

DO ENROLLMENT IN SPECIAL EDUCATION AND HAVING A LEARNING
DISABILITY INFLUENCE SYMPTOMS OF DEPRESSION IN YOUNG ADULTHOOD?

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Laura Johnston

Thesis Committee:
Krysia Mossakowski
Yeanju Lee
Jennifer Darrah

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Abstract

Although some research has been conducted to assess the effectiveness of Special Education programs, very little research has been focused on the mental health outcomes of children placed in Special Education in the United States. Using data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), my goal in this study was to examine the relationship between placement in Special Education (Wave I) and symptoms of depression in young adulthood (Wave III). Results indicated that, after controlling for demographic characteristics, parental socioeconomic background variables, educational and employment outcomes, educational expectations, school satisfaction, prior depressive symptoms, and self-esteem, students who had received Special Education services or had a learning disability had higher levels of depressive symptoms in young adulthood (Wave III). Additionally, students who had received Special Education services or had a learning disability were more likely to have expressed depressive symptoms in Wave I. These findings suggest that students with a learning disability and those placed in Special Education are more likely to suffer from symptoms of depression both in school (intermediate and high school) and upon transitioning out of high school and into young adulthood. I hope that the findings of this study inspire others to build upon this research by exploring mental health outcomes of children who receive Special Education services. It is also my hope that this (and future) research will be used to develop targeted curriculum and supports which will facilitate positive mental health outcomes for children enrolled in Special Education and which will help alleviate the mental distress faced by students in Special Education transitioning into young adulthood.

Introduction

In the United States, 13% of all public school students are enrolled in Special Education, which is about 6.7 million (National Center for Education Statistics 2018). Students are selected for evaluation and, if deemed to have a disability, placed in Special Education for a variety of reasons (failure to advance academically, behavior disruption in the classroom, and/or physical impairments) (U.S. Department of Education 2016). Students placed in Special Education are categorized by their type of 'disability' and are given an Individual Education Plan (IEP). Students enrolled in Special Education may spend all of the school day in a Special Education classroom, they may spend part of their day there, or they may spend the day in regular education classes accompanied by an Educational Aide or Paraprofessional. According to the U.S. Department of Education, in the 2013-14 school year 35% of students receiving Special Education services had a specific learning disability, 21% had a speech or language impairment, 13% had an unspecified type of health impairment, 8% were diagnosed with Autism, 7% had an intellectual disability, 6% had a developmental delay, 5% were diagnosed with an emotional disturbance, 2% had multiple disabilities, and 1% had hearing impairments (U.S. Department of Education 2016). What remains to be determined is whether placement in Special Education in high school has a lasting influence on mental health in young adulthood.

Mental health outcomes among students placed in Special Education programs warrant more research because of the sharp divide in opinion among scholars, as well as school professionals, about whether separating students with disabilities is helpful or harmful. Some view the labeling of students in Special Education as stigmatizing and harmful to the students, question whether or not students truly have disabilities and insist that students in Special Education should be included in regular education classrooms as much as possible (Sapon-Shevin 1996). Maag and Reid's

(2006) meta-analysis of the few studies on this topic suggests that students with learning disabilities have significantly higher depression scores than students without learning disabilities. The limitations of the studies they examined are that their samples are small, cross-sectional, and not generalizable to the U.S. population. The influence of Special Education and learning disabilities on mental health deserves further research. Thus, my study uses national longitudinal data to examine whether being placed in a Special Education program and having a learning disability predict symptoms of depression among young adults in the United States. Based on gaps in the literature, my research questions are as follows:

1. Do enrollment in Special Education services and having a learning disability influence symptoms of depression (Wave I) and predict subsequent symptoms of depression (Wave III) in young adulthood over and above sociodemographic factors and family socioeconomic background?
2. Do enrollment in Special Education and having a learning disability increase levels of depressive symptoms (Wave I and III) after controlling for school satisfaction, educational expectations, whether or not a student has been expelled or dropped out of high school, enrollment in college/job training program, and employment status?
3. To what extent do prior symptoms of depression (Wave I) and self-esteem (Wave I) explain the effect of enrollment in Special Education and having a learning disability on depressive symptoms (Wave III) in young adulthood?

Literature Review

The Process of Stigmatization

From a social psychological standpoint, Special Education students could be at risk of depression and low self-esteem because of being stigmatized. Stigma is the rejection of an individual based on characteristics (that have been deemed as undesirable by the stigmatizer) that separate one from 'normal' members of society (Goffman 1963). Goffman (1963) introduced a series of steps in the process of stigmatizing individuals. First, individuals must be identified as different (these can be overt or covert human differences, such as skin color, intelligence quotient, medical condition, etc.). Secondly, the labeled individual must be linked to undesirable characteristics. Third, the group doing the labeling must separate the 'normal' people from the stigmatized group. Fourth, the stigmatized group must experience discrimination and loss of status. Finally, the stigmatization process requires the use of power.

Social Formation of One's Identity: Becoming a 'Sped Student'

According to Symbolic Interactionist theory, people learn who they are and form their identities through social interaction (Mead 1934). Accordingly, children who are placed in Special Education receive and internalize that they are 'different' than the larger student body because they are separated from the regular classroom environment, and/or have an aide accompanying them throughout the day. Students who are excluded from the 'normal' classroom or curriculum, therefore, could adopt the identities of inadequate student and/or disabled person. Students with all types of 'disabilities' are included in the same Special Education classrooms and, once they enter the Special Education program are all considered 'Sped students' regardless of their specific type of disability. Therefore, students are not differentiated by type of disability by the general student body or by school staff members. Individual Education Plans (IEPs) are kept confidential and students are identified as 'Sped students' or not. Although some students may not have any behavior problems upon entering Special Education, they may internalize and

later exhibit behavior problems as a result of being placed in a Special Education classroom which includes students with behavior disorders. This can happen because a student placed in Special Education may copy the behavior of other students placed in Special Education, or because the identity of 'Special Education Student' which a student learns includes problems behaving in class (Loveless 2019). A study by Hale (2014) observed High School students in a Special Education classroom and reported that students experienced stigma (both internally, by self-labeling and externally, by others calling them 'retarded' or 'special') and did not wish to be associated with the label of Special Education. Lavani (2015) found that parents of children with disabilities were concerned about their children experiencing stigma.

Link and colleagues (1989) introduced Modified Labeling Theory, which states that stigma may not only directly impact mental illness, but may indirectly contribute to negative outcomes through self-labeling. Labeling Theory states that an individual experiences stigma via discrimination and therefore, internalizes the stigma (Scheff 1974). Modified Labeling Theory states that the internalization of stigma may occur without actually experiencing discrimination or stigma directly. According to Modified Labeling Theory, the threat of stigma is enough to cause self-labeling or internalization of a label and result in negative outcomes, such as symptoms of depression (Link et al. 1989). Link et al. (1989) explained that the threat of being devalued and rejected by others causes individuals to withdraw from others and attempt to hide their conditions. The internalization of a label can cause an individual to experience social isolation and feelings of shame (Link et al. 1989). Accordingly, internalizing the negative associations of having 'special needs', and possibly having a behavioral problem or a 'low IQ' could lead to low-self-esteem, social isolation, and, eventual, depression. Depression is also considered an internalizing disorder. An individual with depression may experience frequent feelings of sad-

ness, disinterest in regular activities, and feelings of worthlessness (American Psychological Association 2013).

Link and colleagues (1989) explained that problems of labeling and stigma appear in the forms of low social interaction and low self-esteem. Children who are placed in Special Education in elementary school are unlikely to be placed there as a result of depression. Although depression can accompany other emotional disorders, depression is rarely exhibited in elementary students in the general student population and also is rare for students placed in Special Education (about 2% of pre-school and elementary aged children) (Dryden-Edwards 2019). Symptoms of depression are more likely to manifest in young adulthood (Kessler and Walters 1998). Therefore, depression could likely be the result of being negatively labeled and stigmatized (resulting in low self-esteem) rather than an inherent mental illness of those placed in Special Education in elementary school. Thus, research on Special Education placement should assess symptoms of depression and self-esteem at different time points during the transition to adulthood.

Inclusion/Exclusion Debate

Although perceived social isolation and feelings of loneliness are key components of depression (Cacioppo et al. 2010) among Special Education students, inclusion in regular classrooms may not necessarily be the answer. Erving Goffman (1963) proposed that repeated exposure and openness between the stigmatized and the 'normal' person or group does not necessarily reduce stigma. "Thus, whether we interact with strangers or intimates, we will still find that the fingertips of society have reached bluntly into the contact, even here putting us in our place" (Goffman 1963:53). Students who are already labeled as 'Special Ed' may still be excluded from

social relationships and activities. Even if the student has friends at school he/she may still feel as though he/she is 'different' and may experience stigma. Neither inclusion programs nor schools which consist only of special needs students are solutions to the labeling endured by students with 'special needs.

Parental Socioeconomic Background and Educational Expectations

Prior research indicates that there are disproportionately higher numbers of economically disadvantaged students in Special Education programs (Zhang et al. 2014). A disadvantaged parental socioeconomic background is stressful and predicts depressive symptoms in young adulthood (Mossakowski 2008). The educational background of parents is a way to measure family socioeconomic status for young adults who are in their initial phases of status attainment (Mossakowski 2008). Thus, I will include parental educational attainment in my study because it provides more context than using family income alone (which may not accurately measure socioeconomic status in itself and which many participants may decline to answer).

In addition to parental education and income, the educational expectations of students in Special Education may influence their mental health. Students in Special Education are more likely to fall short of 'normal' academic expectations. They are more likely to repeat classes, leave high school without a diploma, and less likely to attend college (Artiles et al. 1994). Children in Special Education may be even more at risk of experiencing depression due to unmet expectations than children not placed in Special Education because they have been diagnosed with 'learning challenges.' I will take into account 'educational expectations' of the students. Higher levels of educational expectations are linked with lower levels of depressive symptoms in young adulthood (Mossakowski 2011). Therefore, my study includes the student's educational expecta-

tions, which could help to partially explain why Special Education placement affects mental health in young adulthood.

The Link Between Self-esteem and Depression

Individuals with low self-esteem are particularly vulnerable to developing depression (Orth et al. 2016). Two popular theories which seek to explain the link between self-esteem and depression are the ‘scar’ theory and ‘vulnerability’ theory. Scar theory proposes that depression ‘scars’ the self-concept of individuals who experience it. Therefore, low self-esteem is a consequence of depression (rather than a cause of depression) (Coyne et al. 1998, as cited by Orth et al. 2016). Vulnerability theory posits that low self-esteem can cause an individual to feel depressed, and therefore, low self-esteem is not only a consequence of depression, but can play a causal role (Beck 1997, as cited by Orth et al. 2016). Orth et al. (2016) state that there is more evidence which support the theory of vulnerability.

Special Education and Self-Esteem

Special Education could have an influence on self-esteem. In a study conducted in 1997 by Conley, Ghavami, VonOhlen, and Foulkes, children in Special Education (both those with diagnosed learning disabilities and emotional disorders) exhibited significantly lower levels of self-esteem than children not placed in Special Education. The lower self-esteem ratings of children in Special Education may be because they view themselves as less capable in a variety of categories, such as academic achievement or making friends (Conley et al 1997). Conley et al.’s study was small (48 students participated in the study), was conducted at a single school, and consisted of only White students. Hale’s (2014) study mentioned earlier focused on five high

school students receiving Special Education services. Two of the students were African American and three were Hispanic. The students in Hale's study expressed negative associations with Special Education (for example, that others generally consider Special Education students to be 'stupid' or 'retarded'), even though some of them said that Special Education could be helpful to some students (Hale 2014). One of the students in Hale's study did not even believe that he had a disability and said that he did not think he needed Special Education services. Another student also said that she thought she was smart, but also expressed how others view Special Education students as 'slow'. Hale's study demonstrates the way in which students may have a positive view of themselves but, upon enrolling in Special Education may suffer from low self-esteem because "children in Special Education are wholly or partially excluded from the 'normal' social life of schools and seen almost exclusively through deficit perspectives" (Hale 2014). My study will use data from a nationally-representative sample, and I will be including various racial/ethnic groups in my study. More research needs to be done in order to explore the role of self-esteem for students placed in Special Education and how self-esteem relates to behavior, academic success, and mental health. My study takes into account earlier self-esteem and symptoms of depression at ages 12-20 years old to evaluate the roles of low self-esteem and earlier symptoms in developing subsequent depression in young adulthood.

Contrary to the notion that stigmatized individuals have lower self-esteem than non-stigmatized individuals, some scholars argue that stigmatized individuals may not have lower self-esteem than individuals who do not regularly experience stigma (Crocker and Major 1989). Crocker and Major (1989), for example, explain that African Americans do not have lower self-esteem than White Americans, even though they may regularly experience racial prejudice. Crocker and Major (1989) state that individuals may maintain high self-esteem by comparing

themselves with others in a way which creates a positive impression of oneself. If a student in Special Education compares him/herself to others (possibly with more debilitating disabilities) in Special Education, then it is possible he/she will have high self-esteem, even though he/she feels stigmatized in the larger school environment. Another way in which stigmatized individuals could maintain high self-esteem is by gathering larger portions of self-esteem from areas in which they succeed than from areas in which they lack success (Conley et. al. 1997). If a student placed in Special Education is particularly skilled in an area (or in a specific domain), such as making friends, cooking, or playing a musical instrument, then he/she may have high self-esteem despite being placed in Special Education. Crocker and Major (1989) also argue that belonging to a stigmatized group may protect an individual from experiencing low self-esteem by not only providing in-group comparisons, but also by providing an external explanation for inadequacies/failures. Instead of attributing failures to personal inadequacies, an individual who belongs to a stigmatized group can attribute membership to that group as a reason for failure (Crocker and Major 1989). The stigma of placement in Special Education may not necessarily alter self-esteem initially or in the long-term, but it could influence the likelihood of depression.

Special Education, Expulsion, and Dropping out of High School

Children in Special Education are more likely to be expelled from school. Expulsion can be a consequence of poor mental health (American Academy of Pediatrics 2003). However, Ford and colleagues (2017) found that adolescents who were expelled from school reported high levels of mental distress prior to and up to three years after their expulsion. Ford et al. (2017) explain that the relationship between poor mental health and expulsion is bi-directional. Therefore, adolescents who are expelled may experience more mental distress after their expulsion (and

likely prior to their expulsion) than adolescents who are not expelled. Students who are placed in Special Education may have been placed there because they were identified as having behavior problems or being at-risk (not necessarily because they were identified as having a particular physical or learning impairment). Students who are in Special Education may be more likely to be expelled because of behavioral problems. Students who cause disturbances in the classroom and exhibit risk-behavior are more likely to be placed in Special Education.

Another explanation for the high number of students in Special Education who are expelled from school is the theory of secondary deviance. Edwin Lemert (1951) used the term 'secondary deviance' to describe the situation in which a person uses deviant behavior in order to defend, attack, or adjust to the overt or covert problems created by the consequent societal reaction to him/her (Lemert 1951: 35). The expulsion of Special Education students may be a reaction to the stigma they face daily at school.

Although expulsion has been shown to be a consequence and cause of mental distress, dropping out of high school has been identified as a particularly high risk for students with depression (Dupere et al. 2018). A study among disadvantaged students in Canada showed that students who reported symptoms of depression were twice as likely to drop out of high school than students who did not report symptoms of depression (Dupere et al. 2018). Additionally, a longitudinal study of 1,057 Australian adolescents showed symptoms of depression and anxiety predicted high school drop out even after controlling for sociodemographic factors and parental background factors (such as parental educational attainment) (Butterworth and Leach 2017). Only 69 percent of students in Special Education leave high school with a diploma (U.S. Department of Education 2018). Although programs have aimed at increasing graduation rates, very

little has been done to address depression as a cause and consequence of expulsion or dropping out of High School among students in Special Education.

Students placed in Special Education may be more at risk for developing symptoms of depression in young adulthood because they are more likely to drop out of high school and face unemployment. Students who drop out of High School are 72% more likely to be unemployed than students who graduate High School (Thurlow and Johnson 2011). Additionally, 82% of the prison population does not have a high school diploma, and 85% of juvenile justice cases are those who dropped out of high school (Thurlow and Johnson 2011). Young people with disabilities are also over represented in the correctional system (Thurlow and Johnson 2011). Students in Special Education with Emotional Disorders are more likely to dropout than other categories of disabilities (Thurlow and Johnson 2011). Susceptibility Theory proposes that young people with disabilities are predisposed to dropping out of high school and to criminal behavior because of their predispositions of poor impulse control, being unable to communicate effectively, etc. (Quin et al. 2005). However, Post (1981), suggests that the overrepresentation of young people with disabilities in the correctional system is due to an inadequate school system, which leads students in Special Education directly into school failure or delinquency, leading to poor self-image, dropping out of high school and entry into the correctional system. Thus, my study controls for educational outcomes, such as dropping out of high school and expulsion, and employment outcomes, which could partially explain why placement in Special Education could predict psychological distress and depression years later.

Additionally, Foucault (1975) considers schools to be part of a larger ‘panoptic society’. Schools act in a way which creates ‘docile bodies’ by including hierarchical observation, normalizing judgment, and observation (Foucault 1975). In schools, children are ruled by the authority

of teachers, and teachers by the authority of principals. Children's intelligence and behavior is scored, quantified, and compared with that of other children. Placing children in Special Education is one way in which the school system penalizes students who are not learning or behaving normally. They are often separated from the larger student body and must bear the stigma of being in Special Education. The threat of being placed in Special Education may be enough to control the behavior and productivity of the larger student body. Foucault's theory reinforces the idea that Special Education further facilitates the school to prison pipeline and is prison-like in itself. If students who have behavioral problems in the regular classroom act out, they could be placed in Special Education. If students in Special Education engage in too many deviant behaviors, they could be expelled from high school. Therefore, my study takes into account expulsion, which could partially explain why Special Education placement predicts depression in young adulthood.

A Marxist View of Special Education

Although this study is looking at Special Education mostly through the Symbolic Interactionist lens of Labeling Theory or a social-psychological perspective, I would also like to briefly discuss Special Education from a Marxist/Materialist point of view to make the micro-macro link. The label of Special Education is applied disproportionately to male, minority, and impoverished students (Artiles and Trent 1994). According to Artiles and Trent (1994), the overrepresentation of racial/ethnic minority students in Special Education is rooted in socioeconomic, sociocultural, and sociopolitical inequalities. Attaching the label of 'learning disabled' to these students can be seen as covert racism, and as a specific way in which schools funnel impoverished, Black, male students into later unemployment or imprisonment. From a Marxist perspective,

schools act in accordance with the labor market (Bowles and Gintis 1976). O’Conner and Fernandez (2006) examined a 2002 report from the National Research Council and found that racial/ethnic minority students were disproportionately placed in Special Education. O’Conner and Fernandez (2006) explain that this is, in part, because students from minority racial/ethnic backgrounds are more likely to come from lower income households. Children who are racial/ethnic minorities are overrepresented among children receiving Special Education. According to O’Conner and Fernandez (2006), this occurs due to ‘judgmental’ disability placement, for example if a student is determined to have ADHD as a result of non-compliant classroom behavior. Students from minority racial/ethnic backgrounds were not overrepresented in non-judgmental disability categories, such as blindness, dyslexia, and physical disability categories (O’Conner and Fernandez 2006). O’Conner and Fernandez (2006) propose that the overrepresentation of racial/ethnic minorities receiving Special Education services is due to opportunity and constraint structures within the school system. Furthermore, they argue that there is nothing inherent about being poor that hinders academic progress. School satisfaction is also included in my study and is a way to measure to what degree a student feels comfortable in the school in which he/she attends. School satisfaction assesses whether or not the student feels safe at school, whether or not the student feels close to others at school, and whether or not the student feels as if teachers treat him/her fairly. This addresses issues of perceived discrimination within the school environment. It is important to examine the mental health consequences of being in the Special Education system and whether it is a stigmatized label that can damage mental health, compared to having a learning disability in general.

Marxist/Materialist approaches help to explain why the labeling of students as Special Education students can vary by class and race/ethnicity. Students from disadvantaged back-

grounds (low socioeconomic status and more likely to be ethnic/racial minorities) are more likely to be placed in Special Education because they are less able to commodify their minds and bodies, because of economic demands for cost-effective labor, and because of neoliberal economic expansion (which includes the expansion of private prisons and private security/surveillance companies) which is dependent upon a 'deviant' class (Slorach 2016). Youths who are labeled as mentally ill in the U.S. reflect the goals/needs of the larger capitalist system (Cohen 2016). It is important to acknowledge who is placed in Special Education and so my study controls for race/ethnicity, gender, and socioeconomic status. Placement in Special Education could have long-term and far-reaching effects on students' statuses in society and possibly on their mental well-being.

In summary, my hypotheses are as follows:

1. Students enrolled in Special Education services or who have a learning disability will experience more symptoms of depression initially (Wave I) and later in young adulthood (Wave III) than students not placed in Special Education after controlling for sociodemographic factors (gender, race/ethnicity, and SES).
2. Educational and employment outcomes (such as expulsion, dropping out of high school, enrollment in college/job training, and employment status), educational expectations, and school satisfaction will partially explain the effects of enrollment in Special Education or having a learning disability on symptoms of depression in young adulthood.
3. Enrollment in Special Education and having a learning disability will remain a significant predictors of depressive symptoms in young adulthood (Wave III) after accounting for prior depressive symptoms (Wave I) and self-esteem (Wave I).

Method of Research

Data

For this study, I conducted secondary analysis of data from the National Longitudinal Study of Adolescent to Adult Health (ADD Health), which is available for public use. The study was designed at the University of North Carolina at Chapel Hill. ADD Health is a nationally representative sample of adolescents in grades 7-12 in the United States. The first study (Wave I) was launched in 1994-95. Students were between the ages of 12 and 20 during Wave I. Students were first issued a questionnaire in school and have been followed through adolescence and the transition to adulthood.

ADD Health used a school-based design. The primary sampling frame was derived from the Quality Education Database (QED). From this frame, researchers selected a sample of 80 high schools. Schools were stratified by region, urbanicity, school type (public or private), ethnic mix, and size. For each high school selected, researchers identified and recruited one of its feeder schools (typically a middle school). There are 132 schools included in the sample. School size varied from fewer than 100 students to more than 3,000 students. Seventy-nine percent of the schools that were contacted agreed to participate in the study (The National Longitudinal Study of Adolescent to Adult Health 2019).

From September 1994 until April 1995, in-school questionnaires were administered to students in the schools selected. Questionnaires were administered on a single day within one class period. In-school questionnaires were collected from over 90,000 students. The in-school questionnaire provided measurement on the school context, friendship networks, school activities, future expectations, and a variety of health conditions. Wave II follow-up interviews took

place between April and August of 1996. Wave II does not contain questions relevant to my interest in Special Education and depression.

Wave III interviews were conducted with the remaining Wave I participants as they entered the transition to adulthood (between ages 18-26). Wave III was intended to capture the changes in social contexts, behaviors, and beliefs associated with transitioning into young adulthood. Wave III questionnaires and interviews focused on areas such as the labor market, higher education, relationships, parenting, civic participation, and community involvement.

Wave III data collection was conducted nationwide (including Hawaii and Alaska) between August 2001 and April 2002. Wave III includes in-home questionnaires and in-home interviews which asked similar questions to that of Wave I, but included additional questions pertaining to young adulthood (Add Health cpc.unc.edu). For this study, I will only be using Wave I and Wave III data and those who answered whether or not their child was enrolled in Special Education services in the past twelve months. There was a total of 4,882 cases to start with in my sample. However, after accounting for all missing cases my sample decreased to 4,179.

MEASURES

Dependent variables

Depressive symptoms in Wave I and Wave III are dependent variables, formed using five depression questions which were asked in the questionnaires. Answers to the depression questions were recorded on a four-point Likert scale (0=rarely or never, 1=sometimes, 2=a lot of the time, 3=most of the time/all of the time). The questions used to form the symptoms of depression scales asked how often the respondent felt sad, couldn't shake the blues, was too tired for normal activities, found it hard to focus, and was more bothered by things that are not normally bother-

some to the respondent. These questions are based on the Center for Epidemiologic Studies Depression (CES-D) questionnaire (a 20-question assessment used for depression screening) and because they were asked in both Wave I and Wave III. The depression variables for Wave I and Wave III, therefore, are comprised of the same five questions which were asked at the time of Wave I and Wave III. The depression variable for Wave III, the dependent variable, was tested for reliability using an Cronbach's alpha test. The depression variable had a scale reliability score of 0.71 in Wave I and a scale reliability score of 0.75 in Wave III. The depression variable was skewed and, therefore, was adjusted by taking the natural log after adding 1 to the depression scale in both Wave I and Wave III.

Independent variables

I will be looking at Special Education status (whether or not the student had received Special Education services in the last 12 months), whether or not the student has a learning disability, gender, race/ethnicity, parental income, parental educational attainment, educational expectations of the respondent, how satisfied the respondent is with his/her school, the student's level of self-esteem and depressive symptoms as variables from Wave I; and I will be looking at expulsion, employment, high school graduation, and college/job program enrollment as independent variables from Wave III. Wave I and Wave III were merged together to create one data set. Special Education status was answered by the parent in Wave I and was coded as 1 =child placed in Special Education, 0 =child not placed in Special Education.

The demographic variables are: gender (1=male, 0=female), and race/ethnicity (White = 1 is the reference category) (1=Black/African American, 0=not Black/African American), Hispanic (1=Hispanic, 0= not Hispanic), and other (1=Asian/Pacific Islander/American Indian and

Alaska Native, 0= not Asian/Pacific Islander and American Indian/Alaska Native). The parental income variable (\$0.00- \$999,000.00) was answered in Wave I. There were 150 missing cases for the income variable. I reassigned the missing cases to the mean measurement of income (58.538). Parental educational attainment was also used as a measure of family socioeconomic status. The questionnaire was mostly answered by mothers and, therefore, I decided to include both educational attainment (most likely of the mother) and household income as measures of socioeconomic status. In Wave I, the respondent's parent was asked to record his/her level of education. Responses were coded on a scale from 1-9 (1=8th grade or less, 9=professional training beyond a 4-year college/university). There were six missing cases for the parental education variable. I assigned the six missing cases to the mean number of years of parental education (which was 13.17). The educational expectations variable is comprised of two questions; the first question asked the respondent how likely he/she thought it was that he/she would attend college, and the second question asked to what degree the respondent wanted to attend college. Answers to educational expectations questions were recorded on a Likert scale where a low score (1) indicates low educational expectations and a high score (5) indicates high educational expectations. The educational expectations of the respondent variable were tested for reliability and has a scale reliability score of 0.81. Whether or not the student has a learning disability (such as dyslexia) was asked in Wave I and was answered by the parent.

School satisfaction is comprised of four questions which were asked in Wave I. The questions used to create the school satisfaction variable include how happy the respondent is at his/her school, how safe the respondent feels at his/her school, how close the respondent feels to others at his/her school, if the respondent feels that he/she is treated fairly by his/her teachers, and if the student feels as though others at their school are prejudiced. Answers were recorded on

a five-point Likert scale. A low score indicates a low level of school satisfaction, and a high score indicates a high level of school satisfaction. The scale reliability score for school satisfaction is 0.61.

Expulsion, asked as a yes/no question, was measured at Wave III. Expulsion was coded as 1=has been expelled from school and 0=has never been expelled from school. Whether or not the respondent had attained a high school diploma was measured at Wave III and was coded as 1=graduated high school and 0=has not graduated high school. Employment status was asked in Wave III and was coded as 1=employed and 0= not employed. In Wave III, the respondents were ages 18-26.

Depression in Wave I was also used as an independent variable in the longitudinal models. Self-esteem from Wave I was a control variable. The self-esteem questionnaire asked if the respondent felt that he/she was doing just about everything right, if the respondent felt that he/she had a lot of good qualities, if the respondent felt as though he/she had a lot to be proud of, and if the respondent liked him/herself (answered on a Likert scale, 1=high self-esteem, 5=low self-esteem). The variable, self-esteem, was tested for reliability and has a Cronbach's alpha scale reliability score of 0.77.

Analysis Plan

Table 1 will display the descriptive statistics for all variables. I will conduct T-tests in order to compare students placed in Special Education and those not placed in Special Education for Table 2. I will conduct Ordinary Least Squares (OLS) regression analyses (Table 3) in order to determine the relationship between being enrollment in Special Education services and depressive symptoms in Wave I. In Model 1, I will test the bivariate association. In Model 2, I will

include the demographic control variables: sex and race/ethnicity (Black/African American, Hispanic, and other). In Model 3, I will conduct OLS regression analysis and include parental background variables (parental income and parental education). In Model 4, I will use OLS regression analysis, including student educational expectations and school satisfaction. Finally, I will use OLS regression and include self-esteem from Wave I as a control variable in Model 5. I will repeat this same process using whether or not the student has a learning disability as the main independent variable in place of enrollment in Special Education (Table 4).

I will conduct OLS regression analyses in order to determine the relationship between enrollment in Special Education (Wave I) and depressive symptoms in Wave III (Table 5). In Model 1, I will test the bivariate relationship. In Model 2, I will include sociodemographic variables: sex and race/ethnicity (Black/African American, Hispanic, and other). I will conduct OLS regression analysis and include parental background variables (parental income and parental education) in Model 3. Then, I will include educational and employment outcome variables which included the respondent's educational expectations, how satisfied the student was with his/her school, whether or not the respondent had ever been expelled, whether or not the respondent had a high school diploma, whether or not the respondent was enrolled in college/job training, and whether or not the respondent was employed. Next, I will use OLS regression analysis to test psychological factors which may explain depressive symptoms at Wave III. I will test the depressive symptoms variable at Wave I as a control in Model 5. Then, I will add self-esteem from Wave I as a final control variable in Model 6. I will also repeat this same process using whether or not the student had a learning disability as the main independent variable in place of enrollment in Special Education (Table 6).

Results

According to the descriptive statistics in Table 1, the number of respondents who had not been enrolled in Special Education was 3,813, while 366 of the respondents had been enrolled in Special Education in the past year. I used T-tests in Table 2 (Appendix A) to compare those enrolled in Special Education services and students who had not been placed in Special Education. There was a significant difference in educational expectations among respondents placed in Special Education and the educational expectations of those respondents not placed in Special Education. The mean educational expectations of students (range 2-16) placed in Special Education (7.85, $p < .001$) was significantly lower than it was of students not placed in Special Education (8.81, $p < .001$). There was also a significant difference in self-esteem in Wave I among respondents placed in Special Education and students not placed in Special Education. The average self-esteem (range= 4-20) was significantly lower in Wave I for students placed in Special Education (16.26, $p < .05$) than it was for students not placed in Special Education (16.54, $p < .05$). There was a significant difference in depressive symptoms in Wave I. Students enrolled in Special Education were significantly more likely to express depressive symptoms (2.71, $p < .001$) in Wave I than students not placed in Special Education (2.15, $p < .001$). Students placed in Special Education were more likely to report higher levels of school satisfaction (10.36, $p < .05$). Students who were placed in Special Education were also more likely to report depressive symptoms in Wave III (1.16, $p < .001$) than students not placed in Special Education (1.03, $p < .001$). There was a significant difference in parental education. The average years of parental education for students in Special Education was 12.69, while the average years of schooling for parents of children not placed in Special Education was 13.39. The average parental annual income of stu-

dents placed in Special Education was \$42,984, and the income of those not placed in Special Education was significantly higher at \$50,462.

The general school population is comprised of a higher percentage of female students (54%) as opposed to male students, a higher percentage of male students were placed in Special Education (62%). The racial/ethnic makeup of students placed in Special Education was proportionate to the racial/ethnic makeup of students not placed in Special Education. A higher percentage of students enrolled in Special Education had been expelled (15%), than students not placed in Special Education (6%). A lower percentage of students placed in Special Education were enrolled in college/job training program (20%) than those not in Special Education (39% enrolled in college/job training), while students placed in Special Education were slightly (69% were employed) less likely than students not placed in Special Education (74% were employed) to be employed (See Table 2, Appendix A).

According to Regression Model I (Table 3, Appendix B), Special Education in Wave I is significantly and positively related to depressive symptoms in Wave I ($b = .156, p < .001$). Model 2 (Table 3, Appendix B) demonstrates that females are significantly more likely to self-report symptoms of depression than males are at Wave I (Sex (male)= $b = -.152, p < .001$).

Race/ethnicity is significantly related to depressive symptoms in Wave I. Students who are Black/African American are significantly more likely to report depressive symptoms in Wave I ($b = .106, p < .001$) compared to Whites. Students who are Hispanic are also more likely to report symptoms of depression in Wave I ($b = .104, p < .01$) than Whites. Students who identified as Other were significantly less likely to report symptoms of depression at Wave I ($b = -.029, p < .001$). Placement in Special Education remained a significant predictor of depressive symptoms in Wave I ($b = .189, p < .001$). The results for the interactions between Special Education and

sex and the interactions between Special Education and racial/ethnic variables were tested, but were not statistically significant.

Model 3 (Table 3, Appendix B) accounts for the parental socioeconomic background variables. In Model 3, parental income was not a significant predictor of depressive symptoms in Wave I. Lower parental educational attainment was a significant predictor of higher levels of depressive symptoms in Wave I ($b = -.011, p < .01$). Special Education still had a significant association with depressive symptoms ($b = .178, p < .001$) after controlling for demographic characteristics and parental background variables (See Table 3, Appendix B.)

Model 4 (Table 3, Appendix B) includes educational variables. Low educational expectations of the respondent (how likely the respondent thought he/she would be to go to college) were associated with higher levels of depressive symptoms at Wave I ($b = -.042, p < .001$). Higher levels of school satisfaction were linked with higher levels of depressive symptoms in Wave I ($b = .046, p < .001$). Model 5 (Table 3, Appendix B) shows that students with lower self-esteem in Wave I are significantly more likely to report symptoms of depression in Wave I ($b = -.091, p < .001$). After controlling for all variables, enrollment in Special Education remained significantly associated with depressive symptoms in Wave I ($b = .119, p < .001$). The effect of Special Education decreased by about 25% when accounting for all variables (the difference between Model 1 and Model 5). The largest decrease in effect size of Special Education occurred when accounting for educational variables, which included school satisfaction and student educational expectations (Table 3, Appendix B).

Table 4 (Appendix B) shows the relationship between having a learning disability and depressive symptoms in Wave I. Having a learning disability was significantly associated with higher levels of depressive symptoms in Wave I ($b = .102, p < .01$). Table 4 demonstrates that

educational expectations, school satisfaction, and self-esteem in Wave I explain, in part, the relationship between having a learning disability and depressive symptoms. However, having a learning disability remained a significant correlate of depressive symptoms even after accounting for these variables ($b = .060, p < .05$). The effect size of having a learning disability decreased by about 40% after accounting for all variables. The largest decrease in the effect size occurred when accounting for educational variables.

In Table 5 (Appendix B), enrollment in Special Education significantly predicted depressive symptoms in Wave III ($b = .122, p < .001$). Female students were more likely to express symptoms of depression than male students ($b = .162, p < .001$). Hispanic students were more likely to report symptoms of depression ($b = .092, p < .01$). Students who were Other were significantly less likely to report symptoms of depression ($b = -.018, p < .05$). In model 2 (Table 5, Appendix B), enrollment in Special Education remained a significant predictor of symptoms of depression after accounting for demographic characteristics ($b = .154, p < .001$). Parental income and parental educational attainment were not significant predictors of depressive symptoms in Wave III.

Model 4 (Table 5, Appendix B) shows that students with lower educational expectations were more likely to report symptoms of depression ($b = -.018, p < .001$). Students with higher levels of school satisfaction were more likely to report symptoms of depression ($b = .020, p < .001$). Students who were expelled were significantly more likely to report symptoms of depression ($b = .202, p < .001$). Additionally, students who were enrolled in college/job training were significantly more likely to report symptoms of depression in Wave III ($b = .067, p < .01$). Whether or not the students attained a high school diploma and whether or not the student was employed in Wave III were not significant predictors of depressive symptoms in Wave III. En-

rollment in Special Education remained a significant predictor of depressive symptoms ($b = .126$, $p < .001$) even after accounting for educational and employment outcomes.

Model 5 (Table 5, Appendix B) controls for depressive symptoms in Wave I. Depressive symptoms in wave I significantly predict depressive symptoms in Wave III ($b = .263$, $p < .001$). Special education, however, remained a significant predictor of depressive symptoms in Wave III in this model ($b = .096$, $p < .01$). Student educational expectations is not a significant predictor of depressive symptoms in model 5. Higher levels of school satisfaction remained a significant predictor of higher levels of depressive symptoms ($b = .008$, $p < .05$). Expulsion remained a significant predictor of depressive symptoms ($b = .182$, $p < .001$) even after controlling for depressive symptoms in wave I. Enrollment in college/job training program also remained a significant predictor of depressive symptoms in Wave III ($b = .086$, $p < .001$).

In Model 6 (Table 5, Appendix B), lower levels of self-esteem in Wave I significantly predicted increased symptoms of depression in Wave III ($b = -.014$, $p < .01$). However, enrollment in Special Education remained a significant predictor of depressive symptoms in Wave III ($b = .097$, $p < .01$). Expulsion ($b = .181$, $p < .001$), enrollment in college/job training program ($b = .086$, $p < .001$), and depressive symptoms in Wave I ($b = .248$, $p < .001$) also remained significant predictors of depressive symptoms in Wave III after accounting for self-esteem in Wave I. The effect size of Special Education decreased by about 20% when accounting for all variables. The effect size of Special Education decreased by 0.023 when controlling for educational and employment outcomes (Model 4). The effect size of Special Education decreased by 0.031 when controlling for depressive symptoms in Wave I (Table 5, Appendix B), but maintained statistical significance. Thus, these variables did not completely explain the effect of Special Education on symptoms of depression in young adulthood.

Table 6 (Appendix B) shows that having a learning disability significantly predicted symptoms of depression in Wave III ($b = .107, p < .001$). After controlling for sociodemographic characteristics and parental background (Model 3, Table 6) having a learning disability remained a significant predictor of depressive symptoms in Wave III ($b = .145, p < .001$). Additionally, after controlling for educational and employment outcomes, depressive symptoms in Wave I, and self-esteem in Wave I having a learning disability was still a significant predictor of depressive symptoms in Wave III ($b = .098, p < .01$). The effect size of whether or not a student had a learning disability decreased by about 9% after accounting for all variables. The effect size of learning disability decreased by 0.027 after controlling for educational and employment outcomes. The effect size decreased by 0.017 after controlling for depressive symptoms in Wave I and the effect size of whether or not a student had a learning disability decreased by 0.003 after controlling for self-esteem in Wave I (Table 6, Appendix B). Overall, these variables did not entirely explain the effect of having a learning disability on symptoms of depression in young adulthood.

Discussion

It was my goal to examine whether being placed in Special Education and having a learning disability predicted depressive symptoms years later among young adults in the United States. I examined likely sources of depression for Special Education students which could explain the relationship between Special Education and depressive symptoms. My hypotheses were supported by the findings of my study. Enrollment in Special Education remained a significant predictor of depressive symptoms in young adulthood after controlling for sociodemographic characteristics, parental background, educational and employment outcomes, and prior symptoms of depression and self-esteem. Having a learning disability also predicted depressive symp-

toms in young adulthood, adjusting for all control variables. This is the first study that used national longitudinal data to demonstrate the link between enrollment in Special Education in childhood and depressive symptoms among young adults in the United States.

Having a learning disability was analyzed separately from enrollment in Special Education because these two variables had a high level of collinearity and because I wanted to examine differences in depressive symptoms among students who had been placed in Special Education and students who had a learning disability. My findings show that the effect size of Special Education on depressive symptoms in Wave I decreased by 25% after accounting for all variables, while the effect size of whether or not the student has a learning disability on depressive symptoms in Wave I decreased by about 40% after accounting for all variables. Educational variables (such as educational expectations and school satisfaction) and self-esteem may partially explain the relationship between having a learning disability and depressive symptoms more so than the relationship between being enrolled in Special Education and depressive symptoms in earlier years (ages 12-20). For respondents between the ages of 18-26 (during Wave III of my study), other variables explained more of the effect of Special Education on depressive symptoms in Wave III than the effect of whether or not a student had a learning disability. The effect size of Special Education on depressive symptoms in Wave III decreased by 20% when accounting for all variables, while the effect size of whether or not a student had a learning disability on depressive symptoms in Wave III decreased only by about 9% after accounting for all variables. Overall, the statistically significant effects of Special Education and having a learning disability on symptoms of depression in young adulthood were over and above the other risk factors examined.

What could explain this lasting effect of Special Education and having a learning disability on mental health in young adulthood? One explanation is the stigma of Special Education or having a learning disability. Students who have a learning disability and who are *not* enrolled in Special Education may process stigma differently than students who are enrolled in Special Education. Students who are not directly labeled as disabled or ‘Special Ed’ by others may still view themselves as ‘others’ and internalize stigma (such as through the process of self-labeling). My findings demonstrate that both having a learning disability and receiving Special Education services predict subsequent depressive symptoms, which suggests that the direct labeling of students could be to blame for the negative mental health outcomes of students with learning disabilities or self-labeling and the internalization of the stigmatized status. Furthermore, students in Special Education and who have learning disabilities may feel supported by teachers and may not ever experience name-calling or bullying by peers. However, the process of self-labeling could still occur and contribute to mental distress. Accordingly, my findings could be explained by labeling theory and modified labeling theory (Link et al. 1989) because having a learning disability and placement in Special education could be internalized, stigmatizing, diminish self-esteem, and lead to more symptoms of depression in young adulthood. The process of stigma isolates students with disabilities from the ‘normal’ student population, and attaches labels (either directly or indirectly) such as ‘slow’, ‘stupid’, or ‘deviant’ to students with learning disabilities and students receiving Special Education services. Students spend most of their day at school and the school experience could have long-lasting and dramatic effects on the mental health of students. Students may experience stigma at school in many ways, such as labeling by teachers, bullying from other students, and social isolation. Additionally, the educational and employment outcomes of students with disabilities could be associated with depressive symp-

toms in young adulthood, which is why I chose to include educational and employment outcomes in my study, as well as previous depressive symptoms and low self-esteem as risk factors for depression in young adulthood.

My findings demonstrate that students who received Special Education were more likely to come from lower socioeconomic backgrounds (lower annual parental income and lower parental educational attainment), and support the Marxist argument which states that educational institutions sort people of lower socioeconomic classes into Special Education (Trent and Artiles 1994). In my study, there was also a disproportionately higher number of male students in Special Education, as prior research has shown. However, in my study there were no disproportionalities among students of racial/ethnic minority backgrounds. This could be because racial/ethnic issues in Special Education might be a concentrated problem, affecting some specific schools and locations much more than others or because of survey data limitations. Also, students in the sample may have been more likely to have ‘nonjudgmental’ disabilities rather than ‘judgmental’ disabilities which would support the findings of O’Conner and Fernandez (2006), which demonstrate that racial/ethnic disproportionality occurs only in judgmental disability categories.

Students who were enrolled in Special Education were more likely to be expelled and were less likely to enroll in college and/or job training programs in my study. Students who were enrolled in Special Education were also less likely to graduate high school and less likely to be employed. Expulsion (and dropping out of high school) can be both a cause as well as a consequence of mental distress (Ford et al. 2014). Students who were enrolled in college and/or job training were more likely to experience symptoms of depression in my study. This could be because students face additional pressure and expectations while attending school and/or job training. Employment was not a significant predictor of depressive symptoms in my study. This could

be because students are less concerned with having a job at this stage in their lives; respondents between ages 18 and 26 years of age may not depend upon employment as a source of identity and may not yet have reached the age of financial independence.

Students who were enrolled in Special Education had lower educational expectations, but also had higher levels of school satisfaction in my study. Students who were enrolled in Special Education may have benefitted from individualized attention and may have been satisfied with their schools, yet they still may have experienced stigmatization and mental distress. Additionally, the questions asked in the questionnaire were general and may not have captured the discontent which students may have felt in the school environment (or internally, due to labeling/stigmatization). Students who were placed in Special Education were more likely to have lower levels of self-esteem; which is consistent with prior research (Conley et al. 1997). Furthermore, my study, which is derived from a nationally representative sample, includes 4,179 students, which is a significantly larger number of students than Conley's study of 48 students. My study also supports the literature which states that individuals who experience low self-esteem are particularly vulnerable to developing symptoms of depression (Orth et al. 2016). Students who were enrolled in Special Education were also more likely to report depressive symptoms in Wave I and Wave III, which indicates that students in Special Education are at an increased risk of experiencing mental distress, both in school (intermediate and high school) and in young adulthood.

However, limitations of my research include not directly measuring stigma and not having enough information about the type of disability and the type of Special Education program in which the students were enrolled. Qualitative research which focuses on the school environment, measures stigma, and mental distress would be very helpful in exploring the subjective experi-

ence of students receiving Special Education services. Information about the type of disability (physical, emotional, cognitive, etc.) and the type of Special Education program (inclusive, self-contained classroom, Response to Intervention (RTI), etc.) would provide critical insight into the mental health outcomes of students. Future research should focus on specific types of disabilities and Special Education programs in relation to depressive symptoms in both childhood and young adulthood. Future research should also address self-efficacy among Special Education students, which may also provide insight for mental health outcomes. Further research should also include qualitative methods of research and should aim to disentangle the mental health outcomes of students with learning disabilities and the mental health outcomes of students placed in Special Education. Doing so could provide critical information in terms of stigma and the impact of Special Education programs on the mental health of students.

Although students receiving Special Education services may be more likely to experience depressive symptoms due possibly to stigma, students with disabilities may also suffer emotionally for a number of different reasons. They may lack the ability to socially function in a normal way, they may experience frustration with academic activities, or they could experience stress at home. Thus, these stressors should be included in longitudinal studies on Special Education, learning disabilities and mental health.

An advantage of my study is the use of longitudinal data, which provided temporal or causal ordering of the variables for my study. However, the Special Education question in the questionnaire only captured students who had received Special Education services within the last 12 months in Wave I at ages 12 – 20 years. Students who had previously received Special Education, but were no longer could have been excluded from the number of students receiving Special Education services in my study. Additionally, the Special Education and the learning disability

questions were answered by parents. Some parents may have not answered truthfully in the questionnaire.

Also, data collection in Wave I took place in 1994-1995, before significant changes to the education system took place. No child left behind, which came into effect in 2002 and the Response to Intervention method for Special Education, which was passed in 2004, are two of the most crucial changes in the education system since 1994. The Response to Intervention (RTI) method of teaching aims to reach all children with learning interventions by breaking up classrooms of students into small groups. All students report to their small groups, therefore children who need Special Education services receive them in their small group without being stigmatized by being in a separate classroom or by having to leave the regular classroom for a portion of the school day. RTI is one example of the change in teaching methods since the 1990s. A key element of Special Education is individualization. In recent years, education has become more results-oriented and individualized for all students (as seen in programs such as RTI). The No Child Left Behind Act requires schools to test students in order to ensure students are meeting academic performance standards. The No Child Left Behind Act has been described as a tool to keep schools accountable for the progress of students, specifically students who belong to minority racial/ethnic groups and students with disabilities. Policy changes within the education system have no doubt impacted the way in which students with disabilities experience stigma. There is currently very little research conducted on the mental health of students receiving Special Education services. Research needs to be conducted to determine the mental health of students receiving Special Education services in light of these (and other recent) policy changes.

Conclusion

My findings suggest that students who are placed in Special Education or have a learning disability in the United States are more likely to experience symptoms of depression later in young adulthood. Being placed in Special Education has a unique effect on students, which could be stressful and stigmatizing. Aside from many other factors examined which could explain the prevalence of depressive symptoms among students placed in Special Education, such as demographic characteristics, family backgrounds, educational expectations, school satisfaction, educational and employment outcomes, and psychological factors, Special Education remained a predictor of depressive symptoms in young adulthood. This strengthens the argument that it could be the labeling of students as ‘Sped students’ and stigma experienced, which contribute to later depressive symptoms, over and above demographic characteristics, family background characteristics, educational or employment outcomes, and prior mental health factors.

Implications for this research study could be in the research and development of Special Education programs, the implementation of additional supports for students who are enrolled in Special Education, and support programs which aim to provide students who are enrolled in Special Education with the information, encouragement, and guidance needed to stay in school. Special Education programs/curriculums/supports should be developed to address the educational expectations which students have for themselves. Skills such as goal-setting and attainment should be incorporated into the Special Education curriculum. Special Education programs should also have assessments and professionals in place to determine the onset of depressive symptoms in students who are enrolled in Special Education.

Mental health protection interventions, for example, training school staff (in addition to Special Education teachers/staff) on how to identify mental distress and how to effectively com-

municate with students who are exhibiting depressive symptoms. Another type of mental health protection intervention could be to organize social events for students to interact with one another and build confidence and social support. Student service and leadership programs could be one way to accomplish this. Students who have ‘invisible’ disabilities also need to be supported and therefore, schools should aim to implement mental health protection interventions targeting all students (not only those in Special Education or with physical disabilities).

There also, and I believe most critically, must be supports in place for students who are enrolled in Special Education to assist them in transitioning out of high school and into adulthood. More research and development needs to be conducted in order to advance Special Education programs/curriculums and supports for students who are enrolled in Special Education. The improvement of these programs is vital to the mental health of the students who are a part of them.

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Appendix A

Table 1. Descriptive Statistics of All Respondents

| Variable | Frequency | Percent/Mean |
|--|-----------|--------------|
| Total Number of Respondents | 4,179 | 100 |
| Placed in Special Education | | |
| Yes | 366 | 8.76 |
| No | 3,813 | 91.24 |
| Sex | | |
| Male | 1,939 | 46.41 |
| Female | 2,240 | 53.59 |
| Hispanic | | |
| Hispanic | 406 | 9.74 |
| Not Hispanic | 3,773 | 90.26 |
| Black/African American | | |
| Black/African American | 870 | 20.82 |
| Not Black/African American | 3,309 | 79.18 |
| Other;Asian/Pacific Islander or American Indian/Alaska Na- tive | | |
| Asian/Pacific Islander or American Indian/Alaska Native | 28 | 0.67 |
| Not Asian/Pacific Islander or American Indian/Alaska Native | 4,151 | 99.33 |
| White/Caucasian | | |
| White/Caucasian | 2,875 | 68.78 |
| Not White/Caucasian | 1,304 | 31.22 |
| Parental Income (\$) | 4,179 | 49,808 |
| Parental Education (years) | 4,179 | 13.33 |
| Ever Expelled | | |
| Yes | 307 | 7.34 |
| No | 3,872 | 92.66 |

(Table 1. Descriptive Statistics Continued)

| | | |
|---|-------|-------|
| Attained High School Diploma | | |
| Yes | 3,525 | 84.35 |
| No | 654 | 15.65 |
| <hr/> | | |
| Employed | | |
| Yes | 3,101 | 74.19 |
| No | 1,078 | 25.81 |
| <hr/> | | |
| Enrolled in College/Job Training Program | | |
| Yes | 1,587 | 37.99 |
| No | 2,592 | 62.01 |
| <hr/> | | |

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Table 2. Descriptive Statistics Between Students in Special Education and Students Not in Special Education

| Variable | Special Education | Not in Special Education |
|---|-------------------|--------------------------|
| Sex | | |
| Male | 230 | 1,710 |
| Female | 135 | 2,104 |
| Race/Ethnicity | | |
| Hispanic | 32 | 375 |
| Black/African American | 45 | 839 |
| Other/Asian | 4 | 24 |
| White/Caucasian | 254 | 2,614 |
| Parental Income | 42,984* | 50,462 |
| Parental Education | 12.69*** | 13.39 |
| Learning Disability | | |
| Yes | 261 | 214 |
| No | 105 | 3,599 |
| Ever Expelled | | |
| Yes | 58 | 248 |
| No | 308 | 3,565 |
| Attained High School Diploma | | |
| Yes | 258 | 3,267 |
| No | 108 | 546 |
| Employed | | |
| Yes | 255 | 2,845 |
| No | 111 | 968 |
| Enrolled in College/Job Training | | |
| Yes | 74 | 1,513 |
| No | 292 | 2,300 |
| Student Educational Expectations | 7.85*** | 8.81 |
| School Satisfaction | 10.36* | 9.96 |

(Table 2. Descriptive Statistics Between Students in Special Education and Students Not in Special Education Continued)

| | | |
|---------------------------------------|---------|-------|
| Depressive Symptoms (Wave I) | 2.71*** | 2.15 |
| Depressive Symptoms (Wave III) | 1.16** | 1.03 |
| Self-esteem (Wave I) | 16.26* | 16.54 |
| N= | 366 | 3,813 |

Statistical significance level of $p < 0.05^*$; $p < 0.01^{**}$; $p < 0.001^{***}$

Appendix B

Table 3. OLS Regression Models Predicting Depressive Symptoms (Wave I) Focusing on Special Education and Control Variables

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|--------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| Special Education | .156*** (.036) | .189*** (.036) | .178*** (.036) | .127*** (.036) | .119*** (.034) |
| Sex (male) | | -.152*** (.020) | -.151*** (.020) | -.162*** (.020) | -.120*** (.019) |
| Black/African American | | .106*** (.024) | .101*** (.024) | .066** (.024) | .135*** (.023) |
| Hispanic | | .104** (.035) | .077* (.036) | .077* (.035) | .069* (.033) |
| Other | | -.029*** (.007) | -.030*** (.007) | -.029*** (.007) | -.022** (.007) |
| Parental Income | | | -.000 (.000) | -.000 (.000) | -.000 (.000) |
| Parental Education | | | -.011** (.004) | -.002 (.004) | -.003 (.004) |
| Educational Expectations | | | | -.042*** (.005) | -.027*** (.005) |
| School Satisfaction | | | | .046*** (.004) | .019*** (.004) |
| Self-esteem (Wave I) | | | | | -.091*** (.004) |
| R ² = | .0043 | .0250 | .0275 | .0777 | .1665 |

(Table 3. Depressive Symptoms (Wave I), Special Education, and All Variables (Models1-5)
Continued)

N= 4,179

Statistical significance level of $p < 0.05^*$; $p < 0.01^{**}$; $p < 0.001$

Table 4. OLS Regression Models Predicting Depressive Symptoms (Wave I) Focusing on Learning Disability and Control Variables

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|----------------------------------|------------------|--------------------|--------------------|--------------------|--------------------|
| Learning Disability(Wave I) | .102** (.032) | .145*** (.032) | .138*** (.036) | .083** (.036) | .060* (.034) |
| Sex (male) | | -.154*** (.020) | -.153*** (.020) | -.163*** (.020) | -.119*** (.019) |
| Black/African American | | .108*** (.024) | .103*** (.024) | .067** (.024) | .135*** (.023) |
| Hispanic | | .106** (.035) | .078* (.036) | .077* (.035) | .068* (.033) |
| Other | | -.029*** (.007) | -.031*** (.007) | -.030*** (.007) | -.022** (.007) |
| Parental Income | | | -.000 (.000) | -.000 (.000) | -.000 (.000) |
| Parental Education | | | -.011** (.004) | -.002 (.004) | -.004 (.004) |
| Student Educational Expectations | | | | -.043*** (.005) | -.028*** (.005) |
| School Satisfaction | | | | .046*** (.004) | .019*** (.004) |
| Self-esteem (Wave I) | | | | | -.090*** (.004) |
| R ² = | .0023 | .0236 | .0263 | .0764 | .1646 |
| N= | | | | | 4,179 |

Statistical significance level of $p < 0.05^*$; $p < 0.01^{**}$; $p < 0.001^{***}$

Table 5. OLS Regression Models Predicting Depressive Symptoms (Wave III) Focusing on Special Education and Control Variables

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|----------------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Special Education(Wave I) | .122*** (.037) | .154*** (.037) | .149*** (.037) | .126*** (.037) | .096** (.036) | .097** (.036) |
| Sex (male) | | -.162*** (.021) | -.161*** (.021) | -.175*** (.021) | -.129*** (.033) | -.125*** (.020) |
| Black/African American | | .044 (.024) | .043 (.025) | .022 (.025) | .006 (.024) | .017 (.024) |
| Hispanic | | .092** (.036) | .080* (.036) | .072* (.036) | .052 (.035) | .052 (.035) |
| Other/Asian | | -.018* (.007) | -.018* (.007) | -.018* (.007) | -.010 (.007) | -.009 (.007) |
| Parental Income | | | -.000 (.000) | .000 (.000) | .000 (.000) | .000 (.000) |
| Parental Education | | | -.006 (.004) | -.003 (.005) | -.004 (.004) | -.004 (.004) |
| Student Educational Expectations | | | | -.018*** (.005) | -.008 (.005) | -.006 (.005) |
| School Satisfaction | | | | .020*** (.004) | .008* (.004) | .004 (.004) |
| Expulsion | | | | .202*** (.042) | .182*** (.041) | .181*** (.041) |
| High School Diploma | | | | .014 (.031) | .020 (.030) | .020 (.030) |
| Enrolled in College/Job Training | | | | .067** (.022) | .086*** (.021) | .086*** (.021) |

(Table 5 . OLS Regression Models Predicting Depressive Symptoms (Wave III) Focusing on Special Education and Control Variables Continued)

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|------------------------------|---------|---------|---------|-----------------|-------------------|-------------------|
| Employed | | | | -.004 (.006) | -.003 (.006) | -.003 (.006) |
| Depressive Symptoms (Wave I) | | | | | .263*** (.015) | .248*** (.016) |
| Self-esteem (Wave I) | | | | | | -.014** (.004) |
| R ² = | .0026 | .0196 | .0200 | .0367 | .0997 | .1017 |
| N= | | | | | | 4,179 |

Statistical significance level of $p < 0.05^*$; $p < 0.01^{**}$; $p < 0.001^{***}$

Table 6. OLS Regressions Predicting Depressive Symptoms (Wave III) Focusing on Learning Disability and Control Variables

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|----------------------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Learning Disability(Wave I) | .107** (.033) | .148*** (.033) | .145*** (.033) | .118*** (.037) | .101** (.036) | .098** (.032) |
| Sex (male) | | -.165*** (.021) | -.165*** (.021) | -.176*** (.021) | -.131*** (.033) | -.126*** (.020) |
| Black/African American | | .046 (.024) | .045 (.025) | .023 (.025) | .007 (.024) | .018 (.024) |
| Hispanic | | .093*** (.035) | .080* (.036) | .072* (.036) | .053 (.035) | .053 (.035) |
| Other/Asian | | -.018* (.007) | -.019* (.007) | -.018* (.007) | -.010 (.007) | -.009 (.007) |
| Parental Income | | | -.000 (.000) | .000 (.000) | .000 (.000) | .000 (.000) |
| Parental Education | | | -.006 (.004) | -.003 (.005) | -.004 (.004) | -.004 (.004) |
| Student Educational Expectations | | | | -.018** (.005) | -.007 (.005) | -.006 (.005) |
| School Satisfaction | | | | .020*** (.004) | .008* (.004) | .004 (.004) |
| Expulsion | | | | .198*** (.042) | .177*** (.041) | .177*** (.041) |
| High School Diploma | | | | .016 (.031) | .022 (.030) | .023 (.030) |
| Enrolled in College/Job Training | | | | .069** (.022) | .089*** (.021) | .088*** (.021) |
| Employed | | | | -.003 (.006) | -.003 (.006) | -.003 (.006) |

(Table 6. OLS Regressions Predicting Depressive Symptoms (Wave III)
Focusing on Learning Disability and Control Variables Continued)

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|---------------------------------|---------|---------|---------|---------|-------------------|-------------------|
| Depressive Symptoms (Wave I) | | | | | .265*** (.015) | .250*** (.016) |
| Self-esteem (Wave I) | | | | | | -.014** (.004) |
| R ² = | 0.0025 | 0.0201 | 0.0206 | 0.0370 | 0.1007 | 0.1026 |
| N= | | | | | | 4,179 |

Statistical Significance level of $p < 0.05^*$; $p < 0.01^{**}$; $p < 0.001^{***}$
