

demographic factors hypothesized to affect caregiver employment, childcare needs, and childcare access.¹ We hypothesized that odds of childcare-related employment disruption would be higher in 2020 and among caregivers of CSHCN and that CSHCN would see greater increases in odds of disruption during 2020 than non-CSHCN. We estimated adjusted odds ratios (aORs) and 95% CIs and defined statistical significance as a 2-sided $P < .05$. Stata version 16.1 (StataCorp) was used for all analyses. The University of North Carolina Institutional Review Board deemed this study exempt from review.

Results | In 2020, 12.6% (95% CI, 11.2-14.1) of all children 5 years and younger had caregivers with a childcare-related employment disruption (Figure 1), which was larger than 9.4% (95% CI, 8.0-10.9) of children in 2019 ($P = .002$) and 8.9% (95% CI, 8.3-9.6) of children in the pooled 2016 to 2019 sample ($P < .001$). Nearly one-quarter of CSHCN had caregivers with childcare-related employment disruption in 2020 (24.8%; 95% CI, 19.3-31.3), which was larger than the 11.1% (95% CI, 9.7-12.6) of non-CSHCN in 2020 ($P < .001$), not significantly different from CSHCN in 2019 (17.7%; 95% CI, 13.3-23.3; $P = .08$), and larger than the pooled 2016 to 2019 estimate for CSHCN (17.8%; 95% CI, 15.5-20.3; $P = .03$).

After adjusting for potential confounders, CSHCN had 2.7-fold higher odds of having a caregiver with employment disruption than non-CSHCN (aOR, 2.73; 95% CI, 2.25-3.31; $P < .001$), while, in 2020, children overall had 1.4-fold higher odds than in 2019 (aOR, 1.41; 95% CI, 1.13-1.76; $P = .002$) (Figure 2). The interaction of 2020 and CSHCN status was not significant (aOR, 1.06; 95% CI, 0.71-1.60; $P = .75$). Male respondent sex was associated with lower odds of childcare-related employment disruption. Children 2 years or younger as well as Black, Asian, or multiracial children had higher odds of having a caregiver with employment disruption, as did those living in low-income families and in families not headed by 2 married parents.

Discussion | Childcare-related employment disruption increased by approximately one-third in 2020 and was higher among caregivers for CSHCN, low-income families, and children from racial and ethnic minority groups. Parents' job loss can lead to loss of insurance coverage for their children⁵ and may be directly detrimental to children's health.⁶ Without increased access to childcare, caregivers may struggle to meet the basic human and health care needs of their children.

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1. Karpman M, Gonzalez D, Kenney GM. Parents are struggling to provide for their families during the pandemic: material hardships greatest among low-income, Black, and Hispanic parents. Accessed February 11, 2022. <https://www.urban.org/research/publication/parents-are-struggling-provide-their-families-during-pandemic>
2. Modestino AS, Lincoln A, Ladge J. The importance of childcare in reopening the economy. Accessed February 11, 2022. <https://econofact.org/the-importance-of-childcare-in-reopening-the-economy>
3. Foster CC, Chorniy A, Kwon S, Kan K, Heard-Garris N, Davis MM. Children with special health care needs and forgone family employment. *Pediatrics*. 2021;148(3):e2020035378. doi:10.1542/peds.2020-035378
4. US Census Bureau. National Survey of Children's Health datasets: 2020. Accessed January 15, 2022. <https://www.census.gov/programs-surveys/nsch/data/datasets.2020.html>
5. Fairbrother GL, Carle AC, Cassidy A, Newacheck PW. The impact of parental job loss on children's health insurance coverage. *Health Aff (Millwood)*. 2010;29(7):1343-1349. doi:10.1377/hlthaff.2009.0137
6. Schaller J, Zerpa M. Short-run effects of parental job loss on child health. *Am J Health Econ*. 2019;5(1):8-41. doi:10.1162/ajhe_a_00106

Prevalence of Autism Spectrum Disorder Among Children and Adolescents in the United States From 2019 to 2020

Autism spectrum disorder (ASD) is a complicated neurodevelopmental disability with an increasing prevalence worldwide and considerable implications for individuals and their families.¹⁻³ According to the Autism and Developmental Disabilities Monitoring Network, the prevalence of ASD in children aged 8 years was 2.30% in 2018, which was similar to the prevalence of 2.47% in 2014 to 2016 reported by Xu et al.^{2,4} The aim of the study was to estimate the ASD prevalence among children and adolescents in the US in 2019 and 2020.

Methods | We conducted a cross-sectional study using data from the National Health Interview Survey (NHIS), which collects information through household interviews using multistage stratified sampling.⁵ We used NHIS data from 2019 and 2020 because the questionnaire was redesigned in 2019. Information about ASD diagnosed by a physician or other health care professional was reported by a parent or guardian. The conditional sample child response rate was 90.53% in 2019 and 87.38% in 2020.

The Guangdong Pharmaceutical University Academic Review Board deemed the study exempt from review because only deidentified data were used. All respondents provided informed verbal consent before participation. The study followed the STROBE reporting guideline.

The weighted prevalence of ASD among children and adolescents in the US aged 3 to 17 years in 2019 and 2020 was calculated using survey weights, strata, and primary sampling units created by the National Center for Health Statistics to

Table. Prevalence of ASD in Children and Adolescents in the US^a

Characteristic	2019			2020			2019-2020		
	No. with ASD/total No. ^b	ASD, % (95% CI) ^c	P value ^d	No. with ASD/total No. ^b	ASD, % (95% CI) ^c	P value ^d	No. with ASD/total No. ^b	ASD, % (95% CI) ^c	P value ^d
Overall	237/7684	2.79 (2.34-3.24)	NA	173/4870	3.49 (2.82-4.15)	NA	410/12 554	3.14 (2.73-3.54)	NA
Age, mean (SD), y	10.55 (4.39)	NA	NA	10.65 (4.40)	NA	NA	10.59 (4.39)	NA	NA
3-11 y	129/4117	3.05 (2.39-3.70)	.16	89/2545	3.21 (2.36-4.05)	.33	218/6662	3.13 (2.60-3.66)	.96
12-17 y	108/3567	2.41 (1.83-3.00)		84/2325	3.88 (2.79-4.97)		192/5892	3.15 (2.52-3.78)	
Sex									
Male	189/3949	4.29 (3.51-5.07)	<.001	131/2481	4.98 (3.94-6.03)	<.001	320/6430	4.64 (3.99-5.29)	<.001
Female	48/3735	1.23 (0.80-1.66)		42/2389	1.90 (1.23-2.58)		90/6124	1.56 (1.16-1.97)	
Race and ethnicity ^e									
Hispanic	50/1833	2.54 (1.67-3.41)	.32	40/1146	3.22 (2.03-4.41)	.27	90/2979	2.88 (2.13-3.63)	.75
Non-Hispanic Black	24/896	2.08 (1.10-3.07)		19/484	5.22 (2.25-8.19)		43/1380	3.64 (2.07-5.21)	
Non-Hispanic White	139/4059	3.16 (2.50-3.81)		94/2653	3.18 (2.42-3.93)		233/6712	3.17 (2.66-3.67)	
Other ^f	24/896	2.45 (1.26-3.63)		20/587	3.55 (1.76-5.35)		44/1483	2.97 (1.91-4.04)	
Highest level of educational attainment of family members									
<High school	15/527	2.38 (0.79-3.98)	.87	8/284	2.76 (0.09-5.43)	.78	23/811	2.56 (1.08-4.03)	.69
High school	38/1212	2.82 (1.79-3.86)		30/646	3.91 (2.16-5.66)		68/1858	3.33 (2.38-4.29)	
≥College	184/5936	2.83 (2.30-3.36)		135/3938	3.48 (2.75-4.20)		319/9874	3.16 (2.71-3.61)	
Missing data	0/9	NA	NA	0/2	NA	NA	0/11	NA	NA
Family income to poverty ratio ^g									
<1 [Reference]	47/1045	3.74 (2.38-5.10)	.07	32/526	6.21 (3.53-8.90)	.008	79/1571	4.89 (3.44-6.34)	<.001
1.00-1.99	54/1624	2.82 (1.97-3.68)		31/967	2.60 (1.32-3.88)		85/2591	2.71 (1.93-3.49)	
2.00-3.99	78/2406	2.95 (2.16-3.74)		57/1518	3.45 (2.38-4.52)		135/3924	3.20 (2.54-3.85)	
≥4.00	58/2609	2.03 (1.37-2.69)		53/1859	2.86 (1.89-3.82)		111/4468	2.45 (1.86-3.04)	

Abbreviations: ASD, autism spectrum disorder; NA, not applicable.

^a Data were obtained from the 2019 to 2020 National Health Interview Survey, a nationally representative survey of nonhospitalized civilians that monitors the health of the US population through data collection and analysis on a broad range of health topics.

^b Unweighted number of participants.

^c Prevalence estimates were weighted.

^d P values were estimated for the difference in prevalence by strata.

^e Race and ethnicity were self-reported and classified based on the 1997 Office of Management and Budget standards.

^f Other races and ethnicities included non-Hispanic American Indian or Alaska Native individual only, non-Hispanic American Indian or Alaska Native and any other group, non-Hispanic Asian individual only, and other single and multiple races, or declined to respond, no response, or unknown.

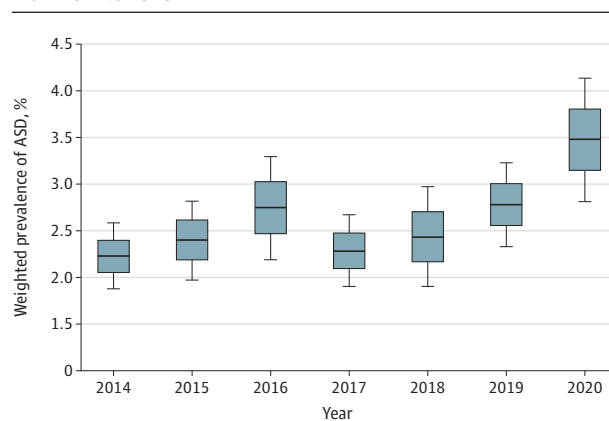
^g The ratio is the total family income divided by the poverty threshold.

allow for national estimates according to NHIS analytic guidelines (<https://www.cdc.gov/nchs/nhis/methods.htm>). The trends in the prevalence from 2014 to 2020 were also examined. All statistical analyses were performed using SAS, version 9.4 (SAS Institute, Inc). Two-sided $P < .05$ was considered to be statistically significant.

Results | Of 12 554 individuals aged 3 to 17 years (6430 [51.22%] boys, 6124 [48.78%] girls), 410 were reported to have a diagnosis of ASD in 2019 and 2020. The prevalence of ASD was

2.79% (95% CI, 2.34%-3.24%) in 2019, 3.49% (95% CI, 2.82%-4.15%) in 2020, and 3.14% (95% CI, 2.73%-3.54%) in 2019 and 2020 overall. A significant difference in prevalence was observed between sexes (4.64% [95% CI, 3.99%-5.29%] in boys vs 1.56% [95% CI, 1.16%-1.97%] in girls; $P < .001$) and in family income to poverty ratio (<1.00, 4.89% [95% CI, 3.44%-6.34%]; 1.00-1.99, 2.71% [95% CI, 1.93%-3.49%]; 2.00-3.99, 3.20% [95% CI, 2.54%-3.85%]; and ≥4.00, 2.45% [95% CI, 1.86%-3.04%]; $P < .001$) (Table). The weighted prevalence of ASD increased from 2.24% (95% CI, 1.89%-2.59%) in 2014

Figure. Trend in Prevalence of Autism Spectrum Disorder (ASD) in Children and Adolescents in the US From 2014 to 2020



The number of participants (n = 57 392) was 11 082 in 2014, 10 183 in 2015, 9237 in 2016, 7397 in 2017, 6939 in 2018, 7684 in 2019, and 4870 in 2020. The weighted prevalence of ASD was 2.24% (95% CI, 1.89%-2.59%) in 2014, 2.41% (95% CI, 1.98%-2.84%) in 2015, 2.76% (95% CI, 2.20%-3.31%) in 2016, 2.29% (95% CI, 1.91%-2.68%) in 2017, 2.44% (95% CI, 1.91%-2.98%) in 2018, 2.79% (95% CI, 2.34%-3.24%) in 2019, and 3.49% (95% CI, 2.82%-4.15%) in 2020 (P for trend = .31).

to 3.49% (95% CI, 2.82%-4.15%) in 2020 (P for trend = .31) (Figure).

Discussion | Using nationally representative data in the US, the estimated ASD prevalence was 3.14% among children and adolescents in the US in 2019 and 2020. This finding was higher than the reported prevalence from the NHIS in 2014 to 2016 (2.47%),² Autism and Developmental Disabilities Monitoring Network in 2018 (2.30%),⁴ and National Survey of Children's Health in 2016 (2.50%).³ The estimated prevalence was also higher than that reported in other countries and geographical areas in previous years. Chiarotti and Venerosi⁶ reviewed ASD prevalence estimates published since 2014, which ranged from 0.42% to 3.13% in Europe, 0.11% to 1.53% in the Middle East, and 1.41% to 2.52% in Australia. The prevalence of ASD is higher in boys than in girls, and a significant difference was found in children with different family economic status in this study. We found the prevalence of ASD increased from 2014 to 2016, decreased from 2016 to 2017, and then increased again from 2017 to 2020.

A limitation of this study was that information provided by parents or guardians may be affected by recall bias. Given that ASD is a lifelong disease in most children, future research needs to focus on understanding risk factors for and causes of ASD.

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1. Lord C, Elsabbagh M, Baird G, Veenstra-Vanderweele J. Autism spectrum disorder. *Lancet*. 2018;392(10146):508-520. doi:10.1016/S0140-6736(18)31129-2
2. Xu G, Strathearn L, Liu B, Bao W. Prevalence of autism spectrum disorder among US children and adolescents, 2014-2016. *JAMA*. 2018;319(1):81-82. doi:10.1001/jama.2017.17812
3. Kogan MD, Vladutiu CJ, Schieve LA, et al. The prevalence of parent-reported autism spectrum disorder among US children. *Pediatrics*. 2018;142(6):e20174161. doi:10.1542/peds.2017-4161
4. Maenner MJ, Shaw KA, Bakian AV, et al. Prevalence and characteristics of autism spectrum disorder among children aged 8 years—Autism and Developmental Disabilities Monitoring Network, 11 sites, United States, 2018. *MMWR Surveill Summ*. 2021;70(11):1-16. doi:10.15585/mmwr.ss7011a1
5. Parsons VL, Moriarity C, Jonas K, Moore TF, Davis KE, Tompkins L. Design and estimation for the National Health Interview Survey, 2006-2015. *Vital Health Stat 2*. 2014;(165):1-53.
6. Chiarotti F, Venerosi A. Epidemiology of autism spectrum disorders: a review of worldwide prevalence estimates since 2014. *Brain Sci*. 2020;10(5):274. doi:10.3390/brainsci10050274

COMMENT & RESPONSE

Short-term Outcomes of Corticosteroid Monotherapy in COVID-19–Associated Multisystem Inflammatory Syndrome in Children—Handle With Caution

To the Editor I thank Villacis-Nunez and colleagues¹ for their cohort study comparing short-term patient outcomes based on initial treatment with corticosteroids, intravenous immunoglobulin (IVIG), or both. Though they concluded that corticosteroid monotherapy was a reasonable management option for a subset of patients with multisystem inflammatory syndrome in children (MIS-C), particularly those with mild disease, there were several limitations to this study, and it is crucial that the findings should be interpreted with caution.

First, there was system involvement of 3 or fewer organ systems in the database, so it was unclear whether patients who

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