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An Examination of the Changing Rates of Autism in Special Education

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Using U.S. Department of Education data, the current study examined changes in the rates of special education eligibility classifications. This was done to determine if classification substitution might be an explanation for increases in the number of students being found eligible for special education using the Autism criteria. Results reveal that as the rates of Autism have gone up, the rates of mental retardation (MR), emotional disturbance (ED), and specific learning disability (SLD) have gone down. From these data it was concluded that it is possible that the increased numbers of students found eligible for special education using Autism criteria, is at least in part a function of IEP teams being increasingly more willing and able to use autism criteria instead of MR, ED, and SLD criteria.

Recently there has been study of the increased rate of autism spectrum disorders (ASD). For example, Fombonne (2003a) reviewed ASD prevalence studies and noted that several of the most recent studies (published since 2000) generated prevalence rates converging at approximately 60 per 10,000 (up from 10 per 10,000). Given these data, it has been suggested that the number of children identified with ASD has significantly increased. Similar trends have been reported in the number of students served within special education programs. For example, in a recent electronic survey of school psychologist Kohrt (2004) reported that 95% of respondents indicated an increase in the number of students with ASD on their caseloads.

Although students with ASD have always been found in the special education population, it was not until 1991 that the U.S. Department of Education added "Autism" as a specific special education eligibility category. Prior to 1991, students with ASD, who required special education assistance, were identified as eligible by meeting other eligibility category criteria (e.g., mental retardation, speech/language impairment). Since its inclusion as an eligibility category, the number of children classified for special education purposes as students with Autism has steadily increased. While in 1991 there were only 2,896 students in this category, by 2004 there were 165,552 school-aged students (6 to 21 years of age) falling within this *Individuals with Disabilities Education Act* (IDEA) eligibility category. The vast majority of these students (96,799) fall in the 6- to 11-year-old age group (U.S. Department of Education, 2005). The changes in the prevalence of students classified as eligible for special education in the Autism category is illustrated in Figure 1.

The purpose of the current study is to investigate the changing rates of Autism special education eligibility in comparison to other eligibility categories. It is hypothesized that because Autism is a relatively new category, the increasing rates of students classified as falling within this category is due, at least in part, to classification substitution. In other words, students with ASD who prior to 1991 would have been classified as eligible for special education in another category are today classified in the Autism category. Support for this hypothesis would be found in data indicating increases in Autism eligibility being associated with decreases in other eligibility category rates.

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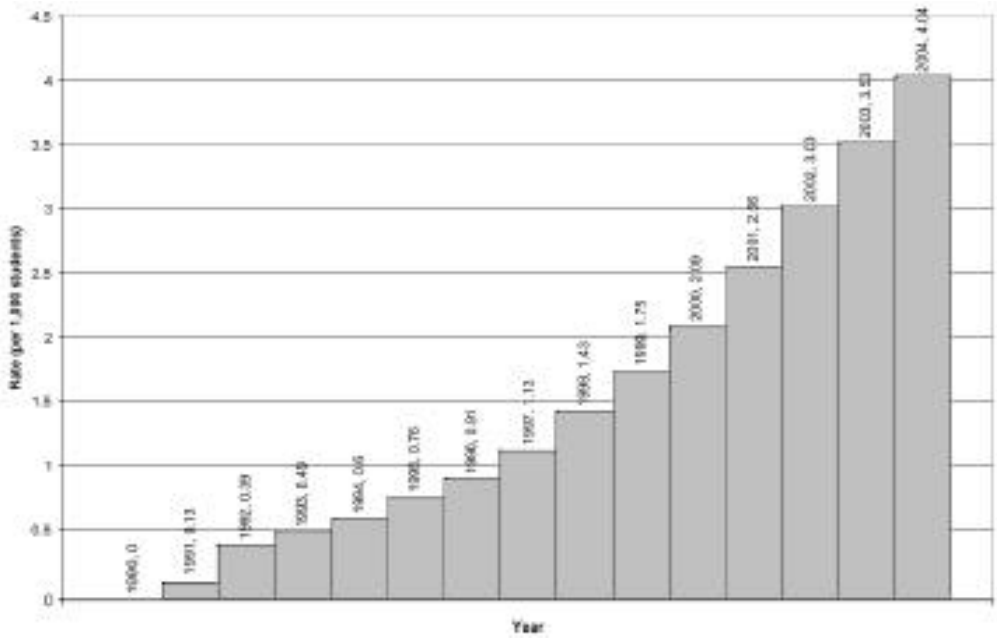

Figure 1.
Changes in the Rate of Students Eligible for Special Education in the Autism Category

METHOD

Population

The data presented in this study reflects the population of children enrolled in special education during the years 1991 to 2004 who reside in the 50 states, the District of Columbia, and who attend Bureau of Indian Affairs schools. These data include the period of time during which ASD has had its own separate special education eligibility category (i.e., "Autism").

This study analyzed data for students within the 6- to 11-year-old age group. The rationale for focusing on this age group is that it included more students who would have been initially found eligible for special education during the time period being considered (1991 to 2004). It was judged that older students, already found eligible for special education before there was an Autism category, would be less likely to have their eligibility category changed upon re-evaluation. In other words, the effect of any possible classification substitution was judged to be most likely observed among the students who had become initially eligible for special education when ASD had its own specific eligibility category. Since 1996, all students within this age group would have been evaluated by IEP teams who had Autism as an eligibility category option.

Measurement

Data were obtained from the *IDEAdata.org* web site (www.ideadata.org/index.html). This web site provides public access to data collected annually by the U.S. Department of Education's Office of Special Education Programs for its Annual Reports to Congress. This report provides data tables addressing students with disabilities served under *IDEA*. The specific data used in this study was found

in Table B2A (www.ideadata.org/docs/PartBTrendData/B1.xls), which provided the number, percent of population, and *IDEA* disability distribution, by disability and age group.

Procedures

First, Table B2A from the *IDEAdata.org* web site was downloaded in Excel spreadsheet form. Then to adjust for population size changes, the number of students in each eligibility category was transformed to a rate per 1,000 students. This was accomplished by dividing the total number of students in the given eligibility category for a given year, by the total "resident population" (i.e., the number of enrolled students as reported in the *IDEAdata.org* data) for the given year, and then multiplying the result by 1,000 [i.e., (number of students with a disability ÷ student population) x 1,000)].

Next, from the author's applied school psychology experiences, reviews of diagnostic and eligibility categories, and consultations with colleagues[1] the following *IDEA* eligibility categories were selected as having some likelihood of being substituted in place of the Autism category: Emotional Disturbance (ED), Mental Retardation (MR), Specific Learning Disability (SLD), and Speech/Language Impaired (SLI). Then obtained school population rates for Autism and the selected eligibility categories (from one year to the next) were compared; Pearson correlation coefficients were obtained and year to year changes in rates computed (by subtracting a current year's rate from that of the previous year).

RESULTS

As indicated in Table 1, over the 14-year time frame covered by these data, there have been changes in the rates of students found eligible for special education. Overall, when all eligibility categories are combined, it is observed that since 1991 the rate of students found eligible has increased by 7.65 per 1,000 students. The two specific eligibility categories with the largest increases during this time period have been the Other Health Impaired (OHI, +7.59) and Autism (+3.91) categories. Conversely, the categories with the largest declines have been ED (-0.69), MR (-2.25) and SLD (-4.89). When the four categories judged by the author as having some likelihood of being substituted in place of the Autism category (ED, MR, SLD, and SLI) are combined the rate change is -7.14. The correlation between changes in Autism rates and the rate of these four categories is significant (r = -.929, p < .01). This result indicates that as Autism rates have increased, the rates for these four categories combined have declined.

Figures 2, 3, 4, and 5, provide year-by-year comparisons (from 1991 to 2004) of changes in the rates of Autism to changes in the rates of specific eligibility categories judged to have some likelihood of being substituted for Autism. As illustrated in Figure 2, with the exception of the years 1993, 1994, and 1995 (11 out of the 14 years), every year since 1991 has seen an increase in Autism rates and a corresponding decrease in MR rates. The correlation between Autism rates and MR rates is significant (r = -.928, p < .01). This result indicates that as Autism rates have increased, MR rates have declined.

As illustrated in Figure 3, with the exception of the years 1991, 1992, 1994, and 1995 (10 out of the 14 years), every year since 1991 has seen an increase in Autism rates and a corresponding decrease in SLD. The correlation between Autism rates and SLD rates is significant (r = -.885, p < .01). This result indicates that as Autism rates have increased, SLD rates have declined.

As illustrated in Figure 4, with the exception of the years 1993, 1994, 1995, 1996, 1998, and 1999 (8 out of the 14 years), every year since 1991 has seen an increase in Autism rates and a corresponding decrease in ED. The correlation between Autism rates and the ED rates is significant (r = -.740, p < .01). This result indicates that as Autism rates have increased, ED rates have declined.

Table 1.
Changes in Special Education Classification Rates and Percentages (1991 to 2004; for Children Ages 6 to 11)

Category	1991 Rate	2004 Rate	Rate Change
All eligibilities categories combined	106.65	114.30	+7.65
Other Health Impairments	1.32	8.91	+7.59
Autism	0.13	4.04	+3.91
Speech/Language Impairments (SLI)	40.10	40.79	+0.69
Traumatic Brain Injury	0.00	0.33	+0.33
Orthopedic Impairments	1.25	1.31	+0.06
Deaf-Blindness	0.03	0.03	0.00
Hearing Impairments	1.34	1.33	-0.01
Visual Impairments	0.52	0.48	-0.04
Multiple Disabilities	2.26	2.14	-0.12
Emotional Disturbance (ED)	6.43	5.74	-0.69
Mental Retardation (MR)	9.71	7.46	-2.25
Specific Learning Disabilities (SLD)	43.56	38.67	-4.89
MR+SLD+ED+SLI	99.80	92.66	-7.14

Finally, as illustrated in Figure 5, with the exception of the years 1993, 2002, 2003, and 2004 (11 out of the 14 years), every year since 1991 has seen an increase in Autism rates and a corresponding decrease in SLI. However, the correlation between Autism rates and SLI rates is not significant (r = -.086). Further, the use of a nonparametric sign test suggest the odds of SLI rate declines in 11 of 14 years being due to chance (while low) fall short of statistical significance (p = .092). This result would not appear to support the hypothesis that as Autism rates have increased SLI rates have declined.

DISCUSSION

Since 1991, the two eligibility categories to have had substantially increased numbers are the OHI and Autism categories. Comprehensive explanations of the increased rate of OHI are beyond the scope of this paper. However, it is of note that these increases took place subsequent to the Office of Special Education and Rehabilitative Services' *Joint Policy Memorandum* (Davila, Williams, & MacDonald, 1991) on ADD, which specified that the OHI category was an option to consider when determining if a student with an attention deficit was eligible for special education. As for ASD, these data are consistent with reports that the number of children being identified as persons with autism is increasing (Tidmarsh & Volkmar, 2003). However, further analysis of special education classification rates yields data consistent with the classification substitution hypothesis. Specifically, during the period following ASD having its own special education eligibility classification ED, MR, and SLD rates have declined. As was previously stated, ED, MR., SLD, and SLI were the categories that the author speculated as being the ones within which students with ASD (who required special education) would have

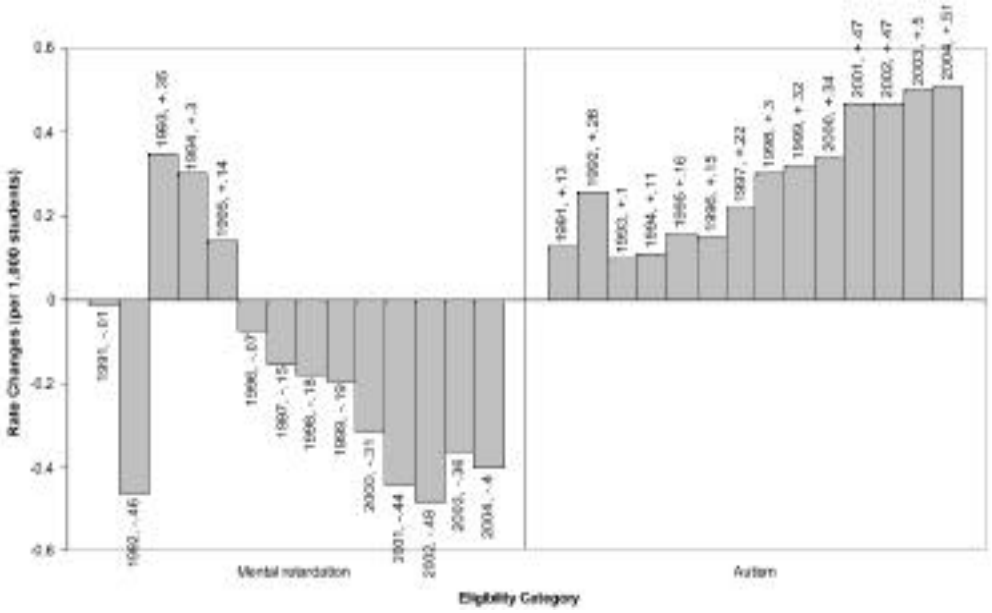

Figure 2.
Annual Changes in Autism and Mental Retardation IDEA Special Education Eligibility Category Rates (Children Ages 6-11, 50 States, D.C., BIA Schools): 1991 to 2004

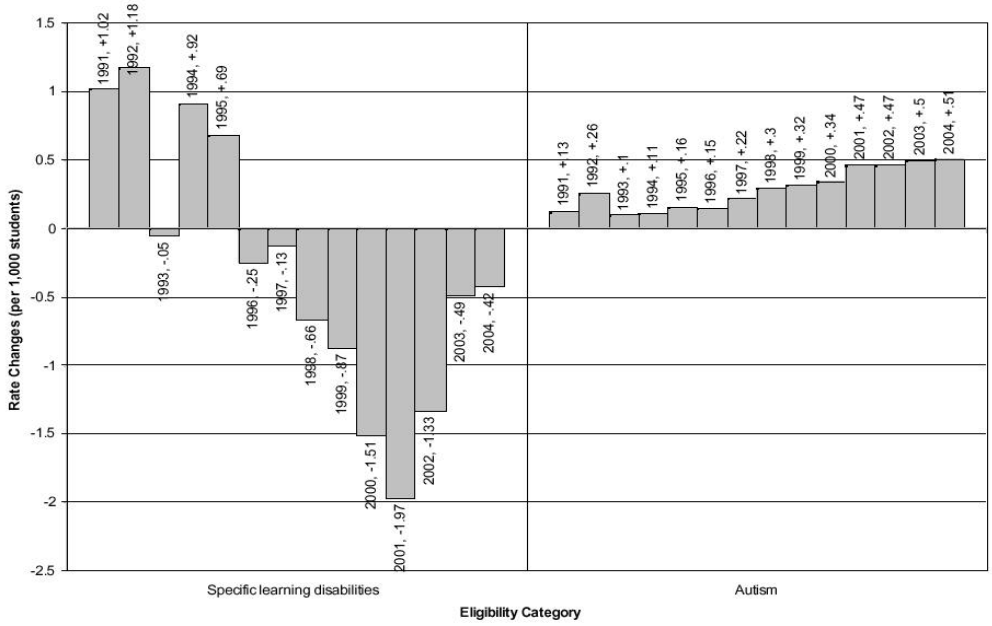

Figure 3.
Annual Changes in Autism and Specific Learning Disability IDEA Special Education Eligibility Category Rates (Children Ages 6-11, 50 States, D.C., BIA Schools): 1991 to 2004

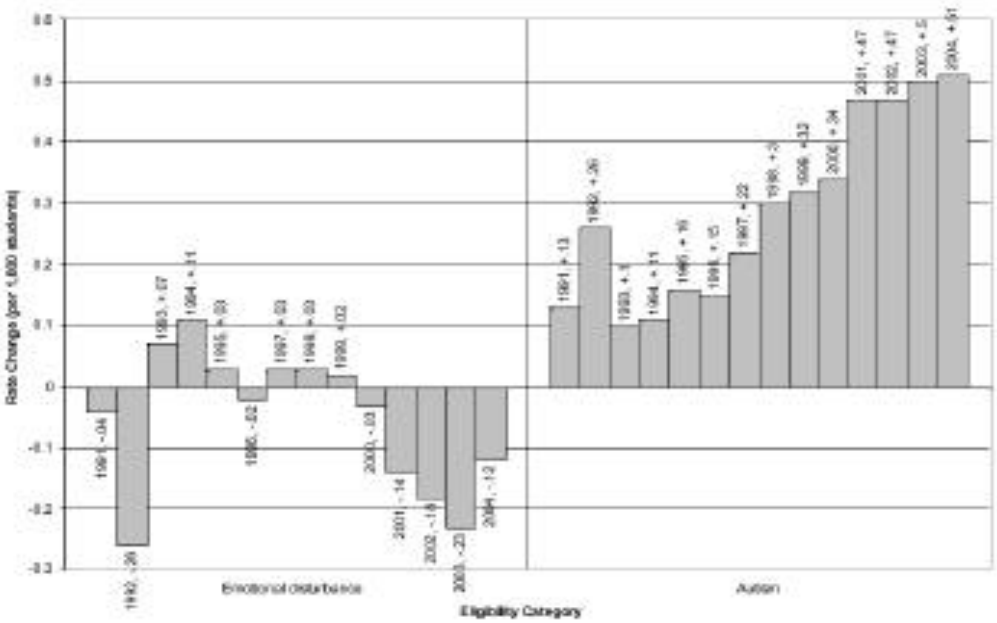

Figure 4.
Annual Changes in Autism and Emotional Disturbance IDEA Special Education Eligibility Category Rates (Children Ages 6-11, 50 States, D.C., BIA Schools): 1991 to 2004

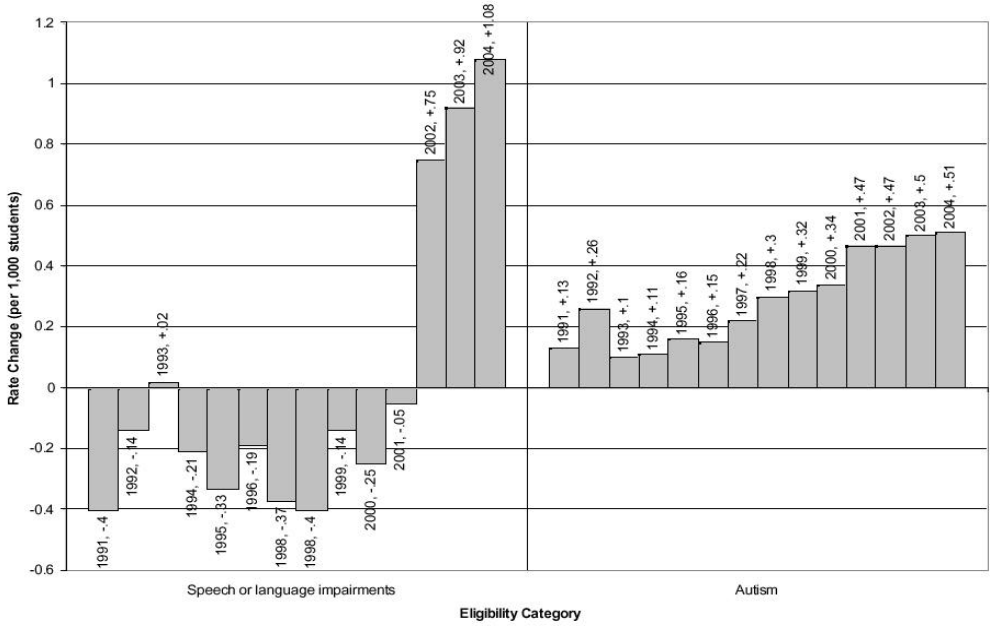

Figure 5.
Annual Changes in Autism and Speech/Language Impaired IDEA Special Education Eligibility Category Rates (Children Ages 6-11, 50 States, D.C., BIA Schools): 1991 to 2004

previously been classified. Thus, it is suggested that these eligibility trends are consistent with the hypothesis that the increased incidence of students classified using Autism criteria, is at least in part an artifact of IEP teams substituting the Autism category for the ED, MR, or SLD categories.

Additional inspection of Figures 2, 4, and 5, during the first two years that ASD had its own eligibility category, reveals relatively large jumps in Autism rates (relative to that seen in subsequent years), corresponding to relatively large declines in MR, ED, and SLI rates (relative to that seen in subsequent years). The author speculates that this may be a consequence of children with classic autism, previously placed in other eligibility categories (due to the fact that Autism was not a classification option), being moved into the new Autism category. Further analysis of Figure 3 finds the greatest year-to-year declines in SLD rates to have occurred in the most recent years, which corresponds to the most dramatic increases in the rates of Autism. The author speculates that this may reflect that IEP teams have become increasingly sensitive to the broader autism spectrum (and skilled at identifying such), and thus may have begun to place students with high functioning autism and Asperger's Disorder in the Autism category (instead of the SLD category). Research by Powell and colleagues (2000) may support this speculation. These researchers studied the changing incidence rates of both classical childhood autism (most similar to what is now referred to as Autistic Disorder) and other autism spectrum disorders between 1991 and 1996. Results suggested rates for classical autism increased by 18% per year, whereas rates for other autism spectrum disorders increased by 55% per year. The authors concluded that clinicians are becoming increasingly willing and able to diagnose the broader autism spectrum among young children.

Reasons for Classification Substitution

These eligibility trends suggest the possibility that the increased number of students found eligible for special education using Autism criteria is, at least in part, a consequence of classification substitution. Potential causes of this phenomenon have been suggested by Brock, Jimerson, and Hansen (2006) to include: (a) an increased public awareness of ASD, (b) an increased willingness and ability to classify students as children with ASD, and (c) awareness of increased resources for children with ASD.

Heightened public awareness of ASD. One explanation for the increasing number of students classified using Autism criteria, is that there is a heightened public awareness (and related media coverage) of ASD. Consequently, today's educators are more likely to recognize and refer children with ASD (Barbaresi, Katusic, Colligan, Weaver, & Jacobsen, 2005; Chakrabarti & Fombonne, 2001; Gernsbacher, Dawson, & Goldsmith, 2005; Yeargin-Allsopp et al., 2003). For example, Gillberg and Wing (1999), have suggested that the prevalence of ASD has always been higher than earlier studies had reported.

Increased willingness and ability to diagnose ASD. A second explanation for classification substitution might be found in the author's observation that the diagnosis of ASD is more acceptable in today's schools. The author's experiences suggest that today's IEP teams view ASD as having the potential for relatively positive outcomes (especially in comparison to MR). Another explanation for increased Autism classification rates is that today's educational professionals (such as school psychologists) are better prepared to identify these disorders (American Academy of Pediatrics, 2001; Chakrabarti & Fombonne, 2001; Gernsbacher et al., 2005; National Research Council, 2001; Yeargin-Allsopp et al., 2003). Thus, it may be that IEP teams are simply doing a better job of identifying children with ASD (Fombonne, 2003, September).

Availability of resources for children with ASD. A third explanation for classification substitution is the increased availability of resources for children with ASD. The intensive early intervention services often made available to students classified for special education using Autism criteria are not typically offered to the child whose primary eligibility classification is MR, SLD, or ED. In other words, educators and parents alike may be increasingly motivated to identify students as eligible for *IDEA* services using Autism criteria (Brock et al., 2006). In addition, the mandate for early intervention services for children with developmental disabilities (such as ASD), combined with the fact that children with ASD respond well to early and intensive intervention (National Research Council, 2001), has likely served to further increase motivation to use Autism eligibility criteria (Barbaresi et al., 2005;Yeargin-Allsopp, 2003).

Limitations

Although associations between Autism and other special education classification category rates have been identified, these data cannot be considered definitive proof that ASD rates in the general population are not increasing. While suggestive of such, these special education classification data are influenced by a number of factors; thus, the possibility that yet to be identified environmental factors may be playing a role in the increased prevalence of ASD cannot be ruled out (Fombonne, 2003b; 2003; 2003, September). Supporting this hypothesis is the *Report to the Legislature* (2002). This research project investigated reports of a 273 % increase in reported cases of autism in California from 1987 to 1998. To study this increase, a statewide sample of children from two birth-year cohorts (1983-1985 and 1993-1995) were identified and data collected from the families of 375 children with a diagnosis of autism and 309 children with a diagnosis of mental retardation without autism. From these data the authors concluded that there was no evidence that the increased numbers of children identified as persons with autism could be attributed completely to artificial factors (i.e., loosening of diagnostic criteria for autism, more misclassification of autism, or increased migration of children with autism to California). Without evidence of an artificial increase in autism cases, it was concluded that "some, if not all, of the observed increase represents a true increase in cases of autism in California" (p. 42). Interestingly, however, analysis of the same data by Croen, Grether, Hoogstrate, and Selvin (2002) suggested that "diagnostic substitution" of autism for mental retardation explains the increase in autism rates. Their interpretation of the data suggested that to a significant extent the increase in autism rates might be explained by a decrease in the use of the diagnosis of mental retardation.

CONCLUSION

These data can be used by school psychologist to generate one possible answer to questions asked of them, by parents and IEP teams, regarding the apparent increase in the number of students with ASD. While it is possible that yet to be identified environmental factors have resulted in a true increase in this population, it is also possible that artificial factors, such as classification substitution, explain this increase.

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