Published in final edited form as:

Intl J Disabil Dev Educ. 2009 November ; 56(4): 363–379. doi:10.1080/10349120903306616.

The Educational Attainment Process Among Adolescents with Disabilities And Children of Parents with Disabilities

Carrie L. Shandra* and Dennis P. Hogan

Department of Sociology, Brown University, Providence RI 02912, USA

Abstract

This article uses data from the National Longitudinal Survey of Youth 1997 (NLSY97) to examine the relationship between disability, parental and youth university expectations in 1997, and youth high school completion and university enrolment by 2003. Results indicate that educational attainment is not equal for young adults with and without disabilities in the United States. Parents—but not adolescents—are likely to reduce their educational expectations when adolescents have a mild or serious disability, net of school performance. These parental—but not adolescent—expectations are significantly associated with high school completion. Finally, even after controlling for educational expectations and school performance, youth with serious disabilities are much less likely to graduate from high school than youth without disabilities. Despite the considerable strides made in the implementation of the Individuals with Disabilities Education Act, students with disabilities are not achieving educational parity in graded schooling.

Keywords

adolescence; disability; educational attainment; expectations; family context; transition to adulthood

Introduction

The transition to adulthood is a multi-year period in the lives of most young people in the US which begins in the teen years, continues through the twenties (Furstenberg, 2000; Shanahan, 2000), and marks a critical stage for individuals as they move from dependence on their families to becoming full adult participants in society. Educational attainment is a critical aspect of this transition; however, previous research suggests that several groups are at risk of decreased educational attainment. For some children, individual characteristics such as race or ethnicity place them at a disadvantage due to disparate opportunity structures and institutional inequalities (Mare, 1995). For others, household characteristics such as having parents with lower education (Haveman, Wolfe, & Spaulding, 1991), living with a single parent (McLanahan & Sandefur, 1994), or growing up in a poor family (Duncan & Brooks-Dunn, 1997) reduces the familial resources available for children's human capital investment.

This article expands on these studies by examining the situation of two groups of adolescents largely ignored in research on educational attainment—those with disabilities and those who are children of parents with disabilities. Using nationally representative data from the US, this study considers if the disability of a child or the disability of a parent limits the educational attainment of young persons. Furthermore, analyses also examine how parent and child disability are related to parent and child educational expectations, and how these expectations might affect later school trajectories.

Educational Attainment and Adolescents with Disabilities

The education system in the US plays a vital part in the transition to adulthood by both structuring the acquisition of skills and determining the timing of subsequent life transitions (Pallas, 2003). The attainment of a high school diploma marks the end of freely available education and the movement away from the student role. Post-secondary enrolment provides greater qualifications for entry into paid work and often further independence. While these educational transitions are important for all young adults, they are particularly essential for young persons with disabilities to become full participants in and contributing members to American society.

However, young people with disabilities face a variety of special circumstances that affect these transitions (Wells, Sandefur, & Hogan, 2003). Young persons with disabilities are often members of racial, ethnic, and disadvantaged economic groups who face barriers to social achievement over their life course, in addition to the barriers associated with their disabilities. Previous research also suggests that they face disadvantages in terms of family resources and are more likely to grow up in one-parent families, have parents with no more than a high school education, and live in poverty (Hogan, Rogers, & Msall, 2000).

These family economic resources are critical to assist a young person with a disability attain an education because they can purchase specialised training and fund post-secondary enrolment and independent living (Wells et al., 2003). Furthermore, other family characteristics such as structure and household composition are also powerful predictors of a young person's future long-term economic success (McLanahan & Sandefur, 1994). In order to assess the overall relationship between children's disability on educational attainment it is necessary to control for these family and household factors.

The Importance of Expectations for Educational Attainment

The social and economic characteristics of a household are not the only important factors in predicting educational attainment for children with disabilities. Adolescence in the US is a time when most young people begin to formulate their plans for early life transitions. These early educational aspirations have been found to have a significant effect on later attainment (Majoribanks, 2005; Sewell, Haller, & Portes, 1969). However, some adolescents with disabilities may have difficulties in learning about or planning for the future that may result in reduced agency in their life course (Shanahan, 2000). Furthermore, adolescents with disabilities who do not receive appropriate accommodations or who have difficulty with standard methods of assessment may have lower achievement in school—an outcome that is also detrimental to young persons' educational expectations (Messersmith & Schulenberg,

2008; Sewell, Haller, & Ohlendorf, 1970). As a result, they may not envision prospective life course pathways that would enable them to achieve their full potential.

The educational aspirations of parents for their children also have a major influence on children's educational attainments (Davis-Kean 2005). Parents can act as vital socialising agents who offer information and encouragement about day-to-day decisions as well as advice about the future timing of life events. Parental expectations can help adolescents with disabilities assess their abilities and make choices about education. These aspirations may be adopted by their children, redefining a young person's ideas about their own agency in the transition to adulthood and creating a new projected life history.

However, parents vary in their views about children's attainment and the timing of life transitions. Children's prior academic performance is related to parent's future educational expectations (Neuenschwander, Vida, Garrett, & Eccles, 2007). Parents with fewer socioeconomic resources and parents with lower levels of education also have lower educational aspirations for their children (Davis-Kean 2005; Eccles 2005). Poor performance in school is likely to be a major signal used by parents of children with disabilities to formulate educational expectations.

Children of Parents with Disabilities

Another factor complicating the educational attainments of all children may be the disability of the mother or father. Previous research has suggested that parental disability is negatively associated with the quality of a child's home learning environment, parental school involvement, the number of family activities, and the monitoring of children in two-parent households (Hogan, Shandra, & Msall 2007). A parent with a disability may have less financial ability to maintain an educationally enriching environment than other parents. Physical limitations may make them less able to participate in their children's school programme and activities. It may be more difficult for a mother or a father with a disability to effectively monitor his or her children's behavior than a parent without a disability. Based on the 2000 United States Census, which includes measures of serious disabilities, Avery and Hogan (2006) estimated that about 13.0% of children without disabilities and one-third of children with disabilities grow up in families in which at least one parent has limitations in activities of daily living, making parental disability a considerable influence in the lives of many adolescent children. This phenomenon is even more common when parents who are classified as having a work disability are included in the group of parents who are categorised as having a disability.

The Social Context of Disability and Education

The restricted opportunities faced by youth and young adults are not simply the result of limitations in their capacities as individuals with disabilities. Instead, these barriers emerge in interactions with social environments that may present obstacles to participation. Sometimes special equipment or services (such as a wheel chair, special transportation, or a companion aide) are not readily available in high school and may be even more difficult to access for university students. High school graduation and university enrolment

opportunities may also be limited for students in special education programmes who do not have access to a university or vocational preparatory curriculum.

In recognition of this, legislation has been developed in the US with the purpose of providing greater inclusion and participation in society. The Individuals with Disabilities Education Act, passed in 1975 and amended as recently as 2004, is intended to improve the educational opportunities and outcomes of children with disabilities, and to eventually prepare them for employment, independent living, and economic self-sufficiency. Public schools in the US are required by law to provide a free public education to children with disabilities and to provide services appropriate to individual needs. The Act and its amendments have also underscored the importance of diagnosing disabilities, have emphasised greater integration into the general educational curriculum, and have required public school systems to develop an Individual Education Program (IEP) for each individual child with a disability.

The efforts of schools to incorporate children with disabilities into school life are often seen as a major improvement over the past when children with disabilities were sent to special institutions. However, the percentage of students enrolled in the US educational system with an identified disability has increased dramatically in recent years (United States Department of Education, 2008). This categorisation of individuals with special education needs often takes on a public quality, thus making other students aware that students with disabilities at least occasionally attend special classes, receive individualised services, or participate in other separate activities. The social labeling of a child's disability by their peers may further affect a young person's understanding of their own future educational potential (e.g., McDougall, DeWit, King, Miller, & Killip, 2004; Parker & Asher, 1987).

In summary, significant social and physical barriers remain for individuals with disabilities—especially those with severe disabilities who continue to have more limited educational opportunities and face a difficult transition to gainful employment. A considerable number of young people with disabilities continue their education or enter the labor force (Blackorby & Wagner, 1996; Horn, Berkthold & Bobbitt, 1999; Wells et al., 2003). Nevertheless, a substantial number leave high school and neither work nor continue their education (Blackorby & Wagner, 1996; Wells et al., 2003), despite the majority having transition goals to the contrary (Cameto, Levine, & Wagner, 2004). This article examines the process through which this occurs, with a focus on the family context. What factors increase or decrease parents' and children's expectations for university enrolment? Furthermore, do these expectations mediate the effect of disability on educational attainment after controlling for school performance and sociodemographic characteristics?

Data and Methods

The National Longitudinal Survey of Youth 1997 (NLSY97) is a nationally representative household-based sample of the non-institutional population of young persons in the US (Bureau of Labor Statistics, 2005). This is a longitudinal study which annually collects data on an age cohort of children who were ages 12 to 16 as of 31 December 1996. These analyses used Wave 1 (1997) data in which parents provided information about the disability

status of their child as well as Wave 7 (2003) data in which children were old enough to have completed high school and to have enrolled in postsecondary education. Wave 1 also ascertained the disability status of the resident parental respondent and their partner or spouse.

Educational expectations were asked only of children who were ages 15 and 16 as of 31 December 1996. The total sample for this analysis included adolescents ages 15 to 16 years ($N = 3,054$) in 1997, with a subsample of young persons in 2003 who attained at least a high school diploma ($N = 2,215$). After excluding cases in which data were missing on any of the disability or control variables, 2,594 adolescents had full data in 1997 (85% of the eligible sample), 2,239 adolescents had data on high school completion and enrolment status in 2003, and 1,967 adolescents were high school graduates and had information on university enrolment by 2003.

Disability Measures

The conceptual model of disability used in this article is drawn from the World Health Organization's (2001) International Classification of Functioning, Disability, and Health (ICF) model, which has been adopted internationally by the 191 Member States of the World Health Organization "as the basis for the scientific standardisation of data on health and disability world-wide" (World Health Organization, 2002, p. 5). The ICF model describes a child's health and well-being in terms of four components: (1) body structures, (2) body functions; (3) activities; and (4) participation. Body structures are anatomical parts of the body, such as organs and limbs, as well as structures of the nervous, sensory, and musculoskeletal systems. Body functions are the physiological functions of body systems, including motor and sensory abilities and psychological functions, such as attending, remembering, and thinking. Activities are tasks, including learning, communicating, walking, carrying, feeding, dressing, toileting, bathing, reading, preparing meals, shopping, washing clothes. Participation means involvement in family and community life, such as relationships, education, work, and recreational, religious, civic, and social activities. The ICF model also accounts for contextual factors in a child's life, including environmental and personal factors.

Child disability status in these analyses was constructed from four domains for which parents reported youth activity limitations in the NLSY97 in 1997: learning or emotional disabilities, sensory limitations, physical disabilities, or chronic illness that limits activities. The small number of children with limitations precludes analyses for each aspect of disability. Therefore, the child disability measure abstracted across these variables to determine if a child had one or more severe functional limitations ("currently limited a lot"), or no severe limitation but one or more mild limitations ("currently limited a little"). Remaining children were classified as having one or more past limitations ("not currently limited") or as never having limitations. The validity of the disability measure was then examined against other indicators associated with special health care needs, including overall health reports, school attendance records, and histories of remedial learning (tabulations not shown). The constructed measure of youth disability was linked to these related variables. It is important to note that only children whose parents reported that the

child experienced current limitations in 1997 were included as having a disability in these analyses. Furthermore, children with emotional, sensory, physical, or chronic conditions whose parents report that *they were not* limited by these conditions were not included as having a disability in these analyses.

As a household-based study, NLSY97 provides several advantages for understanding how a child's disability is defined within the family context. First, previous research has suggested that population surveys are well-suited to the measurement of limitations in activities and participation (Hogan, Msall, Rogers, & Avery, 1997). A household-based survey such as the NLSY97 is representative of the population of non-institutionalised youth, while school-based surveys may only sample youth who are in traditional schools. NLSY97 thus allows the identification of all young people with reported functional limitations, regardless of whether or not they have been officially diagnosed with a disability or have received formal educational accommodations.

Second, it is hypothesised that parental expectations, and the family environment in which they take place, are an important mechanism through which disability affects educational attainment. Therefore, it is advantageous to also use parental reports to operationalise disability: NLSY97 allows for a consideration of the way parents conceive of their children's limitations while also considering how parents conceive of their children's future educational trajectories. While the NLSY97 data did not allow for the distinction between children who received an Individualized Education Program (IEP) and those who did not, it can account for several educational characteristics (including remedial learning, days absent from school, and years held back) which are indicative of students' experiences in their learning environment.

Based on this operationalisation, 10% of children had mild disabilities ("currently limited a little") and 3% of children had seriously limiting disabilities ("currently limited a lot"). Of the 252 children in the sample with any kind of disability, 34% had a learning disability only, 1% had a missing or deformed body part only, 29% have a chronic health condition only, and 35.6% had a sensory condition only. Fifteen percent of the children in this sample had multiple limiting conditions; of the total number of children with disabilities, 1% had a learning disability and a missing or deformed body part, 4% had a learning disability and a chronic health condition, and 7% had a learning disability and a sensory condition (see Appendix for additional information). The children with disabilities in this study did not have severe cognitive disabilities and were able to contribute information to long interviews on complex topics.

Youth with serious limitations in this sample are likely to have different educational experiences than youth with mild limitations; additional research would be well served by disentangling these two groups. However, we chose to examine youth with both mild and serious disabilities in order to make conceptual inferences that include all youth with functional limitations and to ensure statistical appropriateness given the small number of youth with serious disabilities (see Wright, 1995).

Twenty-two percent of children in the entire sample lived in households with at least one parent with a disability. The measures of maternal and paternal disability status were derived from parental respondents' interviews and refer to long-term health problems or conditions that limited participation in any type or amount of employment. Parents whose disabilities did not interfere with their employment were not identified as having a disability. The omission of these cases is likely to increase the size of the coefficients for the effects of parental disabilities on the educational outcomes insofar as the measure identified disabilities that are likely to have the most immediate and serious consequences for family life. The focus in this article therefore is on the disability status of children measured by activity limitations and the disability status of parents as measured by disability that prevents employment.

Parent and Youth Educational Expectations

This analysis included measures of both parental and youth expectations about university enrolment. The residential parents who completed the parent interview and the youth respondents were asked, "Now think ahead to the time when [this youth/you] turn(s) 30-years-old. What is the percent chance that [this youth/you] will have a four-year college [university] degree by the time (s)he/you turn(s) 30?" Many parents and children reported they are nearly 100% certain of university graduation. To adjust for these negatively skewed distributions, transformations of the parental and adolescent expectation measures, including squared and cubed terms, were also examined. Results were highly comparable; therefore the original metric is preserved and multiplied by .01 for ease of interpretation. In other words, the final measures of university expectations range from .00 (lowest chance of graduating university) to 1.00 (highest chance of graduating university).

Ordinary Least Squares (OLS) linear regression models were utilised to examine the relationship between disability status and child, household, and educational characteristics on parental university expectations. A second series of models estimated youth university expectations. OLS regression diagnostics for multicollinearity were well within acceptable range (all variance inflation factors three and under). The Breusch-Pagan Test indicated potential heteroskedasticity, therefore equations were re-specified using robust standard errors and the HC3 Correction for Non-specified Heteroskedasticity (Long & Ervin, 2000). Because results were highly comparable, regular OLS coefficients were presented in Table 2 because they allow for the calculation of the adjusted R^2 statistic for goodness of fit. Results from all other models are available from the authors upon request. See Schroeder, Sjoquist, and Stephan (1986) for additional explanation of linear regression.

Educational Attainment

Binary logistic regression models were used to estimate the relationship between family factors, disability status, and high school completion (or the attainment of a GED) for young persons with complete information on educational enrolment status. High school completion was measured in 2003 when all of the adolescents included in this study were at least 22 years of age. Models of university enrolment were then estimated only for young persons who had completed their high school diploma (or GED). A variable measuring exposure

time (i.e., years since high school diploma) was included as a control. See Allison (1999) for additional explanation of logistic regression.

Household Characteristics

These analyses also considered the relationship between household characteristics and educational expectations and attainment. First, three dichotomous variables: “Household income 1x poverty level”, “Household income 2x poverty level”, and “Household income 3x poverty level or higher” were constructed from NLSY97's created measure of poverty in 1997. NLSY97 created an annual poverty status ratio which compared total household income for the year to the United States federal poverty level. These three dummy measures can be interpreted as indicating whether a youth is from a household *at or marginally* above the federal poverty line (“Household 1x poverty level”), *slightly above* (“Household 2x poverty level”), or *economically secure* (“Household 3x poverty level of higher”) compared to the reference category of *below the federal poverty level*.

Next, because a parent's educational attainment is likely to affect a child's educational attainment, two measures of parental schooling are also included in these models. The first, “Parental education—high school graduate” indicates whether or not a parent's highest level of education was a high school diploma or a high school diploma with some university (but no university degree). The second, “Parental education—university graduate”, indicates whether or not a parent's highest education is a university degree or greater. Both these measures reflect the highest level of education among a youth's residential parents and were compared to the reference category of parents with less than a high school diploma. If information on a youth's residential parental education was missing, data was used for the youth's biological or adoptive parents when applicable.

Finally, a youth's household structure in 1997 is also accounted for through the construction of the binary variable, “Two parental figures in household”. This measure was created from a youth's report of his or her living situation and was compared to the reference category of one or no parental figures in the household. A continuous measure of the number of other children in the youth's household was also included in these equations.

Child Characteristics

Aside from a child's disability status, models also control for 1997 dichotomous reports of sex (as reported by a parent and confirmed by youth) and race/ethnicity (as reported by the household informant in the original screening interview) as non-Hispanic Black or Hispanic.

Educational Characteristics

While NLSY97 did not include full academic records for its entire sample, it did include several measures which were useful for the examination of educational expectations and attainment. First, youth-reported grades received in eighth grade was included as an eight-category ordinal measure with low values corresponding to low grades and high values corresponding to high grades. Here, a value of 1 corresponds to “Mostly below Ds”, a value of 2 corresponds to “Mostly Ds”, a value of 3 corresponds to “About half Cs and half Ds”, a value of 4 corresponds to “Mostly Cs”, “Mixed”, or “As to Cs”, a value of 5 corresponds to

“About half Bs and half Cs”, a value of 6 corresponds to “Mostly Bs”, a value of 7 corresponds to “About half As and Bs”, and a value of 8 corresponds to “Mostly As”.

Next, a dichotomous measure of remedial or special education controlled for a youth's experience of having any sort of accommodation at school. This measure indicates whether or not the youth had taken remedial English, remedial math, a “special programme for the educationally handicapped”, a “special programme for the physically handicapped”, English as a second language, or a bilingual programme. More specifically, these questions were hand-carded in the parental portion of the survey and asked the parental figure, “To the best of your knowledge, has [this youth] ever taken any of the kinds of courses or programmes listed on [this card]?” To adjust for the survey design that only the parents of children who were currently attending, or whose highest grade attended was Grade 9 or higher, a dichotomous variable was included to account for missing data (results not shown in the models).

“Days absent from school” is a continuous youth-reported measure of the number of days the youth was absent from school in the fall of 1997. “Repeated school year” is a dichotomous measure which indicates whether or not a youth had repeated an academic year at least once as of 1997. “Parental educational involvement” is a dichotomous measure which indicates if a parent reported that they, or their spouse or partner, had attended either the meetings of the parent-teacher organisation at the youth's school or volunteered to help at the school or in the classroom. Finally, the percentage of the youth's peers that planned to go to university is also included to take into account the sorting of children with disabilities into special education peer groups. “Percent of peers who plan to attend university” was created as a 0 to 4 scale to capture almost none (less than 10%), about half (50%), about 75%, or almost all (more than 90%) peers that the youth perceived to have post-secondary enrolment plans. Higher numbers indicate a greater percentage of peers who planned to attend university.

It is important to note that while the remedial learning, days absent from school, and repeated school year measures were all significantly correlated with the youth disability measure at $p < .001$, the magnitude of the correlations is less than .3 in the bivariate context and the variance inflation factors are well within acceptable range in the multivariate context. Youth disability and school outcomes were clearly related in these data, however, the magnitude of these correlations indicate that they measure distinct facets of functional limitation.

Results

Table 1 presents descriptive statistics for the independent variables in the analysis. Data presented are unweighted means (for quantitative variables), proportions (for dummy variables), or medians (for ordinal variables), with standard deviations in parentheses where appropriate. In the overall sample, 19.4% ($SD = 39.5$) of youth lived in households with an income that was one to less than two times the US federal poverty level, 19.7% ($SD = 39.8$) of youth lived in households with an income that was two to less than three times the poverty level, and 40.6% ($SD = 49.1$) of youth lived in households with an income that was

three times or greater than the poverty level. Youth who eventually attained a high school diploma came from households which were slightly more economically secure in 1997 and had parents with slightly higher educational attainment. With respect to parental education, 58% ($SD = 49.4$) of the full sample had at least one parent with a high school diploma as their highest level of education and 24.5% ($SD = 43.0$) had at least one parent with a university education. Roughly 68% ($SD = 46.6$) of youth report living in a household where two parent figures were present in 1997. An average of 2.3 ($SD = 1.2$) other children lived in the household as of the first survey wave.

Turning to the child's characteristics, 50.6% ($SD = 50.0$) of the full sample was male, 18.1% ($SD = 38.5$) reported Hispanic ethnicity, and roughly 26% ($SD = 43.8$) identified as non-Hispanic Black. Nearly 10% ($SD = 29.7$) of the youth had a mild disability and 3.2% ($SD = 17.6$) had a serious disability.

In order to understand the relationship between disability and the educational attainment process, this article also considered the extent to which disability might limit educational attainment through academic progress by controlling for academic accomplishments. Among the educational characteristics included in this sample, nearly 24% ($SD = 42.4$) of children received remedial education and 21% ($SD = 40.8$) repeated a school year. On average, children missed about six days of school, but there was great variability ($SD = 8.3$) around this number with some students missing large numbers of school days. Youth reported a median of “mostly Bs” for the grades they received in eighth grade. Half the youth reported that more than 75% of their friends planned on going to university and half the youth reported that less than 75% of their friends planned on going to university. Nearly 75% ($SD = 43.4$) of youth had parents who were regularly involved in their schools (either volunteering at school or attending parent-teacher organisation meetings). These values varied relatively little between all adolescents and those who completed high school, with the graduates having slightly better early academic performance.

The analytic strategy of this study is to present a series of models that explore the relationship between household characteristics, disability status, educational characteristics, educational expectations, and educational attainment. Table 2 presents multivariate results of parental and youth educational expectations. Two equations are estimated for parents, with the first (Parent Model 1) including only household characteristics and child characteristics. The second (Parent Model 2) adds educational characteristics to examine any mediating effects. The same strategy is followed to model youth expectations (Youth Model 1 and Youth Model 2). Table 3 presents multivariate results of educational attainment. First considered are the factors which affect high school completion, then, among the students who finish high school, university enrolment is examined.

Household Characteristics

Results indicate that having a parent with a university education ($\beta = .189, p = .001$) was positively and significantly associated with higher parental expectations for children's university completion (Parent Model 1, Table 2). Similarly (Youth Model 1), having a parent with a university education was also associated with higher youth university expectations ($\beta = .212, p = .001$). Next, the more economically secure the family, the higher

the parent's and youth's expectations that the youth would complete university, as living in a household with the highest income-to-poverty ratio was positively and significantly associated with both parental ($\beta = .162, p = .001$) and youth ($\beta = .101, p = .001$) expectations. The magnitudes of the coefficients for the income-to-poverty ratio measures are larger for parental expectations than they are for youth expectations. These results hold even after taking educational characteristics into account. Finally, living in a household with two parent figures, versus one or no parent figures, was not significantly associated with parental ($\beta = .011, p = .428$) or youth ($\beta = .022, p = .094$) expectations after controlling for socioeconomic situation.

A similar pattern emerged when educational attainment outcomes were examined (Table 3). Having a parent with a high school diploma ($e^{\beta} = 1.952, p = .001$), and especially with a university education ($e^{\beta} = 4.639, p = .001$), was associated with much greater odds of high school completion and university enrolment (parental high school graduation $e^{\beta} = 1.424, p = .043$; parental university graduation $e^{\beta} = 2.709, p = .001$). Greater financial well-being was positively and significantly related to the likelihood that children finished high school, as indicated by the highest income-to-poverty ratio ($e^{\beta} = 1.810, p = .040$). All income-to-poverty ratio measures became non-significant when examining the university enrolment of high school graduates. Finally, the presence of other children in the household was not associated with either attainment measure (high school $e^{\beta} = .963, p = .537$; university $e^{\beta} = .949, p = .284$) net of other sociodemographic and educational factors.

Educational Characteristics

As expected, a youth's educational characteristics were strongly related to expectations and later school success. Higher marks in the eighth grade were positively associated with the university expectations of both parents ($\beta = .057, p = .001$) and young persons ($\beta = .043, p = .001$). They were also significantly related to the successful completion of high school ($e^{\beta} = 1.311, p = .001$) and enrolment in university ($e^{\beta} = 1.232, p = .001$). Participation in remedial education was also negatively related to parent ($\beta = -.051, p = .001$) and youth ($\beta = -.037, p = .004$) expectations as well as university enrolment; the odds of enrolment in university were about one-third less ($e^{\beta} = .708, p = .012$) for those who had experienced some sort of early remedial education compared to those who had not experienced early remedial education.

Next, a parent's educational involvement was positively associated with both parental ($\beta = .051, p = .001$) and youth ($\beta = .057, p = .001$) expectations. However, parental involvement was non-significant in both the high school completion ($e^{\beta} = 1.225, p = .240$) and university enrolment models ($e^{\beta} = 1.185, p = .208$), suggesting that this effect was mediated through its relationship with parent and youth expectations. The percent of an adolescent's peers who planned to attend university was strongly associated with parent expectations ($\beta = .033, p = .001$), youth expectations ($\beta = .053, p = .001$), and high school completion ($e^{\beta} = 1.195, p = .024$), but not the likelihood of actually attending university among high school graduates ($e^{\beta} = .969, p = .614$). Missed school days were negatively related to parent expectations ($\beta = -.002, p = .002$), youth expectations ($\beta = -.003, p = .001$), high school completion ($e^{\beta} = .974, p = .001$), and university enrolment ($e^{\beta} = .971, p = .002$), net of other educational

characteristics. Finally, repeated school year was also negatively related to all of our dependent variables (parental expectations $\beta = -.086, p = .001$; youth expectations $\beta = -.044, p = .002$; high school completion $e^{\beta} = .375, p = .001$; university enrolment $e^{\beta} = .593, p = .001$).

Disability Status

Having a parent with a disability was associated with lower parental university expectations ($\beta = -.030, p = .039$) but not youth university expectations ($\beta = -.024, p = .090$). This was true even after taking into account the poorer economic circumstances of families in which a parent may not be able to work. These results suggest that parents who have a work disability are less likely to think their children will complete university; however, this relationship was reduced to non-significance ($\beta = -.013, p = .309$) after taking into account information about children's educational characteristics. Parental disability had no impact on the likelihood of a youth completing high school ($e^{\beta} = .920, p = .650$) or enrolling in university ($e^{\beta} = .998, p = .988$). Having a mild ($\beta = -.110, p = .001$) or serious ($\beta = -.254, p = .001$) youth disability was negatively associated with parental expectations. These results held even net of the factors signaling educational ability, suggesting that parents reduce their expectations that children will receive a university education regardless of the child's school performance.

Having a serious disability was also negatively and significantly associated with youth university expectations in Youth Model 1 ($\beta = -.098, p = .002$), suggesting that children with serious limitations also see their disabilities as detrimental to completing university. However, these lower assessments appear to be associated with these youths' weaker academic performance in grade level schooling, as having a serious disability was no longer associated with youth expectations ($\beta = -.017, p = .577$) after controlling for educational characteristics.

These results also suggest that youth disability has a negative effect on educational attainment. Taking into account household characteristics, educational expectations, and their own academic performance, children with serious disabilities were more than 50% less likely than children without disabilities ($e^{\beta} = .471, p = .016$) to complete high school. Interestingly, youth Model 2 demonstrates that when youth with serious disabilities are able to graduate from high school, they are equally likely as other young people to go on to university ($e^{\beta} = .702, p = .332$). These results suggest that the major impact of children's disability on university enrolment is mediated through this deficit in high school education.

Discussion

This article used nationally representative data to suggest that educational expectations are not equal for children with and without disabilities. Parents were likely to reduce their educational expectations when children had a mild or serious disability, regardless of their children's school performance. This finding is particularly troublesome because disability does not significantly reduce children's own expectations after accounting for school performance. Parent's pessimism about their children's educational attainment is also negatively associated with a youth's completion of high school. This finding is also

concerning, as a child's expectations are not significantly related to their likelihood of finishing secondary education. Together, results from Tables 2 and 3 suggest that parental expectations of children with disabilities might operate in several ways. First, a child's mild or serious disability reduces parent's expectations. Then, these reduced expectations decrease children's odds of high school completion. Finally, if children do complete high school, a parent's expectations are also significantly related to the likelihood of university enrolment, net of the child's own expectations.

These analyses further imply that once children with disabilities attain a high school diploma, no significant difference exists between children with disabilities and children without disabilities after taking family origins and educational performance into account. Thus, school performance plays a vital role in mediating the detrimental effects of a child's disability for university enrolment. However, the effect of serious disability remains for high school completion, making parental expectations even more important for encouraging adolescents with disabilities to complete high school in order to attend university.

Despite the considerable strides made in implementation of the Individuals with Disabilities Education Act, students with disabilities are not achieving educational parity in grade level schooling. Successful efforts to promote high school graduation of children with disabilities would be a major step forward in improving their chances for a successful transition to adult life. These analyses demonstrate how important it is that these efforts begin at home: family support is vital for facilitating educational achievement. While unable to assess the extent to which parents of children with disabilities collaborate with educators or become involved in transition planning, these analyses suggest that the educational expectations of parents and children do not always align. It is imperative that parents understand their children's life goals in order to advocate more effectively for services and accommodations that can overcome other institutional barriers.

This article adds to the current literature on disability and education by utilising nationally representative, household-based data to examine educational expectations and attainment. Masino and Hodapp's (1996) analyses of the school-based National Education Longitudinal Study 1988 found that disability status was not significantly associated with parental expectations, however, their sample excluded students with severe disabilities, non-sensory, and non-physical conditions. Grigal and Neubert (2004) conducted a survey of 234 parents in urban areas of a Mid-Atlantic US state to find that university "was the most desired post-school outcome for the majority of parents, regardless of the student's disability" (p. 79). The use of household-based data is advantageous for its inclusion of a wider, more representative sample of students with disabilities. This more representative sample allows for broader inferences about the mechanisms which affect a child's educational attainment.

The parental reports of child disability used in this study are advantageous for research on the family context as we are able to simultaneously assess the way parents understand their child's limitations and the way parents understand their child's future educational trajectory. However, this data does not allow for the evaluation of how a parent's understanding of a child's limitations corresponds with IDEA definitions of disability. As a result, parents', versus educators', definitions of disability may differ. Similarly, these data cannot account

for variation in parents' and educators' expectations for children with disabilities. Future research which can disentangle these discrepancies, and suggest ways in which parents and educators can work together to coordinate a plan of action to meet children's expectations, would further researchers' and practitioners' understanding of the mechanisms that enable positive life course transitions for young people with limiting conditions.

Acknowledgement

The authors gratefully acknowledge the William T. Foundation for its support of this research.

Appendix

Appendix Table

Prevalence of conditions leading to youth activity limitation by condition type

Type of condition	Number of Youth
<i>Learning or emotional condition</i>	119
Does [this youth] now have or has [he/she] ever had a learning or emotional problem that limits or has limited the kind of schoolwork or other daily activities [he/she] can perform, the amount of time [he/she] can spend on these activities or [his/her] performance in these activities?	
<i>Missing or deformed body part</i>	7
Does [this youth] now have or has [he/she] ever had a part of [his/her] body that (is/was) deformed or missing?	
<i>Sensory limitation</i>	77
Does [this youth] now have or has [he/she] ever had trouble seeing, hearing or speaking?	
<i>Chronic health condition</i>	89
Does [this youth] now have or has [he/she] ever had any other chronic health condition or life threatening disease such as asthma, heart condition, anemia, diabetes or cancer?	

Note: Data shown are parental reports of youths' currently limiting conditions in 1997. 252 youth have at least one current limitation; 38 youth have more than one current limitation. Source: NLSY97.

References

- Allison, PD. Logistic Regression Using the SAS System: Theory and Application. SAS Institute Inc.; Cary, NC: 1999.
- Avery, RC.; Hogan, DP. Family configurations of disability in the 2000 Census.. Poster session presented at the annual meeting of the Population Association of America; Los Angeles, California. Mar. 2006
- Blackorby J, Wagner M. Longitudinal postschool outcomes of youth with disabilities: Findings from the National Longitudinal Transition Study. *Exceptional Children*. 1996; 62:399–413.
- Bureau of Labor Statistics. National Longitudinal Survey of Youth 1997 cohort, 1997–2003 (rounds 1–7) [computer file]. Produced by the National Opinion Research Center, the University of Chicago and distributed by the Center for Human Resource Research, The Ohio State University; 2005.
- Cameto, R.; Levine, P.; Wagner, M. Transition planning for students with disabilities: A special topic report of findings from the National Longitudinal Transition Study-2. SRI International; Menlo Park, CA: 2004.
- Davis-Kean PE. The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology*. 2005; 19:294–304. [PubMed: 15982107]
- Duncan, GJ.; Brooks-Gunn, J. Income effects across the life span: Integration and interpretation.. In: Duncan, GJ.; Brooks-Gunn, J., editors. *Consequences of growing up poor*. Russell Sage Foundation; New York: 1997. p. 596-610.

- Eccles JS. Influences of parents' education on their children's educational attainments: The role of parent and child perceptions. *London Review of Education*. 2005; 3:191–204.
- Furstenberg FF. The sociology of adolescence and youth in the 1990s: A critical commentary. *Journal of Marriage and the Family*. 2000; 62:896–910.
- Grigal M, Neubert DA. Parents' in-school values and post-school expectations for transition-aged youth with disabilities. *Career Development for Exceptional Individuals*. 2004; 27:65–85.
- Haveman R, Wolfe B, Spaulding J. Childhood events and circumstances influencing high school completion. *Demography*. 1991; 28:133–157. [PubMed: 2015940]
- Hogan DP, Msall ME, Rogers ML, Avery RA. Improved disability population estimates of functional limitation among American children aged 5–17. *Maternal and Child Health Journal*. 1997; 1:203–216. [PubMed: 10728246]
- Hogan DP, Rogers ML, Msall ME. Children with disability: Functional limitations and key indicators of well-being. *Archives of Pediatrics & Adolescent Medicine*. 2000; 154:1042–1048. [PubMed: 11030857]
- Hogan DP, Shandra CL, Msall ME. Family developmental risk factors among adolescents with disabilities and children of parents with disabilities. *Journal of Adolescence*. 2007; 30:1001–1019. [PubMed: 17445879]
- Horn L, Berkthold J, Bobbitt L. Students with disabilities in postsecondary education: A profile of preparation, participation, and outcomes. *Education Statistics Quarterly*. 1999; 1:59–64.
- Long JS, Ervin LH. Using heteroscedasticity consistent standard errors in the linear regression model. *The American Statistician*. 2000; 54:217–224.
- Mare, RD. Changes in educational attainment and school enrollment.. In: Farley, R., editor. *State of the Union: America in the 1990s. Volume I: Economic Trends*. Russell Sage Foundation; New York: 1995. p. 155–213.
- Majoribanks K. Family background, adolescents' educational aspirations, and Australian young adults' educational attainment. *International Education Journal*. 2005; 6:104–112.
- Masino LL, Hodapp RM. Parental educational expectations for adolescents with disabilities. *Exceptional Children*. 1996; 62:515–524.
- McDougall J, DeWit DJ, King G, Miller LT, Killip S. High-school aged youths' attitudes toward their peers with disabilities: The role of school and student interpersonal factors. *International Journal of Disability, Development and Education*. 2004; 51:287–313.
- McLanahan, S.; Sandefur, G. *Growing up with a single parent: What helps? What hurts?*. Harvard University Press; Cambridge: 1994.
- Messersmith EE, Schulenberg JE. When can we expect the unexpected? Predicting educational attainment when it differs from previous expectations. *Journal of Social Issues*. 2008; 64:195–211.
- Neuenschwander MP, Vida M, Garrett JL, Eccles JS. Parents' expectations and students' achievement in two western nations. *International Journal of Behavioral Development*. 2007; 31:594–602.
- Pallas, AM. Educational transitions, trajectories, and pathways.. In: Mortimer, JT.; Shanahan, MJ., editors. *Handbook of the life course*. Kluwer Academic/ Plenum Publishers; New York: 2003. p. 165–184.
- Parker JG, Asher SR. Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin*. 1987; 102:357–389. [PubMed: 3317467]
- Schroeder, L.; Sjoquist, DL.; Stephan, PE. *Understanding regression analysis: An introductory guide*. Sage Publications; Newbury Park, CA: 1986.
- Sewell WH, Haller AO, Ohlendorf GW. The educational and early occupational attainment process: Replication and revision. *Sociological Review*. 1970; 35:1014–1027.
- Sewell WH, Haller AO, Portes A. The educational and early occupational attainment process. *American Sociological Review*. 1969; 34:82–92.
- Shanahan M. Pathways to adulthood in changing societies: Variability and mechanisms in life course perspective. *Annual Review of Sociology*. 2000; 26:667–692.
- Wells T, Sandefur GD, Hogan DP. What happens after the high school years among young persons with disabilities? *Social Forces*. 2003; 82:803–832.

- World Health Organization. International classification of functioning, disability and health. Author; Geneva, Switzerland: 2001.
- World Health Organization. Towards a common language for functioning, disability, and health: ICF. Author; Geneva, Switzerland: 2002.
- Wright, RE. Logistic regression.. In: Grimm, LG.; Yarnold, PR., editors. Reading and understanding multivariate statistics. American Psychological Association; Washington, DC: 1995. p. 217-244.

Table 1

Descriptive Statistics for Independent Measures used in the Analyses.

	<u>All youth (n = 2594)</u>		<u>HS diploma (n = 1967)</u>	
	Sample Statistic	SD	Sample Statistic	SD
<i>Household characteristics</i>				
Household income 1× poverty level	0.194	0.395	0.185	0.388
Household income 2× poverty level	0.197	0.398	0.200	0.400
Household income 3× poverty level or higher	0.406	0.491	0.433	0.496
Parental education – high school graduate	0.579	0.494	0.584	0.493
Parental education – university graduate	0.245	0.430	0.272	0.445
Children in household	2.263	1.242	2.260	1.235
Two parent figures in household	0.683	0.466	0.704	0.457
<i>Child characteristics</i>				
Male	0.506	0.500	0.487	0.500
Hispanic	0.181	0.385	0.175	0.380
Black	0.259	0.438	0.258	0.438
<i>Disability status</i>				
Mild youth disability	0.098	0.297	0.095	0.293
Serious youth disability	0.032	0.176	0.023	0.151
At least one parent with a disability	0.223	0.416	0.210	0.408
<i>Educational characteristics</i>				
Overall grades in eighth grade	6.000		6.000	
Remedial education ^a	0.235	0.424	0.229	0.420
Days absent from school, fall semester 1997	5.650	8.295	4.936	7.203
Repeated school year	0.211	0.408	0.164	0.371
Parental educational involvement	0.749	0.434	0.761	0.427
Percent of peers who plan to attend university	3.000		3.000	

Note: Data presented are unweighted means (quantitative variables), proportions (dummy variables), or medians (ordinal variables) with standard deviations.

^aIncludes control for missing values (results not shown). Source: NLSY97

Table 2

OLS Regression of Parental and Youth Educational Expectations, 1997 ($n = 2594$).

	Parent Model 1			Parent Model 2			Youth Model 1			Youth Model 2		
	β	SE	p	β	SE	p	β	SE	p	β	SE	p
<i>Household characteristics</i>												
Household income 1× poverty level	.059	.019	.002	.058	.017	.001	.024	.018	.193	.022	.017	.208
Household income 2× poverty level	.087	.020	.001	.060	.019	.001	.070	.020	.001	.049	.018	.008
Household income 3× poverty level or higher	.162	.020	.001	.108	.019	.001	.101	.020	.001	.051	.018	.006
Children in household	.007	.005	.179	.008	.005	.075	-.002	.005	.637	-.001	.005	.916
Parental education – high school graduate	.064	.017	.001	.044	.016	.005	.073	.017	.001	.057	.016	.001
Parental education – university graduate	.189	.021	.001	.115	.020	.001	.212	.021	.001	.147	.020	.001
Two parental figures in household	.011	.014	.428	-.013	.012	.291	.022	.013	.094	.001	.012	.979
<i>Child characteristics</i>												
Male	-.068	.012	.001	-.013	.011	.241	-.101	.011	.001	-.058	.011	.001
Hispanic	.067	.017	.001	.081	.016	.001	.031	.017	.063	.046	.016	.003
Black	.071	.015	.001	.103	.014	.001	.070	.015	.001	.095	.014	.001
<i>Disability status</i>												
Mild youth disability	-.110	.020	.001	-.046	.018	.012	-.035	.019	.065	.015	.018	.407
Serious youth disability	-.254	.033	.001	-.161	.031	.001	-.098	.032	.002	-.017	.030	.577
At least one parent with a disability	-.030	.014	.039	-.013	.013	.309	-.024	.014	.090	-.008	.013	.531
<i>Educational characteristics</i>												
Overall grades in eighth grade				.057	.004	.001				.043	.004	.001
Remedial education ^a				-.051	.013	.001				-.037	.013	.004
Days absent from school, fall semester 1997				-.002	.001	.002				-.003	.001	.001
Repeated school year				-.086	.014	.001				-.044	.014	.002
Parental educational involvement				.051	.012	.001				.057	.012	.001
Percent of peers who plan to attend university				.033	.006	.001				.053	.006	.001
Intercept	.536	.026	.001	.156	.036	.001	.621	.026	.001	.260	.036	.001
Adjusted R ²	.154			.304			.134			.257		

Note: Data presented are OLS coefficients with standard errors and two-tailed probability tests.

^aIncludes control for missing values (results not shown). Source: NLSY97.

Table 3

Logistic Regression of Youth Educational Attainment, 2003.

	High School (n = 2239)				University Enrolment (n = 1967)			
	β	e^{β}	SE	p	β	e^{β}	SE	p
<i>Household characteristics</i>								
Household income 1x poverty level	0.115	1.122	.209	.583	-0.089	0.915	.181	.623
Household income 2x poverty level	0.268	1.307	.257	.297	-0.079	0.924	.196	.688
Household income 3x poverty level or higher	0.594	1.810	.289	.040	0.351	1.420	.202	.083
Children in household	-0.038	0.963	.061	.537	-0.053	0.949	.049	.284
Parental education – high school graduate	0.669	1.952	.185	.001	0.353	1.424	.175	.043
Parental education – university graduate	1.535	4.639	.408	.001	0.997	2.709	.229	.001
Two parent figures in household	0.185	1.203	.173	.286	0.190	1.209	.138	.170
<i>Child characteristics</i>								
Male	-0.257	0.774	.167	.125	-0.320	0.726	.122	.009
Hispanic	-0.233	0.793	.226	.304	0.130	1.138	.174	.458
Black	-0.135	0.874	.205	.510	-0.005	0.995	.156	.976
<i>Disability Status</i>								
Mild youth disability	0.256	1.292	.248	.303	0.379	1.461	.204	.063
Serious youth disability	-0.753	0.471	.311	.016	-0.355	0.702	.366	.332
At least one parent with a disability	-0.083	0.920	.184	.650	-0.002	0.998	.146	.988
<i>Educational characteristics</i>								
Overall grades in eighth grade	0.271	1.311	.054	.001	0.209	1.232	.042	.001
Remedial education ^a	-0.084	0.920	.184	.649	-0.346	0.708	.138	.012
Days absent from school, fall semester 1997	-0.026	0.974	.007	.001	-0.029	0.971	.010	.002
Repeated school year	-0.981	0.375	.171	.001	-0.523	0.593	.157	.001
Parental educational involvement	0.203	1.225	.173	.240	0.170	1.185	.135	.208
Percent of peers who plan to attend college	0.178	1.195	.079	.024	-0.031	0.969	.062	.614
Parental college expectations	1.227	3.412	.273	.001	1.636	5.132	.227	.001
Youth college expectations	0.376	1.456	.266	.158	1.240	3.456	.225	.001
Years since high school diploma					0.325	1.384	.066	.001
Intercept	-0.660	0.517	.468	.158	-4.204	0.015	.520	.001

	High School (n = 2239)				University Enrolment (n = 1967)			
	β	e^{β}	SE	p	β	e^{β}	SE	p
-2 Log Likelihood	1075.184				1813.142			

Note: Data presented are logistic regression coefficients, odds ratios, standard errors, and two-tailed probability tests.

^aIncludes control for missing values (results not shown). Source: NLSY97.