

**DEPRESSIVE SYMPTOMS AND THE STRESS PROCESS IN
RACIAL/ETHNIC MINORITY GRADUATE STUDENTS**

by

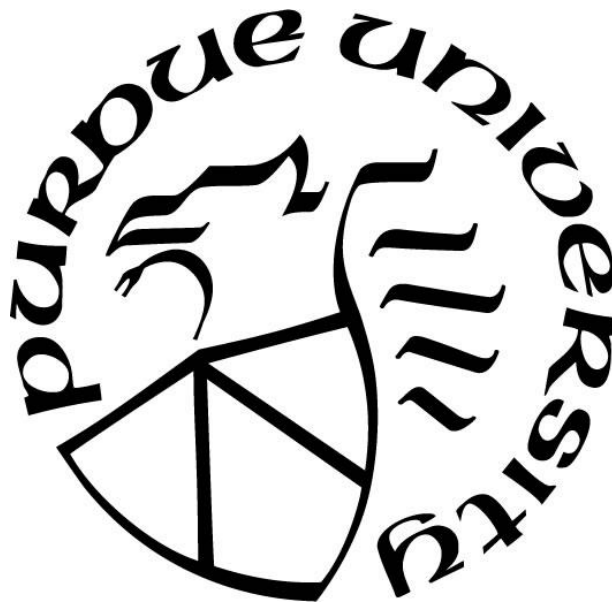
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*For my parents, who have demonstrated patience at every turn and generosity beyond measure.
This is for you.*

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ABSTRACT

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Title: Depressive Symptoms and the Stress Process in Racial/Ethnic Minority Graduate Students.

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In the last several years, it has become apparent that racial/ethnic minority graduate students face an increased risk for mental health issues (Clark, Mercer, Zeigler-Hill, & Dufrene, 2012; Paradies et al., 2015). Contextualizing their experiences and determining what factors play a role in increasing this risk specifically for racial/ethnic minority graduate students could help provide information about areas for intervention. However, there is a lack of literature on the experiences of racial/ethnic minorities in graduate school and the implications of those experiences for their mental health. It is important to understand their experience in the context of minority status stress through the use of Stress Process Theory (Pearlin, Menaghan, Lieberman, & Mullan, 1981). As such I hypothesized several positive and unique contributions to depressive symptoms by career and education barriers and minority status stress. Additionally, I hypothesized that minority status stress would mediate the relationship between career and education barriers and depressive symptoms, and that perceived family social support would moderate the relationships between career and education barriers, minority status stress, and depressive symptoms. To this end I used this regression-based, quantitative study to examine the associations between the perception of career and education barriers, minority status stress, perceived family social support, and depressive symptoms among a sample ($N = 311$) of domestic racial/ethnic minority graduate students currently enrolled in degree granting programs. The results revealed that the perception of career barriers uniquely contributed to depressive symptoms, although not in the hypothesized direction with career barriers being a negative predictor of depressive symptoms. Minority status stress uniquely contributed to depressive symptoms in the hypothesized directions and serves as a mediator between the perception of career barriers and depressive symptoms. The perception of education barriers did not uniquely contribute to depressive symptoms. Additionally, perceived family social support moderated only the relationship between the perception of career barriers and depressive symptoms; a moderator effect was not

found in any other relationship. Implications for future research and practice, as well as the study's limitations are discussed

CHAPTER 1. INTRODUCTION

Racial/ethnic minorities are making up an increasing percentage of the graduate student population in the United States (U.S.; The Condition of Education, 2018b). As of 2016, there were a total of 3 million students enrolled in graduate programs, 1.4 million of whom were racial/ethnic minorities. This is about seven times more than the number of racial/ethnic minority students, about 200,000, enrolled in 1990. As the overall number of racial/ethnic minority graduate students has increased, the stressors that this population faces have also begun to be seen in a more prominent light.

Race and ethnicity are often used interchangeably but have different meanings and implications, especially when considering that discrimination based on both of these constructs exists and appears to be becoming more explicit (Bauman, 2018). Race and ethnicity represent distinct social constructs, where one is a cultural phenomenon (ethnicity) and the other is a social construct applied to people based on phenotype (race) (APA, 2002). It is important to recognize these distinct constructs and the interplay that occurs between them in the experiences of racial/ethnic minorities, especially as it relates to discrimination. However, because these social constructs are often taken together and confused for one another, they will be taken as an amalgam lived experience and operationalized as one key construct for this study. In this study, racial/ethnic minorities will have a broad definition derived from both the definitions of race and ethnicity as delineated by the American Psychological Association (APA). APA defines race as “the category to which others assign individuals on the basis of physical characteristics, such as skin color or hair type, and the generalization and stereotypes made as a result” (2002, p. 9). Additionally, according to the 2002 APA guidelines, ethnicity is “the acceptance of the group mores and practices of one’s culture of origin and the concomitant sense of belonging” (2002, p.

9).¹ Taken together, minority race and ethnicity constitute an individual's physical characteristics and cultural practices that set them apart from majority cultures, which in this study is represented by White Americans.

The current population of racial/ethnic minority graduate students has grown by more than 600% (The Condition of Education, 2018b). According to The Condition of Education (2018b), as of the Fall of 2016, there were approximately 363,000 Black students enrolled in a graduate program of study in the U.S.. During the same time there were 260,000 Hispanic, 206,000 Asian/Pacific Islander, and 13,700 American Indian/Alaska Native graduate students enrolled in a program of study. This still leaves 550,000 racial/ethnic minority graduate students of who do not fit into these categories, such as those of Middle Eastern/North African heritage (The Condition of Education, 2018b). These numbers are of particular importance as when paired with the rates of mental health issues experienced by each group, we begin to see a rather stark picture come together.

Being a racial/ethnic minority can have negative impacts due to a resurgence in racialized stressors (e.g., racism, discrimination, insensitive comments; Cokley, McClain, Enciso, & Martinez, 2013). This has become manifest in mental health issues and as of 2014, racial/ethnic minorities tend to experience mental health issues at higher rates (35.7% Black, 35.8% Hispanic, 40.3% American Indian/Alaska Native, 43.1% Other – MENA, Asian/South Asian, etc.) than the majority population (34% of the general population) in the United States (Center for Disease Control and Prevention, 2014). Only Asian/Native Hawaiian and Pacific Islanders report experiencing fewer mental health issues (30.3% of them) than the general population. Similar to

¹ Although the American Psychological Association (2017) has created two distinct task forces to update the Multicultural Guidelines, those that pertain specifically to Race/Ethnicity have yet to be updated as of this study.

the larger trend, racial/ethnic minority college students have been found to report mental health issues at a higher rate (6.8%) than White college students (5.9%; Smith, Chesin, & Jeglic, 2014). In addition to the normative stressors (e.g., adjusting to college, integrating to an institution) that are associated with being a college student, racial/ethnic minorities must navigate higher education institutions while also dealing with race-related stress (Neville, Heppner, Ji, & Thye, 2004) and increased perceived barriers to career and education (Fiebig, Vraid, Ross, Tom, & Prinzo, 2010). Now, during the post-2016 election era in the United States, racial/ethnic minorities have had to face an increasing amount of these racialized stressors (American Psychological Association, 2017). The number of race-based hate crimes has risen and hate-based organized rallies taking places on university campuses became more common leading up to the election and continue to occur more frequently than in the past (Bauman, 2018). This climate that breeds fear, resentment, and highlights oppression, demonstrates the ways that unchecked privilege can negatively affect racial/ethnic minority graduate students (Anderson, 2016). These perceptions of racially-based discrimination, in concert with perceptions of career and education barriers, may lead to mental health issues, such as depressive symptoms (Saldaña, 1994). In this study, I will examine the role of minority status stress and perceived family social support on the relationship between perceived career and education barriers and depressive symptoms among racial/ethnic minority graduate students.

The rate of reported mental health issues for both undergraduate and graduate students of all races/ethnicities and the severity of those issues on college campuses (Gallagher, 2014) has increased significantly (21.9% in 2003-04 to 30% in 2008; Horn, Nevill, & Griffith, 2006; Hunt & Eisenberg, 2010). In particular, depressive symptoms in graduate students is a growing concern due to its high prevalence (50%; Hyun, Quinn, Madon, & Lustig, 2006), the lack of

enough emphasis on this community, and increased suicidality in this population as compared to undergraduate students (32.2% versus 21.5%; Silverman, Meyer, Sloane, Raffel, & Pratt, 1997). Anecdotal evidence of the prevalence and severity of mental health issues, and depressive symptoms in particular, among graduate students has recently been highlighted by an increase in testimonials in blogs and online periodicals by graduate students sharing their experiences (Arnold, 2014; Bernstein, 2015; Bowman, 2016; Hiatt, 2014; Jaschik, 2015; Scheinman, 2014; Turley, 2013; Walker, 2015). For example, Jennifer Walker (2015), a former physicist, wrote about her attempted suicide and her struggle with depression as a graduate student for Quartz, an online news outlet. She detailed the struggle and isolation she felt as a doctoral student and the general lack of information about how and where to get help. Her story is not unique or uncommon. For instance, a study at the University of California, Berkeley found that 47% of Ph.D. students and 37% of master's students suffered from depressive symptoms (The Graduate Assembly, 2014). Although there have been several studies undertaken to examine what factors contribute to depressive symptoms in graduate students (Hyun et al., 2006; Kessler et al., 2010; Kreger, 1995; Mongrain & Blackburn, 2005), very few have endeavored to discern why the rate of depressive symptoms differs so widely for graduate students from that of the general population (Wyatt & Oswalt, 2013).

A possible explanation for the difference in depressive rates between graduate and undergraduate students may be the makeup of the graduate student population. While nontraditional students (e.g., students that are parents, pregnant, legal guardians, are married or in a domestic partnership, are on active duty or U.S. military veterans, financially emancipated, or coming back to school from a two or more year break; Purdue University, 2016) exist in both graduate and undergraduate populations, the graduate student population tends to have a

relatively high percentage of nontraditional students (23.5% for undergraduates and 80% for graduate students; Council of Graduate Schools, 2017; The Condition of Education, 2018a). Further, the composition of the graduate student population hints at a difference in terms of development. This nontraditional makeup of students that encompasses a higher number of married and married-like students, may signal a further emotional development than their undergraduate counterparts. This also means that the composition of students' support network can be different as more graduate students tend to be partnered in long-term relationships or in marriages than their undergraduate counterparts. While this advancement development can be good for emotional stability, it can make acclimating to new academic environments difficult. Research has shown that the transition faced by nontraditional graduate students can be particularly jarring (Maruyama, 2008). Moving into a new professional or learning environment can be disconcerting for individuals who have not yet integrated into their programs. (Granfield, 1991). Such problems can be exacerbated by additional stressors related to being a racial/ethnic minority (Saldaña, 1994). Perceptions of barriers can further cause distress to individuals already in transition, putting them at greater risk for depression (Beck, Taylor, Robbins, 2003; Bland, Melton, Welle, & Bigham, 2012; Gerdes & Mallinckrodt, 1994; Larose & Bovin, 1998).

One potential risk factor affecting graduate students' mental health is the perceptions of career and education barriers. Most students face barriers to entering their chosen fields, often citing financial concerns and negative family influences (Lent et al., 2002). For many students, the perception of career and education barriers can decrease their persistence in goal attainment, which can in turn have negative mental health outcomes (Judge, Ilies, & Dimotakis, 2010; Leong & Morris, 1989; Strauser, Lustig, & Çiftçi, 2008). Although perceived career and education barriers are ubiquitous amongst students, it is not a well-researched construct among graduate

students. Additionally, there is practically no research detailing the relationship between the perception of career and education barriers and racial minority status in racial/ethnic minority graduate students. That is, the obstacles (e.g., sex-based discrimination, racial discrimination, financial trouble, family issues, finding childcare) that racial/ethnic minority graduate students believe they will encounter as they progress in their chosen fields has not been studied or examined through a lens that contextualizes the perception of variables through a racialized lens. This is unfortunate as diversity is a factor for the perception of career and education-related barriers. For example, ethnic minorities have been found to perceive more education and career-related barriers than ethnic majority college students (Luzzo & McWhirter, 2001; McWhirter, 1997; Vasquez, 1982).

Although racial/ethnic minority graduate students can perceive many barriers that can influence their mental health, certain factors exist that may work to buffer against the negative effects of these barriers. The social support (e.g., feelings of closeness, financial aid) students receive from their family may help buffer against depressive symptoms. This type of positive, protective relationship between family social support and well-being has been previously demonstrated in the literature (Eisman, Stoddard, Heinze, Caldwell, & Zimmerman, 2015; Romero, Riggs, & Ruggero, 2015; Shahar & Heinrich, 2016). While it is established that family social support can impact depressive symptoms (Eisman et al., 2015; Romero et al., 2015; Shahar & Heinrich, 2016), its role as a potential buffer for depressive symptoms in relation to the perception of career and education barriers has yet to be explored. Furthermore, while research with racial/ethnic minority graduate students exists, there is a dearth of literature when it comes to intersection of this particular group's mental health and the perception of career and education barriers.

In order to gain a better understanding of how the perception of career and education barriers, perceived family social support, and depressive symptoms function within racial/ethnic minority graduate students, I will use Stress Process Theory (SPT; Pearlin, Menaghan, Lieberman, & Mullan, 1981) and its corresponding model to conceptualize these constructs. SPT lends itself for this use as it is both simple and adaptable consisting of three distinct constructs: sources of stress, the mediators/moderators of stress, and the manifestations of stress (see Figure 1). The variables of interest in the current study can be mapped onto the constructs of SPT, where the perception of career and education barriers is a *source of stress*, minority status stress is a *mediator of stress*, perceived family social support is a *moderator of stress*, and depressive symptoms are the *manifestation of stress*, to form a cohesive model that will allow for the examination of these disparate variables for the first time. SPT's previous use with the population of interest (i.e., racial/ethnic minority graduate students; Ong, Fuller-Rowell, & Burrow, 2009) highlights its potential to properly address the unique stressors faced by this population.

At this point, it is important to distinguish the racial/ethnic minority population from that of international students. While racial/ethnic minorities and international students share many of the same issues (e.g., acculturative stress, discrimination), international students may face unique factors that are not included in the current study. For example, international students may face a steeper language barrier than domestic students. Even if they know English, due to an unfamiliarity with the abundance of colloquialisms that are commonly used in the United States, they may have a more difficult time adjusting socially outside of the classroom. Also, while any student may take time to adjust to their new learning environment, international students may experience a disproportionate period of adjustment due to encountering new cultural norms that

may be challenging, counterintuitive, or outright strange to them. The difficulty in adjusting, resistance faced by racial/ethnic minority graduate students, and potentially harmful psychological effects while encountering these new norms is what we hope to capture in the current study. The same reason for not including international students in this study holds for not including White, American students, and thus, this study focuses on racial/ethnic minorities and how stressors and potential buffers interact in their context as graduate students.

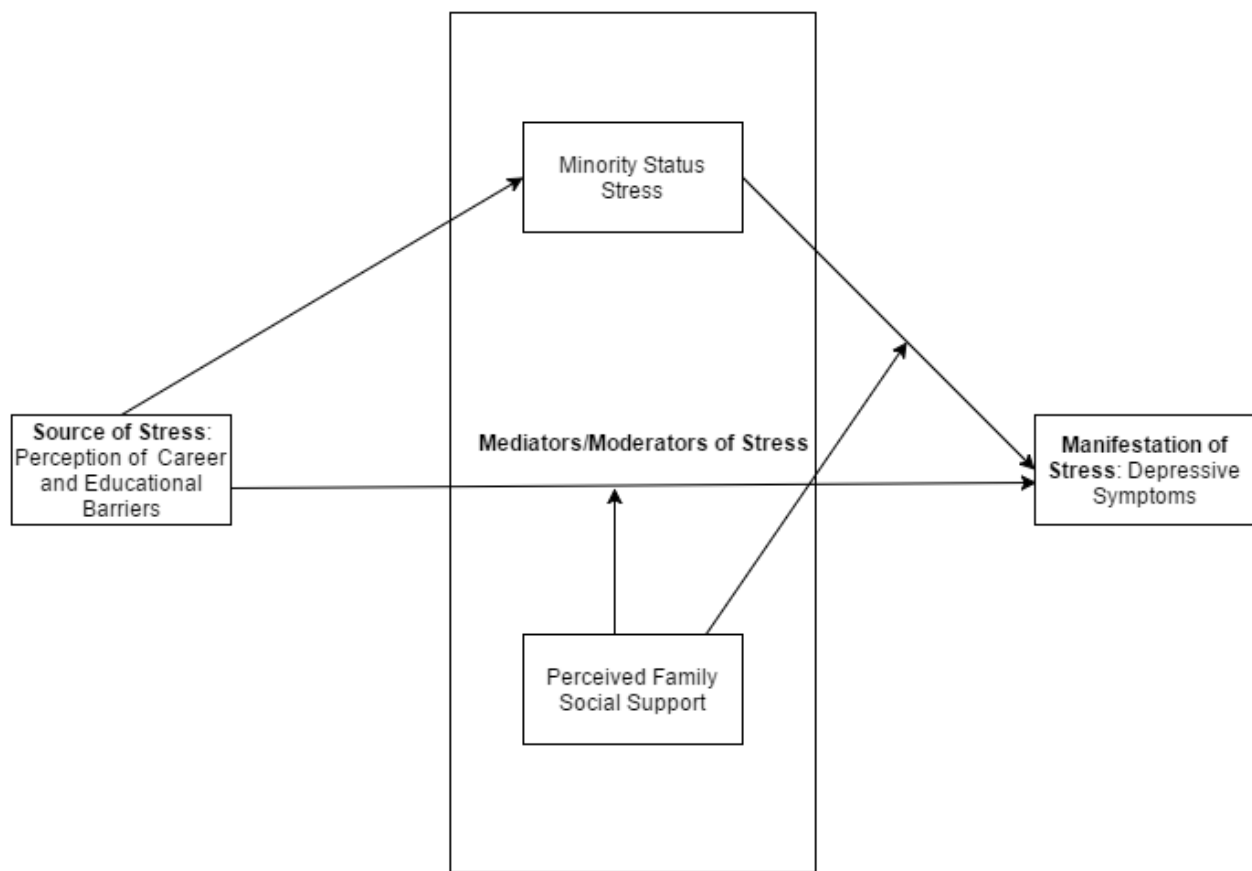


Figure 1. Conceptual pathways of Stress Process Theory in the present study.

Statement of Purpose

The purpose of this study is to examine the role of minority status stress and perceived family social support on the relationship between the perception of career and education barriers

and depressive symptoms in racial/ethnic minority graduate students by applying Stress Process Theory (Pearlin et al., 1981). In other words, the relationship between the perception of career and education barriers and depressive symptoms, and the relationship between minority status stress and depressive symptoms are expected to differ based on varying levels of perceived family social support. Additionally, the relationship between the perception of career and education barriers and depressive symptoms is expected to be mediated by minority status stress. No study has examined the role of the perception of career and education barriers, minority status stress, and perceived family social support on depressive symptoms of racial/ethnic minority graduate students.

Importance of the Study

An examination of the relationship between the perception of career and education barriers, depressive symptoms, and the role of minority status stress and perceived family social support is relevant for several reasons. First, as the number of immigrants and racial/ethnic minority populations increases in the U.S., the factors that contribute to their mental health will remain a relevant factor in the considerations of program faculty, counselors (both on and off campus), and administrations. Studies have shown that racial/ethnic minorities are less likely to seek out and use mental health resources due to facing larger barriers to mental health resources in the form of stigma (e.g., shaming) and access (e.g., no mental health centers in a nearby area, more financial barriers; U.S. Department of Health and Human Services, 2001). In turn, this makes it paramount that more research elucidates the contributors to depressive symptoms. In addition, this research makes it possible to identify possible interventions points where clinicians can find ways to strengthen perceived family social support.

Second, perceived family social support can be crucial when confronted with the barriers that racial/ethnic minority graduate students may perceive in their pursuit of their career and education goals. Family social support can be defined as the combination of, or any individual emotional support, financial support, and/or help in problem solving coming from a partner, parent, sibling, child, or other family member (Procidano & Heller, 1983). Racial/ethnic minority graduate students with higher levels of family social support may feel that they have the support to overcome the barriers they face because they know that they have people to turn to during their times of difficulty (El-Ghoroury, Galper, Sawaqdeh, & Bufka, 2012). This persistence toward their goals after the acknowledgement of the barriers they perceived can be crucial to ultimately achieving the goals they set for themselves and that will move them forward in their careers. That is to say that increasing perceived family social support can lead to an overcoming of their difficulties (i.e., depressive symptoms) among racial/ethnic minority graduate students.

Third, this study can contribute to the literature in several ways. Specifically, the focus on racial/ethnic minority graduate students and their depressive symptoms is key as the literature base for the mental health issues of racial/ethnic minority graduate students is sparse. In addition, the examination into the barriers they face and the stressors they experience due to their minority status, with the counterbalance of the support they receive from their families will provide a unique spotlight into the experience of racial/ethnic minority graduate students that can inform future research and interventions. A unique contribution of this study will be the use of Stress Process Theory as it will tie these distinct variables together. The integration of these variables for this distinct population can lead to program faculty and administrators providing systemic intervention points to address the barriers unique to the population (Veilleux et al., 2012).

Fourth, counselors can begin to further tailor, or construct new interventions specifically for racial/ethnic minority graduate students that address the unique factors contributing to depressive symptoms within this population. With the new information on how the perception of career and education barriers, minority status stress, family social support, and depressive symptoms all interact in racial/ethnic minority graduate students, interventions can be shaped based on the particular perspective that a counselor operates with for the benefit of racial/ethnic minority graduate students. Counselors will now be able to tailor interventions that address depressive symptoms in relation to the level of academic success that racial/ethnic minority graduate students experience as a factor of their perception of career and education barriers, but also in the context of their experiences as racial/ethnic minorities and the stressors that that entails while in the institutions of higher learning. This new framing will allow clinicians to highlight perceived family social support as a strength that can help this group overcome their barriers and provide more resources to combat their depressive symptoms.

Relevance to Counseling Psychology

Counseling psychology, as a profession, has embraced several central values that set it apart from other professions and other specialties within psychology. Gelso and Fretz (1992) initially presented five unifying themes: assets and strengths, person-environment interactions, educational and career development, brief interactions, and intact personalities with multiculturalism and social justice as a sixth emerging theme. However, since then, they have taken in how the field has evolved and have presented a list encompassing the central values of the profession: strengths and optimal functioning, life-span development and vocational growth, social justice and multicultural awareness, brief, educational, and preventative interventions, and the scientist-practitioner model (Gelso, Williams, & Fretz, 2014). The themes that are most

relevant to the current study are: assets and strengths, educational and career development, and person-environment interactions with an emphasis on the central value of social justice and multicultural awareness.

First, counseling psychologists focus on individuals' assets and strengths. This focus emphasizes the internal resources available to individuals, which can be employed to reduce dysfunction. For racial/ethnic minority graduate students, perceived family social support may be seen as an asset that may be used to overcome perceived career and education barriers and to combat depressive symptoms. By working with individuals to find ways to optimize social support from their family, counseling psychologists can help individuals to increase the depth and breadth of resources available to them when facing negative occupational and educational situations (Raque-Bogdan, Klingaman, Martin, & Lucas, 2013) and/or mental health issues (Cumsille & Epstein, 1994).

Second, counseling psychologists incorporate the study of vocational choice and development with services that enhance career development and treat vocational problems. This integration allows for counseling psychologists to address racial/ethnic minority graduate students' unique barriers and stressors related specifically to their career and educational pursuits. Through the integration of vocational and psychological counseling, clinicians can aid racial/ethnic minority graduate students by conceptualizing them as a whole person and pulling from non-academic strengths to begin addressing their academic and career issues (Lindley, 2005).

Third, social justice and multicultural awareness are at the forefront of counseling psychology's identity as a field. This emphasis highlights the person-environment interactions through the form of research and practice. Further, social justice and multicultural awareness

inform the theoretical lens we use to develop both research and practice. In this way, this central value aligns with this study in two ways: contextually and theoretically. This study focuses on racial/ethnic minority graduate students, a diverse group of individuals working to further their careers and education. Within this group, there are many differences as to how their issues with career and education barriers need to be addressed, both systemically and therapeutically, based on individual races and ethnicities. This expansion of the knowledge base related to the experiences of racial/ethnic minority graduate students could inform those interventions.

Additionally, the current study places these individuals in their greater contexts of being a minority in environments that are traditionally not as welcoming to them. This central value of social justice and multicultural awareness also aligns theoretically with the current study in that the use of Stress Process Theory (Pearlin et al., 1981) which is based on the interaction of the person and the environment. Thus, when attempting to consider how perceived career and education barriers, perceived family social support, and depressive symptoms operate as a system, SPT allows us to bring these disparate constructs together. That is, the workings of the environment as the sources of stress (i.e., perceived career and education barriers) influence the person through manifestations of stress (i.e., depressive symptoms) and mediators/moderators of stress (i.e., perceived family social support).

In addition to central values, counseling psychologists have three primary roles (i.e., remedial, preventative, educative-developmental) that further refine their specialty within the field of psychology (Gelso et al., 2014). All three roles are crucially important to the current study. Based on the findings from the study, clinicians, can begin to develop interventions that specifically address depressive symptoms as they relate to career and education barriers for racial/ethnic minority graduate students. Additionally, they could organize psychoeducational

workshops tailored at reducing the perceived barriers, or, if not reducing, addressing how to overcome them as part of preventative measures. Also, counseling psychology faculty members could work within their programs to reduce the number of barriers present to racial/ethnic minority graduate students and also develop seminars to educate their students on the issues facing this group and the interventions that are being developed to combat those issues.

Consistent with the scientist-practitioner model, I developed the idea for this research study based on my interactions with graduate students and students of color both in a therapeutic setting and within the context of counseling psychology graduate programs. I then turned to the literature to support the nascent idea and link previous findings to my developing hypotheses. Through the use of SPT as a means to add context to the current research study, the research related to perceived career and education barriers and depressive symptoms can begin to influence clinical practice with racial/ethnic minority graduate students. A cohesive model provided through SPT can help clinicians conceptualize the issues faced by these minority students by putting them in the context of race-related issues.

Definition of Terms

Racial/ethnic minority refers to any individuals who are culturally and/or physically distinct from the population majority, for this study, White Americans.

Depressive symptoms are the experience of sadness, emptiness, irritable mood, feeling alone, tired for no reason, among other feelings that are generally found to be uncomfortable and are generally associated with depression, but may or may not meet clinical thresholds (American Psychiatric Association, 2013).

Career barriers are obstacles that individuals perceive in the pursuit of career entry and career development that are discriminatory in nature, be they based on sex (e.g., getting passed

over in favor of someone of another sex), race/ethnicity (e.g., not getting hired based on race), or family (e.g., having difficulty getting time off when a child is sick; Luzzo & McWhirter, 2001).

Education barriers are obstacles that individuals perceive in the pursuit of their educational goals, be they financial (e.g., not having the funds to continue pursuing a degree), discriminatory (e.g., perceiving your gender to be a barrier to your educational goals), internal (e.g., not having enough confidence), supportive (e.g., lack of support from teachers), or family based (e.g., negative family attitudes about college) in nature (Luzzo & McWhirter, 2001).

Minority status stress is comprised of stressors that include racism, discrimination, traumatic stress, educational hegemony, insensitive comments, and questions of belonging (Cokley, McClain, Enciso, & Martinez, 2013).

Perceived family social support is the combination of, or any individual, emotional support, financial support, and help in problem solving coming from a partner, parent, sibling, child, or other family member (Procidano & Heller, 1983)

CHAPTER 2. LITERATURE REVIEW

The purpose of this chapter is to review the literature relevant to the study of the perception of barriers, minority status stress, and perceived family social support as contributing to depressive symptoms in racial/ethnic minority graduate students. After providing an overview of stress models appropriate for racial/ethnic minorities, I discuss stress process theory and model (Pearlin, Menaghan, Lieberman, & Mullan, 1981) as my theoretical framework, then provide an overview of the literature pertaining to depressive symptoms as the *manifestation of stress*, the perception of career and education barriers as the *source of stress*, minority status stress, and perceived family social support as the *mediating and moderating factors of stress*. In each section, I present the relationship between each variable to depressive symptoms as an outcome. Then, I address the theory and research on the relatedness of the variables as they relate to racial/ethnic minority graduate students. Finally, I present research questions and hypothesis of this study.

A Model for Racial/Ethnic Minority Stress

There are several models that examine and explain the relationship between stress, coping, and negative mental health outcomes (Landrine & Klonoff, 1996). For instance, Lazarus and Folkman's (1984) transactional model of stress and coping has been used in a wide variety of contexts to examine the relationship between stressful events, the ways individuals attempt to cope when faced with those stressful events, and the outcomes as an effect of the stressful events. Their focus on appraisal of events and responses based on those appraisals provides a solid foundation from which to study stress, its manifestations, and reactions to stress. In fact, many other researchers have built their stress models (Clark, Anderson, Clark, & Williams, 1999;

Moos & Schaefer, 1993; Slavin, Rainer, McCreary, & Gowda, 1991) based on Lazarus and Folkman's (1984) foundation. Moos and Schaefer (1993) also presented a model to explain the interplay between stressors, coping responses, and outcomes. In their model, environmental and personal systems (e.g., demographic factors) affect and are affected by life crises and transitions, cognitive appraisals and coping responses, and health and well-being. However, Moos and Schaefer (1993) focus their model and subsequent research on coping rather than focusing on the influences that affect the health and well-being outcomes, a vital piece that is needed to provide a more complete picture of the stresses faced by racial/ethnic minorities. They use their model to examine how to improve coping and build buffers to improve strengths and increase resiliency but miss prevention altogether. Both of these models provide frameworks from which to examine stress and the many factors relevant to stress, but in neither one is race-related stress inherently considered.

Several racial/ethnic minority stress models exist that conceptualize the links between race-related stress, coping, and mental health outcomes (Clark, Anderson, Clark, & Williams, 1999; Harrell, 2000; Slavin, Rainer, McCreary, & Gowda, 1991). Clark et al.'s (1999) biopsychosocial model provides a framework for the interplay of events; constitutional, sociodemographic, psychological, and behavioral factors; perceptions of racism; adaptive and maladaptive coping responses; psychological and physiological responses; and health outcomes. This model incorporates concepts from previous models (Lazarus & Folkman, 1984), in the form of appraisals (i.e., perceptions) and environmental stimuli, but puts the entirety of the framework in a sociocultural context where race is the defining factor. It falls in line with previous work

Table 1

Summary of foci and features of Stress Models that can be used with Minority Populations

Pearlin, Menaghan, Lieberman, & Mullan (1981)	Lazarus & Folkman, (1984)	Slavin, Rainer, McCreary, & Gowda (1991)	Moos & Schaefer (1993)	Clark, Anderson, & Williams (1999)	Harrell (2000)	Meyer (2003)
Focuses on a simplified, but flexible process of how stressors affect individuals	Focuses on appraisal of events and responses to those events	Focuses on appraisal of events and responses to those events from a minority status perspective	Focuses on the factors related to coping against stress, rather than a pathological framework	Focuses on health as the ultimate outcome	Focuses on physical and mental well-being as the ultimate outcomes	Focuses on the mental health of LGBTQ individuals as a product of discrimination-based events
Allows for the inclusion of disparate variables for model testing with any population	Highlighted the transactional nature of coping with stress	First to directly adapt Lazarus & Folkman's (1984) model for use with racial/ethnic minorities	First stress model to focus on positive functioning rather than dysfunction	First to integrate perceived racism into a cohesive model for health outcomes	First to include socialization influences in a model directly aimed at examining race-related stress	First model to be developed for this minority group
Predates other stress models and allows for most any variable or construct to be used; not dependent on inclusion of certain constructs to be cohesive.	Most other stress models incorporate this model	Maps racial/ethnic minority concerns and stresses onto Lazarus and Folkman's (1984) model	Uses Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) as a counterpoint	Incorporates Transactional Model of Stress and Coping (Lazarus & Folkman, 1984)	Incorporates Stress Process Model (Pearlin et al., 1981)	Integrates Dohrwend's (2000) stress model
Allows for maximum variety in factors and mediators	Includes cognitive factors, but only focused on coping, no room for other outcomes	Includes person and cognitive factors with limited mediators and limited outcomes	Cognitive appraisals aimed at discrete events	Allows for various sources of stress, but limited mediators	Includes person and environmental factors, allows for a wide array of mediators	Incorporates environmental and cognitive factors and has room for several mediators, but is limited in outcomes

from Slavin et al. (1991) who developed the Multicultural Model of Stress Process. Slavin et al.'s (1991) model itself mapped directly onto Lazarus and Folkman's (1984) model but added the perspective of minorities to the appraisal of events. Similarly, Harrell's (2000) model of racism-related stress and well-being combines constructs from several stress models to provide a framework for exploring the interactions between race-related stress, cultural influences, reactions to stress, and outcomes. These conceptual models have provided frameworks that can be used to structure ideas and potential causal pathways for race-related stress. However, while such models have provided a theoretical basis for the examination of variables related to race-related stress, coping, and mental health outcomes in empirical research, they have not provided a model that can be directly tested when considering a variety of mediators, negative outcomes, and/or a narrowed focus that lays outside of their stated parameters. For instance, Harrell's (2002) model maps somewhat well conceptually with the current study but includes a variety of environmental factors that are superfluous to the aims and parameters of the current study. Other, older models are much less flexible in the inclusion of mediators (Clark et al., 1999; Slavin, et al., 1991) or narrow the stressors to discrete versus chronic events (Moos & Schaefer, 1993). The current study, rather, examines perceptions and self-concepts that are rooted in chronic stressors (i.e., perceptions of barriers for racial/ethnic minorities such as discrimination-based denial of entry into institutions) versus single events. Specifically, I will use Stress Process Theory and its corresponding model as a theoretical framework and useful model in the examination of race-related stress (Ong et al., 2009).

Stress Process Theory

Stress Process Theory (SPT, Pearlin et al., 1981) proposes that a combination of different types of stressors can have adverse effects on individuals. SPT is divided into three main

constructs: (a) source of stress (b) mediating or moderating factors of stress (c) manifestations of stress. These constructs detail the ways that stressors can affect individuals and how individuals can cope against these stressors through the use of self-concepts. The first main construct of SPT is the source of a stress. These stressors can include both chronic stressors such as financial strains, discrimination, or living with a disability and discrete life events or sudden, expected or unexpected, stressors, such as a death loss or marriage (Pearlin et al., 1981). The second construct of SPT is the presence of a mediating or moderating factor of stress. These factors can act as coping mechanisms against the stress or can serve to increase the level of stress and its effects on self-concepts (e.g., self-esteem) (Reed, Ferraro, Lucier-Greer, & Barber, 2015). The final construct of SPT is the manifestation of stress in physical, emotional, and/or behavioral ways (Pearlin et al., 1981). That is, how the individual is acted upon by the manifestations of stress through the self-concepts (e.g., self-esteem). In the following sections, I will provide more detailed examples of these constructs and how they interact with each other.

The first construct of Stress Process Theory deals with the *sources of stress*. Pearlin et al. (1981) highlighted two different types of stressors: discrete life events and chronic stressors. Discrete life events can be unexpected or expected and be construed as being overall positive or negative, but the net effect is the inducement of stress. For instance, an example of an expected, positive life event could be the birth of a child in a family. While the addition to the family could be welcome, the care of an infant is stressful nonetheless. An example of an unexpected, negative life event could be the sudden loss of employment. These discrete events introduce new sources of stress, but they can also affect other stressors that already exist. These other types of stressors are chronic stressors. Chronic stressors tend to be negative sources of stress that are hard to escape from and have impacts on the self. An example of a chronic stressor would be

perceived racism. Perceived racism, especially for a visible minority, can be very hard to escape and can lead to stress that affects personal beliefs about the self (Turner & Smith, 2015). As the two sources of stress can sometimes serve to amplify each other, they can produce additional forms of stress (Pearlin, 1989). These two types of sources of stress, discrete and chronic, can affect and sometimes be mediated and/or moderated by self-concepts as will be explained in the next section.

The second construct in SPT is the *mediating and/or moderating factors* that can both affect and be affected by stress. These factors affect the beliefs that the individual holds about themselves, i.e. self-concepts. These self-concepts can serve to buffer against or amplify stress depending on the type of belief or the directionality of the self-concept one holds. For instance, an individual may hold negative self-attributions such as they are the cause of everything wrong in their life. This belief about oneself can work together with discrete and chronic stressors to erode other self-concepts the individual (i.e., I am a worthwhile person) might hold. Another example of a self-concept that deals in directionality is self-efficacy. For example, a person might have a high sense of bicultural self-efficacy and, as such, they feel comfortable navigating between the various cultures they inhabit and are not as affected by the stressors present in those environments as if they had low bicultural self-efficacy. A different kind of mediating/moderating factor is that of external resources. For instance, a student may be attending regular therapy sessions to address the insecurity they feel in their romantic relationship which causes them to have anxiety. These therapy sessions work to reduce the anxiety caused by the romantic relationship insecurity. As such, the therapy sessions are moderating the effect that the relationship insecurity is causing (Waldo & Schwartz, 2008).

These mediating and moderating factors of stress, taken together with the sources of stress, can affect the manifestations of stress, which will be further explained in the following section.

The final construct of SPT is the *manifestation of stress*. The manifestation of stress can take many forms via several modalities, such as physical, emotional, or behavioral. For example, an individual experiencing race-related stress may suffer from high blood pressure as a result of that race-related stress (Paradies et al., 2015). Another possible manifestation of stress can be psychological, where a self-concept an individual holds may be eroded over time through stress. For example, an individual's perceived self-efficacy may lower after failing out of college (Hardy, 2014), thus eroding their self-concept and possibly leading to further emotional detriments. Another example could be that the manifestation of stress takes place across several modalities, such as with depression that affects an individual's emotional state while also affecting their behavior (e.g., weight gain/loss, sleep too much/little, withdrawal, isolation.).

Stress Process Theory can be a powerful tool for examining otherwise disparate constructs when working with racial/ethnic minorities. Ong et al. (2009) have taken a first step in using this framework with 174 African American doctoral students and graduates. In their study, chronic racial discrimination was used as the source of stress affecting psychological distress and mediated by daily racial discrimination. The capability for SPT to incorporate such unique factors related to racial/ethnic minorities, as displayed in Ong et al.'s (2009) study, or rather, the flexibility that allows researchers to apply those factors to said population is what makes SPT such a crucial tool in the study of depressive symptoms in racial/ethnic minority graduate students. While other theories and models may consider certain aspects of racial/ethnic minorities' experiences, only SPT affords the researcher a high level of adaptability while retaining a strong stress framework from which to base research. In this study, the stress

manifestation, depressive symptoms will be examined in the context of racial/ethnic minority graduate students experiencing perceptions of career and education barriers (source of stress), and potentially affected by perceived minority status stress and family social support, the mediator and moderator through which stressors will act respectively. The following sections will present an overview of the literature relevant to the variables being examined in the current study and their association with the racial/ethnic minority graduate student population.

The Manifestation of Stress: Depressive Symptoms

In this section, I will present an overview of depressive symptoms. I will start by providing information on depressive symptoms, its effects and its prevalence. Next, I will describe the research related to depressive symptoms, in particular that dealing with undergraduate and graduate students. Finally, I will present the research detailing why depressive symptoms may be especially relevant for racial/ethnic minority graduate students.

Depressive symptoms

Depressive symptoms and depression are often used interchangeably. However, some important differences do exist. Depression, or “the presence of sad, empty, or irritable mood, accompanied by somatic and cognitive changes that significantly affect the individual’s capacity to function,” (American Psychiatric Association, 2013, p. 155), is a common disorder with 6. percent of the general population suffering from it at some point during their lifetime (The National Institute of Mental Health, 2017). Depressive symptoms, such as feeling alone or tired for no reason, can be exhibited by anyone, as they are common in all adults and are more common than outright depression (St. John, Tyas, & Montgomery, 2012). In this study

depressive symptoms will be operationally defined as the symptoms of depression, without the severity indicative of the presence of diagnosable depression.

People suffering from depressive symptoms can experience a disproportionate amount of costs associated with their mental health issues (e.g., financial, social, academic). For instance, depression has been recognized as being associated with more limitations in daily functions than some chronic medical conditions (Broadhead, Blazer, George, & Tse, 1990; Klerman, & Weissman, 1992). Individuals with depression may experience disconnection from more of a disconnect with their families that can lead to more conflict with their family members (Lemmens, Buysse, Heene, Eisler, & Demyttanaere, 2007). Lemmens et al. (2007) detailed their findings that perceptions can be mismatched between individuals with depression and their significant others, with significant others perceiving their relationship as being more satisfying than their depressed partners. Additionally, individuals with depression reported more difficulties within their relationships than their significant others, leading to increased instances of conflict and decreased support (Lemmens et al., 2007). Similarly, Skärsäter, Ågren, and Dencker (2001) found that individuals with depression perceived receiving less support from their family networks than nondepressed individuals. However, the impact of depressive symptoms can reach much farther than the individual or family. In their review of eight different studies dealing with the course, morbidity, and costs of depression, Klerman and Weissman (1992) found that depressive symptoms were deeply costly on a broad level. Greenberg et al. (2003) begin to provide the figures for the actual costs of depression in their study of the costs of depression between 1990 and 2000. They note that even though the treatment rate of depression has greatly increased (50%), the costs have remained relatively stable (\$77.4 billion in 1990, adjusted for inflation, to \$83.1 billion in 2000 in the United States; Greenberg et al., 2003). This impact is

greater than other health concerns as individuals with depression tend to utilize more disability days than those suffering from physical ailments (e.g., heart disease, hypertension) or other mental health issues (e.g., anxiety disorders; Conti & Burton, 1994). When scaled down to the individual, this translates to medical costs that are roughly twice of those individuals without depression (Simon, Ornel, VonKorff, & Barlow, 1995; Simon, VonKorff, & Barlow, 1995). Thus, while depressive disorders can lead to social troubles for individuals with depression and their families, there also exists an impact on communities and society (Klerman & Weissman, 1992; Pincus & Pettit, 2001). For these reasons, it is important to examine the potential impacts of depressive symptoms on individuals.

Researchers have found that limitations in daily functioning attributed to depression are not limited to individuals suffering from clinical depression, but can be present in those who have depressive symptoms at subthreshold levels (Johnson et al., 1992). Johnson et al. (1992) found that those suffering from depressive symptoms may actually utilize services more than those diagnosed with depression. This may speak to the fact that depressive symptoms are more prevalent (St. John et al., 2012). These limitations in functioning may eventually be remedied as depressive symptoms are treatable, however, individuals with more severe symptoms are more likely to relapse and continue to suffer from the effects of depressive symptoms (e.g., loss of interest, social isolation; Wells, Burnam, Rogers, Hays, & Camp, 1992). Additionally, individuals suffering from comorbidity, be it from physical or mental health issues, are less likely to achieve remission (Swindle, Cronkite, & Moos, 1989). This confirms depressive symptoms as a long-lasting, non-episodic mental health issue.

Depressive symptoms, although common and treatable, can involve a long course of treatment. A majority of patients with depression (70%) will have several episodes of depression

within their lifetimes and roughly 20% will experience chronic depression lasting for several years (Angst, 1988, as cited in Skärsäter et al., 2001). There are several factors that can impact the severity and persistence of depressive symptoms. For instance, certain coping styles have been found to negatively impact depressive symptoms. Several researchers found that utilization of escape or avoidant coping styles can hinder an individual with depression's capacity to confront their mental health issues (Coyne, Aldwin, & Lazarus, 1981; Parker & Brown, 1982). In addition, the number of stressors that an individual faces can also have an effect on the persistence of depressive symptoms. For example, Billings and Moos (1985a; 1985b) found that while individuals with depression began to remit, the number of stressors they face did not decrease, increasing the potential for relapse at a later time. Other factors have also been shown to exacerbate and prolong the effects of depressive symptoms. For instance, researchers found that stressful events, especially loss events, can intensify depression (Aneshensel & Frericks, 1982; Kessler, Price, & Wortman, 1985) which can in turn make remission more difficult (Wells et al., 1992). Other stressful and enduring factors contributing to higher incidences of depressive symptoms include unemployment and low socioeconomic status (SES; Liem & Liem, 1978). Pearlin et al. (1981) reported that job loss contributed significantly to the incidence and intensity of depression. While these factors may highlight potential vulnerable populations, one population is particularly at risk due to a combination of role strain and other stresses: college students.

Depressive symptoms among graduate students

Undergraduate college students have been the focus of many studies related to depressive symptoms (Han & Lee, 2016; Hyun et al, 2006; Polanco-Roman & Miranda, 2013; Visser, Loess, Jeglic, & Hirsch, 2013). Although literature about depressive symptoms in college-aged

students is abundant (Kessler et al. 2010; Vázquez & Blanco, 2008), researchers have found significant differences in the reports of feelings and behaviors related to poor mental health between undergraduate and graduate students with graduates reporting more strain with career-related issues than undergraduates (Wyatt & Oswalt, 2013). Undergraduate students have been found more likely to report concerns, but graduate students are more likely to seek mental health care services (Eisenberg & Chung, 2012; Hyun et al., 2006). Additionally, graduate students are at a higher risk of suicide than undergraduates (Silverman et al., 1997). Silverman et al. (1997) explained that three main factors are contributors to a higher suicidality amongst graduate students: age, role strain, and transitional difficulties. The authors report that graduate students tend to be older than undergraduate students and may perceive the “day of reckoning” (Silverman et al, 1997, p. 300), where they have to pay off loans or make other transitions, as coming much sooner. They also posit that graduate students often experience role strain due to having to balance a family life, work, and graduate school, along with accounting for finances and work-life balance. Finally, they report that the transitions that graduate students face may be perceived as much harder than those experienced by undergraduate or traditional students, explaining that a combination of age and experience may cause returning graduate students to face relatively larger life changes in order to accommodate their return to academia. These factors combined may lead to a decrease in the available buffers against depressive symptoms and may increase the risk for suicide, despite the larger propensity for graduate students to seek out mental health services. They also highlight the developmental differences between undergraduate and graduate students; where undergraduate students generally are balancing educational attainment with personal relationships, the degrees to which this is happening tend to increase in intensity as development progresses (Maruyama, 2008). For example, more graduate

students tend to be nontraditional students which indicates that they are married or married-like and working (Purdue University, 2016). This requires additional balances and adds further role strain that, while more emotionally developed, older graduate students may be compensating for in utilizing mental health services, are nonetheless having a significant impact on their overall mental health. This literature sheds light on the increase of graduate students' utilization of mental health services and may be reflective of the increase in the depressive symptoms and suicide risk found in that population and the further need for intervention.

The prevalence and impact of depressive symptoms among graduate students has only recently begun to be studied. Thus, this is an area of literature that is continually growing and still has significant gaps. Several studies have shown that the experiences of graduate students differ from that of the general population when it comes to mental health concerns (Hyun, Quinn, Madon, & Lustig, 2006; Kernan, Bogart, & Wheat, 2011; Mongrain & Blackburn, 2005). Graduate students tend to exhibit depressive symptoms more often than the general population (Hyun et al., 2006). This is consistent with research that demonstrates that increased role strain and unique factors combine to produce highly stressful situations for graduate students (Hyun et al. 2006; Kessler et al., 2010; Kreger, 1995; Mongrain & Blackburn, 2005; Wyatt & Oswalt, 2013).

Depressive symptoms among racial/ethnic minority students

As the population of racial/ethnic minority students grows (5 million racial/ethnic minority students between the ages of 18 and 24 in 2012 versus 2.3 million in 1993; Census Bureau, 2014), it is important to become familiar with their mental health needs. This is particularly important as it has been found that institutions of higher learning may be particularly stressful for minority students (Arbona & Jimenez, 2014; Brittian et al., 2015; Neville, Heppner,

Ji, & Thye, 2004; Smith, Allen, & Danley, 2007) and mental health problems affect minority groups differently than majority groups in college (Weitzman, 2004). Miranda, Polanco-Roman, Tsypes, and Valderrama's (2013) study of perceived discrimination, ruminative subtypes, and depressive symptoms in a diverse sample found a significant relationship between perceived discrimination and depressive symptoms in racial/ethnic minorities, but not in White students. Similarly, a study by Young, Fang, and Zisook (2010) found that Asian-American undergraduate students experienced more severe depression than their Caucasian counterparts. They posit that this may be due to maladaptive perfectionism, but do not inquire as to whether perceived discrimination or minority status could be a potential factor in the increased severity.

Even when considered separately from White students in a college setting, racial/ethnic minorities still experience depressive symptoms and certain factors exist that may be unique to these populations. For instance, in a study by Brittian et al. (2015), it was found that while Black ($M = 3.35$, $SD = 0.75$) and Latino ($M = 3.02$, $SD = 0.82$) students may perceive ethnic group discrimination at different levels it was still significantly related to depressive symptoms for both groups. In another study focusing on discrimination, Han and Lee (2011) found that perceived racial discrimination and intergenerational conflict were significantly related to depressive symptoms in Vietnamese American college students. Similarly, in a study by Wei et al. (2010), it was found that minority stress was uniquely and significantly related to depressive symptoms among college students. However, they also found that bicultural competency could buffer against depressive symptoms in racial/ethnic minorities, a curious finding considering Nguyen and Peterson's (1993) finding that higher levels of acculturation to the United States was related to depressive symptoms. Another study examining minority stress by Arbona and Jimenez (2014) found that Latino/a students attending a diverse college campus experienced depressive

symptoms related to minority stress. They posit that minority stress may work in conjunction with general stress to affect Latino/a college students' well-being.

The sum of the research examining the links between being a racial/ethnic minority student and experiencing depressive symptoms is that there are significant links. However, that relationship has yet to be examined in relation to the perception of career and education barriers, another area where racial/ethnic minorities are at a clear disadvantage. In order to begin to address this, the current study combines the perception of career and ethnic barriers and depressive symptoms in one cohesive model, along with other mediating and moderating factors, for racial/ethnic minority graduate students. Further aspects of this model will be presented in the upcoming sections.

A Source of Stress: The Perception of Career and Education Barriers

In this section, first, I will present an overview of the literature on perceptions of career and education barriers based on Lent, Brown, and Hackett's (1994) social cognitive career theory. Second, I will provide research findings related to the perception of career and education barriers in relation to depressive symptoms. Lastly, I will discuss the perception of career and education barriers' impact on graduate students and racial/ethnic minorities.

The perception of barriers to educational or occupational goals as a construct, has its roots in social cognitive career theory (SCCT; Lent, Brown, & Hackett, 1994). They state, "there are many instances in which people may anticipate valued outcomes accruing from a given course of action, but avoid such action if they doubt their capabilities" (Lent, Brown, & Hackett, 1994, p. 84). In other words, the perception of barriers can affect the relationship between educational and occupational interests and educational and occupational choices. They also provide a rationale for integrating career and education goals and choices into one framework

noting that, prior to their theory, many researchers and theorists developed models of academic choice and career choice describing causal mechanisms for success that were then published in parallel literatures without realizing how similar the two actually were (Lent et al., 1994). They argue that the mechanisms that make an individual successful in the academic realm would, ideally, then make them successful in the occupational realm and, as such, are more developmentally related, rather than altogether separate constructs.

In much the same way that their theory integrates academic and occupational interests and choices into one cohesive framework, it also integrates a diverse array of factors that may influence career development such as affective, developmental, and biological influences, to name a few. However, they do this in the frame of self-referent thinking (i.e., perceptions and self-concepts) that guide motivation and behavior. In order to justify integrating these disparate influences, they reference Bandura's (1986) social cognitive theory which allows for diverse influences to be channeled into a central pathway to influence a given construct. In particular, they note social cognitive theory's application to various psychosocial domains which they view as crucial in regard to career development. It is in this way that they integrate the vast array of influences to career interests and career choices into one cohesive framework where self-referent thinking is the basis for motivation and behavior.

Social cognitive career theory's supposition of self-referent thinking as the primary basis for motivation and behavior is a critical component when considering the perception of career and education barriers. While many outside influences exist that could remove a given barrier (e.g., winning the lottery may remove a financial barrier to the pursuit of education), social cognitive career theory posits that internal resources are vital to the removal of those barriers. This is of note due to the fact that the perceptions of career and education barriers are based on

the perceptions individuals have of what barriers they will face upon attempting to achieve their goals or enter a field and are buffered against via the self-concepts that combat those perceptions. In other words, an individual's motivation to pursue their career interests, in their framework, is contingent on their ability to overcome the barriers they perceive through the use their self-concepts (e.g., self-efficacies; Lindley, 2005).

The perception of career and education barriers among racial/ethnic minorities and graduate students

In the development of their theory, Lent, Brown, and Hackett (1994) limited themselves “primarily to issues of career entry and to the life periods (late adolescence and early adulthood) that are associated with preparation for, and implementation of, career choice” (Lent et al., 1994, p. 80). This is important to note because while the majority of graduate students tend to be in this (i.e., early adulthood) stage of life, a commonality shared by all graduate students, regardless of age group, is the implementation of their career choices.

It is assumed that perceived career and education barriers are ubiquitous among graduate students but only three research studies were found that detailed what sort of career and education barriers graduate students perceive. One of the studies by Lent et al. (2002) highlighted that a majority of graduate students, all in counseling or student personnel programs, faced barriers in entering their chosen fields. Financial concerns, ability considerations (e.g., can they achieve the grades necessary to stay in graduate school), and negative family influences were among the most mentioned perceived career and education barriers students faced (Lent et al., 2002). Similarly, Payne (2006) found that many students cited financial insecurity (e.g., lack of knowledge of how to fund their graduate studies, securing loans, finding assistantships) as significant barriers to graduate study. It is notable that many students also cited family obligations as academic barriers (Payne, 2006). In a third study, Clark, Mercer, Zeigler-Hill and

Dufrene (2012) explored the associations between perceived negative-race-related experiences and academic and emotional functioning in school psychology graduate students. They found that, as an effect of negative race-related events, racial/ethnic minority students tended to perceive more academic barriers than majority students. Similarly, students who experienced negative race-related events also experience lower perceptions of belongingness at their program. The need for further research with this population is apparent when only three studies were available that examined the perception of career and education barriers in graduate students, especially when considering that frequently the students making up this population are in young adulthood and beginning to exercise their career choices, both elements that Lent et al. (1994) highlighted as crucial in their framework for SCCT and, therefore, the perception of career and education barriers.

Issues related to diversity are also a factor for the perception of education and career-related barriers. Ethnic minorities have been found to perceive more education and career-related barriers than Caucasian college students (Luzzo & McWhirter, 2001; McWhirter, 1997; Vasquez, 1982). Luzzo and McWhirter (2001) conducted a study examining the differences in the perception of barriers based on ethnicity. Not only did they find that ethnic minorities were more prone to perceive a higher number of barriers to career and education, they also found that these groups exhibited lower self-efficacy for coping with those barriers, an important finding given the research showing that an ability to cope effectively with such perceptions is crucial for buffer against negative mental health outcomes (London, 1997). Such studies can begin to present a clearer picture of the career and education barriers perceived by racial/ethnic minority undergraduate students, but as the current study concerns racial/ethnic graduate students, it is important to bridge that gap.

A study by Henry (2006) begins to do so by using a sample of underrepresented racial/ethnic minority (i.e., African American and Hispanic) postgraduate, premedical students taking part in a medical school preparatory program to describe perceived career and education barriers. The researcher found that significant numbers of students endorsed feeling they were inadequately prepared for medical school and 78% of them believed that their academic performance during medical school would be a barrier to their success. For barriers expected during medical school, 53% of students believed they would experience difficulty with finances and 46% cited having to overcome negative stereotypes as a barrier. In terms of barriers experienced upon entering their chosen field, 63% of the sample indicated they believed they would be treated differently because of their racial/ethnic background in their job as a physician. Similarly, a study by Zavala (2014) explores some of the barriers to advanced degrees that Latino/a college students perceive during their time at four-year institutions. She found that the most cited (45%) perceived barriers to pursuing an advanced degree was finances. In addition, 18% of the students cited life circumstances as barriers to attending graduate school and 13% cited family obligations.

Even though there is a growing literature examining the perceived career and education barriers for racial/ethnic minority college students, more research is needed at the intersection of racial/ethnic minorities and graduate students. As such, only one study was found that addressed this intersection. Clark et al. (2012), as previously noted, examined the relationship between perceived negative race-related events and academic and emotional functioning in school psychology graduate students. Their finding that belongingness was negatively related to perceived experiences of negative race-related events is critical given the relation between the perception of such career and education barriers and depressive symptoms.

The perception of career and education barriers and depressive symptoms

The perception of education and career-related barriers can greatly impact students' pursuit of their chosen careers. For instance, the perception of barriers in a career path can lead people to avoid occupations in which they are otherwise interested and competent (Brown & Lent, 1996). These frustrations in career choice can have an emotional impact, leading to mental health issues such as depressive symptoms (London, 1997). Additionally, the decision-making process can be affected and changed so that students no longer view their career aspirations as viable options (Luzzo, 1995; Swanson & Tokar, 1991; Swanson & Woitke, 1997). Similarly, Luzzo (1996) found that individuals who perceive career barriers tend to have increased difficulty in making career-related decisions. This difficulty in decision-making can lead to negative chronic effects, such as depressive symptoms, that further bolster the perception of barriers in academic and occupational pursuits and stifle the pursuit of those goals (London, 1997; Saunders, Peterson, Sampson, & Reardon, 2000).

This pathway, whereby those who perceived career and education barriers are confronted with career indecision, career compromise, and dysfunctional career thinking experience depressive symptoms (Carr, 1997; Saunders et al., 2000) has only been minimally explored, thus necessitating more research to explain the interaction between the perception of career and education barriers and depressive symptoms. However, at least one study exists that examines that direct link. Research by Heppner, Cook, Strozier, and Heppner (1991) highlighted the effect that the perception of career barriers can have on those who experience them. In their study, they found that women in particular tend to suffer from depressive symptoms as a result of perceiving barriers to achieving their career goals. Further research is needed to fill the gap in the literature pertaining to the perception of career and education barriers and depressive symptoms.

Mediating and Moderating Factors of Stress: Minority Status Stress and Perceived Family Social Support

In this section I will first introduce minority status stress and provide a review of the literature and research findings pertaining to its relation to graduate students. Next, I will introduce perceived family social support and provide a review of the literature pertaining to its relation to graduate students and racial/ethnic minorities. Then, I will explain minority status stress' potential role as a mediator of the relationship between the perception of career and education barriers and depressive symptoms. Finally, I will argue perceived family social support's potential role as a moderator in relation to the perception of career and education barriers and depressive symptoms.

Before continuing, however, it is important to present respective definitions for mediator and moderator. A mediator, in this study, will represent a variable (i.e., minority status stress) that can both be acted upon and will be acting upon an outcome variable (i.e., depressive symptoms) in both a theoretical and a statistical sense (Hayes, 2013). In other words, minority status stress will clarify the relationship between the source of stress and the manifestation of stress by shifting some of the source of stress away from the perception of career and education barriers to minority status stress. In contrast, moderation serves to explore the relationship between two variables, and that relationship's dependence on a third variable (Hayes, 2013). In other words, the relationship between the perception of career and education barriers and depressive symptoms will be conditional on perceived family social support; as social support increases or decreases, the observed relationship between the perception of career and education barriers and depressive symptoms will change.

Minority status stress as a mediator

Having racial/ethnic minority status can have implications for an individual's mental health (increased rates of mental health issues), physical health (increased risk for diabetes and high blood pressure), and social functioning when compared to White populations (Britt-Spells, Slebodnik, Sands, & Rollock, 2018; Cokley, Hall-Clark, & Hicks, 2011; Greer & Brown, 2011; Jagusztyn, 2010; Miranda et al., 2013; Pascoe & Richman, 2009; Rhoton, 2013; Saldaña, 1994; Smedley, Myers, & Harrell, 1993; Wei, Ku, & Liao, 2011; Williams & Mohammed, 2009). One of the vectors that has been used to explain why belonging to a racial/ethnic minority group can have these implications is racial/ethnic minority status stress (Smith, 1985). Minority status stress is comprised of racialized stressors that include racism, discrimination, traumatic stress, educational hegemony, insensitive comments, and questions of belonging (Cokley, McClain, Enciso, & Martinez, 2013). These stressors have been shown to have significant effects on mental health (Britt-Spells, et al., 2018; Brittian et al., 2015; Flores et al., 2008; Greer & Brown, 2011; Jagusztyn, 2010; Miranda et al., 2013; Rhoton, 2013; Saldaña, 1994; Smedley et al., 1993), physical health (Flores et al, 2008; Jagusztyn, 2010; Rhoton, 2013; Williams & Mohammed, 2009), and social functioning (Greer & Brown, 2011; Jagusztyn, 2010; Pascoe & Richman, 2009; Smedley et al., 1993; Wei et al., 2011).

Although theorists have posited that minority status stress can have unique and negative contributions to the mental health, physical health, and social functioning of racial/ethnic minority individuals for over 30 years (Smith, 1985), it wasn't until the turn of the century that models were developed to test this hypothesis (Clark et al., 1999; Harrell, 2000; Slavin, et al., 1991). Studies, like that of Jagusztyn (2010) began testing the effects of minority status stress on individuals. In her study, Jagusztyn (2010) examined the how organizational factors (e.g.,

minority segmentation, diversity climate, token status) affect the perception of discrimination in the workplace by both minority and majority groups, and how that perceived discrimination by way of mediation, in turn, affects constructs such as job satisfaction, physical health, and psychological health among other outcomes. The study included 726 ethnic/racial minority and majority men and women from a variety of industries (e.g., education, service, blue collar). She found that race discrimination mediated the relationship between equal employment opportunity and several outcome factors including job satisfaction, intention to turnover, and physical health, where higher equal employment opportunity was related to lower perceived race discrimination and lower perceived race discrimination was related to greater job satisfaction and physical health, but less intention to turnover. Additionally, she used minority status (i.e., being a person of color) as a moderator and found that it significantly moderated the relationship between equal employment opportunity and perceived race discrimination in all three significant moderated mediation models.

A number of researchers have focused on minority status stress' effect on mental health (Cokley et al., 2011; Cokley et al., 2013; Saldaña, 1994). For example, in a study with African American (N = 83), Asian American (N = 81), Latino American (N = 82), and European American (N = 167) college students, Cokley et al. (2011) found that ethnic minority students reported significantly lower mental health than European Americans. Further, they found that Asian Americans reported lower mental health than all the other groups, contradictory to previous research (Center for Disease Control and Prevention, 2014). In another study, Saldaña (1994) examined the relationship between acculturation, college role stresses, minority status stresses, and psychological distress in a sample of 270 White and Hispanic first year college students. She found that socioeconomic status and ethnicity had negative effects on college role

stresses. Additionally, she found that minority status stress significantly accounted for a large portion of psychological distress, even when college role strain was controlled, meaning that Hispanic first year students, by and large, experienced a greater amount of stress than their White counterparts. In a similar study, Cokley, McClain, Enciso, and Martinez (2013) examined minority stress in relation to imposter feelings and mental health in a sample of 240 ethnic minority (African Americans, Asian Americans, Latino/a Americans) college students. They found that African Americans reported higher levels of minority status stress than both Asian Americans and Latino/a Americans, and that Asian Americans reported higher levels of imposter feelings than African Americans and Latino/a Americans. They also found that Asian Americans were both higher in psychological distress and lower in psychological well-being than African Americans and Latino/a Americans. Further, they found that minority status stress was a significant predictor of psychological distress and psychological well-being, with individuals who reported more minority status stress having higher scores of psychological distress and lower psychological well-being. Additionally, they found that imposter feelings explained a greater portion of the variance than minority status stress for both psychological distress and minority status stress, and in fact reduced the impact of minority status stress in both cases, rendering it nonsignificant for psychological well-being.

Other researchers such as Flores et al. (2008), Smedley, Myers, and Harrell (1993), Wei, Ku, and Liao (2011), tie minority status stress to outcomes such as physical health and social functioning. For example, in a study of 215 Mexican-origin adults, Flores et al. (2008) found that perceived discrimination significantly predicted both depression and poorer physical health. Additionally, they found that perceived discrimination and perceived stress, together, predicted physical health symptoms. They also found that perceived discrimination's effect on physical

health was greater in men than in women. In another vein, Wei et al. (2011) examined persistence attitudes in relation to minority status stress in a sample of 160 minority undergraduate students (54 Asian Americans, 53 African Americans, 53 Latino). They found that minority stress uniquely and negatively affected persistence attitudes after controlling for perceived general stress. Additionally, they found that minority stress was negatively related to positive perceptions of the university environment. Further, they found that positive perceptions of the university environment are positively related to persistence attitudes and that positive perceptions of the university environment fully mediates the relationship between minority stress and persistence attitudes. In another study, Smedley, Myers, and Harrell (1993) examined the role of minority status stress in relation to college adjustment in conjunction with episodic life event stresses and chronic student role strains in a sample of 1096 racial/ethnic minority (African-American, Chicano, Latino, American Indian, and Pilipino) and 300 White first year students. The researchers found that African-Americans reported significantly higher levels of minority status stress than the other minority groups. Additionally, they found that minority status stress was significantly associated with both psychological distress and poorer cumulative grades. In a similar study, Greer and Brown (2011) explored the relationship between minority status stress, coping processes, general levels of perceived stress, and academic performance in a sample of 202 African American college undergraduate students at two universities, one a predominantly White college and university (PWCU) and the other a historically Black college and university (HBCU). They used coping processes as a moderator between minority status stress and perceived stress and academic performance. They found that students attending the predominantly White institution had higher levels of minority status stress than their counterparts at the historically Black institution. They also found that certain coping styles were more

prevalent among the students depending on which institution they were attending. For instance, avoidant and passive coping efforts were more prevalent at the PWCU, while problem-oriented coping and spirituality were more prevalent at the HBCU. Further, they found that minority status stress was the strongest predictor of perceived stress, followed by problem-oriented coping and that the effect of minority status stress on perceived stress was higher in individuals at higher levels of problem-oriented coping.

Meta-analytic reviews have served to further highlight the disparities between racial/ethnic minorities and racial/ethnic majority populations across a variety of physical and mental health outcomes (Britt-spells, et al. 2018; Pascoe & Richman, 2009; Williams & Mohammed, 2009). Williams and Mohammed (2009) provide a much-needed context in which to place studies of perceived discrimination by critiquing the way it has previously been measured and emphasizing the need for personal experiences. Pascoe and Richman (2009) further support previous findings that race-related stressors not only lead to negative health outcomes, but also to less effective coping behaviors. Britt-Spells et al. (2018) found that Black living in the United States tend to be negatively affected by race-related stress, a significant contributing factor to their depressive symptoms.

Many of the effects of minority status stress highlighted in the previous studies have been further heightened since the 2016 election (American Psychological Association, 2017). The growing frequency of in-vivo exposures to messages of hate and discrimination faced by racial/ethnic minority students has had an impact in the mental and physical health outcomes of racial/ethnic minority students (Anderson, 2016). The increase in hate groups and hate-based rallies, as well as media exposure to racial conflict has led to higher levels of stress reported by racial/ethnic minorities and overall concern in matters of government, access, and rights

(Anderson, 2016; Bauman, 2018). These detrimental effects of race-based discrimination are long-lasting and continue to impact students beyond their undergraduate careers (Chen et al., 2014; Clark et al., 2012; Shah, 2007).

Minority status stress among graduate students

Although much of the literature presented has involved the use of college students as participants when examining the effects of minority status stress, very few literature exists that focuses on minority status stress' effects on graduate students. As such, only four studies were found that focused on graduate students (Chen, Szalacha, & Menon, 2014; Clark et al., 2012; Levin, Jaeger, & Haley 2013; Shah, 2007). These four studies cover ethnically diverse (African American, Asian American, Hispanic American, Iranian American, Native American, Pacific Islander) samples and conceptually diverse topics (e.g., barriers to success, student dissonance, coping with discrimination, and mental health and substance use issues).

One study by Levin et al. (2013) examined the experiences of 26 graduate students of color (5 African American, 2 Asian American, 9 Hispanic, 1 Native American, 9 Multiracial) and the effects of gender, race, and role modeling on their decision not to become faculty members. They found that while gender and uninviting roles (i.e., they found the faculty role to be an uninviting career choice) were important contributors as to why these graduate students chose not to pursue careers as university faculty members, race was embedded in most of their decisions. For example, multiple participants cited not having role models for faculty members as they had not encountered and or only very few faculty members of their ethnicity. Other participants cited encountering hostile environments for students of color, and thus, choosing not to follow the footsteps of professors that have both microaggressed and said overtly racist comments against them. Additionally, some participants cited the intersectionality of being

women of color as a further step in isolation as they had encountered fewer faculty that were women of color. A similar study by Shah (2007) examined the experiences of nine African American and one Iranian American women as they navigated graduate school. She found that a majority of the participants (70%) reported experiencing racial discrimination. From these responses, she found that six themes and ten subthemes emerged: cover racism/discrimination (null educational environment, differential negative treatment, racial/social segregation); overt racism/discrimination (othering, treated as a suspect); microaggressions (lack of visibility, minimization of racial/cultural issues, stereotyped assumptions, being a cultural voice, insensitive racial/cultural humor, colorblindness); cultural racism; vicarious racism/discrimination; and reverse racism/discrimination. As a result of these experiences, Shah (2007) found that these graduate students were being impacted on three different levels: personal (emotional impact, sense of self); professional/academic (denied privileges/opportunities, limited resources/learning obstacles, being a cultural voice); and program environment (adversarial, alienating, collaborative). In other words, these experiences with racial/ethnic discrimination were leading to adverse effects, such as the graduate students becoming depressed, falling behind in their studies, and missing out on opportunities to grow professionally due to resources being allocated toward other students who were not racial/ethnic minorities. Shah found that these graduate students used several coping strategies in order to overcome their experiences with racial/ethnic discrimination: emotion-focused coping (belief in a just world, non-verbalization of experience, repression, detachment/disconnection, emotional release); problem-focused coping (reality testing, reprocessing, reconstructing, maneuvering the system, proactive education, self-invalidation, acceptance, mentor to others); social coping; religious/spiritual coping; cognitive (appraisal) processes (confrontation vs. being constructive, flight/fight/freeze). In addition, Shah

found the following protective factors among all ten of the participants: sense of self; dialogue/disclosure (anonymous disclosure, confrontation of stereotypes); creating community; mentors/support/advocates; institutional support of multicultural issues (gatekeepers, increased visibility); consciousness raising (increasing knowledge, mindfulness to action, multicultural teaching practices-humanization of multicultural issues, decentralization, inclusivity and cultural connectedness). Taken together, she found that the protective factors mediated the relationship between racial discrimination and adverse effects. Another study of minority status stress by Chen et al. (2014) examined the relationship between perceived discrimination and mental health and substance use in a sample of Asian American and Pacific Islander 113 undergraduate and graduate students. They found that although perceived discrimination was significantly and positively associated with measures of mental health (depressive, anxiety, and somatic symptoms), it had no significant relationship with substance use. Further, they found that ethnic identity was a significant moderator for the relationship between perceived discrimination and somatic symptoms. However, they found that ethnic identity did not moderate the relationship between perceived discrimination and depressive symptoms or anxiety symptoms. Although ethnic identity did not moderate the link between perceived discrimination and depressive symptoms in Chen et al.'s (2014) study, a potentially more effective moderator and source of coping may be family social support (Brannan, Biswas-Diener, Mohr, Mortazavi, & Stein, 2013; Cumsille & Epstein, 1994; Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Procidano & Heller, 1983; Romero, Riggs, & Ruggero, 2015).

Program environment as a mediator

Program environment, as operationalized in the current study where it represents the general attitude toward race-based stress in graduate programs in which racial/ethnic minority

graduate students are enrolled, suffers from a dearth of literature. In fact, only the few studies dealing with racial/ethnic minority graduate students and minority status stress appear to cover the topic. One additional study was conducted by Clark et al. (2012), in which they examined the barriers experienced by 87 racial/ethnic minority and 313 majority school psychology graduate students. They found significant differences between racial ethnic minority and majority graduate students in relation to the experience of microaggressions and feelings of belongingness at their program, with minority students experiencing more microaggressions and reporting less feelings of belongingness at their programs of study. Additionally, they found that belongingness was associated with academic engagement, thus, creating a pathway through which microaggressions can negatively impact academic engagement. This result, combined with the lack of literature on program environment, provides some rationale for the use of program environment as factor in the current study. A further narrowing of the focus of where race-based discrimination and minority status stress is occurring (institution versus program level) as seen in Clark et al.'s (2012) study lays the foundation for including program environment as a mediator in the current study where it could be seen as a predictor in another context.

Perceived family social support as a moderator

Perceived family support sprang from several different fields of literature originating as one facet of social support. In the work literature, it is a construct inexorably tied to work-family conflict (Adams, King, & King, 1996; Lirio et al., 2007). In the health literature, it is seen as an important factor in aiding individuals suffering from ailments to recover and cope (Cumsille & Epstein, 1994; Lyons, Perrotta, & Hancer-Kvam, 1988; Serovich, Kimberly, Mosack & Lewis, 2001; Varni, Wilcox, & Hanson, 1988; Zaleski, Levey-Thor, & Schiaffino, 1998). However, over the last 30 years, it has garnered attention as a construct all its own worth study. This push

to study perceived family social support has led to it being studied in several contexts within the psychology literature. It has been studied in connection to youths and adolescents as a potential buffer against negative academic and behavioral outcomes (Eisman, Stoddard, Heinze, Caldwell, & Zimmerman, 2015). It has also been conceptualized as a buffer against negative mental health outcomes (Brannan et al., 2013; Cumsille & Epstein, 1994; Dunkley et al., 2000; Eldeleklioğlu, 2006; Procidano & Heller, 1983; Rayle & Chung, 2008; Romero et al., 2015; Shahar & Henrich, 2016). Another conceptual take on perceived family social support is that as a reinforcer of positive functioning (Almeida, Molnar, Kawachi, & Subramanian, 2009; McLeod, Kessler, & Landis, 1992; Sheets & Mohr, 2009; Thoits, 1986). In the academic world, it has been shown to be a predictor of academic persistence (Nicpon et al., 2006). There is research linking it to college students, but there is a dearth of literature linking it to graduate students or racial/ethnic minorities, and practically no literature at the intersection of these two populations. As such, for this study, perceived family social support is borrowed from the psychological literature tying it to college students.

Perceived social support, as Procidano and Heller (1983) related, “refers to the impact networks have on the individual” (p. 2). In other words, it is “the extent to which an individual believes that his/her needs for support, information, and feedback are fulfilled” (Procidano & Heller, 1983, p.2). The networks they reference are the social connects that an individual has at any given time. These connections can include family, friends, work peers, and other relations (e.g., coaches, religious leaders). In turn, these networks may provide information, emotional support, and comfort (Procidano & Heller, 1983). In their study, Procidano and Heller (1983) begin differentiating perceived family social support from perceived social support received from other sources, namely friends. That distinction in their study was critical as they were

among the first to not only separate them out as differing constructs, but to develop a tool that would effectively measure perceived family social support, which they further define as a combination of, or any individual, emotional support, financial support, and help in problem solving. They also made sure to distinguish between perceived social support received from family and that received from friends, a critical difference as the tool they developed measures both. They note that the source of social support may vary by context and that the make-up of and individual's social supports, both family and friends, changes over time due to certain life events (e.g., starting a new job, death, moving for education). They also note that the longevity of their supports varies due to certain factors. They write:

friend relationships are often of relatively shorter duration than family relationships. And, while an individual's social competence probably plays a role in the maintenance of his/her support network (Heller, 1979), this is probably more true for friend relationships than family relationships since some of the latter are, by definition ours by birth. (Procidano & Heller, 1983, p. 3).

Thus, it appears that perceived family social support has the potential to be a salient coping mechanism, or a means through which an individual "attempts to meet environmental demands to prevent negative consequences" (Thoits, 1986, p. 417), in more areas and throughout a longer timespan than perceived friend social support.

Perceived family social support and its relation to racial/ethnic minorities

Certain differences have been shown in the intensity with which some racial/ethnic minorities perceive social support from their families as compared to non-Latino Whites. For example, Almeida et al. (2009) reported that Latinos, and in particular, foreign-born Mexicans, endorse higher family support scores compared to non-Latino Whites. They also found

connections between the language spoken at home and the level of family social support. For individuals whose primary language at home was Spanish reported higher levels of perceived family support than those whose primary language at home was English. However, they found that as SES increased, perceived family social support decreased in Latinos. In another study, Torres and Solberg (2001) used a sample of 179 Latino college students to examine the links between self-efficacy, stress, and family support. They found that family social support and self-efficacy were directly linked. Specifically, they noted that a higher availability of family social support was tied to a higher score for self-efficacy. They also found that perceived family social support was negatively and significantly related to stress.

Not only are there cultural differences as to what affects perceived family social support in different racial/ethnic groups, there are also differences in terms of how that support is expressed and who it comes from. Gandara (1982) found that perceived family social support was impactful in the educational success of 17 Mexican American women who obtained J.D., M.D., and Ph.D. degrees. For example, they found that perceived support from the participants' mothers was cited by a majority (65%) of the women as having a significant role in their pursuit of education. Additionally, they found that the support that they perceived from their mothers was more influential in their pursuit of education and eventual success than the support they perceived from their fathers. Gandara (1982) notes that these results differ from previous studies with Whites where it is shown that fathers are the main source of influence and support when it comes to education and career. Thus, it can be stated that perceived family social support is important to both groups, but the sources within the family for that support may vary.

Minority status stress, perceived family social support, and depressive symptoms

Minority status stress and perceived family social support have important ties together, especially as they relate to depressive symptoms. For example, Almeida, Subramanian, Kawachi, and Molnar (2011) used a sample from systematically disadvantaged groups (e.g., of Latino/as, African Americans) to examine the relationship between social support from friends and family and depression along with ethnicity and nativity. They found that while perceived social support from family and friends functioned as a protective factor against depression, only support from family remained significant after adjusting for ethnicity. Additionally, they found that all ethnic minority groups, except Asians, had a higher risk for depression than Caucasians. However, foreign-born Mexicans and African Americans reported decreased levels of depression when family social support was high. Similarly, Utsey, Giesbrecht, Hook, and Stanard (2008) found that family support is not only related to lower life stress, but also to lower race-related stress in African Americans undergoing stressful life events experiencing race-related stress. However, the authors report that this effect may be limited to lower levels of general and race-related stress as the resources available within the family may not be adequate to handle situations of high stress and additional resources would need to be sought. The researchers also found that family support was related to cultural resources (i.e., racial pride, religiosity), and report that this link is particularly important in the development of positive racial identity. This last tie between perceived family social support and racial identity is particularly important as minorities struggle to find a positive identity true to themselves, while also integrating with society at large.

Minority status stress, perceived family social support, and their relation to the perception of career and education barriers

Minority status stress and the perception of career and education barriers have been associated since the outset of the development of measures to assess career and educational

barriers (Luzzo & McWhirter, 2001; McWhirter, 1997). When McWhirter (1997) first developed a measure to assess the level of perceived career and education barriers, a key element included in the scale was that of ethnic discrimination (e.g., “In my future job, I will probably be treated differently because of my ethnic/racial background.”). In this way, minority status stress has been inherent to the research of perceived career and education barriers for almost 20 years when this scale and its updated version (Luzzo & McWhirter, 2001) have been used. When Lopez and Ann-Yi (2006) compared African American, Hispanic, and White college women and found that African American perceived greater career barriers, it served to demonstrate how minority status stress is encapsulated within the perception of barriers.

However, because perceived ethnic discrimination has been integrated into these scales, but has not been explicitly parsed out in the form of a subscale, it has been difficult to examine how much of the barriers that are being perceived are due specifically to perceived ethnic discrimination. In fact, no studies exist that do separate minority status stress from perceived career and education barriers into distinct constructs. In effect, this would be the first study to include both constructs as distinct variables. This interrelation between the two constructs is anticipated by the researcher and further adds credence to minority status stress’ potential role as a mediator within the stress process when the perception of career and education barriers is acting as a source of stress. In this way, the current study may provide more nuanced information about the relationship between minority status stress and the perception of career and education barriers.

Similarly, the literature linking perceived family social support to the perception of career and educational barriers is sparse. As such, only two studies were found that linked these two constructs. In a study by Raque-Bogdan, Klingaman, Martin, and Lucas (2013) that examined

career-related family social support coming from parents and perceived career and education barriers in an ethnically diverse sample of 1st year college students, the researchers found that women perceived significantly higher career barriers than men, but also that women perceived more support from their parents than men. Specifically, they found that gender and career-related parent support were significant predictors of coping efficacy with career barriers ($R^2 = .30, p < .001$) and of coping efficacy with education barriers ($R^2 = .45, p < .001$). In this way, it was shown that perceived family social support is an effective tool for overcoming perceived barriers. To further add to that, the researchers also found that parental support accounted for large amounts of the variances related to both perceived career and education barriers and coping efficacies with career and education barriers. A second, qualitative study with 40 Latino/a college students, Zavala (2014) examined the factors that encourage this population to obtain advanced degrees, as well as the barriers that preclude them from doing so. She found that a majority of the students she interviewed (33, 83%) cited their family as a source of support that encouraged them to continue their education, this despite the perceived barriers to education such as finances, problems with academic performance, unforeseen life events, and a lack of understanding from family certain members as to how and why advanced degrees are beneficial.

In both of these studies the effectiveness of perceived family social support as a means to overcome perceived career and education barriers is demonstrated. Even in cases where some of those perceived barriers are stemming from the family, that there is a source of support from within the family still aids in the surpassing of that obstacle. Unfortunately, the dearth of literature linking these two constructs means that generalizing their results is difficult. However, the current study may begin to add to the existing literature and also begin to address the relationship between the two constructs in the context of racial/ethnic minority graduate students.

Summary, Research Questions, and Hypotheses

As the number of racial/ethnic minority graduate students increases (The Condition of Education, 2018b), identifying the factors that contribute to their mental health is crucial. Racial/ethnic minorities frequently experience barriers related to their education and career in addition to race-related stress. Through the action of these stressors, they can have negative mental health effects, such as depressive symptoms. In order to combat against these negative mental health effects, it is important that racial/ethnic minority graduate students use the resources they have available to them, such as social support from family. Individuals who perceive a higher level of social support from their family are better able to overcome the career and education barriers they perceive. Additionally, they may experience less depressive symptoms. However, individuals with low levels of perceived family social support are vulnerable to depressive symptoms and changing career paths due to believing the obstacles they face are insurmountable.

In this study, SPT will be used as a framework to help construct a model for the perception of barriers, minority status stress, family social support, and depressive symptoms in a racial/ethnic minority sample of graduate students. Within this model, perception of career and education barriers will act as the first construct of SPT: a chronic stressor. The perception of career and education barriers, especially those related to being part of a marginalized group, can be categorized as chronic stressors as individuals have a limited ability to influence these stressors in the short term (Phinney & Ong, 2007). Minority status stress will act as a mediator. Minority status stress has been found to contribute significantly to depressive symptoms in racial/ethnic minority individuals (Miranda et al., 2013, Wei et al., 2010). Family social support will act as a moderator of the stress contributed by career and education barriers, as well as by minority status stress. Family social support has been found to have profound effects on mental

health outcomes for individuals by serving as either a buffer against mental illness, such as in the case with depressive symptoms (Jensen, 2011; Kendler et al, 2002; Lemmens et al., 2007).

Depressive symptoms will serve as the manifestations of stress, the final construct in SPT.

Through the application of this model, I hope to answer several research questions.

The perception of barriers can manifest in students' difficulty in pursuing their academic and professional goals. These difficulties may in turn add stress and strain to students' lives that can manifest as depressive symptoms. This study will serve to investigate the relationship between the perception of barriers and depressive symptoms in racial/ethnic minority graduate students.

Additionally, a second, exploratory model will narrow the construct of minority status stress in order to examine the role of program environment. In this model, the perception of career and education barriers will continue to serve as the first construct of SPT. Minority status stress will act as a mediator and a second, modified version of minority status stress specifically related to program environment will act as a second mediator. Depressive symptoms will act as a manifestation of stress. Here are the list of research questions and hypotheses for both models:

Proposed Model

RQ1. To what extent does the perception of career and education barriers uniquely contribute to depressive symptoms in racial/ethnic minority graduate students?

H1a: Perception of career barriers will uniquely and positively contribute to depressive symptoms in racial/ethnic minority graduate students.

H1b: Perception of education barriers will uniquely and positively contribute to depressive symptoms in racial/ethnic minority graduate students.

RQ2. To what extent does minority status stress mediate the relationship between the perception of career and education barriers and depressive symptoms?

H2a: The association between the perception of career barriers and depressive symptoms will be mediated by minority status stress.

H2b: The association between the perception of education barriers and depressive symptoms will be mediated by minority status stress.

RQ3a. To what extent does family social support moderate the relationship between the perception of career and education barriers and depressive symptoms in racial/ethnic minority graduate students?

H3a: The association between the perception of career barriers and depressive symptoms in racial/ethnic minority graduate students will be weaker for those individuals with a higher level of family social support than for those with lower levels of family social support.

H3b: The association between the perception of education barriers and depressive symptoms in racial/ethnic minority graduate students will be weaker for those individuals with a higher level of family social support than for those with lower levels of family social support.

RQ3b. To what extent does family social support moderate the relationship between minority status stress and depressive symptoms in racial/ethnic minority graduate students?

H4a: The association between the minority status stress and depressive symptoms in racial/ethnic minority graduate students will be weaker for those individuals with a higher level of family social support than for those with lower levels of family social support in a model with the perception of career barriers.

H4b: The association between the minority status stress and depressive symptoms in racial/ethnic minority graduate students will be weaker for those individuals with a higher level of family social support than for those with lower levels of family social support in a model with the perception of education barriers.

Exploratory Model

RQ4: To what extent do minority status stress and program environment mediate the relationship between the perception of career and education barriers and depressive symptoms?

H5a: The association between the perception of career barriers and depressive symptoms will be mediated by minority status stress and program environment.

H5b: The association between the perception of education barriers and depressive symptoms will be mediated by minority status stress and program environment.

CHAPTER 3. METHODS

In this chapter I describe the participants, procedure, measures, and data analyses. The purpose of this study is to investigate the relationship between factors of perception of barriers (career and education barriers), minority status stress, family social support, and depressive symptoms among racial/ethnic minority graduate students.

Participants

Eligible participants were racial/ethnic minority graduate students who currently lived in the United States, English readers, 18 years or older, and were enrolled in a Master's or Doctoral degree-granting program of study at the time of the study. Recruitment materials indicated examples of immigrant background to include 1st generation, 1.5 generation, 2nd generation, and 3rd generation immigrants and examples of racial/ethnic minority background to include biracial, multiracial, or non-White/European individuals, such as African-American/Black, South Asian, East Asian, Latino/a, Middle Eastern/North African, and any ethnicity they choose to include (i.e., Mexican, Chinese, Mayan, Angolan, Malaysian, etc.).

I screened and examined the distribution of the data. A total of 612 participants accessed the survey, but 18 cases were deleted due to not progressing beyond the consent page. I deleted an additional 144 cases that did not meet the inclusion criteria of identifying as racial/ethnic minorities, and an additional 3 cases due to the participants failing to meet the inclusion criteria of being 18 years or older. I also deleted 28 cases for failing to meet the inclusion criteria by being international students. I deleted 86 cases due to the participants failing to progress beyond the demographic questionnaire. I also deleted 29 cases due to participants failing to complete more than 50% of each instrument necessary for analysis of the Regression Model (see Figure 2)

and 22 cases for failing to complete more than 50% of each instrument necessary for analysis of the Exploratory Model (see Figure 3). An additional case was deleted for skewing the data disproportionately. This case was part of the 7 outliers found, but the only one to show up as an outlier on multiple scales. After this case was deleted, a total of 311 participants were included in the preliminary analysis and analysis of the hypotheses.

Participants in this study were 311 anonymous racial/ethnic minority graduate students from several universities. The majority ($N = 201$) were enrolled in a large Midwestern university and 110 racial/ethnic minority graduate students were recruited from listservs and social media. 108 (34.7%) participants reported being in a Master's program, 183 (58.8%) participants reported being in a Doctoral program, and 20 (6.4%) participants only named their program area, but not the degree they were seeking.

The final sample consisted of 75 (24.2%) men, 227 (73.0%) women, 4 (1.3%) transgender (men), 4 (1.3%) another gender, and 1 (0.3%) agender/genderless individuals. (Table 2). Ages ranged from 20 to 57 ($M = 28.56$; $SD = 6.50$; $Mdn = 26.00$). Race and ethnicity range was as follows: 8 (2.6%) were Arab, Arab American, or Middle Eastern; 86 (27.7%) were Asian or Asian American; 76 (24.4%) were Black or African American; 84 (27.0%) were Hispanic or Latino/a; 6 (1.9%) were Native American or Alaskan Native; 5 (1.6%) were Native Hawaiian or Pacific Islander; 20 (6.4%) identified as two or more races; 25 (8.0%) identified as another race or ethnicity (e.g., Semitic, Black and White, Indo Caribbean, etc.); and 1 (0.3%) did not answer. Participants reported immigration generational status as: 19 (6.1%) 1st generation, 48 (15.4%) 1.5 generation, 121 (38.9%) 2nd generation, 108 (34.7%) 3rd generation or higher, and 15 (4.8%) did not respond. First language breakdown was as follows: 202 (65.0%) English, 75 (24.1%) Bilingual, and 34 (10.9%) Other. Sexual orientation was as follows: 248 (79.7%) were

Heterosexual, 13 (4.2%) Gay, 4 (1.3%) Lesbian, 25 (8.0%) Bisexual, 15 (4.8%) Queer, 4 (1.3%) Questioning, and 2 (0.6%) Other (both specified asexual). Relationship status was as follows: 103 (33.1%) single, not dating, 27 (8.7%) dating casually, 85 (27.3%), dating exclusively, 88 (28.3%) married or married-like, and 8 (2.6%) separated, divorced, or widowed. Reported highest level of education was: 170 (54.7%) Bachelor's degree, 122 (39.2%) Master's degree, 16 (5.1%) Doctorate degree, and 3 (1.0%) did not respond. Reported highest level of education achieved by mother was 14 (4.5%) some grade school, 14 (4.5%) grade school, 18 (5.8%) some high school, 75 (24.1%) high school diploma, 39 (12.5%) Associate's degree, 67 (21.5%) Bachelor's degree, 53 (17.0%) Master's degree, 22 (7.1%) Doctorate degree, and 9 (2.9%) did not respond. Reported highest level of education achieved by father was 12 (3.9%) some grade school, 6 (1.9%) grade school, 23 (7.4%) some high school, 75 (24.1%) high school diploma, 21 (6.8%) Associate's degree, 69 (22.2%) Bachelor's degree, 46 (14.8%) Master's degree, 40 (12.9%) Doctorate degree, and 19 (6.1%) did not respond. Self-ascribed socioeconomic status, as described from the highest rungs of socioeconomic status having access to financial stability, education, housing security, and healthcare (A) to the lowest experiencing housing insecurity, a lack of healthcare, no access to education, and food insecurity(J), was 4 (1.3%) A, 12 (3.9%) B, 37 (11.9%) C, 50 (16.1%) D, 78 (25.1%) E, 60 (19.3%) F, 39 (12.5%) G, 24 (7.7%) H, 4 (1.3%) I, and 1 (0.3%) J, and 2 (0.6%) did not respond.

Procedure

Participants were sampled using purposeful and snowballing techniques. Participants were recruited via email through a registrar's office at a large Midwestern university, listservs,

Table 2

Participants' Demographic Characteristics (without outliers)

Demographic Variable	<i>N</i>	Frequency (%)	<i>M</i>	<i>SD</i>
Mean Age			28.56	6.50
Gender				
Man	75	24.12		
Woman	227	72.99		
Transgender (Man)	4	1.29		
Another Gender	4	1.29		
Agender/genderless	1	0.32		
Race/Ethnicity				
Arab, Arab American, or Middle Eastern	8	2.57		
Asian or Asian American	86	27.65		
Black or African American	76	24.44		
Hispanic or Latino/a	84	27.01		
Native American or Alaskan Native	6	1.93		
Native Hawaiian or Pacific Islander	5	1.61		
Two or more races	20	6.43		
Other	25	8.04		
Did Not Answer	1	0.32		
Generational Status				
1 st Generation	19	6.11		
1.5 Generation	48	15.43		
2 nd Generation	121	38.91		
3 rd Generation	108	34.73		
First Language				
English	202	64.95		
Bilingual	75	24.12		
Other	34	10.93		
Sexual Orientation				
Heterosexual (Straight)	248	79.74		
Gay	13	4.18		
Lesbian	4	1.29		
Bisexual	25	8.04		
Queer	15	4.82		
Questioning	4	1.29		
Other	2	0.64		
Relationship Status				
Single, Not Dating	103	33.12		
Dating Casually	27	8.68		
Dating Exclusively	85	27.33		
Married or Married-Like	88	28.30		
Separated/Divorced/Widowed	8	2.57		
Highest Level of Education				

Table 2 continued

Demographic Variable	<i>N</i>	Frequency (%)	<i>M</i>	<i>SD</i>
Bachelor's Degree	170	54.66		
Master's Degree	122	39.23		
Doctorate Degree	16	5.14		
Father's Education				
Some Elementary (Grade) School	12	3.86		
Completed Elementary (Grade) School	6	1.93		
Some High School	23	7.40		
High School Diploma	75	24.12		
Associate's Degree	21	6.75		
Bachelor's Degree	69	22.19		
Master's Degree	46	14.79		
Doctorate Degree	40	12.86		
Mother's Education				
Some Elementary (Grade) School	14	4.50		
Completed Elementary (Grade) School	14	4.50		
Some High School	18	5.79		
High School Diploma	75	24.12		
Associate's Degree	39	12.54		
Bachelor's Degree	67	21.54		
Master's Degree	53	17.04		
Doctorate Degree	22	7.07		
Mean Subjective SES			5.18	1.69

Note: N = 311.

and through snowballing techniques via social media. The survey was used to collect data pertaining to racial/ethnic minority graduate students' inner experiences pertaining to depressive symptoms, perception of barriers, minority status stress, and family social support. To be included in this study, participants needed to be enrolled in a degree-granting Master's or Doctoral program at the time of the study. A power analysis was conducted in G-POWER (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lang, & Buchner, 2007) and in order to achieve statistical significance at $p < .05$ with a statistical power level of .80 and an effect size of .10, a minimum sample size of 112 is required. However, in order to address potential threats to reliability due to the potential for less than perfect reliability scores for measures, I concluded that a minimum sample size of 150 is required.

After obtaining approval from Purdue University's Institutional Review Board (IRB; Appendix A), the University Registrar's office sent a recruitment email (Appendix B) to a random sample of about 1,200 racial/ethnic minority graduate students. In addition, participants were recruited through an initial recruitment e-mail (Appendix D) that I sent through various graduate student and racial/ethnic minority listservs (e.g., American Psychological Association – Ethnic Minority Graduate Students, American Psychological Association Graduate Students – Committee for the Advancement of Racial and Ethnic Diversity, Society for the Psychological Study of Culture, Ethnicity, and Race, Listserv for Minority Anthropologists, etc.). I explicitly stated in the recruitment e-mail that the study focused on the experiences of currently enrolled racial/ethnic minority graduate students. I also shared a Facebook Status on pages of open groups affiliated with graduate divisions for professional associations. Both email and Facebook Status (Appendix E) included the purpose of the study, participation criteria, and a link to the survey. In the email and Facebook Status invitation, I used a snowball technique by asking participants to forward the recruitment invitation to other racial/ethnic graduate students who might have been eligible to participate in the study.

The email invitation included criteria for participation, information about the study, a URL to the information sheet, participant consent, and the questionnaire (Appendix F). Participants were offered an incentive for participation by being given the option of entering a random drawing for one of several \$20 Amazon gift card with 1:100 odds of being awarded one gift card. To enter the drawing of the gift card participants were asked to enter their email address in a separate database at the end of the survey. The database with the email addresses was not connected to survey responses or IP addresses. The recipient of the gift card was notified

by email and at the end of the drawing process and the email database was deleted at the end of data collection.

Next, participants were directed to the questionnaire via a link, which lead them to the consent form page. Participants were asked to click, “Yes” in agreement with participation in the study and were directed to a demographic information sheet and four measures. To increase the response rate, a follow-up email was sent out a week later. The follow-up email thanked those who had already completed the survey and emphasized that if they had not yet participated, they were invited to do so.

Instruments

This section will provide information about the measures that were used along with psychometric properties of each measure. Participants completed the following questionnaires online: (a) demographic information sheet (Appendix G), (b) Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1997; Appendix H), (c) Perception of Barriers Scale (POB; Luzzo & McWhirter, 2001; Appendix I), (d) Minority Status Stress Scale (MSSS; Smedley et al., 1993; Appendix J), (e) Minority Status Stress Scale – Negative University Social Climate Subscale Modified for Program Environment (Smedley et al., 1993; Appendix L), (f) Family Social Support – Family Subscale (PSS-Fa; Procidano & Heller, 1983; Appendix K).

Demographic information

Demographic information consisted of a self-constructed questionnaire with questions about participants’ age, gender, race/ethnicity, sexual orientation, relationship status, first language, generational status, graduate program information, level of education, parents’ education level, living arrangements, and subjective SES. For subjective socioeconomic status, I

used the MacArthur Scale of Subjective Social Status (Adler & Stewart, 2007). Participants rated their perceived social/economic status relative to the U.S., by placing themselves on a ladder from rung A (top) to rung J (bottom).

Center for Epidemiologic Studies Depression Scale

Depressive Symptoms were measured using the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), which is a 20-item measure designed to measure depressive symptoms over the previous week. The responses range from 0 (*Rarely or none of the time* [less than 1 day]) to 4 (*Most or all of the time* [5-7 days]). The CES-D measures depressive symptoms with an emphasis on the affective component (e.g., “I did not feel like eating; my appetite was poor”) of depression unidimensionally. Total scores were calculated by summing the responses from all of the items, where a lower scale score indicated the absence of depressive symptoms and a higher scale score indicated the presence of clinically significant symptoms of depression (Nezu, McClure, Ronan, & Meadows, 2000).

Several studies have provided information regarding the psychometric properties of the CES-D and its validity and reliability with students in academia. Mongrain and Leather (2006) reported a Cronbach’s alpha of .70 in a sample of college students. Similarly, Peluso, Carleton, and Asmundson (2011) reported a coefficient of .93 in a sample of Canadian psychology graduate students. Additionally, Brown, Meadows, and Elder (2007) reported several high Cronbach’s alphas across several waves in a sample with Hispanic ($\alpha = .79$, Wave 1; $\alpha = .78$, Wave 2; $\alpha = .80$, Wave 3), Black ($\alpha = .76$, Wave 1; $\alpha = .76$, Wave 2; $\alpha = .80$, Wave 3), Asian ($\alpha = .80$, Wave 1; $\alpha = .83$, Wave 2; $\alpha = .85$, Wave 3), and White ($\alpha = .81$, Wave 1; $\alpha = .81$, Wave 2; $\alpha = .81$, Wave 3) participants. Construct validity has been demonstrated by Santor et al. (1995) who provided discriminant validity of the CES-D above the Beck Depression Inventory

(BDI; Beck, Shaw, Rush, & Emery, 1979) in two samples (i.e., college students and depressed outpatients). For the current study, reliability for the CES-D is high ($\alpha = .93$).

Perception of Barriers Scale

Perception of Barriers was measured using the Perception of Barriers Scale (POB; Luzzo & McWhirter, 2001), which was designed to assess the perceived barriers in education and career. The scale is a 32-item measure using a 5-point Likert scale. The responses range from 1 (*strongly disagree*) to 5 (*strongly agree*). It has two subscales intended to capture different perceptions of barriers: (a) Education Barriers (e.g., “Money problems are currently a barrier to my educational aspirations”), and (b) Career Barriers (e.g., “In my future career, I will probably be treated differently because of my ethnic/racial background”). Higher scores indicate a higher perception of barriers for each of the subscales. The scores for subscales, as opposed to a total score, were used in the current study.

Luzzo and McWhirter (2001) provided the psychometric properties, the convergent validity was demonstrated for test-retest reliability for both education ($r = .68$) and career scales ($r = .72$), as well as for the overall scale ($r = .78$). The Cronbach’s alphas for the two subscales are .88 for Education, .86 for Career, and .90 for the total scale (Luzzo & McWhirter, 2001). The scale has been previously used in a study with first-generation, low-income college students (Tate et al., 2015), and with general college students (Lindley, 2005). It appears to be a reliable and valid measure for research with adults. Several studies have reported high coefficients for the scale ($\alpha = .99$ for education, $\alpha = .98$ for career; Raque-Bogdan, Klingaman, Martin, & Lucas, 2013; $\alpha = .89$ for education, $\alpha = .93$ for education; Tate et al., 2015). McWhirter (1997) demonstrated construct validity in a previous version of the POB through the use of content-related evidence, where she showed that the scale did in fact measure the perception of career

and education barriers. For the current study, reliability for both the CB and EB are high ($\alpha = .88$ and $\alpha = .91$, respectively).

Minority Status Stress Scale

Minority status stress was measured with the 33-item Minority Status Stress Scale (MSSS; Smedley et al., 1993). The scale measures stresses experienced by racial/ethnic minorities at university settings due to their minority status. Items are measured on a 6-point Likert scale ranging from 0 (*does not apply*) to 5 (*extremely stressful*). The scale is composed of five subscales: negative university social climate (11 items; “The university does not have enough professors of my race.”), difficulties in intergroup relations (seven items; “Difficulties with having White friends”), discrimination (five items; “Being treated rudely or unfairly because of my race”), group pressures (four items; “Pressures to show loyalty to my race (e.g., giving back to my ethnic group community)”), and lack of academic confidence (six items; “Feeling less intelligent or less capable than others”). The current study used the total score as opposed to the subscales, with a possible total score of 165. Higher scores indicated higher perception of minority status stressors.

The scale was originally developed by Smedley et al. (1993) using a diverse sample of racial/ethnic minority (e.g., African American, Latino/a, Pilipino) college students at a predominantly White university. Additionally, they provided psychometric properties for the scale and reported a Cronbach’s alphas ranging from .76 to .93 for their subscales. Liang, Li, and Kim, (2004) provide a Cronbach’s alpha for the total scale at .93 in their use of the scale with Asian American college students. Greer and Chwalisz (2007) reported a coefficient alpha of .92 in their use of the scale with African American college students. Wei et al. (2010) also reported Cronbach’s alpha of .92 with a sample of African American, Asian American, and Latino/a

college students. The scale's construct validity has been supported through positive associations with race-related stress and psychological distress in Asian American students (Liang et al., 2004) and with perceived general stress in African American students (Greer & Chwalisz, 2007). For the current study, reliability for the MSSS is high ($\alpha = .95$).

Program Environment. In addition to measuring minority status stress at the campus level, I included a modified version of the negative university social climate items from the MSSS in order to examine graduate program environment. In order to better examine program environment, I changed the key word “university” to “program.” I examined the reliability of this modified subscale and checked to see if a correlation exists between this subscale and the campus level subscale. I also checked to see if a correlation exists between the graduate program environment and depressive symptoms. For the current study, reliability for the PE is high ($\alpha = .94$). As expected, PE is highly correlated with the MSSS ($r = .85, p < .01$). All preliminary analyses were reported in Chapter IV: Results.

The operationalization of program environment for the current study was necessitated due to the lack of research and scales that measure graduate program environments in relation to racial/ethnic minority graduate students' experiences of minority status stress and perceived discrimination. This meant that the modification of the MSSS - Negative University Social Climate Subscale (Smedley et al., 1993) was not only convenient, but also crucial to the understanding of the experiences of racial/ethnic minority graduate students in academia, specifically in their graduate programs. This homing in on the phenomena of race-based discrimination and minority status stress at an institutional level is important because it provides information as to what universities can do differently to address these issues. Similarly, by

narrowing the focus from the university scale to the program level, we are better able to address specific issues on a smaller, but more personal, scale.

Perceived Social Support – Family Subscale

Family social support was measured with the 20-item Perceived Social Support – Family Scale (PSS-Fa; Procidano & Heller, 1983). The scale measures perceived social support from family members. It is a broad construct that taps into the various forms of support provided by one's family in any iteration, including family of origin, spouses and children, and extended family. Items are scored Yes-No, with *yes* (1), *no* (0), and a third option, *don't know* (0) also being present, but not adding value. The scale contains items that lie along one dimension, but capture different aspects of support (e.g., “My family gives me the moral support I need.”; “Members of my family share many of my interests.”). Higher scores indicate a higher level of perceived family influence.

Procidano and Heller (1983) provided psychometric properties for the scale and reported a Cronbach's alpha of .90 for the Perceived Social Support – Family Scale. The scale has been previously used in a study with a mostly African American sample (83%) of emerging adults with a Cronbach's alpha of .92 (Eisman et al., 2015). Another study by Shahar and Henrich (2016) also found the scale to be reliable with a Cronbach's alpha of .82. Cumsille and Epstein (1994) similarly found the scale to be reliable in their study of families with depressed adolescents ($\alpha = .87$). The scale was shown to be reliable across different samples as demonstrated by Lyons, Perrotta, & Hancher-Kvam (1988) in their study with three different groups (i.e., a chronic-psychiatric sample, a diabetic sample, and an undergraduate college student sample; $\alpha = .89$, $\alpha = .91$, $\alpha = .92$ respectively). Procidano and Heller (1983) also demonstrated the subscale's construct validity providing a significant inverse correlation

between family social support and scores on the Minnesota Multiphasic Personality Inventory (MMPI) Depression scale. Additionally, they provided significant correlations of the family social support subscale with the MMPI Psychasthenia and Schizophrenia scales. For the current study, reliability for the PFSS is moderately high ($\alpha = .78$).

Data Analysis Plan

Preliminary analyses

Prior to the main data analyses, I conducted preliminary analyses by checking for missing values and outliers. Responses from participants who did not meet the inclusion criteria and those who did not complete all the questionnaires were deleted. I checked for regression assumptions of linearity, homoscedasticity, and normality (i.e., skewness and kurtosis) prior to analyses. For this study, I used SPSS 24.0 with the Hayes' PROCESS macro for the data analysis.

I calculated Pearson correlations, means, standard deviations, and ranges for each variable. I also calculated reliability analyses for each scale to assess internal consistency coefficients for each scale. Several one-way analysis of variance (ANOVA) were used to determine whether any demographic variables (e.g., generational status, gender, relationship status) needed to be controlled for and if there were any mean group differences. Any demographic variables demonstrating a significant group difference ($p < .05$) and a large effect size (.14; Cohen, 1988) were controlled for.

Analyses of the hypotheses

Through the use of conditional process analysis, I can observe the conditional nature of the mechanism through which predictor variables (i.e., perception of career and education

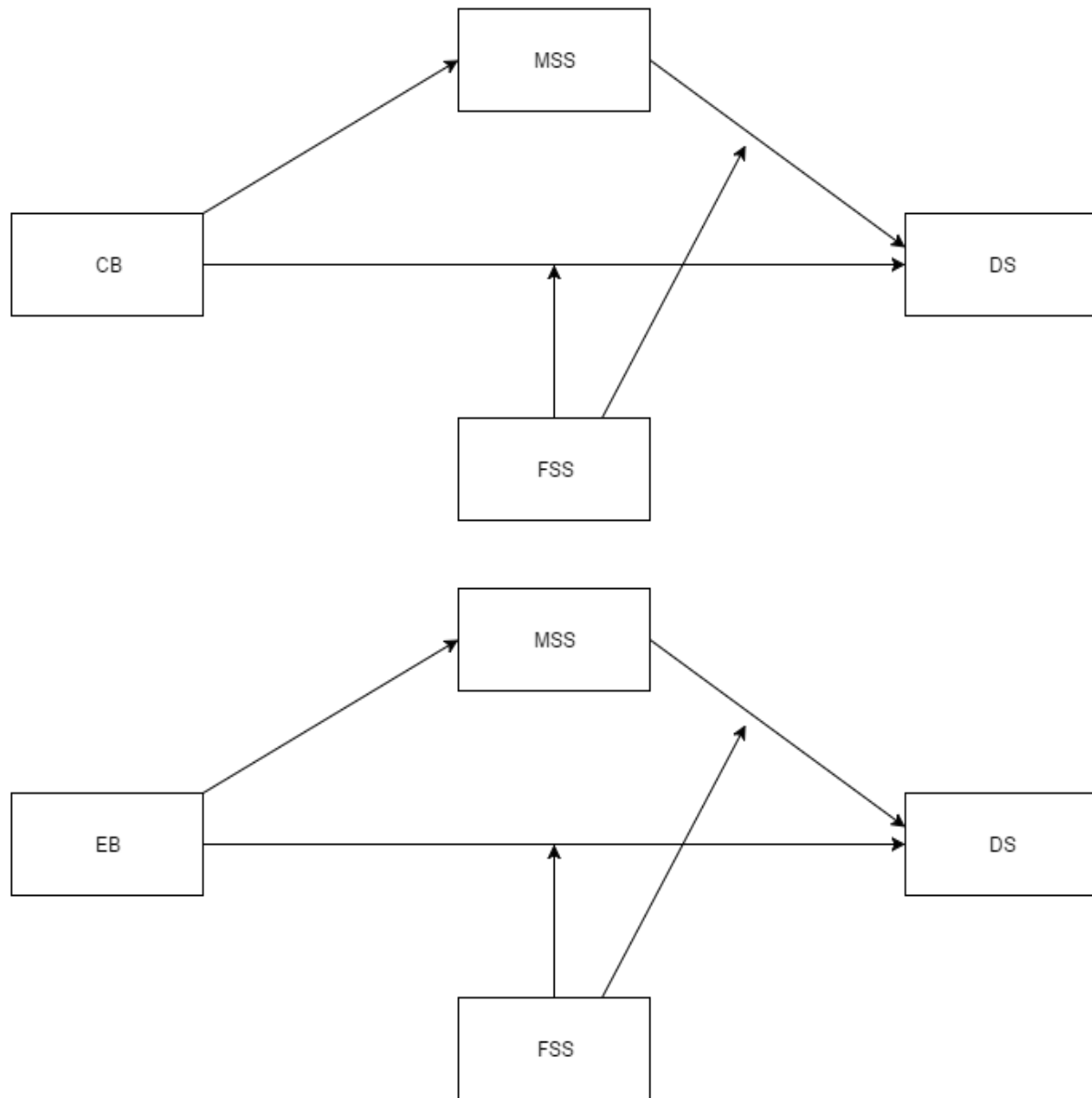


Figure 2. Regression Model of Current Study

CB: Career Barriers; EB: Education Barriers; MSS: Minority Status Stress; FSS: Family Social Support; DS: Depressive Symptoms

barriers) transmit their effects on an outcome variable (i.e., depressive symptoms) conditional on mediating and moderating factors (i.e., minority status stress and perceived family social support; Hayes, 2013). This integrated analytical model allows for mediation and moderation to be pieced together with regression analyses to produce a single output.

I hypothesized that H1a) the perception of career barriers would be positively and significantly associated with depressive symptoms and that H1b) the perception of education barriers would be positively and significantly associated with depressive symptoms. Furthermore, H2a) the association between the perception of career barriers and depressive symptoms would be mediated by minority status stress and H2b) the association between the perception of education barriers and depressive symptoms would be mediated by minority status stress. Additionally, H3a) the association between the perception of career barriers and depressive symptoms in racial/ethnic minority graduate students would be weaker for those individuals with a higher level of perceived family social support than for those with lower levels of perceived family social support and H3b) the association between the perception of education barriers and depressive symptoms in racial/ethnic minority graduate students would be weaker for those individuals with a higher level of perceived family social support than for those with lower levels of perceived family social support. Also, H4a) the association between minority status stress and depressive symptoms in racial/ethnic minority graduate students would be weaker for those individuals with a higher level of perceived family social support than for those with lower levels of perceived family social support in a model with the perception of career barriers, and H4b) the association between minority status stress and depressive symptoms in racial/ethnic minority graduate students would be weaker for those individuals with a higher level of perceived family social support than for those with lower levels of perceived family social support in a model with the perception of education barriers. An additional exploratory model was also examined using conditional process analysis. In this model I hypothesized H5a) that the association between the perception of career barriers and depressive symptoms would be mediated by minority status stress and program environment and H5b) that the association

between the perception of education barriers and depressive symptoms would be mediated by minority status stress and program environment.

To address all of the questions, I used Hayes' (2013) conditional process analysis. This combined mediation and moderation into one model where direct, indirect, main, and interaction effects were processed together. Conditional process analysis is regression based (Hayes, 2013). In order to effectively interpret the data, the model was split and run in two phases, where the first phase included only the perception of career barriers as the independent variable and the second phase included only the perception of education barriers as the independent variable. This is due to the differing orientations between the two types of barriers: career barriers are future oriented and education barriers are present oriented. While both barriers come from the same construct, in order to be analyzed in a meaningful way, it is important to separate them into two models. To answer the first question, (i.e., contribution of perception of career and education barriers to depressive symptoms), I examined the standardized beta weights and corresponding

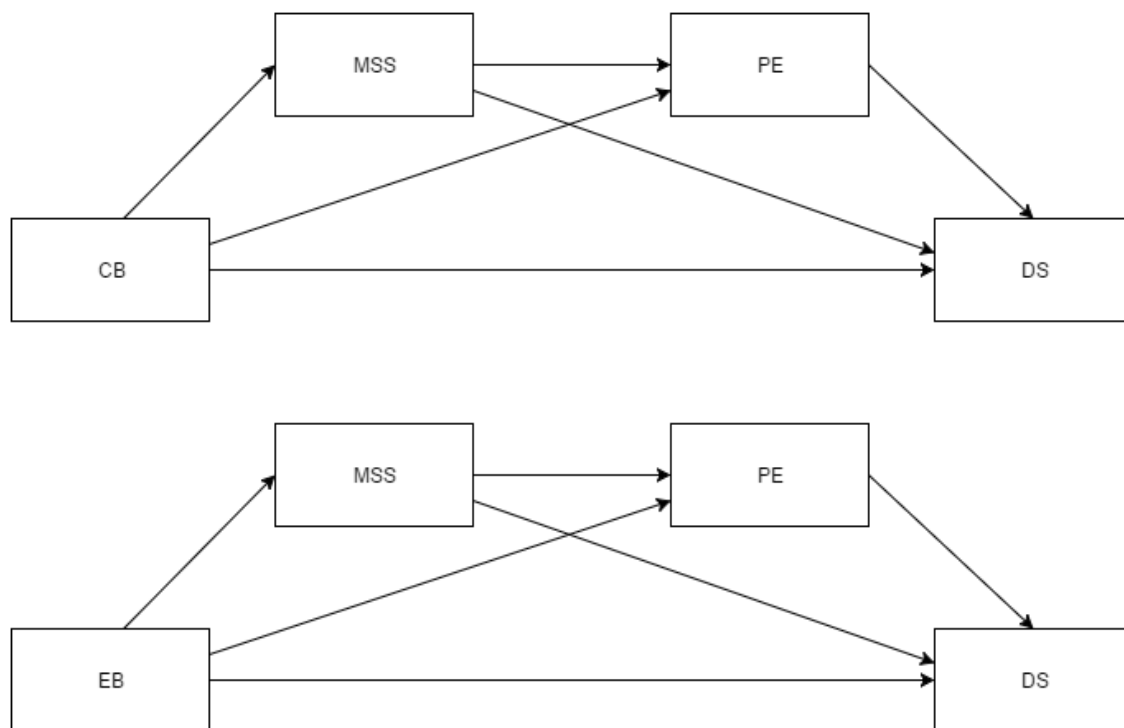


Figure 3. Exploratory Model of Current Study with Program Environment

statistics (i.e., t statistic and p value) associated with each variable to determine the direct effect. To examine the second question (i.e., minority status stress would mediate the relationship between the perception of career and education barriers and depressive symptoms), I examined the direct effects and determined if mediation had occurred. To examine the third and fourth questions (i.e., family social support would moderate the relationships between the perception of career and education barriers and depressive symptoms, and minority status stress and depressive symptoms), I examined the main and interaction effects and determined if moderation had occurred. To examine the fourth question (i.e., minority status stress and program environment would mediate the relationship between the perception of career and education barriers and depressive symptoms), I examined the direct and indirect effects and determined if mediation had occurred.

CHAPTER 4. RESULTS

In this chapter I present the data analyses and results of the study. First, I present the preliminary analyses. Then, I report the analyses of group differences based on demographics. As a final step, I present the analyses of the main hypotheses. I used IBM SPSS 24.0 statistical package and Hayes' PROCESS macro to conduct data analysis.

Preliminary Analysis

I first screened participants (See Chapter III) and examined the data for the assumptions of: linearity, normality (e.g., skewness and kurtosis), independence, homoscedasticity, and multicollinearity. Univariate normality and linearity assumptions were confirmed by visual examination of the linear probability Q-Q plots, the unstandardized residuals, skewness, kurtosis, and the Shapiro-Wilk test for normality. The skewness and kurtosis values for all the variables were between ± 3 except for perceived family social support (PFSS), which had a kurtosis of 3.01 (See Table 3). Due to PFSS's kurtosis value falling outside the desired ± 3 values, I could perform a log and reflect transformation of the variable which would change the direction of the variable and the means (Tabachnick & Fidell, 2013). The kurtosis value for PFSS (3.01) is only minimally outside the acceptable range (3.00) and because transformed variables are difficult to interpret, especially when interpreting widely used scales (Tabachnick & Fidell, 2013), I opted to analyze and interpret the results without transformation. In order to check the assumption of homoscedasticity, I examined scatter plots to determine that the residuals for each variable were randomly distributed around zero.

I calculated the descriptive statistics including means, standard deviations for each of the variables and internal consistency (i.e., Cronbach's alpha) for each of the subscales (Table 3). As

shown in Table 3, the Cronbach's alphas for each scale (i.e., CES-D, Radloff, 1977; POB, Luzzo & McWhirter, 2001; MSSS, Smedley et al., 1993; PSS-Fa, Procidano & Heller, 1983) are consistent with previous research with racial/ethnic minority college student samples. The most notable difference is for the PFSS scale; the Cronbach's alpha in this study was $\alpha = .78$, which

Table 3

Sample Size, Mean Values, Standard Deviations, Kurtosis, Skewness, Shapiro-Wilk, and Reliability

Measure	N	M	Score Range	Current Study					Previous Research
				SD	Kurtosis	Skewness	SW	α	α
1. CES-D	311	16.65	0 - 20	13.84	1.91	1.31	.92	.93	.70 to .93
2. CB	311	35.17	11 – 55	8.91	-.00	-.31	.99	.88	.86 to .98
3. EB	311	48.13	20 – 105	16.29	-.09	.36	.98	.91	.88 to .99
4. MSS	311	59.35	0 - 159	40.85	-1.00	.24	.95	.96	.76 to .93
5. PE	311	16.82	0 – 55	15.34	-.75	.65	.90	.94	—
6. PFSS	311	30.58	20 - 60	5.39	3.01	1.18	.93	.78	.82 to .92

Note: N = 311. CES-D = Center for Epidemiologic Studies – Depression; CB = Perception of Barriers, Career; EB = Perception of Barriers, Education; MSS = Minority Status Stress; PE = Program environment; PFSS = Perceived Family Social Support.

was slightly lower than the range of Cronbach's alphas reported in previous research (Cumsille & Epstein, 1994; Eisman et al., 2015; Lyons, Perrotta, & Hancher-Kvam, 1988; Procidano & Heller, 1983; Shahar & Henrich, 2016).

In order to determine if any outliers were present, I calculated the means and standard deviations for each variable and examined the data for cases that lay outside more than ± 3 standard deviations of the mean. For DS, ($M = 16.79$, $SD = 14.27$), any score found to be above 60.83 was considered an outlier; 5 outliers were found (cases 1, 2, 3, 4, & 5). For CB ($M = 35.24$, $SD = 8.97$), any score found to be above 62.15 was considered to be an outlier, but no outliers were found. For EB ($M = 48.31$, $SD = 16.58$), any score found to be above 98.05 was considered to be an outlier; 2 outliers were found (cases 1 & 6). For MSS ($M = 59.16$, $SD = 40.90$), any score found to be above 181.86 was considered to be an outlier, but no outliers were

found. For PE ($M = 16.76$, $SD = 15.35$), any score found to be above 62.81 was considered an outlier, but no outliers were found. For PFSS ($M = 30.67$, $SD = 5.63$), any score found to be above 47.56 was considered an outlier; 3 outliers were found (cases 1, 7, & 8). Congruent with my a priori decision to remove outliers only when cases presented as outliers across multiple variables, case 1 was removed before proceeding to any further analysis.

After removing case 1, but before conducting the preliminary analyses, the process of calculating means and standard deviations was repeated to check for any remaining outliers. For DS ($M = 16.65$, $SD = 13.82$), any score found to be above 58.09 was considered an outlier; 4 outliers were found (cases 2, 3, 4, and 5). For CB ($M = 35.17$, $SD = 8.91$), any score found to be above 61.9 was considered to be an outlier, but no outliers were found. For EB ($M = 48.13$, $SD = 16.29$), any score found to be above 97.00 was considered to be an outlier; 1 outlier was found (case 6). For MSS ($M = 59.35$, $SD = 40.83$) any score found to be above 181.84 was considered to be an outlier, but no outliers were found. For PE ($M = 16.82$, $SD = 15.34$), any score found to be above 62.84 was considered an outlier, but no outliers were found. For PFSS ($M = 30.58$, $SD = 5.39$), any score found to be above 47.75 was considered to be an outlier; 3 outliers were found (cases 7 & 8). In the secondary check for outliers (after the initial outlier, case 1, was omitted) a new outlier was found, but I determined it was not problematic, because it was not an outlier in multiple scales. The final data set included a total of 7 univariate outliers across 3 scales, none of which were outliers in multiple scales, thus no further univariate outliers were removed from the dataset prior to the main analysis.

Data were screened for linearity using residual plots; based on the plots I determined that independent variables, CB and EB, mediators MSS and PE, moderator PFSS, and dependent variable DS are all linear. Of note, following the recommendations of Hahs-Vaughn (2016) the

data were bootstrapped for the main analysis as PROCESS requires bootstrapping to perform moderated-mediation and sequential mediation analyses. Therefore, statistical concerns due to nonnormality were addressed by the lessening of the weight of outliers inherent in the bootstrapping process (Pollet & van der Meij, 2017).

Table 4

Durbin-Watson, Tolerance, and Variance Inflation Factors (VIF)

Measure	DW	Tolerance	VIF
1. CB	1.833	.90	1.12
2. EB	1.909	.84	1.20
3. MSS	1.767	.92	1.09
4. PE	1.689	.96	1.04
5. PFSS	1.758	.95	1.05

Note: $N = 311$. CES-D = Center for Epidemiologic Studies – Depression; CB = Perception of Barriers, Career; EB = Perception of Barriers, Education; MSS = Minority Status Stress; PE = Program environment; PFSS = Perceived Family Social Support.

I used the Durbin-Watson statistic to evaluate independence for each variable using the recommendations of Montgomery, Peck, and Vining (2001, See Table 4) where a value equal or approaching 2 indicates no autocorrelation. CB had a $DW = 1.833$ which is considered acceptable and suggests that the assumption of independence has been met. Similarly, EB was found to have a $DW = 1.909$, which is also considered acceptable and suggests that the assumption of independence has been met. Likewise, MSS ($DW = 1.767$), PE ($DW = 1.689$), and PFSS ($DW = 1.758$) were all found to have acceptable values and suggesting that the assumption of independence has been met for each variable.

Table 5

Summary of Intercorrelations for DS, CB, EB, MSS, PE, and PFSS

Variable	1	2	3	4	5	6
1. DS	-	.30**	.38**	.32**	.23**	.16**
2. CB		-	.50**	.58**	.52**	.04
3. EB			-	.54**	.45**	.15**
4. MSS				-	.85**	.04
5. PE					-	.01
6. PFSS						-

Note. $N = 311$.* $p < .05$. ** $p < .01$.

DS: Depressive Symptoms; CB: Career Barriers; EB Education Barriers; MSS: Minority Status Stress; PE: Program Environment; PFSS: Perceived Family Social Support

I performed two procedures to ensure that the data were appropriate for my planned regression-based analyses. First, I calculated Pearson's correlations to examine the relatedness among the variables (i.e., DS, CB, EB, MSS, PE, and PFSS). Most of the variables were significantly and positively related, with significant r s ranging from values of .15 to .85 (Table 5). Next, two collinearity statistics (tolerance and VIF) were used to determine noncollinearity. Using the recommendations of Menard (.80; 1995) no issues of collinearity were found. No issues of collinearity were found between any of the variables when a linear regression was run between the dependent variable DS and each of the predictor variables: CB: Tolerance = .90, VIF = 1.12; EB: Tolerance = .84, VIF = 1.20; MSS: Tolerance = .92, VIF = 1.09; PFSS: Tolerance = .95, VIF = 1.05; PE: Tolerance = .96, VIF = 1.04. With the exception of the correlation between MSS and PE ($r = .85$), where PE is a modified version of MSS and high correlation values are expected, the correlations were below .80 and the VIFs were all below 3 thus, multicollinearity is likely not a concern (Tabachnick & Fidell, 2013).

As a post-hoc analysis, I used the Mahalanobis Distance to assess for multivariate outliers in the five predictor variables (i.e., CB, EB, MSS, PE, and PFSS). The critical value was $\chi^2(5) =$

20.515 at the $p = .001$ level. Using this parameter, four multivariate outliers were found (cases 6, 7, 8, & 9) with observed Mahalanobis Distance values ranging from 21.859 to 28.851. The only new identified outlier is case 9, with the previous three cases being identified as univariate outliers. As with the univariate outliers, I decided not to remove the multivariate outliers due to their observed Mahalanobis Distance values not being far greater than the critical value of $\chi^2(5) = 20.515$ at the $p = .001$ level (21.859 to 28.851) and also due to the fact that the data were going to be bootstrapped for the main analyses, lessening the weight of any individual outlier in the process (Pollet & van der Meij, 2017).

Analysis of Group Differences

I conducted a series of one-way Univariate Analysis of Variance (ANOVAs) to examine mean differences, using demographic variables (gender, race/ethnicity, generational status, first language, sexual orientation, relationship status, highest level of education completed, father's highest level of education, mother's highest level of education, and subjective socioeconomic status) as the independent variables and the scores for CES-D as the dependent variable. When a significant ANOVA F value was found for any of the demographic variables, I examined the follow-up univariate analysis to determine the effect size and potentially controlling for effect sizes larger than .14 (Cohen, 1992). Although the ANOVAs were significant for gender, first language, sexual orientation, relationship status, and subjective socioeconomic status (see Table

6), sexual orientation was the only demographic variable with an effect size exceeding .10. As I found no significant main effects greater than .10 for 9 of these demographic variables, there was no need for post-hoc analyses. For the same reason, I determined that controlling for these 9 demographic factors was not necessary. However, there was a significant main effect of sexual orientation on depressive symptoms (DS), $F(6, 299) = 8.638, p < .001$. Of note, the ANOVAs for Highest Level of Education, Father's Education, and Mother's Education each yielded a negative ΔR^2 , an exceedingly rare occurrence that may have been a result of a limited sample size in regard to the number of groups for each of these predictors (Tabachnik & Fidell, 2013). Sexual orientation accounted for 15.1% of the variance in DS but had a moderate-to-large effect size, $\eta^2 = 0.15$. The univariate analyses indicated that non-heterosexual individuals generally reported significantly higher levels of CES-D depressive symptoms (See Table 7) than heterosexual individuals ($M = 14.70, SD = 12.60$), with the univariate effect size being .15. This finding is in line with previous research indicating that non-heterosexual individuals report

Table 6

ANOVA F Values, Degrees of Freedom, Coefficients, Adjusted Coefficients, Significance, and Effect Sizes

Variable	$F(df_1, df_2)$	R^2	ΔR^2	p	η^2
1. Gender	2.590 (4, 306)	.033	.020	.035*	.033
2. Race/Ethnicity	.965 (8, 302)	.032	.007	.260	.032
3. Generation	.749 (3, 292)	.021	.010	.109	.021
4. First Language	1.985 (2, 308)	.026	.020	.017*	.026
5. Sexual Orientation	8.638 (6, 292)	.151	.133	.000**	.151
6. Relationship Status	1.369 (4, 306)	.059	.047	.001**	.059
7. Highest Level of Education	.131 (2, 305)	.004	-.003	.549	.004
8. Father's Education	1.131 (7, 284)	.022	-.002	.482	.022
9. Mother's Education	1.069 (7, 294)	.023	-.001	.450	.023
10. Subjective SES	3.169 (9, 299)	.079	.051	.003**	.079

Note. $N = 311$.

* $p < .05$. ** $p < .01$.

higher depressive symptoms than heterosexual individuals (Branstrom, 2015; Everett, 2015; Lewis, Derlega, Brown, Rose, & Henson, 2009; Luk, Gilman, Haynie, & Simmons-Morton,

2018; Marshal et al., 2013; Montgomery, Peck, & Vining, 2001). In order to better analyze this finding and due to sample size (i.e., disparity between heterosexual individuals: $N = 238$, and other groups, gay: $N = 13$, Lesbian: $N = 4$, etc.) I grouped non-heterosexual individuals into one group and ran the ANOVA once more. The new ANOVA supported that in this sample, and consistent with the existing literature (Branstrom, 2015; Everett, 2015; Lewis, Derlega, Brown, Rose, & Henson, 2009; Luk, Gilman, Haynie, & Simmons-Morton, 2018; Marshal et al., 2013;

Table 7

Sexual Orientation Differences for Depressive Symptoms

Sexual Orientation	<i>M</i>	<i>SD</i>	<i>N</i>
1. Heterosexual	14.70	12.60	238
2. Gay	17.92	12.26	13
3. Lesbian	11.00	9.13	4
4. Bisexual	18.71	12.92	24
5. Queer	32.07	17.70	14
6. Questioning	44.50	22.52	4
7. Other	40.50	2.12	2

Note: $N = 311$.

Montgomery, Peck, & Vining, 2001), non-heterosexual individual reported significantly higher levels of CESD-D depressive symptoms ($M = 22.937$, $SD = 16.53$) than heterosexual individuals ($M = 14.70$, $SD = 12.603$), with the univariate effect size being .15. However, I decided not to control for sexual orientation because the effect size (i.e., .15) was only slightly above .10 and because it was for only one of the study's variables.

Analyses of the Hypotheses

I hypothesized two mediation models, that in the proposed model, minority status stress will mediate the relationship between the perception of career and education barriers and depressive symptoms while perceived family social support will moderate both the relationship between minority status stress and depressive symptoms, and the perception of career and

education barriers and depressive symptoms, and that in the exploratory model, minority status stress and program environment will mediate the relationship between the perception of career and education barriers and depressive symptoms.

Proposed Model

Model 1. For Model 1, there were four research questions: 1. To what extent does the perception of career barriers uniquely contribute to depressive symptoms in racial/ethnic minority graduate students? 2. To what extent does minority status stress mediate the relationship between the perception of career barriers and depressive symptoms? 3a. To what extent does family social support moderate the relationship between the perception of career barriers and depressive symptoms in racial/ethnic minority graduate students? 3b. To what extent does family social support moderate the relationship between minority status stress and depressive symptoms in racial/ethnic minority graduate students in a model with career barriers?

Four hypotheses answer my research questions. I conducted a moderated-mediation model (see Figure 4) to test these hypotheses. In Model 1, I hypothesized that perceptions of career barriers (CB) uniquely and positively contributed to depressive symptoms (DS) in racial/ethnic minority graduate students (H1a). Also, I hypothesized that minority status stress (MSS) will mediate the relationship between the perception of career barriers (CB) and depressive symptoms (DS) in racial/ethnic minority graduate students (H2a). I also hypothesized

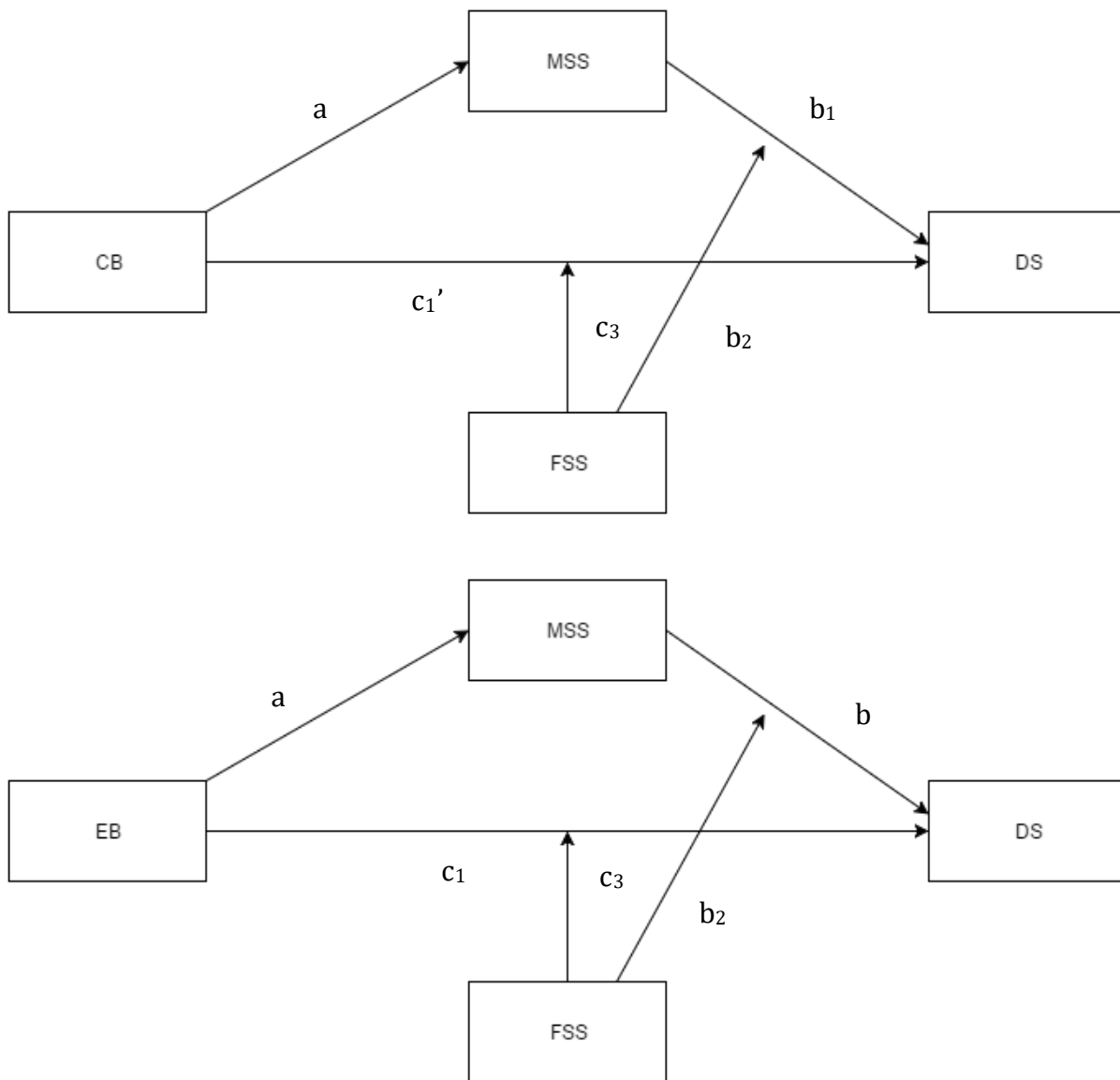


Figure 4. Statistical Diagram of the Proposed Model of Current Study

that perceived family social support (PFSS) would moderate the relationship between CB and DS (H3a), furthermore, I hypothesized that PFSS would moderate the relationship between MSS and DS in a model with CB (H4a). The effect of CB on MSS is labelled path a, and the effect of MSS on DS is labeled path b. The direct effect of CB on DS is labeled path c (H1a). The size of the effect of CB on DS is reduced by the total amount of the indirect effect, which is found as the product of a and b. Model 1 was found to be statistically significant, $F(5, 305) = 12.36, p < .001$. Furthermore, the model explains 17% of the variance in depressive symptom scores ($R^2 = .17$).

In regard to H1a, the relationship between CB and DS was negative and significant, $t(5) = -2.40, \beta = -1.36, p < .05$. This suggests that lower levels of perception of career barriers are related to higher levels of depressive symptoms. This result means that H1a was partially supported where CB's contribution to DS was significant, but in a direction that was not hypothesized. In order to test for a possible suppressor effect in Model 1 after finding this unexpected result, I conducted a semi-partial correlation. A suppressor is the independent variable which, when added to the model, raises the value of the observed R^2 , because it accounts for the residuals left by the model without it, and not due to its own association with the dependent variable (Friedman & Wall, 2005; MacKinnon, Krull, & Lockwood, 2000). In Model 1, an increase in R^2 from .091 to .118 in response to adding MSS as a mediator is the squared part correlation of that effect in that new model. Here, the semi-partial correlation of the CB with the DS (.30) is greater (by absolute value) than the zero-order correlation between them when MSS was added (.19), indicating that it is acting as a suppressor variable.

In regard to H2a, I found that minority status stress partially mediated the relationship between perceptions of career barriers and depressive symptoms and its unique contribution to the model is statistically significant ($t(5) = 2.18, \beta = .29, p < .05$). I also found that there was a

direct effect of career barriers and depressive symptoms; this relationship was partially mediated by minority status stress, $t(5) = 2.18$, $\beta = .29$, $p < .05$, as predicted by H2a, yielding partial support for H2a. Furthermore, the main effect of PFSS was significant in the overall model, $t(5) = -1.98$, $\beta = -.95$, $p < .05$. In regard to H3a, I found that there was a moderator effect on the relationship between the perception of career barriers and depressive symptoms as a function of perceived family social support, $t(5) = 2.90$, $\beta = .05$, $p < .005$. When the moderator, perceived family social support, was added to the model with perceived career barriers, minority status stress, and depressive symptoms, the relationship between perception of career barriers and depressive symptoms was changed. As perceived family social support scores increased, perception of career barriers and depressive symptom scores also increased, yielding support for H3a. However, for H4a I found that there was no moderator effect on the relationship between minority status stress and depressive symptoms as a function of perceived family social support, $t(5) = -1.65$, $\beta = -.01$, $p = .10$. When the moderator, perceived family social support, was added to the model with minority status stress, depressive symptoms, and career barriers, the relationship between minority status stress and depressive symptoms was not changed, yielding no support for H4a.

Model 2. For Model 2, there were four research questions: 1. To what extent does the perception of education barriers uniquely contribute to depressive symptoms in racial/ethnic minority graduate students? 2. To what extent does minority status stress mediate the relationship between the perception of education barriers and depressive symptoms? 3a. To what extent does family social support moderate the relationship between the perception of education barriers and depressive symptoms in racial/ethnic minority graduate students? 3b. To what extent does family

social support moderate the relationship between minority status stress and depressive symptoms in racial/ethnic minority graduate students in a model with career barriers?

Four hypotheses answer my research questions. I conducted a moderated-mediation model (see Figure 4) to test these hypotheses. In Model 2, I hypothesized that perceptions of education barriers (EB) uniquely and positively contributed to depressive symptoms (DS) in racial/ethnic minority graduate students (H1b). Also, I hypothesized that minority status stress (MSS) will mediate the relationship between the perception of education barriers (EB) and depressive symptoms (DS) in racial/ethnic minority graduate students (H2b). I also hypothesized that perceived family social support (PFSS) would moderate the relationship between EB and DS (H3b), furthermore, I hypothesized that PFSS would moderate the relationship between MSS and DS in a model with EB (H4b). The effect of EB on MSS is labelled path a, and the effect of MSS on DS is labeled path b. The direct effect of EB on DS is labeled path c (H1b). The size of the effect from EB to DS is reduced by the total amount of the indirect effect, which is found as the product of a and b. Model 2 was found to be statistically significant, $F(5, 305) = 13.48, p < .001$. Furthermore, the model explains 18% of the variance in depressive symptom scores ($R^2 = .18$).

In regard to H1b, the relationship between EB and DS was negative and not significant, $t(5) = -.65, \beta = -.20, p = .52$. This suggests that perception of education barriers are not related to depressive symptoms, yielding no support for H1b. In regard to H2b, I found that minority status stress did not mediate the relationship between perceptions of education barriers and depressive symptoms ($t(5) = 1.12, \beta = .14, p < .26$), yielding no support for H2b. Furthermore, PFSS was not statistically significant ($t(5) = -.58, \beta = -.23, p = .56$) as a main effect. When the moderator, perceived family social support, was added to the model with perception of education barriers, minority status stress, and depressive symptoms, the relationship between perception of

education barriers and depressive symptoms was not changed. For H3b I also found that there was no moderator effect on the relationship between the perception of education barriers and depressive symptoms as a function of perceived family social support, $t(5) = 1.41$, $\beta = .01$, $p < .16$, yielding no support for H3b. Finally, for H4b I found that there was no moderator effect on the relationship between minority status stress and depressive symptoms as a function of perceived family social support, $t(5) = -.68$, $\beta = -.00$, $p = .50$. When the moderator, perceived family social support, was added to the model with minority status stress, depressive symptoms, and education barriers, the relationship between minority status stress and depressive symptoms was not changed, yielding no support for H4b.

Exploratory Model with Program Environment

Model 3. For Model 3, there was one research question: 4. To what extent do minority status stress and program environment mediate the relationship between the perception of career barriers and depressive symptoms? One hypothesis answered my research question. I conducted a serial mediation model (see Figure 5) to test this hypothesis. In Model 3, I hypothesized (H5a) that the association between the perception of career barriers (CB) and depressive symptoms (DS) would be mediated by minority status stress (MSS) and program environment (PE). The effect of CB on MSS is labelled path a_1 , and the effect of MSS on DS is labeled path b_1 . The effect of CB on PE is labelled path a_2 , and the effect of PE on DS is labeled path b_2 . The effect of CB on DS is labelled path c , and the effect of MSS on PE is labelled d . The size of the effect of CB on DS is reduced by the total amount of the indirect effect, which is found as the product of a_1 and b_1 . Model 3 was found to be statistically significant, $F(3, 307) = 15.48$, $p < .001$. Furthermore, the model explains 13% of the variance in depressive symptom scores ($R^2 = .13$).

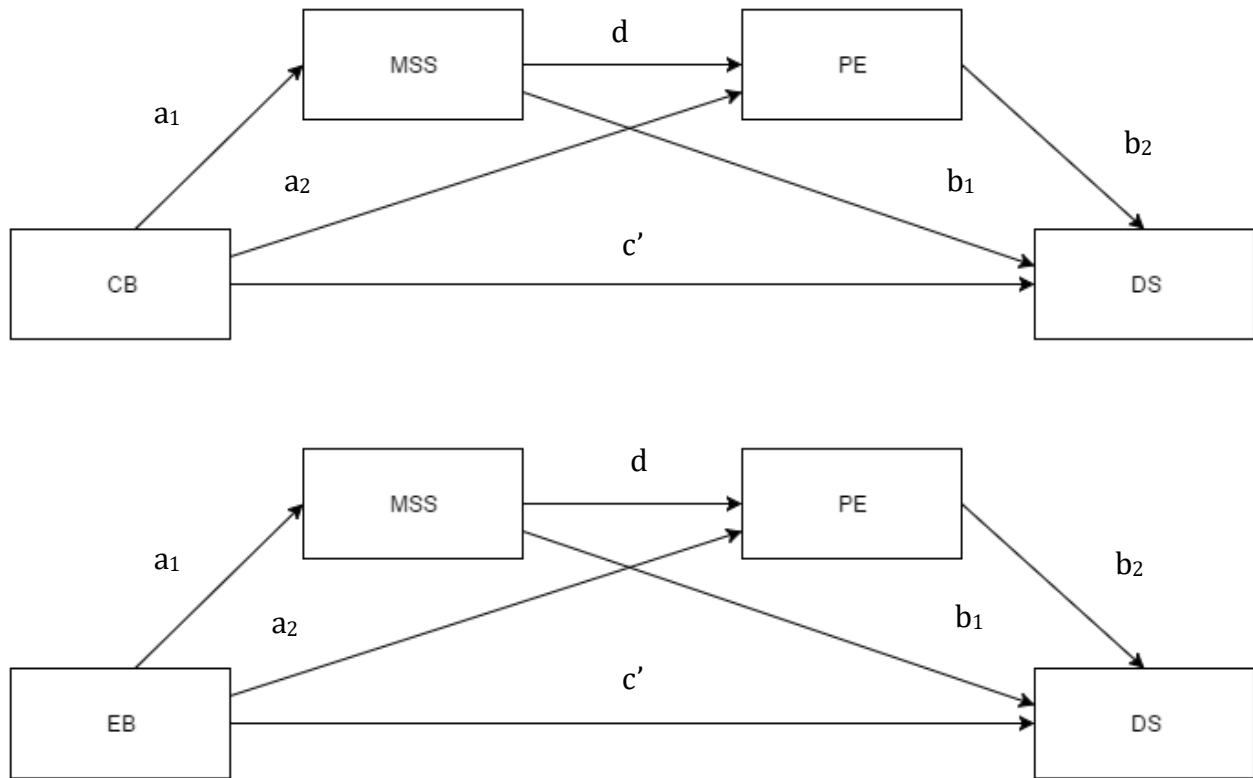


Figure 5. Statistical Diagram of Exploratory Model of Current Study

The relationship between CB and DS (path c, or the total effect of X on Y) was found to be positive and statistically significant, $t(1) = 5.56$, $\beta = .47$, $p < .001$. This suggests that higher levels of perceptions of career barriers are related to higher levels of depressive symptoms. The relationship between CB and MSS (path a_1) was found to be positive and statistically significant, $t(1) = 12.55$, $\beta = 2.66$, $p < .001$. This suggests that higher levels of perceptions of career barriers are related to higher levels of minority status stress. The relationship between MSS and PE (path d) was found to be positive and statistically significant, $t(2) = 22.58$, $\beta = .31$, $p < .001$, in a model with CB. This suggests that higher levels of minority status stress are related to higher levels of minority status stress from within the program (program environment) in a model with the perception of career barriers present. The relationship between PE to DS (path b_2) was found to be negative and not statistically significant, $t(3) = -1.78$, $\beta = -.16$, $p = .08$, in a

model with CB. This suggests that there is no statistically significant relationship between program environment and depressive symptoms in a model with the perception of career barriers present. The relationship between CB to DS (path c' , or the direct effect of X on Y) was found to be positive and statistically significant, $t(3) = 2.78$, $\beta = .28$, $p < .05$. This suggests that higher levels of perception of career barriers are related to higher levels of depressive symptoms after the mediation variables, minority status stress and program environment, were added. In regard to (H5a), because path b_2 , PE to DS, was not statistically significant, I determined that there is no evidence that serial mediation occurred in a causal pathway from CB to MSS to PE to DS. However, MSS partially mediated the relationship between CB and DS.

The relationship between CB and PE (path a_2) was found to be positive and not statistically significant, $t(2) = 1.11$, $\beta = 0.07$, $p = .27$. This suggests that there is no relationship between the perception of career barriers and program environment. The relationship between MSS and DS (path b_1) was found to be positive and statistically significant, $t(3) = 3.46$, $\beta = .13$, $p < .001$, in a model with CB. This suggests that higher levels of minority status stress are related to higher levels of depressive symptoms in a model with the perception of career barriers present.

Model 4. For Model 4, there was one research question: 4. To what extent do minority status stress and program environment mediate the relationship between the perception of education barriers and depressive symptoms? One hypothesis answered my research question. I conducted a serial mediation model (see Figure 5) to test this hypothesis. In Model 4, I hypothesized that the association between the perception of education barriers (EB) and depressive symptoms (DS) would be mediated by minority status stress (MSS) and program environment (PE) (H5b). The effect of EB on MSS is labelled path a_1 , and the effect of MSS on DS is labeled path b_1 . The effect of EB on PE is labelled path a_2 , and the effect of PE on DS is

labeled path b_2 . The effect of EB on DS is labelled path c , and the effect of MSS on PE is labelled d . The size of the effect of EB on DS is reduced by the total amount of the indirect effect, which is found as the product of a_1 and b_1 . Model 4 was found to be statistically significant, $F(3, 307) = 20.75, p < .001$. Furthermore, the model explains 17% of the variance in depressive symptom scores ($R^2 = .17$).

The relationship between EB and DS (path c , or the total effect of x on y) was found to be positive and statistically significant, $t(1) = 7.15, \beta = .32, p < .001$. This suggests that higher levels of perceptions of education barriers are related to higher levels of depressive symptoms. The relationship between EB and MSS (path a_1) was found to be positive and statistically significant, $t(1) = 11.13, \beta = 1.34, p < .001$. This suggests that higher levels of perceptions of education barriers are related to higher levels of minority status stress. The relationship between MSS and PE (path d) was found to be positive and statistically significant, $t(2) = 24.14, \beta = .32, p < .001$, in a model with EB. This suggests that higher levels of minority status stress are related to higher levels of minority status stress within the program (program environment) in a model with the perception of education barriers present. The relationship between PE to DS (path b_2) was found to be negative and not statistically significant, $t(3) = -1.61, \beta = -.14, p = .11$, in a model with EB. This suggests that there is no relationship between program environment and depressive symptoms in a model with the perception of education barriers present. The relationship between EB to DS (path c' , or the direct effect of X on Y) was found to be positive and statistically significant, $t(3) = 4.67, \beta = .24, p < .001$. This suggests that higher levels of perception of education barriers are related to higher levels of depressive symptoms after the mediation variables, minority status stress and program environment, were added. In regard to (H5b), because path b_2 , PE to DS, was not statistically significant, I determined that there is no

evidence that serial mediation occurred in a causal pathway from EB to MSS to PE to DS.

However, MSS partially mediated the relationship between EB and DS.

The relationship between EB and PE (path a_2) was found to be negative and not statistically significant, $t(2) = -.15$, $\beta = -.01$, $p = .88$. This suggests that there is no relationship between the perception of education barriers and program environment. The relationship between MSS and DS (path b_1) was found to be positive and statistically significant, $t(3) = 2.88$, $\beta = .10$, $p < .005$, in a model with EB. This suggests that higher levels of minority status stress are related to higher levels of depressive symptoms in a model with the perception of education barriers present.

Follow-up Analysis

In order to gain a better understanding of the results found in the main analyses follow-up analyses were conducted that included zero models for both versions of the proposed model and removing minority status stress from the exploratory model in order to examine what, if any, effect program environment might have as a mediator acting on its own. In order to guide the analyses, one research question and two hypotheses were added to the study:

RQ5: To what extent does program environment mediate the relationship between the perception of career and education barriers and depressive symptoms?

H6a: The association between the perception of career barriers and depressive symptoms will be mediated by program environment.

H6b: The association between the perception of education barriers and depressive symptoms will be mediated by program environment.

Proposed Model

Model 0 with Perception of Career Barriers. For Model 0 with Perception of Career Barriers, we sought to further examine the first two research questions: 1. To what extent does the perception of career barriers uniquely contribute to depressive symptoms in racial/ethnic minority graduate students? 2. To what extent does minority status stress mediate the relationship between the perception of career barriers and depressive symptoms?

Two hypotheses answer my research questions. I conducted a set of linear regressions to test these hypotheses. In Model 0 with Perception of Career Barriers, I hypothesized that perceptions of career barriers (CB) uniquely and positively contributed to depressive symptoms (DS) in racial/ethnic minority graduate students (H1a). Also, I hypothesized that minority status stress (MSS) will mediate the relationship between the perception of career barriers (CB) and depressive symptoms (DS) in racial/ethnic minority graduate students (H2a). The first regression which included only the perception of career barriers and depressive symptoms was found to be statistically significant, $F(1, 309) = 30.91, p < .001$. Furthermore, the model explains 9% of the variance in depressive symptom scores ($R^2 = .09$). The second regression that added minority status stress was also found to be statistically significant, $F(2, 308) = (21.48), p < .001$. Furthermore, the model explains 12% of the variance in depressive symptoms scores ($R^2 = .12$).

In regard to H1a, the relationship between CB and DS was positive and significant, $t(1) = 5.56, \beta = .47, p < .001$. This suggests that higher levels of perception of career barriers are related to higher levels of depressive symptoms, yielding support for H1a. In regard to H2a, I found that minority status stress partially mediated the relationship between perceptions of career barriers and depressive symptoms and its unique contribution to the model is statistically significant ($t(2) = 3.32, \beta = .07, p < .05$), yielding partial support for H2a. I also found that there

was a direct effect of career barriers and depressive symptoms; this relationship was partially mediated by minority status stress $t(2) = 2.67, \beta = .27, p < .05$, as predicted by H2a.

Model 0 with Perception of Education Barriers. For Model 0 with Perception of Education Barriers, we sought to further examine the first two research questions: 1. To what extent does the perception of education barriers uniquely contribute to depressive symptoms in racial/ethnic minority graduate students? 2. To what extent does minority status stress mediate the relationship between the perception of education barriers and depressive symptoms?

Two hypotheses answer my research questions. I conducted a set of linear regressions to test these hypotheses. In Model 0 with Perception of Education Barriers, I hypothesized that perceptions of education barriers (EB) uniquely and positively contributed to depressive symptoms (DS) in racial/ethnic minority graduate students (H1b). Also, I hypothesized that minority status stress (MSS) will mediate the relationship between the perception of education barriers (EB) and depressive symptoms (DS) in racial/ethnic minority graduate students (H2b). The first regression which included only the perception of education barriers and depressive symptoms was found to be statistically significant, $F(1, 309) = 51.18, p < .001$. Furthermore, the model explains 14% of the variance in depressive symptom scores ($R^2 = .14$). The second regression that added minority status stress was also found to be statistically significant, $F(2, 308) = (29.68), p < .001$. Furthermore, the model explains 16% of the variance in depressive symptoms scores ($R^2 = .16$).

In regard to H1b, the relationship between EB and DS was positive and significant, $t(1) = 7.15, \beta = .32, p < .001$. This suggests that higher levels of perception of education barriers are related to higher levels of depressive symptoms, yielding support for H1b. In regard to H2b, I found that minority status stress did not mediate the relationship between perceptions of

education barriers and depressive symptoms, but its unique contribution to the model is statistically significant ($t(2) = 2.68, \beta = .06, p < .05$). I also found that there was a direct effect of education barriers and depressive symptoms; this relationship was not mediated by minority status stress $t(5) = 4.67, \beta = .25, p < .001$, as predicted by H2b. The end result was not supportive of H2b.

Exploratory Model with Program Environment, but without Minority Status Stress

Model 3, without Minority Status Stress. For Model 3 without Minority Status Stress, there was one research question: 5. To what extent does program environment mediate the relationship between the perception of career barriers and depressive symptoms? One hypothesis answered my research question. I conducted a set of regressions to test this hypothesis. In Model 3 without Minority Status Stress, I hypothesized (H6a) that the program environment (PE) will mediate the relationship between the perception of career barriers (CB) and depressive symptoms (DS) in racial/ethnic minority graduate students (H6a). The first regression which included only the perception of careers barriers and depressive symptoms was found to be statistically significant, $F(1,309) = 30.91, p < .001$. Furthermore, the model explains 9% of the variance in depressive symptom scores ($R^2 = .09$). The second regression that added program environment was also found to be statistically significant $F(2, 308) = (16.66), p < .001$. Furthermore, the model explains 10% of the variance in depressive symptoms scores ($R^2 = .10$).

The relationship between CB and DS was positive and significant, $t(1) = 5.56, \beta = .47, p < .001$. This suggests that higher levels of perception of career barriers are related to higher levels of depressive symptoms. In regard to H6a, I found that program environment did not mediate the relationship between perceptions of career barriers and depressive symptoms and its unique contribution to the model was not statistically significant ($t(2) = 1.51, \beta = .09, p < .13$),

yielding no support for H6a. However, I did find that there was a direct effect of career barriers and depressive symptoms; this relationship was not mediated by program environment $t(2) = 3.96, \beta = .39, p < .001$, in contrast to the prediction of H6a.

Model 4, without Minority Status Stress. For Model 4 without Minority Status Stress, there was one research question: 5. To what extent does program environment mediate the relationship between the perception of education barriers and depressive symptoms? One hypothesis answered my research question. I conducted a set of regressions to test this hypothesis. In Model 4 without Minority Status Stress, I hypothesized (H6b) that the program environment (PE) will mediate the relationship between the perception of education barriers (EB) and depressive symptoms (DS) in racial/ethnic minority graduate students (H6b). The first regression which included only the perception of careers barriers and depressive symptoms was found to be statistically significant, $F(1,309) = 51.18, p < .001$. Furthermore, the model explains 14% of the variance in depressive symptom scores ($R^2 = .14$). The second regression that added program environment was also found to be statistically significant $F(2, 308) = 26.29, p < .001$. Furthermore, the model explains 15% of the variance in depressive symptoms scores ($R^2 = .15$).

The relationship between EB and DS was positive and significant, $t(1) = 7.15, \beta = .32, p < .001$. This suggests that higher levels of perception of education barriers are related to higher levels of depressive symptoms. In regard to H6b, I found that program environment did not mediate the relationship between perceptions of education barriers and depressive symptoms and its unique contribution to the model was not statistically significant ($t(2) = 1.21, \beta = .06, p < .23$), yielding no support for H6b. However, I did find that there was a direct effect of education barriers and depressive symptoms; this relationship was not mediated by program environment $t(2) = 5.84, \beta = .29, p < .001$, in contrast to the prediction of H6b.

Table 8

Hypotheses and Results

Hypothesis	Result
H1a. CB will uniquely and positively contribute to depressive symptoms in R/E minority grad students	Partially supported: negative relationship, but significant
H1b. EB will uniquely and positively contribute to depressive symptoms in R/E minority grad students	Not supported: relationship was negative and not significant
H2a. Association between CB and DS will be mediated by MSS	Partially supported: partial mediation occurred
H2b. Association between EB and DS will be mediated by MSS	Not supported: mediation did not occur
H3a. Association between CB and DS in R/E minority graduate students will be weaker for those individuals with a higher level of PFSS than for those with lower levels of PFSS	Supported: moderator effect
H3b. Association between EB and DS in R/E minority graduate students will be weaker for those individuals with a higher level of PFSS than for those with lower levels of PFSS	Not supported: no moderator effect
H4a. Association between MSS and DS in R/E graduate students will be weaker for those individuals with a higher level of PFSS than for those with lower levels of PFSS in a model with CB	Not supported: no moderator effect
H4b. Association between MSS and DS in R/E graduate students will be weaker for those individuals with a higher level of PFSS than for those with lower levels of PFSS in a model with EB	Not supported: no moderator effect
H5a. Association between CB and DS will be mediated by MSS and PE	Not supported: serial mediation did not occur, although MSS partially mediated the relationship between CB and DS
H5b. Association between EB and DS will be mediated by MSS and PE	Not supported: serial mediation did not occur, although MSS partially mediated the relationship between EB and DS
H6a. Association between CB and DS will be mediated by PE	Not supported: mediation did not occur
H6b. Association between EB and DS will be mediated by PE	Not supported: mediation did not occur

CHAPTER 5. DISCUSSION

In this chapter I discuss and interpret the findings of the study. First, I summarize the purpose of the study and present a summary of my hypotheses. Second, I discuss the results from the main hypotheses. Third, I present and discuss the findings from the preliminary analyses and group differences. Fourth, I present the limitations of the study. Lastly, I explore and discuss the implications for future research and practice followed by a conclusion.

Purpose of Study and Summary of Hypotheses

The purpose of my study was to examine the relationship between depressive symptoms, the perception of career and education barriers, minority status stress, program environment, and perceived family social support as a stress process (Pearlin, Menaghan, Lieberman, & Mullan, 1981) in a sample of racial/ethnic minority graduate students. To effectively interpret and discuss the results, I split each of my models, proposed and exploratory, in two; each contained just one factor from the perception of barriers, either career or education. This was done because the perception of career barriers is future oriented, while the perception of education barriers is present oriented. However, as my hypotheses for each split model remain the same, I present them here together.

For the first hypotheses of my proposed model (H1a and H1b), I expected that the perception of career and education barriers would be positively and significantly associated with depressive symptoms. That is, I expected career and education barriers to be a risk factor for depressive symptoms. For my second hypotheses (H2a and H2b), I expected the relationship between the perception of career and education barriers and depressive symptoms would be mediated by minority status stress. Therefore, I also expected minority status stress to represent

risk factors and subsume some of the risk originally introduced by the perception of career and education barriers. For my third hypotheses (H3a and H3b), I expected that the relationship between the perception of career and education barriers and depressive symptoms would be weaker for individuals with a higher level of perceived family social support than for those with lower levels of perceived family social support. For my last hypothesis of my proposed model (H4a and H4b), I expected that the relationship between minority status stress and depressive symptoms would be weaker for individuals with a higher level of perceived family social support than for those with lower levels of perceived family social support. Therefore, I expected perceived family support to be a protective factor against depressive symptoms for both hypotheses three (H3a and H3b) and four (H4a and H4b).

In regard to the hypotheses for my exploratory model (H5a and H5b), I expected that the relationship between the perception of career and education barriers and depressive symptoms would be mediated by minority status stress and program environment. Therefore, I expected minority status stress and program environment to represent risk factors and subsume some of the risk introduced by the perception of career and education barriers.

Results from Main Analyses

In this section, I focus on the analyses of the main hypotheses. For H1a, I discuss and interpreted the findings of the perception of career barriers, or the future oriented predictor variable, as they related to depressive symptoms in racial/ethnic minority graduate students. Next, I discuss H2a, the mediation hypothesis. Then, I discuss H3a and H4a, the moderation hypotheses. Finally, I discuss H5a, the serial mediation hypothesis.

Similarly, I mirror my analyses for the models examining the perception of education barriers. For H1b, I discuss and interpret the findings of the perception of education barriers, or

the present oriented predictor variable, as they relate to depressive symptoms in racial/ethnic minority graduate students. Next, I discuss H2b, the mediation hypothesis. Then, I discuss H3b and H4b, the moderation hypotheses. Finally, I discuss H5b, the serial mediation hypothesis.

Results from proposed model: Perception of career barriers.

Based on the main analyses and hypotheses testing, I found that hypothesis H1a was partially supported. As expected, the perception of career barriers contributed significantly to depressive symptoms in racial/ethnic minority graduate students. However, the relationship between the perception of career barriers and depressive symptoms was negative. The results suggest that the perception of career barriers may be a protective factor against depressive symptoms.

The results suggest that the perception of career barriers was negatively predictive of depressive symptoms, that is, high perception of career barriers may be a protective factor against depressive symptoms. These findings are counterintuitive when considering the current study's stress process framework, adapted from Pearlin et al.'s (1981) Stress Process Theory, but are not unprecedented (Raque-Bogdan, Klingaman, Martin, & Lucas, 2013). This stress process framework adaptation suggests that the source of stress, the perception of career barriers, which combines discrete and chronic stressors, may actually protect against a manifestation of stress such as depressive symptoms. The results indicate that the perception of career barriers, or sources of stress, are negatively and significantly related to depressive symptoms, or the manifestation of stress, as higher scores on the former are associated with lower scores on the latter. Such findings may indicate that the perception of career barriers may be better suited as a moderator of stress where it can decrease the manifestations of stress. In Raque-Bogdan, Klingaman, Martin, and Lucas' (2013) study, students with increased perception of barriers also

experienced increased coping self-efficacy. The current study's results may point to a similar phenomenon where students who perceive challenges are better able to prepare for them due to their visibility. Statistically speaking, this negative relationship may be a function of the varying strengths found in the correlations between the predictor, outcome, and mediating variables. Whereas the perception of career barriers was positively but weakly correlated to depressive symptoms, it was moderately correlated to minority status stress. The strength of this second relationship may have been enough to change the direction in a the moderated-mediation model that includes all the variables in the same model at the same time, thus yielding a negative, but significant relationship between the perception of career barriers and depressive symptoms. This shift in direction could be attributed to the statistical suppression that was discovered while conducting the semipartial correlation for Model 1. Suppression is not unexpected in light of the weak relationship found between the perception of career barriers and depressive barriers, and the stronger relationship between minority status stress and depressive symptoms.

I also found that hypothesis H2a was partially supported. As expected, minority status stress partially mediated the relationship between the perception of career barriers and depressive symptoms in racial/ethnic minority graduate students. The effect of this mediation was found to be moderate and, thus, I found that minority status stress can account for a sizeable portion of the stress experienced by these racial/ethnic minority graduate students. These results are consistent with Reyes' (2015) findings that the perceived stress related to the career barriers of racial/ethnic minority graduate students can be partially explained by the barriers they experience simply due to being minorities. Similarly, they add support to Lilly et al.'s (2018) study that racial/ethnic minority graduate students tend to experience depressive symptoms at high rates in correlation to racial microaggressions. The findings in the current study coincide with both Reyes (2015) and

Lilly et al.'s (2018) conclusions that race-based stress contributes significantly to negative outcomes for racial/ethnic minority graduate students. Thus, this study's findings also provide further evidence for the mapping of this adaptation of Pearlin et al.'s (1981) Stress Process Theory onto racial/ethnic minority graduate students experience with the perception of barriers, minority status stress, and depressive symptoms. This means the stress that racial/ethnic minority graduate students experience as they consider their future careers may in fact be related to their status as racial/ethnic minorities. This in turn may contribute to depressive symptoms.

Hypothesis H3a was supported: as expected, perceived family social support moderated the relationship between the perception of career barriers and depressive symptoms in racial/ethnic minority graduate students. This means that the introduction of perceived family social support changes the relationship between the perception of career barriers and depressive symptoms. More specifically, as perceived family social support becomes stronger, the relationship between the perception of career barriers and depressive symptoms becomes weaker. This means that for racial/ethnic minority students, social support may be a protective factor against depressive symptoms despite the presence of risk factors, in this case the perception of career barriers. This had previously been demonstrated when it was found that students receiving social support, specifically career-related parental support perceive a greater number of barriers, but also have higher coping self-efficacy (Fort & Murariu, 2016; Raque-Bogdan, Klingaman, Martin, & Lucas, 2013).

I had hypothesized that perceived family social support would moderate the relationship between minority status stress and depressive symptoms in racial/ethnic minority graduate students, in a model with the perception of career barriers. However, I found that hypothesis H4a was not supported. The results failed to provide evidence that the relationship between minority

status stress and depressive symptoms was changed with the introduction of perceived family social support. This may mean that the stress experienced due to being a racial/ethnic minority may require support beyond that which is received from family members (Greer & Brown, 2011). For example, religious resources and wider social support networks that also include aid from friends have been shown to mitigate psychological distress in the face of racial discrimination (Ahmed, Kia-Keating, & Tsai, 2011; Park, Wang, Williams, & Alegria, 2017).

Results from exploratory model: Perception of career barriers.

Based on the main analyses and hypotheses, I found that hypothesis H5a was not supported. I had hypothesized that the relationship between the perception of career barriers and depressive symptoms would be mediated by minority status stress and program environment in racial/ethnic minority graduate students. However, the results failed to provide evidence that minority status stress and program environment subsumed the stress from the perception of career barriers. The results did provide evidence that a partial mediation occurred between the perception of career barriers and program environment with minority status stress serving as the mediator. This means that the stress of considering future career obstacles and its impact on how racial/ethnic minority graduate students experience their graduate programs may be subsumed by the experience of being a racial/ethnic minority as previously explored in Reyes' (2015) study. This theme of encountering career-related stress within programs due to race-related stress has been seen previously in studies by Clark, Mercer, Zeigler-Hill, and Dufrene (2012), Henry (2006), and Payne (2006) where race-related stress led to negative outcomes (e.g., decreased persistence, increased depressive symptoms, difficulty with decision making) for racial/ethnic minority graduate students. Furthermore, there were positive and significant relationships between the perception of career barriers and minority status stress and depressive symptoms

when program environment did not successfully serially mediate the relationship between the perception of career barriers and minority status stress and depressive symptoms. This means that considering future career obstacles and being a racial/ethnic minority are still significant risk factors when program environment is included in the model, however, not necessarily because program environment is included in the model. Of note, serial mediation did not occur by a very narrow margin, which may indicate that a relationship between program environment and depressive symptoms could exist under similar circumstances and serial mediation may be possible, depending on factors such as sample size or demographics.

Results from proposed model: Perception of education barriers.

Based on the main analyses and hypotheses testing, I found that hypothesis H1b was not supported. I had hypothesized that the perception of education barriers would positively and significantly contribute to depressive symptoms in racial/ethnic minority graduate students. However, the results failed to indicate that there was a significant relationship between the perception of education barriers and depressive symptoms. This may mean that the perception of education barriers may not be a risk factor for depressive symptoms in racial/ethnic minority students. In other words, the concerns over what obstacles a racial/ethnic minority student must face in order to obtain a graduate-level education may not be related to depressive symptoms. These findings are counterintuitive when considering the Stress Process framework (Pearlin et al., 1981) which posits that the source of stress, the perception of education barriers, would directly influence a manifestation of stress, depressive symptoms, but also when considering the foundation of research that exists pertaining to the perception of education barriers (Clark, Mercer, Zeigler-Hill, & Dufrene, 2012; Henry, 2006; Heppner, Cook, Strozier, & Heppner, 1991; Lent, 2002; Luzzo & McWhirter, 2001; Payne, 2006; Zavala, 2014). However, it may be

that stressors other than present educational obstacles contribute more to depressive symptoms for racial/ethnic minority graduate students.

I also found that hypothesis H2b was not supported. I had hypothesized that minority status stress would mediate the relationship between the perception of education barriers and depressive symptoms in racial/ethnic minority graduate students. However, the results failed to provide evidence that the relationship between the perception of education barriers and depressive symptoms was mediated by minority status stress. The model provided evidence of a positive, significant relationship between the perception of barriers and minority status stress, but not between minority status stress and depressive symptoms. This is counterintuitive given the substantial literature base linking minority status stress, education barriers, and negative outcomes. For instance, racial/ethnic minority graduate students have been documented to perceive discrimination and microaggressions as distinct events that contribute to depressive symptoms (Brittian et al., 2015; Flores et al, 2008; Miranda et al, 2013; Rhoton, 2013; Saldaña, 1994). Evidence also exists linking education barriers experienced as minority status stress that has contributed to depressive symptoms (Greer & Brown, 2011; Jagusztyn, 2010; Smedley et al., 1993; Wei et al., 2011). This may mean that, for the current study, while concerns about educational obstacles and race may be related, in a model with the perception of education barriers minority status stress does not subsume the stress of dealing with education obstacles and their impact on depressive symptoms.

Similarly, I found that hypothesis H3b was not supported. I had hypothesized that perceived family social support would moderate the relationship between the perception of education barriers and depressive symptoms in racial/ethnic minority graduate students. However, the results failed to provide evidence that the relationship between the perception of

education barriers and depressive symptoms was changed with the introduction of perceived family social support. This may mean that the stress experienced while considering the obstacles to obtaining a graduate-level education, and its subsequent relationship to depressive symptoms, while in a graduate program may not be affected by the support one receives from family members, and thus perceived family social support may not be a protective factor against depressive symptoms in racial/ethnic minority graduate students. This outcome is not wholly unprecedented; Tate et al.'s (2015) study revealed that family social support and supportive family values were seen as an obstacle to the pursuit of graduate. Although the current study's results represent a lack of shift in the relationship between the perception of education barriers and depressive symptoms as a function of perceived family social support, it is important to note that we may be observing a similar effect due to similar cultural factors as the students in Tate et al.'s (2015) study.

Additionally, I found that hypothesis H4b was not supported. I had hypothesized that perceived family social support would moderate the relationship between minority status stress and depressive symptoms in racial/ethnic minority graduate students, in a model with the perception of education barriers. However, the results failed to provide evidence that the relationship between minority status stress and depressive symptoms was changed with the introduction of perceived family social support. As in a model with the perception of career barriers, this may mean that the stress experienced due to being a racial/ethnic minority may require greater support than that which is received only from family members (Snyder, 2016). For instance, previous research indicates that seeking out community-level support in the face of racial discrimination can serve to minimize psychological distress (Utsey, Giesbrecht, Hook, & Stanard, 2008).

Results from exploratory model: Perception of education barriers.

Based on the main analyses and hypotheses, I found that hypothesis H5b was not supported. I had hypothesized that the relationship between the perception of education barriers and depressive symptoms would be mediated by minority status stress and program environment in racial/ethnic minority graduate students. However, the results failed to provide evidence that minority status stress and program environment subsumed the stress from the perception of education barriers. The results did provide evidence that a partial mediation occurred between the perception of education barriers and program environment with minority status stress serving as the mediator. This means that the stress of considering present education obstacles and its impact on how racial/ethnic minority graduate students experience their graduate programs may be subsumed by the experience of being a racial/ethnic minority as previously explored in the foundational works of Luzzo and McWhirter (2001), McWhirter (1997), and Vasquez (1982). This theme of encountering education-related stress within programs due to race-related stress has been seen previously in studies by Cokley, McClain, Enciso, and Martinez (2013), Flores et al. (2008), and Zavala (2014) where race-related stress led to negative outcomes (e.g., decreased attendance, increased depressive symptoms, increased difficulty with finances) for racial/ethnic minority graduate students. Furthermore, there were positive and significant relationships between the perception of education barriers and minority status stress and depressive symptoms when program environment did not successfully serially mediate the relationship between the perception of education barriers and minority status stress and depressive symptoms. This means that the stressors of considering present education obstacles and being a racial/ethnic minority are still significant risk factors when program environment is included in the model, however, not necessarily because program environment is included in the model.

Results from Follow-up Analyses.

Model 0 with Perception of Career Barriers. Based on the main analyses and hypotheses testing, I found that hypothesis H1a was supported in the follow-up analysis. As expected, the perception of career barriers contributed significantly to depressive symptoms in racial/ethnic minority graduate students. This result ran contrary to the initial finding in the current study where the perception of career barriers was found to be a protective factor against depressive symptoms. One explanation for this is that in the original model, the perception of career barriers and minority status stress were entered simultaneously along with perceived family social support. The inclusion of this third variable and the stronger relationship between the perception of career variables and minority status stress versus the perception of career barriers and depressive symptoms may explain this unexpected relationship. Model 0 with Perception of Career Barriers produced results similar to those found in the majority of the studies that have previously examined these constructs (London, 1997; Saunders, Peterson, Sampson, & Reardon, 2000). This falls in line with the prediction that perceiving future obstacles in the career path can contribute to depressive symptoms as a racial/ethnic minority graduate student.

The results suggest that the perception of career barriers was positively predictive of depressive symptoms, that is, high perception of career barriers may be a contributing factor to depressive symptoms. These findings are in line with past (Luzzo, 1995) and current research (Guay, Senécal, Guathier, & Fernet, 2003), as well as the current study's stress process framework, adapted from Pearlin et al.'s (1981) Stress Process Theory. The results indicate that the perception of career barriers, or sources of stress, are positively and significantly related to depressive symptoms, or the manifestation of stress, as higher scores on the former are associated with higher scores on the latter.

I also found that hypothesis H2a was, as before, partially supported. As expected, minority status stress partially mediated the relationship between the perception of career barriers and depressive symptoms in racial/ethnic minority graduate students. The effect of this mediation was found to be moderate and, thus, I found that minority status stress can account for a sizeable portion of the stress experienced by these racial/ethnic minority graduate students. There was not much change between the Model 1 and Model 0 with Perception of Career Barriers, except that this follow-up model yielded more robust results with smaller p values, but slightly smaller effect sizes.

Model 0 with Perception of Education Barriers. Based on the main analyses and hypotheses testing, I found that hypothesis H1b was supported in the follow-up analysis. As expected, the perception of education barriers contributed significantly to depressive symptoms in racial/ethnic minority graduate students. This result ran contrary to the initial finding in the current study where the perception of education barriers was not found to have a significant relationship with depressive symptoms. One explanation for this is that in the original model, the perception of education barriers and minority status stress were entered simultaneously along with perceived family social support. The inclusion of this third variable and the stronger relationship between the perception of education barriers and minority status stress versus the perception of education barriers and depressive symptoms may explain this unexpected relationship. Model 0 with Perception of Education Barriers produced results similar to those found in the majority of the studies that have previously examined these constructs (London, 1997; Saunders, Peterson, Sampson, & Reardon, 2000). This falls in line with the prediction that perceived current obstacles in the educational attainment can contribute to depressive symptoms as a racial/ethnic minority graduate student.

The results suggest that the perception of education barriers was positively predictive of depressive symptoms, that is, high perception of education barriers may be a contributing factor to depressive symptoms. These findings are in line with past (Swanson & Tokar, 1991; Swanson & Woitke, 1997) and current research (Koivisto, Vuori, & Vinokur, 2010), as well as the current study's stress process framework, adapted from Pearlin et al.'s (1981) Stress Process Theory. The results indicate that the perception of education barriers, or sources of stress, are positively and significantly related to depressive symptoms, or the manifestation of stress, as higher scores on the former are associated with higher scores on the latter.

I also found that hypothesis H2b was, as before, not supported. Although the addition of minority status stress further strengthened the overall model, the amount of variance explained by the perception of education barriers did not decrease significantly with the addition of minority status stress into the model. Minority status stress was a significant predictor of depressive symptoms on its own accord and in following with previous research (Britt-Spells, Slebodnik, Sands, & Rollock, 2018; Cokley, Hall-Clark, & Hicks, 2011; Greer & Brown, 2011; Miranda et al., 2013; Rhoton, 2013). However, the expected mediation did not occur, and minority status stress may better serve as a predictor variable for depressive symptoms.

Model 3 without Minority Status Stress. Based on the follow-up analyses and hypotheses, I found that hypothesis H6a was not supported. I had hypothesized that the relationship between the perception of career barriers and depressive symptoms would be mediated by program environment in racial/ethnic minority graduate students. However, the results failed to provide evidence that program environment subsumed the stress from the perception of career barriers. This result is only marginally different from the current study's initial finding where hypothesis H5a was also not supported, but partial mediation by minority

status stress did occur. Although program environment was not a significant mediator of the relationship between the perception of career barriers and depressive symptoms, the relationship between program environment and depressive symptoms itself is significant when the perception of career barriers is not present. This finding may indicate that while the stressors indicated within both constructs for the perception of career barriers and program environment may be significant contributors to depressive symptoms, there may be significant overlap that is more fully explained by the perception of career barriers or minority status stress in the previous models.

Model 4 without Minority Status Stress. Based on the follow-up analyses and hypotheses, I found that hypothesis H6b was not supported. I had hypothesized that the relationship between the perception of education barriers and depressive symptoms would be mediated by program environment in racial/ethnic minority graduate students. However, the results failed to provide evidence that program environment subsumed the stress from the perception of education barriers. This result is only marginally different from the current study's initial finding where hypothesis H5b was also not supported, but partial mediation by minority status stress did occur. Although program environment was not a significant mediator of the relationship between the perception of education barriers and depressive symptoms, the relationship between program environment and depressive symptoms itself is significant when the perception of education barriers is not present. This finding may indicate that while the stressors indicated within both constructs for the perception of education barriers and program environment may be significant contributors to depressive symptoms, there may be significant overlap that is more fully explained by the perception of education barriers or minority status stress in the previous models.

Results from Preliminary Analyses

In this section, I first focus on the results from the correlational analyses, followed by a discussion of group differences that were found.

Correlational analyses.

The preliminary correlational analyses indicated some relationships among the independent variables (i.e., the perception of career and education barriers), the mediators (i.e., minority status stress and program environment), and the moderator (i.e., perceived family social support). The perception of career barriers was positively and moderately correlated with the perception of education barriers. Racial/ethnic minority graduate students that perceive higher career barriers also perceive higher education barriers. The experience of facing obstacles to career and educational goals often go hand in hand (Brown & Lent, 1996; Luzzo & McWhirter, 2001). It would follow that in perceiving difficulties in obtaining educational goals, career aspirations may also seem unachievable (Brown & Lent, 1996; Swanson & Tokar, 1991).

The mediators, minority status stress and program environment, were positively and very strongly correlated. This strong correlation was expected as program environment is part of the minority status stress construct that has been adapted to examine a specific phenomenon; where minority status stress examines the stress of being a racial/ethnic minority on a college campus, program environment focuses that stress at the graduate program level. These commonalities are important because the stress of being a racial/ethnic minority on a college campus has been demonstrated to have negative mental health effects (Cokley, McClain, Enciso, & Martinez, 2013). However, exploration of how these stressors may map onto the program environment can help us understand the increase in depressive symptoms, and mental health issues in general, experienced by racial/ethnic minority graduate students (Miranda, Soffer, Polanco-Roman,

Wheeler, & Moore, 2015). The findings of the current study are consistent with previous literature: racial/ethnic minority graduate students who experience stress due to being racial/ethnic minorities on campus, most likely also experience this stress within their graduate programs (Clark, Mercer, Ziegler-Hill, & Dufrene, 2012).

Both the perception of career and education barriers were positively and moderately correlated with minority status stress and program environment. These correlations provide evidence of the links between the sources of stress (i.e., the perception of career and education barriers) and the mediators of stress (i.e., minority status stress and program environment). This suggests that racial/ethnic minority graduate students attempting to cope with obstacles related to their career paths, both present and future, often must consider the impacts of racism and discrimination on college campuses and within their own graduate programs and their effects on their career and educational goals. Previous literature supports the current findings that racial/ethnic minority graduate students tend to find themselves in challenging and emotionally taxing situations due to discrimination (Cardoso & Marques, 2008; Luzzo, 1993; Luzzo & McWhirter, 2001; McWhirter, 1997).

When running correlational analyses, the perception of education barriers was positively, but weakly, correlated with perceived family social support. More specifically, racial/ethnic minority graduate students who perceived more education barriers were more likely to perceive social support from their family members. Previous research has indicated that the content of social support may help explain this relationship. In Boren's (2013) study about co-rumination, social support, and burnout, he found that even when receiving high levels of social support, if the content of support received is not seen as valuable to the student, then burnout was still likely. Similarly, when examining the perception of education barriers and perceived family

social support, it could be posited that the content of the support racial/ethnic minority graduate students are receiving is not alleviating the distress they feel, thus their correlational nature.

Another possibility is that with more stress (i.e., perception of education barriers), there is more utilization of family social support.

Group differences.

With regard to group differences, the significant differences I found in the data were gender, first language, sexual orientation, relationship status, and subjective socioeconomic status. However, of these significant differences, the only variable that demonstrated a significant group difference approaching a substantial effect size was sexual orientation. In order to better understand and interpret this variable, I combined all non-heterosexual groups and ran an ANOVA with this new group and heterosexual individuals in the study. The results indicated that non-heterosexual racial/ethnic minority graduate students reported experiencing depressive symptoms at a higher rate than their heterosexual counterparts. This finding is consistent with the previous literature where non-heterosexual individuals reported experiencing more depressive symptoms than heterosexual individuals (Branstrom, 2015; Everett, 2015; Lewis, Derlega, Brown, Rose, & Henson, 2009; Luk, Gilman, Haynie, & Simmons-Morton, 2018; Marshal et al., 2013; Montgomery, Peck, & Vining, 2001). This finding could be doubly impactful for this study where non-heterosexual racial/ethnic minority graduate students are potentially identifying with two minority statuses. However, I did not control for any variables in this study. Sexual orientation only approached a large effect size, but did not actually achieve a large effect size, and most of the other demographic variables had small effect sizes, with only relationship status and subjective socioeconomic status reaching moderate effect size. Even though these group differences, were not controlled for, it is important to note, that a future study might shed light as

to how these differences work with each variable to determine the reporting of depressive symptoms for racial/ethnic minority graduate students.

Limitations

The current study has several limitations which could be addressed within the scope of future research. First, the study is correlational in both design and analyses and data were only collected at one point in time. These design and analysis choices mean the data cannot be used to imply causality. However, I can discuss the relationships between variables, just not the causal links. For example, in Chapter 4 (p. 90) I reported that minority status stress was positively associated with depressive symptoms. However, I cannot determine if increases in depressive symptoms are caused by minority status stress or vice versa.

Second, the results may not be generalized to all adults, or even to all students. This study was specifically designed to sample racial/ethnic minority graduate students and, as such, care should be taken in generalizing these results to populations outside of these sample parameters. The sample is not representative of any one university or graduate program and data was collected from several graduate programs at several universities through the use of an online survey employing both purposeful sampling and snowballing techniques. The sample for the current study did not include any White, non-Hispanic or international students, nor did it contain anyone under the age of 18 or with an education level lower than a Bachelor's degree. The participants included in the study represented a wide variety of educational backgrounds, each deserving more nuance and context. The current study was not aimed at comparing the differences between programs and the effects those differences may have in regard to depressive symptoms. It also did not evaluate the supportive structures that may be in place at individual universities or graduate programs to help racial/ethnic minority graduate students cope with race-

related stressors. These factors combined make generalizing the study's results untenable. Additionally, although the study's sample consisted solely of racial/ethnic minority graduate students, diversity and representation of different racial/ethnic backgrounds within the sample was limited (See Table 2, p 65). For example, the vast majority of the study sample could be broken down into three subgroups: Asian or Asian American, Black or African American, and Hispanic or Latino/a. The remaining sample consisted of Arab, Arab American, or Middle Eastern, Native American or Alaskan Native, Native Hawaiian or Pacific Islander, Two or more races, or other identified individuals. This disparity in representation limits generalizability of the results within racial/ethnic minority populations.

Third, while the current study's final sample is reflective of the general graduate student population in several aspects, it lacks generalizability to graduate students in several other areas. In terms of racial/ethnic breakdown, the current study roughly reflects the numbers found in the general graduate student population (The Condition of Education, 2018b). However, although women do make up a majority of graduate students, accounting for roughly two thirds of the total number of those students enrolled in degree granting programs (The Condition of Education, 2018b), the current study disproportionately represented women (75%). A future study may more closely reflect the current demographics of racial/ethnic minority graduate students and take a closer look at their areas of study. The current study was also not reflective of graduate students' areas of study at a national level. In the current study, social and behavioral sciences, natural sciences and mathematics, and computer sciences and engineering were overrepresented, when national data presented by the Digest of Education Statistics (2018) greatly favors business degrees at the Master's level and degrees in the "other" category at the Doctoral level.

Fourth, the present study was voluntary in nature and, therefore, inherent differences between those who choose to participate versus those that did not, may exist. This sampling bias may account for some of the disparity found in the representation of different racial/ethnic minority groups. For example, while most racial/ethnic minority groups have carried a distrust of institutions in this country (McGrath, 2017; Scammell, Senier, Darrah-Okike, Brown, & Santos, 2009), one of the groups that had the lowest participation rate, Arab, Arab American, or Middle Eastern ($N = 8$, 2.57%), may have more reason to distrust of any U.S. institution collecting data at this point in time (Jamal & Naber, 2008; Panagopoulos, 2006; Salaita, 2006). The current study's broad focus on racial/ethnic minorities does not address these nuanced matters and future studies may approach data collection with more finesse that encourages participation, trust, and value as a stakeholder.

Fifth, the survey data relied on participants' self-report, which may have led to biased responses, thus creating a social desirability effect for participants in the study. Graduate students are often in high stress, high-output environments (Grady, La Touche, Oslawski-Lopez, Powers, & Simacek, 2014; Rice, Suh, Yang, Choe, & Davis, 2016). Thus, reporting any barrier or issue could be potentially perceived as a sign of weakness, low productivity, and a lack of ability to complete a graduate level degree (Wright et al., 2004). These factors may have led to underreporting across the perception of career and education barriers, minority status stress, program environment, and depressive symptoms.

Implications for Future Research

The current study provides several implications for future research pertaining to racial/ethnic minority graduate students navigating academia. In particular, it highlights the link between the perception of career and education barriers, minority status stress, program

environment, perceived family social support, and depressive symptoms in racial/ethnic minority graduate students. This study's results and their support for the adaption of Pearlin et al.'s (1981) Stress Process Theory may be helpful in guiding future research focusing on racial/ethnic minority graduate students.

Future research can build upon my results by further examining how the perception of career and education barriers differ from each other within racial/ethnic minority graduate students. While the perception of career and education barriers are related concepts, career barriers' future orientation and education barriers' present orientation warrants further research in this group that may be seen to be at once about to reach the zenith of their education and potentially take the first steps into their career. Further research into these concepts and why they provide such varied links to depressive symptoms could provide valuable information for graduate programs, universities, and clinicians working with racial/ethnic minority graduate students.

Future research could further explore the difference in the lived experience of race versus ethnicity for racial/ethnic minority individuals. While the current study took these two constructs together due to them often being confused and used interchangeably, a future study or set of studies could explore how discrimination or barriers perceived based purely on ethnic identity is associated with mental health outcomes for racial/ethnic minority individuals. Furthermore, an interesting line of research could be to gauge minority individuals' perception of the difference between the two constructs, if any, and how this affects their worldviews and coping strategies for dealing with difficult discriminatory events.

Future research can also build upon my results by exploring the different aspects of minority status and the interplay of these statuses and identities on depressive symptoms and

other signifiers of well-being in racial/ethnic minority graduate students. For example, in my study, sexual orientation was found to be a significant demographic variable. Thus, further exploration into the interplay between sexual orientation and racial/ethnic minority status could provide information as to the experiences of marginalized subgroups within graduate programs and prompt further research such as how graduate students at the intersection of two minority identities cope and how graduate programs, universities, and clinicians alike can help these students maintain their well-being and thrive. Future research can also further examine the stress from these various identities through an investigation of how different variables may affect racial/ethnic minority graduate students who further identify with another minority group. The current study included two variables that explored minority status: minority status stress, which examined racial/ethnic minority graduate students' experiences as racial/ethnic minorities on university campuses, and program environment, which narrowed the focus of the examination to their experiences within their graduate program. The inclusion of other minority status scales such as the Minority Stress Scale (Norcini Pala et al., 2017) or the Sexual Minority Stress Scale (Iniewicz, Sałapa, Wrona, & Marek, 2017) which examine sexual orientation, or a scale which may examine the experience of being a religious minority, may be useful in providing both program-level and clinical information for these doubly marginalized students.

Another area that future research can explore is perceived family social support, specifically which family members social support is coming from. The current study utilized the Perceived Family Social Support Scale – Family Subscale (Procidano & Heller, 1983). The same scale contains a Friend Subscale that may be useful to incorporate in future research in order to be more inclusive of who is being considered as “family.” While the current study included both families of creation and origin as possible sources of perceived support, it would be useful to

further explore which individuals are considered “family-like” when discussing perceived social support. Also, further exploration of the differences between those graduate students who are married or married-like may present an important difference in the way in which graduate students receive and seek their support and the loved ones they seek it from. Continued investigations into how graduate students effectively feel supported by family members and the makeup of their support system could be critical in informing interventions at the institution, program, and clinical levels.

Additionally, further inquiry into how program environment is examined longitudinally may help to provide a clearer view of racial/ethnic minority graduate students’ experiences at different points in time. The current study only provided a snapshot of the sample’s experience of their graduate program environment, but research conducted over time may yield a fuller, richer picture of program environment. This is also important as a means to capture the ways that programs change over time; programs are fluid and are subject to change based on their faculty, student body, and administration. These factors are all important contributions to capture and fell outside of the scope of the current study.

In order to better understand how the Stress Process (Pearlin et al., 1981) can apply more widely to racial/ethnic minority graduate students, it is important that research findings be tested for external validity. My study sample contained a sizeable group of racial/ethnic minority graduate students representing several races and ethnicities. However, the disparity in group sizes (Asian or Asian American, $N = 86$, 27.65 %; Native Hawaiian or Pacific Islander, $N = 5$, 1.61%) was notable and future research could advance the generalizability of related research by recruiting a sample with more parity. Additionally, a further examination of the Stress Process (Pearlin et al., 1981) could include other stress inducing variables such as life events, achieving

program benchmarks, and physical health concerns. The inclusion of such variables could broaden the scope and generalizability of using the Stress Process, while keeping minority status stress as a mediating factor, something that is unique to this study. The inclusion of different outcome variables, such as program progress, quality of life indexes, or life satisfaction could also provide information as to the current state of racial/ethnic minority graduate students.

Implications for Future Practice

The current study also provides several implications for future practice pertaining to racial/ethnic minority graduate students navigating academia. As previously stated, incorporating Pearlin et al.'s (1981) Stress Process Theory may be helpful in guiding future practice focusing on racial/ethnic minority graduate students, as it provides an evidence-based framework that connects the named challenges (e.g., perception of career and education barriers, minority status stress, program environment) faced by racial/ethnic minority graduate students. Further, the addition of perceived family social support, while not significant in the majority of the analyses of this study, may still play a significant role in future interventions, practice, and advocacy.

In considering the experiences of racial/ethnic minority graduate students, it is important to address the manifestations of stress they may experience, namely depressive symptoms. Racial/ethnic minority graduate students likely experience stress in distinct ways due to their status as minorities in academia and the obstacles they perceive in obtaining their career and educational goals. The results demonstrate that the perception of career barriers may serve as a protective factor against depressive symptoms, and that the perception of education barriers may have no significant impact on its own. However, when considered together with minority status stress, both the perception of career and education barriers significantly and positively contribute to depressive symptoms, as does minority status stress. Thus, it is important to consider these

factors when working with racial/ethnic minority graduate students experiencing depressive symptoms. For example, future interventions may incorporate social justice-oriented methodologies for addressing depressive symptoms and address the context in which racial/ethnic minority graduate students experience these manifestations of stress. Adding a contextual element may also help address practical, concrete issues such as financial, academic, and systemic concerns that may be contributing to the experiencing of depressive symptoms. Executing these interventions in a group modality, for example a process group, may prove useful as it can both allow for racial/ethnic minority graduate students to feel connected with others in similar situations while giving them the opportunity to problem-solve and receive and provide social support, a key element in moderating depressive symptoms (Snyder, 2016). Further, a project-based intervention may be useful in achieving several goals: addressing the reality of being a racial/ethnic minority while combating the oppressive experience of being a minority, and creating a sense of competence, worth, and prosocial wellbeing that can combat the depressive symptoms that are being faced by racial/ethnic minority graduate students (Snyder, 2016). While these types of groups and project-based interventions may be helpful, it is also important to consider the systemic and systematic elements that contribute to minority status stress and base the interventions in the knowledge, practice, and mindset of challenging these systems in order to help alleviate the manifestations of stress experienced by racial/ethnic minority graduate students.

Additionally, when taken together, the Stress Process Theory (Pearlin et al., 1981) and the results of my study may be used to better tailor interventions around moderators of stress, or how depressive symptoms can be decreased in racial/ethnic minority graduate students. For instance, I found that perceived family social support moderated the relationships between the

perception of career and education barriers and depressive symptoms. This information could be used as evidence for programs designed to incorporate family support into graduate students' self-care regimens. These interventions could bolster family engagement in racial/ethnic minority graduate students' experiences of graduate training by way of graduate programs holding information sessions for loved ones, hosting social hours specifically designed to include significant others, or simply by encouraging and giving racial/ethnic minority graduate students the time to connect with loved ones during times of increased stress (e.g., around exam dates, approaching program benchmarks, etc.). Research suggests that family support is a key factor in the well-being of racial/ethnic minorities (Greer & Brown, 2011; Park, Wang, Williams, & Alegria, 2017; Snyder, 2016). This crucial link could be further expanded by way of exploring what other supports (e.g., friends; faculty) may also help to moderate the manifestations of stress.

Conclusion

In this study, I used Pearlin, Menaghan, Liberman, and Mullan's (1981) Stress Process Theory to examine the effect of the sources of stress (i.e., the perception of career and education barriers), the mediators of stress (i.e., minority status stress and program environment), and moderator of stress (i.e., perceived family social support), on the manifestation of stress (i.e., depressive symptoms) in a sample of racial/ethnic minority graduate students. My proposed model hypotheses were that the perception of career and education barriers would have a positive relationship with depressive symptoms that would be mediated by minority status stress and that both of these relationships would be moderated by perceived family social support. However, only the perception of career barriers had a significant relationship with depressive symptoms and it was a negative relationship, indicating it served as a protective factor against depressive symptoms. Results indicated that the relationship between the perception of career barriers and

depressive symptoms was partially mediated by minority stress. Further, the relationship between the perception of career barriers and depressive symptoms was moderated by perceived family social support. My exploratory model hypotheses were that the relationship between the perception of career and education barriers and depressive symptoms would undergo serial mediation by minority status stress and program environment. In neither case was my hypothesis supported and serial mediation did not occur. These findings expand the base of research for racial/ethnic minority graduate students and provide a glimpse into their experiences of graduate programs, as well as the impact of the perception of barriers and minority status stress on depressive symptoms. The knowledge gained from this study can be used to inform culturally relevant educational and therapeutic intervention efforts to improve racial/ethnic minority graduate students' experiences as they navigate academia and their early professional careers.

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APPENDIX A. APPROVAL OF PURDUE UNIVERSITY INSTITUTIONAL REVIEW BOARD



HUMAN RESEARCH PROTECTION PROGRAM
INSTITUTIONAL REVIEW BOARDS

To: AYSE CIFTCI
BRNG

From: JEANNIE DICLEMENTI, Chair
Social Science IRB

Date: 03/06/2017

Committee Action: **Determined Exempt, Category (2)**

IRB Action Date: 03/03/2017

IRB Protocol #: 1702018812

Study Title: Depressive Symptoms and the Stress Process Theory in Racial/Ethnic Minority Graduate Students

The Institutional Review Board (IRB) has reviewed the above-referenced study application and has determined that it meets the criteria for exemption under 45 CFR 46.101(b).

Before making changes to the study procedures, please submit an Amendment to ensure that the regulatory status of the study has not changed. Changes in key research personnel should also be submitted to the IRB.

Please retain a copy of this letter for your regulatory records. We appreciate your commitment towards ensuring the ethical conduct of human subject research and wish you well with this study.

APPENDIX B. INITIAL RECRUITMENT EMAIL

Survey header: Survey for Racial/Ethnic Minority Graduate students

Dear Student,

I am a Counseling Psychology doctoral student conducting a dissertation research study with Dr. Ayşe Çiftçi at Purdue University. I am currently working on a project examining the barriers to career and education faced by racial/ethnic minority graduate students, focusing on their experiences with discrimination and support from family members. Learning about the barriers racial/ethnic minority graduate students face will help contribute to the development of programs designed to help bolster racial/ethnic minority graduate students' mental health.

In order to be eligible to participate in the study, you must self-identify as a **racial/ethnic minority**, be at least 18 years of age or older, and be a **non-international graduate student** in the United States. The survey will take approximately 15 to 20 minutes in order to complete the survey questions. Your participation is greatly appreciated and completely voluntary: you are free to withdraw at any time.

Participants will have a chance to anonymously enter their email addresses for a chance to win a **\$25 Amazon gift card**. The odds of winning are 1 in 100.

Please feel free to forward this email invitation to your friends who also identify as racial/ethnic minorities and who are eligible to participate in the study.

This study has been approved by the Purdue University's Human Subjects Board. If you have any questions concerning this research study, please do not hesitate to contact me at mnolasco@purdue.edu or my faculty advisor at ayse@purdue.edu.

Please go to [link] for more information or to participate in this study.

Thank you for your help and time!

Sincerely,

Martin Nolasco, M.S.Ed.
Counseling Psychology Doctoral Student
Purdue University
Department of Educational Studies
100 N. University Street
West Lafayette, IN 47907

APPENDIX C. FOLLOW-UP RECRUITMENT EMAIL

Subject header: REMINDER: Survey for Racial/Ethnic Minority Graduate students

Dear Student,

This is a reminder that you have been asked to participate in a study about the barriers to career and education faced by racial/ethnic minority graduate students. Please consider participating in this study if you have not already done so. If you've already completed the questionnaires, thank you!

To participate, you must self-identify as a **racial/ethnic minority**, be at least 18 years of age or older, and be a **non-international graduate student** in the United States.

You will complete a 15 to 20 minute survey about your experiences as a racial/ethnic minority graduate student.

Your participation is completely voluntary and you are free to withdraw at any time. Learning about the barriers racial/ethnic minority graduate students face will help contribute to the development of programs designed to help bolster racial/ethnic minority graduate students' mental health.

Participants will have a chance to anonymously enter their email addresses for a chance to win a \$25 Amazon gift card. The odds of winning are 1 in 100.

Please feel free to forward this e-mail invitation to others who also identify as racial/ethnic minorities and who are eligible to participate in the study.

To participate, the URL address is: _____

Thank you for your help and participation!

Sincerely,

Martin Nolasco, M.S. Ed.
Counseling Psychology Doctoral Candidate
Purdue University
Department of Educational Studies
100 N. University Street
West Lafayette, IN 47907

APPENDIX D. EMAIL TO ORGANIZATIONS

Subject header: Racial/ethnic minority graduate student barriers survey invitation

Dear [organization name],

My name is Martin Nolasco and I am a doctoral student at Purdue University conducting a study to understand racial/ethnic minority graduate students' experiences with career and education barriers and support from family members.

I hope you could assist me in recruiting participants by forwarding the following email to participants on your listservs. The email includes additional information about the study as well as a link to the survey.

The findings from this study will increase understanding of racial/ethnic minority graduate students' experiences with career and education barriers, discrimination, and family social support. Professionals and administrators alike can use this information to develop interventions to understand the barriers faced by minority graduate students and the protective factors that family social support may provide. Participants will have a chance to anonymously enter their email addresses for a chance to **win a \$25 Amazon gift card**. The odds of winning are 1 in 100. I would greatly appreciate your assistance in distributing the recruitment email. If you have further questions, please feel free to contact me.

Martin Nolasco, MS.Ed.
Counseling Psychology Doctoral Student
Purdue University
Department of Educational Studies
100 N. University Street
West Lafayette, IN 47907

Dear listserv,

I am a Counseling Psychology doctoral student conducting a dissertation research study with Dr. Ayşe Çiftçi at Purdue University. I am currently working on a project examining the career and education barriers faced by racial/ethnic minority graduate students, focusing on their experiences with discrimination and family social support. Learning about the barriers racial/ethnic minority graduate students face will help contribute to the development of programs designed to help bolster racial/ethnic minority graduate students' mental health.

In order to be eligible to participate in the study, you must self-identify as a **racial/ethnic minority**, be at least 18 years of age or older, and be a **non-international graduate student** in the United States. The survey will take approximately 15 to 20 minutes to complete the survey

questions. I would greatly appreciate your help with my study! Your participation is completely voluntary and you are free to withdraw at any time.

Participants will have a chance to anonymously enter their email addresses for a chance to win a **\$25 Amazon gift card**. The odds of winning are 1 in 100.

Please feel free to forward this email invitation to your friends who also identify as racial ethnic minorities and who are eligible to participate in the study.

This study has been approved by the Purdue University's Human Subjects Board. If you have any questions concerning this research study, please do not hesitate to contact me at mnolasco@purdue.edu or my faculty advisor at ayse@purdue.edu.

Please go to [\[link\]](#) for more information or to participate in this study.

Thank you for your help and time!

APPENDIX E. FACEBOOK STATUS/POSTS

Hello! I am conducting research on racial/ethnic minority graduate student's experiences with career and education barriers and discrimination on college campuses. In order to participate, you must self-identify as a racial/ethnic minority, be at least 18 years of age or older, and be a non-international graduate student in the United States. Thank you! [link to survey] Chance to win \$25 Amazon gift card!

(Martin Nolasco: mnolasco@purdue.edu)

APPENDIX F. PARTICIPANT INFORMATION SHEET

Research Project Number _____

RESEARCH PARTICIPANT INFORMATION SHEET

Perceived Career and Education Barriers' effect on Depressive Symptoms in Racial/Ethnic Minority

Graduate Students, conditional on Minority Status Stress and Perceived Family Social Support

Ayşe Çiftçi, Ph.D.

Martin Nolasco, MS.Ed.

Purdue University

Department of Educational Studies

Purpose of Research You have been invited to participate in a research study designed to investigate the career and education barriers of racial/ethnic minority graduate students in the U.S. We are interested in examining the experiences of discrimination and family social support in this population. For the purposes of this study, we will not include international students. Therefore, participants must be from the U.S and over the age of 18

By conducting this study, we hope to learn more about the barriers faced by racial/ethnic minority graduate students in the pursuit of their career and education. Your participation is not required, but it would be greatly appreciated as it can contribute to development of interventions that would help increase psychological wellbeing of racial/ethnic minority graduate students.

Specific Procedures If you would like to participate in this study, please check the “Yes, I am ready to participate” box below and then click the “Next” button.

Duration of Participation Your participation in this study is expected to require approximately 15 to 20 minutes.

Risks The risks of participating are minimal and no greater than those encountered in everyday activities.

Benefits You understand that there are no direct benefits to you from participating in this study. However, the findings from this study may increase understanding of what racial/ethnic minority graduate students face in the pursuit of their career and education. The findings may lead to inform interventions and services that could potentially help increase psychological well-being. Therefore, these findings may be important for counseling psychologists and community professionals.

Compensation Participants will have a chance to anonymously enter their email addresses for a chance to win a \$25 Amazon gift card. The odds of winning are 1 in 100.

Confidentiality Your responses and participation are completely anonymous, and any information you provide will be confidential. Only Martin Nolasco, M.S.Ed., and Ayşe Çiftçi, Ph.D. will have access to the data. All data obtained during the recruitment process will be destroyed once data collection is complete. E-mail addresses obtained through the lottery drawing process will be destroyed after the drawing. All data from the surveys will be coded and entered into a computerized data file, which will be stored in password-protected computers accessible only to the study personnel. The project's research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight.

Voluntary Nature of Participation Your participation in the study is voluntary. Although we would appreciate you answering all questions as openly and honestly as possible, you may decline to answer any question that makes you feel uncomfortable. If you agree to participate you may withdraw your participation at any time without penalty.

Contact Information: If you have any questions about this research project, you can contact Ayşe Çiftçi, Ph.D., the first point of contact, at ayse@purdue.edu. You may also contact Martin Nolasco, M.S.Ed. at mnolasco@purdue.edu. If you have concerns about the treatment of research participants, you can contact the Institutional Review Board at Purdue University, Ernest C. Young Hall, Room 1032, 155 S. Grant St., West Lafayette, IN 47907-2114. The phone number for the Board is (765) 494-5942. The email address is irb@purdue.edu.

*** Please note that all consent forms that are longer than one page must provide a space for initials and dates on all non-final pages.*

Documentation of Informed Consent

I have had the opportunity to read this consent form and have the research study explained. I have had the opportunity to ask questions about the research project and my questions have been answered. I am prepared to participate in the research project described above. I will receive a copy of this consent form after I sign it.

>>CLICK NEXT TO PARTICIPATE: Link to the survey.

APPENDIX G. DEMOGRAPHICS SURVEY

Please provide the following information about yourself.

1. Age: ____
2. Sex:
 - a. Male
 - b. Female
 - c. Trans
 - d. Unspecified
3. Racial/ethnic group you most identify with:
 - a. Arab, Arab American, or Middle Eastern
 - b. Asian or Asian American
 - c. Black or African American
 - d. Hispanic or Latino/a
 - e. Native American or Alaskan Native
 - f. Native Hawaiian or Pacific Islander
 - g. White or European American
 - h. Two or more races (please indicate) _____
 - i. Other _____

Provide branches based on selection?

4. Sexual Orientation:
 - a. Heterosexual
 - b. Gay
 - c. Lesbian
 - d. Bisexual
 - e. Transgender
 - f. Queer
 - g. Questioning
 - h. Other _____
6. Are you an international student? If so, please specify your country of origin.

No

Yes _____
5. Relationship status—please check the one item that best describes you:

____ Single, not dating	____ Dating casually
____ Dating exclusively	____ Married or Married-like

___ Separated/Divorced/Widowed

6. Please write what religious denomination you belong to if any: _____

7. What is your first language?

___ English

___ Bilingual (Please describe): _____

___ Other (Please describe): _____

8. Generational status (if applicable)

a. 1st generation (born outside of the U.S. but moved to the U.S. when you were an adult)

b. 1.5 generation (born outside of the U.S. but moved to the U.S. when you were a child or an adolescent)

c. 2nd generation (born in the U.S. or both parents were born outside of the U.S.)

d. 3rd generation (you and both of your parents were born in the U.S.)

9. Your Institute: _____

10. Your Major/College _____ / _____

Identify where your graduate training program is located.

a. Northeast (CT, ME, MA, NH, RI, VT)

b. Mid-Atlantic (NJ, NY, PA)

c. Midwest-East North Central (IL, IN, MI, OH, WI)

d. Midwest-West North Central (IA, KS, MN, MO, NE, ND, SD)

e. South Atlantic (DE, FL, GA, MD, NC, SC, VA, Washington, DC., WV)

f. South-East South Central (AL, KY, MS, TN)

g. South-West South Central (AR, LA, OK, TX)

h. West-Mountain (AZ, CO, ID, MT, NV, NM, UT, WY)

i. West-Pacific (AK, CA, HI, OR, WA)

j. Puerto Rico

11. What is the highest level of education that you have received?

[] Bachelor's degree

[] Master's degree

[] Doctorate degree

12. Has your father attended any college (including online courses)? [] Yes [] No [] Not sure

13. What is the highest level of education that your father received?

[] Some grade school

[] Completed grade school

[] Some high school

[] High school degree

[] Associates degree

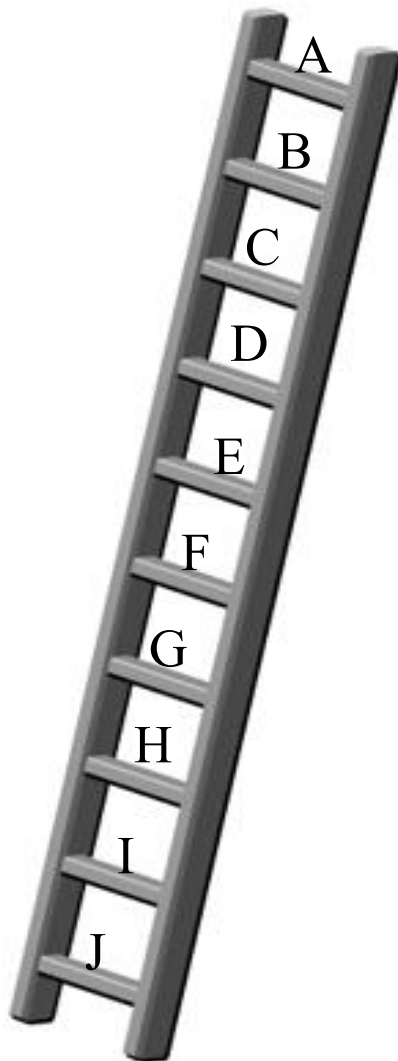
[] Bachelor's degree

- ☐ Master's degree
 - ☐ Doctorate degree
 - ☐ Don't know
14. Has your mother attended any college (including online courses)?
☐ Yes ☐ No ☐ Not sure
15. What is the highest level of education that your mother received?
☐ Some grade school
☐ Completed grade school
☐ Some high school
☐ High school degree
☐ Associates degree
☐ Bachelor's degree
☐ Master's degree
☐ Doctorate degree
☐ Don't know
16. Living arrangements:
a. Living with partner
b. Living with children without a partner
c. Living with roommate(s) (on-campus)
d. Living with roommate(s) (off campus)
e. Living with family members
f. Living alone
g. Other
17. Number of people currently living in your household: _____
18. What is your length of residence in the U.S.?
☐ 1-2 years
☐ 3-5 years
☐ 6-10 years
☐ 11-20 years
☐ 21-30 years
☐ 31 years or more
19. How often do you return to your home country?
☐ Born in the U.S.
☐ twice or more per year
☐ once a year
☐ every other year
☐ once every three years or more
☐ have never returned
20. Think of this ladder as representing where people stand in the United States.

At the top of the ladder are the people who are best off- those who have the most money, the most education and the most respected jobs. At the **bottom** are the people that are the worst off- who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Where would you place yourself on this ladder?

Please choose the letter on the rung where you think you stand at this time in your life, relative to other people in the United States.



The Multigroup Ethnic Identity Measure

In this country, people come from many different countries and cultures, and there are many different words to describe the different backgrounds or ethnic groups that people come from. Some examples of the names of ethnic groups are Hispanic or Latino, Black or African American, Asian American, Chinese, Filipino, American Indian, Mexican American, Caucasian or White, Italian American, and many others. These questions are about your ethnicity or your ethnic group and how you feel about it or react to it.

Please fill in: In terms of ethnic group, I consider myself to be _____

Use the numbers below to indicate how much you agree or disagree with each statement.

(5) (4) (3) (2) (1)
Strongly agree (SA) Agree (A) Neutral (N) Disagree (D) Strongly disagree (SD)

	SA	A	N	D	SD
1. I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.	5	4	3	2	1
2. I have a strong sense of belonging to my own ethnic group.	5	4	3	2	1
3. I understand pretty well what my ethnic group membership means to me.	5	4	3	2	1
4. I have often done things that will help me understand my ethnic background better.	5	4	3	2	1
5. I have often talked to other people in order to learn more about my ethnic group.	5	4	3	2	1
6. I feel a strong attachment towards my own ethnic group.	5	4	3	2	1

APPENDIX H. CENTER FOR EPIDEMIOLOGIC STUDIES DEPRESSION SCALE – REVISED

Below is a list of the ways you might have felt or behaved. Please circle the number to tell me how often you have felt this way in the past week or so.	Last Week				Nearly every day for 2 weeks
	Not at all or Less than 1 day	1 – 2 days	3 -4 days	5 – 7 days	
My appetite was poor.	0	1	2	3	4
I could not shake off the blues.	0	1	2	3	4
I had trouble keeping my mind on what I was doing.	0	1	2	3	4
I felt depressed.	0	1	2	3	4
My sleep was restless.	0	1	2	3	4
I felt sad.	0	1	2	3	4
I could not get going.	0	1	2	3	4
Nothing made me happy.	0	1	2	3	4
I felt like a bad person.	0	1	2	3	4
I lost interest in my usual activities.	0	1	2	3	4
I slept much more than usual.	0	1	2	3	4
I felt like I was moving too slowly.	0	1	2	3	4
I lost interest in my usual activities.	0	1	2	3	4
I slept much more than usual.	0	1	2	3	4
I felt like I was moving too slowly.	0	1	2	3	4
I felt fidgety.	0	1	2	3	4
I wished I were dead.	0	1	2	3	4
I wanted to hurt myself.	0	1	2	3	4

Below is a list of the ways you might have felt or behaved. Please circle the number to tell me how often you have felt this way in the past week or so.	Last Week				Nearly every day for 2 weeks
	Not at all or Less than 1 day	1 – 2 days	3 -4 days	5 – 7 days	
I was tired all the time.	0	1	2	3	4
I did not like myself.	0	1	2	3	4
I lost a lot of weight without trying to.	0	1	2	3	4
I had a lot of trouble getting to sleep.	0	1	2	3	4
I could not focus on the important things.	0	1	2	3	4

APPENDIX I. PERCEPTION OF BARRIERS SCALES

Instructions: Please answer each statement as carefully as possible. Please select *one* number to the right of each statement to indicate your degree of agreement or disagreement. This is not a test, so there are neither right nor wrong, good nor bad answers. All responses are anonymous and confidential.

Indicate how much you agree with each statement by circling the number corresponding to your response.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. In my future career I will probably be treated differently because of my sex.	1	2	3	4	5
2. In my future career I will probably be treated differently because of my racial/ethnic background..	1	2	3	4	5
3. In my future career I will probably experience negative comments about my sex (such as insults or rude jokes).	1	2	3	4	5
4. In my future career I will probably experience negative comments about my racial/ethnic background (such as insults or rude jokes).	1	2	3	4	5
5. In my future career I will probably have a harder time getting hired than people of the opposite sex.	1	2	3	4	5
6. In my future career I will probably have a harder time getting hired than people of other racial/ethnic backgrounds.	1	2	3	4	5
7. In my future career I will probably experience discrimination because of my sex.	1	2	3	4	5
8. In my future career I will probably experience discrimination because of my racial/ethnic background.	1	2	3	4	5
9. In my future career I will probably have difficulty finding quality daycare for my children.	1	2	3	4	5
10. In my future career I will probably have difficulty getting time off when my children are sick.	1	2	3	4	5
11. In my future career I will probably have difficulty finding work that allows me to spend time with my family.	1	2	3	4	5

Indicate how much you agree with each statement by circling the number corresponding to your response.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
12. Money problems are currently a barrier to my educational aspirations.	1	2	3	4	5
13. Family problems are currently a barrier to my educational aspirations.	1	2	3	4	5
14. Not being smart enough is currently a barrier to my educational aspirations.	1	2	3	4	5
15. Negative family attitudes about college are currently a barrier to my educational aspirations.	1	2	3	4	5
16. Not fitting in at college is currently a barrier to my educational aspirations.	1	2	3	4	5
17. Lack of support from teachers is currently a barrier to my educational aspirations.	1	2	3	4	5
18. Not being prepared enough is currently a barrier to my educational aspirations.	1	2	3	4	5
19. Not knowing how to study well is currently a barrier to my educational aspirations.	1	2	3	4	5
20. Not having enough confidence is currently a barrier to my educational aspirations.	1	2	3	4	5
21. Lack of support from friends to pursue my educational aspirations is currently a barrier to my educational aspirations.	1	2	3	4	5
22. My gender is currently a barrier to my educational aspirations.	1	2	3	4	5
23. People's attitudes about my gender are currently a barrier to my educational aspirations.	1	2	3	4	5
24. My ethnic background is currently a barrier to my educational aspirations.	1	2	3	4	5
25. People's attitudes about my ethnic background are currently a barrier to my educational aspirations.	1	2	3	4	5
26. Childcare concerns are currently a barrier to my educational aspirations.	1	2	3	4	5
27. Lack of support from my "significant other" to pursue education is currently a barrier to my educational aspirations.	1	2	3	4	5
28. My desire to have children is currently a barrier to my educational aspirations.	1	2	3	4	5

Indicate how much you agree with each statement by circling the number corresponding to your response.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
29. Relationship concerns are currently a barrier to my educational aspirations.	1	2	3	4	5
30. Having to work while I go to school is currently a barrier to my educational aspirations.	1	2	3	4	5
31. Lack of role models or mentors is currently a barrier to my educational aspirations.	1	2	3	4	5
32. Lack of financial support is currently a barrier to my educational aspirations.	1	2	3	4	5

APPENDIX J. MINORITY STATUS STRESS SCALE

	Does not apply					Extrem ely Stressfu l
1. The university does not have enough professors of my race	0	1	2	3	4	5
2. Few students of my race are in my classes	0	1	2	3	4	5
3. Racist policies and practices of the university	0	1	2	3	4	5
4. The university lacks concern and support for the needs of students of my race	0	1	2	3	4	5
5. Seeing members of my race doing low status jobs and Whites in high status jobs on campus	0	1	2	3	4	5
6. Few courses involve issues relevant to my ethnic group	0	1	2	3	4	5
7. Negative attitudes/treatment of students of my race by faculty	0	1	2	3	4	5
8. White students and faculty expect poor academic performance from students of my race	0	1	2	3	4	5
9. Pressure that what "I" do is representative of my ethnic group's abilities, behavior, and so on.	0	1	2	3	4	5
10. Tense relationships between Whites and minorities at the university	0	1	2	3	4	5
11. The university is an unfriendly place	0	1	2	3	4	5
12. Difficulties with having White friends	0	1	2	3	4	5
13. Negative relationships between different ethnic groups at the university	0	1	2	3	4	5
14. The White-oriented campus culture of the university	0	1	2	3	4	5
15. Having to live around mostly White people	0	1	2	3	4	5

	Does not apply					Extrem ely Stressfu l
16. The lack of unity/supportiveness among members of my race at the university	0	1	2	3	4	5
17. Trying to maintain my ethnic identity while attending the university	0	1	2	3	4	5
18. Having to always be aware of what White people might do	0	1	2	3	4	5
19. Being treated rudely or unfairly because of my race	0	1	2	3	4	5
20. Being discriminated against	0	1	2	3	4	5
21. White people expecting me to be a certain way because of my race (i.e., stereotyping)	0	1	2	3	4	5
22. Others lacking respect for people of my race	0	1	2	3	4	5
23. Having to “prove” my abilities to others (i.e., work twice as hard)	0	1	2	3	4	5
24. People close to me thinking I’m acting “White”	0	1	2	3	4	5
25. Pressures to show loyalty to my race (e.g., giving back to my ethnic group community)	0	1	2	3	4	5
26. Pressures from people of my same race (e.g., how to act, what to believe)	0	1	2	3	4	5
27. Relationships between males and females of my race (e.g., lack of available dating partners)	0	1	2	3	4	5
28. Doubts about my ability to succeed in college	0	1	2	3	4	5
29. Feeling less intelligent or less capable than others	0	1	2	3	4	5
30. My family has very high expectations for my college success	0	1	2	3	4	5
31. My academic background for college being inadequate	0	1	2	3	4	5
32. My family does not understand the pressures of college (e.g., amount of time or quiet needed to study)	0	1	2	3	4	5

	Does not apply					Extrem ely Stressfu l
33. Being the first in my family to attend a major university	0	1	2	3	4	5

APPENDIX K. PERCEIVED SOCIAL SUPPORT – FAMILY SUBSCALE

The statements which follow refer to feelings and experiences which occur to most people at one time or another in their relationships with friends. For each statement there are three possible answers: Yes, No, Don't know. Please circle the answer you choose for each item.

The statements which follow refer to feelings and experiences which occur to most people at one time or another in their relationships with families. For each statement there are three possible answers: Yes, No, Don't know. Please circle the answer you choose for each item.

	Yes	No	Don't know
1. My family gives me the moral support I need.	Yes	No	Don't know
2. I get good ideas about how to do things or make things from my family.	Yes	No	Don't know
3. Most other people are closer to their family than I am.	Yes	No	Don't know
4. When I confide in the members of my family who are closest to me, I get the idea that it makes them uncomfortable.	Yes	No	Don't know
5. My family enjoys hearing about what I think.	Yes	No	Don't know
6. Members of my family share many of my interests.	Yes	No	Don't know
7. Certain members of my family come to me when they have problems or need advice.	Yes	No	Don't know
8. I rely on my family for emotional support.	Yes	No	Don't know
9. There is a member of my family I could go to if I were just feeling down, without feeling funny about it later.	Yes	No	Don't know
10. My family and I are very open about what we think about things.	Yes	No	Don't know

	Yes	No	Don't know
11. My family is sensitive to my personal needs.	Yes	No	Don't know
12. Members of my family come to me for emotional support.	Yes	No	Don't know
13. Members of my family are good at helping me solve problems.	Yes	No	Don't know
14. I have a deep sharing relationship with a number of members of my family.	Yes	No	Don't know
15. Members of my family get good ideas about how to do things or make things from me.	Yes	No	Don't know
16. When I confide in members of my family, it makes me uncomfortable.	Yes	No	Don't know
17. Members of my family seek me out for companionship.	Yes	No	Don't know
18. I think that my family feels that I'm good at helping them solve problems.	Yes	No	Don't know
19. I don't have a relationship with a member of my family that is as close as other people's relationships with family members.	Yes	No	Don't know
20. I wish my family were much different.	Yes	No	Don't know

**APPENDIX L. MINORITY STATUS STRESS SCALE – NEGATIVE
UNIVERSITY SOCIAL CLIMATE SUBSCALE MODIFIED FOR
PROGRAM ENVIRONMENT**

	Does not apply					Extremely Stressful
1. My graduate program does not have enough professors of my race	0	1	2	3	4	5
2. Few students of my race are in my classes	0	1	2	3	4	5
3. Racist policies and practices of my graduate program	0	1	2	3	4	5
4. My graduate program lacks concern and support for the needs of students of my race	0	1	2	3	4	5
5. Seeing members of my race doing low status jobs and Whites in high status jobs in my graduate program.	0	1	2	3	4	5
6. Few courses involve issues relevant to my ethnic group	0	1	2	3	4	5
7. Negative attitudes/treatment of students of my race by faculty	0	1	2	3	4	5
8. White students and faculty expect poor academic performance from students of my race	0	1	2	3	4	5
9. Pressure that what “I” do is representative of my ethnic group’s abilities, behavior, and so on.	0	1	2	3	4	5
10. Tense relationships between Whites and minorities at my graduate program.	0	1	2	3	4	5
11. My graduate program is an unfriendly place	0	1	2	3	4	5

VITA

MARTIN NOLASCO

EDUCATION

Doctor of Philosophy in Counseling Psychology **West Lafayette, IN**
Purdue University (APA accredited) *Degree anticipated December 2018*
Dissertation: *Depressive Symptoms and The Stress Process in Racial/Ethnic Minority Graduate Students*

Master of Science in Education: Counseling Psychology **West Lafayette, IN**
Purdue University *August 2013*

Bachelor of Arts - Psychology **Northridge, CA**
Bachelor of Arts - Modern and Classical Languages and Literature: Italian *May 2010*
California State University Northridge (CSUN)
Thesis: *Differences in Mental Health Perceptions by Ethnicity of the Rater*

Associate of Arts, with Honors - General/Transfer Studies
Imperial, CA
Imperial Valley College (IVC) *June 2006*

CLINICAL EXPERIENCE

Canal Alliance **San Rafael, CA**
Behavioral Health Clinician August 2018–Present
Gained clinical experience in Spanish conducting outpatient intakes, individual counseling, psychosocial assessment, crisis intervention, face-to-face community outreach, needs assessments, and gained experience in use of Salesforce system.

Behavioral Health and Recovery Services **San Rafael, CA**
Pre-Doctoral Intern (40 hours per week) September 2017–August 2018
Rotations: Latino Family Health, Crisis Stabilization Unit, Access Team
Supervisors: Dr. Marisol Muñoz-Kiehne, Ph.D. Dr. Juanita Zúñiga, PsyD, Dr. Laura Sciacca, Ph.D., Dr. Carol Kerr, Ph.D.
Gained clinical experience in English/Spanish conducting outpatient intakes, individual counseling, psychosocial assessment, crisis intervention, multimedia and face-to-face community outreach co-facilitating anger management and parenting classes, and gained experience in use of Clinician's Gateway system, and SIRP notes.

Purdue Counseling and Guidance Center, Career Assessment **West Lafayette, IN**
Practicum Student Summer 2014; Summer 2016
Supervisor: Dr. Eric Deemer, Ph.D.
Conducted intakes, career assessments (i.e., Career Values Card Sort, Strong Interest Inventory, Skills Confidence Inventory, NEO-PI-R, and WJ-III-C Brief), and feedback sessions with adolescents and parents and developed integrated reports.

Veterans Administration - Illiana Healthcare System**Danville, IL***Practicum Student**August 2014-December 2014**Supervisor:* Dr. Jim Falk, Ph.D.

Conducted inpatient and outpatient intakes and individual counseling, compensation and pension exams, and participated in multidisciplinary treatment teams, and gained experience in charting and use of the CPRS system.

Four County Counseling Center**Logansport, IN***Practicum Student**August 2013-July 2014**Supervisor:* Dr. Jim Noll, Ph.D.

Conducted inpatient and outpatient intakes and individual counseling, community corrections, and psychoeducational groups, and gained experience in charting, use of the AVATAR system, and DAP notes.

Bauer Family Resources**Lafayette, IN***Practicum Student**January 2013-August 2013**Supervisors:* Dr. Jeffrey Vanderwater-Piercy, Ph.D., Dr. Heather Servaty-Seib, Ph.D.

Conducted intakes, individual and couples counseling, Sexual Offender Management and Monitoring and Living in Balance (Substance Abuse) groups, and gained experience in conducting therapy in Spanish, charting, DAP notes, and DCS report writing.

Purdue Counseling and Guidance Center**West Lafayette, IN***Practicum Student**August 2011-May 2012**Supervisors:* Dr. Heather Servaty-Seib, Ph.D., Dr. Ayşe Çiftçi, Ph.D.

Conducted intakes and individual client counseling with students and community adults

Family Meaning Making: Reconstruction & Loss**West Lafayette, IN***Group facilitation**May 2011-June 2011**Supervisor:* Dr. Heather Servaty-Seib, Ph.D.

Planned activities and facilitated discussions between disadvantaged families.

By Remembering I Develop & Grow (BRIDGE)**West Lafayette, IN***Group facilitation**January 2011-April 2011**Supervisors:* Dr. Heather Servaty-Seib, Ph.D.

Co-facilitated adult groups dealing with grief and loss.

Independent Living Center, Psychology Department, CSUN**Northridge, CA***Intern (Pre-doctoral)**August 2008-May 2009*

Administered the Minnesota Multiphasic Personality Inventory (MMPI) to patients with mental health or behavioral problems to understand the effects of head injuries on reaction, cognition, and personality.

SCHOLARSHIP**Manuscripts in Preparation**

Shah, C., Lockman, J., Nichols, C., Shawahin, L., Nolasco, M., & Çiftçi, A. (Submission Phase). *Social justice training: Using photovoice to foster multicultural awareness and professional identity.*

International/National Presentations

Cross Cultural Research Team.* (2014). *Unification through diversity: Embracing complexities in training*. Roundtable presented at 2014 Counseling Psychology Conference, Atlanta, Georgia.

*All research team members contributed to this presentation.

Shawahin, L., **Nolasco, M.**, Nichols, C., Lockman, J., Shah, C., & Ciftci, A. (2014). *Social justice in action: Using Photovoice to foster multicultural awareness and professional identity*. Roundtable presented at 2014 Counseling Psychology Conference, Atlanta, Georgia.

Nolasco, M. (2012) *Masculinity, Openness to Diversity, and Institutional Integration: Retention Rates on College Men: Data*. Poster presented at the 120th meeting of the American Psychological Association, Orlando, Florida.

Nolasco, M. (2012) *Openness to Diversity and Institutional Integration*. Poster presented at the 30th meeting of the International Congress of Psychology, Cape Town, South Africa.

Nolasco, M. (2012) Immigration: Movement and Conflicts Across the Globe. In A. Çiftçi, (chair), *Building a global community: Unifying diverse views through psychology*. Symposium presented at the mid-winter meeting of the American Psychological Association, Division 52, International Psychology, held at the 41st meeting of the Society for Cross-Cultural Research, Las Vegas, Nevada.

Regional/Local Presentations

Elison, Z., Zalzal, A., **Nolasco, M.**, Azmat, A., & Ciftci, A. (2016). *Becoming a Social Advocate in Graduate School*. Roundtable presented at 2016 Great Lakes Regional Counseling Psychology Conference, Indiana University, Bloomington, Indiana.

Nichols, C., Lockman, J., **Nolasco, M.**, Shah, C., & Shawahin, L.* (April, 2013). *Social justice and counseling psychology in action*. Poster presented at the Civic Engagement Poster Session at Purdue University, West Lafayette, IN. *All but first author listed alphabetically.

Nolasco, M. (2012) *Masculinity, Openness to Diversity, and Institutional Integration: Retention Rates on College Men: Literature Review*. Poster presented at the 25th meeting of the Great Lakes Regional Counseling Psychology Conference, Purdue University, West Lafayette, Indiana. .

Nolasco, M., & Oh, J. (2010) *The Effects of Ethnicity on Perceived Mental Health*. Poster presented at the 90th meeting of the Western Psychological Association, Cancun, Mexico.

Nolasco, M., Coleman, Sulamunn, & Grant, S. (2010). *Multiracialism and Its Links to Hostility*. Poster presented at the 90th meeting of the Western Psychological Association, Cancun, Mexico.

WORK EXPERIENCE

Behavioral Health Clinician*August 2018-Present*

Canal Alliance, San Rafael, CA

Gained clinical experience in Spanish conducting outpatient intakes, individual counseling, psychosocial assessment, crisis intervention, face-to-face community outreach, needs assessments, and gained experience in use of Salesforce system.

Purdue Academic Success Center Graduate Assistant*January 2016-April 2017*

Purdue University, West Lafayette, IN

Consulting with students seeking academic help (time management, study skills, test-taking strategies, etc.).

Purdue Counseling and Guidance Center Administrative Staff*May 2014-August 2014*

Purdue University, West Lafayette, IN

Data entry, client record keeping, responsible for initial appointment scheduling.

ITaP Educational Technologist*April 2012-May 2014*

Purdue University, West Lafayette, IN

Recruit, educate, and assist instructors in the use of Course Signals and educational software.

Psychological Code of Ethics Translator*October 2012*

Freelance

Translated the Guatemalan and Cuban Psychological Associations' Codes of Ethics from Spanish into English.

EDST Web Master*August 2011-April 2012*

Purdue University, West Lafayette, IN

Coordinated and posted content to Purdue's Department of Educational Studies website.

CPSY Web Master*January 2011-April 2012*

Purdue University, West Lafayette, IN

Coordinated and posted content to Purdue's Counseling Psychology Program website.

Teaching Assistant*August 2010-December 2010*

Purdue University, West Lafayette, IN

Prepared lessons and disseminated information pertaining to professional development and academic planning.

RESEARCH EXPERIENCE**Research Team***August 2010-Present**Cross-Cultural Research Team, Advisor: Ayşe Çiftçi, Ph.D.*

Educational Studies Department, Purdue University, West Lafayette, IN

In this research team we brainstorm, discuss obstacles in research, conceptualize present and future studies of team members, and discuss current trends in multicultural research and psychology.

Research Assistant*August 2014-December 2014*

Nurturing Multiplicative Reasoning in Students with Learning Disabilities in a Computerized Conceptual-Modeling Environment (NMRSD), Principal Investigator: Yan Ping Xin, Ph.D.

NSF-Funded Project, Educational Studies Department, Purdue University, West Lafayette, IN

In this project we aim to create an intelligent, computerized tutoring system that models students' evolving mathematical conceptions, promotes their reasoning, and studies how this system impacts students' mathematics outcomes. Responsibilities include website development, database management, and running participants at elementary schools.

Research Assistant

October 2011-May 2012

Masculinity, Openness to Diversity, and Institutional Integration: Retention Rates in College Men

Educational Studies Department, Purdue University, West Lafayette, IN

In this project we aimed to better understand the effects of masculinity and openness to diversity on institutional integration in college men

Research Assistant

October 2010-May 2012

Purdue Promise

Educational Studies Department, Purdue, Indiana, IN

In this project we aimed to better understand the effects of openness to diversity on institutional integration in students in a scholarship program.

Principal Investigator

October 2009-May 2010

Effects of Ethnicity on Perceived Mental Health

Psychology Department, CSUN, Northridge, CA

In this project we aimed to better understand the effects of ethnicity on perceived mental health in relation to the ethnic identity of the rater.

Research Assistant

February 2008-May 2008

(1) Models of Heritage Learning Project, (2) Latino/a Adolescent Language Use and Cultural Identity Project, Psychology Department, CSUN, Northridge, CA

- (1) In this project we worked to understand how background and contextual variable contribute to adults' language learning success and how these relationships may vary for different types of language learners.
- (2) In this project we aimed to better understand the patterns of language use and language proficiency among youth from immigrant backgrounds.

Practicum Intern

February 2008 to May 2008

Independent Living Center, Psychology Department, CSUN, Northridge, CA

In this project we administered the Minnesota Multiphasic Personality Inventory (MMPI) from patients with mental health or behavioral problems. Data collected was used to better understand the effects that head injuries have on the reaction, cognition, and personality.

PROFESSIONAL AFFILIATIONS

Member, American Psychological Association of Graduate Students	<i>2010-Present</i>
Student Affiliate, American Psychological Association, Division 17	<i>2010-Present</i>
Student Affiliate, American Psychological Association, Division 15	<i>2012-Present</i>
Student Affiliate, American Psychological Association, Division 20	<i>2012-Present</i>
Student Affiliate, American Psychological Association, Division 32	<i>2012-Present</i>
Student Affiliate, American Psychological Association, Division 35	<i>2012-Present</i>
Student Affiliate, American Psychological Association, Division 36	<i>2012-Present</i>
Student Affiliate, American Psychological Association, Division 44	<i>2012-Present</i>
Student Affiliate, American Psychological Association, Division 45	<i>2012-Present</i>
Student Affiliate, American Psychological Association, Division 48	<i>2012-Present</i>
Student Affiliate, American Psychological Association, Division 51	<i>2012-Present</i>
Student Affiliate, American Psychological Association, Division 52	<i>2012-Present</i>

Student Affiliate, American Psychological Association, Division 1

2015-Present

SERVICE & ENGAGEMENT

APA Division 52, Purdue University Student Representative	<i>2012-2014</i>
Purdue University Counseling Psychology Website Committee	<i>2011-2014</i>
Purdue University Counseling Psychology Recruitment Taskforce	<i>2012-2014</i>
Purdue University Counseling and Development Student Group President	<i>2012-2013</i>
Purdue Counseling Psychology Interview Day Interviewer	<i>2012-2015</i>
Purdue University Counseling Psychology Multicultural Committee President	<i>2011-2012</i>
Purdue University Counseling and Development Student Group Vice-President	<i>2011-2012</i>
Great Lakes Regional Conference of Counseling Psychology 2012 Planning Committee: Website	<i>2011-2012</i>
Purdue University Counseling and Development Student Group Treasurer	<i>2010-2011</i>
Multicultural Psychology Association	<i>2007-2008, 2010</i>
Graduate Students for Psychology Intervention	<i>2007-2008</i>

HONORS & AWARDS

Ross Fellowship Recipient, College of Education, Purdue University	<i>2010-2015</i>
EDST 2011-2012 Graduate Student Travel Award Recipient, College of Education, Purdue University	<i>2012</i>
CSUN Psychology Department Quantitative Award	<i>2010</i>
National Institute of Mental Health, Career Opportunities in Research Scholar (NIMH-COR)	<i>2009-2010</i>
Psi Chi Honor's Society	<i>2007-2008</i>

LANGUAGES

Fluent in Spanish (oral and written)
 Fluent in Italian (oral and written)

SKILLS

Knowledgeable in Salesforce
 Knowledgeable in Clinician's Gateway
 Knowledgeable in CPRS
 Knowledgeable in Vista™
 Knowledgeable in AVATAR
 Knowledgeable in ORS 10
 Knowledgeable in Therapist Helper software
 Trained in Ethnographic Family Interview interviewing method
 Knowledgeable in SPSS 24.0
 Knowledgeable in SAS 9.4
 Proficient in Windows operating systems (Excel, Word, PowerPoint, Outlook)
 Proficient in developing annotated bibliographies and literature reviews
 Proficient in audio and video editing