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A National Investigation on the Effect of College Readiness Counseling on Postsecondary Outcomes



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ABSTRACT

The current study utilized the High School Longitudinal Study of 2009, from the National Center for Education Statistics, to conduct a longitudinal investigation into how access to school counseling impacts postsecondary outcomes. Findings indicate that school counselor time spent college readiness counseling, in addition to lower student socioeconomic status and identifying as multiracial, were predictive of lesser odds of college attainment and persistence. The results of the current study offer practice, policy, and training implications.

Keywords: college readiness, school counseling, equity, postsecondary outcomes, longitudinal outcome studies

Access to school counseling services, specifically college readiness counseling, is directly related to outcomes such as college persistence and attainment (Dunlop-Velez, 2016; Hurwitz & Howell, 2013; Poynton & Lapan, 2017). Having equal access to school counselors during high school years that provide college readiness counseling is an equity and social justice issue because of the direct correlation between college readiness counseling and postsecondary education outcomes. In order to promote positive college and career development, school counselors design and implement their comprehensive school counseling programs (CSCP) to positively affect student learning

and behavioral outcomes (Carey & Dimmitt, 2012). Unfortunately, there are persisting inequities in postsecondary attainment and persistence outcomes of students. Educational opportunity gaps exist and are widening for underserved students in the United States, such as students of color, low-income students, and first-generation students (FGS; Dyce et al., 2013). Hence, school counselors must seek to use transformative school counseling services to help all students meet their goals upon graduation. The current study focuses on how access to school counseling services (i.e., college readiness counseling and school counselor caseload), person inputs and background environmental characteristics, and self-efficacy impacts longitudinal outcomes in college persistence and attainment.

College Persistence and Attainment

College persistence and attainment for the current study is defined as either an individual continuing through their postsecondary education program without withdrawing from the college or completing their postsecondary degree program. The value of postsecondary education is reflected in its relationships to higher earnings, greater



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likelihood of employment, access to health insurance, and a healthier lifestyle (Baum et al., 2013). Its relationship to quality of life indicators make access and support to college attainment an advocacy, social justice, imperative for all providers supporting K-12 students. However, despite the importance of all students who seek to obtain postsecondary degrees having the opportunity to do so, the educational opportunity gap seems to be widening with societies already vulnerable populations being the most impacted by disparities.

For example, low-income and FGS are twice as likely to leave postsecondary education without attaining a degree within three years of enrolling, compared to students who were not low-income or FGS (Cahalan et al., 2019). Cahalan and colleagues (2019) note the estimated bachelor's degree attainment rates differ significantly by family income quartile; with 62% of students in the highest quartile earning a bachelor's degree by the age of 24 in 2017, compared to only 13% in the lowest quartile (Cahalan et al., 2019). FGS status also influences college persistence and attainment. Statistics show students who are low-income and FGS graduate with a bachelor's degree within six years of enrolling at the lowest rates (41%), compared to students who are low-income and not FGS (56%), or neither (73%; Cahalan et al., 2019). While the rates of Black and Hispanic students earning a degree has increased since 1980, students from these racial and ethnic groups continue to be underrepresented relative to their

representation in the general population in 2017 (Cahalan et al., 2019). American Indian and Alaskan Native students are also underrepresented in degree completion compared to their representation in the general population (Cahalan et al., 2019). The distribution of associate's and bachelor's degrees showed that Asian, multiracial, and White degree recipients were overrepresented compared to the general population (Cahalan et al., 2019). Finally, women have higher six-year graduation rates than men (63% versus 57%; National Center for Education Statistics [NCES], 2019). The school counselor is the leader in ensuring equitable access to support through college readiness counseling. One target area of college readiness counseling is student self-efficacy.

Self-efficacy and College Outcomes

Self-efficacy is one's belief in the ability to influence and control events to obtain desired performances (Bandura, 1994). College self-efficacy is a person's belief in their ability to successfully engage in college-related behaviors (Gore et al., 2006). College self-efficacy is related to persistence in college (Baier et al., 2016; Brady-Amoon & Fuertes, 2011; Vuong et al., 2010; Wright et al., 2013). It appears that self-efficacy and college self-efficacy as mediators are widely applicable to all college students and an important area to target for increasing persistence in college. College self-efficacy can begin forming before enrollment and is often referred to as "college-going self-efficacy." Within college-going self-efficacy, students hold beliefs about their:

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attendance, concerns about finances, abilities, decision-making, family responsibilities, life skills, and general feelings about starting and persisting in college (Gibbons & Borders, 2010). College readiness begins in PK-12 education, and those working within education systems (e.g., school counselors) must seek to build students' knowledge, skills, and self-efficacy which lead to success in their higher education endeavors, as well as remove barriers (United States Department of Education, 2010). School counselors are in a unique position to address college readiness and self-efficacy through college readiness counseling efforts.

School Counselors and College Readiness Counseling

Providing college readiness counseling is an important role within the school counselor's repertoire under the American School Counselor Association (ASCA) National Model (ASCA, 2019). The National Association for College Admission Counseling (NACAC) notes college readiness counseling activities include: (a) encouraging students to pursue the most challenging curriculum that results in enhanced postsecondary educational options; (b) identifying and satisfying student requirements for college access; and (c) assisting students in navigating financial aid, college choices, and components of college applications and admissions (Clinedinst & Koranteng, 2017). Other college readiness counseling tasks include reducing student

anxiety, admission essay assistance, writing excellent letters of recommendation, creating and maintaining professional networks with admission officers, and creating a college-going culture (Gilfillan, 2018; McDonough, 2005). Further, school counselors can enhance college-going self-efficacy through their individual and group counseling, as well as classroom lessons, since self-efficacy can be bolstered through experiential learning, setting goals, and affective processes (Chemers et al., 2001).

Benefits of College Readiness Counseling

Researchers have suggested the effectiveness of college readiness counseling. Using the High School Longitudinal Study of 2009 dataset (HSL:09; NCES, 2020a), Dunlop-Velez (2016) found high school students who meet with a school counselor are statistically more likely to complete their Free Application for Federal Student Aid (FAFSA), attend college, and attend a 4-year college. Research has also shown that an additional counselor causes a 10-percentage point increase in four-year college-going rates for students (Hurwitz & Howell, 2013). While these are two promising studies regarding college readiness counseling and access to college (i.e., enrollment), they do not show longer outcomes of school counseling access. Furthering the study of the impact of college readiness counseling, Poynton and Lapan (2017) reported students who had a personalized relationship with their school counselor and met more often for college assistance and creating direction were more

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likely to persist into college in their second year of college (Poynton & Lapan, 2017). College counseling is not only helpful for all students, it may also be especially important for students underrepresented in higher education (i.e., FGS, students of color, students from low socioeconomic backgrounds; Gilfillan, 2018). In another study which utilized the HSLS:09 (NCES, 2020a), researchers found FGS, compared to their peers, were 2.48 times more likely to self-report their school counselors as the most helpful resource in their college planning process (Cholewa et al., 2015). The Cholewa and colleagues (2015) study also discovered African American students were 1.85 times more likely than White students to list their school counselors as the most influential source of information about post-secondary education. There are many benefits for students due to college counseling; however, students need access to counseling to obtain these benefits.

Access to College Readiness Counseling

School counseling access for the purposes of the current study is defined as a student having a school counselor with the ASCA recommended school counseling ratio (i.e., 250:1) and that spends at least the national average of percentage of time spent college readiness counseling (i.e., 21%). While 21.3% is the national average, this percentage of time spent college readiness counseling differs by school characteristics; private school counselors spend more time, as enrollment increases time spent decreases, and when

more students receive free-and-reduced lunch, less time is spent (Clinedinst & Koranteng, 2017).

Barriers to Providing College Readiness Counseling

There are barriers to school counselors' ability to enact transformative college readiness counseling with students, including limited time and large caseloads (McKillip et al., 2012). Despite ASCA's declaration of appropriate and inappropriate duties for school counselors, school counselors in the United States are often tasked with job requirements that fall outside of the role of the school counselor (O'Connor, 2018). Additionally, large caseloads can inhibit school counselors' opportunity to work with students surrounding college readiness. Smaller school counseling caseloads have been related to a school counselor spending more than 50% of work time on college readiness counseling, and higher rates of four-year college enrollment for students (Engberg & Gilbert, 2014; Hurwitz & Howell, 2014). Larger caseloads relate to students being less likely to speak with a counselor about college, plan to attend college, take the SAT, and enroll in a four-year college (Woods & Domina, 2014). A meta-analysis of school counseling caseload outcome studies highlighted that school counselor caseload has been associated with achievement outcomes, one being college enrollment, on a small scale, but the researchers noted that more research across school and student populations is needed (Kearney et al., 2021). In summary, college readiness counseling and

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school counseling access are related to positive student postsecondary education outcomes, at least initial college enrollment and first-year retention, as evidenced by multiple research studies. However, the combined studies above have not yet looked into longer-term postsecondary persistence and attainment as related to access to school counseling and student characteristics. Social Cognitive Career Theory guided the current study to investigate this gap.

Theoretical Framework

Social Cognitive Career Theory (SCCT) offers a career development theory focused on both individual and systemic factors (Lent et al., 1994). SCCT emphasizes human agency in career choice and development, but also acknowledges the influences of an array of personal and environmental influences in this process (Lent, 2005). For example, sociostructural barriers and supports can strengthen or weaken agency in career development (Lent, 2005). Self-efficacy is of utmost importance in the SCCT model, and forms continuously within the context of gender, race and ethnicity, and socioeconomic status, among other qualities of individuals and environments (Lent, 2005). Thus, SCCT can account for external factors, known as proximal environmental influences in SCCT (e.g., school counseling access), and individual characteristics (e.g., personal inputs, background characteristics, and self-efficacy) within long-term career development formation. The importance of

school counselors viewing their role in improving student achievement within a broader framework, where student outcomes are a function of multiple intersecting systems, has been noted (Goodman-Scott et al., 2018). This leads to the current study, which builds upon previous SCCT school counseling and postsecondary persistence and attainment studies, to investigate the long-term impacts of school counseling access.

Purpose of Study

School counselors can and should support traditionally underrepresented students in their pursuit of postsecondary education through targeted, research-based interventions (Mau & Li, 2018). However, without a congruent model connected to a nationally representative sample and longitudinal outcomes, school counselors are missing important data to inform and support their programming decisions and advocacy efforts. Research has shown school counselors make a difference in the college readiness of their students (Gilfillan, 2018; Mau & Li, 2018). A better understanding of the factors and characteristics that contribute to positive postsecondary attainment and persistence will further enable their ability to intentionally develop their programming and advocate for their roles (Whiston et al., 2011). This study contributes to the literature by providing information about the long-term effects of person inputs and background environmental characteristics, self-efficacy, and proximal environmental influences (e.g., school counseling access) on high school

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student college readiness using a national longitudinal dataset. While the existing research on the positive, short-term impacts of school counseling on students is important, this focus on how college readiness counseling helps students beyond the college application process into the latter college years is necessary because we want students to persist through their postsecondary programs once they are admitted. It also could offer empirical support for how school counselors make a lasting impact through their work with students.

Method

A quantitative, multivariate, longitudinal research design was utilized for the current study. Cheng & Phillips' (2014) steps to secondary analysis of existing data guided data analysis. A quantitative design provided a numerical understanding of what contributes to the opportunities in college attainment and persistence for students. The use of a nationally representative dataset provided generalizability to the findings for students in the United States. Thus, the current study sought to answer the call to assess the long-term impact of access to comprehensive school counseling programs (Whiston et al., 2011).

Participants and Sampling

The High School Longitudinal Study of 2009 (HSL:09) is a nationally representative, longitudinal study of over 23,000 ninth graders from 944 schools administered by the

National Center for Education Statistics (NCES, 2020b). Follow-up surveys occurred with student participants in 2012 and 2016; there was also a brief 2013 update survey (Duprey et al., 2018). It is an appropriate dataset and sample, given its inclusion of student variables, school counseling variables, and variables on postsecondary outcomes. Approximately 900 high school counselors were surveyed for the study to provide information on their school counseling departments, including school counselor caseload and percentage of time spent college readiness counseling.

Constructs and Variables

The included variables are from the HSL:09 (NCES, 2020a) dataset. They were selected to cover the research questions within the current study and fit within the theoretical framework of SCCT (Lent et al., 1994). The variables fall under the following SCCT concepts: person inputs and background/environmental characteristics (i.e., student-level personal and contextual information), self-efficacy variables, proximal environmental influences (i.e., a student's access to resources in the environment, in this case, their access to school counseling), and performance domains and attainment (i.e., the student's outcomes).

Person Inputs and Background

Environmental Characteristics Variables (Independent Variables)

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Person inputs and background variables included: FGS status, sex, socioeconomic status, and race/ethnicity. This data was collected at baseline.

First-Generation Student Status.

The FGS status variable refers to the highest level of education achieved by either parent/guardian in the participant's home. For the current study, the variable was recoded into a dichotomous/dummy variable; either the student has a parent/guardian in the home who has a bachelor's degree or a more advanced degree, or the student does not have a parent/guardian in the home who has a bachelor's degree. This matches the federal definition for FGS officially developed for TRIO program acceptance and to determine eligibility for Pell Grants (Center for First-Generation Student Success, 2017).

Race/Ethnicity.

Race/ethnicity information was provided through dichotomous race/ethnicity composites but was recoded into one categorical variable for the current study. The designations are: (a) American Indian or Alaskan Native, (b) Asian, (c) Black, (d) Hispanic, no race specified, (e) Hispanic, race specified, (f) more than one race, (g) Native Hawaiian/ Pacific Islander, and (h) White. For the current study, the two Hispanic categories were combined into one designation.

Sex.

This variable referred to the sex of the participant (male or female). The researchers are aware that not all people identify into a gender binary of female and male (Lips, 2020), however the current study utilized the publicly available data, not the restricted use dataset which did have a more expansive gender identity variable.

Socioeconomic Status (SES).

Socioeconomic status was a composite variable created from five components obtained from the parent/guardian questionnaire. The variable was created through: (a) the highest education among parents/guardians in the two-parent family of a responding student, or the education of the sole parent/guardian; (b) the education level of the other parent/guardian in the two-parent family; (c) the highest occupation prestige score among parents/guardians in the two-parent family of a responding student, or the prestige score of the sole parent/guardian; (d) the occupation prestige score of the other parent/guardian in the two-parent family; and (e) family income. In the continuous version of the variable utilized in the logistic regression analysis, the values ranged from -1.82 to 2.57.

Self-Efficacy Variables

Self-efficacy expectations in the current study include college self-efficacy and overall GPA. SCCT theorists emphasize learning experiences and prior accomplishments are an

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important part of developing self-efficacy, hence overall GPA was included here (Lent et al., 1994). College self-efficacy data was collected during the baseline, while GPA information was collected at the 2013 update.

College Self-efficacy.

This is assessed by a student's response on a Likert scale to the question, "Whatever your plans, do you think you have the ability to complete a bachelor's degree?" Responses were measured on a 4-point Likert scale, from 1- "definitely not" to 4- "definitely".

Overall GPA.

Overall GPA, an interval variable, was computed during the 2013 update, through high school transcript composites. Overall GPA values range from 0.25 to 4.

Proximal Environmental Influences (Independent Variables)

In the current study, these variables were related to school counseling access, and included: school counselor caseload and school counselor percentage of time spent college readiness counseling.

School Counselor Caseload.

Data was derived from a question on the school counselor questionnaire which read: "On average, what is the caseload for a counselor in this school? Students per counselor". Students per counselor ranged from 2 to 999.

School Counselor Percentage of Time Spent College Readiness Counseling.

This was assessed through one item on the school counselor questionnaire which read, "Last school year (2008-2009), what percentage of work hours did your school's counseling staff spend assisting students with college readiness, selection, and applications?" Responses were reported according to the following categories: 5% or less; 6%-10%; 11%-20%; 21%-50%; and more than 50%.

Performance Domains and Attainments Variables (Outcome/Dependent Variable)

College Attainment and Persistence.

The HSLS:09 data provided a categorical variable to indicate attainment (i.e., graduated with a degree) and persistence (i.e., enrollment) in college during the second follow-up survey in February 2016 (i.e., approximately 3 years post-high school graduation). The labels included: (a) attained bachelor's degree; (b) attained associate's degree; (c) attained certificate; (d) no degree, enrolled at a 4-year; (e) no degree, enrolled at less than 4-year; (f) no degree, not enrolled. For the current study, the variable was recoded into a dichotomous variable, the participant is enrolled or persisted in college (yes or no).

Data Analysis

G*Power 3 (Faul et al., 2007) was utilized to determine the sample size needed for the desired power in the regression analyses, and

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a-priori sample sizes for the logistic regression analysis confirmed the recommended sample size was met. Next, following Cheng & Phillips' (2014) steps to secondary analysis of existing data, frequency tables and cross-tabulations of all variables provided information about the use of the coding pattern for each variable to allow for transformation of the distribution of variables. After completing these steps, descriptive statistics were collected. Inherent in many lengthy assessments are missing data, however, in the HSLs:09 dataset, "the variables in general did not suffer from high levels of item nonresponse" (Ingels & Dalton, 2013, p. A-6). The HSLs:09 developers did utilize imputation of values when necessary (Ingels & Dalton, 2013). Imputation affords more power for statistical tests and allows analyses results to be less biased than if there was unaccounted missing data (Ingels & Dalton, 2013). The NCEs also provided analytic weighted variables, and replication weights associated with those main sampling weights. The analytic weights make estimates from the sample data nationally representative of ninth grade students in 2009-2010, through accounting for differential selection probabilities and nonresponse bias (Duprey et al., 2018). Replication weight variables address standard error concerns. Within the HSLs:09, replication weights are run through the Balanced Repeated Replication (BRR) method (Duprey et al., 2018). Finally, preliminary analysis also included bivariate correlations of all variables in the study and examining the correlation

matrix to determine collinearity and investigate relationships between the variables.

The primary data analysis for the current study was a sequential logistic regression. Sequential logistic regression is when the researcher specifies the entry order of predictor variables into the model (Tabachnick & Fidell, 2013). This is appropriate for the research question, given the large sample size and the theoretical grounding of the study (Sperandei, 2014). Model (1), the baseline model, represented person inputs and background environmental influences. It included the following variables: FGS status (non-FGS as reference category), race/ethnicity (White as reference category), sex (male reference category), and socioeconomic status (continuous). Model (2) represented self-efficacy, after controlling for person inputs and background environmental influences. Self-efficacy variables included college self-efficacy ("Definitely" as reference category) and overall GPA (3.0-4.0 GPA as reference category). Model (3) examined school counseling access, after controlling for the variables in the previous three models. School counseling access variables are school counselor caseload (continuous) and school counselor percentage of time spent college readiness counseling (re-coded into a dichotomous variable, with 20% or less as reference category).

Results

Preliminary analysis included running descriptive statistics and a correlation matrix. A total of 56.4% (n = 9,468) of the valid sample were FGS, and 43.6% were non-FGS (n = 7,314). A total of 50.9% (n = 11,973) of the sample were identified as female, and the remaining 49% (n = 11,524) as male. The continuous socioeconomic status variable was standardized to 0, and ranged from -1.93 to 2.88, with a mean score of M = 0.05 (SD = 0.78). The SES quintile variable, which is an interval variable of student SES, has the following percentages: (1) First quintile/lowest = 14.6% (n = 3,434); (2) Second quintile: 15.8% (n = 3,705); (3) Third quintile: 18% (n = 4,233); (4) Fourth quartile: 19.4% (n = 4,553); and (5) Fifth quintile/highest: 23.5% (n = 5,519). Overall GPA of the participants ranged from 0.25 through 4.00, reported in 0.25 intervals, M = 2.71 (SD = 0.86). For information on participants' race/ethnicity, see Table 1.

The college self-efficacy variable was an ordinal variable assessing the participants' beliefs about ability to complete a bachelor's degree, with possible values of 1 "definitely not", 2 "probably not", 3 "probably", and 4 "definitely". A total of 1.5% (n = 322) of participants chose "definitely not". Then 6.7% (n = 1,415) of the participants chose "probably not". Following, 42.6% (n = 8,937) chose "probably". Finally, answer choice "definitely" was the most endorsed response, with 49.1% (n = 10,297) of the sample selecting this answer choice.

Table 1
Participant Race and Ethnicity Variables.

Race/Ethnicity	Valid Percentage	Valid n
American Indian and Alaskan Native	0.7%	165
Asian	8.7%	1,952
Black/African American	10.9%	2,450
Hispanic	16.9%	3,797
More than one race	8.6%	1,941
Native Hawaiian and Pacific Islander	0.5%	110
White	53.7%	12,082
Total	100%	22,497

The school counselor caseload in the current study had a mean score of M = 347.65 students (SD = 130). The median was 350. The 25th percentile was 270, the 50th was 350, and the 75th percentile was 420. This variable's values ranged from 2- 999 students per school counselor caseload. The school counselor percentage of time spent college readiness counseling was an ordinal variable. The scores ranged from 1-5, M = 3.37 (SD = 0.95). A total of 2.3% (n = 484) chose 1, indicating "5% or less". Next, 16.2% (n = 3,389) of the

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sample chose 2 indicating “6-10% of time.” A total of 33.8% (n = 7,094) indicated 3, “11-20%”; followed by 37.5% (n = 7,867) choosing 4, indicating “21-50%”. Finally, 10.2% (n = 2,132) of the sample chose 5, indicating “More than 50%.” See Table 2 for a graphical representation of the percentage of time spent college readiness counseling variable.

For the college attainment and persistence variable, 80% (n = 10,331) of the valid sample was enrolled or attained a degree as of February 2016, and 20% (n = 2,587) were not enrolled or had never attained a degree as of February 2016.

The bivariate correlation matrix indicated no concerns regarding multicollinearity. School counseling caseload and percentage of time spent college readiness counseling are inversely related ($r = -.181$, $p < .01$). School counselor caseload is negatively significantly

Table 2.
College Readiness Counseling Variable
Frequencies.

Percentage of Time Spent College Readiness Counseling	Valid Percentage	Valid <i>n</i>
5% or less	2.3%	484
6-10%	16.2%	3,389
11-20%	33.8%	7,094
21-50%	37.5%	7,867
More than 50%	10.2%	2,132
Total	100%	20,966

correlated to: SES, Overall GPA, and college self-efficacy. School counselor percentage of time spent college readiness counseling is positively significantly correlated with: SES, Overall GPA, and college self-efficacy. See Table 3 for the full results of the correlations.

For the sequential logistic regression, statistical assumptions of the model were assessed by the researcher. Tolerance (0.32) and VIF values (mean VIF = 1.33) indicated no concerns regarding multicollinearity. The Box-Tidwell test indicated the assumption of a linear relationship between continuous predictors and the logit transform of the outcome variable was met, with non-significant *p* values. Utilizing the BRR variance estimation method, 17,993 observations were included in the regression model, with a population size of 2,121,472 and 188 replications.

Model 1 included person inputs and background environmental influences (i.e., FGS status, race/ethnicity, sex, SES). Model 1 was significant, $F(9, 186) = 19.37$, $p < .001$,

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Table 3.
Bivariate Correlations.

Variables	1. SES	2. GPA	3. College Self-efficacy	4. School Counseling Caseload	5. % of Time Spent College Readiness Counseling
1. SES	-				
2. GPA	.407**	-			
3. College Self-	.254**	.324**	-		
4. School Counseling Caseload	-.152**	-.094**	-.040**	-	-
5. % of Time Spent College Readiness Counseling	.150**	.105**	.053**	-.181**	-

Note. SES = socioeconomic status; GPA = grade point average

** = $p < .01$.

McFadden's R Square = 0.0577. This model indicated that SES significantly predicted college attainment and persistence ($\beta = 0.47$, $p = .019$). In addition, female students ($\beta = .40$, $p < .001$) were more likely than males, and Asian ($\beta = 0.72$, $p < .001$) students were significantly more likely than White students to report college attainment and persistence. Black ($\beta = -0.35$, $p < .05$) and students of more than one race ($\beta = -0.55$, $p = .001$) were significantly less likely than White students to report college attainment and persistence. FGS were significantly less likely than their non-FGS peers to report college attainment and persistence ($\beta = -0.41$, $p < .001$).

Model 2 examined two self-efficacy variables, which were college self-efficacy and overall GPA, after controlling for the variables in the previous model. Model 2 was significant, $F(13, 182) = 24.52$, $p < .001$, McFadden's R Square = 0.1063. GPA significantly predicted college attainment and persistence, with students with GPAs ranging from 0.25-2.50 being significantly less likely to report college attainment and persistence compared to students with GPAs of 3.00- 4.00 ($\beta = -1.14$, $p < .001$). College self-efficacy was not significant. SES, female sex, and students who were more than one race, remained significant; while Black/African American

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race and FGS status were no longer significant.

Model 3 examined school counseling access, including school counselor caseload and percentage of time spent college readiness counseling, after controlling for the variables included in the other models. Model 3 was significant, $F(15, 163) = 20.28, p < .001$. For Model 3, the Archer Lemeshow test of goodness-of-fit was not significant and the adjusted Wald test was significant, indicating good model fit. McFadden's R^2 was 0.1111, indicating that the model explains 11.1% of the variance outcomes. For Model 3, school counselor percentage of time spent college readiness counseling predicted student college attainment and persistence, with 21% or more time spent on college readiness counseling being more likely to result in the outcome compared to 20% or less time spent college readiness counseling ($\beta = .23, p < .05$). School counselor's caseload was not significant. SES, female sex, more than one race identity, and GPA all remained significant predictors in the final model. The model correctly classified 81.60% of the cases, with higher sensitivity (98.21%) than specificity (7.58%). Table 4 contains the results of the logistic regression analysis.

Discussion

This purpose of this study was to understand the relationships between and contributions of school counseling ratios, percentage of time spent college readiness counseling, person

inputs and background characteristics (i.e., race/ethnicity, gender, socioeconomic status, FGS status), and self-efficacy on post-secondary attainment and persistence, three years post-high school graduation. The first model in the sequential logistic regression solely examined what are known as person inputs and background variables in SCCT (Lent et al., 1994). FGS had lower odds of attaining a postsecondary degree or persisting in postsecondary education compared to non-FGS students and Black/African American students also had lower odds, both of which are aligned with previous research on opportunity gaps (Cahalan et al., 2019). However, these results did not hold in the next two models when self-efficacy was held constant, indicating that self-efficacy plays a large role in underrepresented students' college persistence and attainment. Results also indicated that students of more than one race had lower odds of college attainment and persistence compared to White students. This is not similar to previous research which stated multiracial students graduate at higher rates than students of other races, with the exception of Asian students (Calahan et al., 2019). Other researchers have noted the inadequate attention and 'difficulties' in assessing multiracial outcomes in research (Berzenski, 2019), which suggests the multiracial student population's education outcomes and experiences are not well understood by educational researchers. Female students compared to male students, Asian students compared to White students, and students with higher SES status were

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Table 4.
Logistic Regression Model Predicting College Attainment and Persistence

	Model 1			Model 2			Model 3 (Full Model)		
Predictor	B	SE	OR (CI)	B	SE	OR (CI)	B	SE	OR (CI)
FGS	-0.41**	0.13	0.66 (0.51-0.86)	-0.29	0.15	0.75 (0.56-1.00)	-0.28	0.16	0.75 (0.56-1.03)
Race/Ethnicity									
American Indian or Alaskan Native	-0.14	0.63	0.87 (0.25-3.00)	1.21	0.83	3.35 (0.65-17.32)	1.29	0.88	3.63 (0.64-20.52)
Asian	0.72*	0.30	2.06 (1.13-3.75)	0.50	0.33	1.64 (0.85-3.16)	0.58	0.38	1.79 (0.85-3.80)
Black/African American	-0.36*	0.18	0.70 (0.49-0.99)	-0.06	0.20	0.94 (0.63-1.39)	0.07	0.20	1.07 (0.72-1.60)
Hispanic	-0.03	0.14	0.97 (0.73-1.28)	0.23	0.17	1.26 (0.90-1.76)	0.14	0.17	1.15 (0.83-1.60)
More than one race	-0.55**	0.16	0.58 (0.42-0.80)	-0.46**	0.17	0.63 (0.46-0.88)	-0.39*	0.17	0.68 (0.48-0.94)
Native Hawaiian / Pacific Islander	0.55	1.02	1.73 (0.23-12.97)	0.91	1.01	2.48 (0.34-18.08)	1.02	1.08	2.78 (0.33-23.42)
Sex	0.40***	0.09	1.49 (1.24-1.80)	0.30**	0.11	1.35 (1.09-1.67)	0.32**	0.12	1.37 (1.09-1.73)
SES	0.48***	0.09	1.61 (1.34-1.93)	0.44***	0.11	1.56 (1.27-1.93)	0.43***	0.11	1.54 (1.24-1.91)
College Self-efficacy									
Definitely not				-1.14	0.64	0.32 (0.09-1.14)	-0.99	0.67	0.37 (0.10-1.41)
Probably not				0.30	0.30	1.35 (0.75-2.45)	0.46	0.33	1.59 (0.82-3.06)
Probably				-0.08	0.14	0.92 (0.70-1.20)	-0.12	0.15	0.89 (0.67-1.18)
Overall GPA				-1.15***	0.12	0.32 (0.25-0.40)	-1.19***	0.12	0.30 (0.24-0.39)
School counselor caseload							-0.00	0.00	0.99 (0.99-1.00)
% of time spent college readiness counseling							0.24*	0.12	1.27 (1.00-1.60)

See Table Note on next page.

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Table 4 Note. Model 1 = person inputs and background environmental influences (first-generation student [FGS], race/ethnicity, sex, socioeconomic status [SES]), without any controls; Model 2 = person inputs and background environmental influences, and self-efficacy variables (college self-efficacy and overall grade point average [GPA]); Model 3 = full model: person inputs and background environmental influences, self-efficacy variables, and proximal environmental influences (school counselor caseload and percentage of time spent college readiness counseling).

Reference categories: FGS = non-FGS; Sex = male; Race/ethnicity = White; College self-efficacy = "Definitely"/4; Overall GPA = 3.0 - 4.0 GPA; % of time spent college readiness counseling = Less than 21%.

* $p < .05$. ** $p < .01$. *** $p < .001$

more likely to attain a degree and persist in postsecondary education. These findings are aligned with previous research (Cahalan et al., 2019; NCES, 2019).

The second model extended the investigation of predictors of college attainment and persistence to include self-efficacy variables (i.e., college self-efficacy and overall high school GPA), in addition to still accounting for the person inputs and background variables. Female students were still more likely to attain and persist, and students of more than one race and students of lower SES status remained having lower odds of attaining and persisting. College self-efficacy was not significant in this model. This is an interesting finding, because within the SCCT framework (Lent et al., 1994), and previous research studies, various forms of self-efficacy including college self-efficacy and general self-efficacy, were significant influences on and predictors of academic and career outcomes (Baier et al., 2016; Brady-Amoon & Fuertes, 2011; Vuong et al., 2011; Wright et al., 2013). Perhaps one reason for the lack of significance in this study is that college self-efficacy was measured with one item asking about the

student's college self-efficacy, assessed when they were in the ninth grade. Self-efficacy is often assessed through a scale which provides more sensitivity in scores than one-item assessments (Bandura, 2006). Overall GPA was included as part of the self-efficacy model, as learning experiences and prior accomplishments are an integral part of forming self-efficacy (Lent et al., 1994). Overall GPA was significantly predictive of the outcome (i.e., higher GPA is higher odds of the outcome), and this is aligned with SCCT researchers' assertion that while self-efficacy is important in career and academic outcomes, ability is also an important and irreplaceable component of career performance (Lent & Brown, 1996).

In the final model, all previous variables were included and accounted for, and the two school counseling access variables were also added: (a) school counselor caseload and (b) school counselor percentage of time spent college readiness counseling. Variables that remained significant in the final model included: (1) identity of more than one race (i.e., lower odds of the outcome), (2) sex (i.e., female students had higher odds of the

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outcome); (3) SES (i.e., as SES increased, odds of the outcome increased); and (4) overall GPA (i.e., as GPA increased, odds of the outcome increased).

The results showed that the school counselor caseload variable was not significant in the final model. However,

school counselor percentage of time spent college readiness counseling was a significant predictor of college attainment and persistence. Students who had access to a school counselor who spends at least the national average of time college readiness counseling (i.e., 21% or more), were more likely to attain a postsecondary degree or persist in college three years after high school graduation. Results indicated that students

with school counselors who spent 21% or more time college readiness counseling had 27% higher odds of persisting or attaining a college degree. This finding supports previous research that details the importance of college readiness counseling and its positive impact on student outcomes (Dunlop-Velez, 2016). Further, it is the first study to our knowledge which investigates the impact of college readiness counseling longer than one year after high school graduation.

It is important to note that even when controlling for school counselor percentage of time spent college readiness counseling and various other variables (e.g., college self-efficacy, overall GPA), students of lower SES status and students identifying as more than one race still had lower odds of persisting in

college and attaining a degree. These results suggest that the opportunity gap with students of low SES and multiracial students needs to be addressed beyond what is currently being offered by college readiness counseling. School counselors and school counselor educators must learn evidence-based and culturally responsive interventions and incorporate them into their work (Berbery & O'Brien, 2018; McMahon

et al., 2017).

Despite school counseling ratio not being a statistically significant predictor of college attainment and persistence, it is important to note that school counseling ratio in the current study's bivariate correlation analysis showed school counselor caseload was negatively statistically correlated with percentage of time spent college readiness counseling. This means that a school



“Students who had access to a school counselor who spends at least the national average of time college readiness counseling (i.e., 21% or more), were more likely to attain a postsecondary degree or persist in college three years after high school graduation.”

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counselor with a larger caseload spent a smaller percentage of time on college readiness counseling in the current sample. Additionally, prior research has also shown a school counselor's distribution of time spent in college readiness counseling is influenced by school counseling ratios, with higher caseloads resulting in less time spent on college readiness counseling (Clinedinst & Koranteng, 2017; Engberg & Gilbert, 2014).

Implications

The findings of the current study highlight that college readiness counseling has an impact on students' long term college attainment and persistence. It is imperative that school counselors advocate for increased time for college readiness counseling, especially in schools with higher percentages of students with low SES. The implications of the current study include practice, policy, and training implications.

Practice

School counselors have been called to engage in college readiness counseling within their role in career development within the ASCA National Model (ASCA, 2019; Gilfillan, 2018). The results of this study provide further evidence of the importance of these activities for longitudinal student outcomes, and also provide a quantitative perspective on best practices in this endeavor. These results have highlighted how students who have access to a school counselor who spends 21% or more time on college readiness counseling show

increased odds of persisting in postsecondary education or attaining a degree, three years post-high school graduation. School counselors can strive to spend 21% of their time on career and college readiness programming. Within their CSCP, school counselors can engage in best practices of college readiness counseling as outlined by various frameworks. For example, The NACAC provides guidelines and suggestions for college readiness counseling that school counselors can use (Clinedinst & Koranteng, 2017).

The results also highlighted the importance of equity in school counselors' college readiness counseling services. Despite the great strides underrepresented minorities have made in increased representation in higher education (Cahalan et al., 2019), the current study found that multiracial individuals had lower odds of persisting and attainment compared to their White peers. Further, as participants' SES composite score decreased, so did their odds of persisting and attaining a degree. The ASCA National Model designates school counselors as educators who promote equitable college opportunities for students (ASCA, 2019). Equity and equality are not interchangeable terms; in order to achieve equity in higher education student outcomes, a school counselor's CSCP requires tailored policies and procedures for students (Mason et al., 2013). While a CSCP serves to help all students in the career development domain, a school counselor may supplement their college readiness counseling efforts with

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students of lower SES status and multiracial identity.

This may include increased attention to assisting students in connecting to monetary resources, and incorporating culturally relevant discussion in college planning. School counselors should seek training on financial aid and how to make college accessible for all, and incorporate discussions about financial aid and scholarships in their college readiness counseling services. The school counselor can utilize the Competencies for Counseling the Multiracial Population (Kenney et al., 2015) to guide their career development work with multiracial students, including assisting their multiracial students with exploring career/college choices that best facilitate identity formation and satisfaction, and linking students with racially and culturally open individuals who can serve as mentors. This is mandated by ASCA's position statement that school counselors should expand their personal multicultural and social justice advocacy, awareness, knowledge and skills (ASCA, 2021). While the results were positive in terms of the connection between access to school counseling and long-term outcomes, not all students benefited in the same ways, and school counselors must seek to close opportunity gaps.

Policy

The policy implications resulting from the current study are two-fold: providing support for proper allocation of time and duties for

school counselors, and providing support for lower school counseling ratios. There is a national call for equitable access to postsecondary education for all students (ASCA, 2019; McKillip et al., 2012). The results of this study indicate the connection between access to school counselors and college readiness counseling's impact on college outcomes, but often it is school counselors who are the first to get cut due to budgeting in K12 schools (Hanna, 2019). NACAC and ASCA work together on policy advocacy, such as the Secondary and Elementary School Counseling Act. This act calls for two five-year renewable grant programs to staff elementary and secondary schools with school counselors, psychologists and social workers effectively by providing federal grants to states to disburse to school districts. The current results are further evidence for the need for this collaboration, and support of the recent passing of this act (H.R.4381). School counselors personally can use the data in their self-advocacy in district-level and state-level policies. As college/career readiness is a national imperative, they can advocate to their administration, school board, and state department of education for lower school counselor-to-student caseload ratios and proper allocation of time through lessened administrative duties, using the results from the current study as evidence for the importance of their work doing college readiness counseling. Further, higher caseloads are more likely to lead to school counselor burnout (Barhoshi & Um, 2021), which also negatively impacts

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their work with students. Policy has an impact on school counselors' ability to effectively work with students; high caseload numbers and non-counseling duties inhibit their ability to work directly with students on college readiness (McKillip et al., 2012). The caseload average in the United States still remains at 482 students, and school counselors are still tasked with inappropriate duties (NCAC & ASCA, 2015; O'Connor, 2018).

Training and Education

The current study's results suggest that career counseling course content tailored to increase knowledge and skills in college readiness counseling for school counselors-in-training could benefit these students as they enter the field. This content could include frameworks provided to conceptualize and guide college readiness counseling (e.g., Clinedinst & Koranteng, 2017) as well as discussions around the current research surrounding school counselors and college readiness counseling (e.g., Gilfillan, 2018). Experiential activities, supervision discussions, and assignments tailored to increase school counseling students' self-efficacy regarding college readiness counseling are other examples of incorporating college readiness counseling fluency into the curriculum. This is supported by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) Standards (CACREP, 2015). Previous research has suggested increased attention to developmental career counseling in school counselor preparation programs is needed, as school counselors are

often entering the field unprepared to engage in college readiness counseling in their schools (Parikh-Foxx et al., 2020).

Limitations and Future Research

While the current study makes contributions to the school counseling literature regarding college readiness counseling, there are limitations. As mentioned previously, a scale measurement of the college self-efficacy variable would provide sensitivity. Further, when a researcher utilizes large datasets for secondary analysis of data, the researcher's bias can influence which input and outcome variables are selected out of the many provided to study a phenomenon. Future research can look at other variables in the HSLS:09 dataset for creating a predictive model, such as more school-level variables, which are available in the restricted use dataset. Additionally, future research with individuals who identify as multiracial/more than one race about their college persistence and attainment influences and outcomes is needed, as current research often does not include multiracial individuals in their analysis (Berzenski, 2019; Museus et al., 2015). Multiracial student career development in relation to school counseling needs to be explored, as there are unique counseling competencies when working with multiracial counseling clients (Alvarado et al., 2015). This research is especially needed as the current results indicated a different pattern than previous studies that suggested students of more than one race have increased odds of postsecondary attainment (Calahan et al.,

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2019). This line of research will investigate how we are and are not supporting the unique needs of multiracial students in their college experiences (Museus et al., 2015) Finally, previous quantitative research by Parikh-Foxx and colleagues (2020) found school counselors had difficulty implementing their career and college readiness services, and self-efficacy in delivering these services was related to training experience and opportunities. Continued research connecting school counselors' career and college readiness counseling self-efficacy, but in relation to long-term student outcomes, is needed.

Conclusion

The current investigation advanced current research by examining personal inputs, background variables, self-efficacy, proximal, and environmental influences on college attainment and persistence three years post high school graduation. Results signify the importance of interrogating the system in which students are prepared. For example, college readiness counseling impacts college persistence and attainment; however, the system in which the student is a part of will determine the amount of access to college readiness counseling. In addition, historically underserved students were also the most neglected as reflected by results showing that students with low SES and multiracial students had lower odds of college attainment and persistence. These results collectively call for increasing school counseling resources within schools that have higher levels of

vulnerable students. In addition, school counselors must utilize their data to examine their progress toward supporting the postsecondary goals and academic achievement of their students. It is not enough to engage in college readiness counseling, they must also interrogate who has access to that counseling, how much time is spent with each group of students and start to navigate innovative ways to reach vulnerable and marginalized students. 

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