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Parents' Postsecondary Education Expectations for Students with Autism, Intellectual Disability, and Multiple Disabilities: Findings From NLTS 2012

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Abstract

This study uses data from the National Longitudinal Transition Study 2012 to examine predictors at the individual, family, and school levels associated with parental expectations toward postsecondary education among students with significant support needs, including those with autism spectrum disorder, intellectual disability, and multiple disabilities. Consistent with previous studies, chi-square tests revealed a positive relation between socioeconomic status such as household income or parental education level and parental expectations. Logistic regression analyses showed that whether parents have a college degree and whether students have participated in college entrance or advanced placement tests are factors that are positively associated with parental expectations toward children's future education.

Keywords

postsecondary education, parents' expectations, autism, intellectual disability, multiple disabilities

College attendance continues to be a near-universal expectation of parents for their children in the United States. In a survey of parents with a child aged 17 or younger, 94% reported that they expected their child (or children) to attend college (Heimlich, 2012). Parents of children with autism spectrum disorder (ASD), intellectual disability (ID), or multiple disabilities (MD) are no different from other parents in wanting their children to go to college. Postsecondary education is viewed as a pathway to integrated, competitive employment; higher-paying jobs; economic independence; and independent living (Grigal & Hart, 2010). Several factors have contributed to this increase in parents' expectations for their children's participation in postsecondary education following high school completion.

First, the nature of work and the skills required of workers have undergone a dramatic change over the past several decades. In 1973, only 28% of U.S. jobs required education beyond a high school diploma, whereas in 2016, almost two out of every three jobs in the nation required at least some postsecondary education or training (Carnevale et al., 2013; U.S. Bureau of Labor Statistics, 2017). This means that post-secondary education has moved from a selective option to an economic necessity. For individuals with disabilities, the importance of higher education is even more profound given this population's long-standing challenges with unemployment and underemployment. In 2019, 19.3% of individuals with disabilities were

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employed; in contrast, the employment rate for individuals without disabilities was 66.3% (U.S. Bureau of Labor Statistics, 2020). The employment rate for individuals with significant support needs is far lower. Data from the National Core Indicator Project from 2017 to 2018 reported that 4% of individuals with severe ID and 1% of individuals with profound ID had a paid job in a community setting.

Second, other trends influenced by federal legislation and advocacy share a conviction that all students should have the opportunity to participate in postsecondary education programs (Grigal & Hart, 2010; Lee & Will, 2010). The Higher Education Opportunity Act (2008) has provided opportunities and options for students with disabilities to participate in college and university settings through a competitive model demonstration program. One of its primary purposes is to provide academic, social, and career development services that lead to integrated, competitive employment for young students with ID. In addition, the Act created the Comprehensive Transition and Postsecondary Program, which provides access to various sources of student aid (e.g., Federal Pell Grants) for students with disabilities. The success of these model demonstration efforts has begun to be well-documented (Grigal et al., 2016; Qian et al., 2018), thus helping to raise the expectations of professionals, parents, and young people with disabilities regarding the benefits of postsecondary education in achieving meaningful employment outcomes.

Third, research has also played an important role in demonstrating the capabilities of individuals with ASD, ID, and MD in successfully participating in postsecondary education environments. Research has demonstrated effective methods for teaching daily living skills essential to independent functioning in postsecondary education settings (Bennett & Dukes, 2013; Cullen & Alber-Morgan, 2015), and the development of self-advocacy and self-determination skills that support young people in navigating the postsecondary education environment (Shogren et al., 2018; Wehmeyer et al., 2013). As these trends continue, parent expectations for postsecondary education will also likely increase.

Research has shown the impact that parent expectations have on students with certain disabilities. For example, students with ASD are 277% more likely to participate in postsecondary education if they have a parent who expects them to do so (Chiang et al., 2012). Other studies have suggested that there are positive correlations between parent expectations and postsecondary education participation for students with significant cognitive disabilities (Papay & Bambara, 2016; Wagner et al., 2005). Parent expectations have also been linked to children's academic achievement (Zhang et al., 2011); school engagement (Christenson & Carlson, 2005; Simons-Morton & Chen, 2009); student's involvement and active participation in Individual Education Program (IEP)/transition planning meetings (Wagner et al., 2012); and college attendance, adjustment, and achievement (Agliata & Renk, 2008; Kim & Schneider, 2005). Other studies have investigated African American, Latino, and immigrant parent expectations for children's academic achievement and adult outcomes (Aldous, 2006; Landmark et al., 2007; Trainor et al., 2019; Zhang et al., 2011). These studies have shown that parents in these ethnic groups hold high expectations that their children will pursue postsecondary education goals.

Parents' expectations for their children's participation in postsecondary education following high school are likely influenced by multiple factors that are inter-related. Most studies, to date, have examined socioeconomic status and child characteristics in relation to parent expectations toward postsecondary education (Doren et al., 2012; Kirby, 2016; Newman, 2005). However, few studies have explored school-related factors (IEP/transition planning participation, the receipt of counseling and guidance from school staff, the taking of college preparation courses) on expectations to pursue postsecondary education. Understanding students' experiences at school and the service-related factors associated with parental expectations is of critical importance to improving our overall understanding of whether school-related services influence parent expectations for postsecondary education. Moreover, it may be feasible to intervene with factors related to school services compared with families' socioeconomic status.

In this study, we examined predictors at the individual, family, and school levels associated with parental expectations toward postsecondary education among students with significant support needs, including those with ASD, ID, and MD. These students often require the most extensive supports among all disability categories under the Individuals with Disabilities Education Act (IDEA; Carter et al., 2011, 2012; IDEA, 2004). It is well-documented that these students lag behind their peers with other disabilities in achieving

positive employment, postsecondary education, and community living outcomes (Shattuck et al., 2011; Shogren & Plotner, 2012; Wagner et al., 2005). In addition, although these three groups may have different characteristics, many of them receive alternative high school diplomas (e.g., certificate of attendance or achievement, IEP/special education diploma) rather than the standard high school diploma, participate in alternate assessments, and have an IEP that focuses on daily life skills rather than courses that would prepare them academically for postsecondary education (Johnson et al., 2019). Thus, the purpose of this study was to answer two main questions: (1) What are the differences in child and family characteristics and services provided by school between parents who expected their children to go to college and those who did not? and (2) To what extent are students, parents, and school services and support factors associated with parent expectations for their children's postsecondary education?

Method

National Longitudinal Transition Study 2012

We used data from the National Longitudinal Transition Study (NLTS) 2012 to answer the research questions. The NLTS 2012 was designed to provide nationally representative information about students who are receiving special education services as they prepare for the transition from secondary school to adulthood. Although the NLTS 2012 permits a direct comparison of students with and without IEPs, we limited our study to a sample of students with IEPs identified in the categories of ASD, ID, and MD.

The NLTS 2012 sampling process was designed to allow the results to be generalized to the full population of students receiving special education services in the United States. A two-stage national probability sample was established to produce precise, nationally representative estimates of the backgrounds and experiences of these students with IEPs. The first stage consisted of selecting a stratified national probability sample of districts and recruiting those districts to participate. Districts included local education agencies, charter schools that operate independently, and state-sponsored special schools that serve students who are deaf and/or blind. The second stage consisted of selecting a stratified sample of students from each of the districts that had agreed to participate. The two-stage sampling design resulted in an overall sample of 21,959 students with and without disabilities, of whom 17,476 were students with IEPs in 432 participating districts. The sample of districts was stratified to represent different geographic regions' districts, district sizes, and other factors.

Data collection was conducted from February to October 2012 and from January to August 2013. The survey administration in 2012 was a computer-assisted telephone interview. In 2013, the study introduced a web option and field interviewers. A total of 10,459 surveys of parents with students with IEPs were completed (12,988 parent surveys were completed for students with and without disabilities), representing a 60% unweighted response rate. Across the 2 years of data collection, 8,960 surveys of students with IEPs were completed (11,128 student surveys were completed for students with and without disabilities), representing a 51% response rate. Students were aged 12 to 23 years when the interviews took place. Less than 2% were 12 years old, and less than 1% were 22 or 23 old. All students were enrolled in Grades 7 to 12 or in a secondary, ungraded class at the time of the sampling (Lipscomb et al., 2017).

Because the NLTS 2012 sample was a stratified random sample, analyses must use weighted data. NLTS 2012 data have two sets of weights for the parent survey data and the student survey data. All student weights were designed for analyses using the full respondent sample and are useful for analyzing measures that do not depend on the student's age or grade at the time of the survey. Enrolled student weights were designed for analyses using the population of students who were enrolled in the referenced school years 2011 to 2012 for those surveyed in 2012 to 2013. These weights are appropriate for the analysis of measures in which the student's age or grade at the time of the survey is important for interpreting the response. NLTS 2012 includes 11,853 parent surveys and 10,144 student respondents, with a positive value for these weights. These weights were poststratified so that the weight count of sample members by age at interview matched the count of all students (ages 13–21) enrolled in public school during the 2011–2012 school year.

Table 1. Descriptive Information on Student and Family Characteristics.

	Expect PSE		Do not expect PSE		Total	
Variables	*n*[a]	%[b]	*n*[a]	%[b]	*n*[a]	%[b]
Gender***						
Female	350	27.4	710	35.8	1,060	32.5
Male	890	72.6	1,290	64.2	2,180	67.5
Race/ethnicity						
Non-Black	810	66.5	1,360	68.6	2,170	67.8
Any Black	280	21.8	420	22.9	700	22.5
Multi/Other	20	2.1	40	1.7	60	1.9
Hispanic	110	9.5	120	6.7	230	7.8
Free and reduced meals program*						
Yes	490	45.9	710	40.4	1,200	42.6
No	550	54.1	880	59.6	1,430	57.4
Household income*						
<US$40,000	600	52.4	1,020	57.5	1,620	55.5
US$40,001–US$80,000	270	24.7	490	26.1	760	25.5
US$80,001–US$120,000	140	12.5	190	9.2	330	10.5
>US$120,000	130	10.4	150	7.2	280	8.4
Parental education***						
Less than high school	130	12.2	290	15.9	420	14.5
High school diploma	400	32.5	810	44.5	1,210	39.8
Technical or trade	70	6.3	100	4.6	170	5.3
2-year college degree	190	14.0	240	11.8	430	12.7
4-year college degree	260	21.2	310	13.8	570	16.7
Graduate degree	180	13.8	200	9.3	380	11.0
Parent employment status***						
Yes	260	37.8	540	27.9	1,340	24.7
No	980	62.2	1,430	72.1	1,860	75.3

Note. The sample size in this table is 3,260 after cases of missing data were removed. Data were rounded to the nearest 10, per the IES data-reporting requirement.

[a]Unweighted sample was included based on valid cases. [b]Weighted percentage was calculated based on valid cases.

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

Data source: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Transition Study 2012 (NLTS 2012).

Current Study Sample

This study included students with significant support needs—specifically, students with ASD, ID, and MD between the ages of 12 and 22 years. Table 1 presents demographic information about the sample. The sample size (unweighted *n*) for students with ASD was 1,650, the sample size for students with ID was 2,090, and the sample size for students with MD was 1,610 (accounting for a total sample size for this analysis of 5,350 students). On average, the students were 15.9 years of age, with 67.5% being male. Approximately, 67.8% were non-Black, 55.5% had a household income of less than US$40,000, and 42.6% qualified for free and reduced meals program. These sample sizes and all subsequent results are approximate, based on the Institute of Education Sciences data reporting requirements for restricted-use data sets to round to the nearest 10.

Measures

Dependent measure. The dependent measure in this study is parents' expectations for their child's postsecondary education. Parents were prompted to respond to the following question: "As things now stand, how

far do you think [youth] will get in school?" Survey responses included less than high school; high school diploma or GED (General Educational Development); technical or trade school; 2-year college; 4-year college; or a master's, PhD, or other advanced degree. For purposes of this analysis, we created a dichotomous variable by grouping students who were expected to have less than high school or a high school diploma or GED as not attending postsecondary institution (coded as 0) and grouping the remaining response categories as attending college (coded as 1). This included students attending a technical or trade school; 2-year college; 4-year college; or a master's, PhD, or other advanced degree program.

Predictive variables. In this study, we examined three groupings of variables: student characteristics, family characteristics, and services provided by school to support students in setting goals focused on postsecondary education. Specific attention was given to intervening factors (which can be manipulated to increase parent expectations of postsecondary education).

Student and family characteristics. Demographic variables included the student's age in years at the time of the interview, gender, race/ethnicity (i.e., Non-Black, Any Black, Hispanic, and Multi-Other), participation in the school's free and reduced price meals program, and disability category. Family factors were limited to (a) household income (1 = less than US$40,000; 2 = US$40,000–US$60,000; 3 = US$60,000–US$80,000; and 4 = US$80,000 or above), (b) parents' education level (i.e., highest education level attained by the parent or the parent's spouse; 1 = graduate degree, 4-year college, or 2-year college; 0 = technical or trade school degree, high school diploma or GED, or less than high school), and (c) parents' current employment status (1 = having a paid job now, 0 = not having a paid job). These factors have been commonly used in previous studies (Doren et al., 2012; Kirby, 2016).

Student skills. A functional abilities index was available in the NLTS 2012 data set and included parent-reported information about how well their child (a) communicates (by any means), (b) speaks clearly, (c) carries on an oral conversation, (d) understands what others say to them, (e) sees with glasses or contacts, (f) hears with a hearing aid, (g) uses arms and hands, and (h) uses legs and feet. The functional abilities index composite is an average of 0, 1, 2, or 3 on each parent-reported measure, with 0 indicating no ability and 3 indicating typical ability.

The NLTS 2012 daily living index was also used in the analysis to measure the extent to which the student could complete specific tasks independently. The daily living index includes seven categorical survey items with values from 0 to 3 (0 indicating no ability and 3 indicating typical ability). Students were asked how well they did the following activities without help: (a) making an appointment, (b) getting to nearby places independently, (c) fixing a meal, (d) doing laundry, (e) cleaning rooms, (f) buying things, and (g) using an automated teller machine (ATM). Given that the functional abilities index and daily living index assess different constructs, we included both in our model. The correlation between the functional abilities index and the daily living index is .52, suggesting a moderate correlation.

Services provided by school. IEP/transition planning participation included three variables: students' role in the transition planning process (E5), who came up with students' goals for the IEP/transition plan (E4), and whether a student "met with adults at school to set goals for what she or he will do after high school and make a plan for how to achieve the goals" (L2). Response options for E5 were did not participate, was present but participated very little or not at all, provided some input, took a leadership role, and doesn't know about any goals. We combined the first two responses due to the small sample size in the first group. We coded "doesn't know about any goals" as missing because it did not provide information about participation. We recoded E4 to reflect the best practice of transition planning, with a higher number indicating a higher level of involvement of students generating their transition planning goals. The recoded variable represents a 3-point scale (1 = the school primarily came up with the goals, 2 = a mixed participation of school and students, and 3 = mostly students).

In addition to the variables described above, we included items related to services specific to preparing students for postsecondary education: (a) youth took a course for college credit during high school, (b) youth received help from school staff with the college application process, (c) youth received guidance on the classes

that the youth should take to prepare for what to do after high school, (d) school staff provided youth with help in completing college applications, and (e) school staff provided youth with help in arranging a college campus visit or attending a college fair. We also included a sixth survey item: "youth took a college entrance or placements test." All these were dichotomous variables (0 = no, 1 = yes). We acknowledge that such tests are typically taken outside of the school setting; however, this item was included in the parent survey as an item of interest in examining a student's preparation and pathway to postsecondary education. Discussions regarding these tests are also likely to occur during IEP/transition planning meetings or individual consultations with parents and students by school staff. Currently, very little information is available about which factors contribute to whether students with disabilities take advanced placement (AP) or college entrance tests.

Data Analyses

To address the first research question, we examined student, family, and school variables by comparing parents' expectations toward the likelihood of their children pursuing postsecondary education: Yes (*Will go to college*), No (*Will not go to college*). Wald chi-square tests were conducted to examine differences in gender, free and reduced price meals program status, household income, parental education, and services provided by school between the two groups. To address the second research question, weighted logistic regression was used to examine student, family, and school variables related to parental expectations toward their children's postsecondary education. The data analysis was conducted using SAS software, Version 9.4 for Windows (SAS Institute Inc., 2016). The complex sampling design of NLTS 2012 was accommodated by using stratum and primary sampling unit variables provided with the data through use of the PROC SURVEYFREQ and PROC SURVEYLOGISTIC procedures for analysis. These statistics are weighted to represent population estimates using student enrolled weights. The percentage of missing data among the variables included ranges from 0% to 65.2%. Approximately, 18% of the weighted sample had full responses for the logistic regression model. However, weights help to ensure that those with survey responses are nationally representative of secondary students with disabilities overall; weights are not designed to address missingness at the individual variable level. No imputation was calculated for this study. Correlations among predictors ranged from −.22 to .66, suggesting no multicollinearity issue (Berry & Feldman, 1985).

Results

Research Question 1: Chi-Square Results

Student and family characteristics. Significant differences between the two groups were evident in the areas of gender, free and reduced price meals, household income, parent education level, and parent employment status, and socioeconomic status (see Table 1).

Services provided by school. As shown in Table 2, parents were more likely to expect that their child would go onto postsecondary education if their child took a more active role in the IEP/transition planning meeting or met with school staff to set goals. Parent expectations were also more likely to be higher if their child took a course for college credit during high school, took a college entrance or placement test; received help from school staff with the application process; received guidance on what classes to take after high school; and school staff provided the student with help arranging for and/or taking the student on visits to colleges or college fairs.

Research Question 2

Student and family characteristics. As shown in Table 3, parents' education level was the only significant student and family characteristics predictor of parent expectations toward postsecondary education. Specifically, parents who went to college themselves were almost 3 times as likely to expect their children to go to college, controlling for other variables. None of the other student and family characteristics included in this analysis were significant.

Table 2. Descriptive Information on Services Provided by School.

Variables	Expect PSE		Do not expect PSE		Total	
	n[a]	%[b]	*n*[a]	%[b]	*n*[a]	%[b]
Youth role in transition planning meetings***						
No inputs	250	39.5	830	68.4	1,090	58.3
Provided some input	300	48.2	290	25.9	590	33.7
Took leadership	70	12.3	40	5.7	110	8.0
Youth contribution transition planning***						
A little	380	58.6	960	76.5	1,340	70.4
Some	220	36.4	240	19.4	470	25.2
Mostly youth	40	5.0	30	4.1	70	4.4
Youth met with school staff to set transition goals*[c]	360	67.8	590	60.8	950	63.2
Youth took a course for college credit***[c]	250	45.1	140	15.7	390	25.7
Youth received help with college application process***[c]	100	12.8	30	2.8	130	6.5
Youth received guidance on what classes to take after high school***[c]	280	50.1	200	37.0	480	43.3
Youth with help completing college applications[c]	590	60.6	760	51.3	1,350	55.0
Youth with help arranging or taking you on visits to colleges or college fairs***[c]	150	27.0	120	22.7	280	24.8
Youth took a college entrance or placement test***[c]	160	27.6	100	18.8	260	23.0

[a]Unweighted *n* were rounded to the nearest 10, per the IES data-reporting requirement. [b]Weighted percentage. [c]Only provided descriptive information for "yes" responses.
*$p < .05$. ***$p < .001$.
Data source: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Transition Study 2012 (NLTS 2012).

Student skills. When both the student's functional abilities index score (e.g., whether the youth can speak clearly or understand others) and the activities of daily index score (e.g., whether the youth can make an appointment, fix a meal, or buy things without help) were entered into the regression, only the students' activities of daily living index was a significant predictor (see Table 3). Students who have a higher daily living index score were more likely to have parents who expected their children to go to college after completing high school.

Services provided by school. As shown in Table 3, in the regression analysis, we included two types of school-related services and supports (i.e., transition-related services and services pertaining to preparation for college). None of the transition services were significantly associated with parent expectations toward postsecondary education. Of the school services related to college preparation, students who took a college entrance or placement test were almost 5 times more likely to have parents expecting them to go on to college.

Discussion

Parent expectations have been identified as an important factor in predicting positive outcomes in postsecondary education as well as employment and independent living for students with ASD, ID, and MD (Chiang et al., 2012; Kirby, 2016; Papay & Bambara, 2016). Yet, little is known about factors at the student, family, and school levels that are associated with parent expectations. Using NLTS 2012 data, we examined student and family characteristics, student daily living and functional skills, and services provided by school that are associated with parent expectations toward their children going to college. When controlling for all other variables, we found that the parent's educational level and whether their child took a college entrance or AP exam were positively associated with parent expectations toward postsecondary education. This analysis, based on a nationally representative sample of students and parents, provides some additional

Table 3. Logistic Regression of Youth, Family, and School Variables on Parental Expectation of Youth's Postsecondary Education.

Variable	β	*SE*	Odds Ratio (95% CI)
Youth characteristics			
Age (years)	−1.81	0.09	0.85 [0.71, 1.01]
Gender (reference group: male)			
Female	0.52	0.31	1.17 [0.63, 2.15]
Race/Ethnicity (reference group: non-Black)			
Any Black	0.46	0.37	1.17 [0.56, 2.43]
Hispanic	1.37	0.43	1.89 [0.81, 4.44]
Multi/Other	−0.18	0.65	0.84 [0.24, 3.02]
Student skills			
Youth functional abilities index score	1.90	0.45	2.23 [0.92, 5.38]
Youth daily index*	2.23	0.22	1.6 [1.03, 2.49]
Family variables			
Household income (reference group: US$0–US$40,000)			
US$40,000–US$80,000	0.59	0.37	1.22 [0.59, 2.5]
US$80,000–US$120,000	1.43	0.43	1.81 [0.78, 4.19]
US$120,000 or more	0.04	0.56	1.02 [0.34, 3.05]
College (reference group: No college education)			
Yes**	2.49	0.26	2.05 [1.24, 3.38]
Parent employment status (reference group: not employed)			
Yes	0.01	0.31	1 [0.54, 1.86]
School services			
Youth role in transition planning meetings (reference group: No inputs)			
Provided some input	0.85	0.29	1.27 [0.72, 2.23]
Took leadership	0.91	0.47	1.52 [0.6, 3.86]
Youth contribution in transition planning (reference group: A little)			
Mostly youth came with the goal	−0.78	0.60	0.63 [0.19, 2.05]
School staff, parents, youth, and other adults came up with the goal	1.70	0.29	1.67 [0.95, 2.93]
Youth met with school staff to set transition goals (reference group: No)			
Yes	−0.40	0.29	0.89 [0.5, 1.57]
Youth took a course for college credit during high school (reference group: No)			
Yes	1.54	0.59	2.16 [0.68, 6.93]
Youth received help from school staff with college application (reference group: No)			
Yes	1.43	0.47	1.49 [0.59, 3.78]
Youth received guidance on what classes to take after high school (reference group: No)			
Yes	1.60	0.26	1.58 [0.94, 2.65]
School staff provide help completing college applications (reference group: No)			
Yes	−1.25	0.46	0.68 [0.28, 1.68]
School staff provide help arranging visits to colleges (reference group: No)			
Yes	−0.42	0.39	0.88 [0.41, 1.9]
Youth took a college entrance or placement test (reference group: No)			
Yes**	4.42	0.33	3.63 [1.9, 6.93]

Note. CI = confidence interval.
**$p < .01$. ***$p < .001$.
Data source: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Transition Study 2012 (NLTS 2012).

understanding of the factors associated with parent expectations toward postsecondary education and has important implications for providing secondary students with the significant support necessary for postsecondary education.

Family Characteristics

Wald chi-square test results showed that all socioeconomic status indicators (i.e., household income, free and reduced price meals, parental education, and parent employment status) were positively associated with parents' expectations that their child would go to college. These findings are consistent with those of previous studies that have shown a link between socioeconomic status indicators and parental expectations (Kirby, 2016; Newman, 2005). Socioeconomic status indicators have also been consistently linked to other transition outcomes for students with ASD, ID, or MD in employment and postsecondary education (Carter et al., 2011; Chiang et al., 2012; Shattuck et al., 2012). As such, there is an urgent need to work with parents from lower educational attainment and socioeconomic levels to raise their expectations toward their children's future participation in postsecondary education.

When one controls for factors at the student, family, and school levels, parent educational level is the only significant predictor from the range of student and family characteristics included in the analysis. Parents who have a college degree are more likely to expect their child to go to college. We present two potential explanations for this. First, parents with a college degree may have more access to resources and information related to postsecondary education options for their child as compared with families from less educated and lower-income backgrounds. Studies have found that lower-income households tend to have more limited access to services, such as information about postsecondary options, as compared with higher-income households (Shattuck et al., 2011). When parents are aware of the options for postsecondary education programs and related supports available through the school, vocational rehabilitation or other service providers may ultimately raise parent expectations toward their child's education beyond high school (Grigal & Hart, 2010). The second possible explanation is that parents who have gone to college may be more likely to see the benefits of postsecondary education in terms of achieving meaningful employment and economic independence. As a result, they would be more likely to expect their child to take a similar path.

Student Functional and Daily Living Skills

When both functional skills (e.g., carrying on a conversation) and daily living skills (e.g., buying things without help) were entered into the logistic regression, only daily living skills were found to be significant predictors of parent expectations. This finding is consistent with previous research that has revealed a strong association between student daily living skills and parent expectations (Kirby, 2016). Other studies have also linked student daily living skills to postschool outcomes. For example, Carter et al. (2012) found that students' skill in independently dressing and feeding themselves was related to the likelihood of having a paid job after leaving high school among students with ASD, ID, and MD. Similarly, our findings showed a significant relation between students' daily living skills and parent expectations. These results suggest that targeting the development of students' daily living skills may influence parent expectations toward postsecondary education as a goal for their children.

It is important to note that variability in students' skills described above, as were assessed in NLTS 2012 and NLTS2 (e.g., buying things, doing laundry, fixing a meal), should not be interpreted solely as differences in personal capacities (Shogren et al., 2018). Rather, the degree to which students can perform these skills is shaped by opportunities and supports available in the environment (Schalock et al., 2007; Thompson et al., 2009), such as technologies and cognitive supports (Wile, 1996). For example, a student with cognitive disabilities may be able to do laundry in a structured environment with visual cues but may fail to complete the same task in an unstructured environment. Future research must examine the intersectionality of student personal factors (e.g., disability), environmental factors (e.g., available supports), and outcomes (e.g., parental expectations and participation in postsecondary education).

Services Provided by School

As expected, the analysis found that students with ASD, ID, and MD who took a college entrance or placement test were more likely to have parents with positive expectations that their child would go on to college. These students were already committed to fully considering college or some form of postsecondary education as a future goal. Based on NLTS 2012 data, a significant percentage of students with ASD, ID, and MD

took college entrance or AP tests (29%, 24%, and 16%, respectively). However, this was lower than the percentage for students with disabilities in the remaining IDEA disability categories (42%) and students without disabilities (70%) (Lipscomb et al., 2017).

We acknowledge that many factors may contribute to participation in college entrance or AP tests among students with significant support needs. Students' own perceptions of the relevance and importance of going to college, expectations from parents or teachers, and students' academic performance all appear to be related to parent expectations toward postsecondary education (Bangser, 2008). We were interested in examining the relationship between school services and supports and whether these services are associated with parent expectations. While not significant, school services such as guidance in college preparation classes, information about college options, and help in completing applications seemed to be important factors that must be further researched. Parents' expectations toward their child's future college participation are not formed in the student's last year of high school but, rather, occur over time, guided by (a) information that schools provide to parents and students about postsecondary options, (b) guidance on courses necessary to support college entrance, and (c) counseling that school staff provides to the student and parents to raise expectations.

Finally, we examined students' involvement in IEP/transition planning and college preparation experiences. Contrary to our hypothesis, there was no significant difference between transition services and parents' expectations after controlling for the impact of the student characteristics, family demographics, and other school services. We speculate one reason may be that the transition services examined in this study are not directly linked to transition services aimed at preparing students for postsecondary education. The results from NLTS2 have shown that the listing (or not) of postsecondary education as a primary goal in transition planning is associated with students' participation in postsecondary education (Chiang et al., 2012). Future studies need to investigate whether there is an association between transition services focusing on preparing students for postsecondary education and parents' expectations. It may also be that student and family characteristics influence parent expectations more than school factors. Future studies need to examine how these factors interact with each other.

Trends in Parent Expectations Toward Postsecondary Education

Studies consistently report that parents' expectations for their child with ASD, ID, and MD in terms of their attendance at a postsecondary education program following high school were lower than they were for most other IDEA disability categories (Lipscomb et al., 2017; Wagner et al., 2005). Using NLTS2 data, Wagner et al. (2005) found that 28.5%, 8.3%, and 12.2% of parents of children with ASD, ID, and MD, respectively, expected their children to participate in a postsecondary education program following high school completion. Parent expectations for their child's participation in a postsecondary education program were much higher for students in all other IDEA disability categories. Approximately 60% of these parents expected their children would participate in postsecondary education. Based on our analysis of the NLTS 2012 data, a notable increase was found in parent expectations that their children with ASD, ID, and MD would pursue postsecondary education (ASD, 53%; ID, 32%; MD, 35%; Lipscomb et al., 2017). This was compared with little change in parent expectations from the NLTS2 findings of Wagner et al. (2005) at 60% and the NLTS 2012 report of 61% for students in all other disability categories. Given this increase in expectations among parents of students with ASD, ID, and MD who envision postsecondary education as a goal, schools will need to focus more attention on involving these young people in coursework, counseling and career planning, and other experiences that prepare them for these opportunities.

Expectancy-value theory (Eccles & Wigfield, 2002) provides useful theoretical and conceptual perspectives on parent expectations and how these expectations influence adolescent and young adult outcomes. This theory posits that a students' achievement, performance, persistence, and choice of tasks are most directly predicted by the expectations held for success on those tasks, and the subjective value students attach to success on those tasks. In the context of postsecondary education, one possibility is that parent expectations serve as a critical moderating factor in influencing their children's own expectations toward

postsecondary education as well as the value students assign to going to college. In other words, students of parents who believe that their child (or children) will go to college may be more likely to see the value of postsecondary education and believe that they will continue on to postsecondary education after leaving high school. Future studies must examine how parent expectations impact their child's expectations toward their future education and the relevance of attending college.

Limitations

Several limitations must be acknowledged. First, as with any secondary data analysis, this study is constrained by the design of NLTS 2012 and the items available. The relation among variables reported in this study is correlational and, thus, does not permit causal inference about the correlates examined in this study in relation to parental expectations. We also combined ASD, ID, and MD into one group. Although NLTS 2012 is a relatively large data set, we did not have enough power to detect the differences given the small sample size in the MD group, which prevented us from examining each of the three groups separately. Given the heterogeneity among these disability groups, especially the ASD group, the findings regarding the relations among the variables examined in this study are likely to be different if the three groups were to be examined separately. In addition, because the NLTS 2012 data were collected during 2012 to 2013, it should be noted that, since this time period, changes may have occurred in postsecondary education services for students with disabilities. Finally, because there were large amounts of missing data results need to be interpreted with caution.

Implications for Practice and Research

Our findings suggest the need for schools to provide assistance to ensure that students with extensive support needs and their parents receive counseling and guidance on college options and opportunities, as well as the steps that must be taken to prepare for college. These supports must also be aligned with students' IEP goals, with the full involvement of the students and parents. Furthermore, there is the obvious recognition that this information about postsecondary education options and active discussions during IEP/transition planning meetings should occur far in advance of the child's final year in high school.

In addition, schools need to provide parents who, themselves, have not gone on to any postsecondary education with information about postsecondary options available to their child. As a result of recent federal policy, research and demonstration, and self-advocacy initiatives, considerable information exists that can guide families through this transition period and provide them with important insight into helping their children think about college as a goal following high school (Grigal et al., 2018). For instance, Think College has a resource library that helps parents conduct a college search for students with disabilities (Weir, 2019). It is critical to provide families with low socioeconomic status with information about postsecondary education options for their child, given that parents may have a higher expectation that their child will participate in postsecondary education when they are aware of the postsecondary education options that are available to their child. Furthermore, it is beneficial for postsecondary institutions to continue efforts to increase college enrollment among low-income families. Results from this study indicate parents' level of education is related to their expectation regarding their child's future education, which in turn impacts their child's postschool outcomes.

Although positive parent expectations are linked to positive postschool outcomes, studies with samples of students without disabilities have shown that high parent expectations, especially expectations that don't directly align with their child's expectations, may cause anxiety in students (Saw et al., 2013). Future studies need to broaden our understanding of how the expectations of parents and their child interact with each other and how this interaction impacts students' outcomes. In addition, studies need to further explore the relation between transition planning services and parental expectations by examining those transition services specifically designed to help students participate in postsecondary education. Finally, future research needs to examine what interventions are needed to overcome barriers to accessing postsecondary education for parents with lower socioeconomic status.

Conclusion

National statistics stress the importance of postsecondary education on workforce entry and the economic self-sufficiency of workers (Carnevale et al., 2013). Wages are significantly impacted by the level of educational attainment. When examining the labor market for all workers, the median weekly earnings of persons 25 years or older with a 2-year associate's degree (US$887) or bachelor's degree (US$1,248) are greater than individuals who only completed high school education (US$746) (U.S. Bureau of Labor Statistics, 2020). In short, postsecondary education has increasingly become the ticket to an individual's economic self-sufficiency and capacity to become an independent and contributing member of the community (Qian et al., 2018). Although attending postsecondary education is not the only avenue to meaningful employment opportunities, it represents an important avenue for students with ASD, ID, and MD to achieve economic well-being and independence. Supporting families to develop positive expectations toward their child's future education beyond high school must become an intentional and integral part of IEP/transition planning discussions. These efforts should be coupled with information sharing and guidance by school staff with regard to postschool options and the preparation needed by students to achieve further education goals. This is especially important for parents with lower socioeconomic and educational attainment levels.

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