Identifying and Explaining Co-morbid Conditions among Children and Adolescents Qualifying for SSI under the Mental Health Impairment Category

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ABSTRACT

Objective: There has been extensive political and media scrutiny of the children's Supplemental Security Income (SSI) program, culminating in an ongoing Institute of Medicine study. Many individuals are specifically concerned with the large increase in the number of children and adolescents with a mental health impairment qualifying for SSI benefits in recent years. We sought to examine if the rise in the number of children who qualify for SSI under the mental health impairment category is comparable to the general population, and further if recipients of SSI have a greater burden of co-morbid conditions as compared to the general population. Our hypotheses are that the changes in mental health impairments are at least partially explained by co-morbid conditions which either in sum or individually qualify them for SSI funds. Further, the rates of co-morbidities among children receiving SSI are higher than the general population.

Methods: The data sources for the number of children qualifying under the mental health impairment category for SSI include reports provided directly by the Social Security Administration (SSA). These data reflect all children ages 1-18 receiving SSI within the indicated year. We utilized publicly available NHIS survey data to explore the trends of pertinent disabilities among children in the general population ages 1-18, and further limited the analysis to 0-199% FPL for better comparability to the SSI population. We utilized linear regression analysis to investigate significant differences among the absolute percentage changes for comparable conditions among the NHIS and SSI data. We further computed the burden of co-morbidity for Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASDs), and Intellectual Disability (ID)/Mental Retardation (MR) utilizing the same data.

Results: We found significant differences between the SSI population and general population in regards to the percentage change in ADHD, ASDs, and ID/MR from 2000-2011. The SSI population experienced significant increases in ADHD and ASDs, and a significant decrease in ID/MR. In regards to co-morbidities, the SSI population who qualified under ADHD as a primary impairment had a higher percentage of co-morbidity as compared to the general population. The SSI population had lower recorded rates of co-morbidity for ASDs and ID/MR from 2000-2011.

Discussion: Our study suggests that the changes in ADHD, ASDs, and intellectual disability among the SSI population from 2000-2011 are not adequately explained by an increased burden of co-morbidity according to available data. Other factors, such as an increase in child poverty, diagnostic shift, and lack incentive for recording secondary impairments among the SSI population may all help explain the increase.

Conclusion: The research presented here sheds some light on the claims in terms of ADHD and overall change in mental impairments, but does not characterize other comparable conditions such as ASDs and ID/MR. It is difficult to form specific policy decisions based on this study and currently available information. Further evaluation is certainly needed to make more informed decisions regarding determination of disability for children with mental health impairments.

BACKGROUND

The Supplemental Security Income (SSI) program, established under Title XVI of the Social Security Act, provides benefits to financially needy individuals who are aged, blind, or disabled.[1] Although the program originally covered only adults, congressional action in the early 1970s included children with disabilities in SSI to provide benefits to address the extra expenses of financially needy families who care for children with a variety of special healthcare needs.[2] In 2011, approximately 1.27 million children and adolescents received SSI benefits. Children who received SSI benefits in 2011 with mental health impairments as their primary diagnosis accounted for 67.5% of the population, with Attention Deficit Hyperactivity Disorders (ADHD) (25.5%), speech and language delays (22.2%), and intellectual disability (ID) (15.4%) being the largest reported diagnostic categories within the mental health impairment listing.[3] The average monthly cash benefit for this population in 2011 was $592 for a total SSI cash benefit expenditure of approximately $9 billion.[4]

Growth in the SSI population has been described extensively, and mainly reflects a) new rules that defined and expanded eligible children's mental health conditions in 1990, b) a Supreme Court decision (also in 1990) requiring systematic assessment of functioning and disability in childhood applicants, 3) a general rise in serious chronic health conditions among children and adolescents, and 4) an increase in child poverty.[3,5,6,7]

Specific legislation which has led to increases in the number of individuals qualifying for SSI under the mental health impairment category can be traced back as far as 1984, when Congress mandated that SSA develop new disability standards for individuals with mental disorders. The most important standard perhaps was the mandatory specialist reviews of denials.[8] These revisions which steered the approval process more towards functioning of children were implemented in 1986, and the number of awards for mental disorders began to increase under the new listings.[9]

A very important event pertaining specifically to children (and alluded to previously) was the *Zebley* court case in 1990.[10] The case resulted in new disability criteria for children claiming benefits which focused more closely on the functioning of the child rather than the diagnosed disability in itself. The number of children receiving awards increased dramatically after the court ruling, more than tripling between the late 1980s and mid-1990s.[9] A significant portion of this included a significant increase in the number of awards given to children with conditions such as ADHD and other mental health conditions which classically were not offered awards even under the revised listings. The focus after the Zebley court decision clearly focused more on maladaptive behavior, rather than the specific diagnosis of the child.[6]

Efforts have been made to control the increases in children receiving SSI with mental health impairments, including welfare reform legislation in 1996. The new legislation eliminated the individualized functional assessment and specific references to maladaptive behaviors which had been in place since the Zebley decision. The change

was originally expected to reduce awards, but the increases continued even after the new legislation.[11]

More recent contributing factors to the increase in children receiving awards under the mental health impairments category could also include the limited number of Continuing Disability Reviews (CDRs) by SSA in recent years.[12] SSA has recently experienced reduced funding for performing CDRs, and therefore 2004–2008 saw a 65% decrease in CDRs, which could lead to more children overall remaining on the rolls inappropriately after their impairment has resolved/improved.[13] Other more recent contributing factors have been suggested including increases in both poverty among children,[14] and co-morbidities among the general children's population with mental health impairments.[15,16] For example, Larson et al found that approximately 66% of children with ADHD had at least one co-morbid condition according to the National Survey of Children's Health (NSCH). [15]

Given the current economic climate, there has been extensive political and media scrutiny of federal benefit programs, including the children's SSI program. Lawmakers (among others) are specifically concerned with the large increase in the number of children and adolescents with a mental health impairment qualifying for SSI benefits. A GAO study evaluating the claims that a general increase in serious chronic health conditions and a rise in poverty among children can be used to explain the increase in the number of children qualifying for SSI due to a mental health impairment concluded "the relative effects of these and other factors on program growth are not fully known at this time."[17] It is also important to note that the GAO report identified 37 out of 50 individuals who qualified under the ADHD mental impairment category had a secondary diagnosis that may have also qualified them for SSI funds. The report did not report co-morbid conditions for other mental health impairment categories, most notably autism and intellectual disability.

Although commonly referenced, little research has evaluated the claim that children qualifying for SSI (specifically for mental health conditions) have multiple co-morbidities which either in sum or individually qualify them to receive SSI funds. There is also a lack of comparison between the general and SSI populations on how changing diagnostic patterns and potential co-morbidities have all contributed to the increase in children receiving SSI under the mental health impairment category. A stronger body of research exists linking the increase in poverty among children[18], and co-morbidities among the general children's population with mental health impairments.[14,15,19]

We sought to examine if the rise in the number of children who qualify for SSI under the mental health impairment category is comparable to the general population, and further if recipients of SSI have a greater burden of co-morbid conditions as compared to the general population. Our hypotheses are that the increase in mental health impairments, notably ADHD, ASDs, and Intellectual Disability, among children receiving SSI is greater than the general population, and this is at least partially explained by multiple co-morbidities which either in sum or individually qualifies them for SSI funds. Further, the

rates of co-morbidities among children receiving SSI are significantly higher than the general population.

RESEARCH DESIGN, METHODS, AND DATA ANALYSIS

We utilized SSA and National Health Interview Survey (NHIS) data to explore the trends of co-morbid conditions among children in the SSI population and general population, respectively. Described below are the data tools and surveys used to characterize these populations.

SSI

The data sources for the number of children qualifying under the mental health impairment category include reports provided directly by the Social Security Administration (SSA). These data reflect all children ages 1-18 receiving SSI within the indicated year. **Table 1** provides the percentages of children receiving SSI for mental health impairment(s) as compared to the total number of SSI recipients for the given year. Note ADHD, ASDs, ID/MR, Speech and Language Delays, and Mood Disorders are the most common conditions in which SSI recipients qualify. **Table 3** provides a comparison of the percentage increases for comparable conditions, including ADHD, ASDs, and ID/MR, to corresponding NHIS data. **Table 4** indicates percentages of co-morbid conditions for those children qualifying for SSI with a primary impairment of ADHD, ASDs, and ID/MR from 2000-2011. **Table 6** offers co-morbidity data for two common conditions for which children qualified for SSI funds in 2011. Speech and Language Delays and Mood Disorders had no corresponding categorization for comparison to NHIS data. The secondary conditions reported for children receiving SSI with a primary impairment of ADHD, ASD, or ID include Organic Mental Disorders, Schizophrenic, Paranoid, and Other Functional Psychotic Disorders, Affective (Mood) Disorders, Autistic Disorders and Other Pervasive Development Disorders, Anxiety Related Disorders, Personality Disorders, Conduct Disorder, Oppositional/Defiant Disorder, Attention Deficit Hyperactivity Disorder, Developmental and Emotional Disorder of Newborn and Younger Infants, Learning Disorder, Speech and Language Delays, Intellectual Disability/Mental Retardation, Borderline Intellectual Functioning, Nervous system and sense organs, Respiratory system, Somatoform disorders, Eating and tic disorders, Personality disorders, Conduct disorder, Other mental disorders, Endocrine, nutritional, and metabolic disorders, Diseases of the blood and blood-forming organs, Infectious and parasitic diseases, Substance addiction disorders, Circulatory system, Digestive system, Genitourinary system, Skin and subcutaneous tissue, Musculoskeletal system and connective tissue, Congenital anomalies, Injuries, and Other.

NHIS

The National Health Interview Survey (NHIS) is a large-scale household interview survey that provides national estimates of demographic characteristics, health status and health care use, and access for the civilian non-institutionalized US population.[20] The sampling plan is a multistage probability design, redesigned after every decennial census.

Data are collected by household interview with parents typically serving as respondents for children.[19]

In this study, we used the NHIS "sample child" data to search for children ages 1-18 who have ever been told they had ADHD, ASD, or ID/MR from 2000-2011.[21] The NHIS data included in this study does specify income measures of respondents, and we included those within the income limits of 0-99%, and 100-199% of the Federal Poverty Level (FPL). **Table 2** indicates the percentages of children in NHIS from 2000-2011 who indicated ADHD, ASDs, and ID/MR as an "ever been told" diagnosis. We utilized linear regression analysis to compare the percentage change between SSI and NHIS for selected conditions in **Table 3. Table 5** describes the co-morbid conditions among those children 1-18 with ADHD, ASDs, and ID/MR who are 0-199% FPL. Co-morbid conditions for this study included all available secondary diagnosis, including ADHD, ASDs, ID/MR, developmental delay, down syndrome, cerebral palsy, muscular dystrophy, cystic fibrosis, sickle cell anemia, diabetes, heart disease, other heart condition, arthritis, asthma, seizures, blind/unable to see at all, learning disability, special equipment due to impairment/health problem, and Mental Health Indicator (MHI) score 00-08.

RESULTS

ADHD, ASDs, ID/MR, Speech and Language Delays, and Mood Disorders as the most common conditions for which SSI recipients qualify (**Table 1)**. There have been large increases in both the percentages of ADHD (+8.4%) , ASDs (+5.0%), and Speech and Language Delays (+11.5%), with a large decrease in ID/MR (-22.2%). It is also important to note that the absolute number of children with ADHD doubled from 2000-2011, while ASDs increased three-fold, Speech and Language Delays increased four-fold, and ID/MR decreased by two-thirds in the same time period. There have been moderate to mild increases in mood disorders (0.5%) and overall percentage of mental health impairments (+3.5%) among the SSI population from 2000-2011. **Figure 1** is a representation of the percentage of children on SSI with ADHD, ASDs, and ID/MR as a Primary Condition from 2000-2011.

The NHIS data in **Table 2** indicate large increases in the survey respondents who responded "Yes" to ever having ADHD (+2.1) and ASDs (+0.7%) from 2000-2011. There was a small increase in ID/MR (0.3%), however 2011 appears to be an outlier. **Figure 2** represents the percentage of children "Who Have Ever Had" ADHD, ASDs, and ID/MR who responded to the NHIS from 2000-2011.

There are statistically significant differences in ADHD, ASDs, and intellectual disability/mental retardation, in that ADHD and ASDs have increased significantly among the SSI population and decreased significantly in intellectual disability/mental retardation ($p<.0001$). **Table 3** demonstrates the overall percent changes in ADHD, ASDs, and intellectual disability/mental retardation in the SSI population and general population from 2000-2011.

The average number of children with a co-morbidity from 2000-2011 is 70.8% for ADHD with a 1.6% increase and range of 67.8%-73.5%, 43.5% for ASDs with a 12.9% increase and range of 36.8%-51.1%, 56.0% for ID/MRs with a 11.4% increase and range of 52.6%-64.0% (**Table 4**). The average number from 2000-2011 of children with a co-morbidity in the general population from the NHIS is 66.1% for ADHD with a 6.3% decrease and range of 58.4%-73.1%, 92.1% for ASDs with a 16.2% increase and range of 77.8%-100%, 97.0% for ID/MRs with a 0.5% decrease and range of 91.7%-100% (**Table 5**). **Figure 3** combines the data from Table 4 and Table 5 and offers a pictorial representation of the percentage of children with ADHD, ASDs, and ID/MR with at least one co-morbid condition identified through NHIS and SSI data from 2000-2011.

Table 6 displays the co-morbid conditions for those SSI recipients with a mood disorder and speech and language disorder as a primary impairment. The data indicates 92% of those with a mood disorder have a co-morbid condition, with ADHD (27.7%), Anxiety Disorders (13.1%), and ODD (11.7%) as the most common co-morbidities. For speech and language disorders, 44.2% have a co-morbid condition, with ADHD (7.6%), ASDs (7.0%), and Learning Disorder (6.0%) being the most common. There were no accurate comparisons to national survey data for these conditions.

DISCUSSION

This research further explores and builds upon the limited literature currently in circulation.[22] To our knowledge, there is no literature which compares general trends in mental health diagnoses in the US population to mental health disability in the SSI population. Further, there is no literature to our knowledge that explores co-morbidities among the SSI population. There are several studies which characterize co-morbid conditions in the general population however, which provide important insights into our findings.

In regards to primary impairments, there are significant differences in ADHD and ASDs among the SSI population, and a significant percentage decrease in ID/MR from 2000-2011. It is important to note however that although the ASD percentage increase among SSI recipients is significant as compared to NHIS, the population identified through the NHIS experienced a 5 fold increase from 2000-2011 while the SSI population only increased 2.5 fold. The overall mental health impairment category for children receiving SSI has only increased 3.5% from 2000-2011, which suggests that although there are large increases in ADHD and ASDs, other mental health impairments such as ID/MR are decreasing as well (as shown in this study). Reflecting on these findings, it is apparent that the significant decrease in ID/MR in the SSI population is related to the large increases in ADHD and ASDs. Although it is difficult to draw conclusions based on the available data, it can be reasonably postulated that our understanding of these conditions has changed since 2000, and perhaps the changes in these mental health impairment categories are reflective of refining diagnosis by clinicians providing the reports to SSA.

As stated previously, there are several studies which characterize co-morbid conditions in the general population. Larson et al found that approximately two-thirds of children with ADHD had at least one co-morbid condition according to the National Survey of Children's Health (NSCH). [15] Our research utilizing the NHIS confirms these findings in the general population, as we found an average percentage of co-morbidity from 2000-2011 to be 66.1% for children with ADHD. We also found a slight decrease over time (-6.3%) in percentage of children with ADHD in the general population with a co-morbid condition. In the SSI population, we found a slightly higher average rate of co-morbidity (70.8%) and a small increase over time (1.6%) in the children who qualify for SSI with a primary impairment listed as ADHD. These findings are consistent with our hypothesis, but we expected however the burden of co-morbidity to be much higher among children receiving SSI with ADHD as a primary impairment.

Joshi and colleagues found that approximately 98% of children referred to a child psychiatrist with an ASD have at least one other co-morbidity.[23] Although this research represents a referral population, we found a similar burden of co-morbidity in the small sample of children with ASDs who participated in the NHIS (92.1%). We found a much lower average rate of co-morbidity from 2000-2011 among children with ASDs who are SSI recipients (41.8%).

With regards to Intellectual Disability, Dekker and Koot found that among children with borderline and moderate intellectual disability 37% had a co-morbid disorder. This is much lower than the burden of co-morbidity we discovered amongst both the general population and SSI population, but this study only included moderate and borderline intellectual disability.[24] Studies of severe intellectual disability (a population much more comparable to the SSI population) have found high rates of co-morbidity, but their findings focus more on the lack of diagnostic precision between autism and intellectual disability and how this distinction often explains high rates of co-morbidity.[25]

The co-morbidity data presented in this study sheds light on many speculated and debated points regarding children who receive SSI for a mental health impairment. It is clear that children who qualify for SSI under ADHD as a primary impairment have more co-morbidity than the general population. The co-morbidity rates of those children in the general population with autism and ID/MR are much higher than the SSI population, but it is difficult to draw conclusions based on this data due to very small sample size in the NHIS dataset.

We found no accurate comparisons in the general population for children qualifying for SSI under speech and language disorders. It is our belief that speech and language disorders may be a preliminary diagnosis for other conditions such as ASDs, intellectual disability, for example. as the SSI population encompasses ages as young as 1 year old. Our current study was unable to evaluate this theory.

Potential Barriers/Limitations

There are many potential limitations and/or barriers to this study. For example, we assumed that the primary and secondary diagnoses are accurately recorded for the SSI

population. The incentive for SSI reviewers to record multiple conditions if a child is deemed eligible according to their primary condition is not well understood by those outside the SSA determination process. This could perhaps explain the smaller number of co-morbid conditions as compared to the general population. More insight into the disability determination process, specifically the determination of primary and secondary impairments, would be needed to establish more confidence in the co-morbidity data provided by SSA. Another potential limitation is that we are unable to track the co-morbidities of specific de-identified children over time. Our SSI data is only based on their initial applications, which might not accurately reflect their changing disability as they continue to receive SSI funds through their childhood and adolescence. Further, disability has been shown to change over time.[5] Therefore our study will only be a snapshot of each individual child as opposed to a more comprehensive disability picture.

Another limitation is that SSI recipients have a higher standard for determining disability (includes a functional assessment and medical determination), as compared to parent reported surveys. The NHIS data includes healthy children, while SSI only characterizes the selected conditions as a component of other children with severe disability. This also poses a problem comparing co-morbidity, as even children in the general population who have co-morbid conditions still may not qualify for SSI.

Lastly, it is difficult to estimate the burden of poverty among these populations, as FPL does not accurately parallel the SSI income determination. We know poverty has increased among children over time[3] and that children with special health care needs often pose complex financial burden on their families,[26] which may have also contributed to the rise in children with mental health impairments receiving SSI from 2000-2011. This is difficult for us to evaluate with our current study.

Implications

The debate over whether or not the increase in mental health impairments among children receiving SSI can be explained by co-morbidities is a current and contested issue. As the GAO report claimed, there is limited evidence evaluating the claim by both advocates and critics of the children's SSI program.[17] The research presented here sheds some light on the claims in terms of ADHD and overall change in mental impairments, but does not characterize other conditions including ASDs and ID/MR as well as ADHD. We found that there were no accurate comparisons for children qualifying for SSI under speech and language disorders to the general population, which encompass a large number of children receiving SSI.

It is difficult to form specific policy decisions based on this study and currently available information. Further study, such as the ongoing Institute of Medicine study, would need to evaluate the data presented here as well as their own data, and in turn recommend programmatic changes in the determination of disability for children with mental health impairments. Our goal is that through this study more informed and equitable decisions regarding the children's SSI program can be made.

Table 1. Supplemental Security Income Recipients, Percentage of Total Number of SSI Recipients by Mental Health Impairment (MHI), 2000-2011

Mental Health Impairment Category	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Attention deficit hyperactivity disorders	8.8%	9.7%	11.5%	12.7%	14.0%	15.0%	15.7%	16.1%	16.5%	16.6%	17.1%	17.2%
Speech and language delays	3.5%	4.4%	5.8%	6.8%	7.9%	9.0%	10.0%	10.9%	11.8%	12.8%	14.0%	15.0%
Intellectual disability	32.6%	30.2%	26.2%	23.9%	21.8%	19.8%	17.9%	15.9%	14.1%	12.7%	11.4%	10.4%
Autistic disorders	3.4%	3.8%	3.8%	4.0%	4.4%	4.8%	5.3%	5.8%	6.3%	7.0%	7.6%	8.4%
Mood disorders	2.9%	3.2%	2.8%	3.0%	3.2%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
Learning disorder	2.3%	2.5%	2.9%	3.2%	3.4%	3.6%	3.6%	3.5%	3.4%	3.3%	3.2%	3.2%
Organic mental disorders	3.2%	3.2%	2.7%	2.6%	2.5%	2.4%	2.4%	2.3%	2.3%	2.2%	2.2%	2.2%
Developmental disorders	1.1%	1.1%	1.5%	1.9%	1.7%	1.8%	1.9%	2.0%	2.1%	2.2%	2.2%	2.2%
Oppositional/defiant disorder	0.8%	0.9%	1.1%	1.2%	1.3%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.7%
Borderline intellectual functioning	2.4%	2.5%	2.2%	2.2%	2.2%	2.2%	2.1%	2.0%	1.9%	1.8%	1.7%	1.6%
Conduct disorder	0.6%	0.7%	0.8%	0.8%	0.8%	0.9%	0.9%	0.9%	0.9%	0.8%	0.9%	0.9%
Anxiety disorders	0.8%	0.7%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Schizophrenic and other psychotic disorders	0.7%	0.7%	0.5%	0.5%	0.4%	0.5%	0.4%	0.4%	0.4%	0.4%	0.3%	0.3%
Personality disorders	0.8%	0.8%	0.7%	0.6%	0.6%	0.6%	0.5%	0.5%	0.4%	0.4%	0.4%	0.3%
Somatoform disorders	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Eating and tic disorders	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other mental disorders	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Percentage MHI	**64.1%**	**64.5%**	**63.2%**	**64.2%**	**65.2%**	**66.2%**	**66.5%**	**66.0%**	**65.8%**	**65.9%**	**66.7%**	**67.6%**
Total SSI Recipients	**846784**	**881836**	**914821**	**959379**	**993127**	**1036498**	**1078977**	**1121017**	**1153844**	**1199788**	**1239269**	**1277122**

Table 2. National Health Interview Survey, 2000-2011, "Sample Child" Conditions, ever been told they had the specified condition [27]

Disability Condition	% FPL	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
ADD/ADHD	0-99%	5.7%	6.6%	8.2%	6.3%	7.6%	7.3%	8.5%	7.7%	8.2%	9.2%	9.4%	9.3%
	100-199%	6.5%	5.5%	6.2%	5.9%	6.6%	7.1%	7.3%	6.9%	7.1%	8.8%	7.3%	7.1%
Autism	0-99%	0.2%	0.3%	0.5%	0.3%	0.6%	0.4%	0.4%	0.6%	0.6%	0.9%	1.0%	1.0%
	100-199%	0.3%	0.3%	0.2%	0.3%	0.4%	0.5%	0.6%	0.6%	0.7%	0.9%	0.8%	0.9%
Mental retardation	0-99%	1.5%	1.2%	0.7%	1.4%	1.3%	1.1%	0.4%	0.7%	0.8%	0.8%	0.8%	1.4%
	100-199%	0.9%	0.8%	0.7%	0.6%	0.7%	0.6%	1.1%	0.9%	1.0%	1.3%	0.8%	1.4%

Table 3. Change in percentage points per year for indicated Primary Condition among SSI Recipients and NHIS Survey Respondents (0-199% FPL) ages 1-18, 2000-2011**.**

Survey	Years	ADHD	ASDs	ID/MR
SSI	2000-2011	0.77	0.45	--2.02
NHIS	2000-2011	0.23	0.07	0.01
NHIS-SSI diff in slopes	2000-2011	**-0.54****	**-0.38****	**2.03****

** Indicates significant difference with $p < .0001$ in comparison to SSI percent change.

Table 4. Co-morbid Conditions among Supplemental Security Income (SSI) Recipients with ADHD, ASDs, & ID/MR as a Primary Condition Listing ages 1-18 from 2000-2011.

ADHD	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average
ADHD only	4481	6024	7012	8824	9690	9345	9266	8610	9100	8977	10093	9037	8372
ADHD + co-morbidity*	11494	15270	17752	20799	21670	20746	19534	19836	21041	23928	26083	25002	20263
Total	15975	21294	24764	29623	31360	30091	28800	28446	30141	32905	36176	34039	28635
% co-morbidity	71.9%	71.7%	71.7%	70.2%	69.1%	68.9%	67.8%	69.7%	69.8%	72.7%	72.1%	73.5%	70.8%
ASDs	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average
ASD only	2882	3743	4288	4809	5407	5853	6680	7242	8524	9489	10083	10272	6606
ASD + co-morbidity*	1778	2182	2782	3215	3633	3945	4148	5161	6448	7860	9212	10734	5091.5
Total	4660	5925	7070	8024	9040	9798	10828	12403	14972	17349	19295	21006	11698
% co-morbidity	38.2%	36.8%	39.3%	40.1%	40.2%	40.3%	38.3%	41.6%	43.1%	45.3%	47.7%	51.1%	43.5%
ID/MR	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average
ID/MR only	11609	11881	12187	11790	10250	8814	7830	6481	6398	6276	5971	4859	8696
ID/MR + co-morbidity*	12857	13477	13980	13673	12608	11067	9583	8877	8990	9601	9340	8642	11058
Total	24466	25358	26167	25463	22858	19881	17413	15358	15388	15877	15311	13501	19753
% co-morbidity	52.6%	53.1%	53.4%	53.7%	55.2%	55.7%	55.0%	57.8%	58.4%	60.5%	61.0%	64.0%	56.0%

* Defined as 1 or more co-morbid conditions

Table 5. National Health Interview Survey (NHIS) Co-morbid conditions for Survey Respondents with a Primary Condition Identified as ADHD, ASDs, or ID/MR ages 1-18 from 2000-2011.

ADHD	2000	2001	2002	2003	2005	2006	2007	2008	2009	2010	2011	Average
ADHD only	79	58	66	56	99	74	71	75	118	120	163	89
ADHD + co-morbidity*	145	158	162	141	150	140	141	137	229	224	229	169
Total	224	216	228	197	249	214	212	212	347	344	392	258
% co-morbidity	64.7%	73.1%	71.1%	71.6%	60.2%	65.4%	66.5%	64.6%	66.0%	65.1%	58.4%	66.1%
ASDs	2000	2001	2002	2003	2005	2006	2007	2008	2009	2010	2011	Average
ASD only	2	1	1	1	1	0	3	1	2	1	3	1
ASD + co-morbidity*	7	11	10	10	16	17	18	20	38	40	47	21
Total	9	12	11	11	17	17	21	21	40	41	50	23
% co-morbidity	77.8%	91.7%	90.9%	90.9%	94.1%	100.0%	85.7%	95.2%	95.0%	97.6%	94.0%	92.1%
ID/MR	2000	2001	2002	2003	2005	2006	2007	2008	2009	2010	2011	Average
ID/MR only	1	1	0	2	1	2	1	0	0	2	2	1
ID/MR + co-morbidity*	47	38	27	33	30	22	26	28	48	36	74	37
Total	48	39	27	35	31	24	27	28	48	38	76	38
% co-morbidity	97.9%	97.4%	100.0%	94.3%	96.8%	91.7%	96.3%	100.0%	100.0%	94.7%	97.4%	97.0%

* Defined as 1 or more co-morbid conditions

Table 6. Co-morbid Conditions of Supplemental Security Income (SSI) Recipients who qualify with a Primary Impairment of Affective (Mood) Disorders and Speech and Language Delay, 2011.

	Mood Disorders		Speech & Language Delays	
	N	%	N	%
Total (ALL)	10,421	100.0	26,675	100.0
Secondary Diagnosis*				
No Co-Morbid Condition reported	1,880	18.0	14,875	55.8
Organic Mental Disorders	131	1.3	445	1.7
Schizophrenic, Paranoid, and Other Functional Psychotic Disorders	152	1.5	a	a
Affective (Mood) Disorders	211	2.0	179	0.7
Autistic Disorders and Other Pervasive Development Disorders	121	1.2	1,853	7.0
Anxiety Related Disorders	1,369	13.1	113	0.4
Personality Disorders	197	1.9	15	0.1
Conduct Disorder	601	5.8	201	0.8
Oppositional/Defiant Disorder	1,217	11.7	184	0.7
Attention Deficit Hyperactivity Disorder	2,883	27.7	2,022	7.6
Developmental and Emotional Disorder of Newborn and Younger Infants	a	a	626	2.4
Learning Disorder	437	4.2	1,588	6.0
Speech and Language Delays	169	1.6	295	1.1
Intellectual Disability/Mental Retardation	104	1.0	533	2.0
Borderline Intellectual Functioning	256	2.5	611	2.3
Nervous system and sense organs	111	1.1	1,235	4.6
Respiratory system	217	2.1	986	3.7

* Co-morbid conditions with less than 1% in either category have been removed

Figure 1. Percentage of Children on SSI with ADHD, ASDs, and ID/MR as a Primary Condition, SSI, 2000-2011.

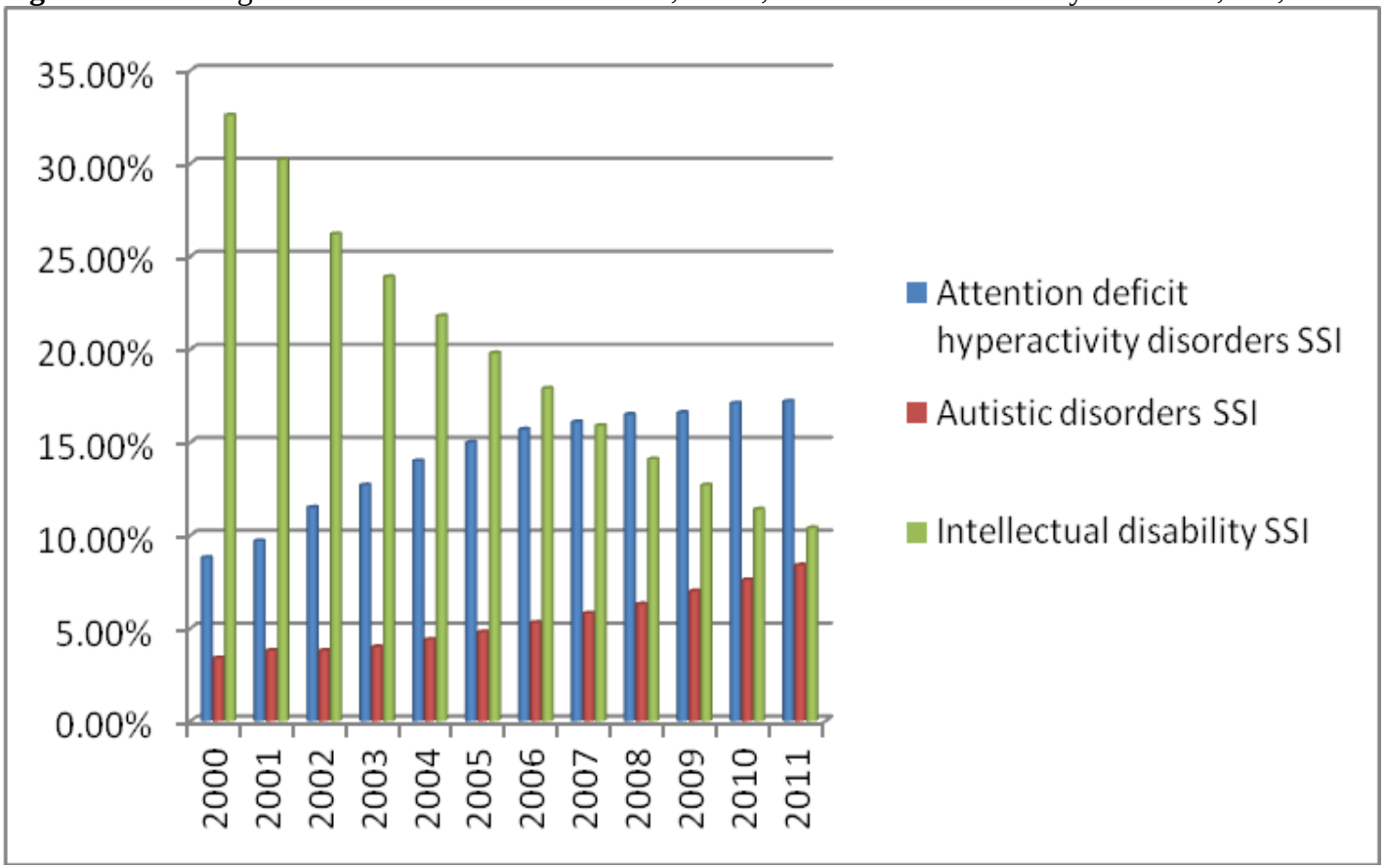


Figure 2. Percentage of Children "Who Have Ever Had" ADHD, ASDs, and ID/MR, NHIS, 2000-2011.

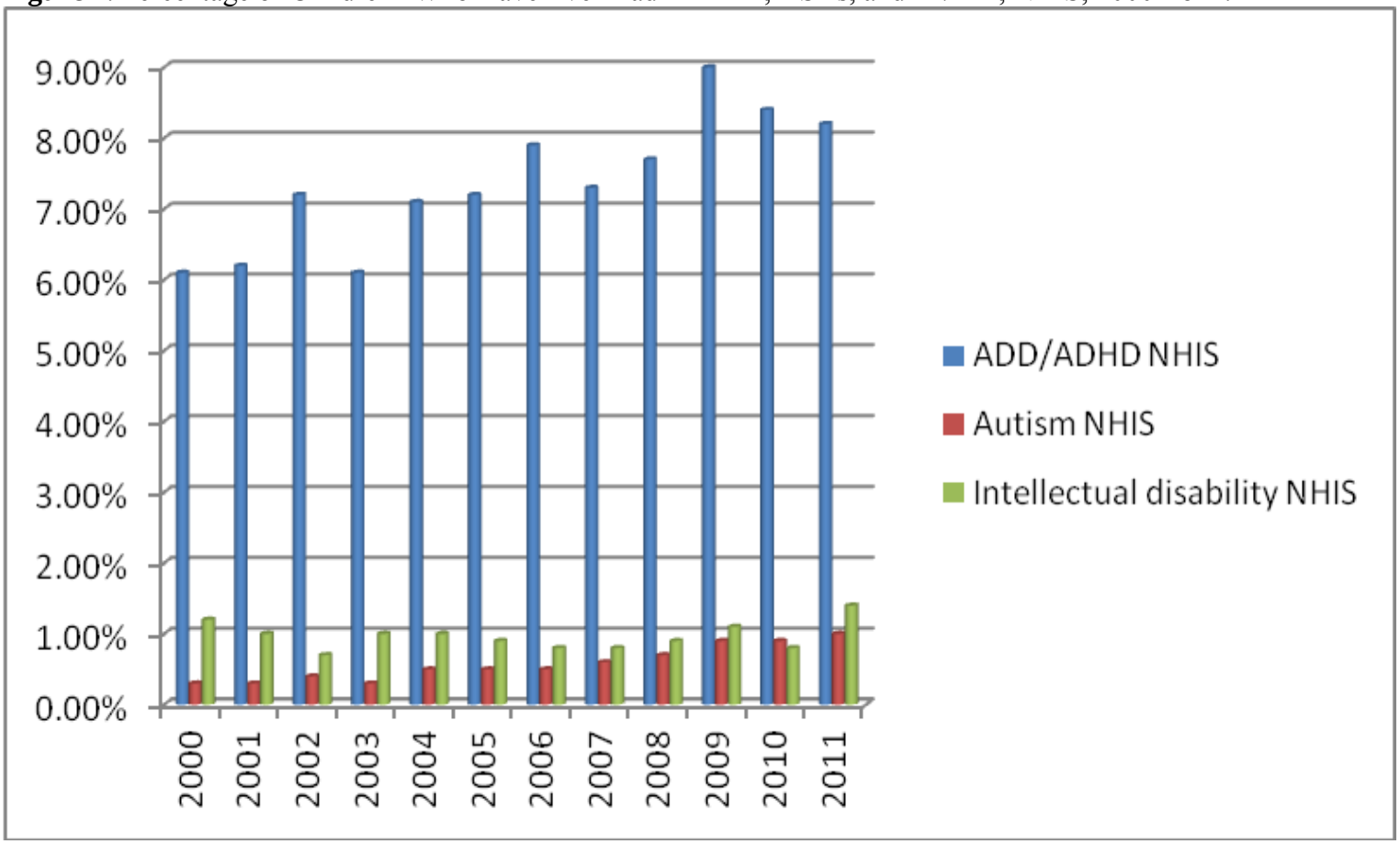
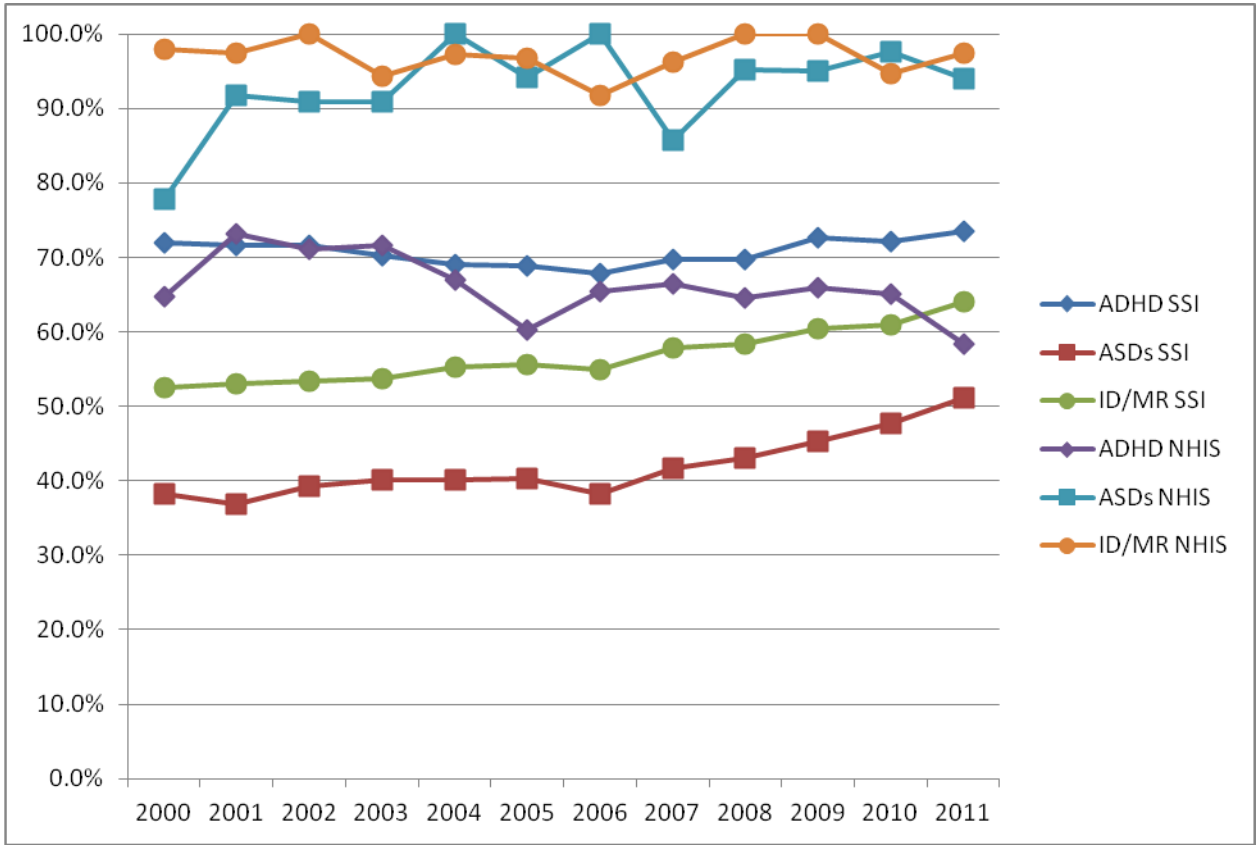


Figure 3. Percentage of Children with ADHD, ASDs, and ID/MR with Co-morbid Condition, NHIS & SSI, 2000-2011.



Appendix A

Abbreviations:
SSI - Supplemental Security Income
SSA – Social Security Administration
NHIS – National Health Interview Survey
NSCH – National Survey of Children's Health
NSCSHN – National Survey of Children with Special Healthcare Needs
CDRs – Continuing Disability Reviews
DDS – Disability Determination Service
GAO – Government Accountability Office
IDEA – Individuals with Disabilities Education Act
FPL – Federal Poverty Level
MHI – Mental Health Impairment

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