survey online or used a paper-pencil format and all the participants were informed that they would be entered into a raffle for the chance to win one \$200 iTunes card after the study was completed. In order to participate, women had to identify as Black, and come from an immigrant background (i.e. foreign-born, or U.S.-born with a foreign-born parent or grandparent). The paper-pencil procedure recruited participants solely from the University of Maryland, College Park and resulted in a sample size of 32 undergraduate and graduate students. The online procedure expanded data collection to women meeting the sampling criteria off-campus including non-students. Appendix A contained questions related to demographic information. Appendix B measured FCGI,

Appendix C assessed self-rated health and family health history, Appendix D contained questions related to perceived stress, and Appendix E assessed racial discrimination.

#### Recruitment and Data Collection

Participants were recruited using a variety of techniques. Research assistants posted advertisements in various locations on the UMD campus. They also used various social networking, internet platforms, and listservs to distribute information about the study. Copies of the flyers can be found in Appendix F. Examples of campus organizations targeted for recruitment were the Black Graduate Student Association (BGSA), the African Student Association (ASA). Recruitment emails were also sent over the listservs for UMD's Office of International Students listserv, the Society for the Analysis of African American Public Health Issues (SAAPHI), and the Black Public Health Professionals listservs. The project was also advertised through FYI, a UMD listserv targeting faculty, staff and graduate assistants with information about campus events or resources.

The research team used Facebook in several ways to advertise the study and target potential participants. A Facebook page was created and shared with UMD student organizations. The material on the Facebook page referred to the purpose of the study, why the study was being conducted, and how individuals could participate if interested. Research staff also secured permission to post the information from the flyers on the Facebook pages of the following groups and organizations: The George Washington University African Student Association, Young African professionals (YAP), The Black Professional Network DC, African Diaspora, UMD Caribbean Student Association,

Howard African Student Association, and African Public Health Network (Johns Hopkins).

The research team also secured a list of all female students at UMD who reported 'Black' as their race/ethnic category from the registrar. These students received an email that described the study and requested their participation. This list contained a total of 2,496 students, 278 of which had a foreign country listed as their geographical origin.

Paper-Pencil Data Collection. Project staff emailed interested UMD undergraduate and graduate participants a link to a Google form that allowed them to choose an appointment date. The form populated a list of participants' contact information and appointment dates accessible only by the study's research assistants. In-person appointments in the Department of Family Science allowed participants to complete the pencil-paper version of the survey. Participants were reminded of their appointment one day prior to their appointment and the list was updated if there were cancellations. Thirty-minute group appointments were scheduled at times convenient to students' schedules. An online list of the scheduled participants was generated on each data collection day. The appointments began with an overview of the informed consent, and then the participant was given an opportunity to read over the consent form and ask questions. The completed surveys were labeled with unique ID numbers and stored in a locked cabinet. The Google list of participants was then updated with the corresponding ID numbers. Any inquiry to participate in the study from a non-UMD student was addressed by stating that the study was currently restricted to UMD students but would soon open to non-students.

Online Data Collection. Online data collection primarily targeted potential participants who were not affiliated with UMD. However, research assistants also re-contacted UMD students who expressed initial interest via email but who had not completed the survey in person. These students and other potential participants received an email with a link to the study survey.

Psychdata, an online data collection platform, was used to facilitate the online responses using a direct link to the survey. Each participant registered with her email address, created a password and was able to return to complete the survey at a later date by returning to the link and entering her email address and password. Psychdata provided information regarding the date and time that participants completed the survey, whether the survey was incomplete, and whether a participant had not yet started the survey. Psychdata assigns each respondent a unique ID number upon enrolling to disaggregate the data from the respondent's email address. Follow-up emails were sent every two weeks to participants who had started the survey but had not completed it and to those who had signed up but had not yet started. Women who did not meet the eligibility criteria were removed from the data set prior to any analyses.

#### *Analysis Plan*

SAS Software version 9.3 (SAS Institute, Cary, NC) was used for statistical analysis. Univariate analyses were completed to describe the response patterns of the sample. Bivariate analyses, using cross-tabs and t-tests, examined the associations between nativity, FCGI, self-rated health, perceived stress and the other demographic variables. Following the descriptive analysis depicting respondents' background information, hierarchical linear regression analyses were conducted to test the three

hypotheses. Hierarchical linear regression models were used because the dependent variables were continuous, and this method would allow for the estimation of the importance of nativity and FCGI in the overall models. Standardized regression estimates were reported for ease of interpretation and comparison, allowing for the assessment of the relative importance of each variable in the model. In this study, P-values of 0.05 and below were considered statistically significant.

Hypothesis 1: After controlling for education, among the foreign-born, age at arrival will be positively associated with FCGI.

To test hypothesis 1, a hierarchical multiple linear regression model was used to regress the dependent variable, FCGI, on age at arrival for the foreign-born sample. Education was a control variable in the model. Model 1 contained education and model 2 contained age at arrival as the independent variable in the model. The standardized regression coefficient estimate was used to determine the strength of the association between FCGI and age at arrival. The adjusted  $R^2$  value was used to determine how much of the variation in the models was explained by the variables introduced.

Hypothesis 2a: After controlling for age, marital status, education, and cigarette smoking, the foreign-born will report lower levels of perceived stress than the U.S.-born.

Hypothesis 2b: FCGI will be negatively associated with perceived stress.

Hypothesis 2c: FCGI explain more variation in perceived stress than nativity.

To test hypothesis 2a, 2b, and 2c, the dependent variable, perceived stress, was regressed on nativity and the control variables using hierarchical linear regression models. Model 1 added the control variables age, education, marital status and smoking status. Model 2 added nativity, and model 3 added, FCGI. The standardized regression



coefficient estimates were used to determine the strength of the relationship between the control variables, nativity, FCGI and perceived stress. The adjusted  $R^2$  value was used to determine how much of the variation in the models was explained by the variables introduced. Statistically significant changes in  $R^2$  of each model were compared in order to estimate the amount of variance in perceived stress explained by nativity and FCGI.

Hypothesis 3a: After age, marital status, education, and cigarette smoking are controlled for, it is expected that the foreign-born would report better self-rated health compared to the U.S.-born and that perceived stress will be negatively associated with self-rated health.

Hypothesis 3b: FCGI will be positively associated with self-rated health.

Hypothesis 3c: It is also expected that once nativity is accounted for, FCGI will explain additional variance in self-rated health.

To test these hypotheses, model 1 contained the control variables. Nativity was added in model 2. Model 3 and 4 added perceived stress and FCGI respectively to model 2. The standardized regression coefficient estimates were used to determine the strength of the relationship between the control variables, FCGI, perceived stress, and self-rated health. The adjusted  $R^2$  value was used to determine how much of the variation in the models was explained by nativity and FCGI. Statistically significant changes in  $R^2$  of each model were compared in order to estimate the amount of variance in perceived stress explained by nativity and FCGI.

## Chapter 5: Results

This study examined: 1) the relationship between age at arrival and FCGI among the foreign-born women in the sample, and 2) the utility of the FCGI measure among this sample by testing whether FCGI explained more variance in perceived stress and self-rated health than nativity. In this chapter, first, univariate analyses outline the descriptive statistics of the analytic sample. Second, the bivariate analyses describe the results from the crosstab, *t*-test and correlation analyses in order to determine the extent of nativity-based differences and the relationships between the dependent variables. Lastly, results of the formal analyses testing the proposed hypotheses are presented in the form of multiple regression analyses. Standardized beta weights,  $R^2$ s, and the corresponding significance levels are presented estimating the relationship between nativity, FCGI, perceived stress, and self-rated health, and the amount of variance explained by FCGI. A total of 214 women completed the survey. Of these women, 11 women did not complete 75% of the survey. The analytic sample was created by including all the participants that had complete data for each survey item.

### *Univariate Analyses*

#### Demographic and Background Characteristics of the Analytic Sample

Table 6 displays the analytic sample's characteristics and reflected similar results to the original sample of women. The foreign-born represented 45% of all participants with the majority of the women being U.S. citizens (81%). The women were relatively young, with a mean age of 25 years and came from various immigrant backgrounds. A little over half of the women came from an African background (59%), followed by 30% with Caribbean origins. A small proportion of the sample was married (12%) and more

than three-quarters were students at the time of their participation in the study (81%). Fifty-two percent of the sample had at least a college degree, and 13% had at least a high-school degree. Almost all the women were current non-smokers (97%). Of the women who were not students, 32% were foreign-born, 94% were U.S. citizens and 88% were unmarried. Furthermore, almost all the non-students had a college degree or more (97%). The family income variable was dropped from the analyses because 18% of the data points were missing. One-way ANOVAs were conducted (not shown) to ascertain whether the women who provided income information were different from women who did not provide income information on age ( $F = 1.96$ ;  $P = 0.16$ ), marital status ( $F = 1.01$ ;  $P = 0.32$ ), FCGI ( $F = 0.07$ ;  $P = 0.78$ ), nativity ( $F = 0.63$ ;  $P = 0.43$ ), perceived stress ( $F = 0.04$ ;  $P = 0.85$ ), or self-rated health ( $F = 0.01$ ;  $P = 0.94$ ). The results showed that there were no statistically significant differences between these two groups of women on these variables.

<b>Table 6a. Descriptive Statistics of Analytic Sample (n = 180)</b>		
<b>Characteristic</b>	<b>n</b>	<b>percent</b>
<b>Citizenship</b>		
U.S. Citizen	145	80.56
Non-U.S. Citizen	35	19.44
<b>Immigrant Background Origin</b>		
African	107	59.44
Caribbean	54	30.00
No response	15	8.33
Other <sup>a</sup>	4	2.22
<b>Marital Status</b>		
Married	22	12.29
Single	157	87.71
<b>Highest Level of Educational Attainment</b>		
High school graduate/GED equivalent	23	12.78
Some college/AA	63	35.00
College graduate or above	94	52.22
<b>Cigarette Smoking Status</b>		
Current Non-smoker	174	96.67
Current smoker	6	3.33

<sup>a</sup>Includes individuals who endorsed a Caribbean-Latin, African-Portuguese, Greek and Middle East/European background

<b>Table 6b. Descriptive Statistics of Analytic Sample (n = 180)</b>			
<b>Characteristic</b>	<b>Range</b>	<b>Mean/Percent</b>	<b>SD</b>
<b>Nativity</b>			
Foreign-born		45.00	
U.S.-born		55.00	
<b>Age</b>	18 - 43	24.73	5.67
<b>Age at arrival (foreign-born only)</b>	0.83 - 46	13.70	7.75
<b>Perceived Stress</b>	5 - 40	18.83	7.16
<b>FCGI</b>	14 - 56	42.10	8.53
<b>Self-rated Health</b>			
Excellent		25.56	
Very Good		41.11	
Good		25.00	
Fair		8.33	

Abbreviation: SD, Standard Deviation

### *Bivariate Analyses*

In order to examine the nativity-based differences in the sample's demographic characteristics, cross tab and chi-square analyses were conducted for all categorical variables and *t*-tests examined whether the mean difference in age, perceived stress, and self-rated health between the foreign- and U.S.-born was statistically significant. Nativity-based differences were evident across select demographic variables. The foreign-born women were older than the U.S.-born women ( $t = -2.44$ ;  $P < 0.05$ ). Table 7a shows that immigrant background and marital status were significantly different between U.S.- and foreign-born women. More than twice as many foreign-born women were married (19%) compared to the U.S.-born (7%) ( $P < 0.05$ ). Women with African origins accounted for the largest proportion of both foreign- and U.S.-born women, 73% and 48%, respectively. Over a third of the U.S.-born were women of Caribbean descent. These women made up a quarter of the foreign-born sample ( $P < 0.001$ ).

<b>Characteristic</b>	<b>Foreign-Born (n = 81) %</b>	<b>U.S.-Born (n = 99) %</b>	<b>P</b>
<b>Immigrant Background</b>			
African	72.84	48.48	< 0.001
Caribbean	24.69	34.34	
No response	0	15.15	
Other+	2.47	2.02	
<b>Marital status</b>			
Married	18.52	7.14	0.02
Single	81.48	92.86	
<b>Education status</b>			
Currently enrolled	86.42	76.77	0.09
Not currently enrolled	13.58	23.23	
<b>Highest level of Educational Attainment</b>			
High school graduate/GED equivalent	13.58	12.12	0.79
Some college/AA	37.04	33.33	
College graduate or above	49.38	54.55	
<b>Cigarette smoking status</b>			
Current Non-smoker	96.30	96.97	0.80
Current smoker	3.70	3.03	

Note. The percentages presented above represent the row percent of the cross tab.

<b>Characteristic</b>	<b>Foreign-Born (n = 81)</b>		<b>U.S.-Born (n = 99)</b>		<b>t</b>	<b>P</b>
	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>		
<b>Age</b>	25.85	6.43	23.81	4.81	-2.44	0.02
<b>Perceived Stress</b>	17.79	7.45	19.69	6.83	1.78	0.08
<b>FCGI</b>	41.99	9.46	42.19	7.74	0.16	0.87
<b>Self-rated Health</b>	3.96	0.94	3.74	0.86	-1.67	0.10

Abbreviation: SD, Standard deviation

To examine whether age, FCGI, perceived stress and self-rated health were linked, Pearson correlations were conducted among these continuous variables. The results highlighted small statistically significant relationships between FCGI and perceived stress, and between perceived stress and self-rated health (Table 8). Higher levels of FCGI were associated with lower perceived stress ( $r = -0.18$ ;  $P < 0.05$ ) and

higher levels of perceived stress were associated with low self-rated health ( $r = -0.28$ ;  $P < 0.01$ ).

**Table 8.** Correlations Among Main Study Variables (n = 180)

Variable	1	2	3	4
<b>1. Age</b>	-			
<b>2. FCGI</b>	0.05	-		
<b>3. Perceived Stress</b>	-0.15*	-0.18*	-	
<b>4. Self-rated Health</b>	0.09	0.14	-0.28**	-

\*\*  $P < 0.01$ , \*  $P < 0.05$

### Psychometric Properties of Foreign Cultural Group Identity (FCGI)

An analysis of the psychometrics of the FCGI measure was conducted to give a portrait of how the sample participants responded to it. The response options for each item ranged from *Strongly Disagree* (1) to *Strongly Agree* (7). Items 1, 4 and 8 were reverse coded. On the item level, the full response range was used except for item 2 where respondents did not use the *Strongly Disagree* response. The mean score ranged from a high of 6.03 (Item 2) to a low of 3.82 (Item 3) (Table 9).

**Table 9.** FCGI Psychometric Properties

		Mean	SD	Min	Max
FCGI 1	Overall, being a part of my cultural group has very little to do with how I feel about myself.	5.51	1.65	1	7
FCGI 2	In general, being a part of my cultural group is an important part of my self-image.	6.04	1.18	2	7
FCGI 3	My destiny is tied to the destiny of other people in my cultural group	3.83	1.86	1	7
FCGI 4	Being a part of my cultural group is unimportant to my sense of what kind of person I am	5.58	1.57	1	7
FCGI 5	I have a strong sense of belonging to my people in my cultural group	5.60	1.44	1	7
FCGI 6	I have a strong attachment to other people in my cultural group	5.48	1.38	1	7
FCGI 7	Being a part of my cultural group is an important reflection of who I am	5.73	1.29	1	7
FCGI 8	Being a part of my cultural group is not a major factor in my social relationships	4.35	1.90	1	7

Abbreviation: SD, Standard Deviation; Min, Minimum; Max, Maximum

The potential full range of scores ranged from a low of 8 to a high of 56.

Participants' actual scores ranged between 14 and 56. The mean score was 42.1. The distribution of the scores was slightly skewed, indicating that participants tended to

endorse higher levels of FCGI on average. Item level correlations indicated that each of the eight FCGI items was statistically significantly correlated to each other (Table 10). Correlation coefficients ranged from 0.20 to 0.80. The standardized Chronbach's alpha for the measure was 0.90, indicating a strong level of internal consistency.

**Table 10.** Pearson Correlation Coefficients for item-level FCGI

	FCGI 1	FCGI 2	FCGI 3	FCGI 4	FCGI 5	FCGI 6	FCGI 7	FCGI 8
FCGI 1	-							
FCGI 2	0.61***	-						
FCGI 3	0.35***	0.30***	-					
FCGI 4	0.57***	0.42***	0.29***	-				
FCGI 5	0.36***	0.5***	0.30***	0.37***	-			
FCGI 6	0.39***	0.47***	0.36***	0.33***	0.76***	-		
FCGI 7	0.54***	0.66***	0.37***	0.50***	0.65***	0.61***	-	
FCGI 8	0.36***	0.27**	0.20*	0.45***	0.32***	0.32***	0.30***	-

\*\*\*  $P < 0.0001$ , \*\*  $P < 0.01$ , \*  $P < 0.05$

### *Multivariate Analyses*

This study examined: 1) the association between age at arrival and FCGI among the foreign-born, 2) the associations between nativity, perceived stress and self-rated health, and 3) whether FCGI explained more variance in perceived stress and self-rated health than nativity. To test the three hypotheses, a series of hierarchical linear regression models were conducted. Standardized regression coefficients with the corresponding standard errors were reported.  $P$ -values of 0.05 and below were considered statistically significant.

### Model Assumptions

Generally, when employing linear regression models, four main assumptions are made and justify the use of this model in order to make meaningful predictions. The assumptions below were tested and met in this study.

1) The relationship between the dependent and independent variables must be linear;

- 2) The dependent variables' values must be independent of each other. For example, the values for perceived stress from each participant are not dependent on the values for self-rated health;
- 3) The values of the dependent variables are normally distributed on the independent variables, and
- 4) The variance of the dependent variables is similar for all the possible values of the independent variables.

Age at arrival and Foreign Cultural Group Identity

It was hypothesized that after controlling for education, among the foreign-born, age at arrival would be positively associated with FCGI. To test this hypothesis, model 1 included education and model 2 added age at arrival. Against predictions, age at arrival was not associated with FCGI ( $F = 2.08$ ;  $P = 0.13$ ). Thus, hypothesis 1 was not supported (Table 11).

**Table 11.** Standardized Regression Coefficients of FCGI on Age at Arrival for the Foreign-born Sample (n = 79)

		<b>Model 1</b>	<b>Model 2</b>
	<b>Characteristic</b>	<b><math>\beta</math> (SE)</b>	<b><math>\beta</math> (SE)</b>
Step 1	Education	0.14 (1.49)	0.17 (1.5)
Step 2	Age at arrival		- 0.19 (0.14)
	Adjusted $R^2$	0.006	0.03

Abbreviations.  $\beta$ , Standardized beta weight; SE, Standard Error

\*  $P < 0.05$

Nativity, FCGI and Perceived Stress

The next set of models examined the relationship between nativity, FCGI, and perceived stress. Hypothesis 2a, predicted that the foreign-born would have lower levels of perceived stress after controlling for age, marital status, education, and cigarette smoking. To test this hypothesis, model 1 included the control variables, and model 2



added nativity. To test hypothesis 2b and 2c, which predicted that FCGI would be negatively associated with perceived stress and would a stronger predictor of perceived stress than nativity, model 3 added FCGI. The adjusted  $R^2$  and  $\Delta R^2$  provided information concerning the amount of variation in perceived stress that was explained by adding FCGI into the overall model after accounting for nativity.

Table 12, shows the results for all three models involving tests for hypotheses 2a, 2b, and 2c. Results for model 1 indicated that none of the control variables predicted perceived stress. Also, contrary to expectations, model 2 results indicated that foreign-born status (nativity) did not predict perceived stress ( $\beta = -0.14$ ;  $P > 0.05$ ). Model 2 which contained nativity and the control variables significantly explained only 4% of the variation in perceived stress. In this model, education was the only statistically significant predictor in the model ( $\beta = -0.21$ ;  $P < 0.05$ ). There was no significant change in  $R^2$  from model 1 to model 2. When FCGI was entered into model 3, the results indicated that women with a stronger affinity to their foreign culture tended to report lower perceived stress ( $\beta = -0.15$ ;  $P < 0.05$ ), providing modest support to hypothesis 2b. Also, the effect for education was retained in model 3. Women with higher levels of education reported lower levels of perceived stress ( $\beta = -0.19$ ;  $P < 0.05$ ). The  $\Delta R^2$  from model 2 to model 3 was the same, but when FCGI was entered in the model, the  $\Delta R^2$  became statistically significant. In support of hypothesis 2c, adding FCGI explained slightly more variance in perceived stress ( $\beta = -0.15$ ;  $P < 0.05$ ;  $\Delta R^2 = 0.02$ ;  $P < 0.05$ ). However, the total amount of explained variance remained small at 6%.

**Table 12.** Standardized Regression Coefficients of Perceived Stress on Nativity, FCGI and Controls (n = 180)

Characteristic		Model 1	Model 2	Model 3
		$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
Step 1	Age	-0.02 (0.13)	0.01 (0.13)	0.02 (0.13)
	Single vs Married	0.04 (1.81)	0.03 (1.80)	0.06 (1.81)
	Education	-0.18 (0.92)	-0.21 (0.92)*	-0.19 (0.92)*
	Cigarette smoking status	0.07 (2.95)	0.07 (2.92)	0.06 (2.9)
Step 2	Nativity		-0.14 (1.09)	-0.14 (1.08)
Step 3	FCGI			-0.15 (0.06)*
	Adjusted $R^2$	0.03	0.04*	0.06*
	$\Delta R^2$	0.005	0.02	0.02*

Abbreviations.  $\beta$ , Standardized beta weight; SE, Standard Error

\*  $P < 0.05$

### Nativity, FCGI, Perceived Stress and Self-Rated Health

It was expected that after age, marital status, education, and cigarette smoking were controlled for, foreign-born women would report better self-rated health and perceived stress would be negatively associated with self-rated health (hypothesis 3a). To test this hypothesis, 3 sets of linear regression models were utilized. The control variables were entered in model 1, nativity was entered in model 2 and perceived stress was entered in model 3. Model 4 tested hypothesis 3b that once nativity and perceived stress are accounted for, FCGI will explain additional variance in self-rated health.

As seen in Table 13, hypothesis 3 was partially supported. First, model 1 results indicated that the control variables were not independently associated with self-rated health. When nativity was added to model 2, it was not associated with self-rated health as was anticipated. However, education became a statistically significant predictor of self-rated health ( $\beta = 0.19$ ;  $P < 0.05$ ).

Model 3 showed that perceived stress predicted self-rated health ( $\beta = -0.23$ ;  $P < 0.05$ ). As expected, women with lower levels of perceived stress tended to report better health. In contrast to predictions, there was no statistically significant relationship

between FCGI and self-rated health. Similar to model 3, the full model (model 4) indicated that after accounting for nativity, FCGI, and the control variables, women with lower levels of perceived stress tended to have better health ( $\beta = -0.22$ ;  $P < 0.01$ ). Still, the full model explained only a modest amount of variance (Adjusted  $R^2 = 0.07$ ;  $P < 0.01$ ).

**Table 13.** Standardized Regression Coefficients of Self-rated health on Nativity, Perceived Stress, FCGI and Controls (n = 180)

	Characteristic	Model 1	Model 2	Model 3	Model 4
		$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
Step 1	Age	-0.01 (0.02)	-0.05 (0.02)	-0.05 (0.02)	-0.05 (0.02)
	Single vs Married	-0.06 (0.23)	-0.01 (0.23)	-0.004 (0.22)	-0.02 (0.23)
	Education	0.16 (0.12)	0.19 (0.12)*	0.14 (0.12)	0.13 (0.12)
	Cigarette smoking status	-0.06 (0.38)	-0.06 (0.37)	-0.05 (0.36)	-0.04 (0.37)
Step 2	Nativity		0.14 (0.14)	0.11 (0.14)	0.11 (0.14)
Step 3	Perceived Stress			-0.23 (0.01)**	-0.22 (0.001)**
Step 4	FCGI				0.08 (0.008)
	Adjusted $R^2$	0.008	0.02	0.07**	0.07**
	$\Delta R^2$	0.004	0.019	0.05**	0.006

Abbreviations.  $\beta$ , Standardized beta weight; SE, Standard Error

\* $P < 0.05$ , \*\* $P < 0.01$  level

### *Post Hoc Analyses*

Post hoc analyses were conducted after considering the small amount of variance in perceived stress explained by FCGI and the lack of statistically significant findings when testing whether FCGI explained more variance in self-rated health compared to nativity. The unsupported hypotheses point to the fact that other variables that are associated with perceived stress and self-rated health were not accounted for in those models. The post hoc analyses included additional variables that may act as determinants of FCGI or as intermediary determinants that can influence health. The analyses considered the following as outcome variables: self-reported racial discrimination, self-

reported cultural group identity, whether the respondents spent the majority of their lives in the U.S., and socially assigned race.

#### Rationale for Variables Selected

Based on previous research, four additional variables were selected for further analysis and exploration to determine how the level of FCGI influenced experiences of racial discrimination. In addition, the analyses here attempted to shed light on how Black immigrant women made sense of their experiences and how their FCGI ratings, their self-reported cultural group identity, and whether these women spent the majority of their lives in the U.S. or not and also, how others in the U.S. label them (e.g., socially assigned race) provided a clearer understanding of differentials in perceived stress and self-rated health.

*Racial discrimination among Black immigrants.* A growing literature highlights that racial discrimination may operate as a psychosocial stressor, and has linked the experiences of racial discrimination to negative health outcomes.<sup>150-154</sup> Chronic exposure to racial discrimination could overwork the body's adaptational responses, which may deteriorate over time and increase the body's risk to disease.<sup>150</sup> Perceived racial discrimination is associated with negative physical and mental health outcomes such as high blood pressure, poor self-rated health, depression and anxiety, as well as the adoption of health-damaging behaviors such as smoking and alcohol use.<sup>151-154</sup>

This literature also highlights nativity-based differences in reports of racial discrimination among Blacks in the U.S. A small literature suggests that the Black foreign-born may be less likely to report racial discrimination compared to U.S.-born Blacks.<sup>103, 156-157</sup> In the present study, FCGI may impact reports of racial discrimination in

specific ways given the variation in respondents' attachment to their foreign culture. Specifically, women who identify more with their foreign culture, (i.e., high FCGI) may report lower levels of racial discrimination as a result of different perceptions and understandings of race relations in the U.S. These women may not attribute certain experiences as being forms of racial discrimination, when compared to those with lower FCGI.<sup>74</sup> Thus, racial discrimination may influence self-rated health for women with lower FCGI because they may be more vulnerable to stress as a result of racial discrimination.

*Self-reported Cultural group identification: categorical assessment.* Although FCGI addresses the level to which women identify with their foreign culture as a continuous variable, accounting for self-reported cultural group identification may provide additional insight into the mechanisms at work. It may be logical to expect that the culture which women identify with most may act as determinant of FCGI as well as a determinant of health that can impact health through mechanisms such as diet, and adverse health behaviors. Rivers reported that U.S.-born Africans identified more (1) with African Americans or (2) with both their country of origin *and* the U.S. than with being African alone.<sup>10</sup> With this in mind, we may consider that for women in this study, differences in the culture that they identify with most may impact their affinity to their foreign culture and eventually affect self-rated health.

*Socially assigned race.* Socially assigned race is often used as a tool to understand the impact of racial discrimination and racism on health, as it measures how an individual's race/ethnic category is perceived based on the social interpretation of their physical appearance by the society around them.<sup>158</sup> This interpretation is then what people act on and the mechanism through which discrimination operates.<sup>158</sup> The category

that an individual self identifies with may not be the same as his or her socially assigned race.<sup>159</sup> Jones et al. found that self-identified race/ethnic minority individuals who were socially assigned as White reported better self-rated health compared to those perceived as minority.<sup>158</sup> Although Jones et al. provide insight into the power of White advantage in regards to health, the study did not assess how the incongruity between self-identified race/ethnic category and socially assigned race impacts the health of Black individuals. Nonetheless, this finding provides insight into the power of socially assigned race in driving health differentials, and as such, the role of socially assigned race was considered in the context of the present study. As all the participants self-identified as Black, self-rated health differentials may exist if the participants' perceived race differs from their self-identified category.

*Where the majority of life has been spent.* Studies show that the health of the foreign-born declines with increased time spent in the U.S.<sup>28-31</sup> The proportion of time a woman has spent in the U.S. may be a determinant of FCGI and shape the level to which she identifies with her foreign culture. Women who have spent the majority of their life in the U.S. may have a lower affinity to their foreign culture compared to those who have not because of the time immersed in their country value systems. Adjusting for this determinant of FCGI may allow for a more precise assessment of the association between FCGI and perceived stress and self-rated health.

## Analyses

The data for each post hoc variable were cleaned and recoded to ensure that missing values were not included in the sample. The analytic sample included respondents with values for each variable of interest.

### Univariate Analyses

Table 14 presents the descriptive statistics for these variables and highlights that 75% of the participants had spent the majority of their lives in the U.S., and that the largest proportion of sample identified most with African culture (41%). This may be a function of the large proportion of women from African backgrounds as highlighted in table 6b.

<b>Table 14. Descriptive Statistics of Post Hoc Variable (<math>n = 176</math>)</b>			
<b>Characteristic</b>	<b>Range</b>	<b>Mean/Percent</b>	<b>SD</b>
<b>Racial Discrimination</b>	5-30	12.99	4.81
<b>Where respondents have spent Majority of life</b>			5.67
U.S.		75.00	
Outside U.S.		25.00	
<b>Self-reported Cultural Group Identity</b>			
African American		19.89	
African		40.91	
Caribbean		23.86	
Other		15.34	
<b>Socially Assigned Race</b>			
Black/African-American		88.64	
Hispanic or Latino		1.70	
Other		9.66	

### Bivariate Analyses

*Chi-square analyses of Self-reported Cultural Group Identity and Socially assigned race by Nativity.* Chi-square analyses, presented in table 15, were conducted to test for significant nativity-based differences among the following categorical variables: self-reported cultural group identity and socially assigned race. The self-reported cultural group identity variable was recoded into 2 groups: African American culture and foreign

culture (African or Caribbean). Women who endorsed the other groups were dropped from this recoding. The results indicated that a larger proportion of U.S.-born women (38.96%) identified with African American culture compared to 6.94% of foreign-born women who identified with African American culture. Additionally, a much larger percentage of foreign-born women identified with foreign culture (93.06%) compared to the U.S.-born (6.94%). The results indicated that there were no significant nativity-based differences in socially assigned race ( $P = 0.75$ )

**Table 15.** Self-reported Cultural Group Identity and Socially Assigned Race by Nativity ( $n = 176$ )

Characteristic	Foreign-Born (n = 80) %	U.S.-Born (n = 96) %	$\chi^2$	$P$
<b>Self-reported Cultural Group Identity</b>				
African American	61.04	38.96	21.22	<0.0001
Foreign	93.06	6.94		
<b>Socially Assigned Race</b>				
Black/African-American	44.87	55.13	0.58	0.75
Hispanic or Latino	33.33	66.67		
Other	52.94	47.06		

Note. The percentages presented above represent the row percent for each category.

*Where respondents have spent the majority of their lives and self-reported cultural group identification.* A chi-square test was also conducted to test the association between where respondents had spent the majority of their lives and self-reported cultural group identification. Of the women who identified more with African American culture, 97.14% of them had spent the majority of their lives in the U.S. Of the women who identified more with African or Caribbean culture, 36.99% and 30.95% respectively, had spent the majority of their lives outside of the U.S. ( $\chi^2 = 16.18$ ;  $P = 0.001$ )

*Racial discrimination, nativity, and where respondents have spent the majority of their lives.* Two t-tests were conducted to test for mean differences in: (1) discrimination by nativity and (2) mean differences in discrimination by where respondents had spent



the majority of their lives in response to the question, “In what country have you spent the majority of your life?” The results presented in table 16 showed that the U.S.-born had a statistically significantly higher mean racial discrimination score compared to the foreign-born. However, there were no significant mean differences in racial discrimination between women who had spent the majority of their lives in the U.S. and those who had spent the majority of their lives in a country other than the U.S.

**Table 16.** T-test Statistics for Nativity and Majority of life Spent by Racial Discrimination (n = 176)

Characteristic	Mean	<i>t</i>	SD	<i>P</i>
<b>Nativity</b>				
U.S.-born	14.11	3.49	4.92	< 0.001
Foreign-born	11.65		4.34	
<b>Where respondent has spent majority of life</b>				
U.S.	13.35	1.7	4.72	0.09
Other country	11.93		4.99	

Abbreviation: SD, Standard Deviation

*Where respondents had spent the majority of their lives, FCGI, & racial discrimination.* An additional *t*-test was conducted to examine differences in mean FCGI based on respondents' answer to the question, “In what country have you spent the majority of your life?” Interestingly, the results indicated that respondents who had spent the majority of their lives in the U.S. had a higher mean FCGI score (42.67; SD = 7.85) compared to those who had spent the majority of their lives in another country (Mean = 39.34; SD = 9.74; *P* = 0.05). A correlation analysis between FCGI and racial discrimination indicated that they were not correlated (*P* = 0.17).

*Self-reported cultural group identification, FCGI, socially assigned race, and racial discrimination.* Two sets of one-way ANOVAs were conducted to test the significance of group differences between: 1) self-reported cultural group identification and FCGI and 2) between socially assigned race and the dependent variable, racial

discrimination. The first ANOVA revealed that there were significant mean FCGI differences across the cultural groups ( $F = 5.21$ ;  $P < 0.05$ ). A Bonferroni comparison test indicated that women who identified with African culture had a higher mean FCGI (43.36) than women who identified with African American culture. Additionally, women who identified with Caribbean culture had higher mean FCGI (43.52) than women who identified with African American culture (37.23). Results indicated no significant socially assigned race differences on racial discrimination. ( $F = 1.03$ ;  $P = 0.36$ ).

#### Multivariate Analyses

Based on the analyses conducted, 3 of the 4 post hoc variables were included in 2 hierarchical regression models: racial discrimination, where respondents had spent the majority of their lives, and self-reported cultural group identification. These variables were added to the multivariate analyses that replicated the study's hypotheses 2b and 3b. The amount of variance in perceived stress explained by FCGI was compared between the study hypothesis and the regression models with the additional three variables. The results from the first regression model showed that of the 3 additional variables, only racial discrimination was significantly associated with perceived stress ( $\beta = 0.30$ ;  $P < 0.001$ ). When the additional three variables were accounted for, with nativity alone in the model, 2% of the variance in perceived stress was accounted for. When FCGI was entered in the model, only 3% of the variance in perceived stress was explained ( $P < 0.05$ ). A product variable, FCGI X racial discrimination, was included as an interaction term in the final model to determine if FCGI moderated the relationship between racial discrimination and perceived stress. The interaction term was not significant. The second regression analysis indicated that the 3 additional variables were not associated with self-

rated health. Adding FCGI into the model did not explain more variance in self-rated health than nativity when the additional three variables were accounted for. These tables are included in the Appendix G on page 99.

## CHAPTER 6: DISCUSSION

"... I strongly identify with my Caribbean culture and many U.S. studies fail to capture the dichotomy of our experience." 29-year-old Trinidadian American participant

A plethora of scholars have highlighted the need to disaggregate the Black race category in order to assess the Black population's health more accurately and address race/ethnic health disparities more thoroughly.<sup>7-9, 33, 132</sup> This study addresses this issue directly with its focus on Black immigrant women living in the U.S. and also highlights the variation in cultural identity that exists within this select sample. The central goal of this research was to gain a comprehensive understanding of FCGI and explore linkages between FCGI and health in Black women with immigrant backgrounds. The purpose of this pilot study was three-fold. Firstly, this study examined the relationship between age at arrival and FCGI. Secondly, this study aimed to assess the within-group health differential in perceived stress and self-rated health among a sample of Black women with immigrant backgrounds. Lastly, this study investigated the utility of the FCGI measure among this sample and tested how it compared to nativity in explaining self-reported health differences. Although results indicated modest support for the role of FCGI in explaining perceived stress, they also provide guidance for future research in this area.

Even though Black women with immigrant backgrounds would be considered members of the Black racial group in the U.S., they were able to report the degree to which they identified with their foreign culture. The original sample of 214 women represented a variety of national origins not unlike those which have been reported in previous national studies involving Black immigrant samples.<sup>5, 33</sup>

Univariate analyses indicated that the FCGI measure operated well psychometrically in this sample in terms of a strong Chronbach's alpha. Participants in this sample tended to endorse moderately high levels of FCGI. Furthermore, post hoc analyses demonstrated that nativity alone did not distinguish women in terms of FCGI. However, women who identified with African and Caribbean culture had higher FCGI than those who identified with African American culture. This pattern of findings suggests that future researchers will obtain different information about the role of culture and identity in the lives of participants than nativity alone would reveal. The smaller scale and scope of this study provides insight that would otherwise be inaccessible in larger scale studies using existing methods. It also provides preliminary evidence of reliability and validity for the use of this measure in future research with similar populations.

Although the expectation that FCGI would explain more variance in perceived stress and self-rated health than nativity was not fully supported, the post hoc analyses provide some insight into how FCGI related to other variables of interest and point to investigations for future research. As noted, the study showed that foreign-born participants were not different from U.S.-born women on FCGI. However, post hoc analyses indicated that respondents who had spent the majority of their lives in the U.S., including those born here, had higher FCGI scores than those who had spent the majority of their lives elsewhere. This finding may suggest that individuals who have spent the majority of their lives in the U.S. may constantly be faced with assumptions that they are African American, making race and cultural identity salient on a regular basis. This might trigger a psychological re-commitment to their foreign cultural identity on a regular basis,

strengthening this identity, and resulting in somewhat higher scores than their counterparts.<sup>38</sup> Although the measurement of where respondents have spent the majority of their life is a limited index of their exposure to life in the U.S., this finding points to the nuances and complexities of the determinants of FCGI. Understanding this pattern of findings should be the subject of future research.

The post hoc analyses also introduces interesting prospects for future research about the role FCGI plays in racial discrimination and ultimately, health outcomes in this group. The U.S.-born reported higher levels of exposure to racial discrimination than the foreign-born, but FCGI was not correlated with racial discrimination. While the first finding is in line with conventional thinking about the experiences of ethnic minorities in the U.S., the latter finding is difficult to explain given the limited research literature in this area. More research is needed to understand how the foreign-born make sense of experiences of racial discrimination and the role that FCGI plays in it.

#### *Age at arrival and FCGI*

Primary analyses focused on the effect of age at migration on an individual's affinity to their foreign culture. Findings did not support the hypothesis that age at arrival would be positively associated with FCGI. However, the few studies in this area have reported that the foreign-born who arrive in the U.S. as adults tend to report strong affinities to their foreign culture.<sup>82-84</sup> As these studies did not assess this association among Black immigrants, examining whether age at arrival is a determinant of FCGI among Black immigrants may be a venue for future research in this area.

### *Nativity and FCGI as Predictors of Perceived Stress*

In previous studies, nativity has been used as a proxy for pre-migration experiences and behaviors that place the foreign-born at a health advantage when they initially arrive in the U.S. This study sought to improve upon existing research by testing if foreign-born women tended to report lower levels of perceived stress and also examining whether FCGI would explain more variance in perceived stress than nativity. Contrary to expectations, nativity was not associated with perceived stress. FCGI had a negative, statistically significant impact on perceived stress as hypothesized, but this relationship was quite small. Thus, there was not a meaningful difference between nativity and FCGI with respect to their capacity to predict perceived stress.

In summary, it is possible that FCGI plays a role in health outcomes but that the direct relationships proposed in this study is not the path by which this occurs. There may be other intervening variables that explain the relationship between FCGI and the outcomes measured in this study. These intermediary determinants may be factors such as health behaviors and attitudes towards health that are tied to FCGI that in turn, predict self-rated health and other health outcomes. Future studies should measure the specific health behaviors and attitudes that distinguish Black immigrant women from their African American counterparts in order to identify the ways FCGI is tied to health outcomes. Black immigrants may also live in communities around the U.S. that vary in their capacity to protect and reinforce foreign cultural worldview and health practices. For instance, Black immigrant communities in the U.S. are distinct from predominantly African American communities in the U.S. in cultural character and resources. In some cases, Black immigrants reside in African American communities or in communities

comprised of other racial-ethnic groups. Consequently, Black immigrants may not be subjected to the same environmental health risks that disproportionate numbers of African Americans face that are a function of racial segregation (e.g., poor housing quality; impoverished neighborhoods).<sup>8, 14, 107</sup> Therefore, more research is needed to tease out the role of FCGI in terms of protection and exposure to risk vis-à-vis the social determinants of health.

#### *Nativity, FCGI, and Perceived Stress as Predictors of Self-Rated Health*

Although the literature highlights the nativity-based differences in self-rated health<sup>16, 102</sup> the results from this study did not substantiate this finding. Further, FCGI did not explain more variation in self-rated health than nativity. When considering how participants responded to the self-rated health question, however, very little variation existed; a little over 60% reported that their health was excellent or very good which may explain why nativity and FCGI differences in self-rated health were not observed in this sample. Given the sample's health advantage and relatively high education levels, this test needs to be replicated in a more diverse sample on those variables. Not surprisingly, women who reported lower levels of perceived stress tended to have better self-rated health. Furthermore, in the full model that addressed this hypothesis, perceived stress was the most important variable predicting self-rated health.

#### *Limitations*

It is important to consider the findings presented in this study within the context of certain limitations. This study utilized a cross-sectional study design and limits the ability to make meaningful statements about causality. Additionally, as noted, more than half of the participants had at least a college education and above. Therefore, the findings



may not be generalizable to all Black women from immigrant backgrounds with lower levels of education. Relying on self-reported information may also be subject to information bias. These limitations may have limited the ability to detect relationships between nativity, perceived stress and self-rated health, and between FCGI and self-rated health. However, these limitations provide potential avenues for further study in this area.

### *Programmatic and Policy Implications*

Despite the limitations, this study has important implications for program planners who serve this population. Participants in this study emphasize the diversity that exists in the Black population, and also, within the Black immigrant population. Program planners working with Black populations should give consideration to the diversity within the population to ensure that programs address the needs of Black immigrant participants. Many of the health-related interventions developed for African Americans may not apply to Black immigrant groups in terms of the most pressing health conditions and negative health outcomes and also, in terms of health behaviors and barriers to healthcare.

The diversity in the Black population is often left out of policy pertaining to health even though the characterization of this group is important when assessing the health status of this population and creating appropriate interventions. Since there is a lack of research on the health of Black immigrants, further research in this area is needed in order to make a case for a policy-centered focus on Black immigrants. Furthermore, health policies may not be completely effective for segments of this population's health, particularly if the policies do not address cultural subtleties that may influence health-

seeking behavior access and motivation to seek care. Policy makers may want to consider ensuring that policies are culturally competent.

### *Challenging Conventional Notions About Race/ethnicity And Immigration*

Even though the diversity of the Black U.S. population is well documented, the federal government and other entities continue to collect health-related data that do not assess this diversity in the most comprehensive manner. Researchers have only recently begun to understand the role that length of time in the U.S., country of origin, and age at migration play in the health of the foreign-born as way to better understand the health of the Black population as a whole. Research on the Healthy Immigrant Effect suggests that the foreign-born experience a health decline over time.<sup>15, 22-26</sup> Continuing to collect disaggregated data on the Black population such as information on nativity and country of origin will give insight into the mechanisms that shape this decline for immigrants and their children.

### *Directions and Recommendations for Future Research*

The results from this study highlight the possible utility of FCGI when evaluating the perceived stress of Black immigrant populations in future studies. In light of this study's limitations, scholars should consider the following steps in order to address some of these limitations:

- 1) Conduct a larger scale probability-based study of the FCGI measure among this population and other immigrant populations;
- 2) Assess the study associations in a random national sample which will provide generalizability of the findings and strengthen the applicability of the results;

3) Conduct a validity and reliability study of the FCGI measure which may cement its appropriateness for use among this population as has been done among other ethnic groups;

4) Collect data on age at arrival in a more detailed way that addresses the measurement issues reported in this study. Rather than measure age at arrival as a static variable, future studies may consider adopting a more dynamic version of this variable in order to capture the potential multiple exposures to the U.S. For example, collecting specific information on the age and length of possible visits to the U.S. prior to migration may prove useful;

5) Conduct a study involving health outcomes that includes an African American referent group;

Lastly, 6) Examine gender-based discrimination and experiences of discrimination and bias due to socially assigned race and the specific sources of perceived stress. Such research may add to our current knowledge about the acute and chronic stress experienced by this population, considering that ethnic minority immigrants experience stress that is related to their minority status. Researchers should be cautious in relying solely on categorical measures of individual's membership in race/ethnic immigrant groups and also in examining exposures and interpreting health risks.

### *Conclusion*

The purpose of this study was to examine nativity-based differences in perceived stress and self-rated health and to examine the explanatory power of the FCGI measure in the population of interest. The sample of women who identified as "Black" in this study

highlights diversity far beyond the prescribed race/ethnic category and as such, this study makes a preliminary contribution to the immigrant health literature. The Black immigrant population has remained largely understudied despite the fact that it is growing quite rapidly.<sup>5</sup> Given the scant literature on Black immigrants, these study results point to the need to further examine the role of cultural identity in population-based differences in health. This study provides further guidance for one strategy by which public health researchers can disaggregate Black immigrant samples when investigating population-based health outcomes. Further research on the health attitudes and behaviors related to FCGI would be helpful in illuminating potential relationships to health outcomes. Recognizing and documenting the diversity of identities in this population can contribute to solutions to race/ethnic health disparities that extend beyond the historically emphasized Black/White paradigm and highlight cultural and identity-related factors that can influence health outcomes.

## APPENDIX A Demographic Information Questionnaire

Please answer the questions below to the best of your ability.

### I Background Information

1. Age: \_\_\_\_\_
2. College Rank:
  - Freshman
  - Sophomore
  - Junior
  - Senior
  - Masters
  - PhD
3. What is your major? \_\_\_\_\_
4. What is your program concentration? \_\_\_\_\_
5. What is your nationality? \_\_\_\_\_
6. Are you a citizen of the United States?
  - YES
  - NO
7. Were you born in the United States?
  - YES (If yes, **skip** questions #8, #9 and #10)
  - NO (If no, **go to** question #8)
8. In what country were you born? (Please check only one box.)

Africa:

- Ethiopia
- Cameroon
- Ghana
- Nigeria
- Sierra Leone
- Somalia
- Other

Please Specify \_\_\_\_\_

Asia:

- China
- India
- Korea
- Thailand

Other Please Specify\_\_\_\_\_

Europe/Middle East:

- England
- France
- Greece
- Israel
- Italy
- Other

Please Specify\_\_\_\_\_

Caribbean:

- Dominican Republic
- Haiti
- Jamaica
- Trinidad & Tobago
- Other

Please Specify\_\_\_\_\_

South America

- Brazil
- Columbia
- Ecuador
- Venezuela
- Other

Please Specify\_\_\_\_\_

Australia

- Australia
- New Zealand

North America

- Canada
- Mexico
- Other

Please Specify\_\_\_\_\_

9. At what age did you come to the U.S.? \_\_\_\_\_  
 Not sure. Please explain why you are not  
sure\_\_\_\_\_

---

10. What is the reason you and/or your family moved to the U.S.?

- Chance of a better life
- Refugee/Asylum
- A family member won the green card lottery
- I came with a family member (e.g., parent or grandparent)

Other Please specify and be as complete as possible \_\_\_\_\_  
\_\_\_\_\_

11. Was your **mother** born in the U.S.?  
 YES (If yes, **skip** questions #12, #13, #14, #15)  
 NO (If no, **go to** question #12)
12. Does your **mother** currently live in the U.S.?  
 Yes (If yes, **go to** questions #13)  
 No (If no, **go to** question #14)
13. If your **mother now** lives in the USA, in what year did she settle in the U.S.?  
\_\_\_\_\_  
 Not sure, sometime before I was born  
 Not sure, sometime after I was born
14. Did your **mother** complete **any** part of her education in the U.S.?  
 Yes  
 No  
 Not sure
15. Did your **mother** complete **any** part of her education in her country of birth?  
 Yes  
 No  
 Not sure
16. What is your **mother's** highest level of education?  
 No schooling completed  
 Less than high school/secondary school  
 Trade/technical/vocational school  
 High School Grad/GED or Equivalent/A-level  
 Some College or Associate's degree (eg: AA, AS)  
 College Graduate (eg: BA, AB, BS)  
 Master's degree (eg: MA, MS, MEng, MEd, MSW, MBA)  
 Professional degree (eg: MD, DDS, DVM, LLB, JD)  
 Doctorate degree (eg: PhD, EdD)  
 I don't know
17. Was your **father** born in the U.S.?  
 YES (If yes, **skip** questions #18, #19, #20, and #21)  
 NO (If no, **go to** question #18)
18. Does your **father** currently live in the U.S.?  
 Yes  
 No

Not sure

19. If your **father** now lives in the USA, in what year did he settle in the U.S.?

Not sure, sometime before I was born

Not sure, sometime after I was born

20. Did your **father** complete any part of his education in the U.S.?

Yes

No

Not sure

21. Did your **father** complete part of his education in his country of birth?

Yes

No

Not sure

22. What is your **father's** highest level of education?

No schooling completed

Less than high school/secondary school

Trade/technical/vocational school

High School Grad/GED or Equivalent/A-level

Some College or Associate's degree (eg: AA, AS)

College Graduate (eg: BA, AB, BS)

Master's degree (eg: MA, MS, MEng, MEd, MSW, MBA)

Professional degree (eg: MD, DDS, DVM, LLB, JD)

Doctorate degree (eg: PhD, EdD)

I don't know

23. Were your parents ever married?

Yes, they are still married

Yes, they are now divorced

Yes, they are now separated

Yes, my mother is now a widow

Yes, my mother was a widow but is now re-married

Yes, my father is now a widower

Yes, my father was a widower but is now re-married

No, they were never married

I don't know

24. What is your marital status?

I am single

I am engaged

I am currently married

I am separated

I am divorced



- I was divorced and I am now remarried
- I am a widow
- I was a widow and I am now remarried

25. What is your family household yearly income?

- |                                               |                                                 |
|-----------------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> \$0 to \$ 9,999      | <input type="checkbox"/> \$100,000 to \$109,999 |
| <input type="checkbox"/> \$10,000 to \$19,999 | <input type="checkbox"/> \$110,000 to \$119,999 |
| <input type="checkbox"/> \$20,000 to \$29,999 | <input type="checkbox"/> \$120,000 to \$129,999 |
| <input type="checkbox"/> \$30,000 to \$39,999 | <input type="checkbox"/> \$130,000 to \$139,999 |
| <input type="checkbox"/> \$40,000 to \$49,999 | <input type="checkbox"/> \$140,000 to \$149,999 |
| <input type="checkbox"/> \$50,000 to \$59,999 | <input type="checkbox"/> \$150,000 to \$159,999 |
| <input type="checkbox"/> \$60,000 to \$69,999 | <input type="checkbox"/> \$160,000 to \$169,999 |
| <input type="checkbox"/> \$70,000 to \$79,999 | <input type="checkbox"/> \$170,000 to \$179,999 |
| <input type="checkbox"/> \$80,000 to \$89,999 | <input type="checkbox"/> \$180,000 to \$189,999 |
| <input type="checkbox"/> \$90,000 to \$99,999 | <input type="checkbox"/> \$190,000 to \$199,999 |
| <input type="checkbox"/> Other                |                                                 |
| <input type="checkbox"/> Not sure             |                                                 |

26. Was your maternal grandmother born in the U.S.?

- Yes
- No
- Not sure

27. Was your maternal grandfather born in the U.S.?

- Yes
- No
- Not sure

28. Was your paternal grandmother born in the U.S.?

- Yes
- No
- Not sure

29. Was your paternal grandfather born in the U.S.?

- Yes
- No
- Not sure

30. Which culture do you identify the most with?

- African American
- African
- Caribbean
- European
- Other (Please list here) \_\_\_\_\_

31. If you had to choose your own race/ethnic group, how would you characterize yourself?

\_\_\_\_\_

32. Is your foreign culture an important part of your overall identity?

Yes

No

33. How do other people usually classify you in this country?

Black or African American

Hispanic or Latino

Asian

Native Hawaiian or other Pacific Islander

Native American or Alaska native

Other group \_\_\_\_\_

34. In what country have you spent the majority of your life?

USA

Other (Please list here) \_\_\_\_\_

35. What is the main language spoken in your home with your family?

English

I understand when my parents/family members speak in our native language and I answer back in English.

I understand my native language but speak mostly in English to my family members.

Other (please list here) \_\_\_\_\_

English and other language are spoken equally

Please list other language(s)

here) \_\_\_\_\_

**APPENDIX B**  
**Foreign Cultural Group Identity Scale**

For this questionnaire, please think about **your country of origin** and the cultural upbringing you have received.

The questions below are designed to measure how you view your identity as a part of your cultural group with regard to **your country of origin**. Please read the statements below. Answer each question regarding the extent to which you identify with your cultural upbringing. **For example, if your country of origin is Ghana, or Jamaica, we are asking you to think about what it means to be a part of this cultural group.**

Circle the answer that best represents your response to each item below.

	Strongly Disagree		Neutral			Strongly Agree	
1. Overall, being a part of my cultural group has very little to do with how I feel about myself.	1	2	3	4	5	6	7
2. In general, being a part of my cultural group is an important part of my self-image.	1	2	3	4	5	6	7
3. My destiny is tied to the destiny of other people in my cultural group.	1	2	3	4	5	6	7
4. Being a part of my cultural group is unimportant to my sense of what kind of person I am.	1	2	3	4	5	6	7
5. I have a strong sense of belonging to my people in my cultural group.	1	2	3	4	5	6	7
6. I have a strong attachment to other people in my cultural group.	1	2	3	4	5	6	7
7. Being a part of my cultural group is an important reflection of who I am.	1	2	3	4	5	6	7
8. Being a part of my cultural group is not a major factor in my social relationships.	1	2	3	4	5	6	7

**APPENDIX C**  
**Health Background Questionnaire**

1. In general, would you say your health is?
  - Excellent
  - Very good
  - Good
  - Fair
  - Poor
  
2. Have you been diagnosed with any of the following illness?
  - I have not been diagnosed with any illness
  - Diabetes
  - High blood pressure/hypertension
  - Asthma
  - High Cholesterol
  - Other Please list here\_\_\_\_\_
  
3. Do you currently take medication for any the following illnesses? Please check all that apply.
  - I do not currently take medication for any illness
  - Diabetes
  - High blood pressure
  - Asthma
  - High Cholesterol
  - Other Please list here\_\_\_\_\_
  
4. Do you have a family history of any of the following illnesses? Please check all that apply.
  - I do not have a family history of any illness.
  - I don't know
  - Diabetes
  - High blood pressure
  - Asthma
  - Cancer
  - Heart disease
  - Other Please list here\_\_\_\_\_
  
5. Are you currently taking any form of hormonal contraceptives?
  - YES
  - NO
  
6. I eat when I'm stressed.
  - Always
  - Very Often
  - Sometimes
  - Rarely

- Never
7. How much do you weigh?  
\_\_\_\_lbs \_\_\_\_oz
8. How tall are you?  
\_\_\_\_feet \_\_\_\_ inches
9. Over the past 30 days, on how many days did you engage in at least 30 minutes of cardiovascular activities to cause sweating or a moderate increase in breathing or heart rate? Some examples are running, bicycling, and dancing.
- 1-5 days  
 6-10 days  
 11-15 days  
 16-20 days  
 21-25 days  
 26+ days  
 Not at all
10. Over the past 30 days, how many days did you do any physical activities specifically designed to strengthen your muscles such as lifting weights, push-ups or sit-ups?
- 1-5 days  
 6-10 days  
 11-15 days  
 16-20 days  
 21-25 days  
 26+ days  
 Not at all
11. Do you now smoke cigarettes?
- Every day  
 Some days  
 Not at all
12. On average, how many cigarettes do you now smoke per day? (One pack contains approximately 20 cigarettes.)
- 1-5  
 6-10  
 11-15  
 16-20  
 21 or more
- Estimate the total number here: \_\_\_\_\_

13. During the past 30 days, on the days that you smoked, about how many cigarettes did you smoke per day? (One pack contains approximately 20 cigarettes.)

- 1-5
- 6-10
- 11-15
- 16-20
- 21 or more

Estimate the total number here: \_\_\_\_\_

**APPENDIX D**  
**Perceived Stress Scale**

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

**0 = Never   1 = Almost Never   2 = Sometimes   3 = Fairly Often   4 = Very Often**

- |                                                                                                                           |   |   |   |   |   |
|---------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| 1. In the last month, how often have you been upset because of something that happened unexpectedly?.....                 | 0 | 1 | 2 | 3 | 4 |
| 2. In the last month, how often have you felt that you were unable to control the important things in your life?.....     | 0 | 1 | 2 | 3 | 4 |
| 3. In the last month, how often have you felt nervous and “stressed”?                                                     | 0 | 1 | 2 | 3 | 4 |
| 4. In the last month, how often have you felt confident about your ability to handle your personal problems?.....         | 0 | 1 | 2 | 3 | 4 |
| 5. In the last month, how often have you felt that things were going your way?.....                                       | 0 | 1 | 2 | 3 | 4 |
| 6. In the last month, how often have you found that you could not cope with all the things that you had to do? .....      | 0 | 1 | 2 | 3 | 4 |
| 7. In the last month, how often have you been able to control irritations in your life?.....                              | 0 | 1 | 2 | 3 | 4 |
| 8. In the last month, how often have you felt that you were on top of things?.....                                        | 0 | 1 | 2 | 3 | 4 |
| 9. In the last month, how often have you been angered because of things that were outside of your control? .....          | 0 | 1 | 2 | 3 | 4 |
| 10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?..... | 0 | 1 | 2 | 3 | 4 |

**APPENDIX E**  
**Everyday Discrimination Scale**

**In your day-to-day life how often have any of the following things happened to you because of your race? Please circle the most appropriate response.**

**1. You are treated with less courtesy or respect than other people.**

Almost Every day   At least once a week   A few times a month   A few times a year   Less than once a year   Never

**2. You receive poorer service than other people at restaurants or stores.**

Almost Every day   At least once a week   A few times a month   A few times a year   Less than once a year   Never

**3. People act as if they think you are not smart.**

Almost Every day   At least once a week   A few times a month   A few times a year   Less than once a year   Never

**4. People act as if they are afraid of you**

Almost Every day   At least once a week   A few times a month   A few times a year   Less than once a year   Never

**5. You are threatened or harassed**

Almost Every day   At least once a week   A few times a month   A few times a year   Less than once a year   Never

Forman TA, Williams DR, Jackson JS. Race, place, and discrimination. *Social Problems*. 1997;9:231–261.



APPENDIX F  
Flyers

**STUDY ON  
BLACK IMMIGRANT WOMEN**



We are interested in learning more about the link between birth place, cultural identity and health among Black women from all over the world. If you, your parents or grandparents are from an African nation, please consider participating in this exciting new study and share your experiences.

**To participate you must be:**

- Black [All countries of origin are welcome]
- From an immigrant background
- Female
- 18 years of age or older
- Willing to commit 30 minutes of your time

**If you are interested in participating in our study please contact Laurén Doamekpor at: [Bcidentity2012@gmail.com](mailto:Bcidentity2012@gmail.com).**

**Visit our Facebook page at**

**<https://www.facebook.com/BlackImmigrantWomen>**

# STUDY ON BLACK IMMIGRANT WOMEN



We are interested in learning more about the link between birth place, cultural identity and health among Black women from all over the world. If you, your parents or grandparents are immigrants, please consider participating in this exciting new study and share your experiences.

## **To participate you must be:**

- Black [All countries of origin are welcome]
- From an immigrant background
- Female
- 18 years of age or older
- Willing to commit 30 minutes of your time

## **Contact Information:**

If you are interested in participating in our study or for more information and questions please contact **Laurén Doamekpor** at: **Bcidentity2012@gmail.com**

Visit our Facebook page at:

<https://www.facebook.com/BlackImmigrantWomen>

**APPENDIX G**  
**Post Hoc Multivariate Analyses Results**

**Table 17.** Standardized Regression Coefficients of Perceived Stress on Nativity, FCGI, Controls, and Post Hoc Variables (n = 176)

Characteristic		Model 1	Model 2	Model 3	Model 4	Model 5
		$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
Step 1	Age	-0.02 (0.12)	-0.006 (0.12)	0.02 (0.12)	-0.04 (0.12)	0.03 (0.11)
	Single vs Married	0.03 (1.71)	-0.02 (1.69)	0.03 (1.66)	-0.05 (1.65)	0.05 (1.65)
	Education	-0.20 (0.88)*	-0.20 (0.88)*	-0.20 (0.86)	-0.18 (0.86)*	-0.18 (0.86)
	Cigarette smoking status	0.07 (2.88)	0.10 (2.79)	0.12 (2.75)	-0.11 (2.73)	0.11 (2.75)
Step 2	Racial Discrimination		0.30 (0.11)**	0.25 (0.11)**	0.26 (0.11)**	0.23 (0.09)*
	Self-reported Cultural Group Identity		0.003 (0.40)	-0.006 (0.39)	0.009 (0.39)	0.01 (0.39)
	Respondent spent Majority of life U.S. vs. Elsewhere		0.10 (1.25)	0.27 (1.54)	0.23 (1.55)	0.24 (1.56)
Step 3	Nativity			-0.27 (1.32)	-0.25 (1.31)	-0.25 (1.32)
Step 4	FCGI				-0.17 (0.06)*	-0.15 (0.06)*
Step 5	FCGI X Racial Discrimination					0.05 (0.09)
	Adjusted $R^2$	0.03	0.11*	0.15**	0.17**	0.16**
	$\Delta R^2$	0.005	0.00003	0.03*	0.03*	0.03

Abbreviations.  $\beta$ , Standardized beta weight; SE, Standard Error  
\* $P < 0.05$ , \*\* $P < 0.01$

**Table 18.** Standardized Regression Coefficients of Self-rated health on Nativity, Perceived Stress, FCGI, Controls, and Post Hoc Variables (n = 176)

Characteristic		Model 1	Model 2	Model 3	Model 4	Model 5
		$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
Step 1	Age	-0.02 (0.02)	-0.05 (0.02)	-0.06 (0.02)	-0.06 (0.02)	-0.07 (0.02)
	Single vs Married	-0.02 (0.22)	-0.0002 (0.23)	-0.007 (0.22)	-0.0009 (0.22)	-0.02 (0.22)
	Education	0.19 (0.11)	0.22 (0.23)*	0.21 (0.12)	0.17 (0.12)	0.16 (0.12)
	Cigarette smoking status	-0.06 (0.37)	-0.07 (0.37)	-0.09 (0.37)	-0.06 (0.37)	-0.05 (0.37)
Step 2	Racial Discrimination		-0.21 (0.01)	-0.18 (0.01)	-0.12 (0.01)	-0.14 (0.01)
	Self-reported Cultural Group Identity		0.03 (0.05)	0.04 (0.05)	0.04 (0.05)	0.03 (0.05)
	Where respondents have spent Majority of life (U.S.) vs. Elsewhere		-0.009 (0.17)	-0.13 (0.21)	-0.07 (0.21)	-0.05 (0.21)
Step 3	Nativity			0.20 (0.18)	0.13 (0.18)	0.12 (0.18)
Step 4	Perceived Stress				-0.22 (0.01)**	-0.21 (0.01)*
Step 5	FCGI					0.11 (0.01)
	Adjusted $R^2$	0.018	0.05*	0.06*	0.10*	0.11*
	$\Delta R^2$	0.004	0.00007	0.02*	0.04**	0.01

Abbreviations.  $\beta$ , Standardized beta weight; SE, Standard Error  
\* $P < 0.05$ , \*\* $P < 0.01$

## References

- <sup>1</sup> Hruschka DJ. Culture as an explanation in population health. *Ann Hum Biol.* 2009;36(3):235-247.
- <sup>2</sup> Mezzich JE, Ruiperez MA, Yoon G, Liu J, Zapata-Vega MI. Measuring cultural identity: Validation of a modified Cortes, Rogler and Malgady Bicultural Scale in three ethnic groups in New York. *Cult Med Psychiatry.* 2009;33(3):451-472.
- <sup>3</sup> Eckersley R. Is modern Western culture a health hazard. *Int J Epidemiol.* 2006;35(2):252-258.
- <sup>4</sup> Unger JB. Cultural identity and public health. In: SJ Schwartz, K Luyckx, VL Vignoles, eds. *Handbook of Identity Theory and Research.* New York, NY: Springer; 2011:811-825
- <sup>5</sup> Kent MM. Immigration and America's Black Population. <http://www.prb.org/pdf07/62.4immigration.pdf>. Published 2007. Accessed July 3, 2012.
- <sup>6</sup> U.S. Census Bureau, Current Population Survey. Nativity and Citizenship Status by Sex, for Black Alone and White Alone, Not Hispanic: 2011. <https://www.census.gov/population/race/data/pp1-ba11.html>. Accessed February 1, 2013.
- <sup>7</sup> LaVeist TA. Beyond dummy variables and sample selection: what health services researchers ought to know about race as a variable. *Health Serv Res.* 1994;29(1):1-16.
- <sup>8</sup> Read GJ, Emerson MO, Tarlov A. Implications of Black Immigrant Health for U.S. Racial Disparities in Health. *J Immigr Health.* 2005;7(3):205-212.
- <sup>9</sup> Cooper R. A note on the biological concept of race and its application in epidemiologic research. In: LaVeist T, ed. *Race, Ethnicity, and Health.* San Francisco: Jossey Bass; 2000:99–114.
- <sup>10</sup> Rivers NM. No Longer Sojourners: The Complexities of Racial Ethnic Identity, Gender, and Generational Outcomes for Sub-Saharan Africans in the USA. *Int J Popul Res* 2012. <http://dx.doi.org/10.1155/2012/973745>
- <sup>11</sup> Duany J. Reconstructing racial identity: Ethnicity, color, and class among Dominicans in the United States and Puerto Rico. *Lat Am Perspect.* 1998;25(3):147–172.
- <sup>12</sup> Woldemikael TM. *Becoming Black American: Haitians and American Institutions* in Evanston, Illinois. New York: AMS Press; 1989.
- <sup>13</sup> Cerulo KA. Identity construction: new issues, new directions. *Annu Rev Sociol.* 1997;23:385–409.
- <sup>14</sup> Waters MC. Ethnic and racial identities of second generation black immigrants in New York City. *Int Migr Rev.* 1994;28:795–820.
- <sup>15</sup> Jasso G, Massey DS, Rosenzweig MR, Smith JP: Immigrant Health: Selectivity and Acculturation. In: Anderson NB, Bulatao RA, Cohen B, eds. *Critical Perspectives on Racial and Ethnic Differences in Health in Late Life, Panel on Race, Ethnicity, and Health in Later Life.* National Research Council. National Academy Press; 2004:27-266.
- <sup>16</sup> Dey AN, JW Lucas. Physical and Mental Health Characteristics of U.S.- and Foreign-born Adults: United States, 1998-2003. *Advance Data.* 2006; 369:1-19.
- <sup>17</sup> Singh GK, Siahpush M. All-cause and cause-specific mortality of immigrants and native born in the United States. *Am J Public Health.* 2001; 91(3):392-399.
- <sup>18</sup> Singh GK, Yu SM. Adverse pregnancy outcomes: differences between US- and foreign born women in major US racial and ethnic groups. *Am J Public Health.* 1996;86(6):837–843.

- <sup>19</sup> Singh GK, Yu SM. Pregnancy outcomes among Asian Americans. *Asian Am Pac Isl J Health*. 1993;1(1):63–78.
- <sup>20</sup> Guendelman S, Gould JB, Hudes M, Eskenazi B. Generational differences in perinatal health among the Mexican American population: findings from HHANES 1982–84. *Am J Public Health*. 1990;80(suppl):61–65.
- <sup>21</sup> David R, Collins J. Differing Birth Weight among Infants born of U.S.-born Blacks, African-born Blacks, and U.S.-born Whites. *N Engl J Med*. 1997;337(17):1209-14.
- <sup>22</sup> Cho Y, Frisbie WP, Hummer RA, Rogers RG. Nativity, Duration of Residence, and the Health of Hispanic Adults in the United States. *Int Migr Rev*. 2004;38(1):184–211.
- <sup>23</sup> Messias DK, Rubio M. Immigration and health. *Annu Rev Nurs Res*. 2004;22(1):101–134.
- <sup>24</sup> Kennedy S, McDonald JT, Biddle N. Kennedy S. The Healthy Immigrant Effect and Immigrant Selection: Evidence from Four Countries. SEDAP, Research Paper. 2006:164.
- <sup>25</sup> Finch BK, Vega WA. Acculturation stress, social support, and self-rated health among Latinos in California. *J Immigrant Health*. 2003;5(3):109–117.
- <sup>26</sup> Guendelman S, English PB. Effect of United States residence on birth outcomes among Mexican immigrants: an exploratory study. *Am J Epidemiol*. 1995;142(9):30–S38.
- <sup>27</sup> Hummer RA, Rogers RG, Nam CB, LeClere FB. Race/Ethnicity, Nativity, and U.S. Adult Mortality. *Soc Sci Q*. 1999;80(1):136-153.
- <sup>28</sup> Antecol H, Bedard K. Unhealthy Assimilation: Do Immigrants Converge to American Health Status Levels? *Demography*. 2006;43(2):337–360.
- <sup>29</sup> Lara M, Gamboa C, Kahramanian MI, Morales LS, Bautista DE. Acculturation and Latino health in the United States: a review of the literature and its sociopolitical context. *Annu Rev Public Health*. 2005;26:367-97.
- <sup>30</sup> Abraido-Lanza AF, Chao MT, Florez KR. Do healthy behaviors decline with greater acculturation?: Implications for the Latino mortality paradox. *Soc Sci Med*. 2005;61(6):1243-1255.
- <sup>31</sup> Goel M, McCarthy E, Phillips R, Wee C. Obesity Among US Immigrant Subgroup by Duration of Residence. *JAMA*. 2004;292(23):2860-2867.
- <sup>32</sup> Read JG, Emerson MO. Racial Context, Black Immigration and the U.S. Black/White Health Disparity. *Soc Forces*. 2005;84(1):181-199.
- <sup>33</sup> Elo I, Mehta N, Huang C. Health of Native-born and Foreign-born Black residents in the United States: Evidence from the 2000 census of population and the National Health Interview Survey. [http://repository.upenn.edu/parc\\_working\\_papers/17/](http://repository.upenn.edu/parc_working_papers/17/). Accessed March 4, 2011.
- <sup>34</sup> Hamilton TG, Hummer RA. Immigration and the health of US black adults: does country of origin matter? *Soc Sci Med*. 2011;73(10):1551-1560.
- <sup>35</sup> Phinney JS. The Multigroup Ethnic Identity Measure: A new scale for use with adolescents and youth adults from diverse groups. *J Adolesc Res*. 1992;7(2):156–176.
- <sup>36</sup> Dressler WD, Oths KS, Gravlee CC. Race and ethnicity in public health research: models to explain health disparities. *Annu Rev Anthropol*. 2005; 34: 231-252.
- <sup>37</sup> UNESCO 2002 Universal Declaration on Cultural Diversity. Published February 2002. [http://www.unesco.org/education/imld\\_2002/universal\\_decla.shtml#2](http://www.unesco.org/education/imld_2002/universal_decla.shtml#2). Accessed July 30, 2012.

- <sup>38</sup> Sellers R, Smith M, Shelton J, Rowley S, Chavous T. Multidimensional model of racial identity: A reconceptualization of African American racial identity. *Pers Soc Psychol Rev.* 1998;2(1):18-39.
- <sup>39</sup> Joseph N, Watson NN, Wang Z, Case AD, Hunter CD. Rules of Engagement: Predictors of Black Caribbean Immigrants' Engagement With African American Culture. *Cultur Divers Ethnic Minor Psychol.* 2013;19(4):414-423.
- <sup>40</sup> Stryker S. Identity Theory: Developments and Extentions. In: K Yardley, T. Honess eds. *Self and Identity: Psychosocial perspectives.* New York: Wiley; 1987.
- <sup>41</sup> Commission on Social Determinants of Health. Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health. Final Report of the Commission on Social Determinants of Health; World Health Organization. Published 2008. [http://whqlibdoc.who.int/publications/2008/9789241563703\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241563703_eng.pdf). Accessed March 13, 2013.
- <sup>42</sup> Stryker S. Identity salience and role performance: The importance of symbolic interaction theory for family research. *J Marriage Fam.* 1968;30(4):558-564.
- <sup>43</sup> Burke PJ, Reitzes DC. The link between identity and role performance. *Soc Psychol Q.* 1981;53(2):559-568.
- <sup>44</sup> Stryker S, Serpe RT. Identity salience and psychological centrality: Equivalent, overlapping, or complementary concepts? *Soc Psychol Q.* 1994;57(1):16-35.
- <sup>45</sup> Rane TR, McBride BA. Identity Theory as a Guide to Understanding Fathers' Involvement With Their Children. *J Fam Issues.* 2000;21(3):347-366.
- <sup>46</sup> Rosenberg M. *Conceiving the Self.* Malabar, FL: RE Krieger; 1979.
- <sup>47</sup> Scottham KM, Sellers RM, Nguyễn HX. A measure of racial identity in African American adolescents: the development of the Multidimensional Inventory of Black Identity-Teen. *Cultur Divers Ethnic Minor Psychol.* 2009;14(4):297-306.
- <sup>48</sup> Phinney J, Horenczyk G, Liebkind K, Vedder P. Ethnic identity, immigration, and well-being: An interactional perspective. *J Soc Issues.* 2001;57(3):493-510.
- <sup>49</sup> Marmot MG, Leonard SS. Acculturation and Coronary Heart Disease in Japanese-Americans. *Am J Epidemiol.* 1976;104(3):225-47.
- <sup>50</sup> Franzini L, Fernandez-Esquer ME. Socioeconomic, cultural, and personal influences on health outcomes in low income Mexican-origin individuals in Texas. *Soc SciMed.* 2004;59(8):1629-1646.
- <sup>51</sup> Gil A, Wagner E, Vega W. Acculturation, familism and alcohol use among Latino adolescent males: Longitudinal relations. *J Community Psychol.* 2000;28:443-458.
- <sup>52</sup> Unger JB, Reynolds K, Shakib S, Spruijt-Metz D, Sun P, Johnson CA. Acculturation, physical activity, and fast food consumption among Asian American and Hispanic adolescents. *J Community Health.* 2004;29(6):467-481.
- <sup>53</sup> Department of Homeland Security. Definition of Terms. <http://www.dhs.gov/definition-terms#8>. Accessed July 21, 2012
- <sup>54</sup> U.S. Census Bureau. <http://www.census.gov/population/foreign/about/>. Accessed on July 21 2012.
- <sup>55</sup> UN Department of Economic and Social Affairs/Population Division. International Migration Report 2002. <http://www.un.org/esa/population/>publications/ittmig2002/2002ITTMIGTEXT22-11.pdf>. Accessed February 20, 2011.

- <sup>56</sup> U.S. Census. Statistical Abstract of the United States, 1993. Washington, DC: US Bureau of the Census; 1993.
- <sup>57</sup> Lollock L. The Foreign-Born Population in the United States: March 2000. Current Population Reports, P20-534. 2001. US Census Bureau. <http://www.census.gov/prod/2000pubs/p20-534.pdf>. Accessed February 20, 2011.
- <sup>58</sup> Patten E. Statistical Portrait of the Foreign-Born Population in the United States, 2010. Washington, DC: Pew Research Center; 2012.
- <sup>59</sup> Schmidley A, Gibson C. U.S. Census Bureau, Current Population Reports. Profile of the Foreign-Born Population in the United States:1997. Washington, DC: U.S. Government Printing Office; 1999.
- <sup>60</sup> Grieco EM, Acosta YD, de la Cruz GP, et al. The Foreign-Born population in the United States: 2010. American Community Survey Report. US Census Bureau. <http://www.census.gov/prod/2012pubs/acs-19.pdf> . Accessed January 11, 2010.
- <sup>61</sup> U.S. Census Bureau, Current Population Survey 2012. Accessed on February 1, 2013.
- <sup>62</sup> Cohen R. Cultural Diaspora: The Caribbean Case. In: Chamberlain M, ed. *Caribbean Migration: Globalized Identities*. London: Routledge; 1998:222-237.
- <sup>63</sup> Department of Homeland Security. Yearbook of Immigration Statistics. Refugees and Asylees: 2012. [http://www.dhs.gov/sites/default/files/publications/ois\\_rfa\\_fr\\_2012.pdf](http://www.dhs.gov/sites/default/files/publications/ois_rfa_fr_2012.pdf). Accessed May 15, 2013.
- <sup>64</sup> Lobo PA. Unintended consequences: liberalized US immigration law and the African brain drain. In: Konadu-Agyemang K, Takyi BK, Arthur J, eds. *The African Diaspora in North Africa: Trends, Community, Building, and Adaptation*. Lanham, MD: Lexington Books; 2006:189–289.
- <sup>65</sup> Sellers RM, Caldwell C, Schmeelk-Cone KH, Zimmerman MA. Racial Identity, Racial Discrimination, Perceived Stress and Psychological Distress among African American Young adults. *J Health Soc Behav*. 2003;44(3):302-317.
- <sup>66</sup> Thompson SN, Chambers JW. African self-consciousness and health-promoting behavior among college students. *J Black Psychol*. 2000;26(3): 330-345.
- <sup>67</sup> Chambers JW, Kambon K, Birdsong BD, Brown J, Dixon P, Robbins-Brinson L. Africentric cultural identity and the stress of African American college students. *J Black Psychol*. 1998;24(3):368-396.
- <sup>68</sup> Yap SCY, Settles IH, Pratt-Hyatt JS. Mediators of the relationship Between Racial Identity and Life Satisfaction in A community Sample of African American Women and Men. *Cultur Divers Ethnic Minor Psychol*. 2011;17(1):89-97.
- <sup>69</sup> Sellers RM, Shelton JN. The role of racial identity in perceived racial discrimination. *J Pers Soc Psychol*. 2003;84(5):1079–1092.
- <sup>70</sup> Fuligni AJ, Witkow MR, Garcia C. Ethnic identity and the academic adjustment of adolescents from Mexican, Chinese, and European backgrounds. *Dev Psychol*. 2005;41(5):799–811.
- <sup>71</sup> Rivas-Drake D, Hughes D, Way N. A preliminary analysis of associations among ethnic-racial socialization, ethnic discrimination, and ethnic identity among diverse urban sixth graders. *J Res Adolesc*. 2009;19(3):558–584.
- <sup>72</sup> Rivas-Drake D. Ethnic-racial socialization and adjustment among Latino college students: The mediating roles of ethnic centrality, public regard, and perceived barriers to opportunity. *J Youth Adolesc*. 2011;40(5):606–619.



- <sup>73</sup> Kiang L, Yip T, Fuligni AJ. Multiple social identities and adjustment in young adults from ethnically diverse backgrounds. *J Res Adolesc.* 2008;18(4):643-670.
- <sup>74</sup> Benson JE. Exploring the racial identities of black immigrants in the United States. *Sociol Forum.* 2006;21(2):219–247.
- <sup>75</sup> Herd D, Grube J. Black identity and drinking in the US: A national study. *Addiction.* 1996;91(6):845-857.
- <sup>76</sup> Airhihenbuwa CO, Kumanyika S, Agurs TD, Lowe A, Saunders D, Morssink CB. Cultural aspects of African American eating patterns. *Ethn Health.* 1996;1(3):245-260.
- <sup>77</sup> Bediako SM, Kwate NOA, Rucker R. Dietary behavior among African Americans: Assessing cultural identity and health consciousness. *Ethn Health.* 2004;14(4):527-532.
- <sup>78</sup> Matute-Bianchi ME. Situational ethnicity and patterns of school performance among immigrant and non-immigrant Mexican-descent students. In: Gibson MA, Ogbu JU, eds. *Minority Status and Schooling: A Comparative Study of Immigrant and Involuntary.* New York: Taylor and Francis; 1991:205-247.
- <sup>79</sup> Dinh KT, Roosa MW, Tein JY, Lopez VA. The relationship between acculturation and problem behavior proneness in a Hispanic youth sample: A longitudinal mediation model. *J Abnorm Child Psychol.* 2002; 30(3):295–309.
- <sup>80</sup> Angel JL, Angel RJ. Age at migration, social connections, and well-being among elderly Hispanics. *J Aging Health.* 1992;4(4):480–499.
- <sup>81</sup> Colón-López V, Haan MN, Aiello AE, Ghosh D. The effect of age at migration on cardiovascular mortality among elderly Mexican immigrants. *Ann Epidemiol.* 2009;19(1):8–14.
- <sup>82</sup> Rumbaut RG. Ages, life stages, and generational cohorts: Decomposing the immigrant first and second generations in the United States. *IntMigr Rev.* 2004;38(3):1160-1205.
- <sup>83</sup> Rumbaut RG. Immigration, incorporation, and generational cohorts in historical contexts. In: Schaie KW, Elder G, eds. *Historical influences on lives and aging.* New York, NY: Springer Publishing Company; 2005:43-88.
- <sup>84</sup> Kimbro RT. Acculturation in context: Gender, age at migration, neighborhood ethnicity, and health behaviors. *Soc Sci Q.* 2009;90(5):1145–1166.
- <sup>85</sup> Acevedo-Garcia D, Soobader M, Berkman LF. The differential effect of foreign-born status on low birth weight by race/ethnicity and education. *Pediatrics.* 2005;115(1):20-30.
- <sup>86</sup> Hummer RA, Biegler M, DeTurk PB. Race/ethnicity, nativity, and infant mortality in the United States. *Soc Forces.* 1999;77(3):1083–1118.
- <sup>87</sup> Baker AN, Hellerstedt WL. Residential racial concentration and birth outcomes by nativity: do neighborhoods matter? *J Natl Med Assoc.* 2006;98(2):172–180.
- <sup>88</sup> Cabral H, Fried LE, Levenson S, Amaro H, Zuckerman B. Foreign-born and US-born Black women: differences in health behaviors and birth outcomes. *Am J Public Health.* 1990;80(1):70–72.
- <sup>89</sup> Kleinman JC, Fingerhut LA, Prager K. Differences in infant mortality by race, nativity status, and other maternal characteristics. *Am J Dis Child.* 1991;145(2):194–199.
- <sup>90</sup> Bhugra D. Migration and mental health. *Acta Psychiatr Scand.* 2004; 109(4):243–258.
- <sup>91</sup> Grant BF, Stinson FS, Hasin DS, Dawson DA, Chou SP, Anderson K. Immigration and lifetime prevalence of DSM-IV psychiatric disorders among Mexican Americans and non-Hispanic whites in the United States: results from the National Epidemiologic



Survey on Alcohol and Related Conditions. *Arch Gen Psychiatry*. 2004; 61(12):1226–1233.

<sup>92</sup> Alegria M, Canino G, Stinson FS, Grant BF. Nativity and DSM-IV psychiatric disorders among Puerto Ricans, Cuban Americans, and non-Latino whites in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *J Clin Psychiatry*. 2006; 67(1):56–65.

<sup>93</sup> Bzostek S, Goldman N, Pebley A. Why do Hispanics in the USA report poor health? *Soc Sci Med*. 2007;65(5):990–1003.

<sup>94</sup> Mui AC, Kang SY. Acculturation stress and depression among Asian immigrant elders. *Social Work*. 2006;51(3):243–255.

<sup>95</sup> Singh GK, Hiatt RA. Trends and disparities in socioeconomic and behavioural characteristics, life expectancy, and cause-specific mortality of native-born and foreign-born populations in the United States, 1979–2003. *Int J Epidemiol*. 2001;35(4): 903–919.

<sup>96</sup> Muennig P, Fahs MC. Health status and hospital utilization of recent immigrants to New York City. *Prev Med*. 2002;35(3):225–231.

<sup>97</sup> Cho Y, Hummer R. Disability Status Differentials across Fifteen Asian and Pacific Islander Groups and Effect of Nativity and Duration of Residence in the U.S. *Soc Biol*. 2001;48(3-4):171-95.

<sup>98</sup> Singh GK, Siahpush M. Ethnic-immigrant Differentials in Health Behaviors, Morbidity, and Cause-specific Mortality in the United States: An Analysis of Two National Data Bases. *Hum Biol*. 2002;74(1):83-109.

<sup>99</sup> Pallotto EK, Collins JW, David RJ. Enigma of maternal race and infant birth weight: a population based study of US-born Black and Caribbean-born Black women. *Am J Epidemiol*. 2000;151(11):1080–1085.

<sup>100</sup> Howard DL, Marshall SS, Kaufman JS, Savitz DA. Variations in Low Birth Weight and Preterm Delivery Among Blacks in Relation to Ancestry and Nativity: New York City, 1998–2002. *Pediatrics*. 2006;118(5):1399-1405.

<sup>101</sup> Lucas JW, Barr-Anderson DJ, Kington RS. Health Status, Health Insurance, and Health Care Utilization Patterns of Immigrant Black Men. *Am J Public Health*. 2003;93(10):1740-1747.

<sup>102</sup> Acevedo-Garcia D, Bates LM, Osypuk TL, McArdle N. The Effect of Immigrant Generation and Duration on Self-Rated Health Among US Adults 2003-2007. *Soc Sci Med*. 2010;71(6):1161-1172.

<sup>103</sup> Krieger N, Kosheleva A, Waterman PD, Chen JT, Koenen K. Racial discrimination, psychological distress, and self-rated health among US-born and foreign-born black Americans. *Am J Public Health*. 2011;101(9):1704-1713.

<sup>104</sup> Griffith DM., Johnson JL, Zhang R, Neighbors HW, Jackson JS. Ethnicity, nativity, and the health of American Blacks. *J Health Care Poor Underserved*. 2011;22(1):142-156.

<sup>105</sup> Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav*. 1983;24:385-396

<sup>106</sup> Geronimus AT, Thompson JP. To denigrate, ignore, or disrupt: racial inequality in health and impact of a policy-induced breakdown of Black American communities. *Du Bois Rev*. 2004;1(2):247–79.

<sup>107</sup> Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: findings from community studies. *Am J Public Health*. 2003;93(2):200–8.

- <sup>108</sup> Williams DR. Race, Stress, and Mental Health: Findings from the Commonwealth Minority Health Survey. In: Hogue C, Hargraves MA, Collins KS, eds. *Minority Health in America: Findings and Policy Implication From the Commonwealth Fund Minority Health Survey*. Baltimore, MD: Johns-Hopkins University Press; 2000:209-243.
- <sup>109</sup> Lashley M. The unrecognised social stressors of migration and reunification in Caribbean families. *Transcult Psychiatry* 2000;37(2):201-16.
- <sup>110</sup> Nwadiora E. Alienation and stress among black immigrants. An exploratory study. *West J Black Stud*. 1995;19(1):58-69.
- <sup>111</sup> Akresh IR, Frank R. Health Selection Among New Immigrants. *Am J Public Health*. 2008;98(11):2058-2064.
- <sup>112</sup> Cuellar I, Bastida E, Braccio SM. Residency in the United States, subjective well-being, and depression in an older Mexican-origin sample. *J Aging Health*. 2004;16(4):447-66.
- <sup>113</sup> Jasso G, Massey DS, Rosenzweig MR, Smith JP. Immigration, health, and New York City: early results based on the US New Immigrant Cohort of 2003. *Econ Policy Rev*. 2005;11(2):127-151.
- <sup>114</sup> Hummer RA, Rogers RG. Adult mortality differentials among Hispanic subgroups and non-Hispanic whites. *Soc Sci Q*. 2000;81(1):459-76.
- <sup>115</sup> Arcia E, Skinner M, Bailey D, Correa V. Models of acculturation and health behaviors among Latino immigrants to the US. *Soc Sci Med*. 2001;53(1):41-53.
- <sup>116</sup> Marks G, Garcia M, Solis JM. Health risk behaviors of Hispanics in the United States: Findings from HHANES, 1982-84. *Am J Public Health*. 1990;80(Suppl):20-26.
- <sup>117</sup> Tucker KL, Falcon LM. Nutrition among Hispanic elders in the United States. In: Markides KS, Miranda MR, eds. *Minorities, health and aging*. Thousand Oaks, CA: Sage; 1997.
- <sup>118</sup> Fang J, Madhavan S, Alderman MH. Low Birth Weight: Race and Maternal Nativity – Impact of Community Income. *Pediatrics*. 1999;103(1):1-6.
- <sup>119</sup> Kelaher M, Jessop DJ. Differences in low-birthweight among documented and undocumented foreign-born and US-born Latinas. *Soc Sci Med*. 2002;55(12):2171-2175.
- <sup>120</sup> Vega WA, Amaro H. Latino outlook: Good health, uncertain prognosis. *Annu Rev Public Health*. 1994;15(1):39-67.
- <sup>121</sup> Evenson KR, Sarmiento OL, Ayala GX. Acculturation and physical activity among North Carolina Latina immigrants. *Soc Sci Med*. 2004;59(12):2509-2522.
- <sup>122</sup> Frisbie WP, Cho Y, Hummer RA. Immigration and the health of Asian and Pacific Islander adults in the United States. *Am J Epidemiology*. 2001;153(4): 372-80.
- <sup>123</sup> Liu H, Umberson D. The Times They Are a Changin': Marital Status and Health Differentials from 1972 to 2003. *J Health Soc Behav*. 2008;49(3):239-53.
- <sup>124</sup> Prus SG. Comparing social determinants of self-rated health across the United States and Canada. *Soc Sci Med*. 2011;73(1): 50-59.
- <sup>125</sup> Franks P, Gold MR, Kevin F. Sociodemographics, self-rated health, and mortality in the US. *Soc Sci Med*. 2003;56(12):2505-2514.
- <sup>126</sup> King G, Polednak AP, Bendel R, Hovey D. Cigarette smoking among native and foreign-born Blacks. *Ann. Epidemiol*. 1999; 9(4):236-244.
- <sup>127</sup> Cohen S. Social Relationships and Health. *Am Psychol*. 2004;59(4865):676-84.

- <sup>128</sup> Rohrer JE, Bernard ME, Zhang Y, Rasmussen NH, Woroncow H. Marital Status, Feeling Depressed and Self-rated Health in Rural Female Primary Care Patients. *J Eval Clin Pract.* 2008;14(2):214–17.
- <sup>129</sup> Cunningham WE, Hays RD, Burton TM, Kington RS. Health status measurement performance and health status differences by age, ethnicity, and gender : Assessment in the Medical Outcomes Study. *J Health Care Poor Underserved.* 2000;11(1):58-76.
- <sup>130</sup> Hamarat DT, Zabrocky KM, Steele D, Matheny KB, Aysan F. Perceived stress and coping resource availability as predictors of life satisfaction in young, middle-aged, and older adults. *Exp Aging Res.* 2001;27(2):181-196.
- <sup>131</sup> Almeida DM., Horn MC. Is daily life more stressful during middle adulthood? In: Brim OG, Ryff CD, Kessler RC, eds. *How healthy are we? A national study of well-being at midlife.* Chicago: The University of Chicago Press; 2004:425-451.
- <sup>132</sup> Arthur CM, Katkin ES. Making a case for the examination of ethnicity of Blacks in United States health research. *J Health Care Poor Underserved.* 2006;17(1): 25-36.
- <sup>133</sup> Lopez R. Income inequality and self-rated health in US metropolitan areas: a multi-level analysis. *Soc Sci Med.* 2004;59(12):2409-2419.
- <sup>134</sup> Fernander A, Schumacher M. An examination of socio-culturally specific stress and coping factors on smoking status among African American women. *Stress Health.* 2008;24(5): 365-374.
- <sup>135</sup> Jarvis M, Wardle, J. Social patterning of individual health behaviors: The case of cigarette smoking. In: Marmot M, Wilkinson RG, eds. *Social determinants of health.* New York: Oxford University Press; 2003: 240–255.
- <sup>136</sup> Stephen EH, Foote K, Hendershot GE, Schoenborn CA. Health of the foreign-born population: United States, 1989–90. *Adv Data.* 1994;241:14:1–12.
- <sup>137</sup> Cohen J. A power primer. *Psychological Bulletin.* 1992; 112(1):155-159.
- <sup>138</sup> Kiang L, Perreira K, Fuligni AJ. Ethnic label use in adolescents from traditional and non-traditional immigrant communities. *J Youth Adolesc.* 2011;40(6):719–729.
- <sup>139</sup> Johnson TM, Kurpius SER, Rayle AD, Arredondo P, Tovar-Gamero ZG. The multidimensional Inventory of Black identity: its use with Euro American, Latino, and Native American undergraduates. *Meas Eval Couns Dev.* 2005;38(2):92-104.
- <sup>140</sup> Lazarus RS. *Psychological stress and the coping process.* New York: McGraw; 1966
- <sup>141</sup> Cohen S, Williamson G. Perceived stress in a probability sample of the U.S. In: Spacapan S, Oskamp S, eds. *The social psychology of health: Claremont Symposium on Applied Social Psychology.* 1988. Newbury Park, CA: Sage; 1988: 31-67.
- <sup>142</sup> Roberti JW, Harrington LN, Storch EA. Further Psychometric Support for the 10-Item Version of the Perceived Stress Scale. *J Coll Counsel.* 2006;9(2):135-147.
- <sup>143</sup> Orucu MC, Demir A. Psychometric evaluation of perceived stress scale for Turkish university students. *Stress Health.* 2008;25(1):103-109.
- <sup>144</sup> Haritatos J, Mahalingam R, James SA. John Henryism, self-reported physical health indicators, and the mediating role of perceived stress among high socio-economic status Asian immigrants. *Soc Sci Med* 2007;64(6):1192-1203.
- <sup>145</sup> Chaaya M, Osman H, Naassan G, Mahfoud Z. Validation of the Arabic version of the Cohen Perceived Stress Scale (PSS-10) among pregnant and postpartum women. *BMC Psychiatry.* 2010;10:91-111.
- <sup>146</sup> Centers for Disease Control and Prevention (CDC). National Center for Health Statistics (NCHS). National Health and Nutrition Examination Survey Data. Hyattsville,

MD: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

<sup>147</sup> Williams DR, Yu Y, Jackson JS, Anderson NB. Racial Differences in Physical and Mental Health: Socioeconomic Status, Stress, and Discrimination. *J Health Psychol.* 1997; 2(3):335-351.

<sup>148</sup> Krieger N, Smith K, Naishadham D, Hartman C, Barbeau EM. Experiences of discrimination: validity and reliability of a self-report measure for population health research on racism and health. *Soc Sci Med.* 2005; 61(7):1576-1596.

<sup>149</sup> Taylor TR, Kamarck TW, Shiffman S. Validation of the Detroit area study discrimination scale in a community sample of older African American adults: the Pittsburgh healthy heart project. *Int J Behav Med.* 2004; 11(2):88-94.

<sup>150</sup> Mays VM, Cochran SD, Barnes NW. Race, race-based discrimination, and health outcomes among African Americans. *Ann Rev of Psych.* 2007;58:201-225.

<sup>151</sup> Klonoff EA, Landrine H. Is skin color a marker for racial discrimination? Explaining the skin color-hypertension relationship. *J Behav Med.* 2000; 23(4):329-38.

<sup>152</sup> Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans: A biopsychosocial model. *Am Psychol.* 1999; 54(10):805-16.

<sup>153</sup> Paradies Y. A systematic review of empirical research on self-reported racism and health. *Int J Epidemiol.* 2006; 35(4):888-901.

<sup>154</sup> Finch BK, Hummer RA, Bohdan K, Vega WA. The Role of Discrimination and Acculturative Stress in the Physical Health of Mexican-Origin Adults. *Hisp J of Behav Sci.* 2001;23(3):339-429.

<sup>155</sup> Waters MC. *Black Identities: West Indian Immigrant Dreams and American Realities.* New York, NY: Russell Sage Foundation; 2001.

<sup>156</sup> Hunter CD. Individualistic and collectivistic worldviews: implications for understanding perceptions of racial discrimination in African Americans and British Caribbean Americans. *J Couns Psychol.* 2008;55(3):321-332.

<sup>157</sup> Dominguez TP, Strong EF, Krieger N, Gillman MW, Rich-Edwards JW. Differences in the self-reported racism experiences of US-born and foreign-born black pregnant women. *Soc Sci Med.* 2009;69(2):258-265.

<sup>158</sup> Jones CP, Truman BI, Elam-Evans LD, Jones CA, Jones CY, et al. Using "socially assigned race" to probe white advantages in health status. *Ethn Dis.* 2008;18:496-504.

<sup>159</sup> MacIntosh T, Desai MM, Lewis TT, Jones BA, Nunez-Smith M. Socially-Assigned Race, Healthcare Discrimination and Preventive Healthcare Services. *PloS one.* 2013;8(5):e64522.