

Autism Spectrum Disorder Prevalence in Immigrant Communities in Minnesota

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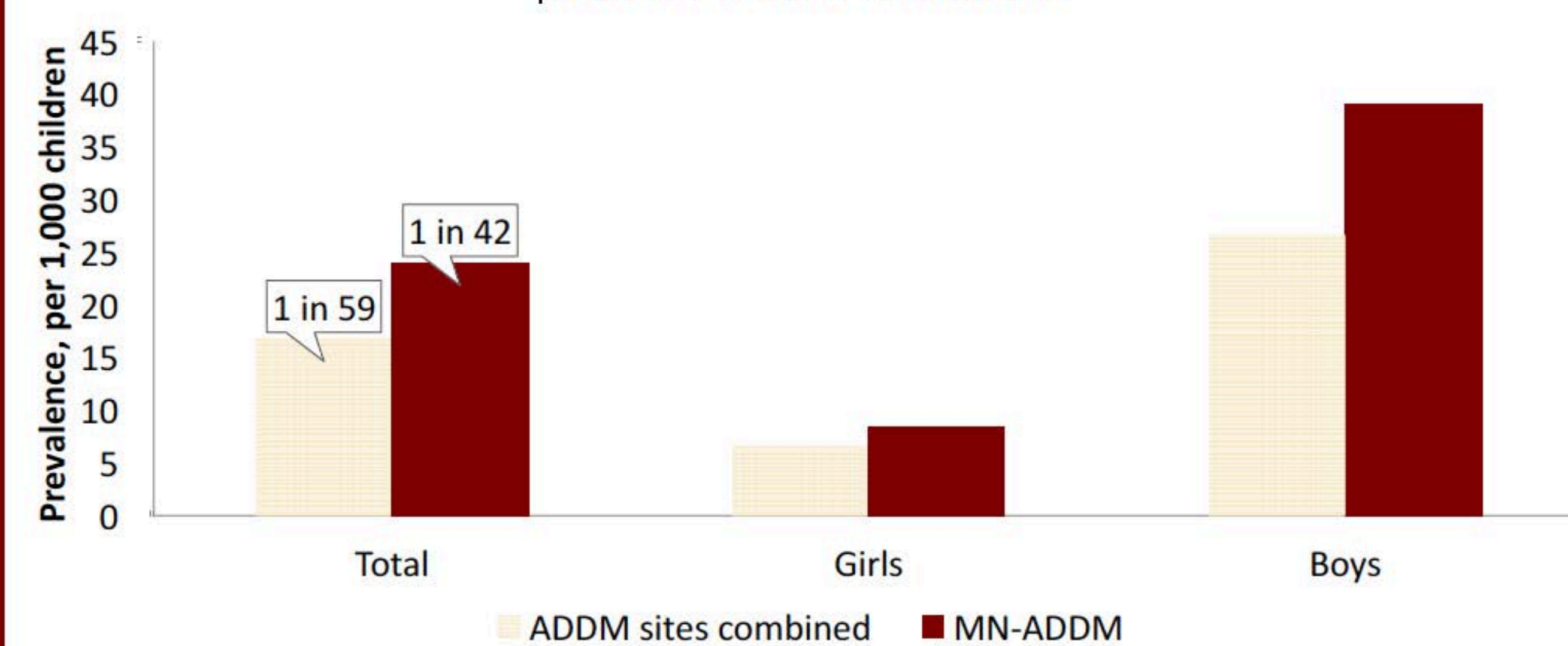


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Background

- The University of Minnesota was funded by the Centers for Disease Control and Prevention (CDC) to conduct a multi-source public health project that monitors the prevalence of autism spectrum disorder (ASD) and intellectual disability in 8-year-old children within Hennepin and Ramsey counties in Minnesota.
- In addition to race and ethnicity categories routinely studied by the CDC, the Minnesota-Autism and Developmental Disabilities Monitoring Network (MN-ADDM) project was interested in understanding prevalence among Somali and Hmong immigrant populations.
- The data were collected from health and special education records of children who were 8 years old in 2014.

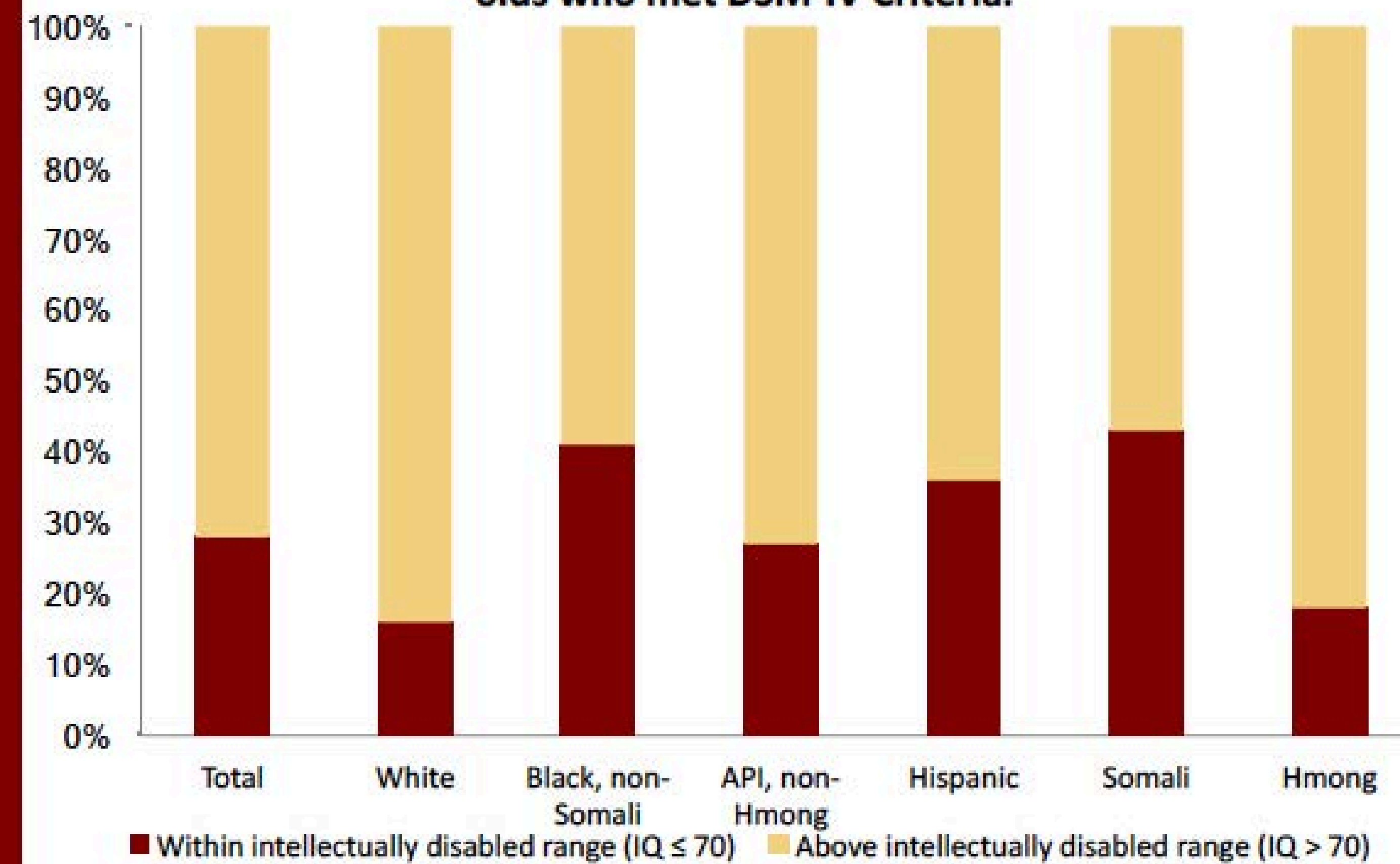
Figure 1. Prevalence of ASD in 8 year olds in MN-ADDM and all ADDM sites combined



Methods

- Standardized ADDM methods were used to calculate ASD prevalence in 8 year olds in 2014 using an active surveillance system in a two phase process (Christensen et al. 2016; Hewitt et al. 2016).
- In Phase 1, health and special education records were systematically abstracted to identify children with triggers for ASD.
- In Phase 2, abstracted records were reviewed by a trained clinician to determine the child's ASD case status. DSM-IV criteria were used to determine ASD cases status for this analysis.
- The surveillance area includes four school districts in two large urban counties in MN, including the metropolitan area of Minneapolis and St Paul.
- Population denominators were obtained from CDC's National Center for Health Statistics vintage 2016 post-censal bridged-race population estimates for 2014 and adjusted to include only children living in the surveillance area.
- Children were classified as Somali or Hmong based on reported home language in education and health records.
- All analyses were conducted using SAS v9.3 (Cary, NC)

Figure 2. Intellectual disability by race and ethnicity in 8-year-olds who met DSM-IV Criteria.



* Percentages and p-value exclude cases with missing IQ test. IQ data were missing for 18% of white children, 13% of black, non-Somali children, 21% of API, non-Hmong children, 19% of Hispanic children, 36% of Somali children, and 27% of Hmong children.

Table 1. Prevalence of ASD in 8 year olds by sex and race/ethnicity, MN-ADDM 2014

MN Analysis	Population Size	ASD Cases DSM-IV	Prevalence (per 1,000)	95% CI
Overall	9,767	234	24.0	21.1-27.2
Males	4,953	193	39.0	33.8-44.9
Females	4,814	41	8.5	6.3-11.6
Non-Hispanic white	3,793	92	24.3	19.8-29.8
Non-Hispanic black, non-Somali	2,145	53	24.7	18.9-32.3
Non-Hispanic API, non-Hmong	766	14	18.3	10.8-30.9
Hispanic	1,486	31	20.9	14.7-29.7
Somali	574	22	38.3	25.2-58.2
Hmong	810	15	18.5	11.2-30.7

Results

- The prevalence of ASD in the MN-ADDM surveillance area was higher than the prevalence for all ADDM sites combined (24.0 per 1,000 vs. 16.8 per 1,000).
- Comparing across racial and ethnic subgroups, there were no statistically significant differences in ASD prevalence using a p-value threshold of <0.01.
- Presence of co-occurring intellectual disability differed for Somali children compared to Hmong children (p=.03). Of the Somali children with ASD who had IQ data in their records, 43% had co-occurring intellectual disability, while 18% of Hmong children with ASD had co-occurring intellectual disability.
- Sample sizes were small, especially for Hmong and Somali groups. Expansion of the geographic area and additional data will be required to determine whether ASD prevalence is higher or lower in these communities.

Table 2. Prevalence Ratios comparing Somali and Hmong children to other racial and ethnic groups, MN-ADDM 2014

Comparison	Prevalence Ratio	p-value
Somali to NHW*	1.6	0.054
Somali to non-Somali black	1.6	0.08
Somali to Hispanic	1.8	0.03
Hmong to NHW*	0.76	0.33
Hmong to non-Hmong API	1.01	0.97
Hmong to Hispanic	0.89	0.70

*NHW = Non-Hispanic White

Conclusions

- Because ASD early identification can improve outcomes, identifying subgroups of children with a higher prevalence or more severe forms of ASD can help inform public health policy and improve outcomes for individuals with ASD and their families.
- Expansion of the surveillance area and increasing the number of children in different racial, ethnic and linguistically diverse groups will be required to permit meaningful comparisons of ASD prevalence in immigrant populations.
- Differences in prevalence by racial/ethnic group may suggest that culturally sensitive methods for outreach and diagnosis are warranted.
- It is important to continue to build ASD workforce capacity and ASD providers in culturally and linguistically diverse communities.

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