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Investigating leadership aspirations, race and ethnicity among resilient US college students

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Abstract

Purpose – We investigated leadership aspirations (LA) among a national sample of US college students. Given the need to understand unequal representation of leaders, we investigated whether there were racial/ethnic

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TRACKING THE EDUCATIONAL PATHWAYS AND SUCCESS OVER FOUR YEARS OF COLLEGE: A LONGITUDINAL STUDY OF THE 2017 COHORT

CMB identifies as a Black and Latinx heterosexual, cisgender woman who grew up in a low-income community in the United States. Her perspectives are largely influenced by her community-based work with socioeconomically and racially diverse youth. As a first-generation college student and clinical psychology doctoral student, CMB is professionally committed to leveraging her educational opportunities to decrease barriers and improve adaptive outcomes for marginalized populations. JLT identifies as a white heterosexual cisgender woman who grew up in a rural and low-income community in the southwestern United States.

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differences in LA in emerging adulthood. We also investigated (1) what microcontextual factors (internal experiences) were related to LA at college entry; (2) if microcontextual or distal (environmental and social experiences) factors predicted change in LA at the end of the college experience and (3) whether there were racial/ethnic differences within those relationships.

Design/methodology/approach – Surveying students at the beginning of the first year of college (Y1, $n = 514$) and the end of the fourth year (Y4, $n = 305$).

Findings – Results revealed Black students had higher LA at Y1 than white students, which is contrary to previous research findings and contrary to observed racial/ethnic disparities in high-consequence leadership positions. Furthermore, intrinsic and extrinsic work values and positive perceptions of adverse experiences positively predicted LA at Y1; and Black students reported a stronger relationship between positive adversity and LA than white students at Y1. Sense of campus belonging was the only distal factor to predict positive change in LA across the college years.

Practical implications – Our study suggests a complex relationship between race and LA that needs further unpacking.

Originality/value – This study contributes to a limited body of research investigating leadership aspirations, which may be an important predictor to help unpack differences in who attains leadership roles.

Keywords Ethnicity, Race, Diversity, Leadership development, Adversity

Paper type Research paper

Leaders have tremendous power, influence, and impact on our society (Astin & Astin, 2000). Leadership positions across various sectors—such as education, policy, social justice, and health—are predominantly held by high-status white men, with 85.8% of Fortune 500 CEOs identifying as white men in 2020. In contrast, racial and ethnic minorities occupied just 6.8% of these roles (Tanner & Welton, 2020; Zweigenhaft, 2021). This underrepresentation starkly contrasts with the growing diversity in today's institutions and workforce, especially as the U.S. is projected to become "majority minority" by 2042 (Chin & Trimble, 2015). While overall diversity in companies has increased, top leadership roles remain less diverse, which correlates with negative outcomes; for instance, companies in the lowest quartile for racial/ethnic diversity were 29% less likely to achieve above-average profitability (MacKenzie, 2023). Both practice and academic literature emphasize the need to center diverse identities—gender, race/ethnicity, and social class—and to deconstruct whiteness in leadership (Eagly & Chin, 2010; Gümüş *et al.*, 2022; Tanner & Welton, 2020). There is a pressing need to deepen our understanding of the factors underlying racial inequalities in leadership attainment.

Improving the leadership pipeline

Researchers highlight the need to diversify the leadership pipeline from adolescence to adulthood. For instance, systemic barriers significantly impact the recruitment and retention of Black, Indigenous, and People of Color (BIPOC) pursuing principal positions in U.S. schools, where BIPOC students comprise over 50% of the population (Fuller & Young, 2022). Addressing this gap necessitates focusing on leadership development during adolescence, a crucial yet understudied period for cultivating leadership skills (Murphy & Johnson, 2011; Tackett *et al.*, 2023). Current research often centers on adult leaders (Chance, 2020), limiting our understanding of early influences on leadership aspirations and how these vary by demographic, psychological, and environmental factors.

Another solution to diversify the leadership pipeline is to focus research on undergraduate colleges and universities, which invest tremendous resources in leadership programming (Kodama & Dugan, 2013). Despite calls to enhance faculty leadership and presidential opportunities for racial minorities and women, white men continue to dominate these roles (Eddy, 2018; Golden, 2014), impacting minority faculty seeking advancement and potentially undermining the leadership aspirations of students. Current studies on racial differences in leadership aspirations in educational settings are still preliminary and need to explore factors influencing outcomes across different groups (Dugan, Kodama, & Gebhardt, 2012).

Leadership aspirations refer to an individual's interest in achieving leadership positions and success. Understanding how these aspirations are influenced in college students can shed light

on ongoing racial inequalities in leadership attainment. Researchers emphasize the need to disaggregate leadership data by race, as most college leadership programs have focused primarily on white students (Kodama & Dugan, 2013). Currently, we lack critical evidence on whether and how leadership aspirations differ among college students based on racial and ethnic identity, and what factors contribute to these differences. The present study therefore aims to explore leadership aspirations among a diverse sample of students and across four years of college.

Leadership framework

To clarify the factors shaping leadership aspirations among students from diverse racial and ethnic backgrounds, we utilize Bronfenbrenner's (1977) Ecological Model. This model posits that contextual factors—both immediate and broader—impact human development from an early age. It provides a useful framework for understanding sources of influence on leadership aspirations, which organized factors according to their proximity: (1) the microsystem comprised of direct influences, such as psychological experiences; (2) the macrosystem that encompasses broader cultural and institutional factors that shape ideologies, including racial and ethnic identity; and (3) the exosystem that considers how aspects of the macrosystem, like funding and resources, affect individual development. More recently, Rogers, Niwa, Chung, Yip, and Chae (2021) expanded on this model to emphasize the importance of the macrosystem in understanding systemic oppression and racism's effects on development. Together, Bronfenbrenner's (1977) and Rogers *et al.*'s (2021) insights highlight the need to focus on the college environment to explore how racism and structural inequalities influence students' leadership aspirations and how elements of the micro- and macrosystems interact in this context.

In this study, we investigate college students' leadership aspirations by examining microcontextual and distal factors that align with Bronfenbrenner's framework, and by considering the influence of racial and ethnic identification. We define microcontextual factors as individuals' psychological perspectives and racial identities, with distal factors encompassing environmental and social experiences, including access to resources like mentorship and financial support. This framework accounts for how participants' internal and external experiences shape their leadership aspirations during adolescence and throughout college, acknowledging the systemic barriers that often challenge the advancement of minoritized students.

Microcontextual and distal factors related to leadership

Prior research highlights the links between leadership, racial/ethnic identification, and three microcontextual factors: self-efficacy, work values, and adversity, with differences based on racial/ethnic identity. Specifically, Lechner, Sortheix, Obschonka, and Salmela-Aro (2018) found that extrinsic rewards (e.g. "good pay") and social/interpersonal rewards (e.g. "good relations with supervisor and co-workers") positively predicted leadership aspirations in young adults, even when accounting for personality, motivation, and sociodemographic factors.

Self-efficacy, or the belief in one's ability to achieve goals, is crucial for leadership goals, behaviors, and effectiveness (McCormick, 2001). A related concept, leadership self-efficacy (LSE), has been linked to the performance and effectiveness of athletic team leaders and managers. LSE also mediates the relationship between personality, self-confidence, and leadership outcomes (Paglis, 2010). Recent research shows that enhancing LSE among college students positively influences their leadership practices, such as "modeling the way" and "enabling others to act" (Polatcan, 2023). Adversity has also been linked to leadership aspirations and represents life experiences that are challenging and distressing. Research indicates that Black women leaders across various sectors view adversity, systemic

oppression, and resilience as key factors influencing their leadership aspirations, unlike white women, who do not see these experiences as determinants of their success (Key *et al.*, 2012). These findings suggest that overcoming systemic oppression, the misalignment of leadership opportunities in college, and the perception of campus leadership roles as unwelcoming to racial minorities together contribute to racial and ethnic disparities in leadership aspirations, highlights the need to explore microcontextual factors in the development of leadership aspirations. While the present study emphasizes work values, self-efficacy, and adversity as hypothesized predictors of leadership aspirations, prior research has also linked leadership to factors like personality traits and intelligence (Judge, 2002, 2004); those factors were not measured in the data examined in the present study and represent an important direction for future inquiry.

In addition to microcontextual factors, distal factors like institutional engagement and mentorship have been found to significantly predict leadership outcomes among college students (Dugan & Komives, 2010; Haber & Komives, 2009; McCall, 2018), with variations by racial/ethnic identity (McCall, 2018; Sutton & Terrell, 1997). For example, Dugan *et al.* (2012) found a negative correlation between on-campus leadership roles and leadership aspirations among Black college students, who often seek alternative community-based leadership experiences due, in part, to a misalignment between their interests and campus organizations. Additionally, while white, Black, and Asian students report a positive association between student-faculty relationships and leadership, Latinx and multiracial students do not, highlighting a need for further research on these disparities (Dugan *et al.*, 2012). The evidence of racial/ethnic differences in how microcontextual and distal factors influence leadership outcomes underscores the need for more investigation into the emergence and development of leadership orientations among college students across different racial and ethnic groups.

Leadership disparities in higher education

Colleges offer a fertile environment for leadership development and are poised to address social justice issues as students prepare to enter the workforce, with many aspiring to positions of power (Kodama & Dugan, 2013). In response, higher education institutions invest heavily in leadership programs and encourage student leadership (Coressel, 2014; Dugan, Komives, & Segar, 2009; Foreman & Retallick, 2016; Kodama & Dugan, 2013; Tyree, 1998). Research suggests that exposure to sociocultural conversations—focused on multiculturalism, lifestyle differences, political issues, and varied value perspectives—enhances leadership aspirations across racial groups (Kodama & Dugan, 2013). However, these institutional efforts may yield unequal benefits; white students report positive experiences in leadership roles, while students of color often find limited impact on their aspirations and outcomes (Arminio *et al.*, 2000; Kezar & Moriarty, 2000; Kodama & Dugan, 2013). Many students of color feel their racial groups are underrepresented in available leadership roles, which deters their interest (Arminio *et al.*, 2000; Sutton & Terrell, 1997). However, students of color also report a positive connection between leadership aspirations and participation in community-based experiences, as well as a desire to overcome personal adversity and uplift their communities (Chance, 2020; Kodama & Dugan, 2013).

Prior research has highlighted racial and ethnic differences in college students' leadership motivation and aspirations (Arminio *et al.*, 2000; Rosch, Collier, & Thompson, 2015). Rosch *et al.* found that Latinx and Black students were more motivated to lead than white students, while Asian students showed lower motivation. Furthermore, Arminio *et al.* reported that students of color felt a stronger responsibility to their racial in-groups but participated less in structured leadership roles when compared to white students. These findings suggest that while racial minority students are interested in leadership, they may lack access to relevant opportunities. Further research is needed on how colleges can enhance leadership experiences for racially and ethnically minority students to improve their outcomes.

Present study

Building on prior research, the present study examines a unique and diverse sample of generally low SES college students who have faced early-life adversity. Using a longitudinal dataset spanning four years of college, we aim to explore the factors influencing the emergence and development of leadership aspirations during college, with a focus on how these factors may vary by racial/ethnic identification. The following questions were explored, and hypotheses were formulated accordingly:

(1) *Are there racial and ethnic differences in leadership aspirations at the start and end of college?* No specific hypotheses were formed due to the exploratory nature of this question.

(2) *Do microcontextual variables predict leadership aspirations before the college experience?* We expect positive associations between leadership aspirations and the microcontextual predictors: self-efficacy, intrinsic and extrinsic work values, and positive perceptions of adverse experiences.

(3) *What microcontextual and distal variables predict changes in leadership aspirations over four years of college?* Due to a lack of prior longitudinal research on leadership development, no specific hypotheses were formulated.

(4) *If microcontextual or distal factors predict significant changes in leadership aspirations over time, do these associations differ by racial/ethnic identification?* Similar to RQ1, no specific hypotheses were formulated.

Transparency and openness statement

Preregistration is available on this project's OSF page [osf.io/r7ucv], which includes the analytic plan for addressing the outlined research questions. Additional details such as the rationale, prior exposure to data, methods, data analytic plan, and R code can also be found on the OSF page. Due to participant confidentiality, individual data are not accessible. The data used were archival at the time of analysis, and no additional data were collected for this project. We provide participant criteria and the rationale for the measures included at each wave of data collection.

Methods

Participants

Participants were drawn from a cohort of 839 college students who, in 2017, received a one-time scholarship from the Horatio Alger Association (HAA), a not-for-profit organization that supports the college pathways of high school students identified as resilient due to low-income backgrounds and/or early-life adversity. From the 2017 cohort, 514 provided consent and completed the entering college survey early in their first term of enrollment across 323 U.S. four-year universities. In addition to data collected at college entry (fall 2017, Y1), follow-up data were collected through participants' fourth year of college (spring 2021, Y4).

At Y1, 514 students (Mage = 18.71, SDage = 0.93; 71.7% women, 27.9% men, 0.4% nonbinary) participated. Response rates for subsequent waves were: 52.9% (n = 272) at Y2 (beginning of the second year), 76.5% (n = 393) at Y3 (end of the third year), and 59.3% (n = 305) at Y4. Y1 participants' Demographic characteristics are presented in Table 1, with Y4 characteristics available on the project's OSF page [osf.io/r7ucv].

Measures

Correlations between each measure can be found in Table 2. All measures were scored by averaging items.

Table 1. Gender, race, and ethnic identity of participants at Y1

Characteristic	%
Gender	
Female	71.7%
Male	27.9%
Nonbinary	0.4%
Race	
White	58.4%
Black	15.2%
Multiracial	12.1%
Asian	9.1%
American Indian or Alaska Native	2.4%
Other races	2.2%
Middle Eastern	0.6%
Ethnic identity	
Not of Hispanic, Latino, or Spanish origin	79.8%
Mexican, Mexican American, or Chicano	11%
Other Hispanic, Latino, or Spanish origin	6.8%
Puerto Rican	2.0%
Cuban	0.4%

Note(s): $N = 493$, Mage $= 18.71$, SDage $= 0.90$
Source(s): Authors' own work

Leadership. Career Leadership Aspirations (CLA). The surveys included items from Gregor and O'Brien's (2016) leadership and achievement aspirations scales to assess students' interests in pursuing leadership and career success. A total of 9 items measured these aspirations, with sample items such as "*I hope to move up to a leadership position in my organization*" and "*When I am established in my career, I would like to manage other employees*" (Leadership Aspirations), as well as "*I want to be among the very best in my field*" and "*I want my work to have a lasting impact*" (Achievement Aspirations). Participants rated each item on a 4-point Likert scale from (1) *Not at all true of me* to (5) *Very true of me*. The scale was standardized, showing good internal consistency, with $\alpha = 0.88$ (Y1) and $\alpha = 0.90$ (Y4).

Microcontextual variables. All microcontextual variables were drawn from the Y1 survey. Measure response rates were: Self-Efficacy $n = 454$, Intrinsic/Extrinsic work values $n = 456$, Positive Adversity $n = 453$.

Self-efficacy. Self-efficacy was assessed using a three-item measure adapted from The Gates Millennium Scholars Tracking and Longitudinal Study Undergraduate Survey (NORC at University of Chicago, 2003). Sample items included, "*Every time I try to get ahead, something or somebody stops me.*" Participants rated their agreement on a 5-point Likert scale from (1) *Strongly Disagree* to (5) *Strongly Agree*. The internal consistency for this variable was $\alpha = 0.71$.

Work values. Intrinsic and extrinsic work values were assessed using adapted items from the Higher Education Research Institute College Senior Survey (HERI, 2017). The Intrinsic Work Values subscale included three items (e.g. "*Expression of personal values*" and "*Work/life balance*"), while the Extrinsic Work Values subscale comprised five items (e.g. "*High income potential*" and "*Social recognition or status*"). Participants rated the importance of each item on a 4-point Likert scale from (1) *Not Important* to (4) *Essential*. Internal consistency for the subscales was $\alpha = 0.59$ for Intrinsic and $\alpha = 0.66$ for Extrinsic. Although these scores fell below recommended thresholds, the items demonstrated face validity for common work values measures. Efforts to improve reliability through item removal were explored but did not yield stronger results. Nonetheless, including these scales may offer valuable insights for future research.

Table 2. Descriptive statistics and correlations between CLA and predictor variables

Variable	Range	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. CLA Y1	1–5	4.18	0.73	1								
2. CLA Y4	1–5	4.05	0.79	0.49*	1							
3. Self-efficacy Y1	1–5	2.19	0.86	0.10*	0.12*	1						
4. Intrinsic work values Y1	1–4	3.17	0.62	0.35*	0.20*	0.10*	1					
5. Extrinsic work values Y1	1–4	2.95	0.52	0.46*	0.26*	0.01	0.34*	1				
6. Positive adversity Y1	1–5	4.28	0.65	0.30*	0.18*	0.06*	0.29*	0.18*	1			
7. Resources for overcoming adversity Y3	1–4	2.67	0.55	0.28*	0.18*	−0.02	0.24*	0.31*	0.41*	1		
8. Institutional support Y3	1–5	2.22	0.65	0.14*	0.13	0.03	0.11*	0.15*	0.05	0.30*	1	
9. Campus belonging Y4	1–5	3.64	0.84	0.11	0.24*	0.10	0.00	0.02	0.16	0.11	0.20*	1

Note(s): *M* and *SD* are used to represent mean and standard deviation, respectively. *$p < 0.05$. CLA = Career Leadership Aspirations. CLA items were scored by averaging the items, and the scale was standardized

Source(s): Authors' own work

Positive adversity. The 4-item Perceived Adversity scale assessed students' positive perceptions of their adverse life experiences (e.g. "*Adversities I have experienced have increased my motivation to succeed*"). Participants rated their agreement on a 5-point Likert scale from (1) *Strongly Disagree* to (5) *Strongly Agree*. The internal consistency for this scale was $\alpha = 0.66$. Despite the alpha falling below typical thresholds, we included this measure due to the unique relevance of adversity to our participants, who are predominantly low-income and have navigated severe early life challenges.

Distal contextual variables. Institutional support. Institutional Support was measured using a seven-item scale adapted from Ackermann and Morrow (2007) to assess students' perceptions of support at their institutions (e.g. "*I go talk with my professor*"). Participants rated each item on a 4-point Likert scale ranging from (1) *Never* to (5) *Very often*. This variable was collected in Year 3 ($n = 354$) since it was excluded in Year 4 due to concerns that COVID-19-related closures affected institutional supports available to students during their fourth year (2020–2021). The internal consistency for this variable was $\alpha = 0.83$.

Campus belonging. A 5-item Campus Belonging scale (Mayhew, Dahl, Duran, Stipeck, & Youngerman, 2018) assessed students' comfort within their campus environment (e.g. "*I feel comfortable on campus*"). Participants rated each item on a 5-point Likert scale from (1) *Strongly Disagree* to (5) *Strongly Agree*. This variable was collected in Year 4 ($n = 238$) to capture the full impact of the college experience. The internal consistency for this variable was $\alpha = 0.87$.

Resources for Overcoming Adversity. A 17-item Resources for Overcoming Adversity scale, adapted from a 2011 NORC Undergraduate Survey for the Horatio Alger Association (NORC, 2011), assessed the mechanisms (e.g. "*tutoring services*," and "*community organizations*") that students believed helped them overcome adversity. Participants rated their agreement on a 4-point Likert scale from (1) *Not at all* to (4) *A great deal*. This measure was collected in Year 3 ($n = 375$), as it was not included in Year 4 due to COVID-19 disruptions. The internal consistency for this variable was $\alpha = 0.85$.

Procedure

Data for this project were collected as part of the Horatio Alger Association Longitudinal and Tracking Study of 2017 Scholars (Wolniak, Chen-Bendle, & Burman, 2024). Participants were invited via email and completed a consent form before participating. Those who consented were invited to take part in the entering college survey and three annual follow-up waves, filling out an online survey that included questionnaires on educational success, career attainment, and personal barriers. The surveys, administered through the SurveyGizmo/Alchemer platform, were accessible on personal computers, laptops, tablets, and smartphones. Participants completed the surveys at their convenience, with each taking approximately 30–45 minutes. An incentive strategy was used to encourage participation, offering gift cards ranging from $25 to $100. Ethics approval was obtained from the Institutional Review Board (IRB).

Results

The analyses were conducted using base r, "psych", "Hmisc", "ggplot2", and "lavaan" packages (R Core Team, 2023; Harrell, 2023; Revelle, 2023; Rosseel, 2012; Wickham, 2016). Descriptive statistics for all variables included in the analyses can be found in the OSF online supplemental materials.

Racial/ethnic differences in leadership aspirations

A pairwise comparison was performed using the Tukey method to compare racial and ethnic differences in leadership aspirations (LA) at college entry (Y1) and the end of the fourth year of college (Y4). Racial groups that were included in the analysis and reported racial identification

at Y1 were Asian ($n = 39$), Black ($n = 65$), white ($n = 266$), and students who identified as Multiracial, without specifying their multiple racial groups ($n = 56$). Other racial groups (i.e. American Indian or Alaska Native, "other races," and Middle Eastern) were eliminated due to very small sample sizes.

Results indicated that the mean score of LA for Black students (M = 4.39, SD = 0.71) was significantly greater than white students (M = 4.08, SD = 0.74) at Y1, $F(4, 422) = 3.78$, $p = 0.005$. There were no other significant results based on tests for racial differences. Using a separate TukeyHSD test, results indicated no significant differences in LA based on students' ethnic identity as Hispanic ($n = 90$) or non-Hispanic ($n = 367$), $F(1, 455) = 0.19$, $p = 0.663$. Results at Y4 indicated no significant effect of race ($F(4, 267) = 1.41$, $p = 0.231$). Results also indicated no effect of ethnicity between Hispanic ($n = 58$) and non-Hispanic ($n = 229$) students ($F(1, 285) = 0.33$, $p = 0.564$) on LA. Results for pairwise comparisons can be found in Table 3.

Microcontextual factors predicting leadership aspirations at college entry

Pearson correlations between LA at Y1 and Y4 and all microcontextual variables were positive as expected, ranging from $r = 0.10$, $p < 0.001$ (LA Y1 and Self Efficacy Y1) to $r = 0.46$, $p < 0.001$ (LA Y1 and Extrinsic Work Values Y1). See Table 2. For all regression models, the racial group "white" was entered as the comparison group to align with the study's goal of disaggregating data to draw attention to any differences that may not have been captured between white and racial minority groups. Respondents' ethnicities were coded and entered using non-Hispanic (0) and Hispanic (1). In addition, respondents' gender-identity was included as a covariate, coded as male (0) and female (1); nonbinary students were not included in analyses due to the small number of cases.

A multiple linear regression model was estimated that included gender, race (i.e. Black, Asian, white, and multiracial), ethnicity (i.e. Hispanic vs. non-Hispanic), all microcontextual variables (Self-Efficacy, Intrinsic Work Values, Extrinsic Work Values, and Positive Adversity) at Y1 [$R^2 = 0.28$, $F(10, 403) = 17.09$, $p < 0.001$]. LA at college entry was associated with intrinsic work values [$\beta = 0.15$, 95% CI [0.08, 0.29], $p = 0.001$], extrinsic work values [$\beta = 0.33$, 95% CI [0.25, 0.45], $p < 0.001$], and positive adversity [$\beta = 0.21$, 95% CI [0.09, 0.29], $p < 0.001$]. The Y1 model without covariates is reported [osf.io/p9gm6] and the overall pattern of results is the same. Regression results with covariates can be found in Table 4.

Table 3. Tukey HSD comparison for racial/ethnic differences in leadership aspirations

Leadership aspirations Y1					Leadership aspirations Y4			
			95% CI				95% CI	
Comparisons	Mean diff	Std. error	Lower bound	Upper bound	Mean diff	Std. error	Lower bound	Upper bound
Black vs. Asian	0.10	1.93	−0.30	0.50	0.11	0.88	−0.43	0.66
white vs. Asian	−0.20	1.93	−0.54	0.13	−0.13	0.88	−0.58	0.32
Multiracial vs. Asian	0.05	1.93	−0.35	0.46	−0.30	0.88	−0.87	0.28
white vs. Black	−0.30*	1.93	−0.57	−0.03	−0.24	0.88	−0.63	0.14
Multiracial vs. Black	−0.05	1.93	−0.40	0.31	−0.41	0.88	−0.94	0.12
Multiracial vs. white	0.26	1.93	−0.03	0.54	−0.17	0.88	−0.60	0.26
Non-Hispanic vs. Hispanic	0.04	0.10	−0.13	0.21	0.02	0.01	−0.44	0.47

Note(s): *$p < 0.05$. Results indicated a significant mean difference between white and Black students' leadership aspirations at Y1, such that Black students had a greater mean score. CLA items were scored by averaging the items, and the scale was standardized

Source(s): Authors' own work

Table 4. Precollege and college experiences regressed on leadership aspirations at Y1 and at Y4

Variables	Leadership aspirations at Y1			Leadership aspirations at Y4		
	β	SE	95% CI	β	SE	95% CI
Intercept	−0.05***	0.05	[−1.55, 0.83]	−0.02*	0.09	[−0.20, 0.15]
Leadership aspirations Y1				0.44***	0.08	[0.27, 0.60]
Female	−0.07	0.04	[−0.16, 0.00]	0.06	0.07	[−0.08, 0.19]
Hispanic	−0.07	0.05	[−0.14, 0.06]	−0.08	0.07	[−0.23, 0.07]
Black	0.11	0.12	[−0.14, 0.42]	0.22	0.20	[−0.17, 0.61]
Asian	0.03	0.15	[0.25, 0.39]	0.02	0.23	[−0.43, 0.48]
Multiracial	0.22	0.13	[−0.11, 0.50]	−0.10	0.22	[−0.53, 0.33]
Self-efficacy Y1	0.07	0.04	[−0.01, 0.18]	0.03	0.07	[−0.11, 0.17]
Intrinsic work values Y1	0.15**	0.05	[0.08, 0.29]	0.02	0.08	[−0.13, 0.17]
Extrinsic work values Y1	0.33***	0.05	[0.25, 0.45]	0.04	0.08	[−0.13, 0.20]
Positive adversity Y1	0.22***	0.04	[0.09, 0.29]	−0.08	0.08	[−0.23, 0.07]
Resources for overcoming adversity Y3				0.16	0.09	[−0.01, 0.33]
Institutional support Y3				−0.05	0.08	[−0.22, 0.12]
Campus belonging Y4				0.19**	0.07	[0.05, 0.33]
R^2	0.28***			0.26***		
n	412			168		

Note(s): Race categories are coded as dummy variables with white as the reference group (white = 0). *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. CLA items were scored by averaging the items, and the scale was standardized
Source(s): Authors' own work

Microcontextual and distal factors predicting four-year change in leadership aspirations

We next estimated a model where LA at Y4 was regressed on LA at college entry (Y1). Independent variables described for the previous model were also included in addition to the distal variables. The results indicated that change in LA from college entry to end of fourth year college was predicted by campus belonging [$\beta = 0.19$, 95% CI [0.05, 0.33], $p = 0.005$; $R^2 = 0.26$, $F(14, 154) = 5.86$, $p < 0.001$]. No other predictors were significantly associated with change in LA over time. This model without covariates is reported [osf.io/p9gm6] and the overall pattern of results is the same. Regression results with covariates can be found in Table 4.

Racial and ethnic moderation

To examine moderation by race and ethnicity, we employed a hierarchical regression approach to add a set of cross-product terms to the model. One set of cross-products estimated the interaction of race and any microcontextual and distal variables previously found to be statistically significant, and another set of cross-products were separately added to the model to examine interactions between ethnicity and previously significant microcontextual and distal variables.

In terms of LA at college entry (Y1), the resulting estimates yielded a significant interaction effect among identifying as Black (versus white) and positive adversity: positive adversity yielded a greater influence on LA at college entry for Black students compared to white students, [$\beta = 0.33$, 95% CI [0.10, 0.56], $p = 0.005$; $R^2 = 0.28$, F(17, 396) = 14.81, $p < 0.001$]. Alternatively, the addition of ethnicity-based interactions did not yield any statistically significant effects [$R^2 = 0.27$, F(11, 402) = 14.81, $p = 0.269$]. Regression results for the interaction models can be found in Table 5.

Turning attention to development across four years of college, the resulting estimates yielded no significant interaction effects between race and campus belonging [$R^2 = 0.19$, F (11, 184) = 5.19, $p < 0.001$] or between ethnicity [$R^2 = 0.18$, F(9, 186) = 5.78, $p < 0.001$] and campus belonging, such that race or ethnicity had no significant differences in campus belonging regarding change in LA across the college years. Regression results for the interaction models can be found in Table 6.

Deviations from study registration

Additional analyses were registered to explore the measurement of leadership aspirations by including additional measures at Y4. These analyses were peripheral to the goals of the current study, and thus will be explored in a separate manuscript examining leadership assessment specifically at Y4 [osf.io/r7ucv].

Discussion

This study aimed to examine: (1) racial and ethnic differences in leadership aspirations among a diverse sample of U.S. college students at the beginning and end of their college experience;

Table 5. Racial and ethnic moderation for significant predictors of leadership at college entry

Variables	Model 1 β	SE	95% CI	Model 2 β	SE	95% CI
Intercept	−0.05**	0.05	[−0.16, 0.06]	−0.02***	0.05	[−0.13, 0.09]
Female	−0.07	0.04	[−0.16, 0.00]	−0.08	0.04	[−0.16, 0.01]
Hispanic	−0.07	0.05	[−0.15, 0.03]	−0.18	0.12	[−0.42, 0.07]
Black	0.17	0.13	[−0.09, 0.43]	0.12	0.12	[−0.13, 0.36]
Asian	0.00	0.15	[−0.30, 0.30]	0.02	0.15	[−0.28, 0.31]
Multiracial	0.23	0.14	[−0.04, 0.49]	0.22	0.14	[−0.05, 0.48]
Intrinsic work values Y1 (IWV)	0.18**	0.06	[0.07, 0.30]	0.15**	0.05	[0.05, 0.25]
Extrinsic work values Y1 (EWV)	0.33***	0.05	[0.22, 0.44]	0.33***	0.05	[0.24, 0.43]
Positive adversity Y1 (PA)	0.13*	0.06	[0.02, 0.25]	0.22***	0.05	[0.12, 0.32]
IWV × Black	−0.09	0.14	[−0.36, 0.17]			
IWV × Asian	−0.03	0.18	[−0.40, 0.33]			
IWV × Multiracial	−0.16	0.16	[−0.47, 0.15]			
EWV × Black	−0.12	0.14	[−0.40, 0.17]			
EWV × Asian	0.01	0.17	[−0.32, 0.33]			
EWV × Multiracial	0.23	0.17	[−0.11, 0.56]			
PA × Black	0.33**	0.12	[0.10, 0.56]			
PA × Asian	0.21	0.18	[−0.15, 0.57]			
PA × Multiracial	−0.06	0.13	[−0.32, 0.21]			
IWV × Hispanic				0.04	0.14	[−0.23, 0.31]
EWV × Hispanic				0.00	0.15	[−0.28, 0.29]
PA × Hispanic				−0.03	0.11	[−0.24, 0.18]
R^2	0.28		0.27			
n	414		414			

Note(s): Race categories are coded as dummy variables with white as the reference group (white = 0). *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. CLA items were scored by averaging the items, and the scale was standardized
Source(s): Authors' own work

Table 6. Racial and ethnic moderation for significant predictors of leadership at Y4

Variables	Model 3 β	SE	95% CI	Model 4 β	SE	95% CI
Intercept	0.01	0.08	[−0.15, 18]	0.01	0.08	[−0.17, 0.18]
Leadership aspirations Y1	0.39***	0.07	[0.26, 0.53]	0.40***	0.07	[0.26, 0.53]
Female	0.08	0.07	[−0.06, 0.21]	0.08	0.07	[−0.05, 0.21]
Hispanic	0.01	0.07	[−0.13, 0.14]	0.01	0.18	[−0.36, 0.36]
Black	0.20	0.19	[−0.18, 0.58]	0.20	0.19	[−0.18, 0.58]
Asian	0.00	0.22	[−0.44, 44]	−0.06	0.22	[−0.49, 0.37]
Multiracial	−0.19	0.20	[−0.59, 21]	−0.20	0.20	[−0.60, 0.21]
Campus belonging Y4 (CB)	0.15	0.08	[−0.01, 31]	0.19**	0.07	[−0.05, 0.34]
CB × Black	0.04	0.17	[−0.29, 38]			
CB × Asian	−0.24	0.30	[−0.83, 0.35]			
CB × Multiracial	0.36	0.20	[−0.03, 0.75]			
CB × Hispanic				0.00	0.17	[−0.34, 24]
R^2	0.19			0.18		
n	196			196		

Note(s): Race is coded with white as the comparative group (white = 0). *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. CLA items were scored by averaging the items, and the scale was standardized
Source(s): Authors' own work

(2) the association of precollege microcontextual factors with leadership aspirations at college entry; (3) the prediction of changes in leadership aspirations over four years based on precollege and college experiences at both microcontextual and distal levels; and (4) whether these associations varied by racial and ethnic identification. Key findings included: (1) Black students had significantly greater leadership aspirations than white students at college entry; (2) higher endorsement of intrinsic work values, extrinsic work values, and positive adversity (perceptions of adversity as beneficial for growth) positively related to leadership aspirations at college entry, controlling for other variables; (3) a stronger sense of campus belonging predicted an increase in leadership aspirations from college entry to the end of the fourth year; and (4) the effect of positive attitudes toward prior adversity on leadership aspirations was moderated by race, being stronger among Black students than their white peers.

Race/ethnicity, developmental and campus-based experiences

Empirical research on racial/ethnic differences in college student leadership is sparse (Kodama & Dugan, 2013), despite documented disparities in representation among high-impact leadership roles (Zweigenhaft, 2021) and the perception that "doing leadership" equates to "doing whiteness" (Liu & Baker, 2016). This suggests that many Americans view white individuals as the prototypical leaders, with leadership norms shaped by white individuals and systems that have historically marginalized racial minorities (Liu & Baker, 2016; Tanner & Welton, 2020). Research indicates that white individuals are often perceived as more effective leaders with greater potential, while Black individuals are stereotyped as better suited for subordinate roles (Ospina & Foldy, 2009). These stereotypes can undermine the leadership potential of Black individuals, particularly considering their motivation and aspirations to lead (Chance, 2020; Davis & Maldonado, 2015).

Importantly, our study found that Black college students reported significantly higher career leadership aspirations than white students at college entry. This raises questions about the stark racial disparities in consequential leadership roles, prompting us to consider why Black students, despite their stronger aspirations, remain underrepresented in leadership positions. This incongruence highlights the profound impact of structural racism and oppression on representation. Social structures have been identified as the primary cause of

similar paradoxes, such as the discrepancy between Black students' positive attitudes toward education and poor academic performance (Mickelson, 1990). Future research should investigate whether the racial difference in leadership aspirations between Black and white students holds true in other samples and, if so, aim to provide mechanistic explanations for the underrepresentation of Black individuals in leadership roles.

Black students in our sample reported a stronger relationship between positive perceptions of prior adversity and leadership aspirations at college entry compared to their white peers. This aligns with previous research indicating that Black individuals often view adversities as catalysts for leadership attainment (Chance, 2020; Neiworth, 2015). In particular, successful Black women see education as a key mechanism for achieving leadership success and overcoming adverse circumstances (Chance, 2020). They have also identified their race and gender as influential factors in their leadership development (Davis & Maldonado, 2015). Despite barriers to leadership attainment, Black women often persevere and demonstrate determination to defy the odds (Davis & Maldonado, 2015). Given that our sample consisted entirely of students who faced childhood adversity, it is especially notable that positive attitudes toward adversity had a greater impact on leadership aspirations for Black students than for white students. These findings prompt further inquiry into where and why the high leadership aspirations of Black college students may be thwarted or derailed in their developmental journey.

Three microcontextual variables—intrinsic work values, extrinsic work values, and positive adversity—were identified as positive predictors of leadership aspirations at college entry. Notably, only one prior study has directly examined the relationship between intrinsic work values and leadership aspirations in college students, finding no significant effect (Lechner *et al.*, 2018). However, we anticipated a positive association because much of the college leadership literature emphasizes the goal of fostering student leaders with collectivistic and communal values, which support intrinsically motivated leadership interests (Haber & Komives, 2009). Research suggests that Black individuals often pursue leadership roles for the intrinsic value of making a positive impact, particularly in social justice efforts for their communities (Chance, 2020; Key *et al.*, 2012). Our findings indicate that intrinsic values are positively related to leadership aspirations at college entry, suggesting that colleges have the opportunity to create environments that support students' personal work values as they transition into spaces designed for career and leadership development. Previous literature has shown that extrinsic work values are related to leadership aspirations in young adults (Lechner *et al.*, 2018). Our results reinforce this by demonstrating a positive relationship between extrinsic work values and leadership aspirations early in college, measured through items assessing the importance of career aspects like status, decision-making, and recognition. This association is supported by Lechner *et al.* (2018), who found that extrinsic rewards were more predictive of leadership aspirations than motivation or sociodemographic factors such as age, gender, education, and employment level.

The positive relationship we found between positive adversity and leadership aspirations early in college suggests that students, regardless of racial or ethnic identity, may leverage their academic opportunities to overcome past adversities, driving their leadership aspirations. Prior research indicates that Black individuals often view adversity as a motivator for pursuing leadership roles that can help address future challenges (Chance, 2020; Williams & Bryan, 2013). Future research should explore how early-life adversity influences leadership development across all racial groups over time. Our findings indicate that intrinsic work values, extrinsic work values, and positive attitudes toward prior adversity are linked to stronger leadership aspirations at college entry. This suggests that college leadership programs should adopt a personalized approach that considers students' beliefs, values, and experiences to foster leadership development among diverse backgrounds. Employers can also enhance career advancement and training opportunities for racial minority employees, facilitating their progression into leadership positions. Our study and prior research (Judge, Bono, Ilies, & Gerhardt, 2002, 2004) emphasize the importance of recognizing internal factors (e.g. self-

efficacy, values, personality, intelligence) that influence leadership success. Notably, self-efficacy did not emerge as a significant predictor in our findings, despite its established association in previous literature (Paglis, 2010; Polatcan, 2023). Future research should use a more reliable measure of self-efficacy, such as Bandura's General Self-Efficacy Scale, to better assess this relationship.

Our study found that a greater sense of campus belonging was the only factor that predicted gains in leadership aspirations across all racial groups over four years, underscoring the need for inclusive campus environments. A sense of belonging is crucial for feeling integrated (Hagerty, Lynch-Sauer, Patusky, Bouwsema, & Collier, 1992) and is central to Museus' (2013) Culturally Engaging Campus Environments model, which highlights its role in fostering a positive racial climate and cross-cultural interaction. While our findings confirm the benefits of campus belonging, these effects were consistent across the sample rather than specific to any racial or ethnic identity, differing from some prior research (Dugan *et al.*, 2012; McCall, 2018). For example, Black college students often face barriers in accessing resources that align with their leadership motivations and goals (Arminio, 2000; Chance, 2020; Sutton & Terrell, 1997). There is a critical need to create environments that support racial minority students' leadership development by increasing representation in the student body and in faculty and administrative leadership, helping these students feel more supported (McCall, 2018).

Strengths and limitations

While this study provides valuable insights from a diverse sample of college students with prior adversity and contributes to the limited literature on racial/ethnic differences in leadership outcomes, it has methodological limitations. The COVID-19 pandemic occurred in the midst of the longitudinal data collection, which significantly altered the college experience. However, the repeated measures design allows for pretest controls, mitigating potential biases introduced by these disruptions, particularly since the Year 1 data and analyses were unaffected by the pandemic. Despite this, widespread campus closures in the spring of Year 3 and the transition to remote learning in Year 4 may have influenced students' attitudes toward their education, careers, and sense of belonging (Wolniak & Burman, 2022).

Another limitation is that while the work values and positive adversity scales demonstrated face validity, their low reliability scores warrant caution in interpreting findings associated with these measures. Selection bias may have also influenced results given that the unique experiences of our resilient sample could confound the data. For example, we know that resilience correlates with leadership aspirations (Key *et al.*, 2012). Nevertheless, the emergence of racial differences despite this potential confound highlights the need for further exploration of these findings.

Due to the archival nature of this project, we faced limitations related to the variables captured during data collection. For instance, while our study provides valuable insights into the associations between racial and ethnic identity and leadership aspirations, relying on just two demographic items (racial and ethnic identification) may not fully capture group differences (Suzuki, Morris, & Johnson, 2021). Future research should include more comprehensive measures of racial and ethnic identity, such as Collective Racial Esteem, which has been shown to explain more variance in predicting leadership capacity than racial identification alone (Dugan *et al.*, 2012). Additionally, qualitative research designs could enrich our understanding of participants' perspectives on their racial identity, campus environment, lived experiences, and attitudes toward leadership (Rogers, Versey, & Cielto, 2022).

The sample size also limited our ability to examine the intersectionality of race, ethnicity, and gender. For instance, Black women face visibility struggles in the workplace that can hinder their recognition and advancement (McCluney & Rabelo, 2019). Research by Rosette, Koval, Ma, and Livingston (2016) found that Black female leaders are penalized more harshly than their Black male or white female counterparts, likely due to stereotypes that misalign their

identities with the prototypical leader (i.e. white male). Intersectional approaches highlight the need to capture these complex identities to better understand and disrupt barriers to career and leadership advancement for marginalized individuals. While our sample does not allow for broader generalizability, it effectively highlights a demographic often overlooked in research—marginalized and low-income individuals—underscoring the potential impact of these findings on future research directions.

Future directions

The current study utilized a framework that integrates Bronfenbrenner's Ecological Model and Rogers' M(ai)cro Theory of Human Development (Bronfenbrenner, 1977; Rogers *et al.*, 2021) to enhance our understanding of college student leadership aspirations. While this framework is valuable, future research could benefit from incorporating additional models related to college curricula, social justice, and other relevant topics. Studying these alongside microcontextual and distal factors may provide deeper insights into racial and ethnic differences in leadership aspirations. Furthermore, previous research with the same sample found that female students enter college with significantly lower leadership aspirations than their male counterparts—a trend that persists throughout college. Sense of campus belonging was identified as crucial for developing leadership aspirations in both genders, regardless of race/ethnicity (Wolniak, Chen-Bendle, & Tackett, 2023). We hope that this study, along with previous findings, lays the groundwork for further exploration of how intersecting identities contribute to inequalities in leadership aspirations and attainment.

Conclusion

This study contributes to the literature on leadership emergence, racial/ethnic identification, and the influence of precollege factors and college experiences on leadership aspirations. We found that Black students had higher leadership aspirations at college entry than their white peers, with no other significant racial or ethnic differences observed at entry or after four years. These findings are critical considering the overrepresentation of white individuals in leadership roles (Liu & Baker, 2016; Sy *et al.*, 2010). Notably, Black students' perceptions that prior adversity positively influenced their leadership aspirations more than their white counterparts supports the idea that Black individuals may uniquely leverage their experiences of adversity (Chance, 2020; Williams & Bryan, 2013).

Overall, our results underscore the need for continued empirical grounding in leadership development and interventions. The use of a microcontextual and distal framework in future research may enhance our understanding of leadership development and inform the evaluation of leadership opportunities for racial minority students. It is crucial to explore the psychological and systemic barriers that hinder leadership attainment of Black students—particularly in light of their greater leadership aspirations at college entry than their white counterparts. Such research may hold the key to the development of interventions able to effectively close racial and ethnic gaps in those holding leadership positions.

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Supplementary material
The supplementary material for this article can be found online.

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