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Jeremy D. Franklin¹, William A. Smith¹, and Man Hung¹

Abstract

Previous literature demonstrates that as a result of racial microaggressions and hostile campus racial climates, Latina/o students often state they experience psychological, physiological, and behavioral stress responses during and after racialized incidents on campuses. The purpose of this study is to quantitatively test the racial battle fatigue framework for Latina/o students using structural equation modeling. Findings suggest that psychological stress responses for Latinas/os are most impacted by racial microaggressions in the racial battle fatigue framework.

Keywords

higher education, racial battle fatigue, Latina/o, quantitative, stress, sociology

Introduction

Access to higher education and education in general for Latinas/os in the United States has been a struggle as it has been for fellow racial/ethnic populations (Valencia, 2008). Barriers to higher education impede access, persistence, and graduation for Latinas/os due to many factors including, but not limited to, structural racism and discrimination (Bonilla-Silva, 2004, 2010; Feagin & Cobas, 2013; Flores & Chapa, 2009; McCabe, 2009). Although Latinas/os, as a multi-ethnic group, are one of the fastest growing ethnic groups, their admittance, graduation, and satisfaction with their collegiate experience has not garnered the attention commensurate with their growth rate (M. H. Lopez & Fry, 2013). Numerous studies demonstrate that Latina/o students continue to experience hostile campus racial climates, racial microaggressions, and added racial stressors unlike their White peers (Harper & Hurtado, 2007; Hurtado & Carter, 1997;

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Locks, Hurtado, Bowman, & Oseguera, 2008; Solórzano, Ceja, & Yosso, 2000). Some scholarship has demonstrated that as a result of hostile campus racial climates and racial microaggressions, students of color and more specifically Latina/o students question their academic self-concept, retention to an institution, graduation prospects, and sense of belonging (Hurtado & Carter, 1997; Solórzano, 1998; Yosso, Smith, Ceja, & Solórzano, 2009). Another body of literature, largely outside of education, demonstrated that continual instances of racialized stress and racial microaggressions have a negative impact on the health of Latinas/os and students of color (Hwang & Goto, 2008; Ryan, Gee, & Laflamme, 2006; Yosso et al., 2009). Smith (2004, 2009a, 2009b) provided a framework to help understand the health consequences of continued racialized stress (both subtle and overt) based off literature in the fields of social foundations, education, sociology, and health psychology. Racial battle fatigue (RBF) scholarship has been used to describe the experiences of students of color in post-secondary settings, but the majority of the literature has been qualitative.

The RBF framework investigates how racial microaggressions impact the psychological, physiological, and behavioral stress responses of people of color (see Figure 1 for a visual representation). The purpose of this study is to quantitatively test the RBF framework for Latina/o students using structural equation modeling (SEM) and understand to what degree racial microaggressions impact the psychological, physiological, and behavioral stress responses of Latina/o students. Research on higher education and health outcomes has primarily focused on only a single stress response such as psychological outcomes. Individuals have a multitude of stress responses that may impact their academics and/or health and the RBF framework may help account for the numerous interrelated stress responses. Furthermore, prior research on racial microaggressions and RBF and the resulting academic and health outcomes have primarily been qualitative (Smith, 2004, 2009a, 2009b; Smith, Allen, & Danley, 2007; Smith, Yosso, & Solórzano, 2007; Solórzano, Allen, & Carroll, 2002; Sue, Bucerri, Lin, Nadal, & Torino, 2007). These critical and crucial studies have provided an important theoretical basis for the RBF framework. This study seeks to further test the RBF framework and see if there is a quantitative relationship between racial microaggressions and various related stress responses among Latina/o undergraduates. We believe this is important because it has been suggested that students who are more emotionally and socially healthy are more likely to succeed in college (Leafgran, 1989) and research demonstrates an association between racialized stress and persistence (Johnson, Wasserman, Yildirim, & Yonai, 2014; Wei, Ku, & Liao, 2011).

In the fields of K-12 education and higher education, there is only a limited amount of literature on RBF, racial microaggressions, and racialized stress (Smith, 2004, 2009a, 2009b; Solórzano et al., 2002; Solórzano et al., 2000; Truong & Museus, 2012) compared with the expansive literature in health and social psychology that have extensively studied the connection between discrimination and health (e.g., Harrell, 2000; Soto, Dawson-Andoh, & BeLue, 2011). Harper and Hurtado (2007) argued that higher education scholarship has only minimally provided a linkage between hostile campus racial climates and health outcomes. A greater proportion of higher education

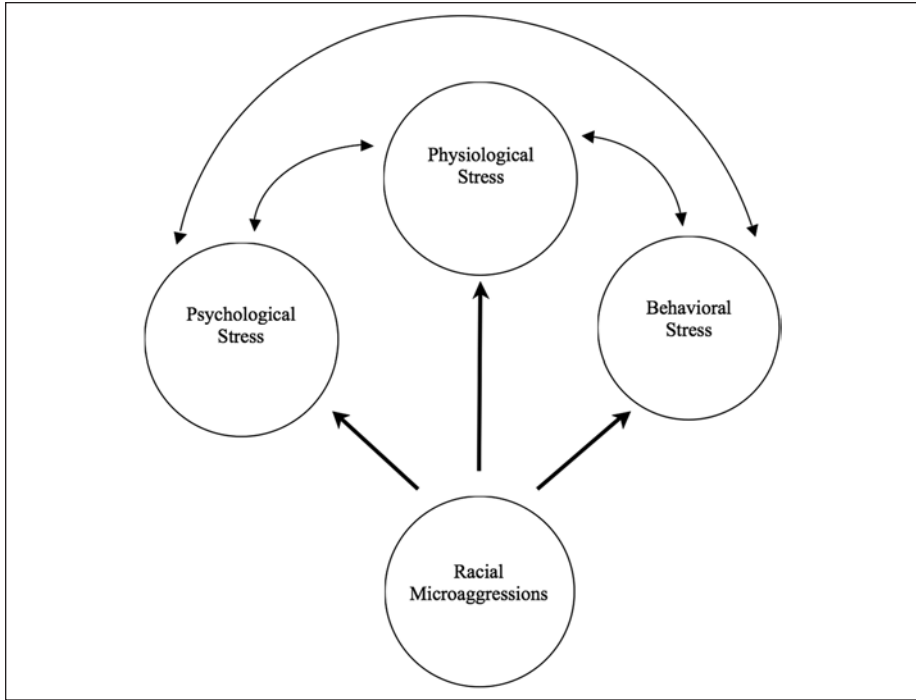


Figure 1. Conceptual racial battle fatigue model.

literature connects unwelcoming campus racial climates to negative educational outcomes for Latinas/os and students of color (Solórzano et al., 2002).

Research has demonstrated that stress can specifically impact persistence attitudes for students (Johnson et al., 2014; Wei et al., 2011) and another body of literature has demonstrated that perceived discrimination on campus negatively impacts sense of belonging of students of color which can impact retention (Hurtado & Carter, 1997; Johnson et al., 2007). Johnson and colleagues (2014) found that encounters with racism on campus increased students' academic-related stress and their decisions to persist at their higher education institution. These findings were consistent with those of Wei et al. (2011) that the campus environment significantly mediated the relationship between stress of students of color and persistence attitudes. In addition, Neville, Heppner, Ji, and Thye (2004) found that racialized stress negatively impacted academic performance for students of color. The RBF framework accounts for many higher education–related concepts like retention along with structural racism and stress responses as seen in health, sociology, and social psychology literatures (Smith, 2009a). Unfortunately, there is little research on racialized stress of Latina/os compared with African Americans and other racial/ethnic groups (Hwang & Goto, 2008; Ryan et al., 2006). It is important to study the relationship between racialized stress

and health for Latina/o college students in addition to other historically marginalized students. Latinas/os are a critical member of the overall campus environment, culture, and a significant number of minoritized students who are attending and graduating from post-secondary institutions (M. H. Lopez & Fry, 2013). More Latina/o high school graduates are enrolling in college, and previous research indicates Latinas/os experience racial microaggressions and discrimination that can result in poor academic achievement and health outcomes (Johnson et al., 2014; Neville et al., 2004; Soto et al., 2011).

Literature Review

Racial Battle Fatigue

Racial Battle Fatigue is a conceptual framework that builds upon the scholarship of social foundations, sociology, social psychology, and racial stress in health. Particularly important to understanding RBF is the work of Chester Pierce (1970, 1974, 1975a, 1975b, 1988, 1995). Pierce's (1970, 1988, 1995) work on racial microaggressions gave subsequent researchers (see Carroll, 1998; R. Clark, Anderson, Clark, & Williams, 1999; Feagin & McKinney, 2003; Feagin & Sikes, 1994; Sue, 2010; Sue, Capodilupo, & Holder, 2008) a better understanding on the critical psychosocial and health-related areas that needed further investigation.

Our current understanding was expanded when Smith (2004) developed the RBF framework that placed racial microaggressions within a historical, sociological, and psychological context, explaining the long- and short-term effects of resisting and fighting against racialized stressors. The RBF framework examines the psychological (e.g., frustration, anger, resentment), physiological (e.g., headaches, a pounding heart, high blood pressure), and behavioral (e.g., stereotype threat, impatience, poor school performance) responses from racism-related stressors that are often associated with being a person of color (Smith, 2004, 2009a, 2009b; Smith, Allen, & Danley, 2007; Smith, Yosso, & Solórzano, 2007). Fundamental to the RBF framework is the cumulative, negative effect of racial microaggressions or the "everyday verbal, nonverbal, and environmental slights, snubs, or insults, whether intentional or unintentional, that communicate hostile, derogatory, or negative messages to target persons based solely upon their marginalized group membership" (Sue, 2010, p. 3). Due to constant preparation, coping, and defending against racial microaggressions, people of color are often physically and emotionally drained (Smith, 2009a). Connecting health psychology and sociology literatures, RBF asserts that racism is a psychosocial stressor that compromises health outcomes, which impact the educational, social, professional, and interpersonal well-being of people of color.

While RBF is a framework to understand overall health outcomes, racial microaggressions are the individual discriminatory and racist interactions people of color experience daily. The physiological and psychological well-being of people of color has been demonstrated to be negatively impacted by racial microaggressions (R. Clark et al., 1999). While early research on racial microaggressions focused on African

Americans (Pierce, 1995; Pierce, Carew, Pierce-Gonzalez, & Wills, 1978; Solórzano et al., 2000), a growing number of studies have investigated racial microaggressions for Latina/os, Asian Americans, and American Indians (Alvarez, Juang, & Liang, 2006; D. A. Clark, Spanierman, Reed, Soble, & Cabana, 2011; Liang, Alvarez, Juang, & Liang, 2007; Utsey, Chae, Brown, & Kelly, 2002; Yosso et al., 2009). Soto et al. (2011) described how the RBF framework connected discriminatory and racist experiences with health outcomes. The stress associated with being a student and attaining a higher education degree is compounded by additional racialized stress for students of color. Racial microaggressions and resulting RBF reflect the harmful reality that students of color experience on today's college campuses.

Racial Microaggressions

The racial undertones of a campus environment are often referred to as the campus racial climate (Hurtado, 1992). Higher education research has helped to inform us on how the general campus climate differs greatly depending on a person's racial/ethnic makeup as well as other identities (Ancis, Sedlacek, & Mohr, 2000; Hurtado, 1992; Hurtado & Carter, 1997; Pfeifer & Schneider, 1974). A positive or negative campus racial climate can impact the retention, graduation, and the overall feelings of satisfaction for a student (Harper & Hurtado, 2007). Today, students are reporting that negative campus racial climates and experiences with discrimination are much more subtle than reported by previous generations (Solórzano, 1998; Yosso et al., 2009); yet research has demonstrated that subtle racism is still damaging to student's overall quality of life and academic productivity (Araújo & Borrell, 2006; Sawyer, Major, Casad, Townsend, & Mendes, 2012; Smith, 2009a, 2009b; Torres, Driscoll, & Voell, 2012).

Pierce et al. (1978) originally defined racial microaggressions as "subtle, stunning, often automatic, and non-verbal exchanges which are 'put downs' of blacks by offenders" (p. 66). Since Pierce's seminal research, many scholars have expanded and adapted the original definition of racial microaggressions (cf. Solórzano et al., 2002; Sue, 2010). Solórzano et al. (2002) expanded this definition to explain how microaggressions are multi-faceted in that they attack "one's race, gender, class, sexuality, language, immigration status, phenotype, accent or surname" (p. 17). In a study of Latina/o students, Yosso et al. (2009) adapted Pierce's work to show how different forms of racial microaggressions were found in the experiences of Latina/o students. This study discovered three types of racial microaggressive experiences: racial jokes, interpersonal, and institutional. Despite facing endless microaggressions, students developed navigation skills to build community with fellow Latina/o students. Solórzano (1998) studied how racial and gender microaggressions impacted the career paths of Chicana/o scholars. Several types of microaggressions were discovered: (a) non-verbal forms, (b) false assumptions based on stereotypes, (c) overt racial remarks, and (d) low teacher expectations. Sue et al. (2007) extended and classified racial microaggressions into three groups: microassaults, microinsults, and microinvalidations. These classifications suggest that racial microaggressions are multi-faceted and

take on many forms. Many of the implications of racial microaggressions and race-based stress are psychological stress responses.

Racial Microaggressions Impact on Psychological Stress Responses

Previous research investigating psychological distress in college settings for Latina/o students witnessed that students felt alienated and isolated, and experienced greater racialized stress than their White peers (Hurtado & Carter, 1997; J. D. Lopez, 2005; Otero, Rivas, & Rivera, 2007; Solórzano et al., 2000; Villalpando, 2003; Yosso et al., 2009). Stress often comes in multiple forms, but students of color report greater racialized stress that can impact their academic adjustment and sense of belonging (Hurtado & Carter, 1997; Jones, Castellanos, & Cole, 2002). Some studies have demonstrated that Latinas/os experience a debilitating amount of anxiety in college (Otero et al., 2007; Saldaña, 1995; Solórzano et al., 2000; Yosso et al., 2009). In one study, Saldaña (1995) established that Latina/o students reported greater psychological stress associated with their marginalized status as an ethnic minority. Research has also validated that the psychological stress that Latina/os experience in higher education settings are a result of racial microaggressions and this added stress subsequently impacts their health. The racialized psychological stress that Latina/os and other students of color confront is a deleterious and compounded aspect of the college experience that European American students do not face.

There has been growing interest in perceived discrimination and poor health outcomes for people of color (Feagin, 1991; Klonoff, Landrine, & Ullman, 1999; Sellers & Shelton, 2003; Williams, 1996; Williams & Williams-Morris, 2000; Williams, Yu, Jackson, & Anderson, 1997). Among non-student populations, Moradi and Risco (2006) found that perceived discrimination is linked to increased psychological distress for Latinas/os, and other research has linked discrimination to depressive symptoms for Latinos (Greene, Way, & Pahl, 2006). While a large number of studies on the linkages between discrimination and health have occurred within community samples, Landrine, Klonoff, Corral, Fernandez, and Roesch (2006) established that discrimination is similar in higher education settings and the larger community.

Racial Microaggressions Impact on Physiological Stress Responses

Physiological stress responses are a component of RBF that accounts for how the body reacts to racial microaggressions and discrimination. In 1996, Krieger and Sidney found that racism and discrimination is positively associated with high blood pressure for historically underrepresented racial/ethnic groups. Other research has revealed that racial microaggressions can increase nocturnal blood pressure for people of color (Brondolo, Gallo, & Myers, 2009). The majority of early research investigated the association of discrimination and blood pressure on African Americans. Since the earliest studies, growing race-specific and multi-racial/ethnic studies have been published. In an important multi-racial/ethnic study, Ryan et al. (2006) examined a sample of African Americans, Black immigrants, and Latino immigrants. These researchers

investigated self-reported discrimination, physical health, and blood pressure and found that participants who reported higher levels of discrimination had higher blood pressure than those who reported low to no discrimination. Among the group of participants, Latino immigrants had the lowest blood pressure, but there was still an association between discrimination and higher levels of blood pressure. In addition, in a study of 40 African American college students, perceived racism in the academic setting predicted an increased level of blood pressure (Hill, Kobayashi, & Hughes, 2007). While there is little research on the physiological responses to racism for Latina/os, some of the research for historically underrepresented students of color proved that a relationship exists that takes a toll on the body in the form of high blood pressure (Blascovich, Spencer, Quinn, & Steele, 2001; Hill et al., 2007). Blascovich et al. (2001) found that Black students who experienced stereotype threat also had higher blood pressure. In conjunction with racism and the subsequent psychological stress responses, a very negative impact on the physical and psychological state of a person can occur.

Racial Microaggressions' Impact on Behavioral Stress Responses

Discrimination and racism do not only invoke psychological and physiological responses consistent with the RBF framework, but it also contributes to certain behavioral stress responses. Reynolds, Sneva, and Beehler (2010) showed how race-based stress impacted the academic motivation of Latina/o and African American students who were members of student organizations like MEChA and the Black Student Union. Thus, stress as a result of racism was negatively correlated with extrinsic motivation and positively correlated with amotivation. Other research found that student organizations often provide support and build community to fight racism and discrimination (Villalpando, 2003; Yosso et al., 2009). Solberg and Villarreal (1997) explained how familial support and social integration are important for Latina/o students.

Prior research has also established how Latina/o students report feeling less comfortable than White peers on college campuses (Gloria & Pope-Davis, 1997; Hurtado & Carter, 1997). Perhaps one of the most widely cited educational behavioral responses is stereotype threat (Steele & Aronson, 1995). Steele and Aronson (1995) conducted a study to explain how implicit stereotypes about the intellectual inferiority of highly invested African American students can produce stereotype threat, and therefore undermine their performance in a testing situation. Stereotype threat is experienced by people of color during “. . . situations in which other people view them stereotypically in ways likely to increase performance pressures” (Steele, 1997, p. 5). Other scholars have found similar results to Steele's when investigating the influence of stereotype threat on academic performance of Latinas/os (Gonzales, Blanton, & Williams, 2002; Schmader & Johns, 2003). Some scholars have begun to extend the link of stereotype threat beyond academics to health outcomes. In a study by Aronson (2004), he reported that repeated exposure to stereotype threat leads to “disidentification” with a domain of study with which the student was previously identified. Steele (1992) describes disidentification as the “process that occurs when people stop caring about their

performance in an area, or domain that formerly mattered a great deal” (p. 12). Disidentification can lead to unhealthy psychological, physiological, and behavioral responses. The behavior of a person can change as a result of hostile conditions and previous research demonstrates that racism can impact the behavioral stress responses of Latina/os and people of color.

Method

Data

Data were collected from Winter 2011 through Winter 2012. The data set used for this study was part of a larger study titled the Racial Battle Fatigue Scale (RBFS). Data were collected about how often participants experienced racial microaggressions and how the racial microaggressions contributed to psychological, physiological, and behavioral stress responses.

The authors initially used their own personal networks to elicit participation and help distribute the paper questionnaires to their colleagues’ undergraduate and graduate students. Colleagues included professors, university administrators, and graduate students from universities across the United States and national organizations. Colleagues administered a paper questionnaire, but some requested an online questionnaire. Therefore, the researchers created and employed an online questionnaire to increase the sample size. The majority of survey administrators were professors at research institutions. In an effort to further increase sample size, the authors published the online questionnaire link to Listservs, blogs, Twitter, Facebook, and other social networking websites.

Exclusionary criteria included participants below 18 years of age and those who had less than a semester or quarter of undergraduate experience. Questions were asked about racial microaggressions; psychological, physiological, and behavioral stress responses; as well as demographic questions. The psychological, physiological, and behavioral questions asked about personal reactions to racialized incidents as an undergraduate. The initial RBF item bank contained 78 items for measuring stress responses and racial microaggressions—17 psychological items, 23 behavioral items, 21 physiological items, and 17 racial microaggressions items. After data collection was completed, the authors reviewed bivariate correlations of all of the 78 items from the four domains. As a result of poor correlations, variables were narrowed down to 15 psychological items, 14 behavioral items, 10 physiological items, and 13 racial microaggressions items for a total of 52 that were examined using factor analysis. Questions pertaining to racial microaggressions asked participants about how they were treated due to their racial/ethnic background. Examples were as follows: Because of your racial/ethnic background . . . (a) you are treated with less respect than other people, (b) you receive poorer service than other people, (c) people act as if they think you are not smart, (d) people act as if they are afraid of you, (e) people act as if they think you are dishonest, and (f) you have experiences you think are racially discriminatory in nature. Participants would then rate their responses on a 5-point scale from never (1) to very often (5) of how often they felt they received such treatment.

In addition, participants were also asked about the frequency of psychological, physiological, and behavioral stress responses after experiencing racial microaggressions on campus. Examples of psychological stress responses were as follows: feeling apathetic, feeling of helplessness, being on guard, and being more irritable. Some physiological stress responses included increased headaches, indigestion, chest pains, hives, and feeling fatigued. Finally, possible behavioral stress response were feeling of isolation, performing poorly at work or in school, and lacking an appetite. Each stress response item consisted of five response options: (1) never, (2) almost never, (3) sometimes, (4) fairly often, (5) very often.

The overall sample included 1,261 current undergraduates and former undergraduates from across the United States. To analyze RBF for Latinos, we eliminated questionnaires from individuals who did not identify as Latina/o. In addition, any participants who had more than 20% missing data were eliminated. This resulted in a final sample of 210 completed questionnaires from former and current undergraduate Latino male and female students.

Analysis

A principal components analysis (Tabachnick & Fidell, 2001) was conducted on the 52 remaining items from the bivariate correlation analysis. The Kaiser-Meyer-Olkin (KMO) index was used to investigate sampling adequacy, which measures item partial correlations. A KMO value, of at least 0.50, signals that it is appropriate to continue with a factor analysis. The number of factors retained was guided by the theoretical concept of RBF while assuring that eigenvalues were greater than one. In addition, visual examination of the scree plot was utilized to determine that the appropriate number of factors was selected. Item loadings less than 0.50 on any factor or items that fail to load uniquely (i.e., cross-loadings > 0.20) on a factor would be eliminated.

To analyze the RBF framework for Latina/o students, we employed SEM. We tested the full structural equation model of the RBF framework with the final observed items that comprised racial microaggressions and psychological, physiological, and behavioral stress responses. As we wanted to clearly understand the causal relationships within the system of variables, we utilized a SEM approach to analyze the full model of RBF (Pearl, 2000; Simon, 1953; Wright, 1921). A full SEM model combines both path analysis (the structural model) and confirmatory factor analysis (CFA; the measurement model). SEM takes into account measurement error, correlated error, correlated independent variables, non-linearity, and interaction. SEM can simultaneously examine the indirect and direct relationships among different variables, which is helpful for this study. The SEM model allows for racial microaggressions to predict psychological, physiological, and behavioral stress responses (see Figure 1; Smith, 2009a, 2009b). We reported standard fit indices to evaluate the fit of the model to the data. Fit indices measure how well the proposed model fits the data (McDonald & Ho, 2002). We utilized three fit indices to evaluate our model: root mean square error of approximation (RMSEA), Comparative Fit Index (CFI), and standardized root mean square residual (SRMR). Some scholars recommend that the SRMR should be

supplemented with the RMSEA and/or CFI because of some limitations (Hu & Bentler, 1995). RMSEA values that are close to 0.06 indicate a good fit (Hu & Bentler, 1999) while some suggest that a 0.07 indicates adequate fit (Steiger, 2007). For the CFI, a value of 0.95 is the suggested value for SEM models (Hu & Bentler, 1999). Finally, a SRMR value less than 0.08 is considered acceptable (Hu & Bentler, 1999).

Results

Demographics

The majority of respondents were current undergraduates (83.8%, $n = 176$). The remaining participants were either graduate students (10.5%, $n = 22$) or were no longer in school, but had some undergraduate experience (5.7%, $n = 12$). About 37% ($n = 78$) of the participants were freshman and 16% ($n = 35$) were sophomores. Two thirds of the participants were female (62.4.1%, $n = 131$). Of the 210 respondents, 98% ($n = 205$) identified as heterosexual. Almost 87% ($n = 178$) of the participants attended a public 4-year institution and 8% ($n = 16$) attended a private 4-year, non-profit institution. About 11% ($n = 24$) of the participants attended a minority serving institution. More than half (51.4%) of the respondents identified as Roman Catholic and more than 75% of the sample had a parent's combined taxable household income of less than \$59,999. The majority of respondents (34.3%, $n = 72$) responded that their politics are moderate and the overall sample leaned progressive. Twenty-two percent of the sample worked more than 20 hours a week. More than 60% ($n = 130$) of the sample intended to complete a graduate or professional degree. While 81.4% rated their general health as "excellent" ($n = 69$) or "good" ($n = 101$), over 50% stated their stress due to racism and discrimination was above what they thought was average.

Item Level Analysis

The range of responses for all items was 1 to 5. Maximum and minimum means scores were 3.27 and 2.03 respectively. Three of the 21 items were negatively skewed with a standard error of 0.168. Kurtosis statistics ranged from -1.306 to -0.076 with a standard error of 0.334.

Sampling Adequacy

The KMO measure of sampling adequacy was between 0.817 and 0.927 for all the factor analyses. The Bartlett's test of sphericity was $p < .000$. Together, the KMO and Bartlett's test statistics indicated that factor analysis assumptions had been met and the data were suitable for factor analytic procedures.

Principal Components Analysis

We initially examined the scree plot to guide our decision on retaining factors (Catell, 1966). Between three and five factors seemed possible after investigating the

Table 1. Standardized Factor Loading From SEM Model.

| Factor and observed variables | Factor loadings |
|-------------------------------|-----------------|
| Racial microaggressions | |
| Respect | 0.904 |
| Poor service | 0.878 |
| Not smart | 0.870 |
| Afraid | 0.678 |
| Dishonest | 0.777 |
| Racially discriminatory | 0.812 |
| Psychological | |
| Frustrated | 0.817 |
| More aware of racism | 0.806 |
| Irritable | 0.882 |
| Mood change | 0.897 |
| Shock | 0.780 |
| Disappointment | 0.831 |
| Agitated | 0.916 |
| Physiological | |
| Muscle ache | 0.856 |
| Back pain | 0.918 |
| Sleep disturbances | 0.886 |
| Pain in joints | 0.700 |
| Behavioral | |
| Loss of appetite | 0.883 |
| Slept too much or too little | 0.685 |
| Procrastinate | 0.617 |
| Neglect responsibilities | 0.672 |

Note. SEM = structural equation modeling.

scree plot. From the 52 items that remained after the bivariate correlation, we conducted a principal components factor analysis that left 21 observed variables as seen in Table 1. All of the factor loadings were greater than 0.600 within a factor and less than 0.200 on other factors. Racial microaggressions was made up of six observed variables, psychological stress was made up of seven variables, physiological was made up of four variables as was the behavioral stress response factor. The four factors include observed variables that reflect the domains that makeup RBF.

SEM Model

After the principle components analysis was completed along with a CFA, we tested the full RBF model. The final model produced adequate to good fit with a RMSEA of 0.070, CFI of 0.945, and SRMR of 0.044 (see Table 2).

Results indicate that path coefficients were generally strong to adequate (see Table 3). When looking at how racial microaggressions impact the psychological stress

Table 2. Model Fit Results.

| Sample | Model fit | | | |
|--------|-----------|-------|------|-------|
| | N | RMSEA | CFI | SRMR |
| Model | 210 | 0.070 | 0.95 | 0.044 |

Note. RMSEA = root mean square error of approximation; CFI = Comparative Fit Index; SRMR = standardized root mean square residual.

Table 3. Standardized Path Coefficients Between Latent Variables.

| Latent variables | β |
|-------------------------|---------|
| Racial microaggressions | |
| Psychological | 0.632 |
| Physiological | 0.508 |
| Behavioral | 0.407 |
| Correlation of factors | |
| Behavioral | |
| Psychological | 0.381 |
| Physiological | 0.269 |
| Psychological | |
| Physiological | 0.344 |

responses, we see the most pronounced path coefficient being 0.632. The second largest path coefficient was the impact of racial microaggressions on physiological-related stress responses (0.508). Finally, racial microaggressions impacting behavioral stress responses resulted in a path coefficient of 0.407. All of the path coefficients of the RBF SEM model were statistically significant ($p < .000$).

Path coefficients among the latent constructs were moderate to strong. The path coefficient between psychological stress and physiological stress was 0.344. The path coefficient between behavioral stress and psychological was 0.381 and between behavioral and physiological stress responses was 0.269.

Discussion

The findings of this study demonstrate that there is a relationship between the previously theorized components of the RBF framework. Previous scholarship proposed a theoretical relationship among the RBF components grounded in prior research in health psychology, education, sociology, and psychology (Smith, 2004, 2009a, 2009b). This assessment of the RBF framework for Latinas/os college students provides a starting point for future research on RBF for Latina/os and other historically marginalized populations.

The majority of the prior research on students of color in college settings, related to their experiences with RBF, has been qualitative. This study quantitatively links racial microaggressions with RBF-related stress responses for Latina/o students. The results suggest that psychological stress responses for Latinas/os are most impacted by racial microaggressions in the RBF framework. The observed variables that contributed to the psychological latent factor included frustration, being more aware of racism, irritability, mood changes, shock, disappointment, and agitation. As a whole, these factors were significantly impacted by racial microaggressions. This finding supports prior research that found racialized stress negatively impacted the psychological stress responses of Latina/o students and students of color in general (Hurtado & Carter, 1997; Hwang & Goto, 2008; Solórzano, 1998). As a result of psychological stress, students can experience negative social and academic factors that can affect their retention and graduation (Hurtado & Carter, 1997). There are ripple effects for psychological stress that are not limited to just the observed variables that compose the psychological latent variable, but extend to health and other outcomes.

Furthermore, this study found that racial microaggressions contribute to physiological and behavioral stress responses for the Latina/o student sample in this study. Their path coefficients were very similar in size. Some of the physiological stress responses included muscle aches, back pains, and the inability to sleep. The behavioral stress responses included eating less, sleeping less, procrastination, and neglecting responsibilities. Many of these physiological and behavioral stress responses could seriously impact the overall well-being of students. Higher education literature demonstrates that in racialized situations in which students experience racism and discrimination, they report physiological and behavioral stress responses (Hill et al., 2007). Unlike previous studies that are qualitative, this study investigated racial microaggressions and stress responses from a quantitative approach. The findings of this study contributed to the previous qualitative findings that racism and discrimination can negatively impact Latina/o undergraduate students. Prior research demonstrated that Latina/o students often report that they isolate themselves sometimes to combat, survive, and cope with the constant racism and discrimination in the post-secondary settings (Villalpando, 2003). This research quantitatively demonstrates that racial microaggressions can contribute to behavioral stress responses. Steele and Aronson (1995) demonstrated specific behavioral stress responses to perceived racism in academic situations with their work on stereotype threat.

The findings of this study can be helpful when considering the impacts of hostile campus racial climates for Latina/o students that often stretch beyond just academic factors. The health psychology scholarship demonstrates that racially hostile conditions can negatively impact the psychological, physiological, and behavioral stress that can manifest into poor health outcomes. This study provides a linkage to higher education settings. This study also offers a starting point for future RBF research with historically marginalized populations that often report unwelcoming and unsafe learning, living, and working conditions.

Limitations

This study has limitations like all studies. The sample size for this study was small. Future studies should try to expand the sample size. In addition, future studies should see how RBF manifests itself in Hispanic Serving Institutions (HSIs). HSIs may help lessen racial microaggressions and RBF for Latina/o students. This study was limited in that the data came from a multi-ethnic data set that was not solely targeted at Latinas/os. Future quantitative RBF research should learn from this study and create more targeted questions for Latinas/os and other racial/ethnic populations. Scholars should also investigate gender differences in RBF. This study is only a snapshot of RBF and not a longitudinal investigation. A longitudinal study could track health outcomes over time as a result of RBF. Finally, this study may not be generalizable to other populations. As a result, scholars interested in RBF should include a more diverse sample in their analyses or investigate the RBF that impacts African American, Asian Americans, Indigenous, Pacific Islander Americans, and other minoritized populations.

Implications and Conclusion

This study has a number of implications that are particularly relevant to researchers, practitioners, and those who develop campus programming. For researchers, this study demonstrates that a relationship exists between racial microaggressions and stress responses for Latina/o students. This has implications for future racial microaggressions and campus racial climate research that typically only investigates academic factors and some psychological factors. Scholars should include physiological and behavioral stress responses of students when investigating racism and discrimination for Latina/o and historically underrepresented and marginalized students. In addition, scholars need to look beyond higher education literature when investigating racism and discrimination because the field of health psychology has an extensive research base that can be applicable to college students and can be drawn upon for future studies. Finally, quantitative and qualitative researchers examining RBF can draw on the findings of this study to refine their investigation and further critique our findings especially from different perspectives. Racism impacts all areas of life. Consequently, the field of study for RBF is wide open to build upon those critical areas of life and interpersonal and institutional relationships. Universities and colleges know very little about the additional important domains of the lives of students of color and RBF to be able to provide adaptive coping strategies for dealing with racial microaggressions.

For practitioners, the findings of this research are equally as beneficial as they are for researchers. Practitioners may use this research when evaluating and developing programming for student services. Oftentimes, university administrators only consider the stress of academics as a significant administrative concern while much of the stress associated with racism and discrimination is only addressed by racial/ethnic student groups and sometimes in more progressive and culturally sensitive counseling centers. Practitioners and campus programming administrators will find this research useful when considering how to address racism and discrimination on their campus and how

it impacts students, their health, and sense of belonging to the institution. Prior RBF research has given language around the experiences that people of color experience. Campus counseling centers across the country are adopting this language and the facilitation of coping strategies in its practices. Now more universities and colleges must make specific efforts to target the conditions and barriers that Latinas/os experiences across campuses and eliminate those racial obstacles.

RBF for students of color is a concept that has been studied in its current form for about a decade. Findings demonstrate that there is a relationship among the four RBF domains previously theorized and described by Smith (2004, 2009a, 2009b). Higher education research highlights that Latina/o students experience racism, discrimination, and racial microaggressions in a so-called “post-racial” higher education setting. Unfortunately, there is little to no evidence that racial and ethnic bias will cease to exist anytime soon. The RBF framework provides an alternative way to investigate the damaging effects of racism for Latina/o students and students of color. While academics are at the main interest for higher education institutions, the health consequences for attending these institutions for Latina/o students should also be as great of an interest. As scholars of critical issues join with culturally competent campus practitioners, we need to create welcoming environments for all students. Understanding the entire experiences of Latina/o students and students of color is important if we intend to unveil, expose, and challenge the structural and everyday racism in our higher education institutions.

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