

St. John's University

St. John's Scholar

Theses and Dissertations

2021

AN ANALYSIS OF EDUCATION AS A MODERATOR OF THE RELATIONSHIP OF DISCRIMINATION TO DEPRESSION

Jeavonna M. Coble

Saint John's University, Jamaica New York

Follow this and additional works at: https://scholar.stjohns.edu/theses_dissertations



Part of the [Psychology Commons](#)

Recommended Citation

Coble, Jeavonna M., "AN ANALYSIS OF EDUCATION AS A MODERATOR OF THE RELATIONSHIP OF DISCRIMINATION TO DEPRESSION" (2021). *Theses and Dissertations*. 235.

https://scholar.stjohns.edu/theses_dissertations/235

This Thesis is brought to you for free and open access by St. John's Scholar. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of St. John's Scholar. For more information, please contact fazzinol@stjohns.edu.

AN ANALYSIS OF EDUCATION AS A MODERATOR OF THE RELATIONSHIP
OF DISCRIMINATION TO DEPRESSION

A thesis submitted in partial fulfillment
of the requirements for the degree of

MASTER OF ARTS

to the faculty of the

DEPARTMENT OF PSYCHOLOGY

of

ST. JOHN'S COLLEGE OF LIBERAL ARTS AND SCIENCES

at

ST. JOHN'S UNIVERSITY

New York

by

Jeavonna Coble

Date Submitted _____

Date Approved _____

Jeavonna Coble

Elizabeth Brondolo, Ph.D.

© Copyright by Jeavonna Coble 2021

All Rights Reserved

ABSTRACT

AN ANALYSIS OF EDUCATION AS A MODERATOR OF THE RELATIONSHIP OF DISCRIMINATION TO DEPRESSION

Jeavonna Coble

Racism has been observed as a highly prevalent psychosocial stressor across minorities, and consistently associated with depression across racial/ethnic groups. However, existing evidence is unclear on effective buffers of discrimination to depression. Researchers have hypothesized that education may mitigate discrimination's effects on negative mental health outcomes. Evidence evaluating education as a buffer on the relations of discrimination to depression is limited. The analysis is further complicated as the evidence linking education level to discrimination exposure is also mixed. Although some studies indicate lower education levels are associated with greater perceived racism, many studies indicate an association of higher education with higher levels of discrimination. Therefore, it remains unclear if education is a risk or protective factor against discrimination and the mental health sequelae of discrimination. The aim of the study is to examine education as a moderator of the relations of discrimination to depression in three samples: a sample of adults from diverse racial and ethnic backgrounds from New York City (NYC) (n = 400); a sample of Black adults from NYC (n = 330), and a sample of American Indians/Alaskan Native adults from Colorado (n = 298). Analyses examined interactions between education and discrimination in three studies. Results indicated a link between discrimination and depression in all three samples, which is consistent with previous literature. Education was associated with discrimination only in the AI/AN sample, with more highly educated individuals reporting more discrimination.

Education only showed moderating effects in the diverse sample. Those with higher levels of education displayed smaller effects of discrimination on depression than those with lower levels of education. These findings suggest that the cognitive and social resources provided by education are not sufficient to offset the mental health effects of discrimination consistently. Further research should seek to identify possible buffers of this relationship.

ACKNOWLEDGEMENTS

I would like to thank Dr. Elizabeth Brondolo for being my mentor and guiding me through this research and thesis writing. I am thankful for her patience with me and her help growing my writing abilities, research skills, and overall academic abilities. I am very appreciative of my second reader, Dr. Dana Chesney. Her helpful feedback strengthened my work. I am grateful for the assistance I received from my fellow lab partners in Collaborative Health Integration Research Program (CHIRP) and for all the encouragement.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	ii
LIST OF TABLES	v
INTRODUCTION	1
Education and Depression	5
METHODS	11
Participants	11
Measures.....	11
Demographic Information.....	11
Depression	12
Perceived Discrimination	12
Education	12
Participants	13
Depression	13
Study 3 (American Indian/Alaskan Native Sample)	14
Participants	14
Measures.....	14
Procedure	14
Analytic Plan	14
RESULTS	16
Preliminary Analysis	16
Sociodemographic Differences in Discrimination and Depression	16
Test of H1: Evidence of a Relationship of Discrimination to Depression.	16
Test of H2 and H3: No Evidence of Education Level Differences in Discrimination or Depression.	17
Test of H4: Evidence of Education Moderating the Effects of Discrimination to Depression.	17
Study 2 (All Black Sample):	17
Sociodemographic Differences in Discrimination and Depression	17
Test of H1: Evidence of a Relationship of Discrimination to Depression.	18
Test of H2 and H3: No Evidence of Education Level Differences in Discrimination and Depression.	18
Test of H4: No Evidence Education Moderates the Relationship of Discrimination to Depression.	18
Study 3 (American Indian/Alaskan Native Sample):	18
Sociodemographic Differences in Discrimination and Depression	18

Test of H1: Evidence of a Relationship of Discrimination to Depression.	19
Test of H2 and H3: Evidence of Education level Differences on Discrimination, but not Depression.	19
Test of H4: No Evidence Education Moderates the Relationship of Discrimination to Depression.	19
DISCUSSION	20
LIMITATIONS	25
CONCLUSION	26
APPENDICES	27
REFERENCES	33

LIST OF TABLES

Table 1a: Diverse Sample: Demographic Characteristics on Discrimination and Depression	27
Table 1b: All Black Sample: Demographic Characteristics on Discrimination and Depression	28
Table 1c: American Indian/Alaskan Native Sample: Demographic Characteristics on Discrimination and Depression.....	29
Table 2: Diverse Sample: Moderating Effects of Education on the Relations of Discrimination to Depression	30
Table 3: All Black Sample: Moderating Effects of Education on the Relations of Discrimination to Depression	31
Table 4: American Indian/Alaskan Native Sample: Moderating Effects of Education on the Relations of Discrimination to Depression	32

INTRODUCTION

Previous literature has documented a positive relationship between racism/discrimination exposure and depressive symptoms; the more discrimination an individual has faced, the higher their level of depressive symptoms. This relationship is seen in many different populations and many different contexts (Odom and Vernon-Feagans, 2010; Hudson, Puterman et al, 2013; Priest et al, 2017). Researchers have analyzed possible variables that could change or weaken the relationship between discrimination and depression. Education has been identified as a potential buffer, as studies have shown it can be a protective factor against depressive symptoms (Mirowsky & Ross, 2005; Bein & Barkowska, 2016). In many cases education is associated with lower levels of negative mental health outcomes; however this is not always seen in minoritized populations, particularly Black Americans. It remains unclear if education protects against exposure to discrimination, as many but not all studies suggest that higher levels of education are associated with more experiences of discrimination.

Discrimination is a major psychosocial stressor affecting the physical and mental health of minority groups (Molina & James, 2016). Ethnic or racial discrimination is defined as “the beliefs, attitudes, institutional arrangements, and acts that tend to diminish individuals or groups because of ethnic group affiliation or phenotypic characteristics” (Clark et al., 1999, p. 805). Racism can manifest through the expression of stereotypes and prejudices as well as discriminatory behavior occurring at different societal levels. Racism is seen at the systematic level through systems and structures that have disadvantaged racial minorities in laws and policies; the internalized level through the incorporation of racist

attitudes and beliefs into one's worldview; and interpersonal level which is through interacting with others (Paradies et al., 2015). In this thesis I am focused on directly perceived interpersonal level discrimination.

There are many negative health outcomes that are associated with discrimination including depression. Major Depression Disorder or depression is a common but serious mood disorder which can affect an individual's ability to think, feel, and carry out daily activities, such as sleeping and working (National Institute of Mental Health, 2017). Subthreshold depression symptoms and states can be associated with significant distress and impairments to functioning (American Psychiatric Association, 2013).

The prevalence of depression in the United States is high, according to the National Institute of Mental Health. It is estimated that 17.3 million adults or 7.1% of the adult population in the U.S. had at least one major depressive episode in 2017. There are some race differences in the prevalence of MDD. Rates of major depression were highest for people of two or more races (11.3%) (National Institute of Mental Health, 2017). For adults of other races, major depressive episodes were seen in Hispanics (5.4%), Whites (7.9%), Blacks (5.4%), Asians (4.4%), Native Hawaiian/Pacific Islanders (4.7%), and American Indian/Alaskan Natives (8.0%) (National Institute of Mental Health, 2017).

Recent reviews have identified over 135 empirical studies that have examined the association between perceived racial/ethnic discrimination and some indicator of health (Krieger, 1999; Paradies, 2006). The majority of these studies found a positive association between discrimination and indicators of morbidity (Williams et al, 2008). Racial discrimination has been related to an increase likelihood of major depressive disorder

among African Americans (Molina & James, 2016; Russell et al , 2018; Brody et al 2006, Hudson, Bullard, Neighbors et al, 2012), Asians (Juang & Cookston, 2009; Zhang & Hong, 2013), Hispanics (Cano et al., 2016; Finch, Kolody, & Vega, 2000; Assari & Bazargan, 2019), and members of other ethnic and racial minority groups (Kessler, Mickelson, & Williams, 1999; Priest et al, 2017; Greene, Way, & Pahl, 2006). The relation of discrimination to depression has been seen in children (Santana et al, 2007; Priest et al 2017), adolescents (Cheng, Cohen, & Goodman, 2015; Priest et al, 2017; Juang & Cookston, 2009; Greene, Way, & Pahl, 2006; Zeiders, Umana-Taylor, & Derlan, 2013; Santana et al, 2007) and adults (Odom & Vernon-Feagans, 2010; Hudson, Puterman, et al 2013; Brondolo et al., 2008; Nadimpalli et al, 2015; Matthews et al 2013).The association of discrimination to depression remains significant even after statically accounting for relevant risk factors including age (Matthews et al, 2013; Santana et al, 2007), gender (Cano et al., 2016), SES (Hudson, Puterman, et al 2013), education level (Cheng, Cohen, & Goodman, 2015; Yang et al, 2014), and other health factors (Russell et al, 2018).

A limited body of research has examined a range of potential moderators or buffers of the effects of discrimination on depression. A variable is considered to be a moderator if it strengthens or weakens the relations between a predictor and the outcome variables. Moderation is measured in regression models using interaction terms. Researchers are searching for a moderator that shows evidence of significantly weakening the relationship between racism/discrimination on depression.

The aim of this study is to test the hypothesis that education level may moderate the association of discrimination to depression. Education is one component of an

individual's socioeconomic status. Education overall is a structural component that can help shape income and occupation. (Mirowsky & Ross, 2005).

Education touches many facets of a person's life and can shape the direction of one's future for the better. Education confers human capital, in the form of skills and knowledge that cannot be taken away by others (Zhang & Hong, 2013). Having consistent capital can give an individual feeling of security and stability. Education can provide access to opportunities that without education could be impossible to achieve. Education may provide skills and support that could offset the negative effects of discrimination on depressive symptoms.

Consistent with this notion, education has been positively associated with overall health outcomes. Well-educated people experience better health than poorer educated people in self-report measures and in assessment of physical functioning overall (Ross & Wu, 1995; Cutler & Lleras-Muney, 2006; Baudry, 2015, Lee, 2011). Physical assessments and self-report data indicate that individuals with higher levels of education are less likely to die than those with lower levels of education within 5 years from when they were interviewed in the study. Chart reviews also indicate that more educated people report having lower morbidity from the most common acute and chronic diseases (heart condition, stroke hypertension, cholesterol, emphysema, diabetes, asthma attacks, ulcer) (Culter & Lleras-Muney, 2006). Higher education is associated with healthier work and economic conditions, social-psychological resources, and health lifestyles (Ross & Wu, 1995; Mirowsky & Ross, 2005; Lee 2011).

Education and Depression

Research has consistently demonstrated that higher education is associated with lower risk for poor mental health outcomes (Beiser et al, 2001; Zhao & Yiyue, 2018; Baudry 2015; Lee 2011; Lorant et al 2003). Education level has been negatively associated with depression in multiple populations (Beiser et al, 2001; Bien & Bien-Barkowska, 2016; Odom & Vernon-Feagans, 2010). Low levels of education are associated with greater risk for factors which can trigger depression, including injury, psychological trauma, and chronic adversity (Dave, Rashad, & Spasojevic, 2006). Education can lead to better coping skills or provide resources to assist individuals when their mental health starts to deteriorate. Higher education may be linked with lower levels of depression through the development of self-efficacy and a sense of mastery, which helps people cope with life's stresses (Mirowsky & Ross, 2003; Baudry 2015). Education can heighten one's cognitive ability, which is a strong variable in explaining education gradients in depression (Lee, 2011).

Higher Education and Racism

Historically SES levels are not spread in an equivalent fashion across racial groups, this means some groups have lower or higher levels. Hispanic adults over the age of 25 have the highest percentage (33%) for not completing high school than any other racial/ethnic groups. Other percentages range from a low of 8% for White adults and a high of 17% for American Indians/Alaskan Natives. The percentage of adults who had earned a bachelor's degree or higher in 2016 was highest for Asian adults (54%). Among the other racial/ethnic groups, 35% of White adults, 21% of Black adults, and 15% each of American

Indian/Alaska Native and Hispanic adults had earned a bachelor's or a higher degree (de Brey et al, 2019). In addition, education may have different benefits for different groups. For example, high achieving African American students may attend schools with fewer resources, less thorough curriculums, and have teachers who expect less of them academically than they do of White students (Azzam, 2008). African American college graduates in 2013 had the highest rate of unemployment among college graduates in the same age range (age 22-27) (J.Jones & Schmitt, 2014). Education may not have the same effects across racial minority groups.

Minorities diminished return theory suggests that the health returns that are expected through SES and education are systematically smaller for Blacks compared to Whites (Assari, 2017). The literature provides multiple examples of diminished returns for higher SES individuals. Colen et al looked at socioeconomic upward mobility effects on low birthweight in Black and White women. A relationship was found between both Black and White women's upward mobility and low birthweight, however Black women had a weaker relationship and did not show a decrease in low birthweight (Colen et al, 2006).

These effects are also seen for depression. A study of the relations of SES indicators, including education on major depressive episodes in a national sample of American adults, revealed that there was a trend for higher education to be associated with lower risk of depression in African American women only. In contrast, high income showed a trend towards an association with higher levels of depression in African American men, possibly showing the high cost of social mobility (Assari, 2017). Black-White differences in mental health may persist even at elevated levels of education.

Exposure to discrimination is hypothesized to explain these diminishing returns. Researchers suggest that the burdens imposed by exposure to discrimination are not adequately offset by the resources given by higher levels of education. Education may not protect against the effects of discrimination on depression, because there is some mixed evidence that higher education is associated with greater discrimination. Some studies show results of individuals with lower education as more prone to discrimination, suggesting that more education could help prevent negative effects of discrimination for someone who is a racial minority (Brondolo et al, 2008; Sutter, Perrin, &Trujillo, 2018; Nadimpalli et al, 2015). This follows the original proposition that education can provide multiple positive outcomes.

In contrast, other examinations of education to racism provided the opposite results. In a study by Hudson et al (2012) not only did they find a positive association between discrimination and depression, but also observed that African American men who had higher education levels and high income experienced more racial discrimination. Higher education in minority groups can lead to more perceived discrimination (Borrell et al, 2013; Broman et al, 2000; Burns & Garcia, 2017; Cheng et al, 2015; Dominguez et al, 2009; Hausmann et al, 2008; Williams et al, 1997). The power of racism and discrimination seem to be stronger than education even when the education levels are higher (Lewis & Van Dyke, 2018).

Overall education has a positive association to health, mental health, and health behaviors. Because of the positive effects that have been observed by education, some research has looked at the moderating effects of education on the relations of discrimination

and mental health. However, there have been mixed results in studies of the effects of education as a moderator of discrimination on mental health. The available findings are complex. Conklin et al revealed that education did not moderate the relation of perceived racism to mental health at all, stating that education could possibly predispose individuals to having more frequent racist events (2011). There is evidence that the association between discrimination and trait negative affect is stronger for participants with less than high school levels of education (Brondolo et al, 2008). This suggest that having less education could lead to more perceived discrimination, leading to more negative affect/emotion.

Zhang & Hong studied psychological distress in Asian Americans and examined perceived everyday discrimination and whether education moderated the association. Results revealed that education did moderate the discrimination to distress association, so much that the detrimental effects of discrimination are stronger for higher educated Asian Americans than lower educated (Zhang & Hong, 2013).

In the study by Hudson, Neighbors, et al, they focused on the effects of coping with psychological distress through John Henryism, which is a high effort coping strategy used to deal with external factors. They did not find a significant association between SES and John Henryism levels; however they found a significant positive relationship between John Henryism and greater odds of depression. John Henryism did not show any moderating effects on the relationship between racism and depression. This could possibly indicate that there is a positive link between John Henryism and depression, meaning high effort coping might not protect against developing depression (Hudson, Neighbors, et al, 2016).

The benefits of education would suggest that education should be able to moderate the effects of discrimination on depression, the literature does not consistently support this idea. The failure to find buffering effects could be a function of greater exposure to discrimination among minoritized groups.

However, there has been limited research directly testing the hypothesis that education buffers the effects of discrimination on depression. In order to gain more clarity of education on discrimination to depression more research must be done. It remains seemingly unclear if education is a risk or protective factor against discrimination.

To address the gaps in the literature and attempt to better understand the links of discrimination and depression while investigating education as a moderator, this research presents the results of three studies which examine the moderating role of education in the relation of discrimination to depression. In this study, we examine education as a moderator on the association of discrimination to depression in three cross-sectional studies.

Replication was used to focus on the effects of education in not just one population of race, gender, or education level, but to diverse groups. Study 1 includes a diverse sample, with 400 participants of various ethnic backgrounds recruited in New York City; Study 2 includes 275 participants who self-identified as Black/African American also recruited in New York City; Study 3 includes 298 participants, all of whom are of American Indian/Alaskan Native descent, recruited in the Denver Metro Area. All of the participants from each study were asked to complete self-report measures of demographic information, including their highest attained education level. Depressive symptoms were measured using the CESD-R in studies one and three, while the SCL-90R was used to measure

depression in study two. In all three samples, the Brief PEDQ-CV provided measurement of perceived racism and discrimination.

In the analyses we specifically examine test hypotheses which include; H1: The more perceived discrimination experienced the more depressive symptoms will be observed, H2: Having high levels of education will be linked to lower levels of discrimination, H3: Having high levels of education will be linked to lower levels of depressive symptoms, H4: Education will moderate the effects of the relationship of discrimination to depression.

METHODS

Participants

Overall this current research used previous data to create three correlational, cross-sectional studies. Participants completed surveys on demographic information and educational level, while also answering measures of depressive symptoms and racial/ethnic discrimination experiences. Analyses were conducted in order to determine relationships of the moderating variable of education to both the predictor variable, discrimination, and the outcome variable, depression. I evaluated a series of covariates including race and gender. This study is divided into 3 groups/samples. Study 1 is the Diverse Sample, Study 2 is the All Black Sample, and Study 3 is the American Indian/Alaskan Native Sample.

Study 1 (Diverse Sample)

Participants included university students and staff, and hospital staff and patients. Participants were at least 18 years-old and proficient in 8th-grade level English. 400 participants provided all necessary data and formed the analytic sample. The sample was ethnically diverse: (American Indian/Alaskan Native: $n = 11$, White/Caucasian: $n = 97$, Asian/Pacific Islander: $n = 62$, Black/African American: $n = 157$, Latino/a = 52, Other: = 21), and between 18 to 85 years old ($M=27.00$, $SD=12.04$). Women were 62.53% of the sample ($n = 242$).

Measures

Demographic Information

Participants completed self-report questionnaires to collect data on demographic variables. Self-reported education was categorized into two levels: completed high school or fewer years of education vs. completed some college or further education.

Depression

Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale -- Revised (CESDS-R), consisting of 20 items that reflect the DSM-IV criteria for depression (Eaton et al., 2004). Participants selected options that reflected how they felt in the past week or so. Participants chose between five response options: “not at all or less than 1 day,” “1–2 days,” “3–4 days,” “5–7 days,” “nearly every day for 2 weeks” (Eaton et al., 2004).

Perceived Discrimination

Perceived discrimination and racism were measured using the Brief Perceived Ethnic Discrimination Scale-Community Version (Brief PEDQ-CV; Brondolo et al., 2005). This 17-item measure assessed various discrimination experiences, which was created from the full PEDQ with the purpose of having a shorter administrative time (Contrada et al, 2001). This measure is used among students and community samples and can be used across multiple ethnic/racial groups for dimensions of racism. Four subscales are used to measure lifetime exposure: exclusion/rejection, stigmatization/devaluation, discrimination at work/school, and threat/aggression. Participants are asked to indicate how often experiences of discrimination occurred because of their race or ethnicity. This was done through a 5-point Likert scale starting from “never happened often” (0) to “happened very often” (5).

Education

Education level was measured as the highest level of educational attainment originally labeled as grades K-8, grades 9-11, completed high-school/GED, some college, technical school, completed college, some graduate training, and completed graduate

training. The final categories used divided the groups in half with two group levels: completed less than or equal to a high school degree and completed some college or more.

Study 2 (All Black Sample)

Participants

In the Study 2, participants ($N = 275$) were drawn from multiple studies of discrimination and health in Black adults. Age and proficiency English level restrictions were the same as Study 1. The sample's age range was 18 to 77 years ($M = 31$, $SD = 13.45$), and 206 (74.91%) were women.

Measures

Depression

In Study 2, depressive symptoms were measured with the depression subscale of the SCL-90 Revised (Derogatis & Lazarus, 1994). The SCL-90 Revised is a self-report measure that assessed psychological symptoms and psychological distress meant for community individuals. There are nine symptom dimensions assessed: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Three global dimensions are also included (Global Severity Index, Positive Symptom Distress Index, and Positive Symptoms Total). Each of the 90 items are rated on a 5-point scale from "not at all" to "extremely" in describing the level in which the items were bothersome in the past week (past 7 days) (Derogatis & Lazarus, 1994).

All other measures of education, discrimination, and demographics used were identical to Study 1.

Study 3 (American Indian/Alaskan Native Sample)

Participants

Study 3 consisted of 298 urban-dwelling individuals who identified as American Indian/Alaskan Natives. Many also identified with secondary races: (Asian: $n = 2$, Black: $n = 32$, Latino/a: $n = 65$, White: $n = 18$, Other: $n = 3$). 178 participants identified solely as American Indian/Alaskan Native. The sample's age range was 18 to 78 ($M = 43.57$, $SD = 14.72$), and 188 (63.73%) were women.

Measures

Study 3 used identical measures of education, depression, and discrimination as Study 1.

Procedure

All participants were given informed consent and were explained about the possible risks and benefits of the study. Participants in each study were informed that the study was confidential, and their information would be kept private and de-identified. Once written consent was provided, participants were asked to complete a series of self-report questionnaires and surveys. Certain measures focused on depressive symptoms, perceived discrimination, and sociodemographic factors. In this current study, these specific measures were analyzed.

Analytic Plan

Correlational analyses were used to evaluate the relationships of covariates which yield continuous scores (i.e. age) to discrimination and depression, and a series of analyses of variances (ANOVAs) were conducted to examine the relations of categorical variables, including gender, race, education level to discrimination and depression. Regression

analyses were conducted in each study/sample group to observe the relationship of racism/discrimination to education, education to depression, and lastly discrimination to depression. Covariates of socio-demographics (age, gender, race) were included in the analyses. Multiple regressions were used for the moderation analysis and tested the interaction of education X discrimination. Discrimination was centered prior to analyses. Depression was used as the dependent variable.

RESULTS

Preliminary Analysis

The data was analyzed using SAS (9.4) programming. Since there was a large variability in the proportion of individuals in each level of education, education level was divided into two groups: completed high school or fewer years of education or completed some college or further education. Other studies have also collapsed education level into two groups for assessment purposes (Zhang & Hong, 2013; Baudry 2015).

Study 1 (Diverse Sample):

Sociodemographic Differences in Discrimination and Depression

Relations of demographic characteristics were examined using correlations and ANOVAs to examine the effects of age, gender, and race on discrimination and depression. As shown in Table 1a, neither the effects of gender ($F(1,385) = 0.35, p = .56$) nor race ($F(3, 364) = 0.91, p = .44$) on depression were significant. There were no gender differences in discrimination ($F(1,385) = 1.94, p = .16$). There were significant race effects on discrimination ($F(3,364) = 11.63, p = .0001$). Black ($M = 1.86$) participants reported higher levels of discrimination than Asian ($M = 1.65$), Latino/a ($M = 1.68$), and White ($M = 1.45$) participants. White participants reported lower levels of discrimination than the other racial groups. Age was significantly negatively correlated with depression ($r(400) = -.16, p < .001$), and age was significantly negatively correlated with discrimination ($r(400) = -.10, p = .04$).

Test of H1: Evidence of a Relationship of Discrimination to Depression. A multiple regression analysis, adjusted for covariates, revealed significant effects of discrimination on depression ($B = .62, SE = .14, b = .49, t = 4.52, p < .0001$).

Test of H2 and H3: No Evidence of Education Level Differences in Discrimination or Depression. An ANOVA examining the relationship of education to discrimination and depression showed that there were no significant education level differences in discrimination $F(1,398) = 0.10, p = .75$ or depression ($F(1,398) = 0.06, p = .80$) (seen in Table 1a).

Test of H4: Evidence of Education Moderating the Effects of Discrimination to Depression. The interaction of education by discrimination was found to be significant ($B = -.32, SE = .15, b = -.23, t = -2.08, p = .04$), suggesting education moderates the relationship of discrimination to depression. Post-hoc analysis revealed the association of discrimination to depression was stronger for those with low education levels ($B = .65, SE = .16, b = .42, t = 4.08, p < .001$) than for those with high levels ($B = .30, SE = .07, b = .26, t = 4.43, p < .001$). The moderation analysis is seen in Table 2.

Study 2 (All Black Sample):

Sociodemographic Differences in Discrimination and Depression

Correlations and ANOVAs examining demographic variable effects showed that there were gender effects on discrimination ($F(1,273) = 17.64, p = .001$). Overall, men reported higher levels of discrimination than women. There were no effects of gender on depression ($F(1,273) = .11, p = .74$) (as seen in Table 1b). Age was significantly negatively correlated with depression ($r(275) = -.25, p < .001$), however age was not correlated with discrimination ($r(275) = -.06, p = .29$).

Test of H1: Evidence of a Relationship of Discrimination to Depression. A multiple regression analysis, adjusted for covariates, revealed the effect of discrimination on depression was significant ($B = .49$, $SE = .11$, $b = .41$, $t = 4.62$, $p < .0001$).

Test of H2 and H3: No Evidence of Education Level Differences in Discrimination and Depression. An ANOVA examining the relationship of education to discrimination and depression showed that there were no significant education level effects on discrimination ($F(1,273) = 2.29$, $p = .13$) or depression ($F(1,273) = 2.38$, $p = .12$).

Test of H4: No Evidence Education Moderates the Relationship of Discrimination to Depression. The moderating effect of education on the relationship of discrimination to depression was not significant ($B = -.18$, $SE = .13$, $b = -.12$, $t = -1.37$, $p = .17$). The moderation analysis is seen in Table 3.

Study 3 (American Indian/Alaskan Native Sample):

Sociodemographic Differences in Discrimination and Depression

Table 1c shows no gender differences in discrimination ($F(1,293) = 0.14$, $p = .71$) nor depression ($F(1,293) = 0.28$, $p = .60$). There were significant race differences in discrimination ($F(3,285) = 3.49$, $p = .02$). Participants who only identified as AI/AN ($M = 1.53$) reported higher level of discrimination than participants who were both AI/AN and Latino/a ($M = 1.22$). Participants who were Black and AI/AN ($M = 1.73$) reported higher level of discrimination than participants who were AI/AN and Latino/a ($M = 1.22$). There were no significant race effects on depression ($F(3,284) = 1.25$, $p = .29$). Age was significantly positively correlated with discrimination ($r(298) = .19$, $p = .001$), but was not significantly correlated to depression ($r(298) = -0.04$, $p = .47$).

Test of H1: Evidence of a Relationship of Discrimination to Depression. A multiple regression analysis, adjusted for covariates, indicated a significant effect of discrimination on depression ($B = .48$, $SE = .08$, $b = .46$, $t = 6.14$, $p < .0001$).

Test of H2 and H3: Evidence of Education level Differences on Discrimination, but not Depression. An ANOVA examining the relationship of education to discrimination and depression showed that there were education level effects on discrimination ($F(1,296) = 4.18$, $p = .04$). Participants with low education levels reported less discrimination than participants with higher levels. There were no effects of education level on depression ($F(1,296) = 0.05$, $p = .83$).

Test of H4: No Evidence Education Moderates the Relationship of Discrimination to Depression. No significant interaction between depression and education by discrimination was found ($B = -.16$, $SE = .11$, $b = -.10$, $t = -1.39$, $p = .16$). The moderation analysis is seen in Table 4.

DISCUSSION

We hypothesized that (H1) the more perceived discrimination experienced the more depressive symptoms will be observed, (H2) having high levels of education will be linked to lower levels of discrimination, (H3) having high levels of education will be linked to lower levels of depressive symptoms, and (H4) education will moderate the effects of the relationship of discrimination to depression.

Findings consistent with H1 were observed in every sample. In all three studies (Diverse Sample, All Black Sample, & American Indian/Alaskan Native Sample) perceived discrimination was significantly positively associated with depressive symptoms; the more discrimination that was experienced the more depressive symptoms were observed. These findings are consistent with the literature (Molina & James, 2016; Brody et al, 2006; Liu & Lau, 2013). Only one sample was consistent with H2. The AI/AN Sample (Study 3) showed a significant link between education level and discrimination. The less educated individuals experienced less discrimination than those who had higher levels of education. H3 was not seen in any sample, meaning higher education was not associated to more depressive symptoms. For the final hypothesis (H4), Study 1 (Diverse sample) was the only study to show a significant interaction between education and discrimination. A small buffering effect of education was detected. For those with high and lower levels of education, discrimination was positively associated with depression, but the effects were significantly weaker for those with at least some college or more. In contrast, in Study 2 and Study 3 no moderating effects of education were found.

The two samples in which there were no moderating effects of education were less diverse (Study 2 and Study 3). Education may not moderate effects at the same level across individual racial groups. Some groups may experience discrimination differently. For example, Blacks are more likely than Whites to encounter discrimination on the basis of their race/ethnicity. Issues of racial discrimination are more salient to Black Americans given the history of slavery, segregation and other discriminatory practices and experiences (Hudson, Puterman, et al, 2013).

In a meta-analysis by Paradies et al, some evidence showed the association between racism and negative mental health is stronger for Asian Americans and Latino/a Americans compared with African Americans. There were no significant differences between African Americans and American Indians/Alaskan Natives. These findings could suggest that African and AI/AN are more resilient to racism than other minority groups or that their experiences are qualitatively distinct from other minority groups (Paradies et al, 2015).

More research should look into minority individual group level differences such as Asian American's racism experiences vs Black experiences with education as a moderator of discrimination to depression. Even though racial discrimination is a prominent stressor in all racial minorities, certain groups have different stereotypes and microaggression that are specified to their race, which could possibly have different outcomes on the discrimination individuals encounter.

Racism triggers psychological changes that are not helped by education. Even having higher education can increase the levels of discrimination (Lewis & Van Dyke, 2018). Because of the greater resources that education can provide, experiences of

discrimination may attenuate the benefits of achieving a higher social status (Sutter, Perrin, Trujillo, 2018).

In the literature on the effects of John Henryism to the relationship of racial discrimination and depression, higher educated African Americans reported more perceived discrimination. John Henryism was associated with greater odds of depression, with no moderating effects on discrimination and depression (Hudson, Neighbors, et al 2016). This high effort coping can be deleterious to health, because of all the energy exerted to cope with psychological stressors. When facing discrimination John Henryism can overload an individual instead of protecting them from negative mental health outcomes. Possibly because education brings on more cognitive ability and can put minority individuals in spaces where racism is higher. Education could lead individuals to straining oneself in overly challenging circumstances. There could be less productivity for high effort coping if the outcomes are negative or only layering on burdens to an individual who is already depressed or developing symptoms.

A consistent finding in Study 1 and 2 was that age was negatively correlated to depression. It is possible that younger individuals tend to have more depressive symptoms since adolescence and emerging adulthood consist of many changes that are imperative points in life (Cicchetti, Rogosch, & Toth, 1994; Mruk, 2006), or they are more likely to expand upon the fact that they are experiencing depression than older generations (Zeiders et al, 2013). In more recent years, mental health has become less stigmatized and discussed more openly in order to receive help (Conley et al 2019). However, age was seen to be positively correlated to depression in Study 3. Within the population of Study 3 there were

many mixed-race participants, which has been reported that people of two or more races have higher rates of depression overall (National Institute of Mental Health , 2017).

Gender effects were investigated in each study and only Study 2 showed a race effect on discrimination. Black men reported higher levels of perceived discrimination than Black women in the sample. This race effect has been seen throughout literature, explaining that Black men have higher rates of perceived racism/discrimination versus Black women (Assari 2017). The intersectionality of gender and race can produce different outcomes, positive and negative, on individuals experience of discrimination.

In Study 3 there were significant effects of education on discrimination, which was only seen in the Study 3 sample. Less educated participants reported lower perceived discrimination than more highly educated participants. This finding matches some of the literature that observed levels of education could increase the likelihood of experiencing discrimination. Having higher education could lead to more awareness of not just blatant discriminatory acts, but also subtleties that discrimination can produce (Hudson et al, 2012). Being a racial minority in a higher SES status/ higher education level can put individuals in places where diversity is not commonplace, which could lead to more noticeable acts of racism (Santana et al 2006).

Some of the literature on moderators of the relation of discrimination to depression discussed other possible moderators that could produce positive outcomes. Investigators have examined both personal characteristics such as optimism, and contextual resources including the availability of social support in the ability to buffer outcomes. Higher levels of resilience, purpose in life, and social networks were each associated with lower

depressive scores. All while higher levels of social isolation were associated with higher reports of discrimination (Nadimpalli et al., 2015). Odom and Vernon-Feagans results showed when African American mothers were exposed to high levels of racial discrimination, those who were optimistic about the future and had support from their church community were much less likely to be depressed than those who were pessimistic and had less church-based support (2010).

Perhaps certain participants, especially in Study 1 had these personal characteristics, purpose in life, or social networks that showed resiliency in individuals whose scores were low for discrimination on depression. These other variables could play a role in the attainment of education level. Education should not just be a measure of attainment, but also paired with other factors such as level of optimism about school, if there was family support (social support) to continue education, or if people see themselves as successful in school. More specific markers/variables could dig into why education is a successful moderator in certain samples and not in others.

LIMITATIONS

Although this study had some distinct findings, several limitations were present in the research. Having multiple sample groups was advantageous in attempting to observe the differences between multiple covariates such as race and gender on education, discriminations, and depression. Replication can be good, however possibly using 3 groups that each have multiple race/ethnicities included would be more efficient.

Study 1 and Study 3 used the exact same methods when measuring depression, which was the CESDS-R. Study 2 however used a different scale, the SCL-90 Revised. Even though they both have similarities such as using a 5-point scale and measuring past week depressive symptoms, the CESDS-R has 20 items while the SCL-90 Revised has 90 items. Using a longer assessment tool could possibly affect the answers given resulting in different data being assessed.

Because we used cross sectional data that are automatic limitations to the study. Using longitudinal data would be able to show the change overtime of the relationship of discrimination to depression. Education could possibly be more helpful of a moderator over time in individuals, especially after they attain more education. Other study designs can be helpful in pinpointing causal effects and have stronger interpretations.

Contextual data was not obtained in this study. Collection of information on participants location and proximity to other groups could have provided more clarity within the results. If participants had close proximity to others of the same race/ethnicity as them or had a close social group they were in contact with, the data could be interpreted differently. Having this information could help future research understand the aspects of context on individuals.

CONCLUSION

This research found that education was not a consistent moderator of the relation of discrimination to depression. Effects were inconsistent since only one sample showed a moderating effect of education. While the link between discrimination and depression was found in all three samples of this research study, only in the diverse sample (Study 1) was there an interaction of education and discrimination on depression showing a small buffering effect for those with higher levels of education. Discrimination is a powerful psychosocial stressor that can be difficult to mitigate the negative mental health outcomes. Future research in this area is necessary to identify other potential buffers of these effects and can enhance the existing minimal literature on education as a moderator on discrimination to depression.

APPENDICES

Table 1a

Diverse Sample: Demographic Characteristics on Discrimination and Depression

Variables		Discrimination	Depression
	N(%)	M (SD)	M (SD)
<i>Gender</i>			
Men	145 (37.47%)	1.78 (0.66)	1.79 (0.79)
Women	242 (62.53%)	1.69 (0.57)	1.84 (0.75)
<i>Education Level</i>			
High School or Less	94 (23.5%)	1.70 (0.56)	1.84 (0.88)
Some College or More	306 (76.5%)	1.73 (0.62)	1.82 (0.72)
<i>Race</i>			
Asian	62 (15.50%)	1.65 ^b (0.47)	1.82 (0.75)
Black	157 (39.25%)	1.87 ^a (0.58)	1.81 (0.72)
Latino/a	52 (13.00%)	1.68 ^b (0.64)	1.69 (0.76)
White	97 (24.25%)	1.45 ^c (0.52)	1.90 (0.81)
American Indian	11 (2.75%)	2.46 (0.83)	2.22 (0.84)
Other	21 (5.25%)	1.74 (0.67)	1.72 (0.76)

Note: Race comparisons were conducted only among the 4 largest groups out of 6 total (i.e. AI/AN and Black; AI/AN and Latino/a; AI/AN and White; AI/AN only). Race comparisons in Diverse Sample were conducted only among the 4 largest groups out of 6 total (i.e. Asian, Black, Latino/a, White).

Table 1b*All Black Sample: Demographic Characteristics on Discrimination and Depression*

Variables		Discrimination	Depression
	N (%)	M (SD)	M (SD)
<i>Gender</i>			
Men	69 (25.09%)	2.27 ^a (0.76)	1.99 (0.81)
Women	206 (74.91%)	1.88 ^b (0.64)	1.96 (0.83)
<i>Education Level</i>			
High School or Less	72 (26.18%)	2.08 (0.85)	2.09 (0.91)
Some College or More	203 (73.82%)	1.94 (0.62)	1.92 (0.78)

Table 1c

American Indian/Alaskan Native Sample: Demographic Characteristics on Discrimination and Depression

Variables		Discrimination	Depression
	N (%)	M (SD)	M (SD)
Gender			
Men	107 (36.27%)	1.50 (0.68)	1.95 (0.79)
Women	188 (63.73%)	1.46 (0.86)	1.90 (0.84)
Education Level			
High School or Less	157 (52.68%)	1.39 ^a (0.80)	0.93 (0.83)
Some College or More	141 (47.32%)	1.58 ^b (0.77)	0.91 (0.80)
Secondary			
Race/Ethnicity			
Asian	2 (0.67%)	0.82 (0.08)	1.86 (0.51)
Black	32 (10.74%)	1.73 ^a (0.78)	2.03 (0.94)
Latino/a	65 (21.81%)	1.22 ^b (0.68)	1.98 (0.84)
White	18 (6.04%)	1.42 (0.60)	2.18 (1.12)
American Indian Only	178 (59.73%)	1.53 ^a (0.82)	1.87 (0.75)
Other	3 (1.01%)	2.24 (1.43)	1.26 (0.45)

Note: Race comparisons were conducted only among the 4 largest groups out of 6 total (i.e. AI/AN and Black; AI/AN and Latino/a; AI/AN and White; AI/AN only).

Table 2

Diverse Sample: Moderating Effects of Education on the Relations of Discrimination to Depression

Variable	B(SE)	b	t, p
Intercept	2.22(.22)	0	10.26, p < .0001
Sample	0.02(.12)	0.01	.17, p = .86
Age in years	-0.01(.005)	-0.12	-1.54, p = .12
Gender	-0.09(.08)	-0.06	-1.22, p = .22
Black	-0.16(.09)	-0.10	-1.76, p = .08
Asian	-0.11(.11)	-0.05	-.97, p = .33
Latino/a	-0.17(.14)	-0.07	-1.28, p = .20
Lifetime Discrimination	0.62(.14)	0.49	4.52, p < .0001
Education	-0.12(.09)	-0.06	-1.18, p = .24
Discrimination X Education	-0.32(.15)	-0.23	-2.08, p = .04

Table 3

All Black Sample: Moderating Effects of Education on the Relations of Discrimination to Depression

Variable	B(SE)	b	t, p
Intercept	2.52(.17)	0	14.68, p < .0001
Age in years	-0.02(.003)	-0.27	-4.72, p < .0001
Gender	0.15(.12)	0.08	1.42, p = .16
Lifetime Discrimination	0.49(.12)	0.41	4.62, p < .0001
Education	-0.22(.12)	-0.12	-2.07, p = .04
Discrimination X Education	-0.18(.13)	-0.12	-1.37, p = .17

Table 4

American Indian/Alaskan Native Sample: Moderating Effects of Education on the Relations of Discrimination to Depression

Variable	B(SE)	b	t, p
Intercept	1.08(.17)	0	6.29, p < .0001
Age in years	-0.004(.003)	-0.08	-1.41, p = .16
Gender	0.04(.09)	0.02	0.37, p = .71
Black	0.05(.15)	0.02	0.31, p = .75
White	0.36(.20)	0.10	1.82, p = .07
Latino/a	0.21(.12)	0.12	1.82, p = .07
Lifetime Discrimination	0.48 (.08)	0.46	6.14, p < .0001
Education	-0.06(.09)	-0.04	-0.70, p = .48
Discrimination X Education	-0.16(.11)	-0.10	-1.39, p = .16

Note: Black, White, and Latino/a are secondary races

REFERENCES

- American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Assari, S. (2017). Social Determinants of Depression: The Intersections of Race, Gender, and Socioeconomic Status. *Brain Sciences* (2076-3425), 7(12), 156. [https://doi-org.jerome.stjohns.edu/10.3390/brainsci7120156](https://doi.org.jerome.stjohns.edu/10.3390/brainsci7120156)
- Assari, S., & Bazargan, M. (2019). Minorities' Diminished Returns of Educational Attainment on Hospitalization Risk: National Health Interview Survey (NHIS). *Hospital Practices and Research*, 4(3), 86–91. <https://doi-org.jerome.stjohns.edu/10.15171/HPR.2019.17>
- Assari, S., Boyce, S., Bazargan, M., & Caldwell, C. H. (2020). Mathematical Performance of American Youth: Diminished Returns of Educational Attainment of Asian-American Parents. *Education Sciences*, 10(2).
- Azzam, A. M. (2008). Neglecting higher achievers. *Educational Leadership*, 66, 90-92. Retrieved from <http://www.ascd.org/publications/educational-leadership.aspx>
- Bauldry, S. (2015). Variation in the Protective Effect of Higher Education Against Depression. *Society and Mental Health*, 5(2), 145–161. <https://doi-org.jerome.stjohns.edu/10.1177/2156869314564399>
- Bień, B., & Bień-Barkowska, K. (2016). Objective drivers of subjective well-being in geriatric inpatients: mobility function and level of education are general predictors of self-evaluated health, feeling of loneliness, and severity of depression symptoms. *Quality of life research*, 25(12), 3047-3056.

- Beiser, M., Noh, S., Hou, F., Kaspar, V., & Rumens, J. (2001). Southeast Asian refugees' perceptions of racial discrimination in Canada. *Canadian Ethnic Studies*, 33(1), 46-70.
- Borrell, L. N., Kiefe, C. I., Diez-Roux, A. V., Williams, D. R., & Gordon-Larsen, P. (2013). Racial discrimination, racial/ethnic segregation, and health behaviors in the CARDIA study. *Ethnicity & health*, 18(3), 227-243.
- Brody, G. H., Chen, Y. F., Murry, V. M., Ge, X., Simons, R. L., Gibbons, F. X., ... & Cutrona, C. E. (2006). Perceived discrimination and the adjustment of African American youths: A five-year longitudinal analysis with contextual moderation effects. *Child development*, 77(5), 1170-1189.
- Broman, C. L., Mavaddat, R., & Hsu, S. Y. (2000). The experience and consequences of perceived racial discrimination: A study of African Americans. *Journal of Black Psychology*, 26(2), 165-180
- Brondolo, E., Brady, N., Thompson, S., Tobin, J. N., Cassells, A., Sweeney, M., ... & Contrada, R. J. (2008). Perceived racism and negative affect: Analyses of trait and state measures of affect in a community sample. *Journal of Social and Clinical Psychology*, 27(2), 150-173.
- Brondolo, E., Kelly, K. P., Coakley, V., Gordon, T., Thompson, S., Levy, E., ... Contrada, R. J. (2005). The Perceived Ethnic Discrimination Questionnaire: Development and Preliminary Validation of a Community Version. *Journal of Applied Social Psychology*, 35(2), 335-365.

- Burns, S. T., & Garcia, G. (2017). Education level, occupational classification, and perceptions of differences for blacks in the United States. *Journal of Employment Counseling, 54*(2), 51-62.
- Cano, M. Á., Castro, Y., de Dios, M. A., Schwartz, S. J., Lorenzo-Blanco, E. I., Roncancio, A. M., ... & Huynh, Q. L. (2016). Associations of ethnic discrimination with symptoms of anxiety and depression among Hispanic emerging adults: A moderated mediation model. *Anxiety, Stress, & Coping, 29*(6), 699-707.
- Cheng, E. R., Cohen, A., & Goodman, E. (2015). The role of perceived discrimination during childhood and adolescence in understanding racial and socioeconomic influences on depression in young adulthood. *The Journal of pediatrics, 166*(2), 370-377.
- Cicchetti, D., Rogosch, F. A., & Toth, S. L. (1994). A developmental psychopathology perspective on depression in children and adolescents. In W. R. Reynolds & H. F. Johnston (Eds.), *Handbook of depression in children and adolescents* (pp.123–141). New York, NY: Plenum Publishers.
- Clark, R., Anderson, N. B., Clark, V. R., & Williams, D. R. (1999). Racism as a stressor for African Americans. A biopsychosocial model. *The American Psychologist, 54*(10), 805–816.
- Colen, C. G., Geronimus, A. T., Bound, J., & James, S. A. (2006). Maternal Upward Socioeconomic Mobility and Black-White Disparities in Infant Birthweight. *American Journal of Public Health, 96*(11), 2032–2039. <https://doi-org.jerome.stjohns.edu/10.2105/AJPH.2005.076547>

- Conklin, H. D. (2011). Perceived racism and mental health: A meta-analytic review.
- Conley, C. S., Hundert, C. G., Charles, J. L. K., Huguenel, B. M., Al-khouja, M., Qin, S., ... Corrigan, P. W. (2019). Honest, open, proud—college: Effectiveness of a peer-led small-group intervention for reducing the stigma of mental illness. *Stigma and Health*.
- Cutler, David & Lleras-Muney, Adriana. (2006). Education and Health: Evaluating Theories and Evidence. Making Americans Healthier: Social and Economic Policy as Health Policy. 12352. 10.3386/w12352.
- Contrada, R. J., Ashmore, R. D., Gary, M. L., Coups E., Egeth, J. D., Sewell, A., Ewell, K., Goyal, T. M., & Chasse, V. (2001). Measures of ethnicity-related stress: Psychometric properties, ethnic group differences, and associations with well-being. *Journal of Applied Social Psychology*, 31, 1775-1820.
- de Brey, C., Musu, L., McFarland, J., Wilkinson-Flicker, S., Diliberti, M., Zhang, A., ... Wang, X. (2019). Status and trends in the education of racial and ethnic groups 2018 (NCES 2019-038). Washington, DC: U.S. Department of Education, National Center for Education Statistics. Retrieved from: <https://nces.ed.gov/pubs2019/2019038.pdf>.
- Dave, D., Rashad, I., & Spasojevic, J. (2006). The effects of retirement on physical and mental health outcomes, NBER Working Paper Series, Working Paper 12123, National Bureau of Economic Research:Cambridge, Mass.
- Derogatis, L. R., & Lazarus, L. (1994). SCL-90—R, Brief Symptom Inventory, and matching clinical rating scales. In M. E. Maruish (Ed.), *The use of psychological*

testing for treatment planning and outcome assessment (p. 217–248). Lawrence Erlbaum Associates, Inc.

Dominguez, T. P., Strong, E. F., Krieger, N., Gillman, M. W., & Rich-Edwards, J. W.

(2009). Differences in the self-reported racism experiences of US-born and foreign-born Black pregnant women. *Social Science & Medicine*, *69*(2), 258-265.

Eaton, W. W., Smith, C., Ybarra, M., Muntaner, C., & Tien, A. (2004). Center for

Epidemiologic Studies Depression Scale: Review and Revision (CESD and CESD-R). In M. E. Maruish (Ed.), *The use of psychological testing for treatment*

planning and outcomes assessment: Instruments for adults., Volume 3, 3rd ed. (pp. 363–377).

Finch, B. K., Kolody, B., & Vega, W. A. (2000). Perceived discrimination and depression

among Mexican-origin adults in California. *Journal of health and social behavior*, *29*5-313.

Greene, M. L., Way, N., & Pahl, K. (2006). Trajectories of perceived adult and peer

discrimination among Black, Latino, and Asian American adolescents: Patterns and psychological correlates. *Developmental psychology*, *42*(2), 218.

Hausmann, L. R., Jeong, K., Bost, J. E., & Ibrahim, S. A. (2008). Perceived

discrimination in health care and health status in a racially diverse sample. *Medical care*, *46*(9), 905.

Hudson 2012 Hudson, D. L., Neighbors, H. W., Geronimus, A. T., & Jackson, J. S.

(2012). The Relationship between socioeconomic position and depression among a US nationally representative sample of African Americans. *Social Psychiatry and Psychiatric Epidemiology*, *47*(3), 373–381. doi:10.1007/s00127-011-0348-x

- Hudson, D. L., Puterman, E., Bibbins-Domingo, K., Matthews, K. A., & Adler, N. E. (2013). Race, life course socioeconomic position, racial discrimination, depressive symptoms and self-rated health. *Social Science & Medicine*, 97, 7-14.
- Hudson, D. L., Neighbors, H. W., Geronimus, A. T., & Jackson, J. S. (2016). Racial Discrimination, John Henryism, and Depression Among African Americans. *Journal of Black Psychology*, 42(3), 221–243.
<https://doi.org/10.1177/0095798414567757>
- Jones, J., & Schmitt, J. (2014). A college degree is no guarantee (No. 2014-08). Retrieved from <http://cepr.net/publications/reports/a-college-degree-is-no-guarantee>
- Juang, L. P., & Cookston, J. T. (2009). Acculturation, discrimination, and depressive symptoms among Chinese American adolescents: A longitudinal study. *The Journal of Primary Prevention*, 30(3-4), 475-496
- Kessler, R. C., Mickelson, K. D., & Williams, D. R. (1999). The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *Journal of Health and Social Behavior*, 40(3), 208–230.
- Krieger, N. (1999). Embodying inequality: a review of concepts, measures, and methods for studying health consequences of discrimination. *International Journal of Health Services*, 29(2), 295–352.
- Lee, J. (2011). Pathways from Education to Depression. *Journal of Cross-Cultural Gerontology*, 26(2), 121–135. <https://doi-org.jerome.stjohns.edu/10.1007/s10823-011-9142-1>

- Lewis, T. T., & Van Dyke, M. E. (2018). Discrimination and the health of African Americans: The potential importance of intersectionalities. *Current directions in psychological science*, 27(3), 176-182.
- Lorant, V., Delière, D., Eaton, W., Robert, A., Philippot, P., & Anseau, M. (2003). Socioeconomic inequalities in depression: a meta-analysis. *American Journal of Epidemiology*, 157(2), 98–112. <https://doi-org.jerome.stjohns.edu/10.1093/aje/kwfl82>
- Matthews, D. D., Hammond, W. P., Nuru-Jeter, A., Cole-Lewis, Y., & Melvin, T. (2013). Racial discrimination and depressive symptoms among African-American men: The mediating and moderating roles of masculine self-reliance and John Henryism. *Psychology of Men & Masculinity*, 14(1), 35.
- Mirowsky, J., & Ross, C.E. (2003). *Education, social status, and health*. New York: Aldine de Gruyter.
- Mirowsky, J., & Ross, C. E. (2005). Education, Cumulative Advantage, and Health. *Ageing International*, 30(1), 27–62. <https://doi-org.jerome.stjohns.edu/10.1007/BF02681006>
- Molina, K. M., & James, D. (2016). Discrimination, internalized racism, and depression: A comparative study of African American and Afro-Caribbean adults in the US. *Group Processes & Intergroup Relations*, 19(4), 439-461.
- Mruk, C. (2006). Changing self-esteem: Research and practice. In M. H. Kernis (Ed.), *Self-esteem issues and answers: A sourcebook of current perspectives* (pp. 164–169). New York, NY: Psychology Press.

- Nadimpalli, S. B., James, B. D., Yu, L., Cothran, F., & Barnes, L. L. (2015). The association between discrimination and depressive symptoms among older African Americans: The role of psychological and social factors. *Experimental aging research, 41*(1), 1-24.
- National Institute of Mental Health. (2017). Major Depression. (DHHS Publication). Bethesda, MD: U.S. Government Printing Office. Retrieved from <https://www.nimh.nih.gov/health/statistics/major-depression.shtml>
- Odom, E. C., Vernon-Feagans, L., & Family Life Project Key Investigators. (2010). Buffers of racial discrimination: Links with depression among rural African American mothers. *Journal of Marriage and Family, 72*(2), 346-359.
- Paradies Y. (2006). A systematic review of empirical research on self-reported racism and health. *International journal of epidemiology, 35*(4), 888–901.
- Paradies, Y., Ben, J., Denson, N., Elias, A., Priest, N., Pieterse, A., ... & Gee, G. (2015). Racism as a determinant of health: a systematic review and meta-analysis. *PloS one, 10*(9), e0138511.
- Penninx, B. W., Milaneschi, Y., Lamers, F., & Vogelzangs, N. (2013). Understanding the somatic consequences of depression: biological mechanisms and the role of depression symptom profile. *BMC medicine, 11*(1), 129.
- Priest, N., Perry, R., Ferdinand, A., Kelaher, M., & Paradies, Y. (2017). Effects over time of self-reported direct and vicarious racial discrimination on depressive symptoms and loneliness among Australian school students. *BMC psychiatry, 17*(1), 50.

- Ross, C. E., & Wu, C. (1995). The links between education and health. *American Sociological Review*, 60(5), 719–745. <https://doi-org.jerome.stjohns.edu/10.2307/2096319>
- Russell, D. W., Clavél, F. D., Cutrona, C. E., Abraham, W. T., & Burzette, R. G. (2018). Neighborhood racial discrimination and the development of major depression. *Journal of abnormal psychology*, 127(2), 150.
- Santana, V., Almeida-Filho, N., Roberts, R., & Cooper, S. P. (2007). Skin colour, perception of racism and depression among adolescents in urban Brazil. *Child and adolescent mental health*, 12(3), 125-131.
- Sutter, M., Perrin, P. B., & Trujillo, M. A. (2018). Understanding the association between discrimination and depression among sexual minority people of color: Evidence for diminishing returns of socioeconomic advantage. *Journal of clinical psychology*, 74(6), 940-952.
- Williams, D. R. (1999). Race, socioeconomic status, and health the added effects of racism and discrimination.
- Williams, D. R., Gonzalez, H. M., Williams, S., Mohammed, S. A., Moomal, H., & Stein, D. J. (2008). Perceived discrimination, race and health in South Africa. *Social science & medicine*, 67(3), 441-452.
- Williams, D. R., & Mohammed, S. A. (2009). Discrimination and racial disparities in health: evidence and needed research. *Journal of behavioral medicine*, 32(1), 20-47.

- Williams, D. R., Yu, Y., Jackson, J. S., & Anderson, N. B. (1997). Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *Journal of health psychology, 2*(3), 335-351.
- Yang, H. J., Wu, J. Y., Huang, S. S., Lien, M. H., & Lee, T. S. H. (2014). Perceived discrimination, family functioning, and depressive symptoms among immigrant women in Taiwan. *Archives of women's mental health, 17*(5), 359-366.
- Zeiders, K. H., Umaña-Taylor, A. J., & Derlan, C. L. (2013). Trajectories of depressive symptoms and self-esteem in Latino youths: Examining the role of gender and perceived discrimination. *Developmental psychology, 49*(5), 951.
- Zhang, W., & Hong, S. (2013). Perceived discrimination and psychological distress among Asian Americans: does education matter?. *Journal of immigrant and minority health, 15*(5), 932–943.
- Zhao, S., & Yiyue, G. (2018). The effects of mother's education on college student's depression level: The role of family function. *Psychiatry Research, 269*, 108–114.
<https://doi-org.jerome.stjohns.edu/10.1016/j.psychres.2018.08.030>

Vita

Name	<i>Jeavonna Coble</i>
Baccalaureate Degree	<i>Bachelor of Arts, University of Tennessee, Knoxville Major: Psychology</i>
Date Graduated	<i>May, 2018</i>