The Association Between Parental Nativity and Developmental Disabilities in the United States: The National Survey of Children's Health

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Abstract

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Background: One in six (17%) children ages 3-17 are diagnosed with developmental disabilities (DD) in the United States. Due to the significant burden of DD on children and families, it is important to understand upstream factors that may contribute to this condition. Nativity has been explored in studies examining child health outcomes; however, few studies exist assessing the relationship between nativity and DD. Our study examined the associations between parental nativity and DD. We also examined whether this association differed by race, acculturation, or child nativity.

Methods: This cross-sectional study was conducted using the 2018-2019 National Survey of Children's Health (unweighted N= 47,678). We compared the prevalence of DD between children with US-born and foreign-born parents. We fit unadjusted and adjusted log-binomial regression models to estimate DD prevalence ratios (PRs) and corresponding 95% confidence intervals (CIs). Multivariable models were adjusted for child sex, income level, parental education level, and child health insurance status. We also fitted adjusted models stratified by child nativity, acculturation (defined by primary language spoken at home), and race/ethnicity (White, Hispanic, Black, Asian, American Indian or Alaska Native, Native Hawaiian or Pacific Islander, Multi-race, and “Other”). In addition, we fitted adjusted models including interaction terms for the exposure and each potential effect modifier (child nativity, acculturation, and race/ethnicity) to assess statistical significance of interaction.

Results: The population in the study included a weighted total of 54,451,765 children ages 3-17. 21% of parents were told by their doctor, health care provider, or educator that their child had a DD; 15% among children with foreign-born parents and 23% among children with US-born parents. Children with parents born in the US had a higher prevalence of DD compared to children with foreign-born parents (aPR = 1.58, 95%CI: 1.41 – 1.77). Among US-born children, children with US-born parents, compared with children with foreign-born parents, had a higher prevalence of DD (aPR=1.22; 95% CI: 1.19 – 1.25). Similar but weaker associations were observed among foreign-born children (aPR=1.07; 95%CI: 1.06 -1.09). In not acculturated households (households whose primary language is not English), DD prevalence was significantly higher among children with US-born parents compared with children with foreign-born parents (aPR= 1.07, 95%CI: 1.05 – 1.08). This association was not present in acculturated households (aPR=0.99; 95%CI: 0.97 – 1.01, interaction $p = 0.747$). Children with US-born parents had higher rates of DD compared with foreign-born parents among Blacks (aPR=1.10, 95%CI: 1.06 – 1.14), American Indians or Alaska Natives (aPR of 1.20, 95%CI: 1.18 – 1.22) and Native Hawaiians or Pacific Islanders (aPR =1.17 CI: 1.16 – 1.19). Weaker associations were observed for Whites (aPR=1.03, 95%CI: 1.01 – 1.05), Hispanics (aPR = 1.05, 95%CI: 1.08 – 1.13) and Asians (aPR=1.07, 95%CI: 1.14 – 1.21). The interaction p-value for parental nativity and “Other” race was not statistically significant (p=0.630); however, the interaction p-value for multi-race was statistically significant (p=0.23).

Conclusion: Children of immigrant parents have a lower prevalence of DD compared to children with US-born parents, particularly among immigrant children, children in not acculturated

households, and children from Black, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander families. Our results may reflect the healthy immigrant effect or inadequate DD screening/detection. Future research should focus on a better understanding of the associations and potential underdiagnosis of DD among children of immigrant parents.

Introduction

Over the years, the prevalence of developmental disabilities (DD) in children ages 3 to 17 in the United States increased from 13.9% in 2008 to 16.9% in 2017 .[1] DD are "a group of conditions due to an impairment in physical, learning, language, or behavior areas. These conditions begin during the developmental period, may impact day-to-day functionating, and usually last through a person's lifetime".[2] DD include Attention Deficit Hyperactivity Disorder, autism spectrum disorder, cerebral palsy, hearing loss, vision impairment, intellectual and learning disabilities, among others.[1] Risk factors for developing DD include genetics, infections, nutritional deficiencies, exposures to environmental toxins, perinatal and neonatal factors, poverty, and trauma.[3] Besides these risk factors, it is important to understand upstream factors that may contribute to DD.

Nativity has been explored in studies examining child health outcomes; however, few studies exist assessing the relationship between nativity and DD.[4–6] Studies examining Attention Deficit Hyperactive Disorder and Autism Spectrum Disorder and their association with parental nativity have determined that children with US-born parents have higher prevalence compared to children with immigrant parents.[7,8] In addition to the sparsity of the data, other limitations of previous studies include lack of study power due to small sample sizes and lack of generalizability to the United States population.

The healthy migrant effect is "the fact that on many measures, first-generation immigrants are often healthier than US-born residents who share similar ethnic or racial backgrounds."[9–12] There are theories explaining the healthy migrant effect; two of the most plausible theories include that immigrants may have healthier habits and behaviors in their home country before migration. Secondly, only those who are healthy and financial able migrate; their better health can be attributed to better diets, access to clean water and sanitation, and less exposure to environmental risks.[13]

The current study used national data from the 2018-2019 National Survey of Children's Health to assess the associations between parental nativity and DD. Given differences in baseline levels of DD and the potential role of healthy migrant effect in associations, we examined whether this association differs by child nativity, acculturation, and race.[1,5] Based on our understanding of the healthy migrant effect as well as potential underdiagnosis of DD in immigrant children, we hypothesized that children whose parents are foreign-born will have a lower prevalence of DD compared to children whose parents are US-born. We hypothesize that this association will be stronger among non-white children, foreign-born children, or children from non-accultured households. This study will add to scientific knowledge that may assist in identifying certain demographic groups that may be at higher risk of DD, and effectively design and implement culturally adapted support programs.

Methods

Study Design and Study Setting

This is a cross-sectional study investigating parental nativity (US or foreign-born) and childhood DD. The study was conducted using data from the 2018-2019 National Survey of Child's Health study. Since 2016, the National Survey of Children's Health has conducted annual self-administered web and paper-based questionaries for parents of children ages ranging from 0 to 17 living in the United States.[14] The survey collects national and state-level data on children's physical and emotional health, quality of care, neighborhood characteristics, and child special health care needs.

Study Participants

Study participants were identified by randomly sampling households in the United States. Households were mailed an invitation to fill out a screening questionnaire and asked whether one or more children lived in the household. If more than one child was reported per household, all children's demographics were collected, and one child was randomly selected as a participant for survey completion.[15] In 2018 and 2019, data was collected for 59,963 children.

Those who did not report parental nativity and DD status were excluded from the current study. Additionally, some DD may not be recognized before age 3, therefore children ages 0-2 were also excluded. The total study sample size included data from 47,678 participants: 39,396 U.S.-born parents, 8,282 foreign-born parents (*Figure 1)*. The current study used de-identified "human subjects" data, thus did not need institutional review board approval nor require an exemption as stated by the University of Washington Human Subjects Division.[16]

Data Collection and Variable Definitions

The National Survey of Children's Health uses survey questions to collect data on socio-demographic conditions. Parental nativity was measured with the following survey question: 1) What is the generational status of this child's parents? And was coded as a binary variable; parent(s) born in the US or any parent born outside of the U.S. were classified as foreign-born. Parents who answered "other" or with missing values were excluded from the analysis. The outcome of interest was being diagnosed with a DD. To assess the outcome, a new variable that compiled answers to the following nine questions regarding diagnosis of DD (Attention Deficit Hyperactive Disorder, autism spectrum disorder, cerebral palsy, hearing loss, vision impairment, developmental delays, speech or other language impairment, intellectual and learning disabilities) was created: 1) Has a doctor, other health care provider, or educator ever told you that this child has [X condition]? Participants who did not report disability status or with missing values in all nine questions were also excluded. Household acculturation was measured using the primary language spoken in the household as a proxy. Households who reported speaking English in the household were classified as being accultured to the United States. Child nativity was measured by asking whether the child was born in the United States. Lastly, we measured race with the following question: What is the race of this child?[8] White, Hispanic, Black, Asian, American Indian or Alaska Native, Native Hawaiian or Pacific Islander, multi-race, and "other" races. Other covariates we considered included maternal and child age, child sex, household income level, parental education level, and child health insurance status. Maternal ages ranged from 18 to 45, and child ages ranged from 3 to 17. Household income level was determined by federal poverty level guidelines (FPL; 0-99%, 100-199%, 200-399%, and 400% or above); parental education level was defined as the highest level of education attained (less than high school, high school degree or GED, some college or technical school, and college degree or higher). Finally, child insurance status was measured as not insured or insured at the time of the survey.

Data Analysis

We summarized the following variables using descriptive statistics: child and maternal age, parental nativity, DD, acculturation, race, child nativity, income level, parental education level, and child health insurance status. Categorical variables were summarized as n (percentage) and continuous variables were summarized as mean (standard deviation). To examine the association between parental nativity and DD, we fit an unadjusted and adjusted log-binomial regression models and estimated prevalence ratios (PRs) and corresponding 95% confidence intervals (CIs). The primary exposure variable was parental nativity, and the outcome variable was DD. Using Directed Acyclic Graphs (DAG), child sex was determined to be a precision variable; household income level, parental education level, and child health insurance status were found to be confounders. Multivariable adjusted models included exposure and outcome variables along with variables for child sex, household income level, parental education level, and child health insurance status. We also fit adjusted models described above stratified by child nativity, acculturation, and race/ethnicity. In addition, we fit models that included exposure, outcome, adjustment variables, as well as interaction terms for the exposure and each potential effect modifier (child nativity, acculturation, and race/ethnicity). The p-values for the interaction terms were used to determine the statistical significance of multiplicative interactions. P-value<0.05 was used to determine statistical significance.

All analyses were conducted using RStudio version 1.3.959.

Results

The population in the current study included a weighted total of 54,451,765 children ages 3 to 17. The mean age of children was ten years old, and the mean maternal age was 30 years old. About 86% of households were classified as acccultured. About half (52%) of children were white, 25% Hispanic, 12% Black, less than 5% Asian, 0.3% American Indian or Alaska Native, 0.1% Native Hawaiian or Pacific Islander, 5.3% multi-race, and 0.3% "other." (*Table 1*). Overall, 28% of children had at least one foreign-born parent, while only 5% of children were foreign-born. Furthermore, 21% of parents were told by their doctor, health care provider, or educator that their child had a DD. Speech impairment was the most common DD among both exposure groups (foreign-born parents: 6.7% vs. US-born: 9.6%). Lastly, there were differences among children with foreign-born and US-born parents; 53% of households with foreign-born parents spoke a language other than English at home, compared to 99% among households with US-born parents. The majority of children in households with foreign-born parents were Hispanic (52%) and among US-born households, the majority was white (66%). Children with foreign-born parents were less likely to be insured (90.4% vs. 94.7%) and have a DD (15% vs. 23%), compared with children with US-born parents.

Children with parents born in the US had higher prevalence (aPR) of DD compared to children with foreign-born parents (aPR = 1.58, 95%CI: 1.41 – 1.77 *p* = <0.001- *Table 2*). Among US-born children, children with US born parents, compared with children of foreign-born parents, had a 22% higher prevalence of DD (aPR of 1.22, 95% CI: 1.19 – 1.25). Similar but weaker associations were observed among foreign-born children (aPR=1.07; 95%CI: 01.06 - 1.09, interaction *p* = <0.001) (Table 3).

In not acculturated households, DD was significantly higher among children with US-born parents compared with children with foreign-born parents (aPR= 1.07, 95%CI: 1.05 – 1.08, interaction *p* = <0.001). This association was not present in accultured households (aPR=0.99; 95%CI: 0.97 – 1.01, interaction *p* = 0.747*)*. Children with US-born parents had higher rates of

DD compared with foreign-born parents among Blacks (aPR=1.10, 95%CI: 1.06 – 1.14), American Indians or Alaska Natives (aPR of 1.20, 95%CI: 1.18 – 1.22) and Native Hawaiians or Pacific Islanders (aPR =1.17 CI: 1.16 – 1.19). Similar, but weaker associations were observed for Whites (aPR=1.03, 95%CI: 1.01 – 1.05), Hispanics (aPR = 1.05, 95%CI: 1.08 – 1.13) and Asians (aPR=1.07, 95%CI: 1.14 – 1.21). Stratification and interaction results most differed by 0.1 among aPRs. However, we did see a large difference when analyzing Asian and “Other” races; these resulted in having higher aPRs by 0.9. Additionally, most statistically significant interaction p-values were consistent with statistically significant stratified p-values, except for “Other” race, which did not have a statistically significant interaction p-value (p=0.630) but did have a statistically significant p-value with stratification (p=0.008). Conversely, the Multi-race interaction p-value was statistically significant (p=0.023) but was not statistically significant with stratification (p=0.151).

Discussion

We found that children with parents born in the United States had a higher prevalence of DD when compared to children with foreign-born parents. We also observed significant effect modification of these associations by child nativity, acculturation, and race. This association was stronger and statistically significant among children who were born in the US, children living in not accultured households, Black, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander children. The association was weaker but still significant among foreign-born children, Whites, Hispanics, and Asians. We did not observe association among children living in accultured households.

Our findings are consistent with previous studies that examined nativity status, DD, child health outcomes, DD, and nativity status.[8,17–20] A cross-sectional study conducted in New York public schools during the 2009-2011 academic years examined nativity as a determinant of child health. It was determined that U.S.-born children with U.S.-born parents were more likely to be diagnosed with a DD compared to U.S.-born children with immigrant parents or immigrant children with immigrant parents (6.2%, 4.5%, and 2.8%, respectively).[8] Moreover, it was also found that U.S.-born children with U.S.-born parents had the highest socioeconomic status and best access to healthcare. The authors suggested that the low prevalence of health conditions, including DD, among children with foreign-born parents, may be due to undiagnosed health conditions because of a lack of access to healthcare. However, these findings are also consistent with the healthy migrant effect that had not been explored as a potential explanation in studies examining parental nativity and child health outcomes.[8]

Child nativity also played a significant role in the association between parental nativity and DD; associations were stronger among children born in the US than foreign-born children. These results are consistent with the 2009-2011 New York public schools' study where US-born children with US-born parents were more likely to report having a DD than foreign-born children with US-born or foreign-born parents (6.2%, 4.5, and 2.8%; respectively).[8] While authors stated that immigrant children were less likely to report a DD, suggesting missed diagnosis, these findings are also consistent with the healthy migrant effect.[8]

The use of acculturation in our study allowed us to explore, to some extent, whether the healthy migrant effect modified the relationship between nativity and DD. Children with US-born parents living in non-accultured households had a higher DD prevalence than children with foreign-born parents living in non-accultured households. This association was not present in accultured households. This suggests that acculturation may have lessened or removed potential differences in both diagnosis or the healthy migrant effect. The other potential explanation for our observation may be that among children with US-born parents, only 1% of children lived in not accultured households, compared to 47% among children with foreign-born parents. We used language as a variable describing acculturation. However, other studies suggest using different variables, besides language, to assess acculturation, including variables such as duration in the US, age of arrival, region of birth, citizenship, and documented status.[19,21]

Lastly, our results indicated that among Black, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander children had a stronger association between parental nativity and DD were stronger. Our results differed from the New York public school's study, where similarly stronger associations were observed among Blacks and Whites.[8] Overall, despite the strength of the associations, across all racial groups, children with foreign-born parents had a lower DD prevalence than US-born children with US-born parents.

To our knowledge, our study is the first national study to examine the association between parental nativity and child DD. We were unable to analyze whether our results could be affected by underdiagnosis among children with foreign-born parents and foreign-born children. Previous studies have demonstrated that children with at least one foreign-born parent or non-citizens are more likely to lack a usual site for health care, increasing the risk of underdiagnosis.[18,22–24] Moreover, children with more accultured parents have worse health outcomes and lower immunization rates, not accounting for parental nativity – as reflected by the healthy migrant effect. [18,25,26] Over time and through second and later generations, the healthy migrant effect diminishes; this is known to be the "paradox of assimilation".[10,27] Evidence suggests that the healthy migrant effect weakens due to assimilation into US culture, as immigrants adopt poor health behaviors and lifestyles, in addition to other factors such as their experiences in the US (age, education, occupation, wealth, skills, and English language proficiency), poverty, lack of adequate housing, and barriers to health care access.[10,28] Therefore, future studies should analyze health care accessibility, utilization, and diagnosis of DD among immigrant parents and immigrant children, in addition to using a more indicative proxy for acculturation and assimilation.

The American Academy of Pediatrics recommends developmental monitoring at every pediatric preventative visit through the age of 5 years old, general developmental screening using screening tools for children 9, 18, and 24 or 30 months, and autism-specific screening for all children 18, and 24 or 30 months.[29–31] Without screening, only 30% of child DD issues are identified before kindergarten. To further stress this discrepancy, racial disparities in monitoring, screening, and early identification of developmental delays exist; studies have determined that Hispanic and Black children are less likely to receive conjoint screening (both monitoring and screening) and experience lower rates of early identification of DD. Additionally, underdiagnosis or late diagnosis of DD is more common among children of immigrant parents.[17,37]Pediatricians, healthcare providers, and educators working with children should be aware of the factors that may lead to underdiagnosing children with DD; such as overreliance on clinical judgment by healthcare providers, lack of communication between healthcare providers and parents during screening, and failure to refer children to early intervention services (EI).[29,38–40] Schools and educational services, should also communicate effectively with parents and health care providers when it is suspected that a child has a developmental disability; per *The Individuals with Disabilities Act*, schools are required to evaluate children with disabilities. If determined that the child has a developmental disability, children should be referred to specialized care and education, regardless of immigration status.[41,42]

To mitigate the effects of the paradox of assimilation and possible underdiagnosis of children of immigrant parents and immigrant children, state and local health departments should offer support services for immigrant families unfamiliar with the US health care system and social services, as they assimilate, to prevent the adoption of poor lifestyle and health behaviors, increase health care use, and reduce experiencing factors that may affect health; such as low education, low English proficiency, occupation, and poor living conditions.[19] Support services should also include access to interpreter services, culturally competent medical care with additional allocated time for children with disabilities, and assistance with transportation to medical appointments.[43] Results from a qualitative study including immigrants with intellectual and DD indicate that immigrants lack access to public insurance programs, have difficulty understanding their health care providers due to having Limited English proficiency, lack access to more preventative resources compared to the general population, undergo challenges finding culturally competent medical, and have difficulty with transportation to specialized care.

Limitations

The current study will assist in understanding nativity-related DD disparities, as well as modifiers, and add to the existing literature on potential risk factors of DD. Our findings need to be interpreted in light of several potential limitations. The use of self-reported data was a limitation of this study. Self-reported surveys can lead to biases such as social desirability bias and misclassification. When asking parents about nativity, we may have encountered parents who reported being born in the U.S., due to fear of the confidentiality of the study in the case of being undocumented. Misclassification of child's health status due to parental underreporting and language spoken at home are additional limitations. However, future studies should examine other proxies for acculturation. Confounders were chosen a priori based on the literature on parental nativity and DD; there may be other potential confounding factors not collected in the survey, which could not be included in our analysis.

Conclusion

We found that children of immigrant parents have a lower prevalence of DD compared to US-born children and children with US-born parents, particularly among immigrant children and children in not accultured households and children from Black, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander families. This may reflect the healthy immigrant effect or inadequate screening/detection. Future research should focus on better understanding the associations and potential underdiagnosis of DD among children of immigrant parents. Findings from this research could help identify children at risk of DD and inform the design and implementation of preventative and early intervention approaches.

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Tables and Figures

Table 1. Demographic Characteristics of Children and Parents in the United States Stratified by Parental Nativity Status, National Survey of Children's Health 2018-2019, N= 47,678 (Unweighted)

	Weighted Number (%) of Participants*					
	Parental Nativity					
	Foreign-Born		US Born		Total	
Characteristics	**(N= 15,280,746)**	**%**	**(N=39,171,019)**	**%**	**(N=54,451,765)**	**%**
Child's Sex						
Female	7,216,407	47.0	19,304,769.0	49.0	26,521,176	49.0
Male	8,064,339	53.0	19,866,250.0	51.0	27,930,589	51.0
Child Age (3-17)						
Mean (SD)	10 (7, 14)		10.0 (6, 14)		10 (6, 14)	
Maternal Age (18-45)						
Mean (SD)	31 (26, 35)		29.0 (25, 33)		30 (25, 34)	
Child Nativity						
Foreign-Born	2,178,332	14.0	535,940	1.4	1654	5.0
US Born	13,102,414	86.0	38,500,752	98.6	45898	95.0
Household Acculturation						
No	7,088,692	47.0	539,044	1.4	7,627,736	14.0
Yes	8,012,846	53.0	38,513,152	98.6	46,525,999	86.0
Race						
White	2,334,840	15.0	25,730,100	66.0	28,064,940	52.0
Hispanic	7,970,370	52.0	5,790,806	15.0	13,761,176	25.0
Black	1,720,040	11.0	5,001,943	13.0	6,721,983	12.0
Asian	2,266,372	15.0	322,882	0.8	2,589,254	4.8
American Indian or AN	21,147	0.1	160,082	0.4	181,229	0.3
Native Hawaiian or PI	47,109	0.3	31,982	<0.1	79,090	0.1
Multi-race	821,737	5.4	2,044,853	5.2	2,866,590	5.3
Other	99,131	0.6	88,372	0.2	187,502	0.3
Household Income						
0-99% FPL	3,630,584	24.0	5,960,354	15.0	9,590,938	18.0
100-199% FPL	4,103,136	27.0	7,515,677	19.0	11,618,814	21.0
200-399% FPL	3,691,281	24.0	11,917,444	30.0	15,608,725	29.0
400% FPL or more	3,855,745	25.0	13,777,544	35.0	17,633,289	32.0
Child Health Insurance Status						
Not Insured	1,464,135	9.6	2,077,464	5.3	3,541,600	6.5
Insured	13,771,740	90.4	36,998,739	94.7	50,770,479	93.5
Parental Education						
Less than High School	3,296,426	22.0	1,597,216	4.1	4,893,641	9.0
High School Degree	2,942,180	19.0	6,912,412	18.0	9,854,592	18.0
Some College	2,364,383	15.0	9,423,958	24.0	11,788,341	22.0
College Degree or Higher	6,677,757	44.0	21,237,434	54.0	27,915,191	51.0
Developmental Disability						
No	12,918,102	85.0	30,028,939	77.0	42,947,041	79.0
Yes	2,362,644	15.0	9,142,080	23.0	11,504,724	21.0

Attention Deficit Hyperactive Disorder (ADHD)						
No	14,547,787	95.2	34,787,473	89.0	49,335,259	90.6
Yes	732,959	4.8	4,383,547	11.0	5,116,506	9.4
Autism Spectrum Disorder (ASD)						
No	14,863,389	97.3	37,927,985	96.8	52,791,373	97.0
Yes	417,357	2.7	1,243,035	3.2	1,660,392	3.0
Cerebral Palsy						
No	15,247,828	99.8	39,042,181	99.7	54,290,008	99.7
Yes	32,918	0.2	128,839	0.3	161,757	0.3
Hearing Loss						
No	15,035,620	98.4	38,640,702	98.6	53,676,322	98.6
Yes	245,126	1.6	530,317	1.4	775,443	1.4
Vision Impairment						
No	14,904,619	97.5	38,512,014	98.3	53,416,633	98.1
Yes	376,127	2.5	659,006	1.7	1,035,133	1.9
Speech Impairment						
No	14,259,122	93.9	35,391,050	90.4	49,650,172	91.2
Yes	1,021,624	6.7	3,779,969	9.6	4,801,593	8.8
Developmental Delay						
No	14,544,005	95.2	36,202,451	92.4	50,746,456	93.2
Yes	736,741	4.8	2,968,569	7.6	3,705,309	6.8
Intellectual Disability						
No	15,079,448	98.7	38,780,366	99.0	53,859,814	98.9
Yes	201,298	1.3	390,653	1.0	591,951	1.1
Learning Disability						
No	14,496,972	94.9	36,097,290	92.2	50,594,262	92.9
Yes	783,774	5.1	3,073,729	7.8	3,857,503	7.1

*The following were not included due to missing data: Mother's age (2%), Child Nativity (0.3%), Household Acculturation (0.4%), Insurance (0.2%).

Table 2. Crude and Adjusted Prevalence Ratios (PR) for Developmental Disabilities by Parental Nativity, National Survey of Children's Health 2018-2019

	Parental Nativity				
	Foreign-Born		US Born		
DD	**PR**	**95%CI**	**PR**	**95% CI**	**P-value**
All DD					
Crude PR	1.00	Reference	**1.51**	**1.34 - 1.70**	**<0.001**
Adjusted PR	1.00	Reference	**1.58**	**1.41 - 1.77**	**<0.001**

Crude and adjusted PRs were calculated to assess confounding; adjustment by income, parental education, and child health insurance status.

Table 3. Adjusted Prevalence Ratios (aPR) for the Association Between Parental Nativity and Developmental Disabilities Stratified by Child Nativity, Household Acculturation, and Race; National Children of Surveys Health 2018-2019

	Parental Nativity				
	Foreign Born		US Born		
Variable	**aPR**	**95%CI**	**aPR**	**95% CI**	**P- value**
Child Nativity					
US Born	1.00	Reference	**1.22**	**1.19 - 1.25**	**<0.001**
Foreign Born	1.00	Reference	**1.07**	**1.06 - 1.09**	**<0.001**
Household Acculturation					
Accultured	1.00	Reference	0.99	0.97 - 1.01	0.708
Not Accultured	1.00	Reference	**1.07**	**1.05 - 1.08**	**<0.001**
Race					
White	1.00	Reference	**1.03**	**1.01 - 1.05**	**0.033**
Hispanic	1.00	Reference	**1.05**	**1.08 - 1.13**	**0.002**
Black	1.00	Reference	**1.10**	**1.06 - 1.14**	**<0.001**
Asian	1.00	Reference	**1.07**	**1.14 - 1.21**	**<0.001**
American Indian or AN	1.00	Reference	**1.20**	**1.18 - 1.22**	**0.008**
Native Hawaiian or PI	1.00	Reference	**1.17**	**1.16 - 1.19**	**0.013**
Multi-race	1.00	Reference	1.04	1.01 - 1.07	**0.151**
Other	1.00	Reference	**1.14**	**1.11 - 1.16**	0.008

aPR: Adjusted PRs by income, parental education, and child health insurance status. Bolded P-values were statistically significant when included in models as interaction terms.

Figure 1: Flow Chart of Participant Inclusion and Exclusion