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ORIGINAL PAPER

U.S. Citizen Children of Undocumented Parents: The Link Between State Immigration Policy and the Health of Latino Children

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Abstract We examine Latino citizen children in mixed-status families and how their physical health status compares to their U.S. citizen, co-ethnic counterparts. We also examine Latino parents' perceptions of state immigration policy and its implications for child health status. Using the 2015 Latino National Health and Immigration Survey (n = 1493), we estimate a series of multivariate ordered logistic regression models with mixed-status family and perceptions of state immigration policy as primary predictors. We find that mixed-status families report worse physical health for their children as compared to their U.S. citizen co-ethnics. We also find that parental perceptions of their states' immigration status further exacerbate health disparities between families. These findings have implications for scholars and policy makers interested in immigrant health, family wellbeing, and health disparities in complex family structures. They contribute to the scholarship on Latino child health and on the erosion of the Latino immigrant health advantage.

Keywords Mixed-status families · Health disparities · Legal status · Latino child health · Immigrant health

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Background

The United States is undergoing a period of heightened immigration policy activity that has far-reaching consequences. Caught between partisan politics and practical solutions are millions of American children living in mixed-status families whose parents are at risk of being deported [1]. Alongside increased funding for enforcement of federal immigration laws and record deportations during the Obama Administration, the period between 2005 and 2012 saw an unprecedented rise in anti-immigrant legislation at the state level [2]. This rise in anti-immigrant policymaking has in turn led to an environment that is unhealthy for Latino families. In what is described as "multi-generational" punishment, Enriquez [3] argues that U.S. citizen children and their undocumented parents often share in the risks and punishments associated with undocumented immigration status. In other words, immigration enforcement is not just impacting undocumented immigrant adults, it is also spilling over to their U.S. citizen family members. This climate is a result of numerous federal, state, and local policies that have made life hard on working families and their children.

Of particular importance to our study is the racialized undertone of this political dialogue and hostility that is evident to Latinos, which was highlighted by Anderson and Finch [4], who find that Arizona's S.B. 1070 (a highly punitive state policy) has led to poorer Latino self-reported health among immigrant Spanish-speaking respondents. This environment has helped to generate and perpetuate the disruption of Latino neighborhood cohesion, community trust, and family ties, ultimately taking a toll on the health of immigrants and their families [5].

Building on this work, this study uses a representative survey to directly assess the influence of Latinos'

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perceptions of the favorability of their states' immigrant policies towards immigrants on the health of Latino children living in mixed-status families. Building on the work of public health scholars and others who have found a link between this heightened anti-immigrant policy environment and the mental health of immigrants, we find that there are physical health consequences associated with these policies that reach beyond the undocumented community in the United States [6–9]. These findings are relevant to scholars of public health and policymakers as they consider the consequences of the current policy environment.

Health of Latino Children

Previous scholarship points to a Latino immigrant health advantage that erodes over an individual's time in the U.S. and over generations [10, 11]. The Latino immigrant health advantage is essentially the observation that the health of populations of Latino immigrants new to the U.S. exhibits a weaker correlation to socioeconomic status than that of U.S.-born populations, thus low-income Latino immigrants demonstrate better health outcomes than might be expected given their socioeconomic status. The correlation between health and socioeconomic status becomes stronger with time in the U.S. and with subsequent generations, thus the health advantage diminishes [12]. Latino children in the U.S. who are children of immigrants are less likely than those with U.S.-born parents to have low birth weight or to die in the first year of life [13]. At the same time, some groups of Latino children in the U.S. experience disproportionately poorer health in a number of areas, including behavioral and developmental disorders, obesity, diabetes, and asthma [14, 15].

Although much scholarship on the Latino immigrant health advantage and its erosion over time point to cultural and behavioral explanations [16, 17], more recent scholarship focuses on structural contributors to the erosion of the advantage [18, 19]. Latino children with immigrant parents who may have experienced the protection of the immigrant health advantage during their early years may be more vulnerable to poor health than their parents as they age. Vega (2009) [20] posits that Latino children "represent the tip of emergent health disparities in the Latino population that will be largely determined by differential environmental exposures and the intergenerational social stratification patterns of U.S. society" (102). Social epidemiologists have long pointed to the health effects of social contexts [21]. That is, the recognition that health outcomes are greatly influenced by factors in the social environment such as socioeconomic status, educational attainment, societal race/ethnic/class hierarchies, neighborhood conditions, and social cohesion [22]. To this mix of social factors influencing health outcomes, contemporary scholars have added public policy [23, 24], which may be viewed as social structure with the power to constrain human agency. Thus public policy is capable of influencing the choices that individuals and families make to benefit their own health and well-being.

In this study we attempt to approach a deeper understanding of the relationship between health and public policy as social structure as posited by Williams [25], "…if we are to understand the impact of social structures on health we need to comprehend both the historical, real-time processes that particular structures and locales embody; and we need to enter into the way in which these processes shape the life courses and biographies of individuals" (146). Thus we contend that state immigration-related public policy is a social structure that contains, at least in part, the public opinion of a given geographic area; in this way immigration policy may be viewed as reflecting the contemporary and historical social context of a given area.

There is growing and compelling research that explores the links between immigration policy and immigrant health with particular focus on intermediary factors. The hostile environments generated by punitive immigration-related policies have led to the perception of "being hunted" by federal immigration enforcement consequently producing intense feelings of anxiety, fear, and depression [6, 25, 26]. These are all psychosocial reactions that exacerbate pre-existing health conditions such as high blood pressure and diabetes [6, 8]. Parental legal status is a strong predictor in explaining the role of immigration enforcement on poor Latino child health status, particularly a higher risks of internalizing and externalizing behavior problems relative to their counterparts with documented or naturalized citizen mothers [27]. In attempting to understand the role legal status has on family wellbeing, the limited research in this area finds that it is the mother's legal status that matters the most in predicting children's health [28]. Moreover, youth and children of undocumented immigrants are especially vulnerable to the high levels of stress associated with legal status and the hostile anti-immigrant environment. Feelings of hopelessness, anxiety, guilt, and despair are common among undocumented youth. Issues related to legal status compound the already difficult stages of psychosocial development experienced during adolescence, negatively impacting mental and emotional health [7].

We build on this literature by exploring physical health among Latino children across family types along with Latino parents' perceptions of whether the immigrant policies in their state are favorable or unfavorable towards immigrants. The extant research strongly suggests that there are potential health consequences associated with punitive immigrant policies and that the racialized natures of these policies pose important challenges for Latinos and

their children. In fact, 78 % of the respondents to the survey used in this study indicate that they believe there is an anti-Hispanic and/or anti-immigrant environment in the U.S. today. Thus we hypothesize that there will be a negative association between respondents' perception of their state's immigration policies as unfavorable toward immigrants and children's physical health. Our approach makes important contributions to this literature. First, the representative nature of the sample allows us to explore child health disparities across family types, not just the undocumented or Latinos in individual states. Second, we utilize a perception of immigration policy measure that allows us to assess the impact of the overall policy climate on Latino children's health rather than discrete policies. Lastly, unlike most studies that create proxies for undocumented status, our survey directly assesses respondent immigration status. This research design provides a new perspective on this important and interesting research question.

Methods

Data

We take advantage of the Robert Wood Johnson Foundation (RWJF) Center for Health Policy at the University of New Mexico's 2015 Latino National Health and Immigration Survey (LNHIS, Total n = 1493), a unique survey designed for the specific purpose of examining the relationship between immigrant policy and Latino family health and well-being. The LNHIS relies on a sample provided by a mix of cell phone and landline households along with web surveys. This mixed-mode approach improves our ability to capture a wide segment of the Hispanic population in the sample by providing a mechanism to poll the growing segment of the Hispanic population that lacks a land-line telephone as well as those who prefer to engage surveys on-line. A total of 989 Latinos were interviewed over the phone and an additional 504 Latinos were sampled through the Internet to create a dataset of 1493 respondents. Web survey respondents are from a double-opt-in national Internet panel who were then randomly selected to participate in the study and weighted to be representative of the Latino population. The survey has an overall margin of error of ±2.5 % with an AAPOR response rate of 18 % for the telephone sample. Sampling is from the 44 states and Puerto Rico that collectively account for 91 % of the U.S. Latino adult population. Respondents across all modes of data collection could choose to be interviewed in either English or Spanish, and all interviewers were fully bilingual. The full dataset of both phone and web interviews are weighted to match the 2013 Current Population Survey estimate of Latino adults with respect to age, place of birth, gender, and state.

Measures

The primary health outcome variable of interest is parents' report of their child's health status within the LNHIS dataset. Parental report of children's health is a common measure of child health status used in public health research. Parental report of child's health status is a good representation of the child's actual health status [18]. The child health question in the LNHIS closely mirrors that used in the National Survey of Children's Health.[1] The question utilizes a 1–5 Likert scale, with respondents rating their child's health status from excellent to poor. The specific survey question is "*How would you rate your child's overall physical health—excellent, very good, good, fair, or poor?*". The variable in our analysis ranges from 1 = poor to 5 = excellent to predict optimal health using ordered logistic regression.

Our main explanatory variables are three mutually exclusive family categories and a measure of state immigration policy perception. The first family category is mixed-status undocumented families, in which respondents self-reported that they were foreign-born non-citizens/non-legal permanent residents (LPR) and their child was born in the United States. The next category is families coded as mixed-status LPR, which includes those in which the responding parent is LPR and their child was born in the United States. The last family category, coded as U.S. citizen families, are those in which the responding parent is a U.S. citizen whose child was born in the United States. Unlike most national surveys, where researchers estimate legal status, we asked respondents: *"Are you currently a U.S. citizen, a Legal Permanent Resident, or a non-citizen?"*

To measure perceptions of state immigration policy, we utilize the following question, "*Thinking about the immigrant population in your state, would you describe [STATE] policies as favorable or unfavorable towards immigrants?"* The categories of the variable are favorable or unfavorable (coded as 0 = favorable and 1 = unfavorable). It is important to note that states vary widely in their participation in immigration policymaking since the 2000s [29], thus we assume this variable reflects geographic variation.

We control for a handful of measures that have been found to be correlated with Latino children's health status in previous research, including standard measures of family income, parental educational attainment, age, parental marital status, parental gender, language of interview, and

[1] http://www.cdc.gov/nchs/slaits/nsch.htm.

child's age. One of the more important controls in our model is for insurance coverage, as previous literature has found that having access to health insurance influences Latino health outcomes [30, 31].

Lastly, the U.S. Latino population is immensely diverse, with members originating from twenty-one countries. Latino sub-groups tend to reside in different areas of the United States; they may have different cultural practices/norms, different immigration experiences, and varying health status. For example, the Mexican-origin population (which comprises 65 % of the total U.S. Latino population) has been found to have unique health outcomes relative to Latinos from other backgrounds [32, 33]. This variation motivates us to account for Mexican origin in our study, so we include a binary variable for Mexican origin to account for Latino heterogeneity by national origin. Inclusion of a Mexican-origin variable also accounts for the distinct and historical legacy of "undocumentedness" relative to other Latino subgroups like Cubans who have benefited from U.S. policy that has allowed Cuban political refugees to gain access to social services, permanent residency, and U.S. citizenship.

All statistical analysis was conducted using Stata 12 software (StataCorp. 2011) and survey weights were used to account for the complex survey design. Our analytic approach is intended to determine the relationship between family type and perceived immigration climate on child health status within a representative sample of Latino families. We restrict the sample to respondents who have at least one child living in the household who is under 18 years of age. From this original sample 1068 of the respondents had children and a total of 598 respondents had children who were under 18 years of age and living in the household.

Results

As shown in the summary descriptive statistics detailed in "Appendix", the mean reported health status indicator category is "very good" child health. The distribution for our family categories shows that 75 % of our sample are U.S. families, and the remaining 25 % include mixed-status families where at least one responding parent is undocumented (12.5 %) and where at least one parent is a LPR (12.3 %). To provide context, of the estimated 17.6 million Latino children in the U.S., 89 % are U.S.-born, and a majority of those have at least one foreign-born parent. Twenty-one percent of all Latino children are U.S.-born with at least one undocumented parent, 31 % are U.S.-born with at least one legal permanent resident (LPR) parent, and 37 % are U.S.-born with only U.S.-born parents [34].

Table 1 displays results from our multivariate analyses. The first model (Model 1) tests the difference between family categories on child's health status, controlling for a vector of co-variates. We then estimate a model (Model 2) that examines Latinos' perceptions of their state's immigrant policies on child's health status, controlling for a vector of co-variates. Our first set of results in Table 1 estimates an ordered logistic regression model that includes family type and a vector of control variables. We find strong support for our first hypothesis, as we find that there are differences between family types in the probability of parents reporting optimal child health status. In fact, the odds of reporting optimal health are 2.9 times larger for U.S. citizen families compared to mixed-status undocumented families, holding all else constant ($p < 0.01$). We also find differences between mixed-status undocumented families and mixed-status LPR families in the probability of parents reporting optimal child health status. The odds of reporting optimal health are 1.9 times larger for mixed-status LPR families compared to mixed-status undocumented families, holding all else constant ($p < 0.05$).

The substantive impacts of these relationships are shown in Fig. 1, which displays the post-estimation results of our first ordered logistic regression. Figure 1 graphs the predicted probabilities of family types on each response category of child health status. As shown, mixed-status undocumented families are statistically less likely to report optimal health relative to U.S. citizen families and mixed-status LPR families, holding all else constant.

Our second model estimates an ordered logistic regression that includes unfavorable state immigrant policies equal to one (favorable polices equal to zero). Here we find strong support for our second hypothesis, as we find that there are differences between the impact of parents' perceptions of their state's immigrant policies on the probability of reporting optimal health for their child. In fact, the odds of parents reporting optimal child health status are 0.522 times larger for respondents who perceive their state's immigrant policies as unfavorable, holding all else constant ($p < 0.01$). Further, including parental perceptions of immigrant policy in the model increases the disparity in children's health status. We now find that the odds of reporting optimal health are 3.2 times larger for U.S. citizen families compared to mixed-status undocumented families, holding all else constant ($p < 0.01$). In other words, once we introduce parental perceptions of state immigrant policies, we find greater health disparity among children in mixed-status undocumented families compared to U.S. citizen families.

Table 1 Ordered logistic coefficients for regressions of family type and unfavorable state immigrant policies on children's health status (Poor–Excellent), using 2015 National Latino Health and Immigration Survey

Variables	Model 1		Model 2	
	β	Odds ratios	β	Odds ratios
Reference category: mixed status undocumented family				
U.S. citizen	1.110***	3.035***	1.189***	3.282***
Legal permanent resident	0.649**	1.914**	0.842**	2.322**
Unfavorable state immigrant policy[a]			−0.650***	0.522***
Married status: married[b]	0.124	1.132	0.109	1.115
Parent female	−0.580***	0.560***	−0.487**	0.615**
Parental education[c]	0.148***	1.159***	0.169***	1.184***
Parental age	−0.037***	0.963***	−0.036***	0.964***
Reference family income: less than 2				
Family income missing	0.753**	2.123**	0.642*	1.901*
Family income: 20–39 K	−0.015	0.985	0.010	1.010
Family income: 40–60 K	0.169	1.184	0.086	1.090
Family income: 60–80 K	0.801**	2.228**	0.675*	1.965*
Family income: 80–100 K	−0.114	0.892	−0.267	0.766
Family income: 100–150 K	−0.079	0.924	−0.079	0.924
Family income: 150 K+	0.271	1.311	0.001	1.001
Uninsured	−0.203	0.816	−0.039	0.961
Spanish	−0.225	0.799	−0.218	0.804
Child's age	−0.024	0.976	−0.027*	0.973*
Parental mexican origin	−0.024	0.976	−0.027*	0.973*
Observations	514		492	
Adjusted R-squared	0.0725		0.0756	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, β is a logit coefficient

[a] State policies towards immigrants: (0 = Favorable, 1 = Unfavorable)

[b] Reference category: martial status-single

[c] Highest education levels completed, (1 = No formal schooling, 2 = Grade 1-8, 3 = Some HS, 4 = GED, 5 = HS Graduate, 6 = Some College, 7 = Associates, 8 = Bachelors, 9 = MA, 10 = Ph.D/MD)

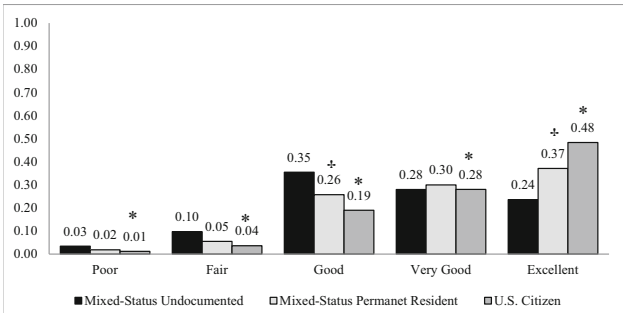

Fig. 1 Adjusted Predicted Probabilities of Child's Health Status (Poor to Excellent) by Family Type (n = 514), using 2015 National Latino Health and Immigration Survey. *Note* Controlling for age, gender, education, income, marital status, insurance coverage, language of interview, Mexican origin, and child age (all of which were set to their mean or mode values). *$p < 0.05$ for the difference mixed-status undocumented families and U.S. Citizen families in the same response category, †$p < 0.05$ for the difference between mixed-status undocumented families and mixed-status permanent resident families in the same response category

Conclusion

The United States has undergone a nearly unprecedented period of heightened immigrant policy activity with a marked punitive undertone that is having consequences for Latino families. We set out to determine whether these perceptions are associated with American children's health status in the context of mixed-status families, and we find strong and consistent evidence that they are. This study makes several important contributions to the literature associated with the health consequences of public policies. Utilizing a representative survey specifically designed to assess the relationship between immigration policies and health, our research design provided the opportunity to assess the impact of the perceived punitive nature of immigrant policy across family type and its consequences for children's health. This led to findings that mixed-status families report poorer child health status compared to mixed-status LPR families and U.S. Latino families. Our

findings also suggest that punitive immigrant policies have an impact on children's health. Moreover, once we introduce Latinos' perceptions of their state's policies towards immigrants, we find that the disparity between mixed-status families and U.S.-born families increases threefold, suggesting that these policies are a major mechanism by which Latino family type is impacting child health status. Most importantly, this finding holds even after controlling for parental marital status, parental gender, parental education, family income, insurance coverage, language of interview, child's age, and parental Mexican origin.

The findings echo the warning articulated by Vega (2009) [20] regarding health disparities among Latino children arising as a result of the social stratification experienced by their parents, as well as those of Williams (2003) [25] regarding the impact of historical and contemporary social structures on the life course and health of individuals. Furthermore, these findings suggest that public policy that adversely affects Latino mixed-status families is one mechanism by which the Latino immigrant health advantage erodes from one generation to the next, thus contributing importantly to the scholarship on Latino child health as well as on the role that social structures play in the erosion of the Latino immigrant health advantage over time and generations in the U.S.

We also acknowledge the limitations of this study. Given that our study is cross-sectional and a study of Latino populations, we are limited in our ability to make causal claims and generalizations across racial and ethnic populations over time. This limitation is not particular to this study, as currently there are no available longitudinal datasets which query respondents on their perceptions of immigration policy environment that would also allow us to construct mixed-status family types. Our study also does not tackle the role of deportations and family disruption among immigrant families. As illustrated in recent work, the dramatic increase in immigration policy enforcement, including deportations and detentions, has important repercussions for U.S.-born children of immigrants who Zayas calls our "Forgotten Citizens" [35]. These negative externalities range from social, economic, and political challenges, to psychosocial and health consequences [36–40]. As discussed by Doering-White et al. 2016 [41], the aftermath of deportations illustrates the complexities and gendered aspects of immigration enforcement. For example, Horner et al. [42] find that children in mixed-status families have complex lives and are constantly worried that their families can be separated due to their immigration status. Using qualitative interviews, they find that youth experience high levels of stress. This fear of family separation because of deportation can create stressful environment for families and lead to poor mental health. Miranda et al. (2005) [43] find that immigrant Latinas who were separated from their children were more likely to report depression relative to mother's whose children were currently living with them at home. Given the likelihood of continued policy activity in the area of immigration at both the state and federal level for the foreseeable future, the consequences of these policies will continue to be felt among Latino Americans. With continued growth of the Latino population expected, the health ramifications of these policies should be of concern not only to public health advocates but also to policymakers who may be costing their states valuable economic resources to treat the health issues created by the immigration policies that they are passing.

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Compliance with Ethical Standards

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Appendix

See Table 2.

Table 2 Summary Statistics (unweighted), using 2015 National Latino Health and Immigration Survey

Variable	Mean	SD	Min	Max
Child's health status[a]	4.20	0.99	1	5
Mixed status: undocumented	0.13	0.33	0	1
Mixed status: legal permanent resident	0.12	0.33	0	1
Non-mixed status: U.S. citizen	0.75	0.43	0	1
State unfavorable toward immigrants	0.38	0.48	0	1
Parental married status: married	0.53	0.50	0	1
Parent reporting: female	0.62	0.49	0	1
Parental education[b]	5.52	2.36	1	10
Parental age	45.87	17.00	18	98
Family income missing	0.21	0.41	0	1

Table 2 continued

Variable	Mean	SD	Min	Max
Family income: less than 20 K	0.20	0.40	0	1
Family income: 20–39 K	0.21	0.40	0	1
Family income: 40–60 K	0.13	0.33	0	1
Family income: 60–80 K	0.09	0.28	0	1
Family income: 80–100 K	0.06	0.24	0	1
Family income: 100–150 K	0.07	0.25	0	1
Family income: 150 k+	0.04	0.19	0	1
Uninsured[c]	0.15	0.36	0	1
Language of interview: Spanish[d]	0.58	0.49	0	1
Child's Age	7.83	5.81	0	18
Parental Mexican origin	0.55	0.50	0	1

[a] Health status: (0 = Poor, fair, good, 1 = Very good and excellent)

[b] Highest education levels completed, (1 = No formal schooling, 2 = Grade 1-8, 3 = Some HS, 4 = GED, 5 = HS Graduate,6 = Some College, 7 = Associates, 8 = Bachelors, 9 = MA, 10 = Ph.D/MD)

[c] Insurance coverage: (0 = Currently insured, 1 = Currently uninsured)

[d] Language of interview: (0 = English, 1 = Spanish)

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