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The Relationship Between Parent Expectations and Postschool Outcomes of Adolescents With Disabilities

BONNIE DOREN
University of Wisconsin-Madison

JEFF M. GAU
Oregon Research Institute

LAUREN E. LINDSTROM
University of Oregon

ABSTRACT: *A secondary analysis was conducted of the National Longitudinal Transition Study-2 to examine (a) main effects of parents' school and postschool outcome expectations on the actual outcomes achieved, (b) demographic moderators, and (c) adolescent autonomy as a mediator of parent expectations and outcomes. Parent expectations were found to significantly predict study outcomes. Moderator analysis indicated that disability type moderated the relationship between parent expectations and outcomes. Meditational analyses indicated that autonomy did not mediate the relationship between parent expectations and study outcomes. However, parent expectations significantly predicted levels of autonomy, and autonomy predicted a number of postschool outcomes. Together, these findings suggest a need for interventions that support and foster positive parent expectations and parental supports to promote autonomy development. Additional research is needed on the mechanisms by which parent expectations and autonomy affect the outcomes of adolescents with disabilities.*

Numerous findings suggest that parent expectations regarding their adolescent's abilities, skills, and future educational and occupational choices hold a powerful influence on the outcomes achieved by adolescents and young adults (Agliata & Renk, 2008; X. Fan, 2001; Yazedjian, Toews, & Navarro, 2009). Parent expectations have been linked to their adolescent's academic achievement (Chen & Gregory, 2010; Zhang, Haddad, Torres, & Chen, 2010); school engagement (W. Fan & Williams, 2010; Simons-Morton & Chen, 2009); college attendance,

adjustment, and achievement (Agliata & Renk, 2008; Crosnoe, Mistry, & Elder, 2002; Kim & Schneider, 2005; Sciarra & Ambrosino, 2011; Yazedjian et al., 2009); and occupational attainment (Blustein et al., 2002; DiRago & Vaillant, 2007). A consistent finding across these studies suggests that high parent expectations of their adolescent's achievements result in outcomes commensurate with these expectations.

Social cognitive and expectancy-value theories (Bandura, 2006; Eccles & Wigfield, 2002; Parsons Eccles, Adler, & Kaczala, 1982) provide a conceptual framework regarding the possible mechanisms by which parent expectations may influence adolescent and young adult outcomes. Within these frameworks, expectations are thought to be transmitted to adolescents through both covert and overt parent behaviors that are in alignment with their own expectations of their adolescent. These behaviors, in turn, are learned or internalized by adolescents and influence their beliefs, values, attitudes, and behaviors that then ultimately impact the outcomes achieved.

Less research has focused on the impact of parent expectations on the outcomes of adolescents with disabilities; the few studies that have are consistent with those found in the general literature. For example, Wagner, Blackorby, Cameto, and Newman (1993) reported in the first National Longitudinal Transition Study (NLTS) that high parent expectations of their adolescent's postschool outcomes were positively and significantly related to the actual outcomes achieved. Specifically, Wagner et al. reported that parent expectations that their adolescent with a disability would continue on to a postsecondary education program were significantly related to the likelihood that adolescents actually attended postsecondary schooling. Newman (2005) examined the association of parent's postschool expectations on more proximal outcomes within the National Longitudinal Transition Study-2 (NLTS2) sample of adolescents with disabilities. Namely, parent expectations that adolescents with disabilities would attend postsecondary education or training was significantly related to (a) higher levels of classroom engagement, (b) higher grades, (c) reading and test scores that were a year closer to their grade level, and (d) positive social adjustment.

Even less research has sought to understand potential moderators and mediators of parent expectations on outcomes of adolescents with disabilities. For example, parent expectations may have a differential impact on outcomes of certain subgroups of adolescents with disabilities (moderation). In addition, parent expectations may impact outcomes by its influence on more proximal factors such as adolescents' beliefs, attitudes, or behaviors (mediation) as indicated by social cognitive and expectancy-value theories. The current study focused on examining the relationship between parent expectations and adolescents' achievement of important school and postschool benchmarks, including graduating from high school with a standard diploma, postschool employment, and enrollment/completion of postsecondary education. Understanding the direct relationship between parent expectations on these outcomes and potential moderators and mediators of this relationship has important implications for future research, theory, and practice in supporting the transition of adolescents from secondary to adult roles and settings.

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HYPOTHESIZED MODERATORS OF PARENT EXPECTATIONS AND OUTCOMES

Descriptive findings from the NLTS2 indicate that parent expectations of adolescents with disabilities vary by family income and by a variety of individual demographic characteristics of the adolescent, including disability, ethnicity/race, and gender (Newman, 2005). First, Newman reported

that parents of adolescents with disabilities from lower income backgrounds held significantly lower expectations than parents from higher income backgrounds for their adolescent's educational and occupational attainment, including graduating from high school with a standard diploma, continuing on with postsecondary education, and obtaining paid employment after high school. Second, parent expectations differed depending upon the adolescent's disability category. Overall, parents of adolescents with learning disabilities (LD) held higher expectations than parents of adolescents with intellectual disability (ID), autism, or multiple disabilities for their adolescent's school and postschool educational attainment. Parents of adolescents with LD also held higher expectations for their adolescent obtaining postschool paid employment than did parents of adolescents with ID and orthopedic impairments. Third, parents' expectations differed based on race/ethnicity. Parents of African American adolescents with disabilities held significantly lower expectations than parents of Caucasian adolescents with disabilities for their adolescent graduating from high school. No significant differences were found among the three major ethnic groups studied (Caucasian, African American, and Hispanic) for obtaining paid employment after high school. Last, little difference emerged between parent expectations based on gender. Parents held similar expectations for future educational attainment and paid employment for female and male adolescents. However, significant differences were found in parent's expectations that their son or daughter would be financially independent in the future, with parents of female adolescents exhibiting lower expectations than parents of male adolescents (Newman, 2005).

The study did not examine whether or not differences noted in parent expectations based on family and individual demographic characteristics differentially impacted the outcomes achieved by adolescents. The present study extends and expands current research by systematically examining the extent to which the association between parent expectations and school and postschool outcomes achieved may be moderated by family and individual demographic characteristics within a nationally representative sample of adolescents with disabilities.

AUTONOMY AS MEDIATOR OF PARENT EXPECTATIONS AND OUTCOMES

Autonomy development has been identified as an essential component of self-determination and one of the most important developmental tasks within the family during adolescence (Deci & Ryan, 2000; Hill & Holmbeck, 1986; Wehmeyer & Powers, 2007). According to Wehmeyer (2000), autonomy is characterized by acting in relation to one's own interests, preferences, and abilities without undue influence from others. Researchers and theorists from a broad range of disciplines highlight the importance of the family and other adults in the promotion of autonomy development within adolescents (Connell & Wellborn, 1991; Hill & Holmbeck, 1986; Niemiec & Ryan, 2009). Autonomy development is theorized not as a process of detachment or separation from parents but as a process that involves a "reciprocal interaction between higher levels of connectedness with parents and higher levels of personal individuation" (Soenens & Vansteenkiste, 2005, p. 590). Within this conceptualization, parent expectations, behaviors, and beliefs are thought to serve to facilitate or inhibit adolescent autonomous functioning and perceptions of autonomy which then affect the school and postschool outcomes achieved (Smits, Soenens, Vansteenkiste, Luyckx, & Goossens, 2010; Soenens & Vansteenkiste, 2005; Turner, Chandler, & Heffer, 2009).

Social cognitive and expectancy-value theory support this conceptualization of the mediating role of adolescent autonomy between parent expectations and outcomes; research findings have emerged that provide preliminary evidence suggesting that parent beliefs, expectations, and styles impact levels of autonomy-related behaviors and perceptions, which then impact more distal outcomes such as psychosocial adjustment, academic and social competence, academic performance, and success in college (Smits et al., 2010; Soenens & Vansteenkiste, 2005; Turner et al., 2009). For example, Soenens & Vansteenkiste reported that parents (specifically mothers) who supported their adolescent's autonomy development, including having firm and high expectations, predicted higher levels of

autonomous functioning in school work and job seeking behavior, which predicted higher GPA, social competence, and actual job seeking behavior. Turner et al. reported that parent expectations and parental structure predicted higher levels of young adult autonomy-related behaviors which were associated with their adjustment and academic performance in college.

Little is known regarding how parent expectations may influence autonomy development of adolescents with disabilities or the extent to which it serves to mediate parent expectations and important school and postschool benchmarks of this population. The present study extends and expands current research by systematically examining the extent to which the association between parent expectations and school and postschool outcomes achieved may be mediated by levels of autonomy within a nationally representative sample of adolescents with disabilities.

Based on prior research and theory, the current study focused on three aims. The first aim was to examine the main effects of parent expectations on the high school graduation and postschool outcomes of adolescents with disabilities who have been out of school for up to 4 years. The second aim was to examine family and individual demographic characteristics that may moderate the relationship between parent expectations and high school leaving status and postschool outcomes. The third aim was to examine autonomy as a potential mediator between parent expectations and high school leaving status and postschool outcomes.

The current study utilized three waves of data from the NLTS2. The NLTS2 is the only comprehensive nationally representative database documenting the secondary school, transition, and postschool experiences of adolescents and young adults with disabilities. Few reports and studies have focused on identifying multivariate predictors, with fewer still examining potential moderators and mediators of important predictors such as parent expectations using nationally representative datasets of adolescents with disabilities (Wells, Sandefur, & Hogan, 2003).

METHOD

Participants and Procedures

A restricted-use license was obtained by the authors to examine the study aims. Human subject's approval was obtained by the institution and the article findings were vetted by the Institute of Education Sciences before publication. The NLTS2 is a nationally representative sample of over eleven thousand 13- to 17-year-old students who were receiving special education services during the 2000–2001 school year. NLTS2 participants were followed over a 10-year period resulting in five waves of data collection (one wave every 2 years with Waves 1–3 available for the current study). The NLTS2 is based on a two-stage stratified, clustered sample design. A stratified random sample of local education agencies (LEAs) was first selected from the universe of LEAs that provided special education services to students in Grades 7 through 12. LEAs were stratified on the basis of region, enrollment size, and community wealth. Out of the stratified sample of 3,646 LEAs and 77 special schools, 501 LEAs and 38 special schools agreed to participate. The roster of students receiving special education services from each of the participating LEAs and special schools was then stratified by disability category. Students were randomly selected from each disability category, but with respect to a sampling fraction that would permit an acceptable level of precision in associated parameter estimates (i.e., standard errors < 3.6%). The sampling design allows for generalizations to adolescents in the following 12 disability categories: autism, traumatic brain injury, deaf-blindness, LD, mental retardation (MR), emotional disturbance (ED), multiple disabilities, and hearing, speech, visual, orthopedic, and other health impairments (SRI International, 2000). It should be noted that mental retardation is the terminology used within the NLTS2 and by school districts; however, within the current article we will use the more recent term adopted for this population of intellectual disability.

Several sources were used to obtain the data included within the current study. At Wave 1 parents/guardians were interviewed by telephone to ascertain information regarding (a) student's

school and nonschool experiences (e.g., extracurricular activities), (b) historical information (e.g., age disability first identified), (c) household characteristics (e.g., socioeconomic status), (d) family expectations, and (e) level and type of involvement in school-related areas. All parents who could not be reached by telephone were mailed a self-administered questionnaire (83% Wave 1 response rate). Parents/guardians and youth were interviewed as part of Waves 2 and 3. All youth who could not complete a telephone interview but were able to complete a written version were mailed a self-administered questionnaire. If an adolescent was unable to complete the telephone interview or questionnaire then the parents/guardian continued the interview on behalf of the sample youth (61% Wave 2 response rate, 50% Wave 3 response rate). Finally, a one-time direct face-to-face assessment with a focus on academic achievement, self-determination skills, self-concept, and attitudes toward school and learning was conducted when sample adolescents were between ages 16 to 18 (in either Wave 1 or Wave 2; 56% direct assessment response rate). Response for each sample member was weighted to represent the number of adolescents in his/her disability category and characteristics of the LEA (e.g., regions, size, and wealth).

Study Sample

The study sample includes all NLTS2 participants out of secondary school by the third wave of data collection (n = 2,127). The sample had a modal age of 20 years old, was primarily male (68.3%), Caucasian (68.8%), lived in a suburban community (56.3%), and had a household income of $50,000 per year or more (42.6%). See Table 1 for additional study demographic characteristics.

Measures

Outcomes. Four dichotomously scored outcomes (1 = yes, 0 = no) were examined: (a) graduation from high school, (b) currently working, (c) currently attending or graduated from a postsecondary institution, and (d) currently working and attending or graduated from a postsecondary institution (see Table 2 for descriptive statistics on study outcomes). Parents/guardians and/or youth were asked at Waves 1, 2, and 3 (a) why the youth was "not currently in secondary school," and response option "graduated" was used to score graduation status; (b) whether or not youth "currently has a paid job" was used to score employment status; and (c) whether youth "is currently attending a postsecondary institution" or why youth "stopped attending 2-year community college, vocational or technical school, or 4-year college" was used to indicate postsecondary enrollment or completion status. Each outcome was scored positive if the appropriate response option (e.g., graduation scored 1 = yes if the reason youth was not currently in secondary school was because they had graduated) was endorsed at any wave. If both parent/guardian and youth responded, youth response was used; otherwise the parent/guardian response was used.

Predictors. Parent expectations were hypothesized to predict adolescent outcomes (see Table 3 for a summary of the descriptive statistics of demographic characteristics included in the analysis and parent expectations). At the Wave 1 assessment parents were asked about their expectations that their child would graduate with a standard diploma, get a paid job, and attend postsecondary schooling. Questions included:

- How likely do you think that it is that (youth) will get a standard high school diploma?
- How likely do you think it is that (youth) eventually will get a paid job?
- How likely do you think it is that (he/she) will attend school after high school?

Responses ranged from 0 = *definitely will not* to 3 = *definitely will.*

Hypothesized Moderators. Four demographic characteristics collected during Wave 1 were hypothesized to moderate the relationship between parent expectations and adolescent outcomes:

- Youth gender was coded 1 = male and 0 = female.
- Total annual household income was coded 1 = low income (reporting less than $25,000) and 0 = nonlow income (reporting greater than $25,000).

TABLE 1

Sample Characteristics

Demographic Characteristics	*Observed*[a]		*Weighted Values*
	n	%	%
Female	740	35.0	31.2
Age			
17 years	20	1.0	0.7
18 years	210	10.0	10.3
19 years	620	30.0	22.3
20 years	870	41.0	42.7
21 years	400	19.0	23.9
Household income			
$25,000 and under	190	10.0	29.5
$25,001 to $50,000	1,020	55.0	28.9
$50,001 or more	640	35.0	41.6
Ethnicity			
Caucasian	1,540	71.0	69.1
African-American	360	17.0	17.5
Hispanic	210	10.0	10.8
Other	60	2.0	2.6
City Designation			
Rural	500	27.0	16.2
Suburban	570	30.0	54.4
Urban	830	44.0	29.3
Primary Disability			
Learning Disability	230	11.0	65.2
Speech Impairment	180	9.0	3.1
Intellectual Disability	160	8.0	9.0
Emotional Disturbance	230	11.0	13.0
Hearing Impairment	230	11.0	1.3
Visual Impairment	180	8.0	0.6
Orthopedic Impairment	220	10.0	0.9
Other Health Impairment	310	15.0	5.2
Autism	140	6.0	0.4
Traumatic Brain Injury	100	5.0	0.4
Multiple Disabilities	120	6.0	1.0
Deaf/Blindness	30	2.0	0.1

[a]As per requirement of the Institute of Education Sciences restricted use data agreement all unweighted sample size numbers are rounded to the nearest 10.

- Ethnicity was coded 1 = minority and 0 = nonminority.
- Primary disability was coded 1 = LD, 2 = ID, 3 = ED, and 4 = all other disabilities.

Hypothesized Mediator. Youth's autonomy was hypothesized to mediate the relationship between parent expectations and adolescent outcomes (see Table 4 for a summary of the descriptive statistics of the demographic characteristics and autonomy scores). A one-time direct assessment was administered to students at either Wave 1 or Wave 2. Students were asked a subset of the 72 items from the Arc Self-Determination Scale (Wehmeyer & Kelchner, 1995), including 15 of the original 32 items assessing autonomy. The subset of items was selected based on highest factor loadings derived from factor analysis and face validity (SRI, 2005). Sample items of autonomy included: "I am involved in school-related

TABLE 2

Study Outcomes by Study Demographics

Study Demographics	Percentage "Yes" for Study Outcomes			
	High School Graduate	*Currently Working*	*Enrolled or Completed Postsecondary*	*Currently Working and Enrolled in Postsecondary*
Gender				
Female	77.29	**45.33**	36.89	21.28
Male	77.49	**58.49**	34.64	15.96
Minority				
Yes	**64.98**	**38.60**	34.07	**8.97**
No	**80.00**	**61.45**	35.91	**21.56**
Low income				
Yes	**65.03**	**38.23**	**19.80**	**7.33**
No	**79.68**	**61.08**	**41.84**	**21.98**
Primary disability				
Learning Disability	77.75_a	59.84_a	37.19_a	19.59_a
Intellectual Disability	74.77_a	33.01_c	21.94_b	5.54_b
Emotional Disturbance	58.20_b	41.32_b	21.00_b	9.57_b
Other	81.15_a	54.93_a	49.95_a	24.62_a
Total Sample	75.36	54.38	35.34	17.67

Note. Sets of bolded entries have significant χ^2 values with 1 degree of freedom at $p < .05$; Primary disabilities that share the same subscript do not significantly differ at $p < .05$.

activities" and "I make long-range career plans." Response options ranged from 1 = *not when I have the chance* to 4 = *every time I have the chance* for the autonomy items, and from 1 = *never agree* to 4 = *always agree* for the self-realization items. Scores were summed with a possible range of 15 to 60 with higher scores indicative of greater levels of autonomy.

Data Analytic Strategy

Linear logistic regression (Hosmer & Lemeshow, 2000) was used to test main effects, moderation, and mediation models for the dichotomous study outcomes. Ordinary least squares (OLS) regression was used to test the second mediation criteria between parent expectations and autonomy. First, main effects of parent expectations were modeled for each study outcome. Next, the multiplicative interaction term between parent expectations and the hypothesized study moderators were added to each main effect model to test theories of moderation. Simple slopes (Aiken & West, 1991) were used to decompose and interpret all significant two-way interaction terms. Finally, we tested the hypothesis that adolescent's levels of autonomy would mediate main effect relationships between parent expectations and each study outcome. More specifically, we applied and tested Baron and Kenny's (1986) four criteria for establishing mediation:

1. Parent expectations predicts the youth outcome.
2. Parent expectations predicts the mediator.
3. The mediator is significantly correlated with the outcome.
4. The predictive effect of parent expectations on the youth outcome, controlling for the mediator, is significantly reduced (for partial mediation) or eliminated (for complete mediation), relative to when the youth outcome is regressed only on parent expectations.

To protect against Type I errors, a Benjamini-Hochberg adjustment was made to all main effects, moderation, and mediation analysis, and adjusted p-values are reported. All models

TABLE 3

Percentages of Parent Expectations Categories Endorsed by Study Demographics

	Will Graduate HS				*Parent Expectations Paid Job*				*Will Attend Postsecondary*			
Study Demographics	*Definitely Will Not*	*Probably Will Not*	*Probably Will*	*Definitely Will*	*Definitely Will Not*	*Probably Will Not*	*Probably Will*	*Definitely Will*	*Definitely Will Not*	*Probably Will Not*	*Probably Will*	*Definitely Will*
Gender												
Female	6.04	10.89	25.41	57.66	0.21	2.00	8.51	89.30	**7.43**	**23.05**	**32.29**	**37.23**
Male	4.53	9.09	24.10	62.29	0.52	0.48	10.75	88.25	**8.75**	**24.66**	**41.68**	**25.29**
Minority												
Yes	6.93	10.11	29.92	53.05	**0.41**	**0.96**	**19.93**	**78.69**	8.81	19.94	42.06	29.19
No	4.13	9.45	22.09	64.33	**0.43**	**0.95**	**5.62**	**92.99**	8.13	25.66	37.27	28.94
Low income												
Yes	**6.72**	**12.99**	**36.84**	**43.45**	**0.56**	**1.31**	**21.79**	**76.35**	**12.34**	**28.35**	**43.96**	**15.34**
No	**4.28**	**8.25**	**19.35**	**68.11**	**0.37**	**0.81**	**5.14**	**93.67**	**6.67**	**22.02**	**36.57**	**34.73**
Primary disability												
LD	3.39	9.34	22.20	65.07_a	0.00	0.00	7.56	92.42_a	5.56	23.31	41.01	30.02_a
ID	17.11	11.67	29.09	42.13_b	2.11	6.97	23.45	67.48_b	25.38	26.39	31.85	16.40_b
ED	5.39	12.41	34.01	48.17_b	1.44	1.47	11.53	85.56_a	10.66	28.68	39.70	20.96_b
Other	4.29	6.98	23.33	64.75_a	0.38	1.08	11.70	86.84_a	7.67	20.15	31.85	40.70_c
Total Sample	4.99	9.65	24.50	60.84	0.42	0.96	10.04	88.57	8.34	23.89	38.75	29.01

Note. Sets of bolded entries have significant χ^2 values (at $p < .05$) with 3 degrees of freedom for gender, minority, and low income comparisons; Primary disabilities that share the same subscript (i.e., a, b, or c) do not significantly differ at $p < .05$. LD = learning disability; ID = intellectual disability; ED = emotional disturbance.

TABLE 4

Descriptive Statistics for Autonomy by Study Demographics

Study Demographics	M	*LSE*	*95% Confidence Interval*	
			Lower Bound	*Upper Bound*
Gender				
Female	43.67	0.67	42.47	44.87
Male	43.05	0.89	40.97	45.14
Minority				
Yes	43.23	1.04	41.09	45.37
No	43.25	0.67	41.83	44.67
Low income				
Yes	43.49	0.92	41.52	45.45
No	43.14	0.72	41.55	44.74
Primary disability				
Learning Disability	43.71	0.94	41.58	45.84
Intellectual Disability	42.78	0.81	41.19	44.36
Emotional Disturbance	41.79	0.79	40.09	43.37
Other	42.76	0.45	41.76	43.77
Total Sample	43.25	0.66	41.78	44.75

Note. No group of means significantly differ at $p < .05$. LSE = linearized standard error.

included age as a covariate to control for possible age cohort effects. Adjusted odds ratios were interpreted as the estimate of effect size for logistic models with 1.48 corresponding to a small effect, 2.48 a medium effect, and 4.28 a large effect (Lipsey & Wilson, 2001). Partial correlations were interpreted as the estimate of effect size for OLS regression models with .10 corresponding to a small effect, .30 a medium effect, and .50 a large effect (Cohen, 1988).

Complex sample surveys, like the NLTS2 dataset, deviate from simple random sampling and require consideration of the sampling strategy design features to ensure unbiased estimates of the population parameters. All models were run with the SAS PROC SURVEYLOGISTIC and PROC SURVEYREG procedures to accommodate the cluster, stratification, and sampling weights used in the NLTS2 study. When data from multiple instruments are combined, it is appropriate to use the weight from the instrument with the smallest sample size (SRI International, 2000). The sampling weight from the youth direct assessment, the smallest sample size, was used for the current study. If missing the weight from the youth direct assessment, the weight from the Wave 3 parent/youth assessment (the next smallest sample size) was used. The Taylor series linearization technique for variance estimation was used to account for lack of independence due to sampling within clusters. Unless otherwise stated all descriptive statistics and point estimates reported below incorporate the sampling design features.

Rates of missing data ranged from 3% to 36%. For each variable described above participants were classified as either responders or nonresponders and compared on the following variables assessed at Wave 1: sex, age, ethnicity, disability status, and household income. No significant group differences were found (at $p < .05$) indicating the missing at random assumption remained tenable. Therefore, five imputed datasets were generated using the SAS PROC MI procedure and pooled estimates reported, as it produces more accurate and efficient parameter estimates than listwise deletion or single imputation (Schafer & Graham, 2002). Multiple imputations for missing data are conditional on the sampling design (Reiter, Raghunathan, & Kinney, 2006); therefore imputation models included strata and clusters nested within strata.

TABLE 5

Main Effects of Parent Expectations on Study Outcomes

						95% CI	
Study Outcomes	*Estimate*	*LSE*	*t-ratio*	*p-value*[a]	OR	*Lower*	*Upper*
High school graduate	0.892	.129	6.95	<.001	2.44	1.90	3.14
Currently working	0.994	.120	3.51	.004	2.70	1.55	4.71
Currently enrolled or finished postsecondary school	0.995	.150	5.84	.001	2.71	2.02	3.63
Currently working and enrolled in postsecondary school	1.058	.201	5.23	.001	2.85	1.93	4.23

Note. LSE = linearized standard error; CI = confidence interval; *OR* = odds ratio.

[a]*p*-values reflect Benjamini-Hochberg false discovery rate correction.

RESULTS

The statistical results of Aim 1 are summarized in Table 5. Parent expectations for receiving a high school diploma was significantly associated with whether or not a student graduated from high school ($t = 6.95$, $p < .001$, $OR = 2.44$); for each one unit increase in parent expectations a student was approximately 2.5 times more likely to graduate from high school. A parent's expectation that their adolescent would be working after secondary school was significantly associated with whether or not the adolescent actually was currently working after secondary school ($t = 3.51$, $p = .004$, $OR = 2.70$); for each one unit increase in parent expectations an adolescent was approximately 2.7 times more likely to report having a job. A parent's expectation that their adolescent would enroll in a postsecondary institution was significantly associated with whether or not the adolescent was currently enrolled or had completed postsecondary school ($t = 5.84$, $p = .001$, $OR = 2.71$); for each one unit increase in parent expectations an adolescent was approximately 2.5 times more likely to be currently enrolled or have completed postsecondary school. Last, a parent's expectations that their adolescent would be working and enrolled in postsecondary education was significantly associated with whether or not the adolescent was currently working and enrolled in postsecondary school ($t = 5.23$, $p = .001$, $OR = 2.85$); for each one unit increase in parent expectations an adolescent was approximately 2.9 times more likely to be currently working and enrolled in postsecondary school. All significant main effect findings corresponded to approximately a medium effect.

Descriptive results of parent expectations and potential moderators related to Aim 2 are summarized in Table 3. Overall, parents had significantly higher expectations that their daughters (37%) definitely will enroll in postsecondary education than their sons (25%). Parents of minority adolescents had significantly lower expectations than parents of nonminority adolescents that their sons/daughters definitely will get a paid job after school (79% and 93%, respectively). Parent expectations of adolescents from lower income backgrounds had significantly lower expectations than parents from higher income backgrounds that their sons/daughters definitely will graduate from high school with a standard diploma (44% and 68%, respectively), definitely will get a paid job after school (76% and 94%, respectively), or definitely will enroll in postsecondary school (15% and 35%, respectively). Finally several significant differences were found depending on disability category. Parents of adolescents with LD and other disabilities had significantly higher expectations than parents of adolescents with ID or ED that their sons/daughters definitely will graduate from high school with a standard diploma (65% for both students with LD and other disabilities; 42% and 48% for students with ID and ED, respectively). Parents of adolescents with ID had significantly lower expectations that their sons/daughters definitely will get a paid job after

secondary school (68%) compared to parents of adolescents with LD (92%), ED (86%), and other disabilities (87%). Finally, parents of adolescents with LD and other disabilities had significantly higher expectations that their sons/daughters definitely will attend a postsecondary institution (30% and 41%, respectively) compared to parents of adolescents with ID and ED (16% and 21%, respectively). The significant descriptive differences found between parent expectations and hypothesized moderators were largely consistent with the actual outcomes achieved by these subgroups (see Table 2).

The hypothesized moderators of parent expectations were tested by entering two-way interaction terms between parent expectations and gender, minority status, low income status, and disability status and testing the association of the interaction terms on each of the study outcomes. Only disability status was found to function as a moderator of parent expectations. Significant two-way interaction terms were found for LD and ID by parent expectations for graduating from high school predicting whether or not an adolescent actually graduated from high school (t = –2.80, p = .023). Decomposition of the significant two-way interactions showed that parent expectations for graduating from high school was significantly associated with whether or not an adolescent actually graduated from high school for those identified with LD (estimate = 1.14, LSE = 0.25, t = 4.51, p < .001, OR = 3.13, 95% CI = 1.91–5.13), but not for those adolescents identified with ID (estimate = 0.25, LSE = 0.17, t = 1.44, p = .151, OR = 1.28, 95% CI = 0.92–1.79). Significant two-way interaction terms were also found for ID and other disabilities by parent expectations for graduating from high school predicting whether or not an adolescent actually graduated from high school (t = –3.19, p = .009). Decomposition of the significant two-way interactions showed that parent expectations for graduating from high school was significantly associated with whether or not an adolescent actually graduated from high school for those identified with other disabilities (estimate = 0.83, LSE = 0.13, t = 6.28, p < .001, OR = 2.30, 95% CI = 1.77–2.98), but not for those adolescents with ID (test statistics same as above). Thus, higher parent expectations for graduating high school with a standard diploma was significantly related to actual high school graduation for adolescents identified with LD or other disabilities, but did not impact actual high school graduation for adolescents with ID.

The results of Aim 3 indicate that the first criteria of mediation, significant effects of parent expectations on study outcomes, were demonstrated above as an outcome of Aim 1 and are also shown in Table 6 (criteria 1) along with the statistical results from the remaining mediation criteria. The results of the second criteria of mediation, significant effects of parent expectations on autonomy, also were demonstrated (See Table 6 criteria 2). Specifically, parent expectations for high school graduation (t = 3.11, p = .003, r = 0.20), getting a paid job (t = 3.01, p = .021, r = 0.16), attending postsecondary school (t = 2.92, p = .035, r = 0.20), and the combination of getting a paid job/attending postsecondary school (t = 2.93, p = .013, r = 0.21), were each significantly and positively related to levels of autonomy with effect sizes in the small to medium range. The third criteria of mediation, significant effects of autonomy on study outcomes, were not demonstrated for graduating high school or currently working, but autonomy was significantly and positively related to attending postsecondary school (t = 6.29, p = .002, OR = 2.60) and working and attending postsecondary school (t = 4.78, p = .002, OR = 2.69) with effect sizes in the medium range (see Table 6 criteria 3). The fourth criteria of mediation (see Table 6 criteria 4), a reduction or elimination of the predictive effect of parent expectations on the study outcomes when controlling for autonomy, were not demonstrated and resulted in only minor decreases in the effects demonstrated in criteria 1 (an average effect size decrease of approximately 5%). Partial failure of criteria 3 and only minimal decreases in effect sizes for criteria 4 suggest that autonomy does not mediate the relationship between parent expectations and outcomes in the current study.

DISCUSSION

Parent expectations related to graduating from high school with a standard diploma, obtaining a paid job, and attending postsecondary education

TABLE 6

Test of Autonomy as a Mediator of Parent Expectations on Youth Outcomes

Criteria	*Estimate*	*LSE*	*t-ratio*	*p-value*[a]	*Effect Size*[b]
1. Effect of parent expectations on the outcome					
Parent expectations (high school diploma) → high school graduate	.892	.129	6.95	<.001	2.44
Parent expectations (get a paid job) → working	.994	.120	3.51	.004	2.70
Parent expectations (postsecondary) → postsecondary	.995	.150	5.84	.001	2.71
Parent expectations (paid job/postsecondary) → working and postsecondary	1.06	.201	5.23	.001	2.85
2. Effect of parent expectations on the mediator					
Parent expectations (high school diploma) → Autonomy	1.68	.054	3.11	.003	0.20
Parent expectations (get a paid job) → Autonomy	2.62	.870	3.01	.021	0.16
Parent expectations (postsecondary) → Autonomy	1.48	.508	2.92	.035	0.20
Parent expectations (paid job/postsecondary) → Autonomy	1.52	.519	2.93	.015	0.21
3. Relation between mediator and the outcome					
Autonomy → high school graduate	.042	.028	1.49	.404	1.04
Autonomy → working	.024	.019	1.25	.447	1.02
Autonomy → postsecondary	.050	.017	2.97	.021	1.05
Autonomy → working and postsecondary	.065	.021	3.15	.013	1.07
4. Effect of parent expectations on the outcome controlling for mediator					
Parent expectations → high school graduate | autonomy	.859	.131	6.55	.001	2.36
Parent expectations → working | autonomy	.952	.283	3.36	.005	2.59
Parent expectations → postsecondary | autonomy	.955	.152	6.29	.002	2.60
Parent expectations → working and postsecondary | autonomy	.987	.206	4.78	.002	2.69

Note. LSE = linearized standard error; | = controlling for.

[a]*p*-values reflect Benjamini-Hochberg false discovery rate correction; [b]Effect sizes are reported as odds ratios for criterion 1, 3, 4, and 5 and partial *r* for criteria 2.

after high school or both obtaining a job and attending postsecondary education were each significantly and positively associated with the likelihood that adolescents with disabilities would achieve these outcomes. The findings of Aim 1 provide the field with additional information regarding the importance of parent expectations in shaping the school and postschool outcomes achieved by adolescents with disabilities.

The findings from Aim 2 focusing on potential moderators suggest that the main effects of parent expectations and each of the study outcomes hold regardless of family background, gender, and minority status. However, the results indicated that parent expectations that their adolescent with a disability would graduate high school with a standard diploma did not impact the actual outcomes achieved for adolescents with ID but did for adolescents with LD or other disabilities. Several possible explanations for this finding are offered based upon social cognitive and expectancy-value frameworks (Bandura, 2006; Eccles & Wigfield, 2002). First, parent expectations that their adolescent with ID will graduate from high school with a standard diploma may not be strongly or clearly transmitted to their son/daughter, whereas these expectations are clearly transmitted from parents to their adolescent with LD or other disabilities. For adolescents with ID, this may be because graduating with a standard diploma is not perceived by parents as the only route to successfully completing high school. On the other hand, this route may be highly regarded or a singular focus for parents of adolescents with LD and other disabilities. Second, parent expectations in this area may be transmitted to their adolescent, but these expectations fail to influence autonomy-related behaviors, beliefs, or perceptions of adolescents with ID. Parent expectations do, however, influence these malleable individual characteristics for adolescents with LD and other disabilities and this may be due to differential cognitive functioning between adolescents with ID and LD. Finally, regardless of the transmission of parent expectations to their son/daughter with ID or the potency of the influence on autonomy behaviors, beliefs, or perceptions, other contextual or individual factors that we did not examine may intervene to impact these outcomes for this population.

The findings of Aim 3 suggest that autonomy did not mediate the relationship between parent expectations and the study outcomes. However, the results of several of the criteria in examining mediation are worthy of noting. First, parent expectations that their adolescent would achieve each of the study outcomes were significantly and positively associated with adolescent's level of autonomy (see Table 6 criteria 2). This finding is consistent with research conducted within the general adolescent population that supports a direct relationship between parent expectations and individual autonomy (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; W. Fan & Williams, 2010; Lease & Dahlbeck, 2009). The current finding extends prior research to adolescents with disabilities. The mechanism by which parent expectations influences autonomy of adolescents with disabilities may be through parents' behaviors and activities that align with their expectations as hypothesized by social cognitive and expectancy-value theory (Bandura, 2006; Eccles & Wigfield, 2002; Parsons Eccles et al., 1982).

For example, parents with higher expectations also may tend to be parents who believe in their adolescent's capabilities and potential for achievement of school and postschool outcomes, and thus provide their adolescent with opportunities, support, and encouragement to function more autonomously and/or engage in activities with their son or daughter that increase adolescents' understanding of themselves and their capabilities. Parents with lower expectations may have a more restricted view of their adolescent's capabilities and thus provide limited opportunities, support, or encouragement to promote autonomy. Prior literature supports the importance of both school and home environments in providing opportunities and practice in developing knowledge, abilities, and perceptions related to autonomy (Carter, Trainor, Owens, Sweden, & Sun, 2010; Wehmeyer & Powers, 2007).

Second, a significant and direct association between autonomy and study outcomes was found for attending or completing postsecondary school and engagement in both work and postsecondary school (see Table 6 criteria 3).

Wehmeyer and Palmer (2003) and Wehmeyer and Schwartz (1997) found a significant and positive relationship between total self-determination scores on the ARC's Self-Determination Scale (of which autonomy is a subscale) and a number of postschool outcomes of young adults with ID and LD, including financial independence and postschool employment—but not for engagement in postsecondary education (Wehmeyer & Schwartz, 1997). The current study did not measure total self-determination or address potential moderators of autonomy and study outcomes. Such an examination might provide insight into subgroups of adolescents for which levels of autonomy may be directly associated with each outcome and other subgroups for which levels of autonomy are not.

Parent expectations that their adolescent would achieve each of the study outcomes were significantly and positively associated with adolescent's level of autonomy.

Last, the findings suggest that autonomy as measured in the current study was not the underlying mechanism by which parent expectations impacted the study outcomes (see Table 6 criteria 4). Although there was modest support within 3 of the 4 criteria for the variable to be functioning as a mediator, level of autonomy did not explain how parent expectations work to impact school leaving and postschool outcomes. A number of potential explanations for the lack of mediation found for autonomy within the current study might be that (a) parent expectations may work through other aspects of malleable individual behaviors and skills (e.g., self-efficacy, social skills) that we did not tap or that were unavailable within the existing NLTS2 dataset; (b) autonomy may mediate parent expectations, but only for certain subgroups of adolescents; and/or (c) parent expectations may work through other different factors to affect outcomes that were not included within the current study.

The current study has several limitations that should be noted. First, as with any secondary analysis, the study is constrained by the design of the NLTS2 and the items available within the NLTS2 dataset. Second, although four waves of data are now available in the NLTS2 dataset, only three waves were included in the current study, which affects the sample of youth who are out of school and the length of time since leaving school. Different results may emerge with four waves of data and again when all five waves of data become available, at which time true longitudinal analyses can be applied with sufficient samples of youth out of school over time. Third, the significant statistical relationships found within the current study are correlational, and therefore no inferences about causal relationships should be attributed to the results.

Implications for Practice

The findings of the current study emphasize and further support the important role that parent expectations play in the outcomes of adolescents with disabilities. An important focus of secondary education and transition programs is not only to provide supports for students with disabilities to meet high school graduation requirements, but also to prepare students with the knowledge and skills necessary to access postsecondary training or education and to obtain and maintain meaningful engagement in the workforce. A lack of commensurate expectations of parents that their adolescent will accomplish critical school and postschool outcomes may mitigate the potential positive effects of secondary and transition programs built to support these achievements. Therefore, parents and practitioners need to be aware of the impact of parent expectations on adolescent outcomes. One may perceive that parent expectations are not amenable to change; however, a number of studies have shown that parent expectations are dynamic, malleable, and influenced by (a) parent's own outcomes, (b) how well they perceive their son or daughter is faring at any point in time, and (c) teacher expectations (Bozick, Alexander, Entwisle, Dauber, & Kerr, 2010; Mistry, White, Benner, & Huynh, 2009).

Based on the current findings and the premise that parent expectations are changeable, several implications for practice are offered. First, school and agency personnel may need to help some parents disentangle their expectations of their son or daughter from those based on their

own experiences. Second, school and agency personnel can provide information and consultation to parents regarding supports, accommodations, and services available to support their son or daughter to accomplish school and postschool outcomes, thus bolstering parents' confidence and expectations. Third, school and agency personnel should partner with families to support involvement in specific activities that promote autonomy development through opportunities and practice for students. Despite these efforts, some parents may hold low expectations or be unavailable to support or encourage their son or daughter. Prior research indicates the important and positive influence of adult role models and mentors such as teachers or adults in the community and their unique contribution to adolescent and young adult outcomes (Beir, Rosenfeld, Spitalny, Zansky, & Bontempo, 2000; Jekielek, Morre, & Hair, 2002; Murray, 2009).

Implications for Research

More research is required to understand the effects of parent expectations on adolescent outcomes and potential moderators and mediators of these effects using other samples of adolescents with disabilities and with other variables that could not be tapped in the current study. Further examination of the potential reasons for the differential impact of parent expectations on students with ID are needed to understand the lack of influence of parent expectations on adolescents with ID for graduation with a standard diploma, whether they be measurement or substantive. Examining additional individual and/or school factors that may be influenced by parent expectations, such as other malleable individual skills and attitudes, would provide the field with research-based targets for intervention efforts. Studies are needed to further explore the direct impact of student autonomy development on school and postschool outcomes and to better understand potential moderators of autonomy development as well as more proximal outcomes of autonomy.

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ABOUT THE AUTHORS

BONNIE DOREN (Wisconsin CEC), Assistant Professor, Rehabilitation Psychology and Special Education, University of Wisconsin-Madison, Madison. **JEFF M. GAU,** Senior Analyst, Oregon Research Institute, Eugene. **LAUREN E. LINDSTROM** (Oregon CEC), Associate Professor, Family and Human Services, University of Oregon, Eugene.

Address correspondence concerning this article to Bonnie Doren, Rehabilitation Psychology & Special Education, University of Wisconsin-Madison, Room 421, 1000 Bascom Mall, Madison, WI 53706 (e-mail: bdoren@wisc.edu).

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