

College and Career Readiness Support for Youth With and Without Disabilities Based on the National Longitudinal Transition Study 2012

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Abstract

In this study, we examined college and career readiness (CCR) support for students with and without disabilities using data from the National Longitudinal Transition Study 2012. We selected variables relevant to CCR and focused on the interaction of disability, race and ethnicity, and household income across a range of disability categories, including those on individualized education programs and 504 plans, as well as for those without disabilities. Overall, we analyzed 19 groups of students representing these intersectional characteristics. Our findings show significant differences among the groups with regard to receiving the CCR supports: help with college applications, course-taking advice, interpretation of college admissions exam scores, and arranging college visits. Results show students of color without disabilities from low-income households were 2 times more likely to receive certain CCR supports. In contrast, across all study outcomes, students with disabilities showed different patterns than their counterparts without disabilities and were at a clear disadvantage with regard to access to CCR supports. Findings suggest disparities in schoolwide CCR supports for those with disabilities, which are more pronounced for students of color with disabilities. Implications for secondary transition educators and school counselors are discussed.

Over the past two decades, college and career readiness (CCR) has been increasingly acknowledged as a key outcome in policy, as evidenced by (a) the Every Student Succeeds Act of 2015, (b) the Strengthening Career and Technical Education for the 21st Century Act (2018), and (c) the Individuals With Disabilities Education Improvement Act of 2004 (IDEA; 2004) and Section 504 of the Rehabilitation Act of 1973, both of which ensure adolescents with disabilities have access to CCR educational opportunities and supports. Together, these policies highlight an increased focus on ensuring all students, including students with disabilities, are

prepared to engage in college activities, career responsibilities, and adult life (Mishkind, 2014). Now more than ever, students with a

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range of disabilities are increasingly pursuing college options (Grigal et al., 2019).

Yet, not all students, and especially not students who receive special education services, are exiting school sufficiently college and career ready. Only about 76% of youth with disabilities expect to enroll in some type of postsecondary education or training, compared with 94% of their same-age peers without disabilities (Lipscomb et al., 2017). Furthermore, students with disabilities have lower rates of paid work experience in high school and poorer employment outcomes once they enter into young adulthood (Lipscomb et al., 2017; Newman et al., 2011). According to the U.S. Bureau of Labor Statistics (2019), for individuals with disabilities ages 16 and older, only 18.7% were employed, compared with 65.7% of people without disabilities. Together, these findings demonstrate a persistent problem that is especially pronounced for students with disabilities. This creates a compelling need for education leaders to emphasize CCR and ensure sufficient opportunities schoolwide for *all* students.

In this study, we examined students with a broad range of disability classifications (students with individualized education programs [IEPs] and students with 504 plans) as well as students without disabilities from the National Longitudinal Transition Study 2012 (NLTS2012) data. In addition, we drew upon previous research using the NLTS2, an earlier iteration of the national data set, to focus on the intersection of disability with race and ethnicity (Shogren, Kennedy, Dowsett, Garnier Villarreal, et al., 2014) and household income. As a result, we uncovered important factors that could impact secondary transition outcomes consistent with recent calls for attention to CCR (Lombardi et al., 2018, 2020; Morningstar et al., 2017) as well as cultural diversity and intersectionality in transition research (Trainor et al., 2020).

CCR Supports

Typical supports offered by school counselors for all students promote CCR broadly; specifically, school counselors provide schoolwide

supports for course selection and sequence as well as college applications, admissions exam preparation, college visits, and career development (American School Counselor Association, 2012; Goodman-Scott & Grothaus, 2018; Reach Higher, 2015). These supports should, therefore, also be offered to students who are at risk and underserved (Paolini, 2015) as well as those who have 504 plans or IEPs (Oberman & Graham, 2016). As such, school counselors are an important practitioner group to examine with regard to CCR access and supports for youth with disabilities. Ideally, secondary special educators and school counselors willingly work together to ensure transition services are aligned with schoolwide CCR.

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Yet, the majority of published research on school counselors and supporting youth with disabilities in CCR includes conceptual papers (e.g., Milsom et al., 2007; Oberman & Graham, 2016) and practitioner-friendly articles (e.g., Stipanovic, 2010). Empirical research is scarce (McMahon et al., 2017; Milsom, 2007). Fortunately, there are specific items within the NLTS2012 data that describe CCR supports that allow for a quantitative examination that is largely absent from the school counseling and secondary special education and transition literature. Further examination of these items will allow a focus on CCR support receipt for students with IEPs, on 504 plans, and without disabilities. Although the focus of these items is support receipt, and not who offered the support (e.g., secondary special educators, school counselors), a closer examination of these items may inform support structures and allow for collaborative approaches among various high school educators.

The special education transition literature base has primarily examined differences in outcomes based on disability category. In this study, we used a cultural lens informed

by the perspective articulated by Trainor et al. (2020). At minimum, practical implications of this approach will inform our lack of empirical literature on one of the five areas defined and prioritized by Trainor et al. (2020): student characteristics. Although the NLTS2012 data focuses on support receipt and not necessarily who offered the support, we anticipate our findings will inform transition professionals as well as school counselors and school and district leaders with regard to the provision of culturally responsive transition services and CCR supports for all students, with and without disabilities. Findings may inform new and innovative practices that promote cohesive and collaborative structures between special educators and school counselors and ultimately lead to improved transition services that are aligned with schoolwide CCR initiatives for diverse secondary students with disabilities.

Research Questions and Hypotheses

In this study, the overarching hypothesis was CCR supports will differ based on (a) disability status and category, (b) race and ethnicity, (c) household income, and (d) the intersection of these student characteristics. Further, we hypothesized the students who have the most access to the selected CCR supports will be students without an IEP or 504 plan, and thus without a disability classification, as well as those who are not considered students of color (White) and those who reside in households with higher incomes. Our research questions and hypotheses were as follows:

1. Does access to selected CCR supports depend on the interrelationship with student characteristics?

Hypothesis 1: Students without an IEP plan or 504 plan will have more access to CCR supports relative to students on a 504 plan or students with an IEP.

Hypothesis 2: White students will have more access to CCR supports relative to

students of color. (e.g., Black and Hispanic or Black only).

Hypothesis 3: Students from households with high income will have more access to CCR supports relative to students from low-income households.

2. Does access to selected CCR supports depend on the intersectionality of student characteristics?

Hypothesis 4: White students from high-income households without an IEP or 504 plan will have more access to CCR supports than others.

Method

In this study, we used data from the NLTS2012. From 1985 to 2015, the Department of Education funded three studies to examine the characteristics, experiences, and post-high school outcomes of students with disabilities. In the mid-1980s, the first of these studies—the National Longitudinal Transition Study (NLTS)—explored the secondary school and postschool experiences of a nationally representative sample of students in each of IDEA’s disability categories. NLTS2 was the next iteration of this line of work and was a companion study to the original NLTS. NLTS2 data collection began in 2001 and continued through 2010. NLTS2012 is the third in the series, and its purpose was to provide a more recent sampling of the secondary and postschool experiences of a nationally representative sample of students with and without disabilities.

Participants

The NLTS2012 sampling plan was designed to generalize to the population of students receiving special education services in the United States in each federally recognized disability category at the secondary level (i.e., autism spectrum disorder, deaf-blindness, emotional disturbance (ED), hearing impairment, learning disability (LD), intellectual disability, multiple disabilities, orthopedic impairment, other health impairment

(OHI), speech and language impairment, traumatic brain injury, and visual impairment). It also included students with 504 accommodation plans (504 plans) and students without disabilities, which we included in our analyses to better understand differences between those who receive special education services and those who do not with regard to CCR supports. NLTS2012 randomly sampled 432 school districts and special schools in 2011 and then randomly sampled 21,959 students within those districts. Survey data were collected in 2012–2013 from approximately 12,000 in-school youth and their parents. This sampling strategy provides precise, nationally representative estimates of the backgrounds and experiences of sampled students. Districts included local education agencies, charter schools that operate independently, and state-sponsored special schools that serve deaf or blind youth.

Procedures

Data collection was conducted from February through October 2012 and from January through August 2013. Survey administration in 2012 was by computer-assisted telephone interviewing. In 2013, the study introduced a web survey option and field interviewers. During both years, the study contacted parents first for youth who were younger than 18. If a parent consented to the study, the parent was surveyed first, and subsequent to that, interviewers attempted to survey the youth. This procedure led to a higher response rate among parents than among youth. Across the 2 years of data collection, 12,988 parent surveys were completed, representing a 59% unweighted response rate and a 57% weighted response rate. A total of 11,128 youth surveys were completed, representing a 51% unweighted response rate and a 48% weighted response rate. Youth were ages 12 to 23 when interviews took place, with the vast majority (greater than 97%) being ages 13 to 21. All students were enrolled in Grades 7 through 12 or in a secondary ungraded class at the time of sampling.

Weighting. Because the NLTS2012 sample was a stratified random sample designed to be generalizable to the national population of

students within disability categories, analyses must use weighted data to ensure that the target population is appropriately represented. NLTS2012 data, under a restricted-use data agreement, have two sets of weights for the parent survey data and the student survey data. All youth weights are designed for analyses using the full respondent sample and are appropriate for analyzing measures that do not depend on youth age or grade at the time of the survey. Enrolled youth weights are designed for analyses using the population of youth enrolled in the reference school year (2011–2012 for those surveyed in 2012; 2012–2013 for those surveyed in 2013).

Variables

We used data from the NLTS2012 Youth and Parent Surveys. Specific information about the variables used in this study is presented next.

CCR Support. The dependent variables were student responses to relevant CCR support receipt provided to all students, with and without disabilities. These variables were selected because they represent schoolwide CCR supports that students with and without disabilities should be able to access. Each dependent variable is binary, with a 1 indicating the youth reported receiving the support or 0 if not. These variables are (a) received help completing college applications (NLTS2012 variable: *K9c1*), (b) received guidance about which courses to take (NLTS2012 variable: *K9d1*), (c) received help reviewing college entrance exam results (NLTS2012 variable: *K9e1*), and (d) received help arranging college visits (NLTS2012 variable: *K9f1*). Due to skip logic, these items were asked of students who were at least in ninth grade and at least 14 years old; further, variables *K9e1* and *K9f1* were asked only of students who were at least 15 years old.

Disability Status. For student disability status and category, we consulted the district reported variable (*d_y_disability*). In total, we examined nine groups; broadly, these are students who neither are on a 504 plan nor have an IEP ($n = 1,592$), students on a 504

plan ($n = 576$), and students with an IEP ($n = 8,960$) (see Burghardt et al., 2017). We grouped these students based on disability category using a similar approach to Shogren, Kennedy, Dowsett, and Little (2014), which resulted in seven groups: students with high-incidence disabilities ($n = 4,515$, including LD, ED, speech and language impairment, and OHI), sensory disabilities ($n = 697$, including vision impairment and hearing impairment), multiple disabilities ($n = 972$, including deaf-blindness), autism spectrum disorder ($n = 954$), orthopedic disabilities ($n = 432$), intellectual disability ($n = 1,146$), and traumatic brain injury ($n = 244$).

Race and Ethnicity. For student race and ethnicity, we consulted parent-reported data. Parents were asked to report ethnicity by specifying whether the youth is Hispanic or Latino (NLTS2012 variable: $G2$; yes or no) as well as indicate a race category (NLTS2012 variable: $G3$; yes or no, e.g., American Indian or Alaskan Native, $G3_01$; Asian, Native Hawaiian, or other Pacific Islander, $G3_02$; Black or African American, $G3_03$; White, $G3_05$). Importantly, the race variable presented up to four selections and parents were able to select any combination of one to four categories; therefore, we summed the number of indications across these four race categories to differentiate between those who indicated a single race and those who selected multiple races. As such, we used the ethnicity variable ($G2$) to determine White Hispanic, White non-Hispanic, Black Hispanic, and Black non-Hispanic groups, in particular, to better understand the intersection of race and ethnicity in the context of the current study. Thus, we examined combinations of responses to the $G2$ and $G3$ variables. Using predetermined minimum group size decision rules based on the power analyses results ($n > 50$, as described in the Stage-1 report: <https://osf.io/nk3w5/>), we formed the following groups: (a) White non-Hispanic, or $G2 = \text{no}$ and $G3_05 = \text{yes}$; (b) White Hispanic, or $G2 = \text{yes}$ and $G3_05 = \text{yes}$; (c) Black non-Hispanic, or $G2 = \text{no}$ and $G3_03 = \text{yes}$; (d) Black Hispanic, or $G2 = \text{yes}$ and $G3_03 = \text{yes}$; (e) Hispanic multiracial or other, or $G2 = \text{yes}$ and $G3_01$, $G3_02$, or

$G3_04 = \text{yes}$; and (f) non-Hispanic/missing race, or $G2 = \text{yes}$ and $G3$ was missing (the annotated code of how we computed these groups is available in Appendix B in the supplemental files). This approach is similar to previous studies with the NLTS2 data (Shogren, Kennedy, Dowsett, Garnier Villarreal, et al., 2014); however, this study is novel in that we computed intersectional variables using the Hispanic, Black, and White variables. We were unable to disaggregate race and examine intersections with ethnicity for the American Indian or Alaskan Native, Asian or other Pacific Islander, and multiple-races categories due to small group sizes ($n < 50$). As such, we collapsed these groups accordingly into Hispanic multiracial or other and Hispanic/missing race.

Household Income. We used household income as a proxy for socioeconomic status (NLTS2012 variable: p_h_income), which was parent reported. Additionally, this item is an ordered-categorical variable with four response categories: 1 = \$40,000 or less; 2 = between \$40,001 and \$80,000; 3 = between \$80,001 and \$120,000; and 4 = greater than \$120,001. In a recent study (Qian et al., 2020) using the IEP-only sample from NLTS2012, the proportion of the students falling into each of the four categories was 51%, 23%, 11%, and 8%; therefore, to bolster statistical power, we collapsed the top two levels into a single group that corresponds to a household income of \$80,001 or more, and subsequently, this group served as the reference group in all analyses. Moreover, after examining group sizes when crossing household income with the disability categories and race and ethnicity groupings, we determined the need to further collapse this variable into two groups, (a) \$40,000 or less and (b) above \$40,000, to meet our minimum group size decision rules determined at Stage-1.

Data Analyses

To address our study hypotheses, we conducted a series of logistic regressions with a logit link function due to the binary dependent

variables (i.e., Bernoulli distributed). For each outcome, we investigated the association between receiving CCR supports and (a) disability status, (b) race and ethnicity, and (c) household income, separately. As such, we estimated the log odds of receiving CCR supports, which is the intercept representing the reference group. In this study, the reference group is those students who do not have a disability (no IEP or 504 plan), identify as White non-Hispanic, and are from a higher-income household. As previously stated, we hypothesized the reference group would have the most access to CCR supports. Each subsequent regression weight corresponded to the partial log odds for the group represented by its respective indicator variable (e.g., students with intellectual disability) relative to the reference group (e.g., students without an IEP or 504 plan). For an effect size, we report odds ratios.

Missing Data. The outcomes of interest were not asked of all students as a result of skip logic. Specifically, the student must have been enrolled in school the year they were surveyed and, depending on the outcome, had to be either 14 or 15 years old. Therefore, missing responses on the outcomes are non-ignorable (i.e., missing not at random), and no attempt was made to recover these missing data. With respect to missing data that resulted from a random process, we did not employ multiple imputation or utilize list-wise deletion in an effort to bolster the reproducibility of the results.

Progression of Models. Interrelationships. For each of the demographic factors (e.g., disability status), we estimated a logistic regression for the identified dependent variables and, therefore, the log odds of receiving CCR supports (i.e., the intercept, representing the reference group) for the students hypothesized to have the most access to these supports. For disability status, eight indicator variables were entered into the logistic regression to model the partial log odds relative to the reference group, students without an IEP or a 504 plan. In a similar fashion, race was examined by including two or three indicator variables

to model the difference between the groups of interest and the reference group, White non-Hispanic students. Finally, we entered two indicator variables to model the difference between household income levels that represent the students from lower-income households relative to the reference group, students from high-income households. Afterward, we estimated a logistic regression that contains all indicator variables from disability status, race and ethnicity, and household income to model the partial log odds for each of these groups relative to the reference group, White students without an IEP or a 504 plan from high-income households.

Interaction effects. After examining the main effects of disability status, race and ethnicity, and household income, we built logistic regressions to investigate the interaction of these student characteristics estimating all three-way interactions. This approach allowed us to simultaneously evaluate all group comparisons relative to the reference group.

Statistical Power. We conducted a post hoc power analysis to determine the minimum detectable effect size (MDES), where the MDES denotes the smallest population effect needed for focal tests to be adequately powered ($\geq .80$). We elected to proceed in this fashion to guide our analyses without risking our objectivity by looking at the group sizes available. Taking a conservative approach, we evaluated power to detect a single three-way interaction in logistic regression analysis. We found the MDES to be 0.4 when the sample size per group (i.e., cell containing White students with autism spectrum disorder from low-income households) was 125, whereas MDES was 0.35 when the sample size per group was 150. Due to the binary nature of our outcomes of interest, we opted to model the difference in probabilities of endorsement between groups relative to some reference group by modeling the log odds and partial log odds, respectively. These are realistic effect sizes given our hypotheses. To arrive at these MDES figures, we executed a Monte Carlo simulation (1,000 reps) in R Version 4.0.3 (R Core Team, 2020) using the base, stat, and dplyr

(Wickham et al., 2020) packages. Our Stage-1 report shows power simulation results and supplemental files that include the simulation code (<https://osf.io/nk3w5>).

Analytic Sample and Weighting. Due to the skip logic employed for the dependent variables of interest, the full NLTS2012 sample was not used for the data analyses in the current study. For all logistic regression models, we used the youth enrollment weight (*y_weight_enrolledyouth*) because the outcome variables were given only to students who were enrolled in school when they were interviewed. Further, in regard to assessing differences on college-related supports (*K9e1* and *K9f1*), the analytic sample included students who were age 15 or older at the time of data collection.

We strategically executed a custom power simulation to determine the MDSE, which resulted in a minimum cell size of 150. Therefore, prior to assessing the intersectionality of the targeted student demographics, we generated these groups to determine whether the minimum cell size was available for a given group (e.g., Black Hispanic student with intellectual disability from a low-income household). In the event the cell size threshold was not met, we removed the group from the analysis. All statistical models were conducted using SAS Version 9.4 (SAS Institute, 2021).

Results

To test our hypotheses, we modeled the log odds of receiving CCR supports and connected this response variable to the explanatory variables using the logit link. Each explanatory variable indicated membership in nonoverlapping groups (e.g., Black students with no disabilities from low-income households); therefore, parameter estimates for focal groups (e.g., students from low-income households) are the partial log odds of receiving the support for the respective group. Results of the logistic regression models are presented in this section by study hypothesis.

Hypothesis 1: Students Without an IEP or 504 Plan Will Have More Access to CCR Supports Relative to Students on a 504 Plan or Students With an IEP

After retaining observations with observed data on the outcomes, we examined a total of nine groups: students without disabilities ($n = 1,400$), students on a 504 plan ($n = 510$), and students with the following disabilities: autism ($n = 600$), high-incidence disabilities ($n = 3,820$), intellectual disability ($n = 680$), multiple disabilities ($n = 440$), orthopedic impairments ($n = 260$), sensory impairments ($n = 540$), and traumatic brain injury ($n = 180$).

College Applications. The log odds for students without an IEP or a 504 plan for receiving support with college applications was estimated to be -0.76 ($SE = 0.081$, $p < .001$; odds ratio [OR] = 0.468), leading to a model-implied probability of 0.319. Access for either students with a 504 plan or those with high-incidence disabilities was not significantly different from that for students without disabilities or a 504 plan; however, significant effects were observed in the hypothesized direction. Specifically, students with autism (OR = 0.629), intellectual disability (OR = 0.766), multiple disabilities (OR = 0.494), orthopedic impairments (OR = 0.593), sensory impairments (OR = 0.660), or traumatic brain injury (OR = 0.526) were less likely to receive assistance on college applications, with model-implied probabilities ranging from 0.188 (multiple disabilities) to 0.264 (intellectual disability) relative to 0.319 for students without an IEP or a 504 plan.

Courses to Take. The log odds for students without an IEP or a 504 plan was estimated to be 1.544 ($SE = 0.099$, $p < .001$; OR = 4.68), which translates to a model-implied probability of 0.824. All significant effects were in the hypothesized direction (i.e., the probability of access to this support was smaller for all other student groups based on disability category). Specifically, students with autism (OR = 0.415), high-incidence disabilities (OR = 0.638), intellectual disability

(OR = 0.322), multiple disabilities (OR = 0.306), or orthopedic impairments (OR = 0.388) were less likely to receive this support, with model-implied probabilities ranging from 0.589 (multiple disabilities) to 0.749 (high-incidence disabilities).

Interpreting Exam Results. The log odds for students without an IEP or a 504 plan was estimated to be -0.433 ($SE = 0.077$, $p < .001$; OR = 0.468), leading to a model-implied probability of 0.393. Of the eight disability categories, four differed significantly from the reference group and in the hypothesized direction. Specifically, students with autism (OR = 0.408), intellectual disability (OR = 0.655), multiple disabilities (OR = 0.501), or traumatic brain injury (OR = 0.644) are expected to have less access to this support, with model-implied probabilities ranging from 0.209 (autism) to 0.298 (intellectual disability).

College Visits. The estimated log odds for students without an IEP or a 504 plan was estimated to be -0.709 ($SE = 0.082$, $p < 0.001$; OR = 0.33), leading to a model-implied probability of 0.33. Four of the groups of interest were found to be less likely to receive support with college visits. Specifically, students with autism (OR = 0.408), intellectual disability (OR = 0.655), or multiple disabilities (OR = 0.501) and those on 504 plans (OR = 0.644) are expected to have a smaller probability of receiving this support. Ultimately, model-implied probabilities ranged from 0.167 (autism) to 0.244 (intellectual disability).

Hypothesis 2: White students will have more access to CCR supports relative to students of color (e.g., Black and Hispanic or Black Only)

After selecting cases with data on the outcomes, we examined a total of six race and ethnicity groups: White students ($n = 4,220$; serves as reference group), White Hispanic students ($n = 1,190$), Black students ($n = 1,530$), Hispanic students ($n = 770$), Asian and Hawaiian students ($n = 210$), and finally, multiracial or other non-Hispanic students ($n = 570$).

College Applications. The log odds for White students to receive support on college applications was estimated to be -0.84 ($SE = 0.108$, $p < .001$; OR = 0.432) and informs a model-implied probability of 0.302. Black students were found to be 1.59 times more likely to receive support with college applications than White students (Est. = 0.465, $SE = 0.196$, $p = .018$; OR = 1.59), and their model-implied probability was 0.407. All other race and ethnicity groups did not significantly differ from White students.

Courses to Take. The log odds for White students receiving support on deciding which courses to take was estimated to be 1.429 ($SE = 0.124$, $p < .001$; OR = 4.17) and translates to a model-implied probability of 0.807. No significant effects were observed for the remaining race and ethnicity groups.

Interpreting Exam Results. The log odds for White students receiving support with exam interpretation was estimated to be -0.684 ($SE = 0.098$, $p < .001$; OR = 0.50), leading to a model-implied probability of 0.335. Black students were estimated to be 1.957 times more likely to receive support with exam interpretations (Est. = 0.672, $SE = 0.193$, $p < .001$; OR = 1.96) compared with White students, leading to a model-implied probability of 0.497. Additionally, Hispanic students were estimated to be 1.71 times more likely to receive this CCR support compared with White students (Est. = 0.536, $SE = 0.192$, $p = .005$; OR = 1.71) and informs a model-implied probability of 0.463. Finally, White Hispanic students were observed to be 1.61 times more likely than White students to receive assistance with exam interpretation (Est. = 0.473, $SE = 0.194$, $p = .015$; OR = 1.61).

College Visits. The log odds for White students to receive support with college visits was estimated to be -0.934 ($SE = 0.106$, $p < .001$; OR = 0.39) and translates to a model-implied probability of 0.282. Black students were estimated to be 1.93 times more likely to receive assistance with college visits relative to White students (Est. = 0.658, $SE = 0.201$, $p = .001$;

OR = 1.93). Hispanic students were estimated to be 1.67 times more likely to receive support with college visits relative to White students (Est. = 0.505, $SE = 0.223$, $p = .024$), leading to a model-implied probability of 0.394.

Hypothesis 3: Students From Households With High Income Will Have More Access to CCR Supports Relative to Students From Low-Income Households

After retaining cases based on available data on the outcomes, we examined a total of three groups: students from high-income households ($n = 1,800$; served as the reference group), students from middle-income households ($n = 2,060$), and finally, students from low-income households ($n = 4,090$).

College Applications. The log odds for students from high-income households was estimated to be -0.841 ($SE = 0.128$, $p < .001$; OR = 0.43) and informs a model-implied probability of 0.301. No other household income groups were estimated to be significantly different from high-income households.

Courses to Take. The log odds for students from high-income households was estimated to be 1.429 ($SE = 0.146$, $p < .001$; OR = 4.17), leading to a model-implied probability of 0.807. Students from middle- and low-income households were not estimated to differ from students from high-income households with respect to receiving support on what courses to take.

Interpreting Exam Results. The log odds for students from high-income households for receiving support on exam interpretations was estimated to be -0.794 ($SE = 0.122$, $p < .001$; OR = 0.45), leading to a model-implied probability of 0.311. Students from low-income households were 1.7 times more likely to receive help interpreting exam results relative to those from high-income households (Est. = 0.530, $SE = 0.155$, $p < .001$; OR = 1.70) and informs a model-implied probability of 0.434. Students from middle-income households were 1.53 times

more likely to receive support than students from high-income households in terms of support with interpreting exam results (Est. = 0.425, $SE = 0.178$, $p = .017$; OR = 1.53).

College Visits. The log odds for students from high-income households was estimated to be -0.808 ($SE = 0.127$, $p < .001$; OR = 0.45), leading to a model-implied probability of 0.308. No significant differences were observed for those from middle- or low-income households.

Hypothesis 4: White Students From High-Income Households Without an IEP or a 504 Plan Will Have More Access to CCR Supports Than Others

We determined that a total of 19 groups could be investigated for each of the four study outcomes. This was decided by consulting cell sizes after examining an array that crossed race and ethnicity, household income, and disability category and status. We did not examine group sizes conditioning on available data for each outcome (e.g., college applications) to ensure that the same student groups were compared across all outcomes. Most notably, it was necessary to collapse the high- and middle-income households into a single level, high-income households; this afforded us the opportunity to retain as many disability and race and ethnicity groups as possible. In effect, groups (e.g., White students with traumatic brain injury from high-income households) were removed from analyses due to insufficient cell sizes (e.g., fewer than 125); this was done in an effort to enhance the interpretation of the reference group: White students with no disabilities from high-income households. Table 1 shows the student groups considered in all intersectionality analyses as well as their approximate cell sizes per guidance from IES Data Security. Full model estimates are included in Appendix A, Tables A1 through A4, in the supplemental files.

College Applications. The log odds of receiving support for college application for the reference group (White students from high-income households with no disabilities) was significant (Est. =

Table 1. Interaction Model Estimates.

Student group	n^a	College applications			Which courses to take			Exam interpretation			College visits		
		OR	BF	Prob (Y=1)	OR	BF	Prob (Y=1)	OR	BF	Prob (Y=1)	OR	BF	Prob (Y=1)
Reference	450	0.41	—	.29	4.9	—	0.83	—	—	0.31	0.40	—	0.28
White students on 504 plans from high-income households	230	1.03	0.78	.30	0.65	2.99	0.76	1.16	1.3	0.35	0.6	4.39	0.19
White students with sensory disabilities from high-income households	160	0.47	5.39	.16	1.11	1.03	0.84	1.39	2.26	0.39	0.86	1.18	0.26
White students with autism from high-income households	270	0.90	1.02	.27	0.41	19.75	0.67	0.53	7.32	0.19	0.6	4.43	0.19
White students with high-incidence disabilities from high-income households	1040	0.92	0.94	.28	0.72	4.2	0.78	1.3	4.18	0.37	0.98	0.57	0.28
White students with intellectual disability from high-income households	120	0.65	2.21	.21	0.34	10.39	0.62	1.11	1.01	0.33	0.84	1.22	0.25
White students with multiple disabilities from high-income households	130	0.44	4.48	.16	0.32	12.64	0.61	0.52	3.59	0.19	0.33	6.54	0.12
White students with high-incidence disabilities from low-income households	690	0.80	2.3	.25	0.63	7.81	0.75	1.09	1.01	0.33	1.02	0.62	0.29
White students with intellectual disability from low-income households	170	0.82	1.42	.25	0.36	15.97	0.64	1.14	1.13	0.34	0.87	1.16	0.26
White students without disabilities from low-income households	150	1.25	1.49	.34	0.79	1.35	0.8	1.57	3.27	0.42	0.97	0.85	0.28
Black students with high-incidence disabilities from low-income households	520	1.35	3.78	.36	0.64	5.19	0.76	1.67	17.83	0.43	1.39	4.58	0.36
Black students with intellectual disability from low-income households	140	1.48	2.53	.38	0.25	37.49	0.55	1.05	0.9	0.32	1.05	0.88	0.29
Black students without disabilities from low-income households	130	1.93	4.72	.45	1.49	1.57	0.88	2.34	8.56	0.51	1.41	1.96	0.36
Black students with high-incidence disabilities from low-income households	200	1.19	1.36	.33	0.64	2.72	0.76	2.2	17.83	0.5	1.36	2.32	0.35

(continued)

Table 1. (continued)

Student group	n ^a	College applications			Which courses to take			Exam interpretation			College visits		
		OR	BF	Prob (Y=1)	OR	BF	Prob (Y=1)	OR	BF	Prob (Y=1)	OR	BF	Prob (Y=1)
disabilities from high-income households													
Hispanic students with high-incidence disabilities from low-income households	230	1.03	0.79	.30	0.46	8.55	0.69	1.36	2.28	0.38	1.06	0.89	0.3
Multi-racial non-Hispanic students with high-incidence disabilities from low-income households	170	0.77	1.65	.24	0.54	3.91	0.73	1.46	2.65	0.4	1.19	1.33	0.32
White Hispanic students with high-incidence disabilities from low-income households	340	1.02	0.69	.30	0.63	4.41	0.76	1.58	7.85	0.42	1.12	1.12	0.31
White Hispanic students without disabilities from low-income households	150	1.19	1.27	.33	0.85	1.15	0.81	1.97	6.89	0.47	1.93	5.94	0.44
White Hispanic students with high-incidence disabilities from high-income households	160	0.87	1.17	.27	0.44	7.84	0.68	1.21	1.42	0.35	1.44	2.56	0.37

Source: U.S. Department of Education, National Center for Education Statistics (NCES), National Longitudinal Transition Study, 2012.

Note: Reference group = White students with no disabilities from high-income households. OR = odds ratio; BF = Bayes factor; Prob = probability.

^aGroup sizes are rounded to the nearest 10 per NCES, Institute of Education Sciences Data Security guidelines for restricted-use license holders.

-0.877 , $SE = 0.143$, $p < .001$; $OR = 0.432$). On average, the probability for White students from high-income households with no disabilities receiving this type of support was 0.294. On the other hand, White students from high-income households with sensory impairments on average have a smaller probability of receiving this support, with a model-implied probability of 0.164 (Est. = -0.753 , $SE = 0.313$, $p = .017$; $OR = 0.471$). It is expected that the odds of White students from high-income households with sensory impairments receiving this support is reduced by a factor of 0.47; however, comparing the model-implied probabilities are straightforward: .16 (focal group) versus 0.29 (reference group). The Bayes factor was estimated to be 5.39; therefore, the alternative model (one in which a true difference exists between the reference group and a given focal group) was 5.39 times more likely to produce the data over the null.

Black students from low-income households without disabilities were found to have significantly higher odds of receiving help with college applications; specifically, this group of students was 1.93 times more likely to receive this support relative to White students from high-income households without disabilities. In terms of the probability of support receipt, Black students with no disabilities from low-income households had a model-implied probability of 0.45 versus 0.29 (reference group). The Bayes factor was estimated at 4.72, indicating the alternative model was 4.72 times more likely to produce the data than the null. See Table 1 for all parameter estimates, ORs, Bayes factors, and model-implied probabilities. For more detailed model estimates, see Table A1 in Appendix A in supplemental materials.

Black students from low-income households without disabilities were found to have significantly higher odds of receiving help with college applications; specifically, this group of students was 1.93 times more likely to receive this support relative to White students from high-income households without disabilities

Interestingly, White students from high-income households with multiple disabilities were found not to differ significantly from the reference group (Est. = -0.81 , $SE = 0.46$, $p = .080$); however, even though we cannot discard the null, upon estimating a Bayes factor, we found the alternative model was 4.48 times more likely to produce this data than the null. If we were to accept the alternative, the model-implied probability of receipt would be 0.16 versus 0.29 (reference group).

Which Courses to Take. The log odds for the reference group was estimated to be 1.586 ($SE = 0.154$, $p < .01$; $OR = 4.88$), which translates to model-implied probability of 0.83. Across the 18 available groups, eight groups had significantly lower probabilities of receiving this support. The largest difference belonged to Black students with intellectual disability from low-income households, whose partial log odds was estimated to be -1.391 ($SE = 0.259$, $p < .001$; $OR = 0.25$), which translates to a model-implied probability of 0.55; the Bayes factor was estimated to be 37.49. Therefore, we observed strong evidence that the alternative model was the most likely process for generating the data. The closest, although being a significant difference, belonged to White students with high-incidence disabilities from low-income households, for which the partial log odds was estimated to be -0.468 ($SE = 0.215$, $p = .030$; $OR = 0.62$), informing a model-implied probability of 0.75; the Bayes factor for this effect was estimated to be 7.81. Therefore, the alternative model was nearly 8 times more likely to have generated the data. See Table A2 in Appendix A in supplemental materials.

We were not able to fully reject the null hypothesis for three student groups, specifically, for students with high-incidence disabilities and from low-income households who were either Black (Bayes factor = 5.19), multi-racial students without a Hispanic background (Bayes factor = 3.91), and White Hispanic students (Bayes factor = 4.41). For these groups, the alternative model was at least 3.91 times more likely to do so, and in each case, the

reference group had a greater probability of receiving the support.

Interpreting Exam Results. The log odds for White students without disabilities from high-income households was estimated to be -0.795 ($SE = 0.126$, $p < .001$; $OR = 0.45$), informing a model-implied probability of 0.31. Of the 18 comparison groups, six were estimated to be significantly different from the reference group, and most were estimated to have a higher probability of receiving support from school staff for exam interpretations, with the exception of one group. Specifically, the largest difference was estimated for Black students with no disabilities from low-income households, whose partial log odds was estimated to be 0.845 ($SE = 0.307$, $p < .001$; $OR = 2.33$); therefore, this group was 2.33 times more likely to receive this support, resulting in a model-implied probability of 0.513. The Bayes factor was estimated to be 8.56; therefore, the alternative model was nearly 9 times more likely to have produced the data over the null.

The remaining groups estimated to be more likely to receive this support were Black students with high-incidence disabilities from high-income households ($OR = 2.20$; Bayes factor = 17.83) or low-income households ($OR = 1.67$; Bayes factor = 17.83), White Hispanic students without disabilities from low-income households ($OR = 1.97$; Bayes factor = 6.89), and White Hispanic students with high-incidence disabilities from low-income households ($OR = 1.58$; Bayes factor = 7.85). On the other hand, White students with autism from high-income households were estimated to be less likely to receive the support, with a model-implied probability of 0.19 ($OR = 0.53$; Bayes factor = 7.32). See Table 1 and Table A3 in Appendix A of the supplemental materials.

Although we were not able to completely reject the null hypothesis, two groups of interest emerged. First, White students from high-income households with autism (Est. = -0.63 , $SE = 0.35$, $p = .062$; $OR = 0.52$) had an estimated Bayes factor of 3.59, and therefore, the alternative model was over 3 times as likely to have produced the data over the

null; if we were to accept the alternative, it is estimated that the probability for this student group to receive assistance with interpreting exam results would be 0.19 versus 0.31 (reference group). Finally, White students without disabilities from low-income households had a model-implied probability of 0.42 (vs. 0.31 for the reference group), with an estimated Bayes factor of 3.27, and therefore, the alternative model is 3 times more likely to have produced the data.

College Visits. The log odds for White students without disabilities from high-income households was estimated to be -0.916 ($SE = 0.137$, $p < .001$; $OR = 0.40$), which translates to a model-implied probability of 0.28. Two significant departures from this group were observed in the hypothesized direction. Specifically, White students with multiple disabilities were estimated to have a 0.12 probability of receiving this support ($OR = 0.33$; Bayes factor = 6.54), and therefore, the alternative model was 6.5 times more likely to have produced the data over the null. Additionally, White students with a 504 plan from high-income households had a model-implied probability of 0.19 for receiving this support ($OR = 0.60$; Bayes factor = 4.39), and the alternative model was over 4 times more likely to have produced the data over the null. On the other hand, White Hispanic students without disabilities from low-income households were found to be 1.93 times more likely to receive support regarding college visits ($OR = 1.93$; Bayes factor = 5.94), leading to a model-implied probability of 0.44 versus 0.28 (reference group). For relevant model information, see Table 1 and Table A4 in Appendix A of the supplemental materials. The SAS code to conduct the models is included in Appendix B in supplemental files.

Upon estimating the Bayes factors, two noteworthy student groups emerged: White students from high-income households with autism ($OR = 0.6$; Bayes factor = 4.43), who had a model-implied probability of 0.19, and Black students from low-income households with high-incidence disabilities ($OR = 1.39$; Bayes factor = 4.58), who had a model-implied

probability of 0.36. In each case, the alternative model, in which true group difference exists between the reference and the respective focal group, was at a minimum 4 times more likely to have produced the data.

Discussion

In this study, we selected four outcomes of interest that were reflective of schoolwide CCR supports that could be delivered by school counselors or secondary transition educators. We hypothesized that students without disabilities (no IEP or 504 plan) who are White and reside in high-income households will have the most access to these CCR supports. Notably, this study represents the first published findings of NLTS2012 data that combine ethnicity and race as well as examine schoolwide CCR outcomes for youth with and without disabilities. There were 19 groups in our analytic sample that represented intersectional characteristics spanning race, ethnicity, household income, and disability status. This grouping of student characteristics has not been previously established with regard to published studies using NLTS2012 or the previous iteration, the NLTS2. Specifically, we created a combined race and ethnicity variable to more precisely capture the complexities of race and culture represented in the sample. This approach helps to address a gap in transition research with regard to limitations in understanding the relationship of transition services and student characteristics beyond disability category (Trainor et al., 2020). Moreover, very few published studies on NLTS2012 data include youth without disabilities. Although some recent published studies included youth without disabilities in the context of English learners (Newman et al., 2021; Trainor et al., 2019) and as compared with youth with a particular type of disability (Fisher et al., 2020), the vast majority of published studies do not include youth without disabilities or delineate those on 504 plans. In this study, we included youth without disabilities and those on 504 plans in all analyses.

Specifically, Black students without disabilities from low-income households were significantly more likely to receive two types of supports, which were help with college applications and interpreting college admissions exam scores. For both outcomes, this group was approximately 2 times more likely than the reference group to receive the support (OR = 1.93 and 2.33, respectively). With regard to support with interpreting college admissions exam results, Black students with high-incidence disabilities from high-income households and White Hispanic students without disabilities from low-income households were approximately 2 times more likely to than the reference group to receive this support. Moreover, Black students with high-incidence disabilities from low-income households and White Hispanic students with high-incidence disabilities from low-income households were approximately 1.5 times more likely to receive this support over the reference group. These findings are consistent with the literature with regard to students of color without disabilities and the call for increased support to ensure access to CCR supports—specifically, that students of color from low-income households are more likely to use school counselor supports (Bryan et al., 2015; Mayes et al., 2019; Welton & Martinez, 2014). These findings also show a greater likelihood for some students with high-incidence disabilities to receive schoolwide CCR supports regardless of household income.

Black students without disabilities from low-income households were significantly more likely to receive two types of supports, which were help with college applications and interpreting college admissions exam scores

However, it is concerning that many students with disabilities showed stark differences with regard to access to CCR supports. Overall, students of color with disabilities showed different patterns than their counterparts without disabilities. Specifically, Black students with intellectual disability from low-income households were significantly less likely to receive support in selecting courses.

To clarify, all groups were less likely to receive this support than the reference group, and for some groups this difference was significant. Yet, the most disadvantaged were Black students with intellectual disability from low-income households. Prior research confirms that students of color with disabilities are less likely to have access to general education courses over time, suggesting that by the high school grades, youth of color with disabilities are in more segregated settings (Cooc, 2022). We speculate that spending more time in segregated settings could mean these youth have less access to schoolwide CCR supports. In particular, as postsecondary education options are broadening for all students with disabilities (Grigal et al., 2019), including those with intellectual disability, it is crucial to ensure all youth with disabilities have access to CCR supports. More research on how and why students of color with disabilities experience differential access to schoolwide CCR supports is needed to further investigate.

Limitations

This study has several important limitations to consider. First, we used only one variable to examine socioeconomic status, which was household income. Second, we did not treat missing data with complex methods, such as multiple imputation, which is a deviation from most published studies using NLTS2 and NLTS2012 data. We justified this decision by prioritizing reproducibility over other analytic aspects. Also, we determined that many of the missing data patterns that were observed were due to skip logic in the survey design.

Implications for Future Research

Future research studies should include a more comprehensive examination of economic hardship in statistical models to better understand how it relates to transition services and CCR supports. Murray et al. (2015) established a multiple indicator of economic hardship using data from the NLTS2. The result was a construct of

economic hardship that considered multiple factors of poverty, including household resources, parent level of education, and family structure. Using Murray et al. (2015) as a starting point, the NLTS2012 data allow for a replication study of the economic hardship construct. Although there is slight difference in some item content, a conceptual replication is possible. Moreover, our inclusion of the Bayes factor test on all study outcomes revealed differences in results that warrant further investigation. Specifically, White students from high-income households with multiple disabilities were found not to differ significantly from the reference group (Est. = -0.81 , $SE = 0.46$, $p = .080$) with regard to receiving help with college applications; however, upon estimating a Bayes factor, we found the alternative model was 4.48 times more likely to produce these data than the null. If we were to accept the alternative, the model-implied probability of receipt would be 0.16 versus 0.29 (reference group). These results suggest the Bayes factor could be more sensitive to group differences and may be a viable alternative to statistical modeling methods, yet future research with larger samples should investigate this claim more thoroughly. For the other study outcomes, the Bayes factor test showed similar patterns. For college visits, White students from high-income households with autism (OR = 0.6, Bayes factor = 4.43) had a model-implied probability of 0.19, and Black students from low-income households with high-incidence disabilities (OR = 1.39; Bayes factor = 4.58) had a model-implied probability of 0.36. In each case, the alternative model with the Bayes factor was 4 times more likely to have produced the data and thus demonstrated a more dramatic contrast in group differences. Across all study outcomes, the alternative models using the Bayes factor showed 3 to 4 times the impact than the model-implied probabilities.

These results suggest the Bayes factor could be more sensitive to group differences and may be a viable

alternative to statistical modeling methods, yet future research with larger samples should investigate this claim more thoroughly

Implications for Practice

CCR support remains a priority for all students, including those with disabilities who receive services via an IEP or a 504 plan. Determining which professionals should be involved in schoolwide CCR efforts is essential, and a team-based approach is important to consider. Moreover, including professionals with titles such as school counselor, career counselor, and college advisor will be important. Although findings from the current study do not clarify which professionals offer the CCR supports of interest, findings do reveal stark differences based on student characteristics in support receipt. Because all students have post-secondary opportunities in today's context, it is important all students, including those across a range of disability categories, have access to CCR supports (Morningstar et al., 2018). These supports could be offered from a team of professionals that should include secondary transition educators and school counselors. The results of this study may inform new and innovative practices that promote cohesive and collaborative structures between special educators and school counselors and ultimately improve transition services that are aligned with schoolwide CCR initiatives for diverse secondary students with disabilities.

References

- American School Counselor Association. (2012). *ASCA national model: A framework for school counseling programs*.
- Bryan, J., Young, A., Griffin, D., & Henry, L. (2015). Preparing students for higher education: How school counselors can foster college readiness and access. In J. L. DeVitis, & P. Sasso (Eds.), *Higher education and society* (pp. 149–172). Peter Lang.
- Burghardt, J., Haimson, J., Liu, A. Y., Lipscomb, S., Potter, F., Waits, T., & Wang, S. (2017). *National Longitudinal Transition Study 2012 design documentation* (NCEE 2017–4021).
- U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.
- Cooc, N. (2022). Disparities in general education inclusion for students of color with disabilities: Understanding when and why. *Journal of School Psychology, 90*(1), 43–59. <https://doi.org/10.1016/j.jsp.2021.10.002>
- Every Student Succeeds Act, 20 U.S.C. § 6301 (2015). <https://www.congress.gov/114/plaws/publ95/PLAW-114publ95.pdf>
- Fisher, K. W., Williamson, H., & Guerra, N. (2020). Technology and social inclusion: Technology training and usage by youth with IDD in the national longitudinal transition study of 2012. *Inclusion, 8*(1), 43–57. <https://doi.org/10.1352/2326-6988-8.1.43>
- Goodman-Scott, E., & Grothaus, T. (2018). School counselors' roles in RAMP and PBIS: A phenomenological investigation (part two). *Professional School Counseling, 21*(1), 130–141. <https://doi.org/10.5330/1096-2409-21.1.130>
- Grigal, M., Papay, C., Smith, F., Hart, D., & Verbeck, R. (2019). Experiences that predict employment for students with intellectual and developmental disabilities in federally funded higher education programs. *Career Development and Transition for Exceptional Individuals, 42*(1), 17–28. <https://doi.org/10.1177/2165143418813358>
- Individuals With Disabilities Education Act of 2004, 20 U.S.C. §§ 1400 et seq. (2004). <https://sites.ed.gov/idea/statuteregulations>
- Lipscomb, S., Hamison, J., Liu Albert, Y., Burghardt, J., Johnson, D. R., & Thurlow, M. (2017). *Preparing for life after high school: The characteristics and experiences of youth in special education. Findings from the National Longitudinal Transition Study 2012. Vol. 2: Comparisons across disability groups. Full report (NCEE 2017-4018)*. National Center for Education Evaluation and Regional Assistance.
- Lombardi, A., Monahan, J., & Morningstar, M. (2020). Integrating college and career readiness into transition education. In K., Shogren, & Wehmeyers (Eds.), *Handbook of adolescent transition education for youth with disabilities* (2nd ed., pp. 268–281). Routledge.
- Lombardi, A. R., Freeman, J., & Rifenshark, G. G. (2018). Modeling college and career readiness for adolescents with and without disabilities: A bifactor approach. *Exceptional Children, 84*(2), 159–176. <https://doi.org/10.1177/0014402917731557>
- Mayes, R. D., Hines, E. M., Bibbs, D. L., & Rodman, J. (2019). Counselors and

- psychologists mentoring gifted black males with disabilities to foster college and career readiness. *Gifted Child Today*, 42(3), 157–164. <https://doi.org/10.1177/1076217519843150>
- McMahon, G., Griffith, C., Mariani, M., & Zyromski, B. (2017). School counseling intervention research on college readiness, college access, and postsecondary success: A 10-year content analysis of peer-reviewed research. *Journal of College Access*, 3(2), 8–27.
- Milsom, A. (2007). School counselor involvement in postsecondary transition planning for students with disabilities. *Journal of School Counseling*, 5(23), 1–21.
- Milsom, A., Goodnough, G., & Akos, P. (2007). School counselor contributions to the individualized education program (IEP) process. *Preventing School Failure: Alternative Education for Children and Youth*, 52(1), 19–24. <https://doi.org/10.3200/PSFL52.1.19-24>
- Mishkind, A. (2014). *Overview: Definitions of college and career readiness*. College and Career Readiness and Success Center, American Institutes for Research. <https://ccrcenter.org/products-resources/overview-state-definitions-college-and-career-readiness>
- Morningstar, M. E., Lombardi, A., Fowler, C., & Test, D. W. (2017). A college and career readiness framework for secondary students with disabilities. *Career Development and Transition for Exceptional Individuals*, 40(2), 79–91. <https://doi.org/10.1177/2165143415589926>
- Morningstar, M. E., Lombardi, A., & Test, D. (2018). Including college and career readiness within a multitiered systems of support framework. *AERA Open*, 4(1), 233285841876188. <https://doi.org/10.1177/2332858418761880>
- Murray, C., Doren, B., Gau, J. M., Zvoch, K., & Seeley, J. R. (2015). Constructing and validating a multiple-indicator construct of economic hardship in a national sample of adolescents with disabilities. *Exceptional Children*, 81(4), 507–522. <https://doi.org/10.1177/0014402914563701>
- Newman, L. A., Garcia, E. B., Trainor, A. A., & Chong, M. (2021). National picture of the self-determination characteristics of secondary school English learners with disabilities. *Career Development and Transition for Exceptional Individuals*, 44(4), 216–228. <https://doi.org/10.1177/2165143420982923>
- Newman, L., Wagner, M., Knokey, A. M., Marder, C., Nagle, K., Shaver, D., & Wei, X. (2011). *The post high school outcomes of youth adults with disabilities up to 8 years after high school: A report from the NLTS-2 (NCSEER 2011-3004)*. National Center for Special Education Research. <https://ies.ed.gov/ncser/pubs/20113005/pdf/20113005.pdf>
- Oberman, A., & Graham, T. (2016). Preparing school counselor trainees to work with students with exceptionalities. *VISTAS Online*. https://www.counseling.org/docs/default-source/vistas/students-with-exceptionalities.pdf?sfvrsn=ef84492c_6
- Paolini, A. C. (2015). School counselors: Key stakeholders helping underserved students to be career ready. *Journal of Curriculum and Teaching*, 4(1), 133–144. <https://doi.org/10.5430/jct.v4n1p133>
- Qian, X., Shogren, K., Odejimi, O. A., & Little, T. (2022). Differences in self-determination across disability categories: findings from national longitudinal transition study 2012. *Journal of Disability Policy Studies*, 32(4), 245–256
- R Core Team. (2021). *R: A language and environment for statistical computing*. Vienna, Austria. Retrieved from <https://www.R-project.org/>
- Reach Higher. (2015). *Reach Higher initiative*. <https://obamawhitehouse.archives.gov/reach-higher>
- Rehabilitation Act. (1973). U.S. Department of Education, Office for Civil Rights, Free Appropriate Public Education for Students With Disabilities: Requirements Under Section 504 of the Rehabilitation Act of 1973, Washington, DC, 2010.
- SAS Institute. (2021). *Statistical Analysis Software (SAS) version 9.4*.
- Shogren, K. A., Kennedy, W., Dowsett, C., Garnier Villarreal, M., & Little, T. D. (2014). Exploring essential characteristics of self-determination for diverse students using data from NLTS2. *Career Development and Transition for Exceptional Individuals*, 37(3), 168–176. <https://doi.org/10.1177/2165143413486927>
- Shogren, K. A., Kennedy, W., Dowsett, C., & Little, T. D. (2014). Autonomy, psychological empowerment, and self-realization: Exploring data on self-determination from NLTS2. *Exceptional Children*, 80(2), 221–235. <https://doi.org/10.1177/001440291408000206>
- Stipanovic, N. (2010). Providing comprehensive career guidance services through a career pathways framework. *Techniques: Connecting Education and Careers (J1)*, 85(7), 32–35.
- Strengthening Career and Technical Education for the 21st Century Act, Pub L. No. 109-270

- (2018). <https://www.congress.gov/115/plaws/publ224/PLAW-115publ224.pdf>.
- Trainor, A. A., Carter, E. W., Karpur, A., Martin, J. E., Mazzotti, V. L., Morningstar, M. E., Newman, L., & Rojewski, J. W. (2020). A framework for research in transition: Identifying important areas and intersections for future study. *Career Development and Transition for Exceptional Individuals*, 43(1), 5–17. <https://doi.org/10.1177/2165143419864551>
- Trainor, A. A., Newman, L., Garcia, E., Woodley, H. H., Traxler, R. E., & Deschene, D. N. (2019). Postsecondary education-focused transition planning experiences of English learners with disabilities. *Career Development and Transition for Exceptional Individuals*, 42(1), 43–55. <https://doi.org/10.1177/2165143418811830>
- U.S. Bureau of Labor Statistics. (2019). *Persons with a disability: Labor force characteristics summary*. <https://www.bls.gov/news.release/disabl.toc.htm>
- Welton, A. D., & Martinez, M. A. (2014). Coloring the college pathway: A more culturally responsive approach to college readiness and access for students of color in secondary schools. *Urban Review*, 46(2), 197–223. <https://doi.org/10.1007/s11256-013-0252-7>
- Wickham, H., François, R., Henry, L., & Müller, K. (2020). *dplyr: A grammar of data manipulation. R package Version 1.0.2*. <https://CRAN.R-project.org/package=dplyr>

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Open Science Badge



For publishing their research plan prior to conducting the study and publishing data and materials, Lombardi et al. received badges for pre-registration, open code, and open materials. The public content may be retrieved from <https://osf.io/nk3w5/>.

Supplemental Material

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