



Between the lines: A mixed-methods study on the impacts of parental deportation on the health and well-being of U.S. citizen children

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ABSTRACT

Objective: To explore the impacts of parental deportation on the health and well-being of U.S. citizen children of Mexican immigrants.

Methods: From 2019–2020, this ambi-directional cohort study recruited U.S.-based families with an undocumented Mexican immigrant parent and U.S.-citizen children (ages 13–17) recently exposed to parental deportation ($N = 61$), and similar families without a history of parental deportation ($N = 51$). Children health, behavioral, economic, and academic outcomes were measured via phone surveys upon enrollment and six months later. A subsample of “exposed” caregivers ($N = 14$) also completed in-depth semi-structured interviews. Data were analyzed using fixed-effects regression models and thematic analyses.

Results: Children exposed to parental deportation had significantly worse health status, behavioral problems, material hardship, and academic outcomes than children in the control arm ($p < .05$). Caregivers’ interviews illustrated these health, behavioral, academic and family impacts.

Conclusions: Parental deportations have wide and potentially long-lasting health, behavioral, economic, and academic consequences for U.S. citizen youth. Changes in immigration policies and enforcement practices are urgently needed to protect the unity of mixed-legal status families in the U.S. and prevent the suffering of U.S. children in these families.

Introduction

The foreign-born population in the U.S. reached 44.9 million in 2019 (Batalova et al., 2021), the highest number registered in the history of this country. Not surprisingly, the number of children who live in an immigrant household has also risen. By 2019, about 17.8 million U.S. children lived with at least an immigrant parent, accounting for 26 % of all children in the U.S. (Batalova et al., 2021) An estimated 5.2 million children lived with at least one unauthorized immigrant parent. Among

them, 4.4 million are U.S. citizens (Batalova et al., 2021). In addition, about 529,000 U.S. citizen children have parents who are holders of temporary protected status (TPS) (Schochet, 2019) or Deferred Action for Childhood Arrivals (DACA) recipients (Prchal Svajlenka, 2019).

Children in these families are often the victims of indiscriminate immigration enforcement policies aimed at curbing unauthorized immigration. From 2011 to 2013, about half-a-million children experienced the apprehension, detention, and/or deportation of a parent (Capps et al., 2015). Nearly 260,000 immigrants with U.S.-citizen

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children were deported by Immigration and Customs Enforcement (ICE) between 2013 – 2019 (American Immigration Council, 2021). Because Mexican nationals make about 47 % of unauthorized immigrants in the U.S. (Passell and Cohn, 2019) and for half of ICE removals (U.S. Immigration and Customs Enforcement, 2019), immigration enforcement imposes a disproportionate burden on children of Mexican immigrants.

Arrests, detentions, and deportations of immigrant parents can have vast consequences for their children, even when separation does not occur. These include emotional ailments, such as fear, anger, stress, and sadness (Zayas et al., 2015); behavioral impacts, such as sleeping and eating disruptions (Chaudry et al., 2010; Rojas-Flores et al., 2017); physical ailments (Lopez, 2011); and failing grades (Capps et al., 2007; Macías and Collet, 2016). Parental separation due to detention or deportation often results in reduced family income (American Immigration Council, 2021; Chaudry et al., 2010), housing instability (Chaudry et al., 2010), economic and emotional hardship (Chaudry et al., 2010; Geller et al., 2009; Dreby, 2015), and altered parental supervision (Dreby, 2012). Internalized stigma (Gulbas et al., 2016) and lack of trust in authorities are also documented impacts of enforcement actions against immigrant parents on their children (Dreby, 2012).

Upon a looming deportation, parents face the impossible decision to take their U.S.-citizen children to a country they do not know or to leave them behind in the U.S., living in broken families without their care, support, and supervision. The children often end up being cared by extended family members (United G, 2018) and, in some cases, enter the welfare system (Immigration Policy Center and First Focus, 2012; Wessler, 2011; Dreby, 2015).

Despite its understood detrimental impacts (Baum et al., 2010), limited research has examined the impact of parental deportation on children's well-being (Capps et al., 2016). Some studies have informed about short-term impacts of deportation threats and parental detention (Chaudry et al., 2010; Capps et al., 2007), but few have focused on families with direct parental deportation experiences (Zayas et al., 2015; Macías and Collet, 2016; Gulbas et al., 2016; Allen et al., 2013), with even fewer comparing these children to their counterparts without such exposures (Zayas et al., 2015; Gulbas et al., 2016; Allen et al., 2013) and using mixed-methods to examine these impacts (Zayas et al., 2015; Gulbas et al., 2016). These comparisons are critical in understanding the effect of deportation versus that of other immigration-related measures (Baum et al., 2010).

The scarcity of research on this topic is driven by inherent difficulties in reaching families directly affected by deportation. The Between the Lines Project was a mixed-methods pilot study to test the feasibility of a novel methodology to sample, recruit, retain, and collect data from children of deported migrants and a sample of control children at risk for, but never exposed to parental detention or deportation. The goal of this project was to inform the design of a future, larger study on parental deportation that, in turn, could inform future intervention programs for families of deported or deportable immigrants and immigration policy. While Between the Lines was not powered to test for significant differences in health and well-being outcomes between the two arms, this analysis uses quantitative and qualitative data from caregivers participating in this project to explore the impacts of parental deportation on child health, behavioral, economic, and academic outcomes. This analysis extends the findings from qualitative interviews with *children* from the Between the Lines Project and a preliminary analysis of survey data from this study, which have been published elsewhere (Tellez Lieberman Lieberman et al., 2023; Martinez-Donate et al., 2020).

Material and methods

Positionality statement

At the time this manuscript was prepared, five of the authors identified as first- or second-generation Latina/Hispanic, with ties to El Salvador, Bolivia, and Spain. Other authors identified as Mexican,

Mexican/Iranian, first-generation Asian immigrant, and non-Hispanic white. All of the authors identified as Latino and immigrant health advocates. None of the authors has experienced parental deportation, although most of us have a personal or family history of family separation due to migration. Our interpretation of the data is informed by our lived experiences as community-engaged researchers, minorities, immigrants, children of immigrants, and/or immigrant advocates conducting community-engaged research for social justice and health equity.

Study design, sampling, and recruitment methods

The Between the Lines study was conducted in consultation with a community advisory board (CAB) that included Mexican nationals, community-engaged Latino health researchers, providers serving Latino immigrants, and immigrant advocates based on both the U.S. and Mexico. Throughout the study, Between the Lines researchers met quarterly with the CAB to discuss and review study procedures, implementation, and findings. Between the Lines was an ambi-directional cohort study with an external control cohort. Mexican immigrants forcibly removed from the U.S. are processed by the Mexican government at deportation stations in the North border of Mexico (Norte ECdIF, 2022). From March 2019 through March 2020, research team members consecutively approached, screened, identified, and recruited deported adults at three deportation stations in Tijuana, Nogales, and Matamoros, Mexico. To be eligible, migrants had to be Mexican nationals, living in the U.S. at the time of their arrest, without a previous history of deportation, and a parent of a U.S. citizen child aged 13–17 and based on the U.S. The narrow child age window for the selection of the families was due to the pilot nature of the study. The time and funds available for this pilot were insufficient to adapt the study procedures to children of different ages. A focus on adolescents was deemed feasible and significant due to the special vulnerability of developmental period, which could be exacerbated by an external shock like parental deportation. For ethical reasons and based on input from the CAB, eligible parents had to be “in good terms” with their U.S.-based children and their caregivers. The rationale for this criterion was to avoid any potential harms for families with a history of domestic violence, neglect, or other adverse situations. Consenting parents (i.e., index parents) were enlisted to serve as “recruitment brokers” to contact and recruit one of their U.S.-based children and a primary caregiver (i.e., separated families). After a phone introduction by the index parent, a research staff (a) pre-checked the eligibility of the U.S.-based family, (b) obtained permission to email them a recruitment packet, (c) contacted them by phone to confirm eligibility, and (d) obtained verbal consent within the next two weeks. Eligible children had to be 13–17 years-old, U.S.-born or naturalized citizens, biological or adoptive children of the index parent, and in good terms with that parent.

A sample of U.S.-based caregiver-child pairs at risk for parental deportation (i.e., control families) was also recruited. Recruitment of these control families was quite challenging. Families at risk of deportation can be anywhere in the U.S. Plus, their legal vulnerability makes them wary of researchers. To recruit these families, researchers partnered with promotoras –members of the Latino immigrant community well connected with, and trusted by, other Latino families in their communities. Control children had to be 13–17 years old, the biological or adoptive child of a Mexican immigrant parent who was not a U.S. naturalized citizen or “green card” holder, and without a history of parental detention or deportation. Eligible caregivers in both study arms had to be 18 years or older, a parent or primary caregiver of the eligible child, living with the child, and in good terms with them at the time of enrollment. For both sets of families, only one child per household was invited to participate in the study. If more than one child qualified for inclusion, the child with the most recent birthday was selected to participate. All study participants had to be fluent in Spanish or English.

Deported parents, caregivers and children completed 2 structured

interviewer-administered surveys by phone: one upon enrollment and a second one 6 months later. Due to limited resources, a purposive subsample of caregivers ($N = 14$) and children ($N = 11$) from the separated families also completed a semi-structured in-depth interview after the 6-month follow up survey. Families were purposively selected to maximize diversity in gender and age of the child, gender of the caregiver, and geographic location of the family.

Strategies to increase recruitment and reduce attrition. For deported parents, Between the Lines relied on young and well-trained Mexican interviewers with a degree in Psychology or a related field and based off the Mexican border. Recognizing the vulnerable moment in which deported parents were approached, interviewers went over a thorough consent process that explained very clearly the purpose and details of the study and emphasized the voluntary nature of their participation, as well as the lack of any negative repercussions if they declined participation or decided to drop from the study at any point. Deported parents enrolled in the study were offered a cell phone and the equivalent to \$50 in phone credit per month to facilitate ongoing contacts during the follow-up period. For U.S.-based families, the study relied on bilingual, culturally competent and well-trained Latina public health graduate students based off the first author's academic institution. These staff emailed consent and assent forms to interested families and subsequently went over the details of the study and obtained informed consent from caregivers and informed assent from children over the phone. Both the Mexico- and the U.S.-based interviewers contacted families by phone once per month between the baseline and the follow-up survey. They established rapport and demonstrated a caring and respectful attitude towards the study families, inspiring trust and confidence in these families. Study participants were offered a \$10 incentive to notify our team of any changes in contact information. A highly flexible schedule was made available to participants for completing check-ins, surveys, and interviews. Families received a \$50 electronic gift card for each survey, a \$75 card for the final qualitative interview (if applicable), and a \$10 e-gift card for each monthly contact.

Survey measures

The first surveys were divided into two sections to assess demographics, child health, behavioral, economic, and academic outcomes retrospectively one year prior to the date of the survey (T_0 : about one year prior to deportation for families in the separated arm or a year prior to enrollment for both groups) and at the time of enrollment (T_1 : shortly after parental deportation for separated families and at time of enrollment for both groups). Follow up surveys re-assessed these outcomes six months after the date of the first survey (T_2 : six months after parental deportation for separated families). Henceforth, we refer to these three time points as T_0 , T_1 and T_2 , respectively. Despite its retrospective nature, the inclusion of T_0 as the reference period is critical given the interest on the impact of parental deportation. T_0 is the one period when those in the "exposed" group were "not yet exposed" to parental deportation, enabling for difference-in-differences comparisons from "before" to "after" exposure for the exposed group vs. the control group. Initial and follow up survey measures for adults and children were adapted from previous studies with large samples of Latino adults and children (Martinez-Donate, 2022; Harris and Udry, 2022; Felitti et al., 1998; Portes and Rumbaut, 2018; Centers for Disease Control and Prevention, 2016; U.S. Department of Agriculture ERS, 2022; Marsh and O'Neill, 1984; Goodman, 2001). Single- item and brief measures were used to reduce participants' burden while screening for a wide array of outcomes.

For this analysis, we used *only* data from the *caregivers' surveys*, which focused on the children's health and well-being. These are listed below:

- a) Health outcomes, including perceived health status, coded as excellent/very good health versus good/fair/poor health, and last 12-

month health problems, coded as none versus one or more of 15 health issues; anxiety (yes/no); depression (yes/no).

- b) Behavioral outcomes, measured using the Internalizing, Externalizing, and Total Difficulties scales from the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 2001; Caballero et al., 2016), with higher scores representing more frequent behavioral difficulties. The SDQ has been validated and used extensively to assess behavioral problems with U.S. and Latino adolescents (He et al., 2013; Capriello, 2014). In our sample, we found adequate internal reliability estimates for the Internalizing (Cronbach's $\alpha = 0.664$), Externalizing (Cronbach's $\alpha = 0.695$), and Total Difficulties (Cronbach's $\alpha = 0.759$) scales.
- c) Economic outcomes, consisting of last 12-month household food insecurity, based on the frequency with which food did not last and there was no money to buy more ("never" vs. "often/sometimes") and poor housing quality, recoded as none versus one or more of 5 poor housing indicators, including excessive cold, excessive heat, mold, mice/roaches, cracks/holes.
- d) Academic outcomes, which included whether an adult attended parent/teacher conferences (yes/no); school absences (none vs. one or more); the teenager's effort at school ("very hard or hard enough" vs. "didn't try very hard or didn't try at all") and academic expectations (finish college or higher vs. less than college). Parental involvement is associated with academic performance (Fan and Chen, 2001). Parent-teacher conferences, a school-based type of parent engagement, is associated with higher academic achievement (Henderson and Mapp, 2002). School attendance, student effort, and caregiver expectations have been linked to students' academic achievement (Fan and Chen, 2001; Gottfried, 2010; Eccles and Wigfield, 2002).

Caregivers' qualitative interviews

For this analysis, we used data from the caregivers' interviews only. Semi-structured in-depth interviews guides were informed by findings from previous studies on the impact of immigration enforcement on immigrant families. For caregivers, guides included 15 pre-set open-ended questions focused on three topic areas: 1) the deportation process and its impact on the household (four questions), 2) changes in health and behavior of the child (health, behavior, performance in school, relationship with caregiver, and child outlook and sense of self; six questions); 3) coping of child, caregiver and resources/support for family (five questions). Interviewers were able to follow-up and use probing questions to clarify the meaning and delve more deeply into some issues based on the participants' answers. All the pre-set questions were asked to all participants. Interviews ranged in duration from 40 to 91 min, with an average duration of 54 min. Eleven interviews were conducted in Spanish and three were conducted in English.

Survey questionnaires and interview guides are available from the first author upon request.

Statistical analyses

We computed descriptive statistics for process data (e.g., response and retention rates), demographics, and study outcomes. Baseline differences between separated and control families and between retained and lost-to-follow up families were assessed using Chi-square and *t*-tests. Given the small sample size and pilot nature of the study, we used a fixed-effects model estimated via ordinary least squares (OLS) to explore the impact of parental deportation on the study outcomes. These models accounted for observed and unobserved time-invariant individual-level traits, making it possible to compare the trajectories of exposed and control children net of any differences between the two groups prior to exposure to deportation. Our main predictors were a cohort dummy (children exposed to parental deportation), time dummies (T_0 , T_1 and T_2), and two interaction terms (deportation $\times T_1$ and deportation $\times T_2$).

The interaction terms measured the extent to which changes in the outcomes from T_0 to the two subsequent time points differed for children exposed to parental deportation vs. children in intact families. Our regression models did not include controls to account for differences between the two sets of families. This is because fixed-effects models include a dummy variable for each individual in the analysis. The dummy accounts for both observed and unobserved individual level differences driving the modeled outcome. This approach equates to allowing the model to have a different regression intercept for each individual. As a result, the model enables us to gauge the association between parental deportation and the study outcomes after isolating the effect of observed and unobserved individual level characteristics. The fixed-effects model is more robust than a pooled OLS regression model including the individual level controls in Table 1 for two reasons: 1) a pooled OLS regression model would fail to address the panel nature of the dataset (repeated observations per individual); and 2) a pooled OLS regression would fail to account for unobserved individual level heterogeneity, resulting in omitted variable biases in the coefficient estimates.

The regression models are based on the subset of families who stayed in the study throughout the 6-month follow-up period ($N = 79$). The number of cases is the same for the two estimations (T_0 vs T_1 and T_0 vs T_2).

Qualitative analyses

Qualitative interviews were audio recorded and transcribed verbatim. Transcriptions were reviewed by two bilingual research team

members. Participants' names were replaced with pseudonyms. Anonymous transcripts were analyzed using the web-based platform application Dedoose (Sociocultural Research Consultants, LLC; Hermosa Beach, CA). More information about the functionalities and capabilities of this software can be found at www.dedoose.com. Transcripts were analyzed in their original language by two bilingual research assistants, following a thematic analysis (Braun and Clarke, 2006) approach. To code the interview transcripts, researchers started with a list of codes reflecting major themes (e.g., emotional impacts, behavioral impacts) and subthemes (e.g., fear, eating changes) emerging from previous studies. As necessary, the team added new subcodes representing subthemes emerging from the data. The first two transcripts were coded collaboratively by the two bilingual coders; the rest of the transcripts were coded by a single coder. The two coders met regularly with the principal investigator and co-investigators to discuss coding decisions and questions that arose during the coding. Themes and subthemes were integrated and summarized in a table. Selected quotes were translated from Spanish to English, as necessary. This study focused on the analyses of the responses to the questions on the impacts of parental deportation on the household and on the health and behavior of the child.

Results

Quantitative results

Of the 1233 migrants approached for the study, 81 % ($N = 998$) agreed to be screened for eligibility. Finding eligible migrant parents took much effort and time, partly because of the stringent study

Table 1
Selected demographic characteristics of the families in the between the lines study, 2019–2020 ($N = 112$).

	All Families Enrolled in Study			Only Families Retained at 6-month Follow-up		
	Group exposed to parental deportation $N = 61$	Control group $N = 51$	p^*	Families exposed to parental deportation ($N = 34$)	Control Group ($N = 45$)	p^*
Child Characteristics						
Age, Mean (SD)	15.1 (1.5)	14.8 (1.5)	.232	15.0 (1.5)	14.8 (1.5)	0.473
Female gender, %	67.3	41.2	.009	66.7	35.6	0.008
White race identity, **%	42.5	37.5	.648	40.7	41.7	0.941
Latino ethnicity, %	100	100	N/A	100	100	1.000
School grade, Mean (SD)	9.4 (1.8)	9.6 (1.5)	.530	9.2 (1.7)	9.1 (1.6)	0.650
Contextual Characteristics (Prior to Parental Deportation)						
Two-parent household, %	56.1	55.1	.925	53.9	55.8	0.873
Rural residence, %	19.1	10.5	.286	21.4	11.4	0.280
Family-owned house, %	15.5	21.6	.415	21.2	22.2	0.915
Household annual income (10k), Mean (SD)	25.0 (15.1)	27.3 (16.3)	.510	23.9 (14.6)	26.0 (13.9)	0.544
Number of household residents, Mean (SD)	5.5 (2.8)	5.2 (2.0)	.631	5.4 (2.5)	5.3 (1.9)	0.801
Ratio residents/bedrooms, Mean (SD)	2.4 (1.7)	2.4 (1.6)	.968	2.2 (1.6)	2.5 (1.6)	0.502
State-level immigration policy index, Mean (SD)	3.4 (7.7)	3.4 (7.7)	.373	2.6 (7.4)	2.2 (7.9)	0.799
U.S. census region of residence, %						.990
• West	66.7	56.9	.518	54.5	55.6	
• South	26.3	31.4		33.3	33.3	
• Other	7.0	11.8		12.1	11.1	
Caregiver Characteristics						
Caregiver's female gender, %	89.3	96.1	.055	87.9	97.8	0.156
Caregiver completed high school, %	35.0	43.1	.380	36.4	42.2	0.601
Caregiver's "white" race identity, **%	57.6	10.0	<0.001	54.6	9.0	<0.001
Caregiver's Latino ethnicity, %	94.6	100	.105	90.9	100	0.072
Foreign-born caregiver, %	75.4	98.0	<0.001	75.8	97.8	0.004
Caregiver in vulnerable immigration status, ***%	82.0	94.1	.053	80.0	93.3	0.280

* P values based on Chi-square statistics (binary variables), Likelihood Ratio (categorical variables with 3 categories), and t -tests for independent samples (continuous variables).

** Participants who chose only "White" as their racial identity vs. those who chose one or more of the following categories: Black of African American, American Indian, Asian, Native Hawaiian, Pacific Islander, Other.

*** Not a U.S. citizen or permanent resident (green card holder).

A comparison of families retained in the study and those lost to follow-up showed a lower percentage of girls (77.3 % vs. 48.0 %, $p=.015$) and caregivers who identified as "white" (28.6 % vs. 53.1 %, $p=.015$) among families who dropped out of the study (Table 2).

eligibility criteria for this pilot. Of the migrants screened, 17 % ($N = 167$) met eligibility criteria and, among them, 69 % ($N = 116$) consented to participate in the study and provided contact information for their families in the U.S. Researchers obtained consent to participate from 61 eligible families, representing 52 % of families of consenting deportees. Of the 61 deported parents, 56 were males and 5 were females. Forty percent of index parents and 56 % of their U.S.-based families completed the 6-month follow-up survey. For control families, researchers received 93 referrals from the field promotoras and confirmed eligibility for 67 % of them ($N = 62$). Among them, 82 % ($N = 51$) consented and enrolled in the study and, of these, 88 % completed the 6-month follow-up survey. Working with culturally competent and trustworthy staff and community-based promotoras, having flexible schedules, conducting monthly check-in calls, and providing cell phones and incentives were key to achieve the recruitment goals and reduce attrition rates.

Baseline demographics of separated and control families were similar, except for child gender and caregiver's race identity, foreign-born status, and immigration status. The same pattern was observed when the comparison was restricted to families retained in the study at the 6-month follow up, except for immigration status (Table 1). The fixed-effects regression models account for these time-invariant baseline differences between the two groups.

Table 3 shows descriptive statistics for the study outcomes by study arm and measurement point, as well as coefficients from fixed effects OLS regression models. The direction of the interaction cohort x time terms suggested that separated teenagers experienced a deterioration in most study outcomes relative to their control counterparts shortly after parental deportation (12 out of 13 outcomes) and at the 6-month follow-up (11 out of 13 outcomes). The effects at the 6-month follow-up reached statistical or marginal significance for health status, internalizing, externalizing and total behavioral difficulties, housing quality, and all three academic outcomes (Table 2). Fig. 1 shows changes in selected health, behavioral, economic, and academic outcomes for the two study groups by measurement period. These outcomes include: child health status, depression, behavioral difficulties, food insecurity, attendance to parent/teacher conferences, and child academic effort.

Qualitative results

Fourteen separated caregivers of children exposed to parental deportation completed a qualitative interview. Pseudonyms are used to refer to study participants henceforth. Most (93 %) were women and biological mothers of the youth in the study (93 %). Most caregivers in this subsample identified as White (77 %) and/or Latina (85 %). The majority was married (85 %), foreign-born (79 %), and had not completed high school (62 %). The qualitative interviews illustrated the negative impacts of parental deportation on the children (Table 4).

Impacts on health and psychological well-being. For youth who already had some chronic health issues, such as asthma, the caregivers noted that the stress of their parent's deportation exacerbated their symptoms. Caregivers also observed frequent physical ailments or somatic symptoms in their child/children following the deportation of the parent, such as headaches, stomachaches, and tiredness. Other participants commented on the psychological impact, including fear, anxiety, self-blame, helplessness, and especially, sadness. Talking about her 15-year-old daughter, Ernestina (44 years old) remarked "She's always crying, like I couldn't tell her anything because she would cry." Another mother, Rosa (56 years old), referring to her children, stated "They no longer want to live. They don't, don't want to harm themselves physically. But it's like their self-esteem is very low."

Impacts on behavior. Caregivers' reports regarding children's behavioral changes after their parents' deportation were also consistent with quantitative findings. Some participants shared that the children had become quieter, more withdrawn, and less communicative since their parents were taken. Several caregivers reported that the children did not want to leave their room. Many noted an increase in sleeping, a

Table 2

Selected Demographic Characteristics of the Families Retained vs. Families Lost at 6-month Follow Up, 2019–2020 ($N = 112$).

	Families retained at 6-month f/u $N = 79$	Families lost at 6-month f/u $N = 33$	p*
Child Characteristics			
Age, Mean (SD)	14.9 (1.5)	15.1 (1.5)	.520
Female gender,%	48.0	77.3	.015
White race identity,%	41.3	35.3	.655
Latino ethnicity,%	100	100	N/A
School grade, Mean (SD)	9.5 (1.6)	9.4 (1.9)	.859
Contextual Characteristics			
(Prior to Parental Deportation)			
Two-parent household,%	56.8	54.5	.854
Rural residence,%	15.9	11.8	1.00
Family-owned house,%	21.8	9.7	.177
Household annual income (10k), Mean (SD)	25.1 (14.2)	26.8 (18.5)	.638
Number of household residents, Mean (SD)	5.3 (2.2)	5.5 (3.0)	.658
Ratio residents/bedrooms, Mean (SD)	2.4 (1.6)	2.3 (1.8)	.909
State-level immigration policy index, Mean (SD)	2.3 (7.7)	4.0 (8.4)	.341
U.S. census region of residence, %			.055
• West	55.1	79.3	
• South	33.3	17.2	
• Other	11.5	3.4	
Caregiver Characteristics			
Caregiver's female gender,%	93.6	90.0	.693
Caregiver completed high school,%	39.7	36.4	.738
Caregiver's "white" race identity,%	28.6	53.1	.015
Caregiver's Latino ethnicity,%	96.2	100	.553
Foreign-born caregiver,%	88.5	81.8	.349
Caregiver in vulnerable immigration status,**%	82.4	89.7	.277

* P values based on Chi-square statistics (binary variables), Likelihood Ratio (categorical variables with 3 categories), and *t*-tests for independent samples (continuous variables).

** Not a U.S. citizen or permanent resident (green card holder).

sign of depression ("She simply only wanted to be sleeping...", said Rosa, referring to her 13-year-old daughter). Other caregivers noted that children showed frustration, anger and even aggressive behavior, after their parents were deported.

Impact on academics. Parental deportation also was reported to affect children's academic performance. In qualitative interviews, caregivers noted that their children experienced loss of concentration, waning effort, missed school days, and earned worse grades immediately after their parental deportation. Francisco (53 years old), father of a 16-year-old daughter, noted: "I mean her grades took, not a dive but they did go down". Another mom observed the same of her son after his dad was deported: "His-grades dropped a lot." (Lupita, 46 years old). Even children's expectations for future academic achievement were said to be affected by the loss of their parent, as noted by another mom:

"So, so, he would say, 'I want to work in an office where the sun won't hit me-where there's no sun.' Now he says that he won't be able to, he's not going to be able to because he sees that we have just enough money for rent" (Marta, 42 years).

Material hardships. The caregivers also confirmed the material impacts brought about by parental deportation. Because deported parents were often "the breadwinner of the house" managing the finances, their departure threatened the household's economic stability and created a sense of chaos. Ernestina, mother of a 15-year-old female, observed: "There are times where I don't pay rent because I pay my bills and, well, the

Table 3

Descriptive statistics for selected outcomes by group and time point and effects of parental deportation among children in the in between the lines study, 2019–2020 ($N = 112$).

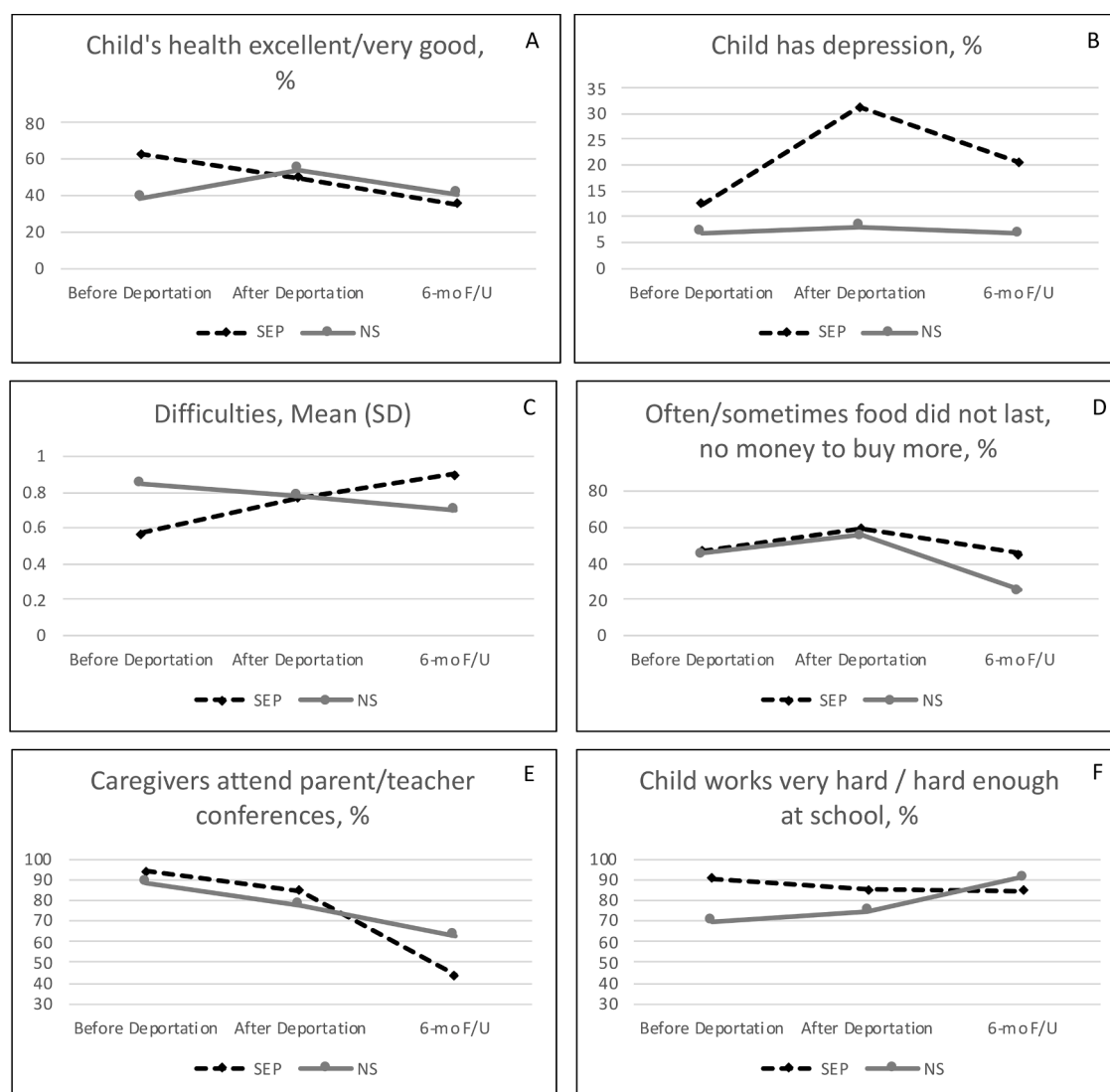
					B coefficients for interaction terms from fixed-effects ordinary least square regression models	
Descriptive Statistics					Effects 1 month after deportation (Deportation x T ₁)	Effects 6 months after deportation (Deportation x T ₂)
	Separated Children	Control children	R square (within)	Number of obs.	B (p)	B (p)
Child health						
Excellent/very good health,%						
• T ₀	62.5	38.6	0.079	230	-0.284 (0.027)	-0.314 (0.015)
• T ₁	50	54.5				
• T ₂	35.3	40.9				
1+ health problems,%						
• T ₀	45.5	57.8	0.065	235	0.079 (0.503)	-0.034 (0.77)
• T ₁	66.7	71.1				
• T ₂	58.8	73.3				
Anxiety,%						
• T ₀	6.3	20.5	0.021	231	0.116 (0.156)	0.108 (0.188)
• T ₁	15.6	18.2				
• T ₂	11.8	15.6				
Depression,%						
• T ₀	12.5	6.8	0.053	231	0.188 (0.031)	0.094 (0.277)
• T ₁	31.3	8				
• T ₂	20.6	6.7				
Behavioral outcomes						
Internalizing behavioral problems, Mean (SD)						
• T ₀	.71 (0.50)	.93 (0.52)	0.179	232	0.407 (<0.001)	0.583 (<0.001)
• T ₁	1.1 (0.49)	.87 (0.46)				
• T ₂	1.1 (0.39)	.75 (0.39)				
Externalizing behavioral problems, Mean (SD)						
• T ₀	.46 (0.41)	.80 (0.39)	0.095	232	0.254 (<0.004)	0.325 (<0.001)
• T ₁	.59 (0.49)	.69 (0.37)				
• T ₂	.64 (0.37)	.68 (0.41)				
Total difficulties, Mean (SD)						
• T ₀	.58 (0.39)	.86 (0.38)	0.192	232	0.328 (<0.001)	0.449 (<0.001)
• T ₁	.82 (0.42)	.78 (0.32)				
• T ₂	.87 (0.32)	.71 (0.33)				
Economic outcomes						
Often/sometimes food did not last, no money to buy more,%						
• T ₀	46.9	45.5	0.005	233	-0.129 (0.229)	0.057 (0.593)
• T ₁	59.4	55.6				
• T ₂	45.5	25				
1+ indicators of poor housing quality, %						
• T ₀	46.4	68	0.165	233	0.454 (0.001)	0.626 (<0.001)
• T ₁	70	66.7				
• T ₂	82.4	53.3				
Academic outcomes						
Parent attends parent-teachers conference,%						
• T ₀	93.8	88.6	0.268	229	0.015 (0.898)	-0.258 (0.031)
• T ₁	84.8	77.8				
• T ₂	43.8	62.8				
One or more school absences,%						
• T ₀	65.6	86.4	0.07	224	0.181 (0.207)	0.308 (0.032)
• T ₁	64.5	66.7				
• T ₂	65.6	58.1				
Child works very hard or hard at school,%						
• T ₀	90.6	69.8	0.071	228	-0.111 (0.307)	-0.309 (0.006)
• T ₁	84.9	75				
• T ₂	84.4	90.9				
Caregiver expects child to finish college,%						
• T ₀	64.5	34.1	0.064	223	-0.216 (0.087)	-0.267 (0.038)
• T ₁	65.6	54.8				
• T ₂	54.8	48.8				

T₀: 1 year before deportation for separated children.

T₁: 1 month after deportation.

T₂: 6 months after deportation.

Bold font indicates odds ratio / B coefficient was statistically significant.



SEP: Children separated due to parental deportation.
NS: Control children.

Fig. 1. Changes in selected health, behavioral, economic, and academic outcomes by group and time: A: Percent of children whose health is excellent or very good (vs. good, fair, poor); B: Percent of children who had depression; C: Behavioral difficulties scores (higher indicates more difficulties); D: Percent of caregivers who reported often/sometimes food did not last and there was not money to buy more; E: Percent of caregivers who reported an adult in the home attended parent/teacher conferences at school; F: Percent of caregivers who reported child worked very hard or hard enough at school.

SEP: Children separated due to parental deportation.

NS: Control children.

children's clothes, their shoes... right now I haven't been able to buy them."

Increased child responsibilities. Often, caregivers recognized that their children felt the pressure to quit school and start working to support their families. Other times, the caregivers shared that they needed to rely on their children to cope with the financial loss and emotional impact created by their partners' deportation. Reyna (40 years old) explained it this way: "He [referring to an older child] had to, like, to help me financially... bring the money home for rent, for the bills. Then this one [referring to teen in the study], because [their father] would help me with the children when I was going to work, sometimes [the child] would stay with them, when there was no school."

Discussion

This study sought to explore the impact of parental deportation on health, behavioral, economic, and academic outcomes of teenage children of deported parents, using data from the Between the Lines project,

which included families exposed to parental deportation and families who had not experienced this event. While this study was not powered to statistically estimate the effects of parental deportation, the data suggest that compared to children who do not experience the deportation of their parents, children in families separated by deportation experience a host of negative health, behavioral, academic, and economic impacts. Of 13 different outcomes examined, we observed negative effects immediately and/or 6 months after deportation in all but one of them. For 9 out of these 13 outcomes (i.e., health status, depression, internalizing and externalizing behavioral problems, total difficulties, housing quality, parent-teacher conference attendance, school absences, school effort, and academic expectations), the differences were statistically significant despite the small sample size and limited statistical power. The reports shared by the caregivers during qualitative interviews matched and graphically illustrated these trends. Our quantitative and qualitative findings are also consistent with previous analyses of qualitative interviews with children participating in the Between the Lines

Table 4
Qualitative findings on impact of parental deportation based on interviews with U.S.-based caregivers of children (*N* = 14).

Themes	Quotes
Deterioration of physical health and health behaviors	“She has asthma, so [after parent’s deportation] we noticed, I was noticing like at school, they would call me all the time, like she has had an asthma attack, or she’s having a hard time breathing.” (Silvia, unknown age) “And now [after parent’s deportation] she is sick all the time, her stomach hurts, her head hurts.” (Rosa, 56 years)* “There are times that I make food then, then they remember their dad. ‘Oh, my dad liked this a lot’ and they start crying and then they don’t eat.” (Ernestina, 44 years)*
Psychological impact, especially sadness and fear	“They start crying, that is, and they know that their dad is not here, anyway, but they still have, they think that...they think that the people who took their dad can come one day for me. [Name of the child] says, ‘Mom, why did all this happen, Mom, why did they take my dad? Or mom what if they come for you? And you are not here anymore?’ (Reyna, 40 years)* “It is very sad. It is very sad seeing my kids sleep most of the time... They are no longer the same people from before. [Name of the child] used to play the piano... almost always, almost every day.” (Rosa, 56 years)*
Impact on behavior: withdrawal, anger, rebelliousness	“So, the oldest girl spent weeks locked in her room. She didn’t want to come out, only from home to school, school to home, so I took her to a doctor, and they gave her some pills like for like depression. Like that. She stays locked up. They gave her pills” (Ernestina, 44 years)* “[Name of the child] is also angry, defensive with me. Yes, he easily gets angry.” (Lupita, 46 years)* “You know, she wants to go back and forth all the time and I don’t know. It just seems like this has really been going on a lot this last year. She was never like that with me before. Never bickering, never arguing, you know, she was not like that at all.” (Tania, 43 years)
Impact on academics: Loss in motivation, lack of concentration, and negative outlook.	“After that [referring to deportation], from there, she didn’t want to go to school. And before, she, even if she was sick and all of that, she liked to go to school. She didn’t like missing it. And now [...] she only wants to be sleeping.” (Rosa, 56 years)* “Right now, it’s like, [Name of Child]’s not motivated. I don’t know, like he’s not motivated to study [...] Yes, he’s having a hard time to get on classes right now... he lost his desire, I don’t know his motivation maybe.” (Daniela, 47 years)* “I notice that-that things have changed in the way of thinking and all of that because before she always said that she was going to be a doctor... That she was going to be a doctor so... since she knows that career is expensive for us and, as you know, that I don’t have a stable job. No, not anymore. Now, she thinks in things like... I don’t know. There were a lot of plans with her before...” (Rosa, 56 years)*

Themes	Quotes
Material hardships: Income loss, difficulties making ends meet, and dependence on help	“I didn’t have extra hours. I was only making- at that time, I took home almost \$400 at 40 h a week and...I was worried about putting food on the table. That’s how scared I was. I mean, I was like that for a month straight worried about that and having to deal with ‘OK, am I... is [Name of child] going to be able to eat? Am I going to have something to eat? Are we going to have food? Are we going to have...?’” (Francisco, 53 years old) “We have been connected with [a church] there and we go every month. ‘Let’s go and grab food from the pantries!’ Truly, it has helped a lot because that way I can save...I keep from running out of oil, cornmeal. Uh, sugar, things like...rice, beans, canned beans. It has helped” (Yolanda, 41 years)*
Increased child responsibilities to cope with financial and emotional stress	“Right now, I tell my children that between all of them they have to help me do something at the house because-I can’t do everything at once, by myself. For example, I am making food to sell... and I get up at four in the morning. And I told [the children] that I needed help because I need someone to bag the lunches for me... [Light Crying] [Pause] And, because the men want freshly made tortillas, and by myself-I can’t. I mean, it gets difficult for me all alone. And-and [Sigh, starts to cry] ... all of this is truly very hard.” (Rosa, 56 years)* “Now, I am the one who works and [Name of the child] has mentioned to me that he wants to work too because since he is 16 years old, he sees that there isn’t the same income as when his father was here. He sees that we can’t do what we used to when [his father] was here so because of that he-he isn’t working right now, no, but yes, he has mentioned that it’s something he wants to do.” (Marta, 42 years)*

* These interviews were conducted and coded in Spanish. Quotes have been translated to English to make them accessible to non-Spanish readers. The Spanish version of these quotes is available from the first author upon request.

Project (Tellez Lieberman Lieberman et al., 2023) and confirm preliminary analyses of caregiver survey data from this project (Martinez-Donate et al., 2020). Together, these analyses point at the devastating and multilevel impact of parental deportation. Notably, our results reflect the immediate and short-term impacts of these traumatic family separations but do not capture their long-term consequences. Arguably, these impacts may worsen over time, as exposure to stressors caused by the absence of the deported parent are felt by these youth for longer periods of time.

Limitations

The small sample size and short follow-up period may have reduced our ability to detect additional impacts of parental deportation on children of Mexican immigrants. The use of retrospective assessments to measure pre-deportation conditions and single-item measures to assess depression and anxiety could have led to misclassification of study outcomes. Response rates were lower for separated families. Distinct recruitment methods and differential response rates among families exposed to parental deportation and control families may have introduced selection bias. However, control and exposed families were comparable in most baseline demographic and geographic

characteristics. Furthermore, the fact that children exposed to parental deportation were “better off” than the control children at baseline suggests that our estimates should be interpreted as a lower bound estimate of what the impact of parental deportation might be with a higher response rate among families exposed to parental deportation. Attrition rates were higher for families in the parental deportation arm. This could be related to the demoralization experienced by these families after suffering the deportation of a parent. Some of these families may have followed the deported parent and relocated to Mexico. The use of fixed-effects regression models should attenuate the impact of any time-invariant baseline differences between the two groups resulting from differential response and attrition rates. Finally, it is unknown how representative the families in the study were with regards to all U.S.-based Mexican immigrant families with children exposed to or at risk for parental deportation. For example, requiring that children and deported parents were in “good terms” can decrease the generalizability of the findings. This can affect the generalizability of the findings, this should not impact the internal validity of the analyses.

A future larger study aimed at investigating the nature and magnitude of the impacts of parental deportation should include a greater sample size, a longer follow up period, prospective measures, and more extensive mental health measures. The significance of investigating the impacts of parental deportation cannot be overstated. There is insufficient population-level data documenting the impacts of these immigration enforcement practices on the health and well-being of children of deportees, most of them U.S. citizens. ICE spends an estimated \$3.2 billion each year to identify, detain, and remove undocumented immigrants (Blanco, 2017) –a figure which does not begin to capture the suffering these activities inflict on impacted families and their surrounding communities. Funding should be allocated to gather evidence regarding the harm of parental deportation and to identify and advocate for adequate responses to mitigate these adverse effects through community and school-based health programs, social services, economic and legal assistance, and counseling for affected families. Funding should also support research and advocacy to inform policy reforms that prioritize the unity and well-being of U.S.-based families. Examples at the federal level include allowing U.S. citizen children the right to extend citizenship to their deported parents, approving the Deferred Action for Unauthorized Immigrant Parents, granting children the right to be legally represented in proceedings that threaten to take away their parents (Capps et al., 2016), and considering the adverse impacts of parental deportation on children’s development as “exceptional and extremely unusual hardship” in favor of granting parental relief (Baum et al., 2010). The U.S. Citizenship Act of 2021 (H.R. 1177 and S. 348) includes provisions to keep migrant families together [To provide an earned path to citizenship, to address the root causes of migration and responsibly manage the southern border, and to reform the immigrant visa system, and for other purposes. In. (D-CA-38) RLS, trans. H.R. 1177. 1st Session ed2021; To provide an earned path to citizenship, to address the root causes of migration and responsibly manage the southern border, and to reform the immigrant visa system, and for other purposes. In. (D-NJ) SRM, trans. S. 3482021]. At the state and local level, allowing undocumented migrants to obtain drivers’ licenses, declaring sanctuary cities, schools, courthouses, and healthcare settings are examples of policies to reduce the likelihood and/or impact of parental deportations that harm U.S. citizen children’s well-being.

In summary, this study suggests that parental deportations have wide and potentially long-lasting health, behavioral, economic, and academic consequences for U.S. citizen children. Despite some limitations, this evidence contributes to fill the gap regarding the impact of immigration policies on children in mixed-legal status families. The findings call for changes in immigration policies and enforcement practices to protect the unity of mixed-legal status families in the U.S. and prevent the suffering of U.S. children in these families.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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