The Interplay Between Race/Ethnicity, Socioeconomic Status, and Social and Emotional Skills

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Conclusions

The interactions of race/ethnicity and socioeconomic status (SES) in predicting social and emotional (SE) skills was examined for 81,950 6th–8th graders. At low levels of SES, White students tended to have the lower SE scores. However, as SES increased, they tended to have higher scores relative to minority groups. Across SES levels, Asian students showed higher Academic Discipline and Self-Regulation scores. The SES and SE skill relationship was less pronounced for underserved minority groups.

So What?

This may be among the first reports where a measure of SE skills has documented different relationships with SES as a function of race/ethnicity. Possible explanations for these findings, as well as implications for designing culturally responsive programs that focus on SE skills, are discussed.

Now What?

Future research should examine whether these patterns also are evident when different item types are used as well as focus on how to better tailor intervention programs to the specific needs and characteristics of students, including such important characteristics as race/ethnicity and SES.

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Abstract

The interactions of race/ethnicity and socioeconomic status (SES) in predicting social and emotional (SE) skills was examined for 81,950 6th–8th graders. At low levels of SES, White students tended to have the lower SE scores. However, as SES increased, they tended to have higher scores relative to minority groups. Across SES levels, Asian students showed higher Academic Discipline and Self-Regulation scores. The SES and SE skill relationship was less pronounced for underserved minority groups. This may be among the first reports where a measure of SE skills has documented different relationships with SES as a function of race/ethnicity. Possible explanations for these findings, as well as implications for designing culturally responsive programs that focus on SE skills, are discussed.

Introduction

Social and emotional skills (SE skills) are defined as "individual capacities that (a) are manifested in consistent patterns of thoughts, feelings and behaviours, (b) can be developed through formal and informal learning experiences, and (c) influence important socioeconomic outcomes throughout individual's life" (John & De Fruyt, 2015, p. 4). The outcomes associated with SE skills are numerous and include, among other things, academic performance (Poropat, 2009), work performance (Judge, Heller, & Mount, 2002), relationship quality (Jensen-Campbell et al., 2002), and relationship satisfaction (Watson, Hubbard, & Wiese, 2000). Moreover, their effects on occupational attainment, divorce, and even mortality, are on par with the effects of cognitive ability and socioeconomic status (SES; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

Readers of the personality literature will find the aforementioned definition to be virtually identical to that of personality traits. In this study, we use the term "social and emotional skills" (SE skills) instead of terms such as "personality traits" because this term is increasingly favored in educational and other applied settings. Conceptually, however, we equate SE skills and personality traits (Roberts et al., 2007). In fact, it is this consistency of thoughts, feelings, and behavior that provides the foundation for many of the behavioral manifestations that are seen in school (and other) contexts. Further, it provides the necessary linkages for the current focus on SE skills in education to address a variety of desired outcomes, including (but not limited to) improved attendance, better conduct, higher grades, persistence to graduation, and successful transitions to postsecondary education and/or work settings (for more details about the linkages, see Casillas, Way, & Burrus, 2015).

In educational settings, SE skills have been extolled as essential components for success (Aspen Institute National Commission on Social, Emotional, and Academic Development, 2018; Nagaoka, Farrington, Ehrlich, & Heath, 2015; Osher et al., 2016; Zins, Bloodworth, Weissberg, & Walberg, 2004). To succeed in school, students should become motivated learners who can actively seek and identify social supports (e.g., family, peers, or school personnel) to facilitate their learning and to regulate and manage their behaviors and emotions in school. In addition, recent studies underscore the importance of SE skills in education transitions (e.g., middle school to high school, high school to college) and education-to-work transitions (e.g., Benner, 2011; Nagaoka et al., 2015). When students move to a new school or start a new job, they need to

demonstrate appropriate SE skills to build relationships with new classmates or colleagues and to overcome the challenges posed by coursework or job tasks. For example, when transitioning to high school, students need to adapt to their new environment (e.g., be optimistic about the future when facing challenges, leverage social support from family and school personnel) and to consider the consequences before engaging in disruptive behavior (Benner, 2011; Uvaas & Mckevitt, 2013).

Why is this Topic Important?

Given the relevance of SE skills in multiple areas of life, and the diversity of individuals that compose our current student bodies and future workforce, it is important to consider whether group differences exist and how demographic characteristics interact with each other, as well as possible reasons for observed group differences. This research can help us to paint a more comprehensive picture of students, better understand the complexity of achievement gaps, and to find potential avenues for narrowing such gaps by focusing on students from a holistic perspective. Since middle school is a key transition period for the development of behaviors that facilitate later academic success (ACT, 2008; Casillas et al., 2012), the present study focused on a sample of middle school adolescents.

Race/Ethnicity and SE Skills

One challenge in studying racial group differences lies with articulating differences between "ethnicity" and "race" and specific racial groups. The US Census Bureau (2017b) indicates that ethnicity refers to whether or not a person is of Hispanic origin (i.e., categories are Hispanic or Latino and not Hispanic or Latino). Individuals who identify as Hispanic or Latino may report being any race. Race refers to which social group(s) one self-identifies, and no biological, anthropological, or genetic differences are assumed. Categories include White, Black or African American, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and Other, and individuals can self-identify as more than one. Often when making group comparisons, individuals who identify as Hispanic or Latino are considered a distinct group regardless of which race they identify with, which is the definition used in this study.

Foldes, Duehr, and Ones (2008) carried out a meta-analysis of more than 700 effect sizes comparing personality characteristics of five racial groups. They considered participants aged 18 years or older and categorized scores from 44 personality instruments into Big Five personality domains and more specific facets when able (e.g., the domain of emotional stability includes three specific facets: *self-esteem, low anxiety*, and *even tempered*). They concluded that, in general, group differences were small. Here we report on differences found by Foldes et al. (2008) between White participants and other groups, given that most comparisons in the literature involve White participants as the reference group (this is consistent with the method we employ in this study). We note any standardized differences reaching at least .20. The number of comparisons differed across specific group comparisons, depending on available literature (e.g., no White-American Indian comparisons were available at the facet level). Out of 17 comparisons, White participants scored higher (i.e., the effect size reached .20) than Black participants on three facets—the *low anxiety* facet of emotional stability, the sociability facet of extraversion, and the global measure of extraversion.

White participants and Asian participants differed on five of 16 comparisons. White participants scored higher on the *even tempered* facet of emotional stability but lower on the *self-esteem* and *low anxiety* facets of emotional stability, the *order* facet of conscientiousness, and the global measure of agreeableness. White participants scored lower than Hispanic participants on three of 16 comparisons – the *self-esteem* and *low anxiety* facets of emotional stability and the global measure of conscientiousness. There were few studies comparing White participants and American Indian participants, and comparisons at the facet level were unavailable. At the broad level, White participants scored higher than American Indian participants on emotional stability, extraversion, and agreeableness but lower on conscientiousness (note that there were insufficient data on openness to draw a conclusion).

Socioeconomic Status and SE Skills

Considerations ought to be made when examining racial group differences on SE skills to determine whether any observed differences can be accounted for by SES. Given the various theoretical and conceptual approaches in educational and psychological studies, SES generally has been captured as a combination of educational attainment (e.g., educational degree), personal or household income, and occupation (APA Task Force on Socioeconomic Status, 2006). The impact of SES on later academic and work success has been well documented in the literature, and the research generally shows that those with more resources tend to experience better outcomes, even when other characteristics are held constant (e.g., Ceci & Papierno, 2005; Sirin, 2005; Walberg & Tsai, 1983). In contrast, studies examining the relationship between SES and SE skills are less common (Shanahan, Bauldry, Roberts, Macmillan, & Russo, 2014), though the relationships between SES and broad measures of personality were revealed. For example, a recent meta-analysis found that the only noteworthy correlation between parental SES and personality measures occurs with openness (r = .12), whereas other personality traits have smaller associations with SES (r range = -.04 to .03; Ayoub, Gosling, Potter, Shanahan, & Roberts, 2018).

Kraus, Piff, Mendoza-Denton, Rheinschmidt, and Keltner (2012) posit that higher SES individuals are different from lower SES individuals not just in terms of their access to financial resources, but in terms of how these resources shape the experiences, opportunities, social networks, and other aspects related to social class and impact how individuals perceive and interpret the world (i.e., their construal). Further, they suggest that, given their access to sufficient economic and social freedom in life, higher SES individuals may be able to shape their SE skills in ways that lower SES individuals may not. For example, in a recent study, Leckelt et al. (2018) found that, after controlling for other demographic differences, wealthy people (i.e., those with financial assets of at least one million Euros) were more extraverted, open, conscientious, and narcissistic, and less neurotic. With the exceptions of the studies noted above, relatively few studies have examined the association between SES and SE skills, and fewer still have done so using large samples of adolescents. When it comes to SE skills, adolescents are a population of substantial interest given that this is a critical time for SE skills development (Nagaoka et al., 2015), as well as a time when they are forming construals of themselves and the world around them.

Explanations for Group Differences

Explanations for differences generally fall into one of two categories: genetic/biological or environmental (or an interaction of the two). For example, the Five Factor Theory (McCrae & Costa, 2008; McCrae & Sutin, 2018) generally asserts that characteristic adaptations (i.e., the consequences of personality traits) are affected by both biological factors (i.e., temperament) and environment/situations. For example, successfully adapting to one's environment may necessitate the development of particular traits (Roberts & Wood, 2006). Moreover, environmental stressors could be risk factors for certain personality profiles that are adaptive in the short term (as a result of stressors) but potentially less adaptive in other contexts where the stressors are different or no longer present. As detailed above, one such environmental risk factor is low SES. It is well known that SES metrics are highly confounded with race; for example, the median income in 2016 for non-Hispanic White households was $65,041, whereas for Black households it was $39,490 (United States Census Bureau, 2017a). Thus, it is important to consider both factors when attempting to explore race differences on any outcome (VanderWeele & Robinson, 2014). Camara and Schmidt (1999) did just this and concluded that Black and Hispanic students from comparable SES groups score lower than White and Asian students on standardized tests, citing structural inequities and differences in accumulated wealth as additional unmeasured explanatory factors.

Although an equal educational opportunity for *all* students has been urged by the *Every Student Succeeds Act* (ESSA; Cook-Harvey, Darling-Hammond, Lam, Mercer, & Roc, 2016), the understanding of culturally responsive programs or interventions for SE skills through a racial/ethnic equity lens still remains limited (Aspen Institute Education & Society, 2018; Dusenbury, Yoder, Dermody, & Weissberg, 2019; Hoffman, 2009; Osher et al., 2016). Based on a recent report (Dusenbury et al., 2019), 14 states have developed K-12 social and emotional standards, and a few of these states (e.g., Washington, New York, Wisconsin, Minnesota, Michigan) have gone as far as integrating SE skills into culturally responsive curriculum to promote social and emotional development for *all* students. To respond to the needs of designing such types of curriculum, Jagers and colleagues proposed several equity-elaborated approaches (e.g., cultural integration, community-building, promotion of identity; Jagers, Rivas-Drake, & Borrowski, 2018). However, despite calls for the needs of state standards to include culturally responsive curriculum, empirical studies that measure possible subgroup differences in SE skills and can provide a foundation for more culturally responsive curriculum are scarce.

Measuring SE Skills in the Present Study

To better capture students' SE skills relevant to educational settings, ACT researchers developed a social and emotional assessment, ACT® Engage®, that has been associated with important academic outcomes such as academic performance and persistence (Casillas et al., 2012; Kuo, Casillas, Allen, & Robbins, 2020; Moore et al., 2016). ACT Engage is a measure of SE skills capturing attitudes, behaviors, and personality characteristics organized by 10 scales that can be subsumed by three broad domains: *Motivation, Social Engagement*, and *Self-regulation* (ACT, 2016). The ACT Engage scales were developed based on prior research documenting the relationship between SE skills and outcomes like academic performance and persistence (ACT, 2016).

Based on the aforementioned studies, when schools design curriculum to improve students' SE skills, cultural diversity considerations, including race/ethnicity, SES, and other differences, should be taken into account (Osher et al., 2016). Although the ACT Engage scales have been shown to be predictive of academic performance and persistence in previous research (ACT, 2016; Casillas et al., 2012; Kuo et al., 2020; Moore et al., 2016), there has not been an evaluation of how ACT Engage score profiles differ across various demographic groups of students, nor how the predictive validity of ACT Engage may differ across racial/ethnic or SES groups.

The purpose of this study is to compare SE skill profiles as measured by ACT Engage across various student racial/ethnic subgroups and SES. Specifically, in this study, we examined the interactions of race/ethnicity and SES when predicting SE skills among students in grades 6–8 with the goal of improving our understanding of the differential effects of SES on race/ethnic groups. The primary research question of this study is: How do students' racial/ethnic background interact with SES when predicting SE skills in grades 6–8? This information can be used to examine how scores on SE skills vary across subgroups of students, as well as better tailor intervention programs to the specific needs and characteristics of said students.

Method

Data Source

In order to assess a wide range of students' SE skills from middle school through postsecondary levels, ACT maintains a database comprised of ACT Engage scores for students who have taken any version of Engage (Grades 6–9, Grades 10–12, and College) over the past decade. In this study, a national sample of 158,175 6th–8th-grade students assessed between 2009 and 2018 were used.

Participants and Procedure

Of the 158,175 students, 131,770 were selected based on the following sequential criteria: (a) For students who took the assessment on more than one occasion (12.20%), data from only the first test event were included to minimize exposure effects, and (b) students' responses flagged for item response concerns (e.g., excessive missing data, insufficient variability, inconsistency of responding) were removed (5.12%). Further, (c) students who reported being Pacific Islander (0.18%; insufficient sample size), or who failed to respond their race/ethnicity (10.74%) were excluded. In order to generate the index of SES in this study, students missing parents' highest education levels were excluded (30.19%). The final sample consisted of 81,949 students, of whom approximately half reported being male (51.32%) and White (54.03%); see Table 1 for the detailed sample demographic information. We used the Common Core of Data (CCD) between academic year 2011–2012 and 2013–2014 from the National Center for Education Statistics to obtain additional school-level demographic information. 84% of students at schools in CCD were matched. Among the matched students, 51% of students were eligible for free and reduced lunch under the National School Lunch Program, and 43% of students, including American Indian, Asian, Hispanic, and Black students were defined as underrepresented minorities. Given the matched schools, 25%, 31%, 18%, and 26% of schools were located in areas classified as city, suburban, town, and rural, respectively, based on the CCD classification. In terms of location within the

US, a large portion of schools were located in Texas (12.67%), Kentucky (11.60%), and Oklahoma (9.72%). The remainder were located throughout the US.

Measures

ACT Engage Grades 6-9. The SE skills instrument includes a series of Likert-type (1 = *Disagree a Lot* and 6 = *Agree a Lot*) and yes/no (1 = *Yes* and 0 = *No*) questions that map to 10 scales showing high internal reliabilities (α = .82 - .91, *Mdn* = .87; ACT, 2016). Engage scales are often grouped into three higher-order domains: Motivation (consisting of *Academic Discipline, Commitment to School,* and *Optimism*), Social Engagement (consisting of *Family Attitude toward Education, Family Involvement, Relationships with School Personnel, and School Safety Climate),* and Self-regulation (consisting of *Managing Feelings, Orderly Conduct,* and *Thinking before Acting*; see Table 2). The racial/ethnic differences in SE skills between White students and other minorities, including the multi-racial group, were measured by effect sizes estimated by Cohen's *d* values (Cohen, 1988; Table 3).

Socioeconomic status (SES). As part of a background questionnaire for ACT Engage Grades 6–9, students also provide self-reported demographic information and school and academic information (e.g., absences, course failures). Students self-reported the availability (via yes/no questions) of seven resources in their home: newspapers, magazines, dictionaries, computers, a room to study, more than 100 books, and a dishwasher. These questions have been used in previous educational research because students can easily report on them and they are correlated with SES (Kaufman & Bradbury, 1992).[1] Students also indicated their parents' highest level of education on a seven-point scale ranging from 1=*did not complete high school to* 7=*some education or degree above a 4-year college degree*. We computed a standardized SES index as follows: (a) summed the dichotomous home resources and standardized the sum; (b) standardized the level of education for the parent with the highest level; (c) summed the values from steps 1 and 2 to create an SES index and standardized the index. The range of SES in this study is between -2.33 and 1.50.

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[1] This method of estimating socioeconomic status via student report was pioneered by the National Education Longitudinal Study of 1988 and continues to be used in National Center for Education and Statistics studies, including the Education Longitudinal Study of 2002 (NCES, 2015).

Table 1. Means (and Standard Deviations) of ACT Engage scales by Demographic Groups

Variables		N (%)	Motivation			Social Engagement				Self-Regulation		
			AD	CS	OPT	FA	FI	RSP	SSC	MF	TBA	OC
Sex	Female	39,832 (48.7)	50.3 (8.2)	57.0 (4.9)	49.2 (8.8)	56.1 (5.3)	48.9 (9.1)	41.7 (9.9)	44.0 (9.0)	44.6 (10.8)	41.9 (8.7)	49.0 (12.7)
	Male	41,999 (51.3)	48.3 (8.6)	55.8 (6.0)	49.2 (8.2)	55.6 (5.6)	48.0 (3.5)	41.2 (9.8)	44.2 (9.1)	41.5 (10.3)	40.3 (8.4)	43.4 (14.0)
Grade	6th	25,048 (30.6)	51.4 (7.5)	56.8 (5.1)	50.0 (8.2)	56.6 (4.7)	50.4 (7.9)	43.1 (9.5)	46.3 (8.4)	44.9 (10.5)	42.1 (8.5)	48.3 (12.4)
	7th	26,662 (32.5)	48.6 (8.7)	56.2 (5.8)	49.0 (8.6)	55.7 (5.6)	48.1 (8.9)	41.0 (9.8)	43.5 (9.0)	42.7 (10.7)	40.6 (8.6)	45.3 (14.0)
	8th	30,239 (36.9)	48.4 (8.7)	56.3 (5.6)	48.9 (8.6)	55.4 (5.8)	47.3 (9.2)	40.6 (10.0)	42.9 (9.3)	41.9 (10.6)	40.8 (8.7)	45.2 (14.0)
Race / Ethnicity	Hispanic / Latino	19,335 (23.6)	46.9 (8.8)	55.9 (6.1)	48.6 (8.2)	55.1 (5.9)	46.8 (9.1)	40.3 (9.5)	41.9 (8.8)	41.5 (10.7)	40.4 (8.2)	43.4 (14.5)
	American Indian / Alaska Native	1,547 (1.9)	47.3 (8.8)	55.4 (6.3)	47.6 (9.0)	54.7 (6.3)	47.0 (9.1)	39.7 (10.1)	43.2 (9.2)	41.1 (10.7)	39.6 (8.6)	43.1 (13.9)
	Asian	1,857 (2.3)	52.2 (6.9)	56.9 (4.5)	48.7 (8.1)	56.6 (4.5)	47.6 (8.9)	43.2 (8.7)	46.9 (7.8)	46.9 (8.8)	43.8 (7.4)	52.4 (10.0)
	Black / African American	9,887 (12.1)	48.9 (8.0)	57.0 (5.4)	50.8 (7.8)	56.6 (5.3)	49.6 (8.3)	40.6 (10.2)	42.2 (9.3)	39.4 (11.3)	41.0 (8.5)	42.1 (14.3)
	White	44,277 (54.0)	50.3 (8.3)	56.5 (5.4)	49.4 (8.6)	56.0 (5.3)	49.0 (8.7)	42.2 (9.8)	45.4 (8.9)	44.4 (10.3)	41.4 (8.8)	47.9 (12.8)
	Two or more races	5,046 (6.2)	49.2 (8.5)	56.7 (5.3)	48.5 (9.2)	56.3 (5.3)	48.4 (9.1)	40.0 (10.6)	42.7 (9.8)	41.3 (11.0)	40.3 (9.0)	44.3 (13.8)

Note. n = 81,949. AD = Academic Discipline, CS = Commitment to School, OPT = Optimism, FA = Family Attitude toward Education, FI = Family Involvement, RSP = Relationships with School Personnel, SSC = School Safety Climate, MF = Managing Feelings, TBA = Thinking before Acting, and OC = Orderly Conduct.

Table 2. ACT Engage Scale Details

Factor	Scale	Definition	Sample items	# of items	α-scale	α-factor
Motivation	Academic Discipline	Degree to which a student is hardworking and conscientious as evidenced by the amount of effort invested into completing schoolwork.	1. I turn in my assignments on time. 2. I'm usually prepared for class.	11	.90	.93
	Commitment to School	Commitment to stay in high school and obtain a diploma.	1. I am committed to graduating from high school. 2. A high school diploma is important for getting ahead in life.	10	.85	
	Optimism	Having a hopeful outlook about the future in spite of difficulties or challenges.	1. I am confident that everything will turn out all right. 2. I look for the bright side of things.	10	.88	
	Family Attitude toward Education	Positive family attitude regarding the value of education.	1. My family supports my efforts in school. 2. Education is important to my family.	10	.84	.92
	Family Involvement	Family involvement in a student's school life and activities.	1. My family tries hard to be involved in my school life. 2. I talk to my family about school accomplishments.	9	.87	
Social Engagement	Relationships with School Personnel	The extent to which students relate to school personnel as part of their connection to school.	1. Adults at my school understand point of view. 2. If I was in trouble, adults at my school would be there to help	12	.89	
	School Safety Climate	School qualities related to student's perception of security at school.	1. I feel safe at school. 2. Students at my school don't get in trouble with the law.	11	.81	
	Managing Feelings	Tendency to manage duration and intensity of negative feelings, and to find appropriate ways to express these feelings.	1. I would walk away if someone wanted to fight me. 2. I fight back when someone makes me mad (reverse-keyed).	12	.89	.92
Self-Regulation	Thinking before Acting	Tendency to think about the consequences of one's actions before acting.	1. I think about what might happen before I act. 2. I think about what I say before I say it.	12	.86	
	Orderly Conduct	Tendency to behave appropriately in class and avoid disciplinary action.	1. I joke around or make fun of others during class. 2. I have been sent to the principal's office for misbehaving (reverse-keyed).	9	.80	

Note. Adapted from *ACT ENGAGE Grades 6-9 user's guide* (ACT, 2011). Copyright 2011 by ACT.

Table 3. Cohen's D-values for Whites Versus Minorities Differences

Race / Ethnicity	Motivation			Social Engagement				Self-Regulation		
	AD	*CS*	*OPT*	*FA*	*FI*	*RSP*	*SSC*	*MF*	*TBA*	*OC*
Hispanic / Latino	.40	.11	.09	.16	.25	.20	.39	.28	.12	.34
American Indian / Alaska Native	.35	.19	.21	.23	.23	.25	.24	.32	.21	.37
Asian	-.24	-.08	.08	-.12	.16	-.11	-.17	-.25	-.29	-.37
Black / African American	.17	-.09	-.17	-.11	-.07	.16	.35	.47	.05	.44
Two or more races	.13	-.04	.10	-.06	.07	.22	.29	.29	.12	.27

Note. Reference group = White. The positive values indicate Whites score higher. *AD = Academic Discipline, CS = Commitment to School, OPT = Optimism, FA = Family Attitude toward Education, FI = Family Involvement, RSP = Relationships with School Personnel, SSC = School Safety Climate, MF = Managing Feelings, TBA = Thinking before Acting, and OC = Orderly Conduct.*

Data Analyses

To address the main research question, multiple linear regression models were constructed. In addition to the key variables for race/ethnicity and SES, gender and grade variables were included as covariates. For the dichotomous gender variable, females were coded as 0, and males were coded as 1. For the grade variable, grades 6, 7, and 8 were coded as 1, 2, and 3, respectively. Race/ethnicity variables were coded as dummy variables with White students serving as the reference group. The five interaction terms between race/ethnicity and SES were created by computing the product of these two variables. To facilitate interpretation of the results, scale scores were standardized to z-scores for the analyses. Post-hoc probing of interaction effects in predicting SE skill variables in terms of gender and grades were examined (see Figures A1-10 in the Appendix). Due to the uncertainty of racial/ethnicity combinations in the multiracial group and relative smaller number of students in the American Indian/Alaska Native group (1.89% of sample), the results and discussion in this study focused on White, Asian, Black, and Hispanic groups. Also, due to the consistency of patterns across genders and grades found in post-hoc analyses, abridged versions of figures containing results aggregated across grade and gender are presented.

Results

Significant interactions between race/ethnicity and SES were found in predicting SE skills (Tables 4-6). In particular, the relationship between SES and SE skills was more pronounced for White students than other race/ethnicity groups. In general, for all race/ethnicity groups, SES was positively related to SE skills.

Regarding *Motivation*-related SE skills, for White, Asian, Black, and Hispanic students, a one standard deviation increase in SES was associated with .34, .26, .18, and .25 standard deviation increase in *Academic Discipline*; with .30, .16, .14, and .21 standard deviation increase in *Commitment to School*; and with .31, .18, .15, and .18 standard deviation increase in *Optimism*, respectively. Further, between 6% and 13% of the variance in these three SE skills was explained by the study variables including gender, grade, race/ethnicity, and SES. Figure 1 shows that White students had lower SE skills than other racial/ethnic groups at lower levels of SES. However, as SES increases, White students showed higher SE skills than other groups. In particular, for *Academic Discipline*, Asian students showed higher skill levels across all levels of SES, though Asian and Hispanic students showed similar increasing rates as SES increases. Black students showed higher levels of *Academic Discipline* at lower levels of SES, but this advantage disappeared at above average SES, and the gaps between Black students and both Asian and White students continued to widen accordingly (see Figure 1, Academic Discipline). Similarly, Black students with middle and lower SES backgrounds showed higher *Commitment to School* than other racial/ethnic groups, but this advantage disappeared at above average SES (Figure 1, Commitment to School). Black and Hispanic students generally showed more *Optimism* than other groups across SES levels (Figure 1, Optimism).

Table 4. Relationships between Background Variables and SE Skills in Motivation

Variables	Motivation					
	Academic Discipline		Commitment to School		Optimism	
	B	SE	B	SE	B	SE
Intercept	.46*	.01	.10*	.01	.03*	.01
Male	-.23*	.01	-.21*	.01	.01	.01
Grade	-.15*	<.01	-.03*	<.01	-.05*	<.01
Hispanic/Latino	-.17*	.01	.09*	.01	.10*	.01
American Indian/Alaska Native	-.16*	.03	-.02	.03	-.04	.03
Asian	.20*	.02	.09*	.02	-.05*	.02
Black/African American	-.07*	.01	.15*	.01	.22*	.01
Two or more races	-.08*	.01	.09*	.01	-.05*	.01
SES	.34*	<.01	.30*	<.01	.31*	<.01
Hispanic/Latino*SES	-.09*	.01	-.09*	.01	-.13*	.01
Amer. Indian/Alaska Native*SES	-.09*	.03	-.10*	.03	-.12*	.03
Asian*SES	-.08*	.02	-.14*	.02	-.13*	.02
Black/African American*SES	-.16*	.01	-.16*	.01	-.16*	.01
Two or more races*SES	-.08*	.02	-.11*	.02	-.08*	.02
Model R^2	.13		.07		.06	
ΔR^2 (%)	.29		.32		.40	

Note. n = 81,831.[2] Females and males were coded as 0 and 1, respectively. Grades 6, 7, and 8 were coded as 1, 2, and 3, respectively. Reference category: Race = White. ΔR^2 refers to the incremental variance for the interactions.

* p < .05.

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[2] Because this study made use of existing data, an a priori power analysis could not be conducted. However, a post hoc power analysis was conducted for the multiple regression analysis with 13 predictors (plus intercept) shown in Table 3. Due to the large size of our analysis sample (n = 81,831), we would have power of 0.9 to detect a Cohen's f^2 of 0.0003 at a significance level of 0.05. An effect this small may not be practically meaningful, but we have ample power to detect even a very small effect.

Figure 1. Interaction Effects of *Motivation*-Related SE Skills and SES Across Races/Ethnicity
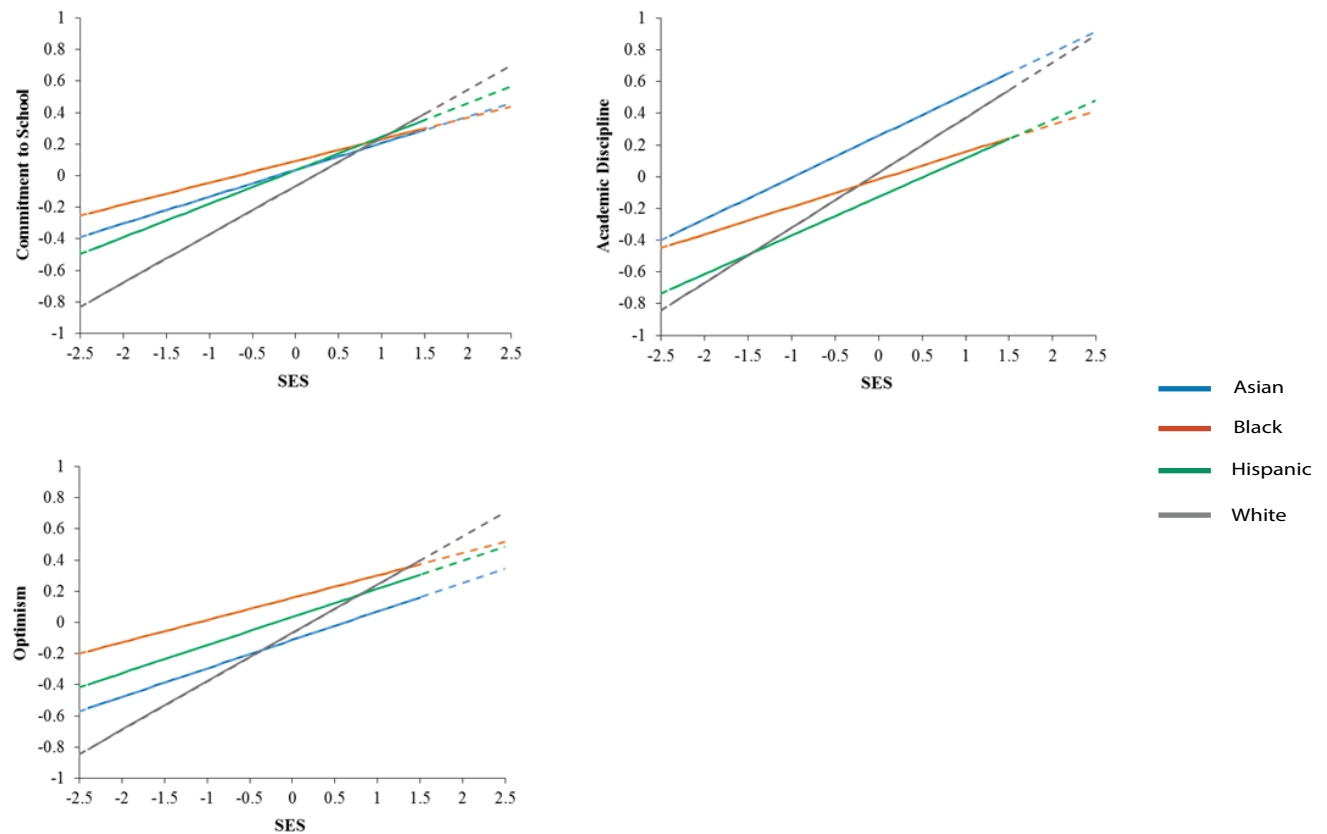
Regarding *Social Engagement*-related skills, for White, Asian, Black, and Hispanic students, a one standard deviation increase in SES was associated with .35, .22, .18, and .25 standard deviation increase in *Family Attitude toward Education*; with .36, .37, .18 and .26 standard deviation increase in *Family Involvement*; with .21, .17, .10; and .12 standard deviation increase in *Relationships with School Personnel*; and with .19, .23, .14, and .08 standard deviation increase in *School Safety Climate*, respectively. Further, between 5% and 12% of the variance in these four SE skills was explained by the study variables including gender, grade, race/ethnicity, and SES. Figures 2-1 and 2-2 show that, in general, as SES increases, the gaps among groups on *Family Attitude toward Education* and *Family Involvement* decreases. Lower SES White students reported lower *Family Attitude toward Education*, while Asians reported lower *Family Involvement* than other racial/ethnic groups, regardless of SES. Black students with lower or average SES backgrounds reported higher *Family Attitude toward Education* and higher *Family Involvement* than other racial/ethnic groups across SES. Asians consistently reported higher scores on *Relationship with School Personnel* across SES (Figure 2-3). Both White and Asian students consistently perceived higher *School Safety Climate* than other groups across SES, while the relationship between SES and *School Safety Climate* was smaller for Hispanic students (Figure 2-4).

Table 5. Relationships Between Background Variables and SE Skills in Social Engagement

Variables	Family Attitude toward Education		Family Involvement		Relationships with School Personnel		School Safety Climate	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Intercept	.14*	.01	.33*	.01	.28*	.01	.44*	.01
Male	-.09*	.01	-.09*	.01	-.05*	.01	.03*	.01
Grade	-.08*	<.01	-.15*	<.01	-.11*	<.01	-.17*	<.01
Hispanic/Latino	.09*	.01	.01	.01	-.07*	.01	-.28*	.01
American Indian/Alaska Native	-.02	.03	-.05	.03	-.15*	.03	-.17*	.03
Asian	.14*	.02	-.20*	.02	.08*	.02	.12*	.02
Black/African American	.19*	.01	.14*	.01	-.09*	.01	-.26*	.01
Two or more races	.11*	.01	-.02	.01	-.19*	.01	-.27*	.01
SES	.35*	<.01	.36*	< .01	.21*	.01	.19*	<.01
Hispanic/Latino*SES	-.10*	.01	-.10*	.01	-.09*	.01	-.11*	.01
Amer. Indian/Alaska Native*SES	-.09*	.03	-.13*	.03	-.09*	.03	-.10*	.03
Asian*SES	-.13*	.02	.01	.02	-.04	.02	.04	.02
Black/African American*SES	-.17*	.01	-.16*	.01	-.11*	.01	-.05*	.01
Two or more races*SES	-.10*	.02	-.06*	.02	-.03	.02	-.02	.02
Model R^2	.09		.12		.05		.08	
ΔR^2 (%)	.35		.32		.19		.19	

Note. n = 81,831. Females and males were coded as 0 and 1. Grades 6, 7, and 8 were coded as 1, 2, and 3, respectively. Reference category: Race = White. ΔR^2 refers to the incremental variance for the interactions.

* p < .05.

Figure 2. Interaction Effects of *Social Engagement*-Related SE Skills and SES Across Races/Ethnicity
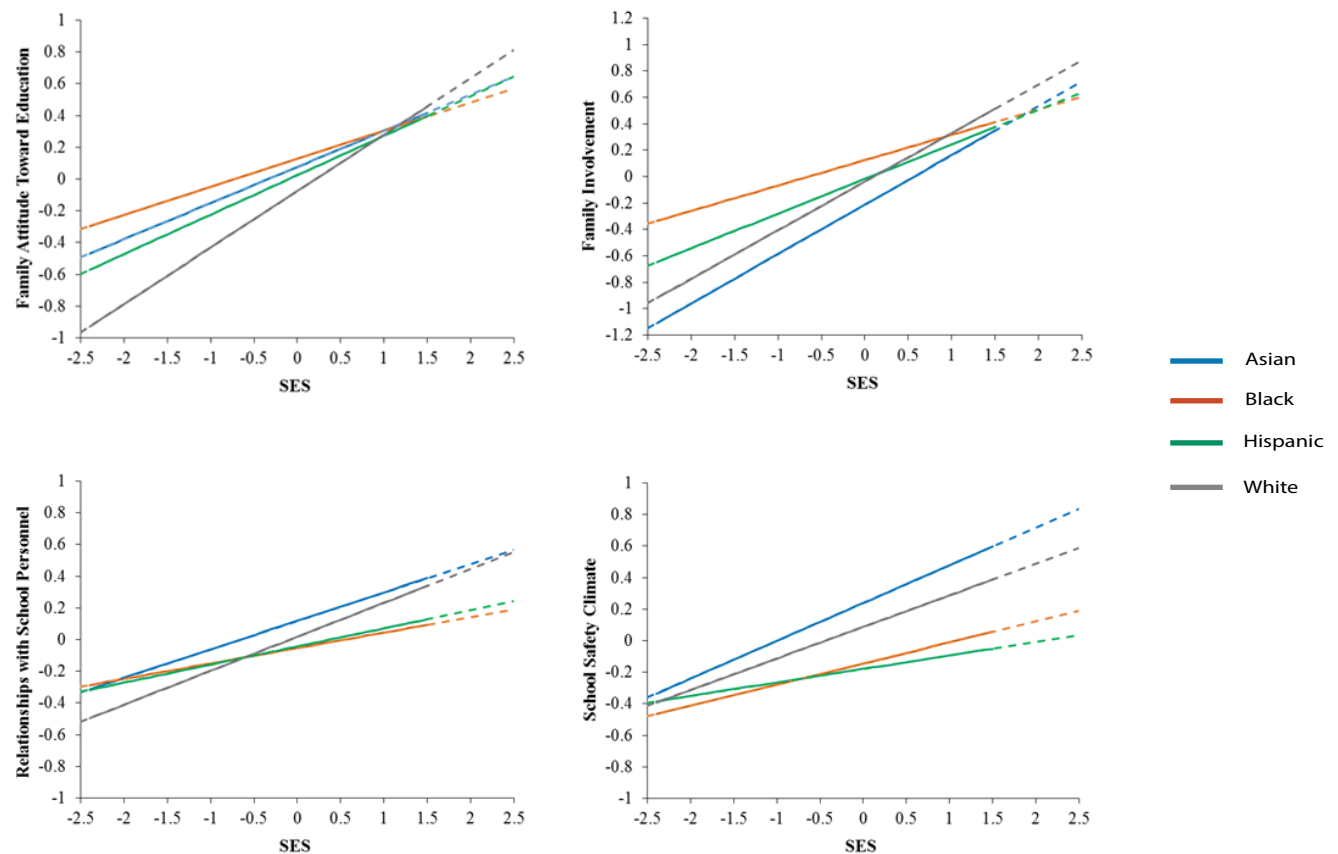
Regarding *Self-regulation*-related skills, for White, Asian, Black, and Hispanic students, a one standard deviation increase in SES was associated with .26, .13, .18, and .14 standard deviation increase in *Managing Feelings*; with .27, .15, .14, and .12 standard deviation increase in *Thinking before Acting*; and with .25, .11, .15, and .12 standard deviation increase in *Orderly Conduct*, respectively. Further, between 6% and 12% of the variance in these three SE skills was explained by the study variables including gender, grade, race/ethnicity, and SES. Figure 3 shows that Asian students reported the highest scores in all *Self-Regulation* skills, while the gap between Asian and White students was significantly reduced at higher SES, which appears to have less impact on other racial/ethnic groups. For *Managing Feelings* and *Orderly Conduct*, the gap between Black and Hispanic students was reduced as SES increases, while Black students reported the lowest scores across SES.

Table 6. Relationships between Background Variables and SE Skills in Self-Regulation

| Variables | Self-Regulation | | | | | |
| | Managing Feelings | | Thinking before Acting | | Orderly Conduct | |
	B	SE	B	SE	B	SE
Intercept	.48*	.01	.17*	.01	.47*	.01
Male	-.29*	.01	-.17*	.01	-.39*	.01
Grade	-.13*	<.01	-.06*	< .01	-.10*	< .01
Hispanic/Latino	-.13*	.01	.03*	.01	-.20*	.01
American Indian/Alaska Native	-.17*	.03	-.06*	.03	-.20*	.03
Asian	.24*	.02	.29*	.02	.34*	.02
Black/African American	-.32*	.01	.04*	.01	-.29*	.01
Two or more races	-.25*	.01	-.08*	.01	-.22*	.01
SES	.26*	<.01	.27*	.01	.25*	< .01
Hispanic/Latino*SES	-.12*	.01	-.15*	.01	-.13*	.01
Amer. Indian/Alaska Native*SES	-.11*	.03	-.11*	.03	-.08*	.03
Asian*SES	-.13*	.02	-.12*	.02	-.14*	.02
Black/African American*SES	-.08*	.01	-.13*	.01	-.10*	.01
Two or more races*SES	-.04*	.02	-.07*	.02	-.06*	.02
Model R^2	.10		.06		.12	
ΔR^2 (%)	.26		.41		.29	

Note. n = 81831. Females and males were coded as 0 and 1. Grades 6, 7, and 8 were coded as 1, 2, and 3, respectively. Reference category: Race = White. ΔR^2 refers to the incremental variance for the interactions.

* $p < .05$.

Figure 3. Interaction Effects of *Self-Regulation*-Related SE Skills and SES Across Races/Ethnicity
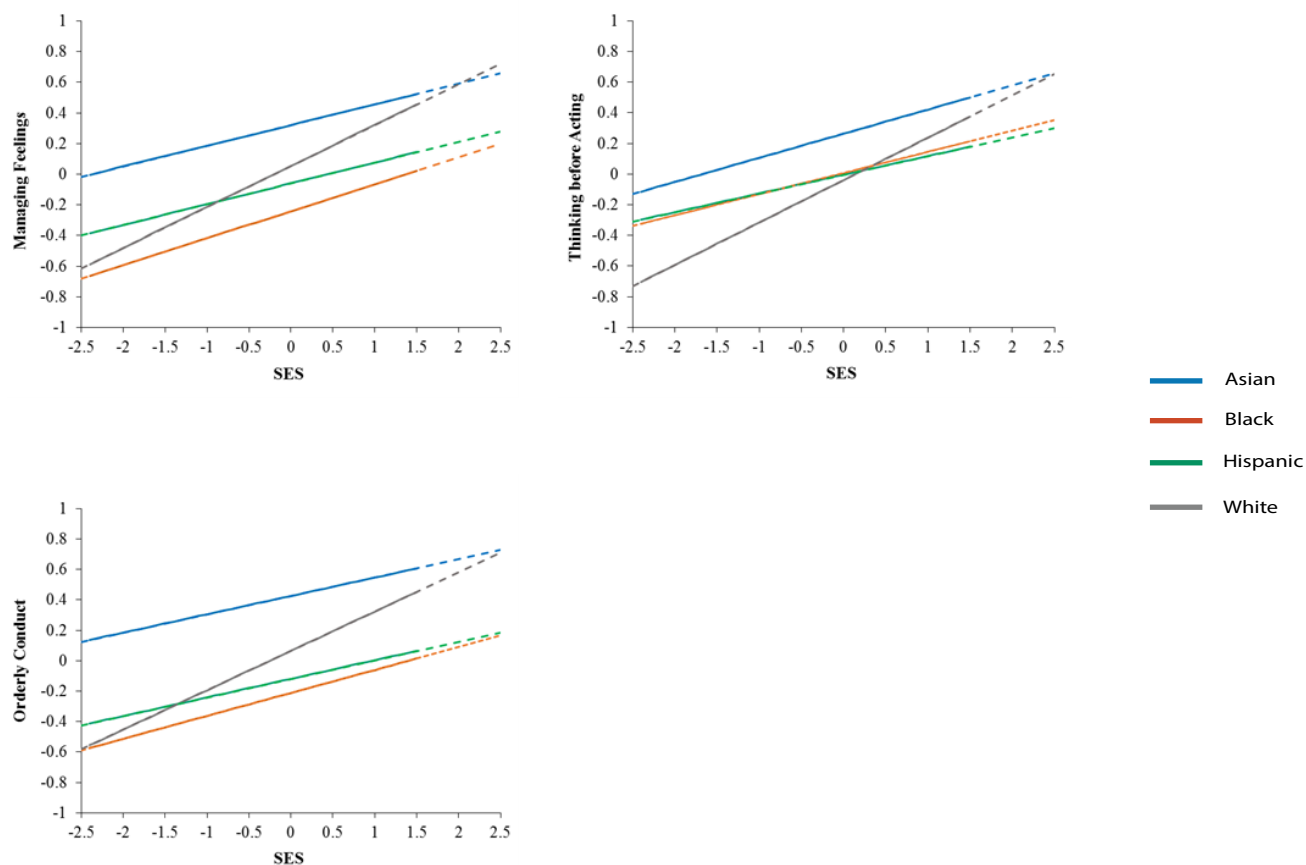
Discussion

The purpose of this study was to compare SE skill profiles across various student racial/ethnic subgroups and SES. Specifically, the study examined the interaction effects of race/ethnicity and SES on SE skills among students in grades 6–8. We examined the following research question: How do students' racial/ethnic background interact with SES when predicting SE skills in grades 6–8? Commensurate with prior research, main effects were found for both race/ethnicity and for SES. The main effect of SES was particularly salient, with students (regardless of racial/ethnic background) reporting higher SE skills as SES increased. With regard to our primary research question, we found a series of significant interactions between race/ethnicity and SES in predicting SE skills, with said interactions being most prominent for White students.

As part of examining this research question, we included other factors as covariates, such as gender and students' grade level (6th, 7th, or 8th), as prior research has shown that some SE skills vary by gender (e.g., girls demonstrate higher levels of self-control than boys; e.g., Card, Stucky, Sawalani, & Little, 2008; de Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012) or age/grade level (e.g., as adolescents approximate the transition to high school, their behavior scores sometime dip; Benner, 2011; Branje, van Lieshout, & Gerris, 2007; Soto, John, Gosling, & Potter, 2011). These

covariates were included to better differentiate the effects of race/ethnicity and SES factors from other characteristics.

In the United States, race/ethnicity is often intertwined with financial and social capital. Thus, we believe that it is best to examine and interpret individual differences in SE skills by race/ethnicity along with SES. When we began exploring the primary research question, we noticed that when grouping students according to race/ethnicity (e.g., Asian, Black, Hispanic, and White), there were small differences between the groups that did not appear to follow a particular pattern. However, as soon as we grouped students into low, medium, and high SES groups, a clear pattern arose: Regardless of ethnicity, as SES increased, scores on Engage scales did as well (see examples in Tables A1-A3 in the Appendix). As we probed further, the patterns reported in the results emerged more clearly.

Specifically, we noticed that low-SES White students tended to have the lowest scores. However, as SES increased, White students tended to have higher scores relative to their peers from other racial/ethnic groups with similar SES. Moreover, when looking at the highest levels of SES, White students often reported the highest (or second highest) scores across the SE skills examined.

Although we are not able to identify the causes for this pattern of findings based on the data we have available, there are several possible related explanations. First, the interaction may be due to a reference bias related to SES differences across race/ethnicity. Biernat (2003) proposed a broader view of social stereotyping including assimilation (a direction that aligns with group-level expectations) and contrast effect (an opposite direction). It seems the self-ratings of White students may be influenced by these two stereotyping effects at low-end and high-end SES levels. That is, low-SES White students may tend to rate their SE skills much lower than other racial/ethnic groups even though they have similar SE skills to other minorities who also are at a lower SES level (contrast effect), while high-SES White students may rate their SE skills much higher than other minority groups (assimilation). In this study, White students with a very low SES z-score are more disadvantaged (relative to their White peers) than are Black students with the same very low SES z-score (relative to their Black peers). In other words, racial/ethnic group-normed SES may have a more consistent impact on SE skills.

Another explanation is based on accumulated advantage (a.k.a. the Matthew Effect; see Walberg & Tsai, 1983). This phenomenon refers to the idea that the rich get richer due to the fact that those who have certain resources or status are more likely to be placed in situations where they are able to reap additional benefits (Ceci & Papierno, 2005; Walberg & Tsai, 1983). For example, Walberg and Tsai (1983) found that students having better prior educational background are more likely to have better educational experiences and be motivated to learn in school. Further, the cumulative advantages of these factors show predictive power for later academic success. Consequently, the achievement gap becomes greater over time due to students' increasing differences in educational backgrounds. Similarly, within the context of US society, it is not difficult to imagine scenarios in which White students may have an easier time navigating through their social and cultural environment due, in part, to the benefit of being part of the dominant culture. This majority culture may, in turn, confer additional benefits above and beyond the effects of increased SES in students' development of SE skills.

Osher and colleagues (2016) argue that when school curricula are designed to improve students' SE skills, cultural diversity factors, including race/ethnicity and SES, should be considered. The implications of this study are consistent with Osher et al.'s recommendation. If we want students to benefit from youth development programs that focus on SE skills, it will be important to ensure that we are not reinforcing inequities based on power and privilege and, in turn, design programming that allows students from *all* backgrounds to experience similar benefits in terms of their SE skills (for a more detailed discussion on equity-informed SE skills programming, see Jagers et al., 2018).

Strengths and Limitations

This study has multiple strengths and limitations. Among its strengths is the fact that, to our knowledge, this is among the first studies to explore the interaction of race/ethnicity and SES factors relative to SE skills. We believe that these results capture a true phenomenon due to the fact that we used a large and diverse sample of adolescents that resembles the current population of middle school students in the US. Further, we used an SE skills instrument that has strong psychometric properties, a well-documented development and validation process, and utility in predicting outcomes relevant to academic success, such as academic performance and persistence (for details, see Casillas et al., 2012, and Moore et al., 2016).

This study also has several limitations. Among them is the fact that we used an instrument that is based exclusively on Likert-type, self-report scales, a method which has been associated in the literature with the presence of common biases that could distort the true estimate of students' SE skills. For example, this may be particularly complicated for the *Family Involvement* scale, as this scale is based on students' perceptions of their family involvement in education and could be subject to additional memory biases and/or misrepresentations. Nevertheless, given the consistency of the patterns observed in this study across gender, grade level, and race/ethnicity, we believe that the self-report scales allowed us to examine the research question appropriately.

Another limitation is due to missing data. Although we started with a sample exceeding 158,000 students from the existing database, given the rigorous inclusion criteria, we were only able to use about 52% of the sample for our analyses due to a substantial portion of this sample missing key information (i.e., parents' highest education levels) to estimate SES (30%). Based on post-hoc comparisons between the study sample and students excluded from the study sample using the demographic data that were available, there is no evidence that the included sample differed in meaningful ways from the excluded sample (except for the grade levels), but it is possible that the differences stem from characteristics that were not reported (see Table A4 in the Appendix).

Future Research

Future research should examine whether these patterns also are evident when different item types (besides Likert-type, self-report) are used. Although widely used and practical for gathering reliable and valid data efficiently, Likert-type items have some disadvantages. For example, they may be particularly susceptible to reference or stereotyping effects (e.g., Biernat, 2003). That is, when asked to indicate one's level of (dis)agreement with a statement such as "I work hard," the respondent must ask him

or herself the question of, "Compared to whom?" Students from very high-achieving schools, for example, might rate themselves lower on their SE skills and have a lower academic self-concept than students from low-achieving schools simply because they are using a different reference group and not because they are truly lower on these skills. This is often called the *Big-Fish Little-Pond Effect* (Marsh & Hau, 2003). One example of an alternative item type that may alleviate such effects is the forced choice item. With this item type, respondents are asked to select which of two items is most descriptive of him or her, or rank order three or more items. No scales are used, so scale response effects are eliminated. Reference bias is minimized because respondents must conduct an internal (self vs. self) comparison rather than an external (self vs. other) one. Exploring whether the patterns reported here replicate with different items types would be beneficial. Such findings would allow researchers to better examine the presence of biases or adverse impact for measures of SE skills and possibly improve the design of such measures.

Another line of inquiry should focus on how to better tailor intervention programs to the specific needs and characteristics of students, including such important characteristics as race/ethnicity and SES. Recently, the Aspen Institute's National Commission on Social, Emotional, and Academic Development (SEAD) has taken the lead in calling for pursuing SE skill development through a racial equity lens (Aspen Institute Education & Society, 2018) and design programming that is culturally responsive (for an example of this type of programming, see Castro-Olivo, 2014). We wholeheartedly agree that this is an important priority in the national (and international) conversation taking place on best practices to advance youth SE skill development and will likely require expertise from a broad range of disciplines to accomplish.

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Appendix

Figure A1. The Relationships between Race/Ethnicity and SES in Predicting Academic Discipline
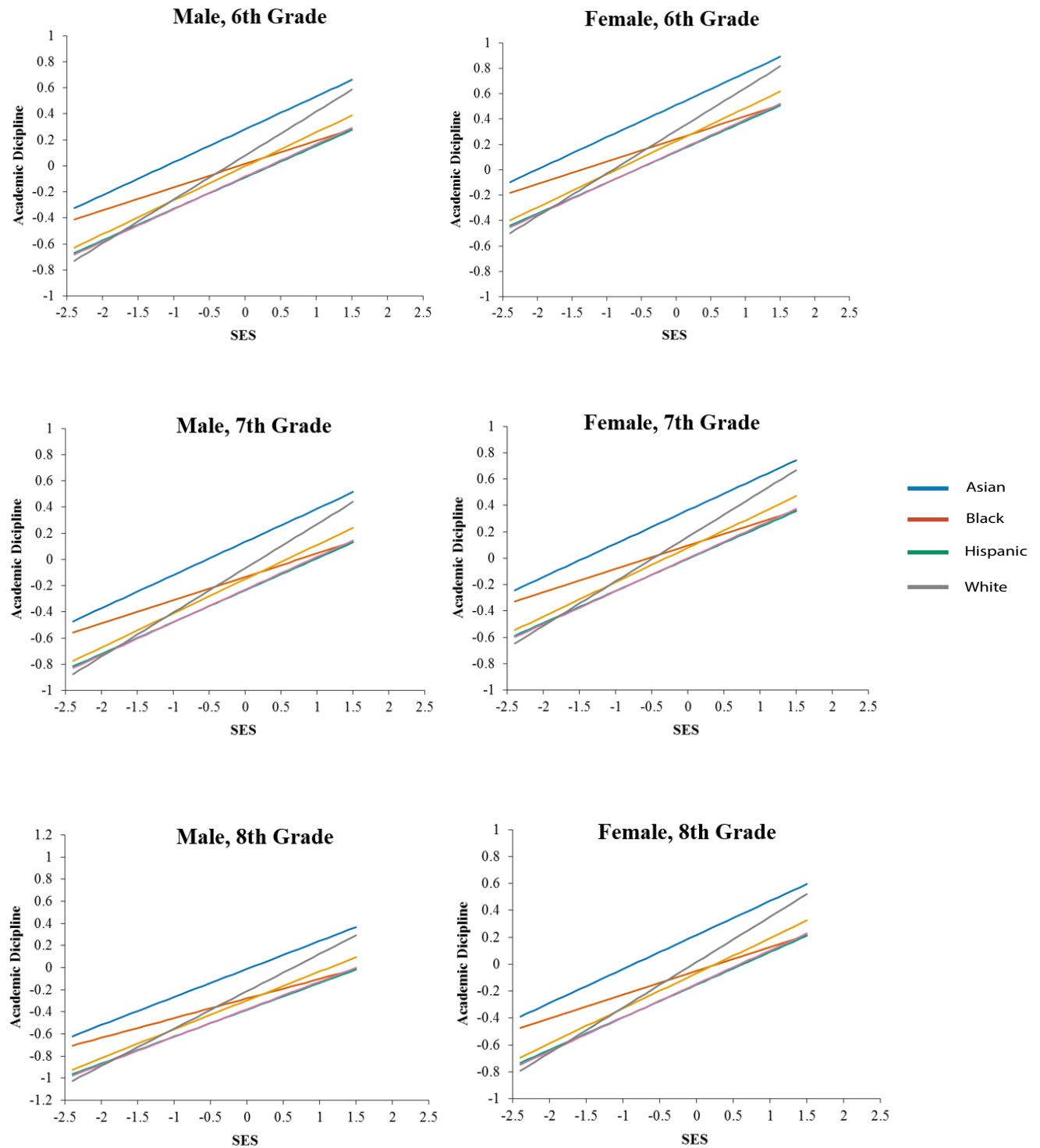
Figure A2. The Relationships between Race/Ethnicity and SES in Predicting Commitment to School
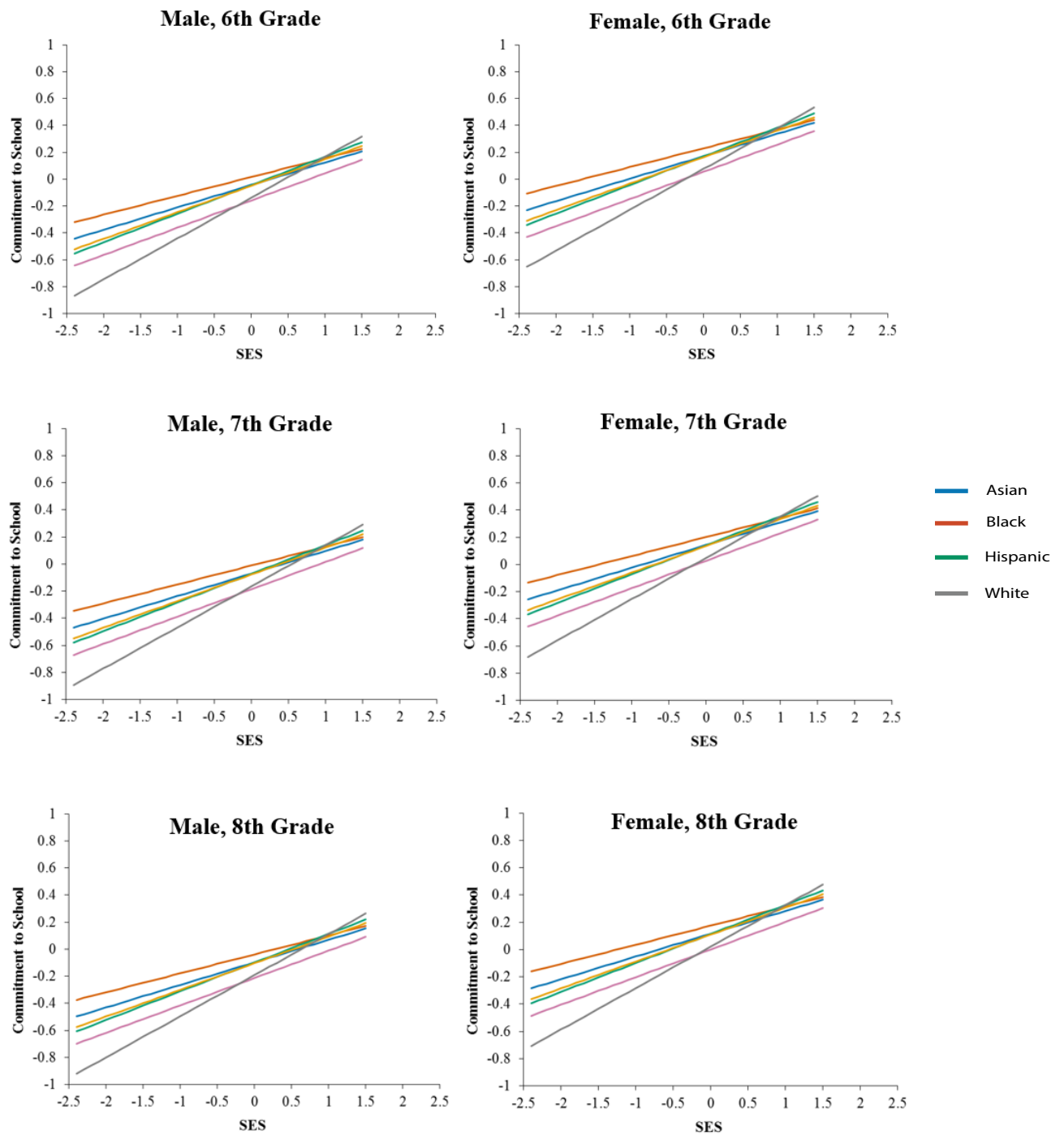
Figure A3. The Relationships between Race/Ethnicity and SES in Predicting Optimism
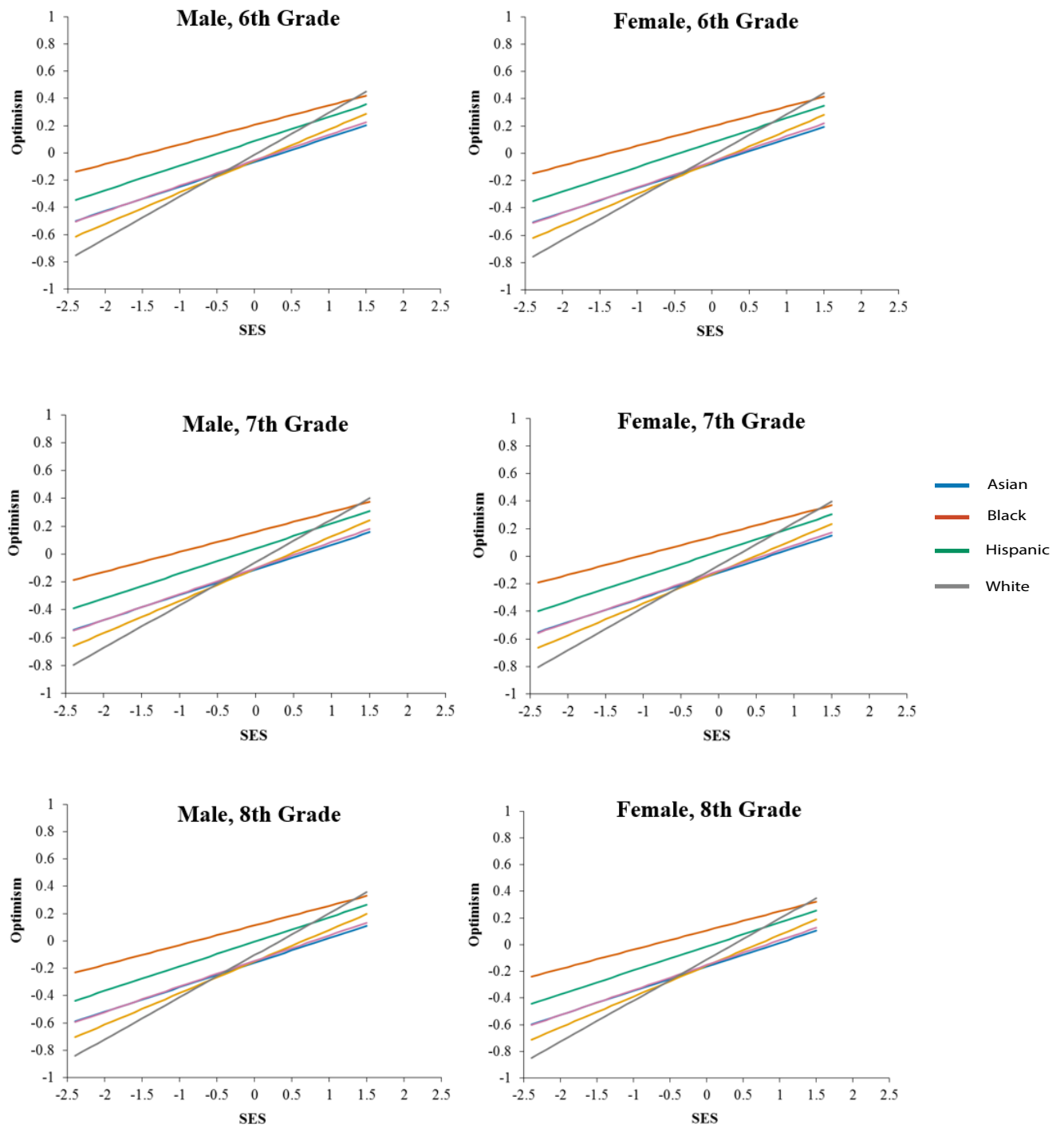
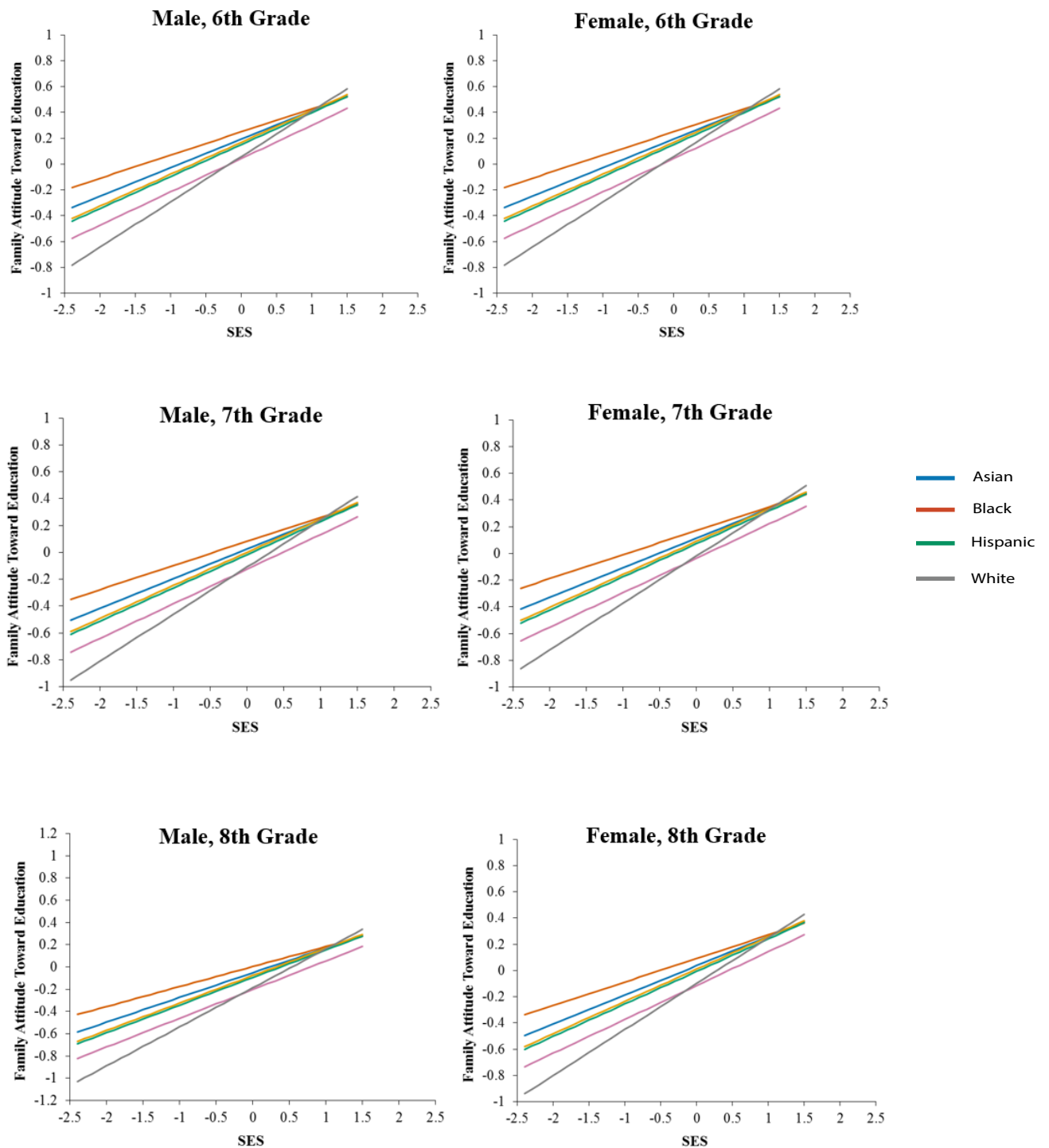**Figure A4.** The Relationships between Race/Ethnicity and SES in Predicting Family Attitude toward Education

Figure A5. The Relationships between Race/Ethnicity and SES in Predicting Family Involvement
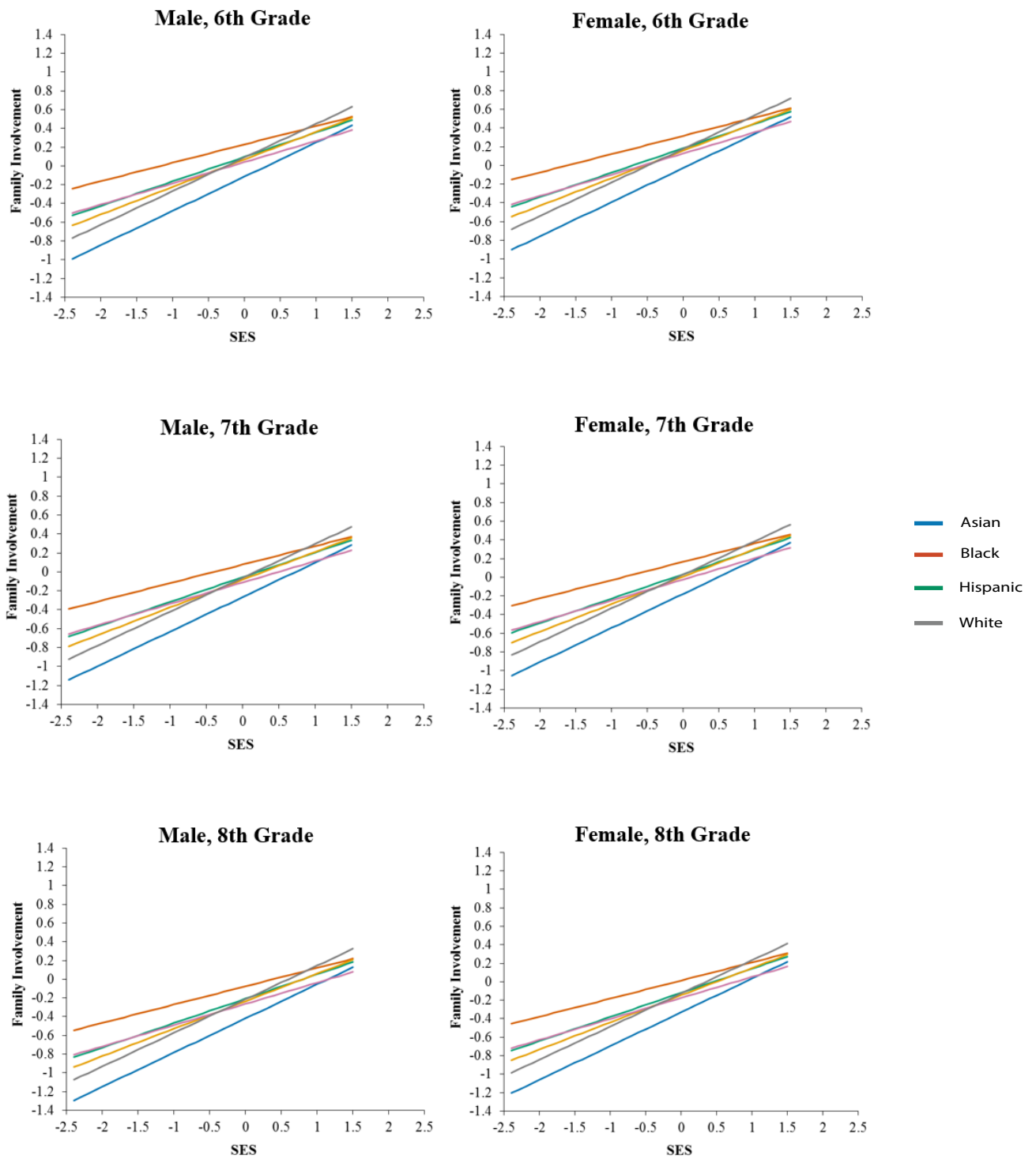
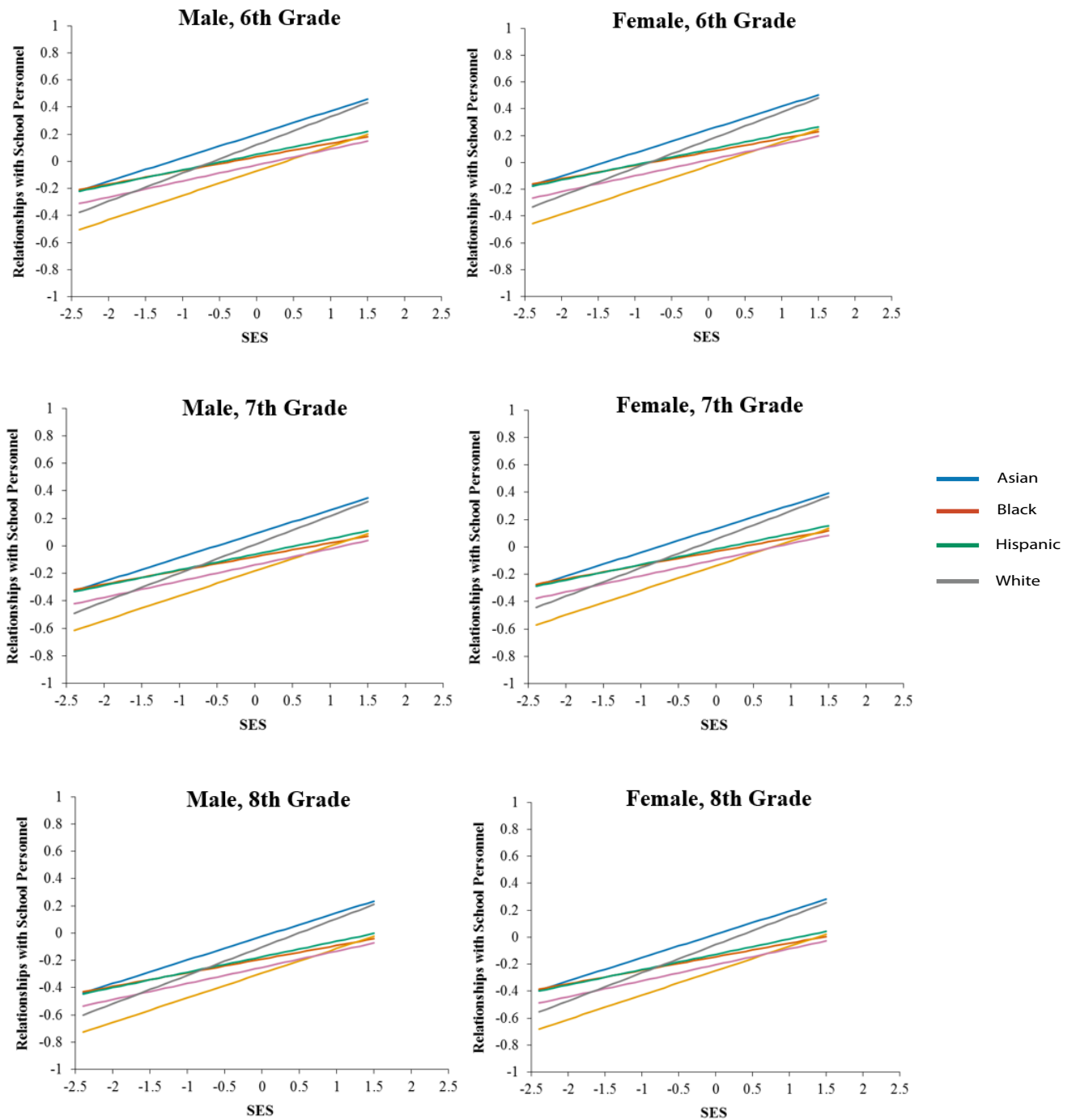**Figure A6.** The Relationships between Race/Ethnicity and SES in Predicting Relationships with School Personnel

Figure A7. The Relationships between Race/Ethnicity and SES in Predicting School Safety Climate
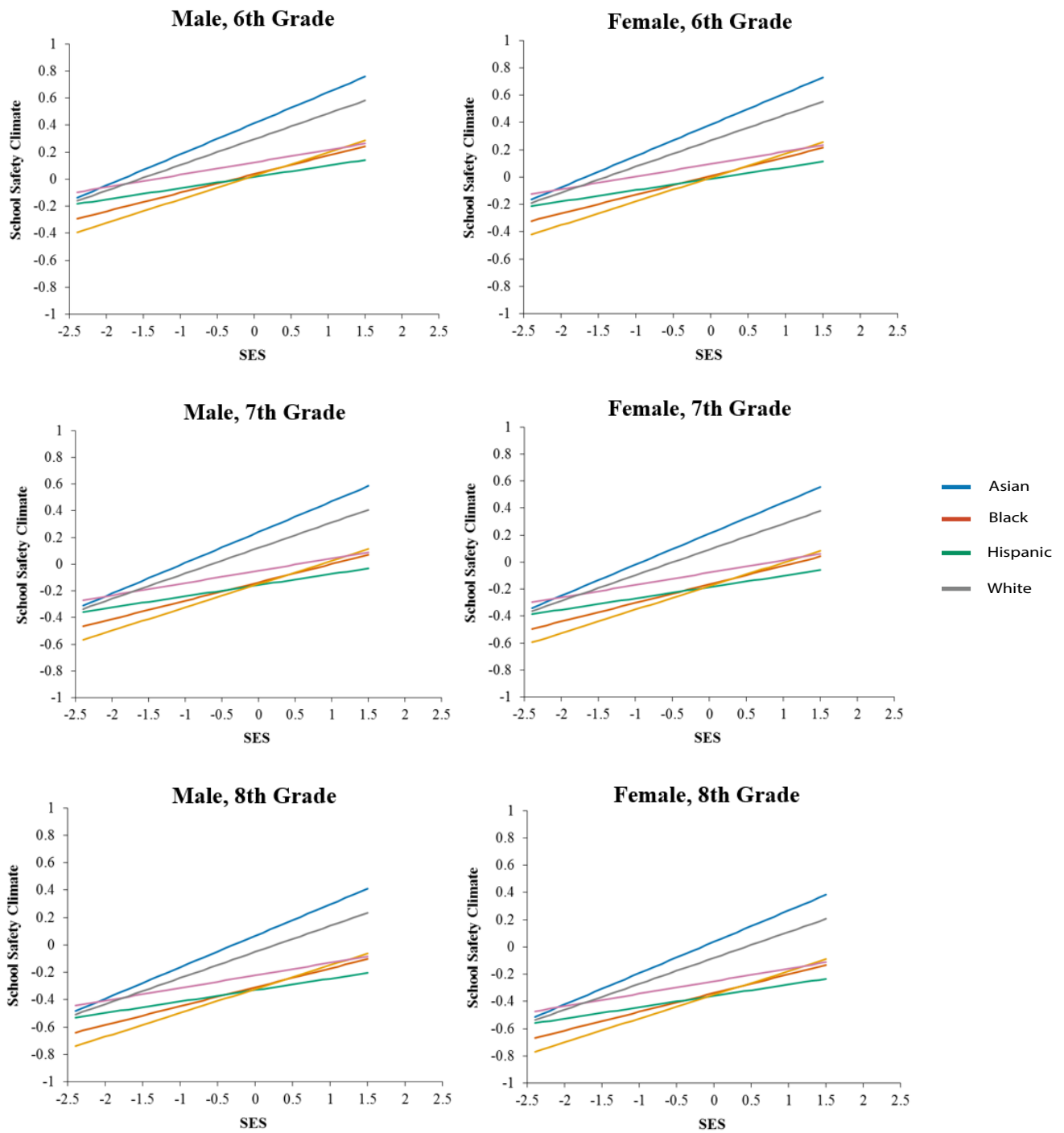
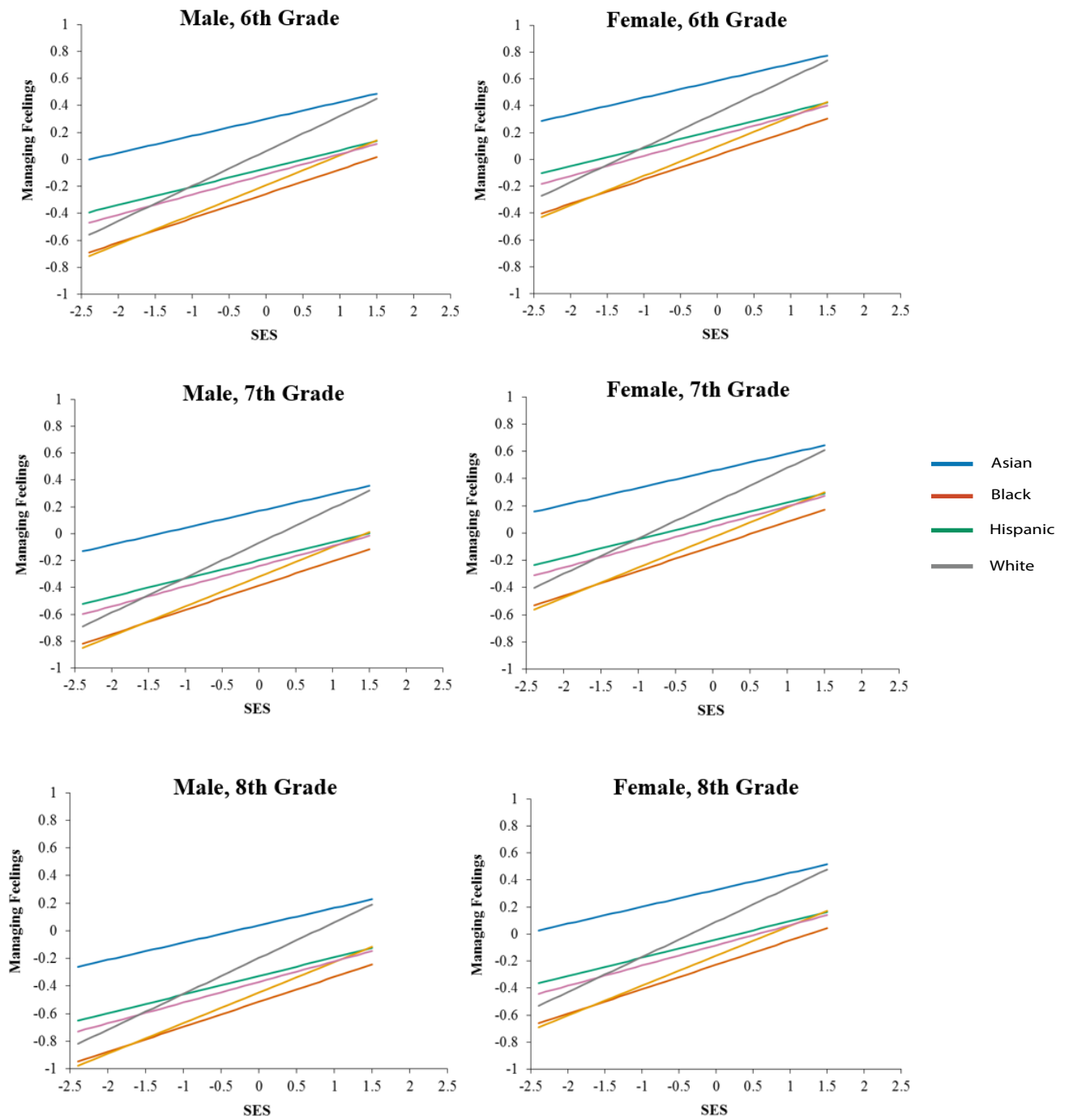**Figure A8.** The Relationships between Race/Ethnicity and SES in Predicting Managing Feelings

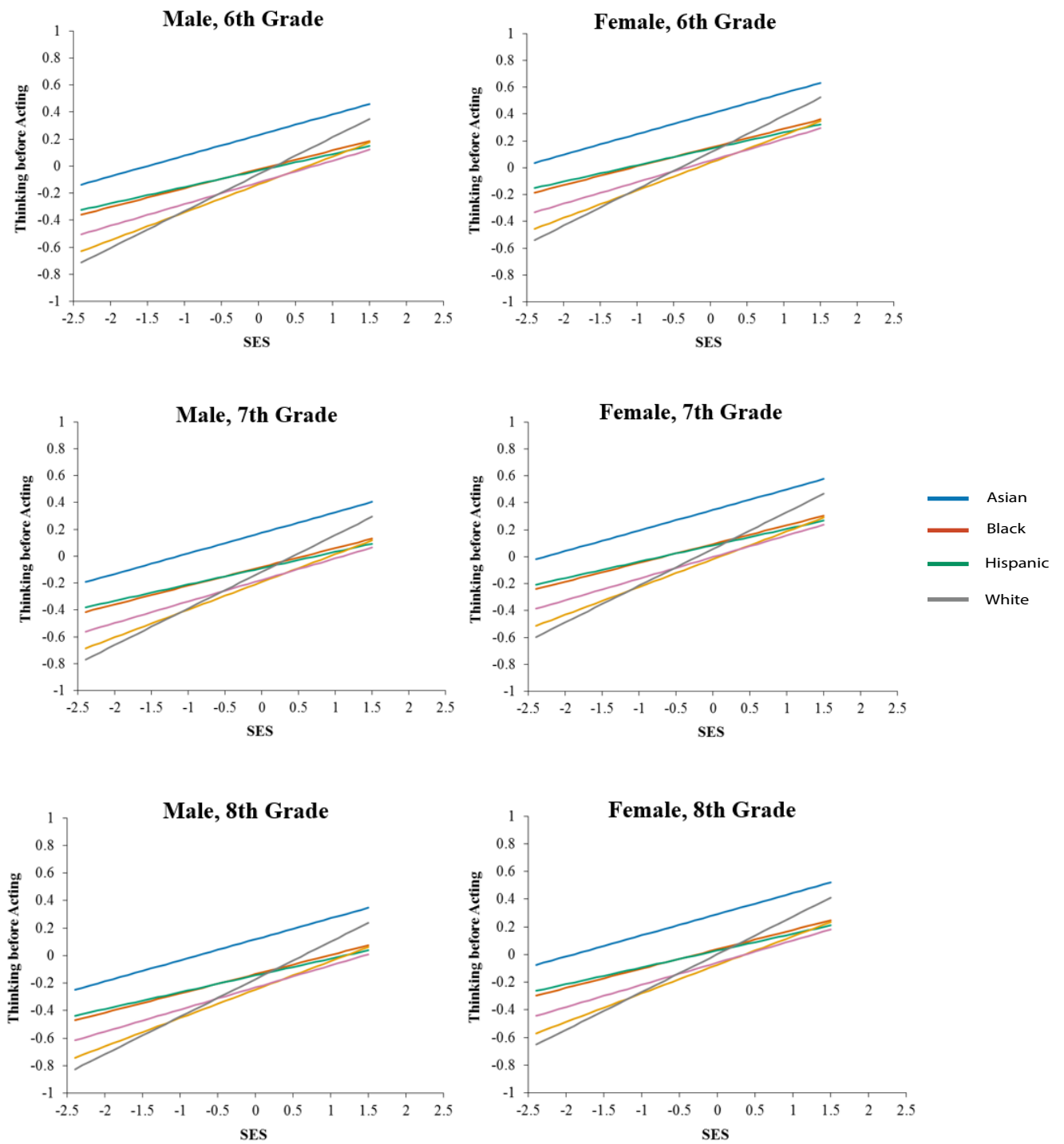**Figure A9.** The Relationships between Race/Ethnicity and SES in Predicting Thinking before Acting

Figure A10. The Relationships between Race/Ethnicity and SES in Predicting Orderly Conduct
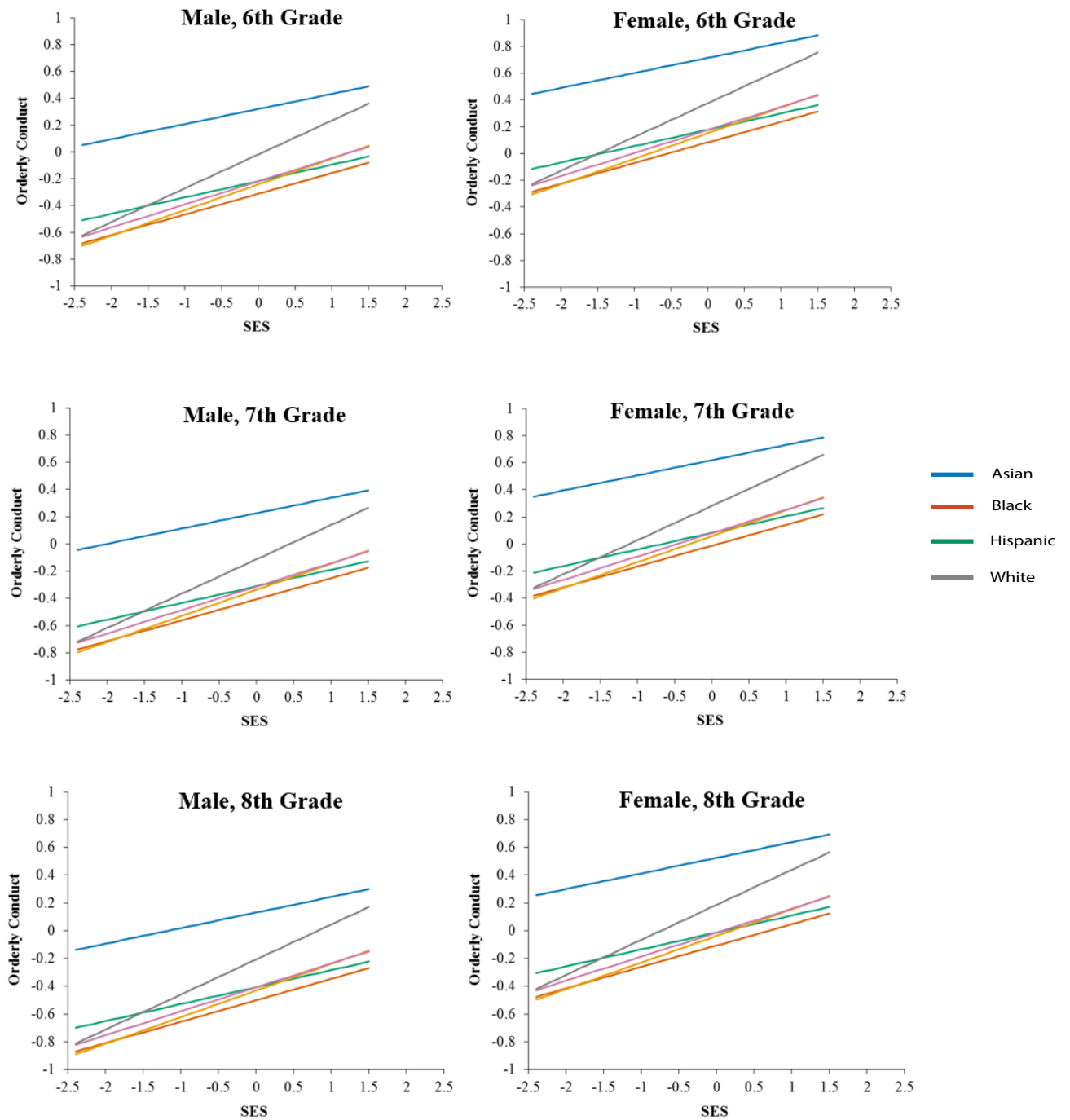
Table A1. Descriptive Statistics for SEL Variables by Race/Ethnicity and SES groups in Optimism

Optimism	SES					
	Low		Medium		High	
Race/Ethnicity	M	SD	M	SD	M	SD
Asian	45.97	7.70	48.01	8.14	50.64	7.81
Black	48.84	8.19	50.85	7.57	52.77	7.28
Hispanic	47.02	8.26	49.30	8.05	51.53	7.46
White	45.15	9.91	48.63	8.69	51.96	7.01

Note. Low SES ≤-0.83 (22%), Medium SES = -.84 - .90 (52%), High SES ≥ .91 (26%)

Table A2. Descriptive Statistics for SEL Variables by Race/Ethnicity and SES groups in Family Involvement

Family Involvement	SES					
	Low		Medium		High	
Race/Ethnicity	M	SD	M	SD	M	SD
Asian	41.48	9.37	46.67	8.74	50.94	7.29
Black	46.91	8.91	49.69	8.05	52.52	7.14
Hispanic	44.56	9.17	47.84	8.74	51.51	7.18
White	43.61	10.07	48.20	8.64	52.06	6.83

Note. Low SES ≤-0.84 (22%), Medium SES = -.84 - .90 (58%), High SES ≥ .90 (21%)

Table A3. Descriptive Statistics for SEL Variables by Race/Ethnicity and SES groups in Thinking before Acting

Thinking before Acting	SES					
	Low		Medium		High	
Race/Ethnicity	M	SD	M	SD	M	SD
Asian	41.79	7.09	43.23	7.32	45.17	7.45
Black	39.31	8.19	40.88	8.41	43.26	8.59
Hispanic	39.35	7.81	40.81	8.23	42.72	8.46
White	37.83	8.93	40.62	8.80	43.81	8.00

Note. Low SES ≤-0.84 (22%), Medium SES = -.84 - .90 (58%), High SES ≥ .90 (21%)

Table A4. Characteristics of Study Sample and Excluded Students

Variable		Excluded Students	Study Sample
Sample Size		49,821	81,949
Sex	Female	48%	49%
	Male	52%	51%
Grade	6th	49%	31%
	7th	29%	33%
	8th	22%	37%
Race/Ethnicity	Hispanic / Latino	24%	24%
	American Indian / Alaska Native	2%	2%
	Asian	3%	2%
	Black / African American	12%	12%
	White	33%	54%
	Two or more races	4%	6%
	Pacific Islander	< 1%	0%
	Prefer not to respond	20%	0%
	Invalid response[a]	1%	0%
SE Skills (Examples)	Optimism	48.28 (8.75)[b]	49.21 (8.49)
	Family Involvement	47.74 (8.71)	48.43 (8.83)
	Thinking before Acting	40.95 (8.33)	41.07 (8.61)

Note. N = 131,770

[a] Students selected Prefer not to respond and at least one of the race options.

[b] Mean (standard deviation).