



The Economic Impacts of COVID-19 on Autistic Children and Their Families

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Abstract

Purpose We used data from the National Survey of Children's Health to (1) examine differences in economic hardship and safety net program use after the implementation of federal relief efforts, and (2) assess whether the COVID-19 pandemic exacerbated autism-based disparities in hardship and program use.

Methods We examined five dimensions of economic hardship (poverty, food insecurity, medical hardship, medical costs, and foregone work) and four safety net programs (cash assistance, Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants and Children (WIC), and free or reduced-cost meals). First, we calculated adjusted prevalence and odds ratios to compare pre-COVID (2018–2019) and during COVID (2021) outcomes by autism status. Next, we calculated the adjusted odds of each outcome among autistic children compared to those of children with and without other special healthcare needs at both time points.

Results COVID-19 exacerbated autism-based disparities in food insecurity, SNAP, and public health insurance, but alleviated inequities in medical hardship, foregone work, and cash assistance. Autistic children did not experience declines in food insecurity or increases in SNAP like other children; medical hardship and foregone work decreased more for autistic children; and the magnitude of autism-based differences in public coverage significantly increased during the pandemic.

Conclusion Federal relief efforts likely improved economic outcomes of children; however, these effects varied according to type of hardship and by disability group. Efforts to promote economic well-being among autistic populations should be tailored to the financial challenges most salient to low-income autistic children, like food insecurity.

Keywords Autism · COVID-19 · Poverty · Hardship · Economic safety net

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Economic insecurity is a social determinant of health that leads to challenges in accessing healthcare and exacerbates other health determinants (Office of Disease Prevention and Health Promotion, n.d). Economic circumstances of many families in the United States worsened in the early months of the COVID-19 pandemic, particularly in areas of employment, food, and financial need (Karpman et al., 2020; Keith-Jennings et al., 2021). Low-income families were disproportionately affected; over two-thirds of non-elderly adults below the federal poverty line (FPL) reporting some type of hardship during early 2020 (Karpman et al., 2020). In response to growing economic needs, the federal government passed the Families First Coronavirus Response Act (FFCRA) and the Coronavirus Aid, Relief and Economic Security (CARES) Act in early 2020, to ameliorate the adverse consequences of the pandemic. These efforts have been shown to mitigate economic challenges among the broader population and especially among

low-income groups (Cooney & Shaefer, 2021). Yet the protective effects of these policies were less pronounced among certain minoritized subgroups such as race and ethnicity (Keith-Jennings et al., 2021). It is unclear whether the compounding impacts of COVID-19 and protective effect of federal programs differentially impacted autistic children.

Recent analyses of national Medicaid claims and private insurance claims data found that autistic youth and adults were at higher risk for exposure to COVID-19 and had a higher likelihood of hospitalization from COVID-19 infections than non-autistic youth and adults (Karpur, Vasudevan, Shih et al., 2022; Schott et al., 2022). Limited evidence also suggests that the pandemic exacerbated mental health and behavioral challenges among autistic children (Patel et al., 2023). Minoritized and low-income children bore a disproportionate brunt of the pandemic with one study reporting increases in negative behaviors among the subgroup of autistic children from lower-income and food insecure households (Panjwani et al., 2021). The heightened hospitalization rates and increased prevalence of challenging behaviors observed among autistic children during the pandemic may contribute to a substantial rise in out-of-pocket medical expenditures for parents, subsequently exacerbating their financial hardship. Some scholars have published commentaries and reviews highlighting the unique financial challenges youth with autism and their families faced due to COVID-19 (Alonso-Esteban et al., 2021; Bellomo et al., 2020; Teixeira et al., 2023). Manning et al. (2021) found that roughly 31% of caregivers of autistic children and adults in Michigan experienced financial-related stress during COVID-19. A recent population level analysis also reported higher rates of food insecurity among families with autistic children during COVID-19 versus those of children without autism (Anderson et al., 2023; Karpur, Vasudevan, Frazier et al., 2022; Vasudevan et al., 2021). Yet, it is unclear whether the magnitude of these differences in economic indicators changed during the COVID-19 pandemic. More empirical research on the impacts of COVID-19 among autistic populations is sorely needed.

In sum, the COVID-19 pandemic has exacerbated already-existing disparities and inequities among minoritized and lower income groups (Gray et al., 2020). However, little is known of the pandemic's economic impact on the subgroup of low-income families of autistic children. Population-level tracking of social determinants of health will be beneficial to understand the differential impact of COVID-19, to identify the most vulnerable groups, and to develop equitable public health measures and interventions. This study draws from nationally representative data to offer a more comprehensive picture of the economic impacts of COVID-19 on children with autism and their families. We address the following two aims: (1) to examine differences

in economic hardship and safety net use after the federal government implemented relief efforts, by autism status, and (2) to assess whether COVID-19 exacerbated autism-based disparities in economic hardship and safety net use. Several organizations, including the American Academy of Pediatrics, recommend screening patients for social and economic needs in pediatric and primary care settings (Gitterman et al., 2016; National Academies of Sciences, Engineering and Medicine, 2019a). Findings from this study can enhance health care providers' capacity to identify and mitigate economic risks and promote health equity. Our findings can also improve understanding of how federal safety net programs serve autistic children and inform future policy responses to economic downturns. Finally, this study produces national benchmark indicators that policymakers can use to monitor progress and identify health disparities and determinants of these disparities, a national priority in autism research (kar Autism Coordinating Committee, 2020).

Overview of Safety Net Programs

This study considers two major categories of safety net programs: cash assistance from a government welfare program and food assistance. Cash assistance refers to federal, state and local government programs that provide means-tested benefits including: the *Supplemental Security Income (SSI)*, a federally funded income maintenance program that provides monthly cash benefits to people with limited income and resources who have a disability; the *Temporary Assistance to Needy Families (TANF)*, formerly Aid to Families with Dependent Children or AFDC), a federal-state block program that offers cash welfare for low-income families; and *general assistance programs*, which are state and locally funded programs that offer benefits to low-income persons who are not eligible for federal benefits (Moffitt & Moffitt, 2003; Wittenburg, 2003). Food assistance refers to programs that help financially vulnerable people access nutritional food. This study focuses on three major food assistance programs: the *Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)* program – which provides food packages to pregnant and postpartum women and young children; the Supplemental Nutrition Assistance Program (SNAP, previously referred to as food stamps) – which provides food vouchers and nutritional assistance to eligible low-income individuals and families; and *free or reduced-cost meals* – or the National School Breakfast or Lunch Programs (NSBLP) – which provides free or subsidized breakfast and/or lunch in school (Hartline-Grafton & Hassink, 2021). While these programs comprise only part of the safety net for autistic children and their families, they were chosen because they serve a significant number

of households of individuals with disabilities (Boat & Wu, 2015; Houtenville & Brucker, 2014; Wittenburg, 2003). We also consider public health insurance - like Medicaid and the Children's Health Insurance Program (CHIP) – to be part of the economic safety net.

The four safety net programs explored in this study (including: cash assistance, WIC, SNAP, and NSBLP) play a significant role in reducing poverty rates among households of children, including those with disabilities (National Academies of Sciences, Engineering, and Medicine, 2019b Panjwani a; Sherman et al., 2016; Wherry et al., 2016). Duggan and Kearny's (2007) analysis of Social Security Administration (SSA) program data estimated that SSI enrollment reduces the probability that a child lives in poverty by approximately 11% points. Beyond poverty alleviation, safety net programs also have a long-term role in reducing economic hardships of families (McKernan et al., 2018) with SNAP receipt estimated to reduce household food insecurity and medical hardship by 12.8% points and 8.5% points, respectively (Shaefer & Gutierrez, 2013). Public health insurance has also been shown to offset out-of-pocket medical expenses and reduce material hardship among families of autistic children (Parish et al., 2015).

In the past two years, the government expanded access to wide range of federal safety net programs to address the adverse economic impacts of the pandemic. For instance, the American Rescue Plan Act (ARPA), enacted in March 2021, included provisions such as direct stimulus payments to eligible individuals and families, an expansion of the Child Tax Credit (CTC), and an increase in funding for safety net programs like SNAP and WIC. The act also provided additional food benefits to families with school-aged children who were missing out on free or reduced-price school meals due to school closures (American Rescue Plan Act (ARPA), 2021). The ARPA also addressed medical hardship by increasing the subsidies provided to individuals and families purchasing health insurance through the marketplaces, expanding eligibility for premium tax credits to include more individuals and families with higher incomes and eliminating the subsidy "cliff" that previously made individuals ineligible for premium tax credits if their income exceeded a certain level. The Families First Coronavirus Response Act (FFCRA), passed in March 2020, mandated paid sick leave and provided states with flexibility to request waivers for certain SNAP requirements, making it easier for eligible individuals and families to access SNAP benefits (Families First Coronavirus Response Act (FFCRA), 2020). The FFCRA also included continuous enrollment provisions that aimed to ensure that individuals, including children, maintained access to public health insurance coverage, particularly Medicaid and the Children's Health Insurance Program (CHIP), during the COVID-19 pandemic.

These provisions temporarily suspended certain eligibility redeterminations and disenrollments, thereby preventing individuals from losing their coverage due to changes in circumstances or income. In sum, these federal relief efforts were instrumental in providing financial support to families of children by expanding safety net programs, providing direct financial assistance, and addressing various dimensions of economic hardship (Windham, 2023).

Methods

Data and Sample

We used data from the 2018, 2019 and 2021 National Survey of Children's Health (NSCH) to compare outcomes across three groups: children with autism, children with other special health care needs (SHCN) and no autism, and children with neither autism nor SHCN. The study sample was restricted to children, ages three to 17 years, from low-income households (combined income of all household members was below 200% FPL, or \$53,000 for a family of four in 2021). We selected the threshold of 200% of the Federal Poverty Level (FPL) due to its alignment with eligibility criteria for several programs examined in this study and its consistent utilization in prior research concerning the utilization of safety net programs among children from low-income backgrounds (Boat & Wu, 2015). Children were considered to have autism if parents responded affirmatively to two survey questions: (1) has a doctor or other healthcare provider ever told you that this child had autism or autism spectrum disorder? and (2) does this child currently have the condition? We excluded 68 cases (4.04%) where the parents reported that the child ever had autism but did not currently have autism and 14 cases (0.83%) whose parents did not know or refused to answer either of the questions, resulting in a total of 1,603 eligible children with the autism (with a weighted sample size of 894,743 children). Parents of low-income children of the same age who responded "no" to ever having an autism diagnosis composed the comparison groups. Children classified as not having autism but with a positive response to the children with SHCN screener were classified as children with other SHCN and children without autism (unweighted $n=9,091$, weighted $n=4,839,682$) and children without autism or a SHCN were the third group for this study (unweighted $n=26,989$, weighted $n=18,903,425$). The children with SHCN screener (which is comprised of a battery of questions to identify children with high health-related needs) was developed in 1998–2000 as part of the Child and Adolescent Health Measurement Initiative to identify children with SHCN in population-based surveys (Bethell et al., 2015). To qualify as having

a special health care need via the screener, the child must currently experience one or more of five specified health consequences (in areas of service use and needs) and this consequence must be attributable to a medical, behavioral, or other health condition that has lasted or is expected to last at least 12 months (McPherson et al., 1998). In the NSCH, parents in participating households were first asked if one or more children, ages 0–17 years, lived in the household. If they responded yes, the household completed the children with SHCN screener and were then directed to complete an age-appropriate topical questionnaire about the health and wellbeing of the eligible child.

Measures

Economic Hardship

Understanding a household's level of economic hardship involves several aspects of a family's economic situation including their financial resources, expenses, and whether they can make ends meet. While income remains a fundamental factor in assessing economic hardship, many researchers find that measures focused solely on income may understate the economic conditions of households of children with a disability because they do not adjust for the financial demands and costs associated with caring for a child with a disability (Assing-Murray & Lebrun-Harris, 2020; Parish et al., 2008). There is variation across studies in the specific indicators used to measure economic hardship beyond household income: frequently used categories include food insecurity (Karpur et al., 2021; Rose-Jacobs et al., 2016), inability to access dental and medical care (Ghosh & Parish, 2015; Lebrun-Harris et al., 2022), and inability to pay bills (Anderson et al., 2023). Several studies have also measured out-of-pocket medical expenses and foregone parental work to better capture the expenses and financial burden associated with caring for an autistic child (Rogge & Janssen, 2019; Zhou et al., 2021). In this study, we examined five dimensions of economic hardship: household poverty level (based on the U.S. Department of Health and Human Services federal poverty guidelines), food insecurity (whether the family was unable to afford adequate food during the past 12 months), medical hardship (whether the family had difficulty paying their child's medical bills during the past 12 months), out-of-pocket medical costs (whether the amount of money paid in medical, health, dental, and vision care during the past 12 months totaled \$1,000 or more), and foregone work (whether a family member either stopped working or reduced work hours in the past 12 months because of the child's health or health condition). We also developed a dichotomous variable that indicated

whether the family experienced two or more hardships during the past 12 months.

Safety Net Use

Measures of safety net program use were drawn from four yes/no survey questions. Participants were asked, "at any time during the past 12 months, even for one month, did anyone in your family receive: (1) cash assistance from a government welfare program; (2) benefits from the WIC program; (3) food stamps or SNAP; or (4) free or reduced-cost breakfasts or lunches at school?" (hereafter referred to as NSBLP). Our measure of public health insurance coverage includes both Medicaid and the Children's Health Insurance Program (CHIP). This study considered a child to have public health insurance if they used only public health care *or* a combination of public and private health insurance.

Covariates

We controlled for the following sociodemographic characteristics: child's age (from 3 to 17 years); child's race/ethnicity (Black non-Hispanic, Hispanic any race, white non-Hispanic, other or multiple races non-Hispanic); highest level of education among reported adults (high school or less, some college, college degree or more), and state of residence. A summary of the study population demographics is available in Appendix S1 in Supplementary Material.

Analysis

To address Aim 1, we calculated adjusted prevalence and odds ratios to compare pre-COVID (2018–2019) and during COVID (2021) outcomes for each disability group. We chose to exclude estimates from the 2020 NSCH (collected from June 2020 to January 2021) since these data span from before through the first few months of the pandemic. To examine whether differences between children with autism versus other groups were more pronounced during COVID relative to pre-pandemic years (Aim 2), we calculated the adjusted odds of each outcome among children with autism compared to those of children with and without other SHCN for both 2018/19 and 2021. All models controlled for study covariates. All analyses were performed by Stata/SE version 17.0 and were based on multiply imputed income-to-poverty data. Point estimates were weighted to produce nationally representative estimates. This study was determined exempt by the Institutional Review Board at Drexel University.

Results

Changes in Economic Hardship and Safety Net Use Before and During COVID-19

As shown in Fig. 1, food insecurity significantly declined for children with other SHCN and no SHCN but increased for autistic children. Autistic children experienced the most improvements in family financial burden (e.g., medical hardship, medical costs, and foregone work). Medical hardship decreased across all groups, but more so for children with autism. Notably, autistic children were 76% less likely to have medical hardship in 2021 than in 2018/19, even after controlling for sociodemographic characteristics (OR=0.34, 95% CI: 0.17–0.70, $p < .01$). Although the proportion of children with out-of-pocket medical expenditures of \$1,000 or more did not significantly change during the pandemic, the odds of reporting zero expenses were roughly two and a half times greater during COVID than the pre-COVID years among autistic children (OR=2.31, 95% CI: 1.36–3.93, $p < .01$; data not shown). Most autistic children had zero out-of-pocket expenditures at both time points (55.6% and 71.5%, respectively; data not shown). Changes

in foregone parental work were only observed among autistic children, with the proportion of parents who had to reduce or cut work falling from 35.4% in 2018/19 to 24.9% in 2021. The adjusted odds of multiple hardships decreased 54% during the pandemic for autistic children (OR=0.46, 95% CI: 0.27–0.79, $p < .01$) and 31% for children with other SHCN (OR=0.69, 95% CI: 0.54–0.89, $p < .01$) compared to 2018/19. Income poverty was not significantly impacted by the pandemic for any of the disability groups.

Except for WIC, safety net use did not significantly change for autistic children between 2018/19 and 2021 (Fig. 2). Although the use of safety net programs generally increased during COVID, this growth was concentrated among children with other SHCN and no SHCN rather than those with autism. For instance, between 2018/19 and 2021, SNAP significantly increased for both comparison groups but changes among autistic children were nonsignificant. Likewise, the adjusted odds of multiple safety net use increased 34% during the pandemic for children with other SHCN (OR=1.34, 95% CI: 1.09–1.65, $p < .01$) and 25% for children with no SHCN (OR=1.25, 95% CI: 1.09–1.42, $p < .01$), while there were no significant changes in the odds of multi-use among autistic children. The odds of cash

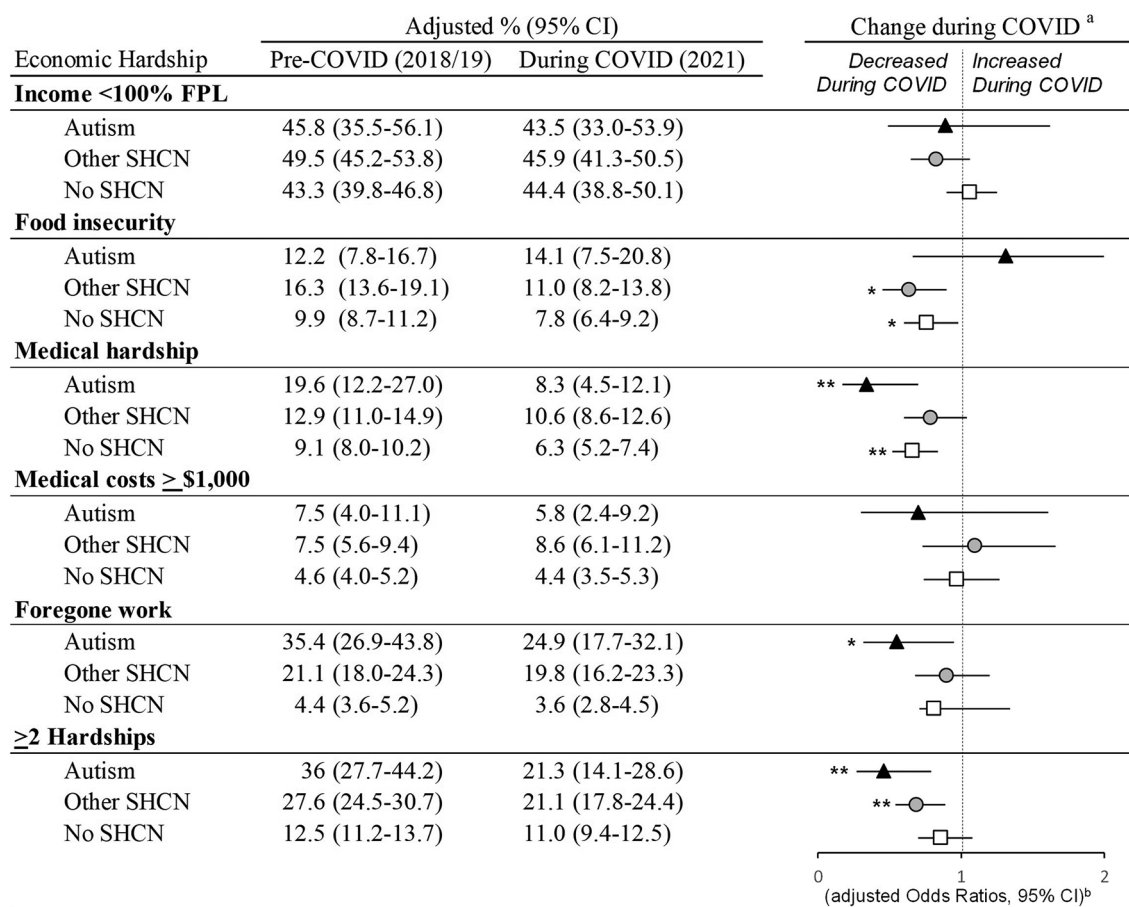


Figure 1

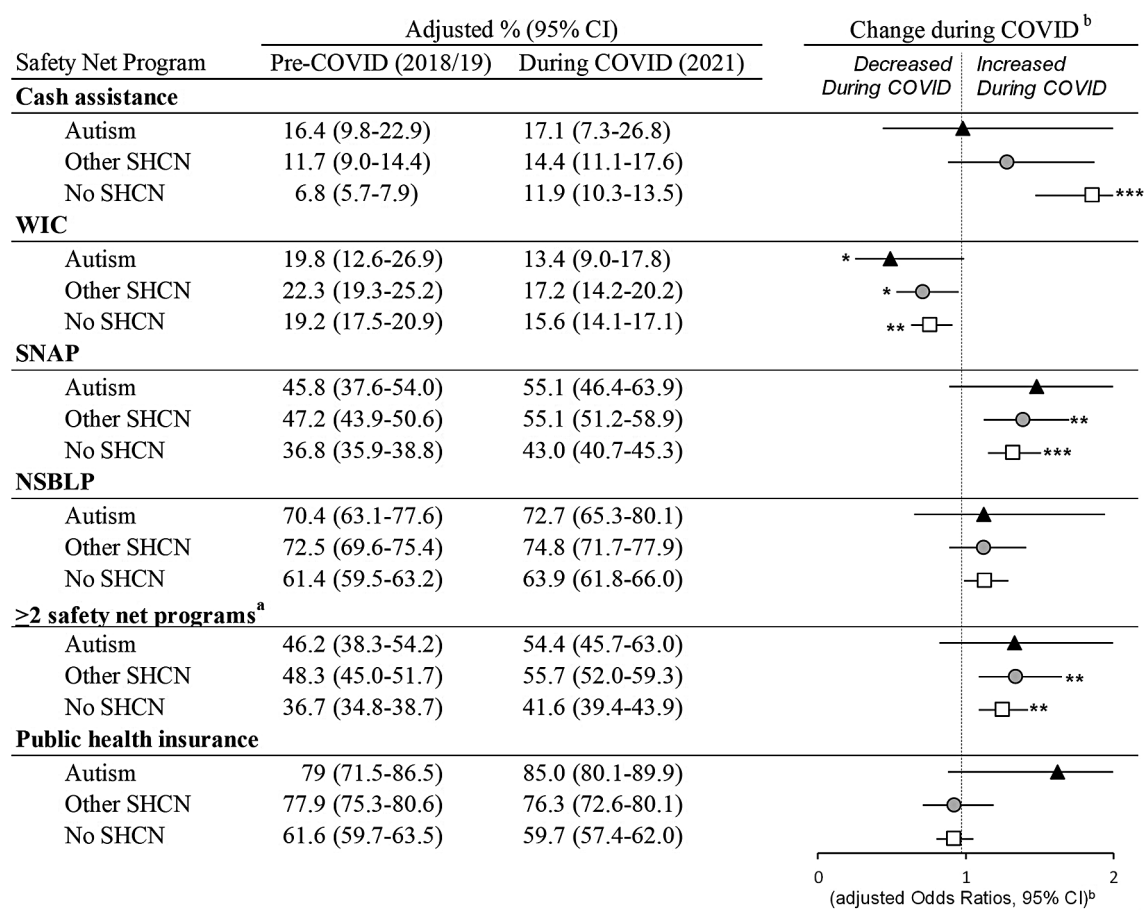


Figure 2

assistance also nearly doubled for children with no SHCN (OR = 1.86, 95% CI: 1.46–2.37, $p < .001$). We did not find significant changes in public insurance coverage across any of the three groups.

Changes in Autism-Based Disparities

As shown in Table 1, differences in economic hardship and safety net use were most prominent between autistic children and children with no SHCN. Prior to the pandemic, autistic children were at a significantly higher risk for medical hardship, foregone work, and multiple hardships than children with no SHCN. Many of these disparities persisted into the pandemic years but declined in magnitude. For instance, the adjusted odds of foregone work among parents of autistic children were 12.37 time higher in 2018/19 than those of parents of children with no SHCN (95% CI: 8.13–18.81, $p < .001$). By 2021, these odds fell to 9.25 (95% CI: 5.88–14.57, $p < .01$), representing a 25.2% percent decrease. That said, some of the autism-based disparities that were present before the pandemic (in areas of medical hardship and foregone

work) were no longer significant in 2021. Disparities in food insecurity between children with autism and those with no SHCN increased during COVID. Autistic children had significantly higher odds of food insecurity during the pandemic compared to children with no SHCN (OR = 1.97, 85% CI: 1.09–3.57, $p < .05$) even after controlling for sociodemographic characteristics.

We found that autistic children used safety net programs at much higher rates than children with no SHCN, but at similar rates to children with other SHCN. COVID-19 appeared to magnify autism-based differences in SNAP and multi-service use while reducing disparities in cash assistance. Most notably, the magnitude of differences in public health insurance coverage between autistic children and both comparison groups grew considerably during COVID. The adjusted odds of public health insurance coverage among autistic children relative to children with no SHCN nearly doubled during the pandemic year and differences in coverage between autistic children and children with other SHCN reached statistical significance in 2021.

Table 1 Autism-based differences in economic hardship and safety net use among children from low-income, ages 3–17, by year

	Pre-COVID (2018/19)			During COVID (2021)		
	OR	(95% CI)	<i>p</i>	OR	(95% CI)	<i>p</i>
Economic Hardships						
Income < 100% FPL						
Autism vs. Other SHCN ^a	0.86	(0.55–1.33)	0.49	0.9	(0.55–1.47)	0.59
Autism vs. No SHCN ^b	1.12	(0.73–1.70)	0.61	0.96	(0.55–1.67)	0.88
Food insecurity						
Autism vs. Other SHCN	0.71	(0.45–1.13)	0.15	1.34	(0.73–2.48)	0.35
Autism vs. No SHCN	1.26	(0.82–1.95)	0.30	1.97	(1.09–3.57)	< 0.05
Medical hardship						
Autism vs. Other SHCN	1.65	(1.00–2.75)	0.05	0.76	(0.44–1.32)	0.33
Autism vs. No SHCN	2.46	(1.49–4.06)	< 0.001	1.35	(0.79–2.31)	0.27
Medical costs ≥ \$1,000						
Autism vs. Other SHCN	1.01	(0.55–1.81)	0.99	0.64	(0.31–1.31)	0.22
Autism vs. No SHCN	1.72	(0.99–2.98)	0.06	1.34	(0.69–2.59)	0.39
Foregone work						
Autism vs. Other SHCN	2.08	(1.36–3.17)	< 0.01	1.36	(0.87–2.12)	0.18
Autism vs. No SHCN	12.37	(8.13–18.81)	< 0.001	9.25	(5.88–14.57)	< 0.001
≥ 2 Hardships						
Autism vs. Other SHCN	1.48	(1.00–2.18)	0.05	1.01	(0.63–1.62)	0.95
Autism vs. No SHCN	3.95	(2.71–5.76)	< 0.001	2.22	(1.40–3.52)	< 0.01
Safety Net Use						
Cash assistance						
Autism vs. Other SHCN	1.49	(0.86–2.58)	0.16	1.24	(0.58–2.67)	0.58
Autism vs. No SHCN	2.74	(1.62–4.61)	< 0.001	1.56	(0.75–3.26)	0.24
WIC						
Autism vs. Other SHCN	0.85	(0.50–1.44)	0.54	0.72	(0.45–1.15)	0.17
Autism vs. No SHCN	1.04	(0.62–1.75)	0.88	0.82	(0.53–1.26)	0.37
SNAP						
Autism vs. Other SHCN	0.94	(0.65–1.37)	0.75	1.01	(0.67–1.51)	0.99
Autism vs. No SHCN	1.48	(1.03–2.12)	< 0.05	1.68	(1.14–2.48)	< 0.01
NSBLP						
Autism vs. Other SHCN	0.89	(0.60–1.33)	0.58	0.89	(0.57–1.38)	0.60
Autism vs. No SHCN	1.54	(1.05–2.24)	< 0.05	1.56	(1.03–2.36)	< 0.05
≥ 2 Safety net programs ^a						
Autism vs. Other SHCN	0.92	(0.64–1.31)	0.63	0.95	(0.64–1.41)	0.79
Autism vs. No SHCN	1.51	(1.07–2.13)	< 0.05	1.72	(1.18–2.51)	< 0.01
Public health insurance						
Autism vs. Other SHCN	1.07	(0.65–1.75)	0.80	1.78	(1.15–2.78)	< 0.05
Autism vs. No SHCN	2.43	(1.51–3.91)	< 0.001	4.00	(2.67–6.01)	< 0.001

*** $p < .001$, ** $p < .01$, * $p < .001$ ^aParticipated in at least one of the following four safety net programs: cash assistance, WIC, SNAP and NSBLP.

Abbreviations: CI, confidence interval; FPL, Federal Poverty Level; NSBLP, national school breakfast or lunch program; OR, adjusted odds ratio; SHCN, special healthcare needs; SNAP, supplemental nutrition assistance program (previously referred to as food stamps); WIC, special supplemental nutrition program for women, infants, and children

Note: All models adjust for child age, child race/ethnicity, household income, and state. Weighted sample included children in households with income < 200% of the FPL in the National Survey of Children's Health

Discussion

Our study provides timely and comprehensive evidence on how autistic children from low-income households experience relative disadvantages related to economic hardship, an important social determinant of health. Our findings suggest

that federal relief efforts generally improved economic outcomes of children; however, these effects varied according to type of hardship and were concentrated among children without autism (Aim 1). We also found that COVID-19 exacerbated autism-based disparities in food insecurity, SNAP, and public health insurance, but alleviated inequities

in medical hardship, foregone work, and cash assistance (Aim 2).

Although the use of safety net programs generally increased during COVID-19, this growth was concentrated among children with other SHCN and no SHCN rather than those with autism. Most notably, we found that SNAP significantly increased for both comparison groups during the pandemic while changes within the autism group were nonsignificant. This is concerning considering that autistic children did not experience the same decline in food insecurity as other children and autism-based differences in food insecurity increased in magnitude during the pandemic. In 2021, autistic children were nearly twice as likely to experience food insecurity than children with no SHCN. These findings are consistent with other studies that have reported higher food insecurity risks among autistic children relative to their neurotypical peers (Karpur, Vasudevan, Frazier et al., 2022; Karpur et al., 2021; Tahech et al., 2023) and suggests a link between SNAP accessibility and food hardship. SNAP has been shown to reduce emergency department visits and food insecurity among children with SHCN (Sonik et al., 2023) and to reduce food insecurity in studies of broader populations (Mabli & Ohis, 2015). However, the extent to which SNAP mitigates food insecurity and other hardships for autistic children has yet to be empirically examined in full. More research is needed to understand correlates of SNAP usage and its effects across disaggregated groups, and among autistic persons.

We found that medical hardship decreased across all groups, but more so for autistic children. Notably, caregivers of autistic children were 76% less likely to report difficulty paying for their child's medical care in 2021 than in 2018/19, even after controlling for sociodemographic characteristics. We observed corresponding declines in out-of-pocket medical expenditures among autistic children, suggesting that hardship and costs are related. Autism-based disparities in medical hardship and foregone work between children with autism and those with no SHCN were far less prominent during the pandemic relative to the pre-COVID years, which reflects the disproportionate decline in both outcomes reported among autistic children. Reductions in medical hardship may be due to the enhanced premium tax credits provided through ARPA; however, this benefit is focused on families who purchased coverage through insurance marketplaces, which we cannot delineate from the data. That said, these provisions can indirectly affected Medicaid and CHIP beneficiaries by providing alternative coverage options. Future research could shed light on these relationships by disaggregating families according to specific sources of coverage. It is also possible that medical hardship and expenditures declined because low-income autistic children were less likely to access health services

during the pandemic. Caregiver surveys have indicated that children with autism experienced disruptions in medical and behavioral health services during the pandemic (White et al., 2021). Telehealth use also increased during the pandemic for children with autism, which could have reduced the need for in-person medical visits, thereby reducing medical costs (Bundy et al., 2023). Foregone work also significantly improved during the pandemic among autistic children, but not for children with other SHCN and no SHCN. These findings are inconsistent with results from a national sample of children with SHCN, which reported increases in childcare-related employment disruptions among children with SHCN (Easterly et al., 2022). Perhaps, increased work flexibility during COVID-19 (Cahn & McClain, 2020) addressed the longstanding need of caregivers of autistic children (Houser et al., 2014). Further investigation could help to inform future response efforts for pandemics and economic downturns. While results from our study are promising given the documented risks of financial burden among autistic families, further research is needed to determine why children with autism experienced significant improvements in medical hardship and foregone work during the pandemic. Our findings suggest that factors outside of safety net program access (such as changes in healthcare use and increased work flexibility) may be more important to mitigating such hardships among families of autistic children.

Although public health insurance did not significantly change between 2018/19 and 2021 for any group in our sample, the magnitude of differences between children with autism and both comparison groups grew considerably during COVID-19. Medicaid is an important conduit to needed programs and services, has an antipoverty effect, and helps to offset out-of-pocket medical expenses and reduce material hardship among families (Currie & Chorniy, 2021; Parish et al., 2015; Zhang & Baranek, 2016). The continuous enrollment provision in the Families First Coronavirus Response Act, facilitated access to Medicaid by permitting children to remain insured regardless of changes in their family's income. These efforts led to a significant increase in Medicaid enrollment among US children between March 2019 and March 2021, although this growth was likely concentrated among neurotypical children who had previously lower rates of enrollment than other children who were categorically eligible for Medicaid based on their diagnosis (Vasan et al., 2023). Given their eligibility, most children with autism were already enrolled in Medicaid at the start of the pandemic and thus did not stand to benefit (or need to benefit) from Medicaid's continuous enrollment program. However, it is unclear why we did not observe a significant increase in public coverage among children with no SHCN or those with other SHCN who do not qualify for categorical eligibility who would stand to benefit from the new

continuous enrollment policy. Our findings may counter national trends for several reasons. COVID-specific measures were put into place to maintain Medicaid enrollment, rather than facilitate new enrollment, and to allow people to qualify through the Marketplaces instead of through Medicaid. Findings from national administrative data suggest that enhanced Marketplace subsidies under the American Rescue Plan Act helped to facilitate enrollment during the pandemic among non-elderly adults, although uninsurance rates remained steady (Karpman & Zuckerman, 2021; McMorrow et al., 2022). It is possible that many uninsured people did not try to enroll in Medicaid due to limited knowledge of program eligibility or perceived need for coverage. Less than one-third (29%) of uninsured adults tried to obtain Medicaid or CHIP in September 2020, according to nationally representative findings (Haley & Wengle, 2021). That said, it is also important to note that national growth in child enrollment in Medicaid was less substantial than adults, and CHIP enrollment lagged relative to Medicaid (Corallo & Moreno, 2023). While these observations may help to explain our discrepancy in findings, they are largely speculative and not yet fully understood or documented.

Our study has some limitations. Most notably, safety net program use was not corroborated with records or administration data. Several studies have revealed that large proportions of safety net recipients do not report their receipt of benefits in national surveys (Klerman et al., 2005; Lynch et al., 2008). The NSCH also does not include measures about the intensity and duration of safety net benefits, and cannot distinguish between types of cash assistance programs (i.e., SSI and/or TANF). The data used in this study lack robust and specific measures that allow for the accurate identification of participants who were eligible for safety net benefit receipt. *First*, household income was categorical, which inhibits researchers from using the exact poverty levels used to determine income eligible participants (i.e., 185% of the FPL for certain safety net programs). *Second*, FPL is not a perfect indicator of safety net program eligibility because not everyone within certain FPLs is eligible to receive benefits. Many means-tested programs employ complex procedures to determine eligibility and may require information on assets of different household members, documented receipt of other safety net benefits, and proof of employment (as with TANF), disability (as with SSI), or nutritional risk (as with WIC). There are also limitations related to the measurement of food insecurity, which warrant further attention. Despite these limitations, our study's use of survey data helps to address existing limitations in administrative data analysis including the limited number of variables in administrative records and the inability to construct a comparison group of nonparticipants (Ziliak, 2015). The NSCH

also produces up-to-date point estimates that generalize to the population of United States children.

While this study provides important preliminary findings related to the economic impacts of COVID-19 on children with autism and their families, it may take several years to fully see the effects of the pandemic. Likewise, it may be too early to identify the full effects of federal relief efforts since many relief packages experienced significant delays in cash and in-kind payments, especially for low-income families. Therefore, ongoing tracking of outcomes is needed to fully assess the impacts of the pandemic and relief efforts on health and its social determinants. At present, most population-based data that disaggregate samples by autism diagnosis are cross-sectional. To move this area of inquiry further, we need longitudinal studies that include a socioeconomically diverse group of autistic youth and measures that can reliably and validly examine change in economic hardship over time. Qualitative and mixed methods research are also needed to garner a deeper understanding of the mechanisms that underlie these patterns of hardship and safety net use.

Conclusion

We found a general increase in safety net use and decrease in economic hardships during the pandemic, indicating that federal efforts likely improved hardship and program access. However, decreases in hardship were largely concentrated within the no SHCN group and growth in safety net programs was concentrated among children with other SHCN and no SHCN rather than those with autism. Together, these findings suggest that pandemic-related efforts to reduce hardship seemingly had the greatest impact among children with no SHCN as opposed to those with autism and other SHCN. Inequities and challenges related to safety net program access will likely be exacerbated as pandemic relief efforts end. Therefore, professionals and policymakers should strengthen their advocacy efforts and support policies that facilitate equitable access to safety net benefits. It is also imperative that healthcare professionals adopt screening and referral practices that better connect pediatric populations to needed programs. These practices should address the unique needs present among low-income children with autism and be tailored to the financial challenges most salient to them, like food insecurity.

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