

## Background

Access to an appropriate educational setting is a priority for families of children with autism spectrum disorder (ASD).

## Objectives

- (1) To determine how school placement, special services, and suspension rates for children with ASD are associated with household income and urbanicity (as determined by surrounding population density).
- (2) To determine whether emotional, academic, and special needs of children with ASD are being met in the school system by household income and urbanicity.

## Methods

Parent participants in the Interactive Autism Network (IAN)— a large, validated and verified internet-mediated parent-report research registry— completed the School Services Questionnaire (SSQ) on their child with ASD. The SSQ asks questions regarding special services, school placement, suspension and drop-out rates, and satisfaction with school services. Data from the IAN registry regarding participants' household income and urbanicity (using the 2013 NCHS Urban-Rural Classification Scheme for Counties) were also included in the analysis.

## Variables

- Urbanicity: urban ( $\geq 1$  million; at least 250,000 inhabitants in principal city of that county), suburban ( $\geq 1$  million; less than 250,000 inhabitants in principal city), small-medium metro (50,000-999,999), rural ( $< 50,000$ )
- Household Income; divided into quartiles: (1)  $\leq$  \$45,000; (2) \$45,001-75,000; (3) \$75,001-135,000; (4)  $>$  \$135,000
- School Placement: homeschool, public, private (with regular education classes), specialized private or non-public (for children with special needs), specialized public (for children with special needs)
- Special Services: modified education plan, special education teachers/aides, speech therapy, behavior therapy, occupational/physical therapy, counseling, assistive technology, ABA, social skills groups
- Suspension Rates
- Parent Satisfaction: emotional, academic, & special needs

## Results

Parents of 1774 children with ASD completed the survey

- Median Age (Interquartile Range): 11.4 years (6)
- Gender: 79.9% male
- Race & Ethnicity: 83.4% white; 88.4% non-Hispanic

**Table 1: School placement by urbanicity,  $p < 0.001$**

	Total <i>n</i> (%)	Urban <i>n</i> (%)	Suburban <i>n</i> (%)	Sm-Med Metro <i>n</i> (%)	Rural <i>n</i> (%)
Homeschool	123 (7.3)	23 (6.6)	38 (6.5)	36 (7.2)	20 (13.0)
Public	1152 (68.8)	280 (63.8)	395 (67.9)	361 (72.2)	116 (75.3)
Private	67 (4.0)	27 (6.2)	17 (2.9)	18 (3.6)	5 (3.2)
Specialized Private/Non-Public	176 (10.5)	60 (13.7)	73 (12.5)	38 (7.6)	5 (3.2)
Specialized Public	157 (9.4)	43 (9.8)	59 (10.1)	47 (9.4)	8 (5.2)

**Table 2: School placement by income quartiles,  $p < 0.001$**

	Total <i>n</i> (%)	1 <sup>st</sup> Quartile <i>n</i> (%)	2 <sup>nd</sup> Quartile <i>n</i> (%)	3 <sup>rd</sup> Quartile <i>n</i> (%)	4 <sup>th</sup> Quartile <i>n</i> (%)
Homeschool	113 (7.4)	56 (12.3)	22 (6.7)	28 (5.4)	7 (3.1)
Public	1059 (69.2)	310 (67.8)	233 (70.8)	361 (70.1)	155 (67.7)
Private	60 (3.9)	10 (2.2)	11 (3.3)	26 (5.0)	13 (5.7)
Specialized Private/Non-Public	154 (10.1)	27 (5.9)	35 (10.6)	53 (10.3)	39 (17.0)
Specialized Public	144 (9.4)	54 (11.8)	28 (8.5)	47 (9.1)	15 (6.6)

**Acknowledgements:** Individuals with ASD, families, researchers, and health care professionals make IAN possible through the generous contribution of their time and effort.

## Results (Continued)

- Urbanicity was significantly related to use of certain special services, with each of the following being more common in suburban settings compared to urban, small-medium metro, and rural settings:
  - Behavior therapy ( $X^2(3)=9.12, p=0.028$ )
  - Assistive technology ( $X^2(3)=13.68, p=0.003$ )
  - Applied behavior analysis ( $X^2(3)=14.34, p=0.002$ )
  - Social skills training groups ( $X^2(3)=13.37, p=0.004$ )
- Household income was significantly related to social skills groups ( $X^2(3)=9.85, p=0.02$ ); Families in the 3<sup>rd</sup> and 4<sup>th</sup> quartiles were more likely to receive social skills training/groups
- Higher suspension rates were significantly associated with smaller urbanicity settings ( $X^2(3)=13.286, p=0.004$ )
- Parent satisfaction with the school's ability to meet their child's emotional, academic, and special needs significantly differed by household income, with higher quartiles generally having higher rates of satisfaction

## Conclusions

- Children in rural settings had a less varied distribution of school placement, and greater rates of suspension
- Children in suburban settings, as well as the top two income quartiles, were more likely to receive certain special services compared to the other urbanicity settings and lower income quartiles
- The proportion of children in public school was relatively equal across all household income quartiles, but there were significant differences by income as to where the rest of the children attended school
- Parents from the top two income quartiles were more likely to indicate satisfaction with school's ability to meet their child's needs
- These findings point to the need for better educational access for children with ASD who are in lower income quartiles and non-suburban settings