



# Prevalence of Adverse Childhood Experiences in Low-Income Latino Immigrant and Nonimmigrant Children

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**Objective** To estimate the prevalence of adverse childhood experiences in low-income Latino children and examine differences in the prevalence of adverse childhood experiences by immigrant generational status.

**Study design** This is a secondary data analysis of the 2011-2012 National Survey of Children's Health, a telephone survey of parents/caregivers of a nationally representative sample of US children. The study sample was limited to Latino children in households with an annual income  $\leq 200\%$  of the federal poverty level (FPL) whose parents responded to a 9-item inventory of adverse childhood experiences. Descriptive statistics estimated the prevalence of adverse childhood experiences and examined differences in prevalence by immigrant generational status.

**Results** Of 22 297 children, 29% (n = 6483) were Latino (9% first generation, 57% second generation, 30% third or higher generation); 25% (n = 1692) of all Latino children were exposed to 2 or more adverse childhood experiences. Latino immigrant children had a lower prevalence (13%; n = 801) compared with nonimmigrant Latino children (40%; n = 772). The most common adverse childhood experiences were financial hardship and parent divorce/separation. The total number and mean number of adverse childhood experiences differed by child generational status, and the differences persisted after stratification by age and FPL. The prevalence of exposure to adverse childhood experiences was highest among third- or higher-generation nonimmigrant children and lowest among second-generation immigrant children.

**Conclusions** The prevalence of adverse childhood experiences in low-income Latino children is similar to the prevalence for all US children; however, the prevalence is significantly higher in nonimmigrant children. Targeted screening to address adverse childhood experiences, policy changes, and guidance regarding care practices to address adverse childhood experiences in Latino children are needed. (*J Pediatr* 2018;192:209-15).

Adverse childhood experiences are chronic or severely stressful experiences, such as abuse, neglect, and violence within the home, that occur before 18 years of age.<sup>1-3</sup> Increased exposure to adverse childhood experiences is associated with poor health outcomes across the lifespan.<sup>3-10</sup> For example, adults with 4 or more adverse childhood experiences are at significantly elevated risk of developing obesity, cardiovascular disease, cancer, substance abuse, and mental health illness.<sup>3</sup> In children, adverse childhood experiences have been associated with physical and mental health conditions, including asthma, obesity, attention-deficit hyperactivity disorder, depression, and early substance use.<sup>4-10</sup> The impact of adverse childhood experiences on health is mediated by a complex interaction of biological and environmental factors that lead to dysregulation of the neuroendocrine stress response, weakening of the immune system, and alterations in brain development. These physiological changes ultimately predispose children to adverse physical, mental, and psychosocial health outcomes as adults.<sup>11,12</sup>

In a nationally representative sample of US children, the 2011-2012 National Survey of Children's Health estimated a 23% prevalence of exposure to 2 or more adverse childhood experiences.<sup>13</sup> Data on the prevalence of adverse childhood experiences among Latino immigrant children are limited. In a study reported by Slopen et al, Hispanic children of immigrant parents had a lower prevalence of having 2 or more adverse childhood experiences compared with Hispanic children of US-born parents (17% vs 31%).<sup>14</sup> This finding was also consistent for the prevalence of specific adverse childhood experiences.<sup>14</sup> The prevalence of adverse childhood experiences was higher in children of low-income families; however, the mean number of adversities was still lower in children of immigrant parents compared with children of US-born parents.<sup>14</sup> The finding of a lower prevalence rate of adverse childhood experience exposure in immigrant children is consistent with the immigrant paradox, a well-described phenomenon in which immigrants demonstrate better health and developmental outcomes than their nonimmigrant counterparts despite the social determinants of health that put them at increased risk for poor health outcomes.<sup>15-18</sup>

To our knowledge, Slopen et al were the first to examine differences in the prevalence of adverse childhood experiences between immigrant and US-born children. In the present study, we examined these differences further by exploring the prevalence of adverse childhood experiences by generational status specifically in low-income Latino immigrant children. This is significant because Latino immigrant children are the fastest-growing child population in the US. Currently, 1 in

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FPL Federal poverty level

4 US children is an immigrant, and 60% of these immigrant children identify as Latino.<sup>19,20</sup> The US Census Bureau projects that by 2060, Latinos will compose 29% of the total US population.<sup>21</sup> Thus, understanding the prevalence and types of adverse childhood experiences to which Latino immigrant children are exposed is crucial to guide the development of interventions and policies to prevent the health outcomes associated with adverse childhood experiences in this vulnerable population.

In this study, we used data from the 2011-2012 National Survey of Children's Health to estimate the prevalence of adverse childhood experiences in low-income Latino immigrant children in the US, identify the types of adverse childhood experiences most commonly faced by this population, and examine differences in the prevalence of adverse childhood experiences by immigrant generational status.

## Methods

Our data were drawn from the 2011-2012 National Survey of Children's Health, a cross-sectional random-digit-dial telephone survey of a nationally representative sample of US children from birth to age 17 years.<sup>22</sup> Sponsored by the Maternal and Child Health Bureau of the US Department of Health and Human Services and the National Center for Health Statistics of the Centers for Disease Control and Prevention, this survey was conducted to estimate national- and state-level prevalences of certain child health indicators. One child from each household was randomly selected to serve as the survey participant. Surveys were conducted in both English and Spanish. A total of 95 677 surveys were completed between February 2011 and June 2012. Survey results were weighted to represent national- and state-level data.

The study sample was limited to all Latino children regardless of immigrant generational status, as well as third- or higher-generation non-Latino white children and third- or higher-generation non-Latino black children for comparison of differences due to race/ethnicity. To account for the confounding effect of socioeconomic status, the study sample was further limited to children living in households with an annual income <200% of the federal poverty level (FPL). For the Latino subsample, this resulted in data from 58.4% (n = 6770) of the total Latino child population in the dataset. The final study sample included data from a total of 22 297 respondents.

A first-generation immigrant child was defined as a foreign-born child with foreign-born parents. A second-generation immigrant child was defined as a US-born child with at least 1 parent born outside of the US, or a foreign-born child with 1 foreign-born parent and 1 US-born parent. A third- or higher-generation child was defined as a US- or foreign-born child with both parents born in the US. For the purpose of this analysis, immigrant children included first- and second-generation children, and nonimmigrant children included third- or higher-generation children.

The 2011-2012 National Survey of Children's Health included a 9-item inventory of adverse childhood experiences (Table I; available at [www.jpeds.com](http://www.jpeds.com)), which were deter-

mined by a Technical Expert Panel and based on the items in the Adverse Childhood Experiences study.<sup>22</sup> These adverse childhood experiences included financial hardship, parent divorce/separation, parent death, parent imprisonment, domestic violence, neighborhood violence, household member with mental health illness, household member with substance abuse problem, and unfair treatment because of race/ethnicity. The primary outcome was the prevalence of adverse childhood experiences, as determined by a positive response to any 1 of the 9 adverse childhood experience items. For analysis, the number of adverse childhood experience items was categorized as 0, 1, 2, and 3 or more adverse childhood experiences. The primary predictor was immigrant generational status (ie, first, second, or third or higher). Covariates included child age, sex, health status, health insurance status, mother's education level, father's education level, and household FPL.

## Statistical Analyses

Descriptive statistics were used to determine the prevalence of adverse childhood experiences and identify the most common adverse childhood experiences faced by Latino immigrant and nonimmigrant children. Differences in the frequency of each adverse childhood experience, as well as the total number of adverse childhood experiences, were compared by child ethnicity and immigrant generational status. The  $\chi^2$  test was used to determine the bivariate association of adverse childhood experience prevalence and immigrant generational status by Latino groups only and then by third- or higher-generation groups only. Summary statistics and ANOVA with post hoc analysis using Bonferroni adjustment were used to compare the mean number of adverse childhood experiences by immigrant generational status for the Latino subsample. Stratified analyses were conducted to determine whether the observed differences were consistent across all age groups and household FPL, given that these factors might result in differences in exposure to adverse childhood experiences. Analyses were conducted between August 2016 and December 2016 using SPSS version 23.0 (IBM, Armonk, New York).

## Results

Of 22 297 children, 29% (n = 6483) were Latino with 9% (n = 612) identifying as first generation, 57% (n = 3842) as second generation, and 30% (n = 2029) as third or higher generation. Characteristics of the study sample are presented in Table II. Compared with third- or higher-generation non-Latino whites and non-Latino blacks, Latino children tended to be younger, with the majority of second- and third- or higher-generation Latino children aged 0-12 years. The majority of first-generation Latino immigrant children were adolescents and school-aged children. First-generation Latino immigrant children were less likely to have health insurance. Third- or higher-generation Latino children were rated as having excellent or very good health. The majority of children came from households in which both parents had at least a high school degree. Latino immigrant children and

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