Journal of Racial and Ethnic Health Disparities (2022) 9:478–488
https://doi.org/10.1007/s40615-021-00978-w

Federal, State, and Local Immigrant-Related Policies and Child Health Outcomes: a Systematic Review

Danielle M. Crookes[1] · Kaitlyn K. Stanhope[2] · Ye Ji Kim[1] · Elizabeth Lummus[3] · Shakira F. Suglia[1]

Received: 26 September 2020 / Revised: 20 January 2021 / Accepted: 25 January 2021 / Published online: 8 February 2021

Abstract

The passage of US immigrant-related policies at the federal, state, and local level is on the rise. These policies may affect child health through several mechanisms. We performed a systematic review of English-language, peer-reviewed, quantitative studies examining US immigrant-related policies and the mental and physical health of youth in immigrant families. We searched PubMed and five social science databases for studies published between 1986 and 2019. Two independent reviewers screened the studies and appraised study quality. Of the final 17 studies, ten studies examined birth outcomes and seven studies examined other outcomes in childhood and adolescence (e.g., self-rated health). Generally, exclusionary policies were associated with worse health outcomes and inclusive policies were associated with better health outcomes. Several studies did not observe an association, but only one study found an association of the opposite direction. In that study, similar trends in different policy environments and across foreign-born and US-born women suggest alternative causes for the observed association. Overall, we find that exclusionary policies are, at best, neutral, but likely harmful towards child wellbeing, while inclusive policies can be beneficial.

Keywords Policy · Immigrants · Children · Mental health · Health

Introduction

Over the past 30 years, several federal- and subfederal-level policies have been passed in the USA to expand or restrict immigrants' access to publicly funded benefits or to increase likelihood of identification and deportation of undocumented immigrants. Since the early 2000s, state governments have been particularly active in this arena, passing hundreds of immigrant-related laws that regulate law enforcement practices and access to public benefits, employment, and health care [1, 2]. Ranging from inclusive (extending rights to immigrants (e.g., Deferred Action for Childhood Arrivals (DACA)) to exclusionary (increasing the probability of detention or restricting access to resources (e.g., Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA))), these policies are fundamental determinants of child wellbeing for youth living in immigrant families.

Immigrant-related policies may affect child health through several mechanisms including the following: restricting or expanding access to public benefits, including health care and material resources; increasing stress and anxiety; and deporting parents or caretakers [1, 3]. Laws that restrict or expand access to public health care benefits can affect mothers seeking prenatal care and parents seeking care for their children. Immigrants who face restrictions on access to services or increased scrutiny about eligibility for public benefits may delay care for their children, even for children eligible for public insurance coverage [4–6], which may result in worse health outcomes. Laws that determine access to other public benefits (e.g., food assistance, in-state tuition) can directly impact health through food insecurity or indirectly through educational attainment and subsequent socioeconomic mobility [1].

Exclusionary policies may be stressors for parents and children. First, parents, including expectant mothers, experience worry about not having a safety net when access to public benefits is restricted [7]. Second, exclusionary policies signal that immigrants and their families are not welcome in the

✉ Danielle M. Crookes
Danielle.Crookes@emory.edu

[1] Department of Epidemiology, Rollins School of Public Health, Emory University, 1518 Clifton Road, NE, Atlanta, GA 30322, USA

[2] Department of Gynecology and Obstetrics, School of Medicine, Emory University, Atlanta, GA, USA

[3] Department of Behavioral, Social, and Health Education Sciences, Rollins School of Public Health, Emory University, Atlanta, GA, USA

USA. As a result, there is increased social and psychological vigilance about identification and deportation of family members who are undocumented [8, 9]. Parents experience increased distress and worry about the negative effects of policies on their children [10]. Children experience bullying and discrimination at school [7]. Parents prepare their children for the harmful effects of exclusionary policies by advising children to stay away from authorities and making children aware of plans in case a caregiver is deported [10, 11], but this may make children further cognizant of policy stressors. As suggested by social stress theory, repeated exposure to chronic stressors (e.g., exclusionary policies) can trigger psychological and stress responses leading to poor health outcomes [12].

Research to date has focused primarily on health care access and program uptake [13–15]. Evidence on the impact of immigration policy on child health outcomes is limited. Existing narrative and systematic reviews have shown that immigrant-related policies are associated with the health of immigrant populations across the globe [1, 3, 13, 14, 16], but these reviews been broad in scope, including studies of both children and adults, and sometimes including US and non-US populations; health outcomes and health care access outcomes; policy and non-policy exposures such as citizenship status without further linking to a specific policy; and qualitative and quantitative literature. Thus, we performed a narrowly focused systematic review to identify and synthesize quantitative studies estimating the association between US federal, state, and local immigrant-related policies and the health of youth in immigrant families to inform the policy and practice of health care providers of pediatric populations and policy leaders in a US context and to identify key gaps in the literature on immigrant-related policies and infant, child, and adolescent health to inform future research in this area.

Methods

In October 2019, we conducted a literature search of English-language, peer-reviewed, quantitative studies published between 1986 (which marks the passage of the Immigration Reform and Control Act) and 2019 that examined the association between immigrant-related government (local, state, or federal) policies in the USA and physical and mental health outcomes among immigrant and first-generation youth. This systematic review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [17]. We conducted searches in PubMed, Social Sciences Citation Index, Social Science Full Text, Chicano Database, EconLit with Full Text, and SocIndex using key words in the domains of policy, immigrants, health, and youth. All quantitative studies, with no restriction on study design, were included if they explicitly mentioned a US policy (i.e., studies of nativity or documentation status without mention of a policy were excluded). The full search strategy and inclusion and exclusion criteria are detailed in Table 1.

Title, abstract, and full-text review; data extraction; and bias analysis were conducted by pairs of independent reviewers. Title, abstract, and full-text review were conducted using Covidence systematic review software [18]. The quality assessment tool (see eMethods in Online Resource 1) was based on a modified version of the Effective Public Health Practice Project's Quality Assessment Tool for Quantitative Studies [19] with additional items from the Cochrane's Risk of Bias in Non-randomized Studies - of Interventions (ROBINS-I) [20] tool. We did not conduct a meta-analysis because of the diversity of policy exposures and health outcomes across the studies.

Results

The literature search identified 7490 unique articles, of which 18 articles (17 studies) met inclusion criteria. Most studies were excluded (n = 7377) at the time of title and abstract review for occurring in a non-US setting, lacking a policy exposure or lacking physical and mental health outcomes. At the full-text review stage, approximately half of studies (n = 49) were deemed ineligible because they were not quantitative studies. A PRISMA flow diagram is provided in Fig. 1.

Study Characteristics and Study Quality

The studies included in this systematic review consisted of all quasi-experimental studies, with 65% (n = 11) employing difference-in-difference designs. All studies had publication dates from 2000 onward, with most (n = 10) having publication dates from 2015 through 2019. Descriptive information about the studies is provided in Table 2 and additional details about the studies are provided in eTable 1 in Online Resource 1.

Based on a five-domain assessment of study quality (study design; selection processes, loss-to-follow-up, and missing data; confounding control; information bias; and intervention integrity), 41% (n = 7) of studies were found to have strong or moderate global study quality (i.e., having no more than one weak rating for moderate and no weak ratings for strong across the five assessment domains) (see eTable 2 in Online Resource 1). Of those with weak global study quality ratings, only two studies had weak ratings in four of the five domains. Studies were strongest in the domain of confounding control (n = 12 strong; n = 2 moderate). Ratings for information bias were mixed, with six studies rated as strong and nine studies rated as weak (often for measurement of outcome). Similarly, ratings for intervention integrity were mixed (n = 8 strong; n = 9 weak). No studies received a strong rating study design, but most (n = 13) received a moderate rating. Similarly, no study

Table 1 Databases, search strategy, and inclusion and exclusion criteria for a systematic review of US immigrant-related policies and the mental and physical health outcomes of youth living in immigrant families (search conducted October 2019)

Databases	
	PubMed
	Social Sciences Citation Index (via Web of Science)
	Social Science Full Text, Chicano Database, EconLit with Full Text, SocIndex (all via Ebscohost)
Search strategy	
Domain	**Search terms**
Policy	(policy OR law OR legislature OR bill)
Nativity/immigration status	AND (refugee OR undocumented OR unauthorized OR citizen OR noncitizen OR immigration OR immigrant) AND
Health	AND (preterm birth OR birth weight OR gestation OR birth outcome OR pregnancy OR ((health OR self-rated health OR disorder OR mental health OR depression OR anxiety OR stress OR worry OR bedwetting OR neurodevelopment OR developmental delay OR hyperactivity OR ADHD OR puberty OR blood pressure OR hypertension OR diabetes OR blood sugar OR BMI OR overweight OR obesity OR underweight OR unhealthy weight OR sleep OR asthma OR injury OR violence OR bullying OR problem behavior OR diet OR alcohol OR smoking OR substance OR drug OR food insecurity)
Youth	AND (child OR children OR adolescent OR teen OR youth OR infant OR family)))
Inclusion criteria	
	Must report a U.S. immigrant-related policy(ies) (policy specifically targeted at immigrants or policy that has stipulations for immigrants)
	Must have infant, child or adolescent (<18 years) population
	Must have a physical or mental health outcome
	All race/ethnic groups included
	Studies in English-language
	Quantitative studies of any study design
	Published 1986 or after
Exclusion criteria	
	Outcome is health access alone (e.g., insurance status)
	Qualitative and review studies
	Non-peer-reviewed manuscripts (dissertations ineligible)
	Studies of exposure/status that result from policies, but policies are not explicitly mentioned (e.g., studies of citizenship status, immigration raid with no mention of enforcement policy, perception of policy measure with no additional test of policy enactment)

received a strong rating for the domain of selection processes, loss-to-follow-up, and missing data, but many studies ($n = 10$) received a moderate rating.

Policy Exposures

There were 12 unique policies/policy indices examined that were passed between 1994 and 2016. Descriptions of each of these policies are provided in eTable 3 in Online Resource 1. Six of the policies occurred at the federal level (e.g., DACA), with five of these policies having different state-level policy responses (e.g., PRWORA). There were six state-level policies, five of which were individual policies (e.g., California Proposition 187) and one was a policy index (i.e., Immigrant Climate Index). More than half of the policies ($n = 7$) were resource-access laws, which determined eligibility requirements for access to specific public resources such as in-state tuition, Medicaid or publicly funded prenatal services, or food assistance programs (e.g., Farm Security and Rural Investment Act of 2002 (2002 Farm Bill), Child Health Insurance Program (CHIP)). Two policies were omnibus immigration laws (Arizona Senate Bill 1070 (AZ SB1070) and Georgia House Bill 87 (GA HB87)) and one was a police agreement law (Section 287 (g) of the Immigration and Nationality Act (287(g)). The remaining two policy exposures were DACA and the Immigrant Climate Index. Nine studies examined inclusive policies and ten studies examined exclusionary policies (note: some studies examined both inclusive and exclusionary policies).

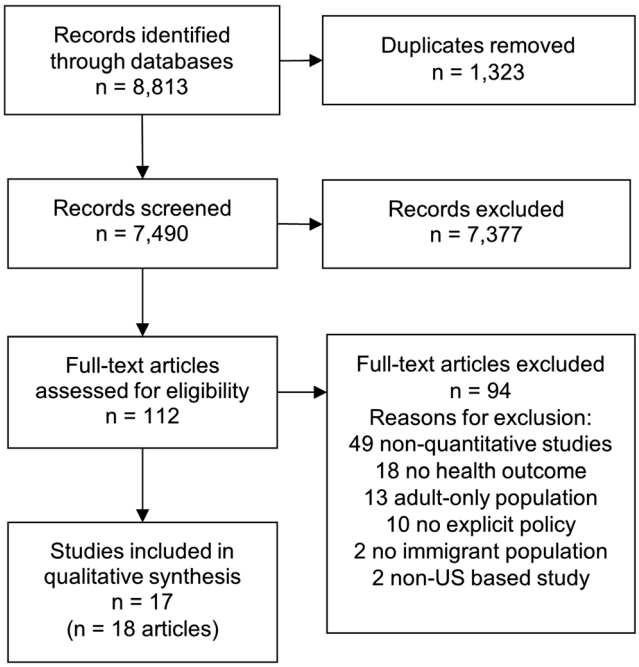

Fig. 1 PRISMA flow diagram of the systematic review examining the association between immigrant-related policies in the US and health outcomes of children in immigrant families

Table 2 Selected characteristics of 17 studies that examined the association between immigrant-related policies and youth health outcomes

Characteristics	Number of studies
Study design	
Cohort study	2
Difference-in-difference	11
Other	4
Publication year	
1986–1995	0
1996–2005	3
2005–2015	6
2016–2019	8
Region of origin of immigrant population	
Latin America	9
All other regions	0
Not specified	8
Level of policy	
Federal	4
State or local response to federal policy	7
State	7
Local	0
Health outcome	
Birth outcome	10
Other outcomes in childhood or adolescence	7

Health Outcomes

Many studies (n = 10) examined the relationship between policy exposures and birth outcomes. Food insecurity (n = 3) and self-rated/parent-rated health (n = 2) were the next most common outcomes. Other outcomes were examined only once among the eligible studies and included the following: adjustment, acute stress or anxiety disorders, high-acuity pediatric emergency department visits, school days missed, and asthma episodes.

Health and Policies

A summary of findings for immigrant households by health outcomes and policy types is provided in Table 3. There were very few studies that examined the same policy and exposure associations, so we describe general associations between inclusive or exclusionary policies and health outcomes.

Birth Outcomes

We observed mixed findings for the association between inclusive policies and birth outcomes. The majority of studies did not observe an association between inclusive policies and birth weight-related outcomes [21–23], with the exception of one study [24]. In that study, the Citizen/Alien Waived Emergency Medical policy, which expanded access to medical emergency care to unauthorized immigrants, was associated with lower prevalence of extremely low birth weight [24]. Similarly, most studies did not observe an association between inclusive policies and preterm birth [21–25], with the exception of one inclusive policy, the Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA) (described further in eTable 3 in Online Resource 1), which was associated with decreased preterm birth [22]. Although another study found that state-level expansion of PRWORA eligibility was associated with increases in preterm births among foreign-born Latinas in New York City, the authors conclude that this increase in preterm births is likely not due to expansion of eligibility, given observed increases in preterm births among US-born Latinas and null effects among foreign-born women for low birth weight [23]. For infant mortality, one study did not observe an association with state-level expansion of PRWORA eligibility [22], while another observed that expansion to services under the Citizen/Alien Waived Emergency Medical policy was associated with a decrease in infant mortality [24]. For the remaining birth outcomes, inclusive policies (Citizen/Alien Waived Emergency Medical policy or DACA) were associated with better birth outcomes, including increased detection of poor fetal growth [25] and fewer births to adolescent mothers [26], or had null findings (infant birth injury [25]).

Table 3 Summary of study findings of the health outcomes of youth in immigrant families, by inclusive/exclusionary status of immigrant-related policies (findings reported here only pertain to immigrant or immigrant household populations in each study; these studies may report different findings for other US-born or U S citizen household comparison groups)

Health outcome	Inclusive/ exclusionary policy	Policy	Direction of relationship	Effect estimates	Studies
Birth outcomes	Inclusive	CHIP "unborn children" option	Null for LBW	DD (SE NR): −0.11 [21]; DD (SE): −0.0 (0.1) [22]	Drewry et al., 2015 [21]; Wherry et al., 2017 [22]
			Null for preterm birth	DD (SE NR): 0.29 [21]; DD (SE): −0.02 (0.2) [22]	Drewry et al., 2015 [21]; Wherry et al., 2017 [22]
			Null for SGA	DD (SE NR): 0.00 [21]; DD (SE): 0.1 (0.1) [22]	Drewry et al., 2015 [21]; Wherry et al., 2017 [22]
			Null for LGA	DD (SE NR): −0.01	Drewry et al., 2015 [21]
			Null for infant mortality	DD (SE): 0.0 (0.1)	Wherry et al., 2017 [22]
		State-expansion response to PRWORA	Null for LBW and VLBW	LBW: D[b] (95% CI): 0.1 (−0.02, 0.1) [23]; LBW: DD (SE): −0.0 (0.1) [22]; VLBW: D[b] (95% CI): 0.1 (−0.1, 0.01) [23]	Joyce et al., 2001 [23]; Wherry et al., 2017 [22]
			Null for preterm birth for foreign-born Latinas in California	D[c] (95% CI): 0.3 (0.0, 0.5) [23]; DD (SE): 0.1 (0.2) [22]	Joyce et al., 2001 [23]; Wherry et al., 2017 [22]
			(+) preterm birth for foreign-born Latinas in New York City	D[d] (95% CI): 2.1 (1.2, 3.0)	Joyce et al., 2001 [23]
			Null for SGA	DD (SE): 0.0 (0.1)	Wherry et al., 2017 [22]
			Null for infant mortality	DD (SE): 0.1 (0.1)	Wherry et al., 2017 [22]
		CHIPRA	Null for LBW	DD (SE): −0.0 (0.1)	Wherry et al., 2017 [22]
			(-) preterm births	DD (SE): −0.05 (0.1); $p < 0.05$	Wherry et al., 2017 [22]
			Null for SGA	DD (SE): −0.1 (0.1)	Wherry et al., 2017 [22]
			Null for infant mortality	DD (SE): −0.2 (0.2)	Wherry et al., 2017 [22]
		Citizen/Alien Waived Emergency Medical	(-) ELBW	DD (95% CI): −1.33 (−2.44, −0.21)	Swartz et al., 2017 [24]
			(-) infant mortality	DD (95% CI): −1.01 (−1.42, 0.60)	Swartz et al., 2017 [24]
			Null for LBW, VLBW	LBW: DD (95% CI): 1.84 (−6.74, 10.42); VLBW: DD (95% CI): 1.29 (−0.70, 3.28)	Swartz et al., 2017 [24]
			Null for preterm birth	DD (95% CI): 2.46 (−8.05, 12.97) [24]; DD (95% CI): 0.19 (−0.84, 1.22) [25]	Swartz et al., 2017 [24]; Swartz et al., 2019 [25]
			Null for infant birth injury	DD (95% CI): −0.7 (−1.7, 0.4)	Swartz et al., 2019 [25]
			(+) increased diagnosis/detection of poor fetal growth	DD (95% CI): 7.4 (5.7; 9.1)	Swartz et al., 2019 [25]
		DACA	(-) births to adolescent mothers (ages 15–20 years)	b (SE): −0.016 (0.005), *p*-value NR	Kuka et al., 2019 [26]

Table 3 (continued)

Health outcome	Inclusive/ exclusionary policy	Policy	Direction of relationship	Effect estimates	Studies
	Exclusionary	California Proposition 187	Null for LBW and birth weight	LBW: OR (95% CI): 0.99 (~0.96, ~1.03)[f] [27]; birth weight: effect estimates NR [28]	Korenbrot et al., 2000 [27]; Spetz et al., 2000 [28]
			Null for preterm births	OR NR; % preterm births the same (8.9%) each year between 1993–1995 [27]; effect estimates NR [28]	Korenbrot et al., 2000 [27]; Spetz et al., 2000 [28]
			(-) births	OR (95% CI): 0.86 (0.85, 0.87)	Korenbrot et al., 2000 [27]
			Null for gestation length	Effect estimates NR	Spetz et al., 2000 [28]
		Arizona Senate Bill 1070	(-) birth weight among immigrant Latinas	DD (95% CI): −14.9 (−25.6, −4.1), p <0.01	Torche and Sirois, 2019 [29]
			(-) fetal growth among immigrant Latinas	DD (95% CI): −0.68 (−1.28, −0.09), p <0.05	Torche and Sirois, 2019 [29]
			Null for gestational age for immigrant Latinas	DD (95% CI): −0.02 (−0.05, 0.03)	Torche and Sirois, 2019 [29]
		State maintenance of PRWORA restrictions	Null for LBW and VLBW	LBW: D[b] (95% CI): 0.1 (−0.1, 0.4) [23]; LBW: OR (95% CI): 1.01 (~0.98, ~1.04)[f] [27]; VLBW: D[b] (95% CI): −0.1 (−0.2, 0.0) [23]	Korenbrot et al., 2000 [27]; Joyce et al., 2001 [23]
			(+) for preterm birth among foreign-born Mexican Latinas in Texas	D[e] (95% CI): 0.8 (0.5, 1.1)	Joyce et al., 2001 [23]
			Null for preterm births among other foreign-born Latinas in Texas	D[e] (95% CI): 0.5 (−0.4, 1.5)	Joyce et al., 2001 [23]
			(+) infant mortality rates	b (SE): 0.003 (0.001); OR (SE): 1.80 (0.37)	Cho et al., 2011 [31]
			(-) births	OR (95% CI): 0.87 (0.86, 0.88)	Korenbrot et al., 2000 [27]
		Most-exclusionary scores on Immigrant Climate Index	(+) preterm birth and very preterm birth	Preterm birth: OR (95% CI): 1.09 (1.08, 1.10) Very preterm birth: OR (95% CI): 1.97 (1.04, 1.10)	Stanhope et al., 2019 [30]
Health outcomes in children and adolescents	Inclusive	IRT expansion	(-) fair/poor self-rated heath for Mexican non-citizens for IRT tuition-only policies	b (SE): −0.03 (0.02), p <0.10	Potochnick et al., 2018 [32]
			Null fair/poor self-rated health for Mexican non-citizens for IRT policies with financial aid	b (SE): −0.005 (0.02)	Potochnick et al., 2018 [32]
		DACA	(-) adjustment and anxiety disorders	b (SE): −4.27 (1.87), p < 0.05	Hainmueller et al., 2017 [34]
		2002 Farm Bill	(-) food insecurity in Mexican, non-citizen households in	b (SE): −0.12 (0.05), p <0.05	Potochnick, 2016 [35]

Table 3 (continued)

Health outcome	Inclusive/ exclusionary policy	Policy	Direction of relationship	Effect estimates	Studies
			states that did not have a food stamp supplement		
			Null for food insecurity when Mexican, non-citizen household sample includes all 50 states	b (SE): −0.06 (0.04)	Potochnick, 2016 [35]
		Inclusive state-level, post-PRWORA policies	(+) child's parent-rated health	b (SE): 0.07 (0.04), p <0.1	Bronchetti et al., 2014 [33]
			(-) asthma episodes	b (SE): −0.02 (0.01), p <0.1	Bronchetti et al., 2014 [33]
			Null for school days missed	b (SE): −0.21 (0.35)	Bronchetti et al., 2014 [33]
	Exclusionary	IRT ban	Null for fair/poor self-rated health for Mexican non-citizens	b (SE): −0.01 (0.01)	Potochnick et al., 2018 [32]
		PRWORA	(+) food insecurity for children with parents who never naturalized in 1998	b: 0.96, p <0.05	Van Hook et al., 2006 [36]
		Section 287 (g) of the Immigration and Nationality Act	(+) increased food insecurity in Mexican non-citizen households	b (SE): 0.11 (0.04), p <0.01	Potochnick et al., 2017 [37]
		Georgia House Bill 87	(+) high-acuity pediatric emergency department visits	16.3% (post) vs. 14.3% (pre), p <0.01 among Latinx patients	Beniflah et al., 2013 [38]

Policies: *CHIP "unborn child" option*, Children's Health Insurance Program Eligibility for Prenatal Care and Other Health Services for Unborn Child ruling; *CHIPRA*, Children's Health Insurance Program Reauthorization Act of 2009; *DACA*, Deferred Action for Childhood Arrivals; *2002 Farm Bill*, Farm Security and Rural Investment Act of 2002; *IRT*, in-state resident tuition; *PRWORA*, Personal Responsibility and Work Opportunity Reconciliation Act of 1996

Outcomes: *ELBW*, extremely low birth weight; *LBW*, low birth weight; *LGA*, large for gestational age; *SGA*, small for gestational age; *VLBW*, very low birth weight

Other: *95% CI*, 95% confidence interval; *b*, beta estimate; *D*, single difference estimate; *DD*, difference-in-difference estimate; *NR*, not reported; *OR*, odds ratio; *SE*, standard error

[b] The simple difference comparing pre- and post-law changes in birth outcomes reported here is only for foreign-born Mexican women in California. The simple difference estimates were also null for other foreign-born Latinas in California and foreign-born Dominican and other foreign-born Latinas in New York City

[c] The simple difference comparing pre- and post-law changes in preterm birth reported here is only for foreign-born Mexican women in California. The simple difference estimate for preterm birth was also null for other foreign-born Latinas living in California

[d] The simple difference comparing pre- and post-law changes in preterm birth reported here is for foreign-born Dominican women in New York City. Statistically significant increases in preterm birth also occurred among other foreign-born Latinas in New York City. Given observed increases in the percentage of preterm births among US-born Latinas in New York City as well as null effects for low birth weight among the foreign-born, the authors conclude that it is unlikely that this increase in preterm birth can be attributed to the policy change

[e] The simple difference comparing pre- and post-law changes in preterm birth reported here is for foreign-born Mexican women in Texas. The simple difference estimate for preterm birth was null for other foreign-born Latinas in Texas. Given observed increases in the percentage of preterm births among US-born Mexican and other Latinas in Texas as well as null effects for low birth weight among the foreign-born, the authors conclude that it is unlikely that this increase in preterm birth can be attributed to the policy change

[f] The authors provide figures with the 95% confidence intervals, but no corresponding tables listing the exact upper and lower limits. We have estimated the confidence limits from the figures

Findings for exclusionary policies and birth outcomes were also mixed. Three studies did not observe an exclusionary policy-birth weight association [23, 27, 28], while one study of AZ SB1070 observed a decrease in birth weight [29]. Similarly, two studies did not observe an association between exclusionary policies and preterm birth [27, 28], but one study observed increases in preterm and very preterm births in states with overall exclusionary policy climates [30]. In one study, which examined the maintenance of PRWORA eligibility restrictions in Texas, both null associations and increases in preterm births for different sub-populations were observed [23]. Increases in preterm birth occurred among foreign-born Mexican women, but not among other foreign-born Latinas, and the authors conclude that in the context of the null findings for low birth weight and increases in preterm births among US-born Mexican and other Latinas, increases in preterm birth among the Mexican foreign-born were not likely due to the exclusionary policy. State maintenance of PRWORA eligibility restrictions was associated with a decrease in the number of births to foreign-born women of any child-bearing age [27]. The remaining studies found that exclusionary policies were associated with worse birth outcomes (i.e., AZ SB1070 and lower fetal growth [29], state maintenance of PRWORA eligibility restrictions and increased infant mortality rate [31]) or did not observe an association with birth outcomes (i.e., California Proposition 187 and gestation length [28], AZ SB1070 and gestational age [29]).

Health Outcomes in Children and Adolescents

For health outcomes in children and adolescents, inclusive policies, such as expansion of PRWORA eligibility, in-state tuition expansion policies, and DACA, were associated with better health outcomes (i.e., improved self-rated/parent-rated health [32, 33], decreases in adjustment and anxiety disorders [34], decreased food insecurity [35], decreases in asthma episodes [33]) in most studies (n = 5). Three studies observed null associations (i.e., food insecurity [35], school days missed [33], and self-rated health [32]). In the study of food insecurity, where positive and null associations were observed, findings differed by states' provision of a food stamp supplement [35]. Similarly, where positive and null associations were observed in one study of self-rated health, the findings differed by the in-state tuition benefits provided (i.e., in-state tuition with and without financial aid) [32].

Exclusionary policies were associated with worse health outcomes in children and adolescents in three studies (i.e., 2002 Farm Bill and Section 287(g) increased food insecurity [36, 37] and GA HB87 increased high-acuity emergency room visits [38]). Only one study, which examined in-state tuition bans and self-rated health, did not observe an association with exclusionary policies [32].

Discussion

We conducted a systematic review of quantitative studies that examined immigrant-related policies and mental and physical health outcomes of youth in immigrant families in the USA. When associations were observed between immigrant-related policies and the health of youth, health outcomes improved after the passage of inclusive policies and worsened after the passage of exclusionary policies. Many studies did not observe an association between policies and health outcomes, especially for birth outcomes. Only one study found an opposite association between an inclusive policy, PRWORA eligibility expansion, and preterm births. Similar increases in preterm births were observed in both US- and foreign-born women in PRWORA expansion and maintenance states and no similar increases in low birth weight were observed in this study, suggesting the policy was not a likely cause of this increase in preterm births.

The health of immigrant and US-born children may be affected by immigrant-related policies. Often studies in this review defined immigrant status by the immigration or citizenship status of the parents or household, but the health outcomes were among the US-born youth. Thus, when policy-health associations were observed, policies targeted at immigrant parents affected US citizen children and yielded health inequity between US citizens based on parents' immigration status. When separated by household citizenship status, for example, stronger associations with policies were observed among youth in non-citizen households compared with all-citizen households. Although documentation status is unavailable in most data sources, we expect that policy associations are even stronger for children in undocumented or mixed-status families. There is insufficient evidence to determine the effect of the policies covered in this review on refugees and asylum seekers because none of the studies further stratified non-citizen samples by these protected statuses. In some cases, individuals with protected status may be exempt from the restrictions of some laws, as is the case with PRWORA, which excludes refugees and asylum seekers from the restrictions on access to federal public benefits [23], but this may not be true of all policies. Even if individuals with protected status are exempt from or not targeted by some immigrant-related policies, they may still be affected by policies, especially exclusionary immigrant-related policies that communicate that a place is not welcoming towards immigrants or in the enforcement of policies, where they may face racism, xenophobia, and unjust questioning of their protected status.

Given the potential for exclusionary immigrant-related policies to harm children's health, health care providers and others who work with immigrant families should keep abreast of federal-, state-, and local-level immigrant-related policies to the best of their ability. Providers should also acknowledge the potential impacts of these policies with the families they

serve, and when appropriate, refer families to trusted community organizations or counseling services to provide resource and psychological and emotional support to families. Providers may find information on health care-related policies on the website of the Kaiser Family Foundation [39, 40] and additional information for providing appropriate care for immigrant families through The National Immigration Law Center, The American Academy of Pediatrics' Immigrant Health Toolkit, and the National Center for Medical-Legal Partnership [41].

In addition to appropriate care, public health and medical communities should continue to advocate for children in immigrant families in the policy realm. Armed with evidence about family separation, trauma, and abuse in other contexts, the public health and medical communities have penned commentaries enumerating the potential effects of family separation and stronger immigration policies under the Trump administration [42–44]. In the context of the COVID-19 pandemic, others have necessarily highlighted that stricter, exclusionary immigrant-related policies hinder undocumented families from seeking testing because of fear of deportation and force benefit-ineligible immigrant families to continue working because they do not qualify for unemployment benefits [45].

Epidemiologists and other researchers also need to continue to build the evidence base that specifically names and examines immigrant-related policies and demonstrates their effects on youth health outcomes [46–48]. Immigrant-related policies are a long-standing part of US legislative activity, but quantitative empirical studies of their potential impact on health are relatively new. Even though our literature search included publications from 1986 onward, all 17 of the studies in this review had publication dates from 2000 onward, with most having publications dates of 2015 or later. There is a rich body of qualitative studies that supports policy impacts on children's health [7, 49, 50] and a substantive body of literature supporting policy impacts on health care access among immigrant families [13–15]. In order to advance the science in the area of policy effects on youth health, we need more quantitative studies on a range of mental and physical health outcomes. Further, it is essential that the evidence from these studies inform policy and practice. Researchers should partner with advocates, providers, and communities to translate results into evidence-based policy changes and strategies to mitigate potential adverse effects for youth in immigrant families.

One future area of study could be to examine the potential effects of recent executive orders on family separation and stronger immigration policies on children and families. The Trump administration has slowed processes for legal immigration or refugee entry and adopted extreme deterrence strategies for unauthorized immigration. There have been chilling images of children in detention centers and calls for the end to family separations [44, 51–53], but none of the studies eligible for this review examined these recent policies. Second, researchers should consider leveraging longitudinal, national cohorts of children with a sizable immigrant family population to examine how childhood exposure to policies impacts health across the lifecourse. Studies in this review focused exclusively on short-term associations with health, with many studies looking at outcomes, especially birth outcomes, immediately following the passage of a law, but none examined more long-term or cumulative effects on health (e.g., trajectories of overweight and obesity or depression across childhood and into adolescence). Third, future studies should compare associations with immigrant-related policies across immigrant groups of different races and ethnicities or from different regions. Immigrant-related policies are a form of structural nativism and racism and immigrants of color may be subject to differential rates of policy enforcement. For example, many studies in this review focused on immigrants from Latin America, who make up half of the immigrant population in the USA [54] and who are disproportionately targeted by law enforcement officials because of the conflation of Latino and undocumented immigrant [46, 55–58]. Information on how policies affect immigrants of different races and ethnicities is needed to elucidate the interwovenness of immigrant-related policies and structural racism, and, if it exists, demonstrate unjust targeting of any one group.

Strengths and Limitations

This review is strengthened by the inclusion of studies from 1986 onward, during which several policies were passed that affeced immigrants' access to health care and public assistance programs. This serves to capture the most recent years of legislative activity which would be important for both children and parents of young children living in the USA today.

Three limitations of this review are noted. First, we limited studies to those that explicitly mentioned and studied immigrant-related policies. Studies of citizenship status or of immigration raids that did not link these exposures to a specific policy were excluded from this study. These studies are likely linked to policies but introduce additional constructs such as policy enforcement or choice to seek citizenship into the policy exposure definition. Second, we included search terms such as law and policy, but we did not include terms for specific policies. Thus, we may have missed studies that do not use law-related keywords even though policies were studied. Third, we group policies by inclusionary/exclusionary status, but the policies under these categories and the mechanisms by which they work differ in many ways.

Conclusions

Growing evidence supports that exclusionary policies are, at best, neutral, but likely harmful towards child wellbeing

among youth living in immigrant families, while inclusive policies can be beneficial for child wellbeing. Policy makers should consider the effects of immigrant-related policies on all youth, including US citizens, living in the USA. Researchers and health care providers who work with youth in immigrant families should be aware of potential health effects and consider strategies to counter them through their research, advocacy, and practice.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s40615-021-00978-w.

Funding DMC and YK were supported by the National Heart Lung and Blood Institute T32HL130025 grant.

Availability of Data and Material Not applicable

Code Availability Not applicable

Declarations

Ethics Approval This is a systematic review that relied on secondary review of published literature and did not involve human subject research nor required the review of an Institutional Review Board.

Consent to Participate Not applicable

Consent for Publication Not applicable

Conflict of Interest The authors declare that they have no conflicts of interest.

References

1. Philbin MM, Flake M, Hatzenbuehler ML, Hirsch JS. State-level immigration and immigrant-focused policies as drivers of Latino health disparities in the United States. Soc Sci Med. 2018;199:29–38.
2. De Trinidad Young M-E, Wallace SP. Included, but Deportable: A New Public Health Approach to Policies That Criminalize and Integrate Immigrants. Am J Public Health. 2019;109(9):1171–6.
3. Perreira KM. Pedroza JM. Policies of Exclusion: Implications for the Health of Immigrants and Their Children. Annu Rev Public Health; 2019.
4. Rhodes SD, Mann L, Simán FM, Song E, Alonzo J, Downs M, et al. The Impact of Local Immigration Enforcement Policies on the Health of Immigrant Hispanics/Latinos in the United States. Am J Public Health. 2015;105(2):329–37.
5. Pitkin Derose K, Bahney BW, Lurie N, Escarce JJ. Review: immigrants and health care access, quality, and cost. Med Care Res Rev. 2009;66(4):355–408.
6. LeBron AMW, et al. "They Are Clipping Our Wings": Health Implications of Restrictive Immigrant Policies for Mexican-Origin Women in a Northern Border Community. Race Soc Probl. 2018;10(3):174–92.
7. Gurrola MA, Ayon C. Immigration Policies and Social Determinants of Health: Is Immigrants' Health at Risk? Race Soc Probl. 2018;10(3):209–20.
8. Sabo S, Lee AE. The spillover of Us immigration policy on citizens and permanent residents of Mexican descent: how internalizing "illegality" impacts public health in the borderlands. Front Public Health. 2015;3.
9. Almeida J, Biello KB, Pedraza F, Wintner S, Viruell-Fuentes E. The association between anti-immigrant policies and perceived discrimination among Latinos in the US: A multilevel analysis. SSM-Population Health. 2016;2:897–903.
10. Roche KM, Vaquera E, White RMB, Rivera MI. Impacts of Immigration Actions and News and the Psychological Distress of US Latino Parents Raising Adolescents. J Adolesc Health. 2018;62(5):525–31.
11. Philbin SP, Ayon C. Luchamos por nuestros hijos: Latino immigrant parents strive to protect their children from the deleterious effects of anti-immigration policies. Child Youth Serv Rev. 2016;63:128–35.
12. Aneshensel CS. Social stress: Theory and research. Annu Rev Sociol. 1992;18(1):15–38.
13. Martinez O, Wu E, Sandfort T, Dodge B, Carballo-Dieguez A, Pinto R, et al. Evaluating the impact of immigration policies on health status among undocumented immigrants: a systematic review. J Immigr Minor Health. 2015;17(3):947–70.
14. Hacker K, et al. Barriers to health care for undocumented immigrants: a literature review. Risk management and healthcare policy. 2015;8:175.
15. Zambrana RE, Carter-Pokras O. Improving health insurance coverage for Latino children: a review of barriers, challenges and State strategies. J Natl Med Assoc. 2004;96(4):508–23.
16. Juárez SP, Honkaniemi H, Dunlavy AC, Aldridge RW, Barreto ML, Katikireddi SV, et al. Effects of non-health-targeted policies on migrant health: a systematic review and meta-analysis. Lancet Glob Health. 2019;7:e420–35.
17. Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. PLoS Med. 2009;6(7):e1000097.
18. Innovation VH. Covidence systematic review software. In. Veritas Health Innovation: Melbourne, Australia; 2016.
19. Effective Public Health Practice Project (EPHPP). Quality assessment tool for quantitative studies. 2009. https://merst.ca/wp-content/uploads/2018/02/quality-assessment-tool_2010.pdf. Accessed August 25 2018.
20. Sterne JA, et al. ROBINS-I: a tool for assessing risk of bias in non-randomised studies of interventions. BMJ. 2016;355:i4919.
21. Drewry J, Sen B, Wingate M, Bronstein J, Foster EM, Kotelchuck M. The impact of the State Children's Health Insurance Program's unborn child ruling expansions on foreign-born Latina prenatal care and birth outcomes, 2000–2007. Matern Child Health J. 2015;19(7):1464–71.
22. Wherry LR, Fabi R, Schickedanz A, Saloner B. State and federal coverage for pregnant immigrants: prenatal care increased, no change detected for infant health. Health Aff (Millwood). 2017;36(4):607–15.
23. Joyce T, Bauer T, Minkoff H, Kaestner R. Welfare reform and the perinatal health and health care use of Latino women in California, New York City, and Texas. Am J Public Health. 2001;91(11):1857–64.
24. Swartz JJ, Hainmueller J, Lawrence D, Rodriguez MI. Expanding Prenatal Care to Unauthorized Immigrant Women and the Effects on Infant Health. Obstet Gynecol. 2017;130(5):938–45.
25. Swartz JJ, Hainmueller J, Lawrence D, Rodriguez MI. Oregon's Expansion of Prenatal Care Improved Utilization Among Immigrant Women. Matern Child Health J. 2019;23(2):173–82.
26. Kuka E, et al. A Reason to Wait: The Effect of Legal Status on Teen Pregnancy. In: AEA Papers and Proceedings. 2019;2019:213–7.

27. Korenbrot CC, Dudley RA, Greene JD. Changes in births to foreign-born women after welfare and immigration policy reforms in California. Matern Child Health J. 2000;4(4):241–50.
28. Spetz J, Baker L, Phibbs C, Pedersen R, Tafoya S. The effect of passing an "anti-immigrant" ballot proposition on the use of prenatal care by foreign-born mothers in California. J Immigr Health. 2000;2(4):203–12.
29. Torche F, Sirois C. Restrictive Immigration Law and Birth Outcomes of Immigrant Women. Am J Epidemiol. 2019;188(1): 24–33.
30. Stanhope KK, Hogue CR, Suglia SF, Leon JS, Kramer MR. Restrictive sub-federal immigration policy climates and very preterm birth risk among US-born and foreign-born Hispanic mothers in the United States, 2005–2016. Health Place. 2019;60:102209.
31. Cho RM. Effects of welfare reform policies on Mexican immigrants' infant mortality rates. Soc Sci Res. 2011;40(2):641–53.
32. Potochnick S, et al. In-State Resident Tuition Policies and the Self-Rated Health of High-School-Aged and College-Aged Mexican Noncitizen Immigrants, Their Families, and the Latina/o Community. Harv Educ Rev. 2018;89(1):1–29.
33. Bronchetti ET. Public insurance expansions and the health of immigrant and native children. J Public Econ. 2014;120:205–19.
34. Hainmueller J, Lawrence D, Martén L, Black B, Figueroa L, Hotard M, et al. Protecting unauthorized immigrant mothers improves their children's mental health. Science. 2017;357(6355):1041–4.
35. Potochnick S. Reversing welfare reform? Immigrant restoration efforts and food stamp receipt among Mexican immigrant families. Soc Sci Res. 2016;60:88–99.
36. Van Hook J, Balistreri KS. Ineligible parents, eligible children: Food stamps receipt, allotments, and food insecurity among children of immigrants. Soc Sci Res. 2006;35(1):228–51.
37. Potochnick S, Chen JH, Perreira K. Local-level immigration enforcement and food insecurity risk among Hispanic immigrant families with children: National-level evidence. J Immigr Minor Health. 2017;19(5):1042–9.
38. Beniflah JD, Little WK, Simon HK, Sturm J. Effects of immigration enforcement legislation on Hispanic pediatric patient visits to the pediatric emergency department. Clin Pediatr (Phila). 2013;52(12):1122–6.
39. Artiga S, Damico A. Nearly 20 million children live in immigrant families that could be affected by evolving immigration policies. 2018. https://www.kff.org/disparities-policy/issue-brief/nearly-20-million-children-live-in-immigrant-families-that-could-be-affected-by-evolving-immigration-policies/. Accessed May 18 2020.
40. Artiga S, Pham O. Addressing health and social needs of immigrant families: Lessons from Local communities. 2019. https://www.kff.org/disparities-policy/issue-brief/addressing-health-and-social-needs-of-immigrant-families-lessons-from-local-communities/. Accessed May 18 2020.
41. Berlinger N, Zacharias RL. Resources for Teaching and Learning About Immigrant Health Care in Health Professions Education. AMA J Ethics. 2019;21(1):50–7.
42. Tsou P-Y. A Pediatrician's Day in Immigration Court. Pediatrics. 2018;141(1):e20170921.
43. Dawson-Hahn E, Cházaro A. Mitigating the health consequences for youth in families affected by immigration policy changes: Opportunities for health care professionals and health systems. JAMA Pediatr. 2019;173(8):721–3.
44. Zucker HA, Greene D. Potential child health consequences of the federal policy separating immigrant children from their parents. Jama. 2018;320(6):541–2.
45. Page KR, Venkataramani M, Beyrer C, Polk S. Undocumented US immigrants and Covid-19. N Engl J Med. 2020;382:e62.
46. Viruell-Fuentes EA, Miranda PY, Abdulrahim S. More than culture: structural racism, intersectionality theory, and immigrant health. Soc Sci Med. 2012;75(12):2099–106.
47. Hardy LJ, Getrich CM, Quezada JC, Guay A, Michalowski RJ, Henley E. A call for further research on the impact of state-level immigration policies on public health. Am J Public Health. 2012;102(7):1250–3.
48. Gurrola MA, Ayón C. Immigration Policies and Social Determinants of Health: Is Immigrants' Health at Risk? Race Soc Probl. 2018;10(3):209–20.
49. White K, Yeager VA, Menachemi N, Scarinci IC. Impact of Alabama's immigration law on access to health care among Latina immigrants and children: implications for national reform. Am J Public Health. 2014;104(3):397–405.
50. Rubio-Hernandez SP, Ayon C. Pobrecitos los Ninos: The emotional impact of anti-immigration policies on Latino children. Child Youth Serv Rev. 2016;60:20–6.
51. Society for Community Research Action: Division 27 of the American Psychological Association. Statement on the effects of deportation and forced separation on immigrants, their families, and communities. Am J Community Psychol 2018; 62(1-2):3-12.
52. Linton JM, Nagda J, Falusi OO. Advocating for immigration policies that promote children's health. Pediatr Clin. 2019;66(3):619–40.
53. Chishti M, Bolter J. Family separation and "zero-tolerance" policies rolled out to stem unwanted migrants, but may face challenges. Migration Policy Institute. May 2018;24.
54. State Immigration Data Profiles: United States. 2016. http://www.migrationpolicy.org/data/state-profiles/state/demographics/US. Accessed February 28 2017.
55. Landale NS, Oropesa RS, Noah AJ. Experiencing discrimination in Los Angeles: Latinos at the intersection of legal status and socioeconomic status. Soc Sci Res. 2017;67:34–48.
56. García SJ. Racializing "Illegality": An Intersectional Approach to Understanding How Mexican-origin Women Navigate an Anti-immigrant Climate. Sociology of Race and Ethnicity. 2017;3(4): 474–90.
57. Nier JA, Gaertner SL, Nier CL, Dovidio JF. Can racial profiling be avoided under Arizona immigration law? Lessons learned from subtle bias research and anti-discrimination law. Anal Soc Issues Public Policy. 2012;12(1):5–20.
58. Kohli A, et al. Secure communities by the numbers: An analysis of demographics and due process. the Chief Justice Earl Warren Institute on Law and Social Policy, Berkeley, Calif 2011.