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DISCRIMINATION, ACCULTURATIVE STRESS, AND ACADEMIC ACHIEVEMENT IN EMERGING ADULTS

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Racial/ethnic discrimination is defined as the unfair treatment of an individual or group due to their race or their cultural characteristics (Contrada et al., 2000; Krieger, 2000). Racial/ethnic discrimination can manifest at multiple levels, including interpersonal prejudice and maltreatment, institutional policies and processes that disadvantage members of racial/ethnic minority groups, and cultural communications that promote prejudice and discrimination and undermine expectations of equitable treatment (Brondolo et al., 2011). Discrimination at any level may undermine academic outcomes (Benner et al., 2018). In this paper, we focus on the effects of discrimination at the interpersonal, classroom, and societal level on objective grade point average (GPA), a salient measure of academic achievement (Kuncel et al., 2005).

On an individual or interpersonal level, discrimination can include acts of maltreatment that range from unintentional and/or subtle microaggressions to direct, blatant, and intentional maltreatment (Sue et al., 2007; Williams, 2019). Individual experiences of race-related maltreatment may undermine achievement through multiple pathways, including increased stress, loss of motivation, decreases in self-efficacy or expectations of benefit, among other pathways (Hood et al., 2017). A recent meta-analysis examined the relations between

retrospective survey measures of discrimination and multiple indices of achievement, including GPA (Benner et al., 2018). This meta-analysis focused largely on the effects of individual-level directly perceived interpersonal discrimination and included a total of 47 studies. They found that higher levels of discrimination were negatively associated with GPA. The overall effect size

was small but significant ($r = -.11$). The authors reported a greater effect of discrimination on academic achievement for Latino males compared to Black males or Latina females. No gender differences in the relation of discrimination to GPA were found. More recent studies have confirmed these effects (Datu, 2018).

On an institutional level, racial prejudice and discrimination can be expressed through race-based maltreatment from teachers or peers (McNeil Smith & Fincham, 2015), differential classroom

management practices; differential enforcement of school discipline policies, or differential access to high-quality schools among other manifestations (Chen et al., 2021). Teacher actions and school policies may themselves increase stress, block opportunities, and reduce perceptions of efficacy, access, or safety (Winkle-Wagner, 2010).

Research suggests that school-based discrimination has negative effects on academic achievement. Specifically, studies that have employed survey

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methodology suggest that students' perceptions of discrimination from their teachers is negatively and significantly associated with self-reported GPA for Black youth (Assari & Caldwell, 2018; Banerjee et al., 2018; Thomas et al., 2009). Analyses revealed no gender differences in experiences of teacher discrimination, but the effects of perceived teacher discrimination on GPA was worse for females but not males (Assari & Caldwell, 2018). Differential school punishment, in which Black students receive harsher punishment, including suspensions and expulsions, has been linked to lower levels of academic motivation (Chen et al., 2021). Research suggests that harsh punishment in schools, including corporal punishment, is associated with lower GPA across racial groups (Gershoff et al., 2019).

On a cultural level, prejudice and discrimination can be communicated via all forms of media and the value placed on the cultural symbols and practices of members of different racial and ethnic minority groups (Sue et al., 2007). Pervasive biased communications may lead individuals to perceive societal discrimination, reflecting the belief that individuals from some ethnic or racial groups will not be treated fairly or protected (Caldwell & Obasi, 2010).

The empirical literature examining the association of cultural or societal discrimination to GPA is limited. However, related concepts, such as cultural mistrust have been shown to be negatively associated with self-reported GPA (Caldwell & Obasi, 2010). Reports of parental racial socialization practices may be linked to perceptions of societal discrimination. A recent meta-analysis finds that socialization practices associated with the promotion of mistrust were unrelated to GPA, whereas preparation for bias was weakly positively associated with GPA (Wang et al., 2020).

Discrimination at any one of these levels may promote or exacerbate discrimination at other levels. To date, it remains unclear if individual, school, and societal discrimination each affect academic achievement or if there are unique effects attributable to one level of discrimination.

Therefore, the primary aim of the present study is to examine the unique effects of individual level, school, and societal discrimination on objective measures of GPA.

Objective GPA, as recorded on college students' advisement reports, avoids some of the common method variance associated with self-report assessments of discrimination and academic motivation. In analyzing the accuracy of self-reported grades versus objective measures of grades, researchers found that students reported their grades in varying patterns, leaving self-reported measures of grades an unreliable source (Somers et al., 2020).

Mediators of the Effects of Discrimination on GPA

The pathways that mediate potential associations of discrimination at any level to academic achievement are not fully understood. Two pathways that have been identified as potential explanatory or mediating variables include academic self-efficacy and stress. These two pathways may act independently or jointly to influence GPA.

Academic self-efficacy is defined as the appraisal of one's capability to plan and act in a manner that promotes attainment of positive academic performance (Zimmerman, 1995). Prior research has established a relationship between academic self-efficacy and academic achievement (Multon et al., 1991), although the directionality of this relationship is unclear. A meta-analysis of longitudinal research identified a bidirectional relationship in which academic performance impacts self-efficacy and vice versa (Talsma et al., 2018). Emerging adult college students may experience changes in their academic self-efficacy, as they re-evaluate their own competence in a new academic environment.

Data on discrimination and academic self-efficacy has largely suggested that discrimination is associated with poorer academic motivation, including academic self-efficacy (Benner et al., 2018). However, not all studies report these effects (Banerjee et al., 2018). Much of the literature

on the relations of discrimination to academic self-efficacy has been focused on children and adolescents (Benner et al., 2018). There has been more limited research on these issues among emerging adults.

Discrimination may also affect academic achievement through effects on stress. Increased self-reported stress is consistently associated with poorer academic achievement (Buddington, 2002; Cohen et al., 2006; Pritchard & Wilson, 2003; Stewart et al., 1999). Discrimination is a psychosocial stressor and may trigger other forms of stress, including acculturative stress. Acculturative stress is defined by Sam and Berry (2010) as “the process of cultural and psychological change that results following meetings between cultures.” Discrimination may negatively impact an individual’s sense of belonging to the dominant culture, leading to heightened levels of stress as individuals grapple with decisions about accepting or participating in both mainstream culture and their own racial/ethnic group culture.

Researchers have consistently found a strong relationship between discrimination and acculturative stress in both adolescents and adults (Ahmed et al., 2011; Dawson & Panchanadeswaran, 2010; Mallett, et al., 2021; Torres et al., 2012). Acculturative stress acts as a significant mediator between perceived racial discrimination and symptoms of depression (Cabrera Tineo et al., 2020; Ponciano et al., 2020; Tineo et al., 2021). However, it remains unclear if acculturative stress mediates the relationship of discrimination to academic achievement.

Although acculturative stress and academic self-efficacy have been identified as potential mediators of the effects of discrimination on academic achievement, few studies have examined these variables together as possible explanations for the relations of interpersonal, institutional, or societal discrimination to reduced academic achievement.

We test hypotheses about the relations of self-reported discrimination at the individual, school, and societal levels to objective GPA among college students. Further, we test hypotheses

about the potential mediating roles of self-reported acculturative stress and academic self-efficacy. Identifying mediators of the relations of discrimination to academic achievement may help identify targets for intervention.

The Research Context

This project was conducted through the Collaborative Health Integrative Research Program (CHIRP) at St. John’s University. CHIRP began as a collaboration between the St. John’s University Department of Psychology and Jamaica Hospital Medical Center (JHMC) Department of Family Medicine. CHIRP is a research training program whose mission is to train a pipeline of psychologists and physicians to address health and healthcare disparities. CHIRP has now expanded and includes collaborations with JHMC Department of Psychiatry and NYP-Queens. CHIRP Fellows include graduate and undergraduate students in psychology, and resident and attending physicians in Family Medicine, Internal Medicine, and Psychiatry. CHIRP Fellows work together to investigate and address racial disparities in health and well-being.

This project described in this paper investigated the relations of racial discrimination to academic achievement. Rebecca Steele, a graduate student at St. John’s led the research. Portions of this project served as her Master’s and Dissertation research. Dr. Elizabeth Brondolo served as her dissertation mentor. Undergraduate students were involved with the project from the outset. Their many responsibilities included supporting the literature review, gathering information on the participant pool, creating scripts for recruiting participants, transcribing participant’s survey responses, data entry and cleaning, managing the participant roster, distributing incentives to participants, assisting in data analysis and interpretation, and assisting in preparing an abstract and the manuscript. Some undergraduate students took on leadership roles and trained the new students who joined each semester. Student comments and feedback about this experience can be found in Appendix 1.

METHOD

Research Participants

Participants included individuals 18 years of age or older who were current undergraduate students at a university in the Northeastern United States. Recruitment occurred during February to March 2019; February 2020, and September 2020. Power analyses indicated that a sample size of 72 would be required to test relations of discrimination to academic achievement.

Recruitment

The online survey was uploaded to St. John's University's online course credit remitting program. All undergraduate students majoring in psychology had access to view and select this study from a list of available studies that provided course credit in return for participating in research. Additional participants were recruited when the first author (RS) visited psychology courses to present the study to students. After March 2020, all recruitment was conducted via email through faculty at St. John's University. Faculty forwarded the recruitment email to students in their courses. The survey was then completed in the participants' environment of choice, remote from the researchers or faculty.

Participants completed a consent form informing them of the purpose of the study, incentives for completion (one course credit), and that participation is voluntary. Consenting participants began the survey on the following screen. Incentives for completion of the survey included course credit via St. John's University's online course credit remitting portal. All participants received a booklet of mental health resources following survey completion.

The data collection tool Qualtrics was employed to send the online survey. Qualtrics allows researchers to build and modify surveys. The software also tracks and collects all survey responses, ensures confidentiality, and allows for the ease of exporting data into other programs used for data analysis. Participants completed all measures in this survey and were asked to upload a copy of their advisement report or unofficial

transcript to provide information about their GPA. Survey completion required about 10-15 minutes.

Participants were emailed five times to remind them to upload materials if they had not done so or if they had not withdrawn their consent to be contacted. These participants were also sent personalized links directing them to their individual survey to streamline this process and reduce the effort required to upload their materials.

Measures

Sociodemographic and educational status

Participants completed measures of self-reported gender, age, race/ethnicity, immigration status, and education level, which included 1st-year through 4th-year undergraduate students. They also provided information on parents' place of birth and education level.

Measures of Discrimination

Societal discrimination was measured with the Identification with American Ideals (IAI) scale. The IAI contains 12 items that inquire about the extent to which the participant believes the proposed American ideals apply to their life. The scale begins with the question "To what extent do the following phrases accurately describe what "America" or "being American" means for you personally?" and follows with statements such as "a society that is concerned about the welfare of my cultural group" and "a society that supports freedom and justice for me." The alpha score reported for this scale is .93. Responses to this scale were reverse coded such that higher scores reflected greater discrimination.

Classroom discrimination was assessed with five items from the original version of the Patterns of Adaptive Learning Scales (PALS; Midgley et al., 1996) drawn from the School Relationship Dimension subscale and one item from the Relatedness subscale. These questions assess students' perception of their academic relationships and general sense of belonging phrased in the absence of discrimination. Items

include questions such as “in this school, teachers treat students of my race/ethnicity with respect” and “I feel like students of my ethnicity/race belong in this school.” The scale provides 3 answer choices ranging from “not at all true” to “somewhat true” to “very true.” Cronbach’s alpha for the academic relationship subscale and the sense of belonging subscale have been reported as .81 and .76, respectively (Roeser, 1996). Responses to this scale were reverse coded such that higher scores reflected greater discrimination.

Interpersonal discrimination was measured with the Brief Perceived Ethnic Discrimination Questionnaire (Brondolo et al., 2005). This version was developed to evaluate perceived lifetime discrimination reported by adults in the general population. This scale begins with the prompt “Because of my ethnicity...” and presents various situations involving interpersonal mistreatment such as “...a waiter or clerk ignored me” and asks participants to identify if and/or how often the event has occurred in their lifetime. The scale yields a lifetime total score and provides scores for four subscales which assess race-related work or school discrimination, social exclusion, and threat and harassment. Available responses to items lie on a five-point Likert scale and range from 1 indicating “never happened” to 5 indicating “happened very often.” The alpha score reported for this scale is .89.

Measures of Mediators: Acculturative Stress and Academic Self-efficacy

Acculturative Stress was measured with the Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale. The SAFE Scale is a 24-item inventory designed to evaluate and interpret any distress associated with acculturation. The SAFE scale follows a six-point Likert scale format including 0 indicating “have not experienced” and ranging from 1 indicating “not at all stressful” to 5 indicating “extremely stressful.” The alpha score reported for this scale is .87.

Academic self-efficacy was assessed using the Academic Self-Efficacy Subscale of the revised version of the PALS (Midgley et al., 2000). This

subscale includes items such as “I’m certain I can master the skills taught in class this year” and “even if the work is hard, I can learn it.” Possible answer choices follow a five-point Likert-scale format and range from 1 indicating “not at all true” to 5 indicating “very true.” The alpha score reported for this scale is .89.

Academic Achievement

Objective Grade Point Average (GPA) to date was obtained from the students’ advisement report (DegreeWorks).

Analytic Plan

Preliminary analyses employed Analyses of Variance (ANOVA) with unadjusted post-hoc tests to examine sociodemographic and education-level differences in key variables, necessary to identify potential covariates for further analyses. Post-hoc tests were unadjusted to permit a less conservative approach to evaluating p-values in analyses intended to determine if any of the sociodemographic variables should be considered as a covariate. Correlational analyses examined unadjusted relations among key variables. Hierarchical multiple regression was employed to examine the relations of all measures of discrimination to GPA, with and without covariates. Tests of multiple mediation following procedures outlined by Preacher and Hayes (2008) were employed to examine the potential mediating roles of academic self-efficacy and acculturative stress in the relations of discrimination to GPA. All analyses were performed in SAS (9.4). Mediation analyses were performed with the Process Macro from Andrew Hayes.

RESULTS

A total of 140 participants completed the questionnaires for the study. However, only 78 of the 140 participants provided their advisement report containing information on their GPA. Students who did versus did not upload GPA did not differ on any key variable, including self-efficacy, acculturative stress, societal discrimination, classroom discrimination, and

interpersonal discrimination. The 78 students with complete information form the analytic sample for this study. The sample included participants at all levels of college, who ranged in age from 18-28 years old. The sample was racially and ethnically diverse. Details of their educational and sociodemographic status are presented in Table 1.

Table 1

Characteristics of the Sample

VARIABLE	N	%
TOTAL	78	100
GENDER AND AGE		
Men	14	17.95
Women	63	80.77
Other	1	1.28
Age	Mean = 19.88	SD = 1.4
RACE		
Asian	20	25.97
Black	13	16.88
Latinx	10	12.99
Multiracial	7	9.09
White	27	35.06
EDUCATION		
Freshman	3	3.85
Sophomore	20	25.64
Junior	28	35.90
Senior	27	34.62

Preliminary Analyses

To evaluate covariates for use in hypothesis-testing analyses, we examined sociodemographic and education level differences in key variables. There were no significant gender effects on any measure of discrimination, or on GPA, acculturative stress and academic self-efficacy. Age was significantly positively correlated with interpersonal discrimination ($r(78) = .31, p < .01$) and significantly negatively correlated with GPA ($r(78) = -.56, p < .001$). There were no significant age differences in any other measure. Comparisons of race/ethnicity differences in key variables focused on effects for the three largest groups (i.e., Asian, Black, and White). Asian and Black individuals consistently reported experiencing more individual, classroom, and societal discrimination than White individuals. Race differences in GPA were not significant. Additional demographic differences on key variables can be found in Table 2.

Table 2**Means and Standard Deviations of Key Variables for Full Group and by Demographic Categories**

VARIABLE	Full Group		Race (Subdivided Into Top Categories)						Year in School (Subdivided into Top Categories)					
	N = 78		Asian (N = 20)		Black (N = 13)		White (N = 27)		Sophomore (N = 20)		Junior (N = 28)		Senior (N = 27)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Discrimination														
PEDQ	1.33	.284	1.34	.173	1.47	.343	1.20	.265	1.26	.220	1.27	.268	1.42	.327
IAI	1.99	.602	2.14	.567	1.98	.793	1.85	.581	1.95	.392	2.01	.735	2.02	.598
PALS	1.51	.470	1.55	.420	1.65	.595	1.31	.424	1.36	.403	1.42	.479	1.74	.433
Acculturative Stress														
SAFE	2.50	.746	2.90	.792	2.48	.601	2.22	.771	2.43	.688	2.47	.811	2.46	.682
Academic Self-Efficacy														
PALS†	4.06	.880	3.77	.978	4.05	.617	3.98	1.01	4.26	.699	3.99	.826	4.05	1.04
Academic Achievement														
GPA	3.69	.349	3.76	.383	3.56	.349	3.78	.235	3.83	.188	3.69	.350	3.54	.399

†Academic Self-Efficacy subscale of the PALS

There were significant year in school effects for measures of classroom discrimination ($F(3,75) = 3.67, p = .02$). Seniors ($M = 1.74$) reported experiencing significantly more classroom discrimination than sophomores ($M = 1.36, p = .005$) and juniors ($M = 1.44, p = .01$). Consequently, age and race were included as covariates in subsequent analyses. We did not include year in school as it was closely associated with age ($r(78) = .72, p < .001$).

Intercorrelations among Key Measures

As shown in Table 3, the lifetime total interpersonal discrimination score and scores on the subscales of work/school discrimination, social exclusion and stigmatization were significantly positively related to classroom discrimination but were not significantly related to societal discrimination. Classroom and societal discrimination were significantly positively correlated.

Table 3.***Zero-Order Correlations Among Key Variables***

Measure	1	2	3	4	5	6	7	8	9	10
1. Interpersonal Discrimination	—									
2. Exclusion subscale (ID)	.873***	—								
3. Stigma subscale (ID)	.811***	.614***	—							
4. Threat subscale (ID)	.652***	.365***	.464***	—						
5. Work subscale (ID)	.874***	.704***	.548***	.513***	—					
6. Societal Discrimination	.099	.104	.025	-.118	.223*	—				
7. Classroom Discrimination	.356**	.341**	.245*	-.014	.458***	.311**	—			
8. Acculturative Stress	.611***	.533***	.508***	.389***	.530***	.146	.167	—		
9. Academic Self-Efficacy	-.127	-.152	-.248*	-.027	.029	-.274*	-.111	-.294**	—	
10. GPA	-.236*	-.195	-.222	-.222*	-.153	.031	-.02	-.009	.235*	—

Note. ID = for each subscale on the Interpersonal Discrimination measure.

* $p \leq .05$

** $p \leq .01$

*** $p \leq .001$

In unadjusted analyses, lifetime total interpersonal discrimination was significantly negatively associated with GPA. None of the associations of the subscales to GPA reached significance, although the associations of the stigmatization ($p = .051$) and threat ($p = .050$) subscales to GPA approached significance. Neither classroom discrimination nor societal discrimination were significantly associated with GPA.

Lifetime discrimination and all subscales were significantly related to acculturative stress. Neither classroom discrimination nor societal discrimination were associated with acculturative stress. Only the stigmatization subscale and the societal discrimination measures were significantly related to academic self-efficacy.

Acculturative stress was not associated with academic self-efficacy. Acculturative stress was not associated with GPA. Academic self-efficacy was significantly positively associated with GPA.

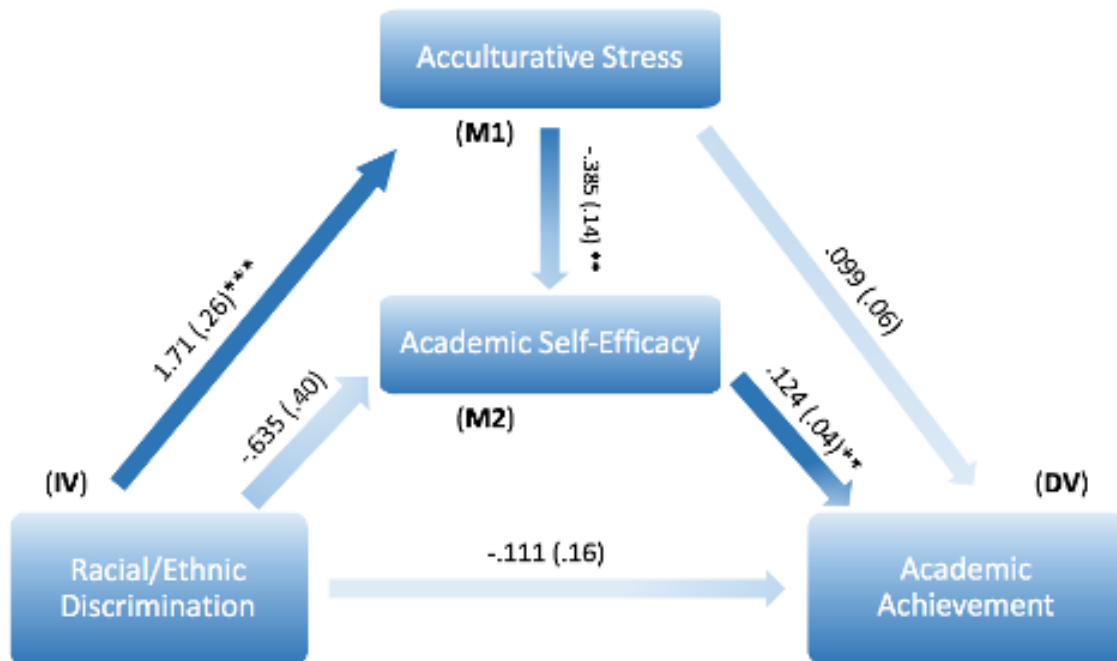
Regression Analyses and Tests of Mediation

Hierarchical multiple regression analyses revealed that the effects of lifetime discrimination on GPA were no longer significant with the covariates of age and race (dummy-coded) in the equation ($B = -0.07$, $SE = 0.12$, $t = -0.60$, $p = 0.549$, $b = -0.06$). When the four subscales were entered as a group into an equation predicting GPA, the group of subscales was not significant. As none of the other measures of discrimination were significantly associated with GPA, no further analyses were performed.

As shown in Figure 1, tests of mediation controlling for age and race revealed significant *a* paths, linking lifetime total discrimination to acculturative stress, and significant *b* paths linking academic self-efficacy to GPA. However, neither the total nor direct paths from lifetime discrimination to GPA were significant, nor were the indirect effects of acculturative stress or academic self-efficacy.

Figure 1

Multiple Mediation Results



** $p < .01$

*** $p < .001$

DISCUSSION

The aim of this study was to investigate relations of multiple types and levels of discrimination and objective measures of academic achievement in a diverse sample of college students. We initially replicated the finding that interpersonal discrimination was significantly negatively associated with GPA, but the effects did not hold controlling for race and age. Some (Assari & Caldwell, 2018; Banerjee et al., 2018; Caldwell & Obasi, 2010; Chen et al., 2021; Hood et al., 2017; McNeil Smith & Fincham, 2015; Thomas et al., 2009), but not all (Winkle-Wagner, 2010)

other investigators have included age and race as covariates in their analyses, making it difficult to compare across studies. Neither classroom nor societal discrimination were associated with GPA. These data contrast with those of other studies; however, most studies of classroom discrimination have focused on Black samples and included younger students, whereas we recruited a diverse sample of undergraduates.

Interpersonal discrimination, but not other forms of discrimination were positively associated with acculturative stress. Interpersonal stigmatization

and societal discrimination were negatively significantly associated with academic self-efficacy. These findings suggest that different types and levels of discrimination may affect academic achievement through multiple pathways. Both stigmatization and societal discrimination may reflect the perception that academic resources and opportunities are blocked, undermining one's sense of academic self-efficacy. This undermined sense of self-efficacy can have negative effects on academic achievement.

In contrast, all types of discrimination appear to generate acculturative stress – a sense that it is difficult to align with both mainstream culture and one's own ethnic group culture. Relations of interpersonal discrimination to acculturative stress were consistent across different types of interpersonal discrimination. But neither classroom nor societal discrimination was associated with acculturative stress. This suggests that directly perceived interpersonal maltreatment through interactions with others may engender and promote the perception that one is a cultural 'outsider.' The effects of racial discrimination on acculturative stress appear to have direct implications for mental health in other studies (Cabrera Tineo et al., 2020; Ponciano et al., 2020; Tineo et al., 2021). Studies with larger samples may permit examination of the hypothesis that the effects of discrimination on acculturative stress may influence achievement through effects on distress or depression, as suggested by other researchers (e.g., Datu, 2018).

LIMITATIONS

It proved to be difficult to obtain objective measures of GPA from participants, limiting sample size. The missing data could potentially bias the findings, although we did not find any differences between those with and without GPA data on any of the key variables. The sample was diverse, but too small to compare effects across racial/ethnic groups. The study was cross-sectional, limiting the ability to examine bidirectional effects, including those between academic achievement and academic self-efficacy. The study was conducted at a single University, limiting the ability to identify differences among college contexts.

In conclusion, in this sample, demographic factors, including age, predicted the bulk of variance in GPA. The findings raise the possibility that demographic effects may be mediated through mechanisms that we did not measure, such as depression or trauma exposure. Discrimination is associated with acculturative stress, and efforts to address those stressors may have benefits for student well-being.

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APPENDIX 1

Comments from Student Researchers

Conducting the project had benefits for the student researchers. Students benefited in many ways from participation. In their own words:

“Assisting with the editing process of the study survey gave me a glimpse of study design procedures, that I wasn’t familiar with prior to participating. Playing a role in survey development was compelling because I got to take the perspective of a study participant who was attempting to understand and complete the survey. I had to make recommendations for the survey’s wording based on what I thought would help participants sufficiently comprehend and finish the survey.” -Jordan

“Working under Rebecca Steele, in the Racial Discrimination & Academic Achievement project has taught me a tremendous amount. This was the first project I worked in upon joining CHIRP, and I learned both how to be a project manager, and to do data entry. I became familiar with using Qualtrics for the survey, and Excel for the data entry. I was also able to directly analyze the extent that racial discrimination played in acculturative stress, and how various levels of acculturative stress then affected academic achievement. This was a complete eye-opener for me because prior to this project, I was not familiar with the connection between racial discrimination, acculturative stress, and academic achievement, and after my time working on this project, I feel that I have gained extensive knowledge in this area of

research. Overall, I have learned valuable things from this project, that I will continue to take with me into the future!” - Vanessa

“I started working at CHIRP in the fall of 2019, and it was the first experience where I was exposed to research that focused on racial discrimination and acculturative stress and its effects on academic achievement. Before stepping into this experience, I did not even know that this type of research could be done. Through this research project, I was able to see nonsignificant and significant pathways that can potentially impact the studies of Black, Indigenous, People of Color (BIPOC) in America. It’s highly important to study academic achievement in minority students to discover the inequities of the country. This type of research geared me to a doctoral degree in School Psychology at Michigan State University, where I am interested in learning how novel treatments can impact the academic achievement of children with ADHD. Through this project, I developed an interest in the research of academic achievement which I will be exploring throughout my career. Therefore, I am thankful to St. John’s University for letting me be a part of this amazing research opportunity, as I found one of my research interests at my alma mater.” -Nancy

“My appreciation and interest in research grew when I began assisting in the CHIRP training program in the fall of 2020. Throughout this project, I was introduced to a multitude of new research aspects, which have allowed me to strengthen my research skills. I have also learned the importance of collaboration and how powerful it can be to bring a study to life with fellow peers and mentors. Our team works harmoniously to ensure that everything in this project is accurate and concise.” -Amanda

“During this project, I learned a significant number of key values as it relates to leadership, including effective project management, task delegation, and flexibility. As there were consistent departures and additions to the team due to fellows graduating or beginning a new semester in the program, I also learned the importance of meticulous record-keeping, consistent organization, and clear communication.”
-Rebecca

ABOUT THE AUTHORS

Rebecca Steele is a Clinical Psychology Ph.D. candidate at St. John’s University. In the CHIRP lab, she has served as a teaching assistant for an undergraduate research methods course and as a research coordinator in studying the effects of discrimination on unhealthy eating habits. Rebecca’s research interests span topics ranging from racial discrimination to personality disorders. Rebecca graduated with her Master’s degree in Clinical Psychology from Teachers College, Columbia University, interned as a graduate research assistant at the Center for Motivation and Change, and owes all her successes in life to Christ.

Amanda Rosado is a senior psychology major at St. John’s University. She has been a member of the Collaborative Health Integration Research Program (CHIRP) since the Fall of 2020. Amanda is involved in various organizations on campus, including the Wellness Peer Education program and the Ronald E. McNair Scholars program. Her research interests include attachment styles, relationships, mindfulness, and racial disparities in mental health. She will graduate in May and plans to earn her Ph.D. in Counseling Psychology.

Nancy Hernandez is a first-year doctoral student in the School Psychology program at Michigan State University. She has been affiliated with CHIRP since 2020 as she pursued her bachelor’s in Psychology from St. John’s University. Her research interests include observing the effects that physical activity intervention has on the symptoms and academic achievement of children with Attention-deficit hyperactivity disorder (ADHD). She plans to pursue novel treatments for children with ADHD in practice and research.

Elizabeth Brondolo, Ph.D. is a Professor of Psychology at St. John’s University. Dr. Brondolo founded the Collaborative Health Integration Research Program (CHIRP) more than 15 years ago. She is an expert in the study of the effects of discrimination on health. She has published extensively and is the author of two books, including a new textbook entitled “Psychology Research Methods: A writing Intensive Approach”. Her work has been funded by the National Institute of Health, the American Heart Association, and other organizations. Dr. Brondolo received the Patricia Barchas award from the American Psychosomatic Society for her work in social psychophysiology.