



## Predictors of Intent to Pursue a College Health Science Education among High Achieving Minority 10th Graders

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Minority populations are underrepresented in fields of science, perhaps limiting scientific perspectives. Informed by recent studies using social cognitive career theory, this study examined whether three conceptual constructs: self-efficacy, perceived adult support, and perceived barriers, along with several discrete and immutable variables, were associated with intent to pursue college health science education in a sample ( $N = 134$ ) of minority youth (67.2% African American). A paper-and-pencil survey about pursuit of college health science was administered to 10th graders with a B- or better grade point average from six high schools in an underserved community. Results indicated that the three conceptual constructs were bivariate correlates of intent to pursue college health science. Only perceived adult support and knowing whether a parent received college education were significant predictors in a multiple regression model. These results build on previous research and provide further insight into youth decision-making regarding pursuit of college health science.

*Keywords:* minority, youth, self-efficacy, adult support, college education, health science

The population of the United States is becoming more racially and ethnically diverse, yet professionals in fields of science do not reflect the same level of diversity (U.S. Census, 2008; Balogun, Sloan, & Hardney, 2005; U.S. Bureau of Labor, 2005; Library Index, 2012). Currently, minorities make up approximately 33% of the population (U.S. Census, 2008). Of note, 17% of African American, 11% of Latino, and 12% of Native American adults aged 25 and older earn a college degree, compared with 28% of White, non-Latino adults (Babco, 2005; U.S. Census, 2000). Ethnic minorities constitute about 33% of the population; however, less than 15% of most health profession positions are filled by ethnic minority members (Balogun et al., 2005). African Americans make up 14% of the U.S. population, but they make up only 6% of physicians, 10% of registered nurses, 3% of dentists (Library Index, 2012; U.S. Bureau of Labor, 2005). Furthermore, African Americans make up 4% of biological scientists, 8% of medical scientists, 4% of

environmental scientists, 7% of psychologists, and less than 1% of sociologists (Library Index, 2012; U.S. Bureau of Labor, 2005; U.S. Census, 2008). Such a lack of scientists from diverse backgrounds may limit science and its applications. Minority physicians, and most likely other minority science-related professionals, are more likely to serve minority populations (Institute of Medicine, 2003).

### **Minority Youth and Pursuit of College Health Science Education**

The underrepresentation of minorities in science-related careers may be caused by lack of access to accredited programs, lack of exposure to career opportunities, an inadequate pool of role models with whom they can identify and who can serve as mentors, poor performance of minority students on standardized tests, and poor preparation of minority students in mathematics, reading, and science (Healthy People 2020). Young minority students are a source from which

potential future scientists and related professionals can be found. However, interest in science is often not nurtured and these students turn to more traditional options for future careers including education and law enforcement (Balogun et al., 2005). Science programs targeting high school students may increase the number of scientists since students' interest in the sciences may start to develop during this time in their adolescence (Winkleby, 2007). Programs may encourage students to make the necessary preparations, such as taking appropriate courses, for acceptance into college health science programs during their high school years (Cohen, 2006).

### **Self-Efficacy, Perceived Barriers, Perceived Adult Support, and Demographic/Immutable Characteristics in the Social Cognitive Theory Framework**

Theories that focus on the relationship between cognitive and contextual factors and career development are limited. However, one such theory is the social cognitive career theory (SCCT), which incorporates Albert Bandura's social cognitive theory principle of triadic, reciprocal causation of human behavior (Lent, Brown, & Hackett, 1994; Lent, Brown, & Hackett, 2000). The central concept and assumption behind SCCT is that human behavior is in large part the result of person-environment interaction that is dynamic and situation specific (Lent et al., 1994; Lent et al., 2000). In this theory, personal attributes, environmental factors, and overt behavior affect one another bi-directionally. In essence, people are products and producers of their environments (Lent et al., 1994; Lent et al., 2000).

Self-efficacy is one of the central constructs of SCCT and has been studied extensively (Lent et al., 1994; Lent et al., 2003). Self-efficacy is defined as one's personal cognitive evaluation of ability to execute a particular behavior (Bandura, 1986). In the context of SCCT, this perception is considered a cognitive personal attribute (Lent et al., 2000). Findings have strongly supported the theoretical relationship of self-efficacy with education and career pursuits (Ali & McWhirter, 2006; Fouad & Smith, 1996; Kerpelman, Eryigit, & Stephens, 2008; Kerpelman & Mosher, 2004). Lent et al. (1994) assessed research on the relationship between self-efficacy beliefs and career interests and presented a meta-analysis suggesting that the average effect size of this relationship is .53. As much of the previous research using SCCT has focused on examining personal attribute components of SCCT, particularly self-efficacy, less is known about the roles of contextual or environmental factors in the theory (Lent et al., 2000).

Perceived supports and barriers can be considered perceived aspects of the environment, or objective environmental factors that are subjectively construed by the individuals (Lent et al., 2000). Such contextual influences are theorized to exert a degree of influence on educational and career goals (Lent et al., 1994; Lent et al., 2000; Lent et al., 2003). The relative

importance of perceived supports and barriers has been re-examined on several occasions as SCCT underwent refinement with emerging research evidence (Lent et al., 2000; Lent et al., 2003). However, research that includes aspects of the environment, such as perceived environmental supports and barriers, along with self-efficacy in SCCT models is relatively underdeveloped and lacks clear results (Lent et al., 2000). Thus, more research is needed to clarify their role in predicting academic and career goals.

Aside from the aforementioned constructs, SCCT also highlights the importance of more distant background factors such as person inputs (e.g., predispositions, gender, race/ethnicity, disability and health status), and background contextual affordances (e.g., opportunities, emotional and financial support, and cultural and gender role socialization) (Lent et al., 1994; Lent et al., 2000). In the SCCT framework, demographic and immutable characteristics potentially relevant to college health science pursuit by minority youth, such as youth's gender and birth/immigration status, could be viewed as person inputs, while parents' birth/immigration status and parental education could be considered background contextual affordances. Person inputs and background contextual affordances are hypothesized to have an indirect influence on educational and career goals, through other more proximal measures (Lent et al., 1994; Lent et al., 2000). However, several extant sources suggest that gender (Kerpelman et al., 2008; Trusty, Robinson, Plata, & Ng, 2000), parental education (Kerpelman & Mosher, 2004; Lambert, Zeman, Allen, & Bussière, 2004; McWhirter, Torres, Salgado, & Valdez, 2007), and immigration status (Baum & Flores, 2011; Erisman & Looney, 2007; Fuligni, 2006) may have a more direct link to educational outcomes. Thus, it may be especially important to elucidate the relative importance of these covariates in the context of educational plans related to health science education, and to adjust for their effect when examining the contribution of self-efficacy, perceived barriers, and perceived adult support to pursuit of a college health science education.

### **The Current Study**

As few theories have been examined to help explain underserved youths' decision-making about college health science and related education and career choice, the overall goal of this study is to further examine SCCT in this regard. Specifically, this study will examine whether the three conceptual constructs, self-efficacy (a cognitive personal attribute), perceived adult support (a perceived environmental factor), and perceptions of barriers (a perceived environmental factor) independently or jointly predict pursuit of college health science education among an underprivileged, academically high achieving 10th grade population. These conceptual constructs will be examined as independent variables along with several discrete and immutable demographic

variables, namely youth's gender and birth/immigration status, as well as parents' birth/immigration status and education. Based on past studies of SCCT, we hypothesize that self-efficacy will remain a predictor of intent to pursue a college health science education after controlling for all other study variables. Findings will elucidate the centrality of self-efficacy, and the relative contribution of SCCT-defined environmental factors, person variables, and background contextual affordances in this application of the theory.

#### **Methods**

##### **Background**

This analysis utilized baseline data collected as a part of a larger study, Climbing Up & Reaching Back (CURB). CURB was a three-year project designed to identify predictors of pursuit of health science careers and test educational materials and face-to-face mentoring interventions to increase interest in health science careers among underprivileged minority high school students living in Prince George's County, Maryland. Institutional Review Board (IRB) approval was obtained for this research.

**Recruitment and data collection.** Eight high schools in a defined geographic area (Prince George's County neighborhoods bordering Washington D.C.) with predominantly minority race/ethnicity and low socioeconomic neighborhoods were selected for this study. Six of the eight schools ultimately participated as two school principals failed to coordinate with a staff person to conduct recruitment within the necessary time-frame. To be eligible for recruitment to participate in CURB, students had to be listed in administrative data bases as enrolled in the 10th grade at one of the participating six high schools, having a cumulative grade point average of B- or higher as of November, 2009, and free of any designation indicating developmental disabilities requiring special classroom teaching assistance. Participating school principals and assigned administrative staff received lists of eligible students based on current school system records. If a student met the necessary requirements, designated staff members who had signed study protocol agreements, privately approached each eligible student, provided a detailed explanation of the consent and enrollment process, and provided consent materials.

All students who provided a signed assent form and a parent-signed consent form by initiation of the study were eligible for CURB (N = 167). Eligible students were then offered the CURB paper-and-pencil baseline survey at the beginning of a study initiation session. The study initiation session was held at the researcher's university, to which all student participants were bused from their respective high schools. The university was in the same inner beltway area as the high schools. Students who did not attend this session were allowed to come to the university study office after the

initiation session to complete the survey. All survey participants received \$10 as an incentive. In total, 134 students completed the baseline survey, which provides the data being analyzed in this study.

**Survey development.** The baseline survey instrument was designed by a team of researchers including behavioral scientists, university students, and community members, using existing items whenever possible. New items were also developed for the survey. The survey was pretested with high school students not involved in the study to assess student ease of completion, comprehension, and acceptability. Several revisions and a second round of review and pretesting were conducted before the survey was administered for this study.

##### **Measures**

**Self-efficacy to overcome barriers to enrollment in college health science.** Self-efficacy was measured using a 5-item scale created by the researchers. After study data collection, an explanatory factor analysis of the items was conducted. The factor analysis indicated that all items contributed to the total score and loaded on one factor. The 5-item measure was then assessed for reliability and it was found to be adequate (Cronbach alpha = 0.75). Students were asked about their level of agreement (1 - strongly disagree to 7 - strongly agree) with the following statements: "*I can always find a way to pay for college*", "*I can earn good enough grades to be accepted into college health science*", "*I'm sure I can do a good job at completing college applications*", "*I can get a high enough SAT score to be accepted into college*", and "*I can take the right high school science courses to get into college.*" To obtain the multi-item scale score, the mean value across items was calculated for each participant. The scale scores were interpreted as: The higher the average scale score, the higher the participant's self-efficacy. The range for the scores was 4.60. The mean score for self-efficacy scale was 5.86 (SD = 0.94). The median score was 6.00.

**Perceived adult support.** This measure was obtained using a 4-item scale created by the researchers. After study data collection, an explanatory factor analysis of the items was conducted. The factor analysis indicated that all items contributed to the total score and loaded on one factor. This 4-item measure was then assessed for reliability and it was found to be adequate (Cronbach alpha = 0.71). Students were asked about their level of agreement (1 - strongly disagree to 7 - strongly agree) with the following statements: "*I know adults who encourage me often*", "*I know adults who encourage me often in sciences*," "*Most of the adults I know are good role models for me*," and "*I have good adult science role models.*" To obtain the multi-item score, the mean value across items was calculated for each participant. The scale scores were interpreted as: The higher the average scale score, the higher the participant's perceived adult support. The range for the scores was 5.75. The mean

score for perceived adult support scale was 5.66 ( $SD = 1.12$ ). The median score was 5.75.

**Perceived barriers to enrollment in college health science.** Perceived barriers were measured using a 5-item scale created by the researchers. After study data collection, an explanatory factor analysis of the items was conducted. The factor analysis indicated that all items contributed to the total score and loaded on one factor. This 5-item measure was assessed for reliability and it was found to be adequate (Cronbach alpha = 0.73). Students were asked about their level of agreement (1 - strongly disagree to 7 - strongly agree) with the following statements: “College tuition is very expensive”, “Good grades are necessary to be accepted into college health science”, “The college application process is very complex and meticulous”, “High SAT scores are necessary when applying to college”, “You have to take the right high school science courses to get into college health science programs”. To obtain the multi-item scale score, the mean value was calculated across items for each participant. The scale scores were interpreted as: The higher the average scale score, the higher the participant’s perceived barriers. The range for the scores was 3.80. The mean score for perceived barriers scale was 6.11 ( $SD = 0.78$ ). The median score was 6.20.

**Plan to pursue a bachelor’s degree in a science-related field.** This variable was a single item (*I now plan to pursue Bachelor’s degree in a science-related field*). Students were asked about their level of agreement (1 - strongly disagree to 7 - strongly agree). The variable was interpreted as: The higher the item score, the higher the participant’s intent to pursue college health science education. The range for the scores was 6.00. The mean score for the single-score item of plan to pursue a Bachelor’s degree in a science-related field was 5.04 ( $SD = 1.86$ ). The median score was 6.00.

**Selected demographic and immutable variables.** The demographic variables were coded for the analysis as follows: Gender (*male=0; female=1*), parents’ place of birth (*outside the United States=0; within the United States=1*), participant’s place of birth (*outside the United States=0; within the United States=1*), father’s/male guardian’s highest level of education – the original 6-category variable was collapsed into a 3-category variable to maximize the number of observations in each category, while isolating the potential effect of father’s post-secondary education on student’s intent to pursue college health science (*less than college [high school or less/trade or vocational school]=0, college or higher [Associate’s degree/College degree/Master’s degree/Doctoral degree]=1, I don’t know [participant not knowing father’s education]=3*). Because the “I don’t know” category included a substantial percentage of responses, we believed that labeling this category as missing and excluding and/or imputing the missing values

could have resulted in potential bias by erroneously assuming missingness at random, and possibly masking diverse reasons behind the participants’ choice of this category. In order to include this categorical variable in the linear regression model, we employed dummy coding selecting “I don’t know” as the reference category, and creating two dummy variables (*not knowing father’s education=0 versus reporting father’s education as less than college=1, and not knowing father’s education=0 versus reporting father’s education as college or above=1*). Mother’s/female guardian’s highest level of education variable was coded and transformed in an identical way.

#### **Analytic Plan**

All data were double entered for data entry reliability into Microsoft Excel and converted to PASW (SPSS) for analysis. Discrepant entries were checked against the hard-copy survey before creating the final data set. Because the total number of missing values for our variables was 4 across all study variables, we did not employ any imputation techniques to replace the missing values. Instead, listwise deletion method was used in the regression models to remove the missing values from the analysis. The analyses were completed using IBM PASW 17.0 and IBM SPSS 20.0. Correlation matrix with Pearson product-moment coefficients was generated to examine the correlations between all continuous and binary independent variables (excluding the two categorical variables: father’s education and mother’s education). Point-biserial correlation was adopted for correlations between binary and continuous variables. Simple linear regression was used to investigate bivariate relationships between each conceptual independent variable of interest and the dependent variable. Sequential multiple regression with block entry was used to investigate the relationships between all the predictors and the dependent variable. The first block included self-efficacy as the key conceptual variable of interest, based on past research and theoretical relevance. Perceived barriers and perceived adult support were both entered in the second block. All of the discrete, immutable demographic variables were entered in the third and final block. The variables were added into each block using the *Enter* method. Using sequential multiple regression we estimated 1) standardized beta coefficients ( $\beta$ ) to examine the association between each predictor and the outcome, while controlling for the effect of all other variables in the model (Block 3), 2) squared semi-partial correlations ( $sr^2$ ) to evaluate the unique explanatory contribution of each predictor in the final model including all independent variables (Block 3), 3) the overall explained variance (adjusted  $R^2$ ) for the final model including all independent variables (Block 3), and 4) change in explained variance ( $R^2$  change) between the successive blocks of the sequential multiple regression.

**Results**

The majority of participants were female (62.7%) and born in the United States (67.2%) (Table 1). Additionally, the majority of participants' parents were born outside of the United States (64.7%). When asked about the educational level of their fathers or male guardians, 32.8% of the participants knew their father or male guardian had less than college level of education, 26.1% knew their father or male guardian had earned at least an Associate's degree, and 41.0% did not know the highest paternal level of education. In regard to their mothers, 37.6% knew their mother or female guardian had less than college level of education, 33.1% knew their

mother or female guardian had earned at least an Associate's degree, and 29.3% did not know the highest maternal level of education.

Table 2 shows the correlations for all continuous and binary independent variables used in the sequential multiple regression model. Several of the predictor variables were significantly associated with each other. Specifically, positive correlations were observed for self-efficacy and perceived adult support ( $r = 0.359, p < 0.05$ ), self-efficacy and perceived barriers ( $r = 0.338, p < 0.05$ ), perceived adult support and perceived barriers ( $r = 0.276, p < 0.05$ ), and for parents' and participants' place of birth ( $r = 0.486, p < 0.05$ ).

Table 1  
*Characteristics of the Study Sample*

	Frequency (%)	Total
<b>Gender</b>		
Male	40 (29.9%)	134 (100%)
Female	94 (70.1%)	
<b>Place of birth (both parents)</b>		
Outside of the United States	86 (64.7%)	133 (100%)
Within the United States	47 (35.3%)	
<b>Place of birth (participant)</b>		
Outside of the Unites States	44 (32.8%)	134 (100%)
Within the United States	90 (67.2%)	
<b>Father's or male guardian's education level</b>		
Less than college (incl. trade school and/or $\leq$ HS)	44 (32.8%)	134 (100%)
College or above (at least an Associate's degree)	35 (26.1%)	
I don't know	55 (41.0%)	
<b>Mother's or female guardian's education level</b>		
Less than college (incl. trade school and/or $\leq$ HS)	50 (37.6%)	133 (100%)
College or above (at least an Associate's degree)	44 (33.1%)	
I don't know	39 (29.3%)	

Table 2  
Correlations Among Independent Variables

Measure	1	2	3	4	5	6
1. Self-efficacy	1					
2. Perceived adult support	0.359*	1				
3. Perceived barriers	0.338*	0.276*	1			
4. Participant's gender	0.093	0.031	0.056	1		
5. Parents' place of birth	0.089	-0.042	-0.006	0.073	1	
6. Participant's place of birth	0.053	-0.150	-0.080	0.065	0.486*	1

Note. \* $p < 0.05$

Table 3  
Results of Bivariate Analyses ( $N = 132$  for Each Analysis)

	<i>B</i>	<i>SE B</i>	<i>t</i>	$\beta$
Self-efficacy	0.48	0.17	2.82	.24*
Perceived adult support	0.82	0.13	6.50	.50*
Perceived barriers	0.65	0.20	3.20	.27*

Note. Self-efficacy  $R^2 = 0.06$ ; Perceived adult support  $R^2 = 0.24$ ; Perceived barriers  $R^2 = 0.07$ .  
\* $p < 0.05$

The bivariate analysis for each conceptual construct and the outcome variable (Table 3) indicated that increasing self-efficacy to overcome barriers to enrollment in college health science was correlated with increasing intent to pursue a Bachelor's degree in a science-related field ( $b = 0.48, p < 0.05$ ). Increasing perceived adult support was correlated with increasing

intent to pursue a Bachelor's degree in a science-related field ( $b = 0.82, p < 0.05$ ). In addition, increasing perceived barriers to enrollment in college health science was correlated with increasing intent to pursue college health science education ( $b = 0.65, p < 0.05$ ). Detailed results of the sequential multiple regression analysis are presented in Table 4.

Table 4  
 Summary of Sequential Multiple Regression Predicting a Current Plan to Pursue Bachelor's Degree in a Science-Related Field ( $N = 130$ )

BLOCK 3 (Final model)					
	<i>B</i>	<i>SE B</i>	$\beta$	$sr^2$	<i>p</i>
Self-efficacy	0.16	0.16	.08	0.005	n.s.
Perceived adult support	0.65	0.14	.39	0.118	<.05
Perceived barriers	0.26	0.19	.11	0.009	n.s.
Participant's gender	-0.05	0.30	-.01	0.0001	n.s.
Place of birth (both parents)	-0.14	0.32	-.04	0.001	n.s.
Place of birth (participant)	-0.55	0.33	-.14	0.014	n.s.
Father's educ. less than college <sup>a</sup>	1.29	0.37	.33	0.062	<.05
Father's educ. college or above <sup>a</sup>	0.70	0.43	.16	0.013	n.s.
Mother's educ. less than college <sup>a</sup>	-1.44	0.40	-.38	0.067	<.05
Mother's educ. college or above <sup>a</sup>	-0.64	0.44	-.16	0.011	n.s.

Note: <sup>a</sup> Student not knowing their parent's education = reference. Educ. = education. Adjusted  $R^2$  for the final block (Block 3) = 0.34

The final prediction model (Block 3: self-efficacy, perceived adult support, perceived barriers, participant's gender, parents' place of birth, participant's place of birth, father's education level, and mother's education level) was significant,  $F(10, 119) = 7.64$ ,  $p < 0.05$ . All variables were retained in the final model due to the use of Enter method for all blocks. The results indicated that increasing perceived adult support was significantly related to increasing intent to pursue a Bachelor's degree in a science-related field ( $\beta = 0.39$ ,  $p < 0.05$ ), controlling for all other variables in the model. Perceived adult support uniquely accounted for 11.8% of explained variance in the intent to pursue college health science ( $sr^2 = 0.118$ ). After adjusting for all other variables, two of the parental education variables were significant predictors of the intent to pursue college health

science. Specifically, students who reported their father's education was less than college had higher intent to pursue a Bachelor's degree in a science-related than those who did not know their father's education ( $\beta = 0.33$ ,  $p < 0.05$ ). This variable uniquely explained 6.2% of variance in the intent to pursue college health science ( $rs^2 = 0.062$ ). Participants who reported their mother's education to be less than college had lower intent to pursue a Bachelor's degree in a science-related field compared to those who did not know their mother's education ( $\beta = -0.38$ ,  $p < 0.05$ ). This variable accounted for 6.7% of explained variance in the intent to pursue college health science ( $rs^2 = 0.067$ ). The remaining variables, including self-efficacy, perceived barriers, participant's gender, parents' birth place, participant's birth place, and the two remaining parental education

variables were not significantly associated with the intent to pursue a Bachelor's degree in a science-related field in the final model. The final model (Block 3) explained approximately 34% of variance in the intent to pursue college health science (adjusted  $R^2 = 0.34$ ).

Examining the changes in explained variance in the intent to pursue college health science education between subsequent blocks of the sequential regression model, there was a significant change in explained variance when perceived adult support and perceived barriers were added to the model in Block 2 (between Block 1: self-efficacy and Block 2: self-efficacy, perceived adult support, and perceived barriers) ( $R^2$  change = 0.21,  $p < 0.05$ ). When the demographic and immutable characteristics were added to the model in Block 3, the change in explained variance in the intent to pursue college health science between Block 2 and Block 3 (with all independent variables) was also significant ( $R^2$  change = 0.12,  $p < 0.05$ ).

### **Discussion**

Based on past research on the SCCT, we hypothesized that after controlling for other variables in the model, self-efficacy to overcome barriers to enrollment in college health science would predict intent to pursue a Bachelor's degree in a science-related field in a sample of high achieving minority 10th graders from an underserved area. Nevertheless, we found that this cognitive personal attribute was no longer significant when various other personal attributes and environmental or contextual variables were included in the prediction model of intent to pursue college health science education. In the sequential multiple regression model including all study variables, we found that perceived adult support and knowing whether the educational level of both one's mother and father included college were significant predictors. In regard to our theoretical SCCT framework for the study, these findings suggest that adults/parents may serve as important environmental influences on 10th graders' interest in college health science education while other variables, including personal attributes, do not appear as influential.

### **Perceived Adult Support in the Context of Pursuit of College Health Science**

Perceived adult support was a significant predictor of a plan to pursue a Bachelor's degree in a science-related field when controlling for all other variables (cognitive and personal attributes, as well as environmental factors) in the model. In one of their seminal articles on the SCCT, Lent et al. (2000) discussed the potential importance of perceived support to forming educational and carrier plans. They also mentioned a relative scarcity of studies investigating this contextual influence in relation to academic and career outcomes, and pointed out the need for further investigations. Our finding mirrors the findings of the few existing studies that have investigated perceived social support (e.g., from

parents and teachers) and found it to be associated with academic, educational, and career outcomes (e.g., Flores & O'Brien, 2002; Kenny, Blustein, Chaves, Grossman, & Gallagher, 2003; McWhirter, Hackett, & Bandalos, 1998; Schaefer, Epperson, & Nauta, 1997). Evaluations of mentoring programs suggest that the availability of support-providing adult mentor figures is an important factor in social, emotional and behavioral development and functioning of youth, particularly in disadvantaged or at-risk circumstances (Jakielek, Moor, & Hair, 2002). For example, having a mentor as a source of support has been linked to higher academic achievement and first-year college attendance rates immediately after high school completion (Johnson, 1997; Thompson & Kelly-Vance, 2001). However, researchers point out that it is not merely the presence, but also the quality of supportive relationships with adult figures providing mentorship that may be of particular importance in relation to positive outcomes (DuBois, Neville, Parra, & Pugh-Lilly, 2002; Rhodes, 2008). The results of our study with regard to perceived adult support suggest that parents and other role models may be especially relevant to formation of immediate educational plans among early high school students. As such, the concept of perceived adult support could be an important measure to collect and target in interventions aiming to influence the educational and career choices of high-achieving underprivileged youth.

### **Self-Efficacy to Overcome Barriers to Pursuit of College Health Science**

While self-efficacy was related to intent to pursue a Bachelor's degree in a science-related field in bivariate analysis, the variable was not a predictor in the final multiple regression model that included the constructs perceived adult support and college barriers. The lack of significant predictive power of self-efficacy in the context of these two other constructs was a surprising finding given its importance in the SCCT (Lent & Brown, 1996; Lent et al., 1994). Others who have investigated the relationship of career/educational self-efficacy and various educational and career outcomes and found strong associations between the two measures (Ali & McWhirter, 2006; Fouad & Smith, 1996; Kerpelman et al., 2008; Kerpelman & Mosher 2004).

One reason for the finding of non-significance of self-efficacy as a hypothesized predictor of educational plan could be that our outcome variable did not measure general college enrollment plans, but a very specific plan to pursue a Bachelor's degree in a science-related field. It is possible that specificity of the outcome measure may also have contributed to the non-significance of self-efficacy when compared directly with perceived adult support. Furthermore, even though the geographical area from which the sample originated has relatively lower socioeconomic indicators than surrounding areas, the surrounding areas include affluent suburbs, the seat of the federal government, and numerous higher education

institutions (including historically African American institutions). Thus, individual self-efficacy among the economically disadvantaged youth residing in this area may not be as much of an influence as it might be in less resource-rich regions (e.g., Ali & McWhirter, 2006; Kerpelman & Mosher, 2004).

### **Perceived Barriers to Pursuit of College Health Science**

Controlling for all other variables in the model, the measure of perceived barriers was not a predictor of intent to pursue a Bachelor's degree in a science-related field. Lent et al. (2000) addressed the relevance of this contextual influence to educational and career outcomes in the context of SCCT. They pointed out that the measure of perceived barriers has been investigated in previous studies and yielded conflicting evidence with regard to prediction of educational and career outcomes. For example, while some researchers found significant associations between perceived barriers and educational and career outcomes (e.g., Ali & McWhirter, 2006; Kenny et al., 2003), the findings of other investigations have not supported the presence of such associations (e.g., McWhirter et al., 2007; McWhirter et al., 1998). Perhaps some of the potential explanations provided above for non-significance of self-efficacy also apply to this construct. Additionally, Lent et al. (2003) found that perceived barriers were not directly related to educational and career outcomes; instead the relationship between perceived barriers and educational pursuits was mediated by self-efficacy. It is possible that the relationship between perceived barriers and intent to pursue college health science education is mediated by another variable not examined here.

### **Limitations and Future Directions**

This study has several potential limitations. The study sample was not randomly selected, thus limiting the generalizability of our findings. Only selected constructs of the SCCT theory, for which data were available in this secondary analysis, were investigated. Examining the theory in its entirety, i.e., using the full set of constructs included in the SCCT, and estimating relationships among the variables with methods like structural equation modeling may have yielded different results. In addition, we were only able to investigate student-reported (perceived) adult support and perceptions of barriers, as opposed to elements of actual (objective) support and barrier structures existing in the environment. Yet another limitation is that our outcome variable consisted of a single item, and thus was not amenable to factor analysis.

Future studies could address some of the aforementioned limitations by investigating the sources, types, and frequency of both actual and perceived adult support as potentially important contextual measures that could be targeted by interventions with youth. The addition of other potential mediators and moderators, and

examining the relationships among the SCCT constructs longitudinally could greatly enhance future investigations and enable researchers to link educational plans with actual educational choices that follow. SCCT guided investigations could also examine the relationships among the important constructs in more diverse samples.

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