THE RELATIONSHIP BETWEEN CAMPUS CLIMATE PERCEPTIONS, ANXIETY, AND ACADEMIC COMPETENCE FOR COLLEGE WOMEN

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Abstract

This study is guided by theory and research that point to the importance of campus climate as a critical factor in college student achievement and belonging. Minoritized groups, however, are often found to have negative experiences on college campuses due to their marginalized racial and gender positions. For college women specifically, there is research that points to college climates that engender feelings of alienation and distancing, especially at the intersection of being of color and a woman. This study examines the association between campus climate—belonging and campus racial climate—and self-perceived academic competence in a racially diverse sample of college women (N = 172). We also test the mediating role of anxiety to explain why campus might influence academic competence. Campus belonging significantly predicted academic competence, and anxiety was a partial mediator. These findings demonstrate the implications of hostile environments for college women, and they point to ways college student affairs professionals can intervene to lend support to college women's mental health and positive self-concepts.

Keywords: Campus climate, Academic competence, Diversity, Anxiety, College Women

For the last several years, women matriculating and graduating from colleges and universities have outnumbered men (National Student Clearinghouse, 2021). To meet the specific needs of college women, institutions have supports to ensure their academic success and emotional well-being, including women's centers, college counselors, and programming targeted to women (Kupo & Castellon, 2018; Lewis & Shah, 2021). However, as colleges and universities are embedded in and reflect societal challenges (George Mwangi et al., 2018), colleges can still struggle with creating hospitable and equitable spaces for women, especially women of color (Dortch & Patel, 2017; Jones & Sam, 2018; Vaccaro et al., 2019). As a result, college women can have a negative impression of the climate on campus (Ancis et al., 2011; Morris & Daniel, 2008), which can be detrimental to academic outcomes and psychological well-being.

Given this context, this study's goal is to test a model wherein campus climate predicts women's beliefs of their academic competence. Campus climate can have a significant impact on student academic outcomes (Johnson et al., 2014; Vaccaro, 2010), including self-concepts. We contribute to the research on the influence of campus climate on college women's academic and psychological outcomes by first operationalizing climate in two ways—first, as it relates to relationships and feelings of belonging and second, its relation to diversity. Additionally, with the inclusion of anxiety in this relationship, we emphasize the role of mental health in explaining the relationship between climate and competence. In our analysis, we theorize that college women who have a negative view of the campus climate are more likely to feel anxious while on campus, which has detrimental effect on their perceptions of their academic capabilities. The focus on self-concepts and mental well-being, as predicted by campus climate, provide areas where counselors, student affairs practitioners, and other leaders in higher education institutions can intervene. To provide a rationale for the study, we review the literature on campus climate for women, distinguishing between two types of climate (campus belonging and campus racial climate). We then examine the relationships among campus climate, academic competence, and mental health, namely anxiety. We end the review with our predictions for the study.

Campus Climate for Women

Campus climate refers to the shared feelings and attitudes towards college and university environments (Lascher & Offenstein, 2012), and those perceptions can be influenced by various facets of the campus environment. Campus climate reflects institutional policies and histories that shape the lives of its members (Hurtado et al., 2012; Rodriguez, 2019), which can promote inclusion and equity for students, faculty, and staff or can function to further marginalize underrepresented groups. Campus climate is also shaped by the quality of relationships among peers, faculty, and staff at the institution, the emotional support available to members of the campus community, as well as the ways the institution promotes and supports intellectual growth (Tableman & Herron, 2004; Parker & Trolian, 2020). Even the physical environment can influence the "feel" of college and university campuses: The maintenance of institutions' grounds and buildings can shape student experiences while on campus.

For college women, perceptions of campus climate can be representative of gendered experiences with sexism within and outside of the classroom. From faculty failing to establish an inclusive classroom environment (Lee & Mccabe, 2021; Pascarella et al., 1997) to colleges and universities often adequately addressing incidents of sexual harassment and assault (Kelly & Torres, 2006; Yung, 2015), college women have been shown to regard the campus as chilly or inhospitable (Vaccaro, 2010). This dynamic has been found across college majors (Morris & Daniel, 2008), but research on STEM environments has indicated an especially chilly environment: Women in STEM

have been shown to face gender discrimination, especially for demonstrating feminine traits, predicting decreased psychological health and academic performance (Perez-Felkner, 2018; Settles et al., 2016; Smith & Gayles, 2018). Black women in STEM fields, who are marginalized at the intersection of race and gender, have been found to perceive STEM classrooms more negatively than their non-black peers, which is harmful for their academic satisfaction and degree persistence (Leath & Chavous, 2018). In general, women of color stand to face distinct forms of bias due to their intersecting race and gender identities (Crenshaw, 1989). This "double bind" (Ong et al., 2011) can have significant impact on their holistic development (Dortch & Patel, 2017; Vaccaro et al., 2019), including being viewed as less competent (Walkington, 2017) and facing daily harassment in the form of sexual behaviors or microaggressions (Smith & Gayles, 2018; Young & Anderson, 2021), all of which can make life on campus and academic achievement difficult. These negative experiences can be especially detrimental to college women of color's perceptions of campus climate. This study builds on existing research examining the impact of campus climate on student outcomes by examining the racial diversity within the college women population.

Campus climate is multifaceted and encapsulates multiple aspects of the campus environment. In this study, we argue that how campus climate is defined and operationalized for study matters for a clearer understanding of its impact on student outcomes (Hart & Fellabaum, 2008). This study explicitly considers the influence of two conceptualizations of campus climate, *campus belonging*, and *campus racial climate*, in order to clearly understand the role of both on college women's anxiety and academic competence.

Campus belonging. In our manuscript, campus belonging refers to the relational aspect of the college environment (Guzzardo et al., 2021; Lee et al., 2002). This dimension of climate captures students' perception of the campus as sup-

portive of students' intellectual and emotional growth and as valuing students' existence and contribution to the campus community (Booker, 2016; Budge et al., 2019). Relationships with other stakeholders on campus (i.e., peers, faculty, and staff) are critical to feeling belongingness on campus. A campus climate that supports belonging to others can result in benefits for students' academic and psychological functioning (Mills, 2021; Vaccaro et al., 2019). In a positive climate, students feel validated by faculty and staff who encourage their academic and emotional development (Hurtado & Guillermo-Wann, 2013; Miller et al., 2019). They also feel a sense of connection to peers who share in the college experience (Harwood et al., 2013). These relational aspects of campus climate can create an environment where students can thrive and persist in college while being valued and treated with respect (Edman & Brazil, 2007). Conversely, a negative climate, where students do not feel as though they belong, describes an environment that is perceived as lacking or unable to meet the educational and relational needs of students.

Campus racial climate. Students can also be affected by the racial climate, which describes the ways that students perceive their campuses as being welcoming of racial difference (Ancis et al., 2000; Lundy-Wagner & Winkle-Wagner, 2013; Torregosa et al., 2016), the perceptions and attitudes about racial and ethnic diversity held by members of the campus community (Hurtado et al., 2008; Mills, 2021), as well as the experiences had by students, faculty, staff, and administrators of color on college campuses (Hurtado et al., 2012). Research across racial and ethnic groups demonstrate that students of color often report feeling unsafe in the classroom. Specifically, Latinx (Hurtado & Ponjuan, 2005), Asian (Nguyen et al., 2018), and Black (Voight et al., 2015) students reported more negative interactions with their teachers and peers and being singled out and negatively stereotyped within and outside of the classroom, thus experiencing a campus racial climate that is less positive than their white counter-

parts (e.g., Harper & Hurtado, 2007; Hurtado & Ruiz, 2012). These negative realities for students of color are also related to a decreased sense of belongingness to campus (Crisp et al., 2015) and more difficulty transitioning to higher education settings (Hurtado & Carter, 1997).

Campus Climate, Academic Competence, and Anxiety

In this study, we contribute to the literature by examining a model wherein campus climate is directly related to college women's academic competence and is mediated by anxiety. Academic competence refers to students' judgments of their abilities in the classroom and is one of the academic self-concepts that can shape the trajectory of students' learning (Loeb & Hurd, 2017). Theoretically, competence is an innate psychological need that promotes goal-oriented behavior and feelings of self-determination in students (Ryan & Deci, 2000a). Further, competence is related to intrinsic motivation, which has been shown to predict achievement behaviors (Deci & Ryan, 2008; Ryan & Deci, 2000b) and performance (Simões & Alacão, 2014). Research suggests that women in college perceive their own academic competence lower than men (Loeb & Hurd, 2017; Perez-Felkner, 2018), possibly as a result of exposure to longstanding gender stereotypes about academic capabilities and others' gender-based competence judgments (e.g., Herbert & Stipek, 2005). As such, the investigation of college women's academic competence in the context of a potentially alienating campus climate is warranted.

In one study using an adolescent sample, a poor campus climate was found to predict lower self-perceived academic competence scores (Li et al., 2010). Studies with college students have shown similar outcomes, where students from minoritized backgrounds tend to perceive their campuses as marginalizing, which also predicts low academic competence (Alva, 1991; Li et al., 2022Museus et al., 2018). Recent studies focusing on college women, however, show no relationship between academic competence and campus climate (Jensen & Deemer, 2019; Leath & Chavous, 2018). One reason for the lack of consistent findings is the operationalization of academic competence, where confidence (Cortina et al., 1998), efficacy (Jensen & Deemer, 2019), and subjective appraisals of educational experiences (Alva, 1991) have been alternative concepts. We add clarity to the literature by focusing on self-perceived academic competence as the focal academic self-concept.

Last, we examine the role of anxiety as a mechanism in explaining the relationship between campus climate and self-perceived academic competence. The existing literature supports its role as a mediator in our conceptual model: Research suggests that students who face an alienating campus climate show greater psychological adjustment problems, including anxiety (Koo, 2021; Mounts, 2004). The relationship between campus climate, namely feelings of safety, and psychological distress has been found with college women (Etopio et al., 2019). Improvements to the climate, namely in the form of relationships, can mitigate the relationship to anxiety (Woodford et al., 2015). Additionally, the investigation of the role anxiety plays in college women's self-beliefs is supported by research suggesting that college women experience higher levels of anxiety than their male counterparts (e.g., Etopio et al., 2019; Tran et al., 2018), triggered by factors both on- and off-campus. Further, while studies show the relationship between anxiety and achievement outcomes in the form of grades (e.g., Ansary & Luthar, 2009), fewer demonstrate its impact on students' academic self-concepts. Correlational studies reveal a negative relationship between anxiety and academic self-efficacy (Arnaiz Castro & Perez-Luzardo, 2016), a finding which has also been shown with self-esteem (Nordstrom et al., 2014). We add to the literature by examining self-perceived academic competence as the dependent variable in a sample of college-aged women.

Study Hypotheses

In this study, we extend the current literature on college women's perceptions of campus climate by examining its predictive relationship to student self-concepts and mental health. Currently, there does not exist an explicit model for how campus climate influences student self-concepts as mediated by anxiety for college women. Given the importance of campus climate on college students' academic functioning, the purpose of this study is to examine how both campus belonging and campus racial climate affect college women's perceptions of their competence. Specifically, we test two hypotheses. First, we hypothesize that negative perceptions of campus climate and heightened anxiety will be related to decreased self-perceived academic competence. Second, we predict that anxiety will mediate the relationship between perceptions of campus climate and academic competence, in that women with a negative view of their campus environments will show higher anxiety which in turn explains their dampened self-perceived academic competence.

Method

Participants and Procedure

This study was conducted on a small liberal arts college in the Midwestern region of the United States. The College has an undergraduate student body of approximately 2,000 students, 54% of whom identify as female. Students of color represent a quarter of the student body. Following institutional review board approval, convenience and snowball sampling was used to recruit full-time undergraduate students at the college via email, word of mouth, and from an introductory psychology course. Students enrolled in the introductory psychology course received course credit for their participation. Participants completed an online survey that consisted of four questionnaires that were related to perceptions of campus climate, academic competence, and anxiety. The survey also included demographic questions. The study took

participants approximately 25 minutes to complete. Any participants who did not identify as women (cisgender or transgender) were excluded from analysis.

The sample was made of 172 self-identified undergraduate women (M_{age} = 19.56). The sample was predominately White (n = 111, 64.5%). Students of color made up 30% of the sample, a slight overrepresentation in comparison to the campus student population. There were 25 Asian (14.5%) and 18 Black (10.5%) participants. Eight students identified as biracial or multiracial (5%), and one student was American Indian/Alaska Native (>1%). Lastly, nine students (5%) chose not to disclose their racial category.

Instruments

The scales described below were used to measure the constructs of interest. Each of these self-report measures have been used previously to examine how college students perceive themselves and their college environments, lending support for their construct validity. In this study, campus belonging was measured using the Affective Climate scale, and campus racial climate was measured with the Diversity Climate scale. Both measures are from the Diverse Learning Environments Survey (Hurtado & Guillermo-Wann, 2013). The remaining come from psychological research in educational and clinical areas. Below, we describe each instrument in more detail.

Academic competence. The Perceived Competence Scale (PCS) was used to assess students' perceptions of their academic competence (Williams, & Deci, 1996). The PCS consists of four items assessing the participant's abilities in terms of learning (e.g., "I feel confident in my ability to learn this material"), where they indicate the level of how true the statement is with 1 = not at all true and 7 = very true. This instrument showed high internal consistency (i.e., reliability) (α = .94).

Anxiety. The General Anxiety Disorder 7-Item Scale (GAD-7; Spitzer et al., 2006) was used to assess student anxiety. The GAD-7 con-

sists of 7 items that asked participants how many days they have felt a certain symptom (e.g., "Feeling nervous, anxious, or on edge"). Items were scored with 1 = not at all and 4 = nearly every day. Inter-item reliability for this measure was high (α = .91).

Affective climate. The Diverse Learning Environments – Core Survey (DLE) was used to measure student perceptions of the affective climate (Hurtado & Guillermo-Wann, 2013). The General Interpersonal Validation subscale consisted of 16 items that asked participants to state the extent to which they agreed or disagreed with each statement. Questions in this subscale focused on belongingness (e.g., "I see myself as part of the campus community") and relationships (e.g., "Faculty empower me to learn here"). Participants rated themselves on a 5-point Likert scale, from 1(strongly agree) to 5 (strongly disagree). For this instrument, lower scores indicated more positive perceptions of the campus climate. Internal consistency for this measure was adequate (α = .84).

Diversity climate. The Satisfaction with the Campus Climate for Diversity subscale of the Diverse Learning Environments – Core Survey (DLE) (Hurtado & Guillermo-Wann, 2013) consisted of 10 items used to measure students' satisfaction with the treatment of diverse perspectives on campus. Items focused on the presence of groups (e.g., "Racial and ethnic diversity of student body/staff") and intergroup relations (e.g., "atmosphere for differences"). Responses were ranked on a 5-point Likert-type scale, from 1 (very satisfied) to 5 (very dissatisfied). Here again, lower scores indicated higher rates of satisfaction with the diversity climate. Inter-item reliability for this measure was good (α = .80).

Covariates. Participants completed a brief demographic questionnaire where they indicated their race and age. For the purposes of this study, due to the relatively low numbers of students of color, we dichotomized race according to minoritized status. Analyses included one group of White students and one group of students of color. Par-

ticipants who did not disclose their racial group were not included in the racial group analyses.

Subjectivity Statement

All three authors of this manuscript are Black women. The first author is a Black American woman from the Midwestern region of the United States. The second author is a Black woman with Caribbean heritage from the Southern region of the U.S. The third author is a Black American woman from the Southwestern region of the U.S. Our identities as Black, female, living in the U.S. and who have attended and/or are currently employed by Predominately White Institutions shaped our approaches to and interpretation of the data we collected from the sample of college women. Specifically, we were sensitive to student experiences at the intersection of race and gender which informed our decision to examine perceptions of the climate around diversity as well as racial differences in self-perceived competence. Additionally, authors 1 and 2 were members of the campus community in question (as a student and faculty member, respectively), and author 3 was a college mental health practitioner, who supported Black college students. Our combined positionalities allowed us to acknowledge the heterogeneity of college women's experiences.

Results

Predicting Academic Competence

A correlation table demonstrating the relationships between academic competence and the predictive variables of interest are displayed on Table 1. There was a significant negative correlation between affective climate and academic competence ($r = -.28$, $p < .01$).

A hierarchical regression analysis was run to examine demographic variables, perceptions of campus climate (both the affective and diversity climates), and anxiety as predictors of academic competence (Hypothesis 1). Results indicate a significant model of academic competence (Table

2), meaning that college women's academic competence is influenced by the variables of interest. First, race was found to be a significant predictor of academic competence, in that white students felt more competent than their peers of color (b = -.60, p < .01). In step two, when the climate variables and anxiety were included, both affective climate (b = -.67, p < .01) and anxiety (b = -.27, p < .05) were associated with academic competence. College women who perceived the campus as poorly supporting relationships and connection (i.e., affective climate) and who experience heightened levels of anxiety are likely to perceive themselves as low on academic competence.

Anxiety as a Mediating Factor

Last, we ran mediation analyses to determine if the relationship between campus climate and academic competence is mediated or explained by anxiety (Hypothesis 2). The PROCESS extension of SPSS was used first using affective climate as the independent variable. Step one in the mediation analysis indicated that affective climate was a significant predictor of academic competence, b = -.78, p < .05, reconfirming Hypothesis 1. In step two, perceptions of affective climate were a significant predictor of anxiety, b = -.36, p < .05. Lower rates of campus climate were associated with higher rates of anxiety. In the third step, anxiety was a significant predictor of academic competence, b = -.27, p < .05. In the last step, perceptions of affective climate was still a significant predictor of academic competence after controlling for the mediator, anxiety, b = -.87, p < .01, showing a partial mediation of the relationship between affective and academic competence. This indicates that anxiety can partially explain why students who have negative perceptions of their campuses tend to see themselves as less academically competent.

A mediation analysis was conducted to investigate the hypothesis that anxiety mediates the effect of perceptions of diversity climate on academic competence. Results indicated that perception of the diversity climate was not a significant pre-

dictor of academic competence, b = -.21. Consequently, we did not run a mediation analysis with anxiety for diversity climate.

Discussion

In this study, we examined the effect of campus climate by testing the predictive relationship between two dimensions of campus climate, anxiety and academic competence. In doing so, we underscore the importance of distinguishing between the facets of climate for determining their academic and psychological impact. Campuses that have poor climates are at risk of failing to retain students and negatively affecting student achievement and psychological well-being. This investigation with college women is especially critical given gendered perceptions of "chilly" campus environments (Vacaro, 2010). Here, we underscore the importance of distinguishing between the facets of climate for determining their academic and socio-emotional impact.

Analyses indicated that campus belonging, or students' connectedness to faculty and staff, positively predicted self-perceived academic competence. Our results are consistent with existing findings connecting belongingness with competence (Gummadam et al., 2016). These findings also make sense in context, as part of the ethos of small liberal arts colleges is the relationships formed among faculty, staff, and students (Pascarella et al., 2004). The students in our sample, in theory, have a college experience that is grounded in connections with others. For college women especially, mentor, peer, and campus community relationships enhance engagement in college and can support well-being and academic outcomes (Liang et al., 2002).

In this study, the campus racial climate was not predictive of academic competence, a surprising finding given empirical support for inclusive learning environments that embrace difference as enhancing motivation and self-concepts (Kumar et al., 2018). In worst cases, when students

are not satisfied with or are harmed by colleges' lack of community, racial/ethnic diversity, or respect for difference, it can promote impostor syndrome (i.e., feelings of inadequacy, even in light of achievement) (Cokley et al., 2017) or disengagement from school. Further, hostile or unsafe climates may also harm students' perceptions of their academic abilities (Li et al., 2000) or instill stereotype threat and diminish achievement because of the salience of stereotypes (Johnson-Ahorlu, 2013). Our study's finding, then, can be explained by our sample that was mostly comprised of white women. Previous research has demonstrated that students of color perceive campus racial climates more negatively than their white peers (Harper & Huartado, 2007; Hurtado & Ruiz, 2012), with some evidence that white students can be apathetic to the campus racial climate (Cabrera, 2014). Consequently, the effect of the diversity climate may not be as strong for the white women as for the women of color who are positioned to be impacted more because of their racial backgrounds.

Last, this study examined anxiety as one mechanism through which campus belonging is related to competence, extending previous research (Mounts, 2004; Woodford et al., 2014). However, the analyses yielded a partial mediation, suggesting that other factors also explain this outcome. A diminished emotional connection to the campus has also been shown to be related to low engagement in the classroom (Allen et al., 2008) and academic help-seeking behaviors (e.g., visiting office hours or going to supports on-campus) (Grant-Vallone et al., 2004). These academic-based factors would further predict competence in that they are directly related to students' learning outcomes.

Limitations and Future Directions

Although this study presents research on the effects of campus climate in ways that expand the literature, there are two limitations that must be noted. First, the convenience sampling of college women at one small liberal arts campus limits ex-

ternal validity to other institutions. Because perceptions of campus climate is context-dependent and relies on the interplay of the individuals and the environment, ongoing research is needed to expand these findings to different institution types in the U.S. Relatedly, targeted sampling of college women of color, whose perceptions of campus climate tend to differ from their white and male counterparts would go far in determining racial and cultural differences in the impact of campus climate on college women's psychosocial outcomes.

Future research would also benefit from longitudinal designs examining changes in campus climate perception over time. While this study's cross-sectional study design revealed significant trends, the data relied on one-time perceptions of campus climate. Such a study could periodically assess students' perceptions of climate from matriculation to graduation as well as an investigation into the on-campus events that influence the climate. Those shifts in climate have potential to influence students' self-concepts in addition to other markers of student achievement, including GPA and persistence.

Implications for Student Affairs

Perceptions of campus climate might be deemed too subjective for colleges and universities to practically address, the findings from this study are nonetheless relevant for the work of college student affairs. This article informs practice by challenging student affairs to expand its conceptualization of campus climate, academic competency, and academic achievement, especially for students of color (Lewis & Shah, 2021). Student affairs practitioners and departments providing students with direct connectedness to relationships with faculty, staff, and students can expect increased well-being, academic outcomes, and retention numbers (e.g., Liang et al., 2002). Moreover, departments that communicate and reinforce messages to students as valuable stakeholders in the campus community increase the

sense of campus belonging (Beasley et al., 2020). Successful student affairs departments that can implement new practices while communicating the value of race and gender minoritized students on campus can expect stability within their student population, leading to student success. A suggestion for future programming could focus on capacity building, "the development of skills, structures, and resources aimed at responding to institutional concerns," which can potentially increase campus climate and academic achievement for students of color (Lewis & Shah, 2021, p.200). Student affairs requires dedicated university resources and inclusive policies to implement permanent changes supporting all students, and especially those who are historically underserved.

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Table 1

Correlations among Climate, Competence, and Anxiety

Variable	1	2	3	4	5
1. Anxiety		-.232**	.015	.172*	-.041
2. Academic Competence			-.115	-.286**	.140
3. Diversity Climate				.070	.394**
4. Affective Climate					-.267**
5. Age					
M	2.346	5.564	2.801	1.894	19.56
SD	.786	1.201	.543	.363	1.290

* p < .05, ** p < .01

Table 2

Hierarchical Multiple Regression Predicting Academic Competence

Predictors	Level 1				Level 2		
	B	SE B	β		B	SE B	β
Intercept	3.55**	1.34			6.34***	1.57	
Age	.11	.07	.18		.09	.08	.10
Race	-.60	.19	-.21**		-.46	.19	-.19*
Diversity Climate					-.21	.18	-.10
Affective Climate					-.67	.25	-.18**
Anxiety					-.27	.11	-.18*
F		7.03***				6.82**	
R²		.08				.17	
ΔR²						.09***	

Race: 1=white, 2=of color

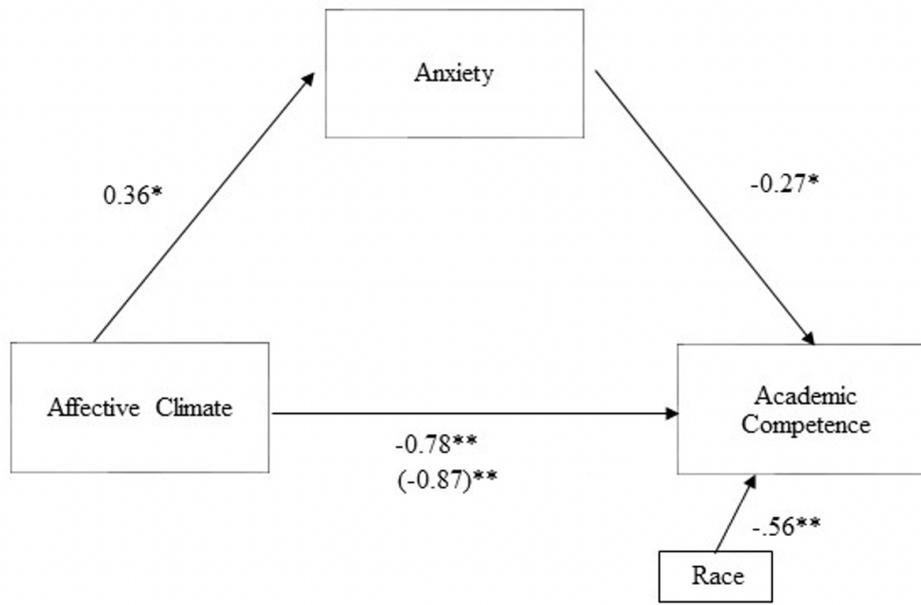**** p < .001; ** p < .001; * p < .05*

Figure 1. Mediation model for the relationship between affective climate and academic competence as mediated by anxiety and with race as a covariate. The coefficient controlling for anxiety is in parentheses.

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