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Sanctuary city policies and Latinx immigrant mental health in California

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ABSTRACT

This quasi-experimental study examined whether "sanctuary city" policies are an effective mechanism for reducing mental health inequalities by immigrant origin status in Latinx populations in California. Ample evidence indicates that people experience mental health problems when restrictive immigration policies are imposed. It remains unclear whether sanctuary city policies can improve population mental health in the groups targeted by restrictive immigration policies: undocumented immigrant Latinxs, documented immigrant Latinxs, and native-born Latinxs. We combined data on California's 482 cities concerning whether and when they implemented a sanctuary policy with health data on approximately 142,000 adults, 6400 adolescents and 13,000 children from the multi-year California Health Interview Survey. After using propensity score matching to identify non-sanctuary cities comparable to sanctuary cities, we estimated respondent-level difference-in-differences models to determine whether sanctuary city policies had beneficial mental health effects on three age groups: adults, adolescents, and children during the period 2007–2018. There was a trend toward improved mental health in sanctuary cities after policy enactment, but the patterns of mental health in the three Latinx immigration sub-groups of each age group did not conform to our hypotheses. Buffering the adverse effects of harsh federal immigration policies may need to involve other approaches, such as expanded local mental health care access. We discuss these results in terms of alternative treatment interference, residents' policy awareness, the policy's capacity to address past health impacts, methodological issues, and potential policy momentum.

United States immigration policy has grown more restrictive in recent decades, subjecting Latinxs to inequitable treatment on the basis of their actual or perceived immigrant status. The socio-political climate for immigrants, especially those who are undocumented, has worsened, as detention and deportation have increased to affect many more immigrants, including legal residents and naturalized citizens (Aptekar et al., 2017; Kretesedemas et al., 2017). For example, as many as half-a-million U.S.-citizen children experienced the deportation of at least one parent from 2011 through 2013 (Capps et al., 2015). Latinxs have been affected more than other groups. Most of those who have been detained in the U.S. are of Mexican origin, followed by people from El Salvador, Honduras and Guatemala. (Freedom for Immigrants) Examples of policies and practices that disproportionately affect Latinxs include immigration raids in spaces where many immigrants live and work and checkpoints in which identification proving immigration status is demanded.

Responding to restrictive national immigration policy, local communities have resisted by declaring themselves "sanctuary cities." We assessed whether this declaration to protect immigrants, in the form of sanctuary city policies, benefits the mental health of Latinxs. Ample evidence indicates positive associations between mental health problems and restrictive immigration policies (Eskenazi et al., 2019; Rubio-Hernandez & Ayón, 2016a, 2016b). No literature, however, examines whether sanctuary city policies can improve population mental health in the groups targeted by restrictive immigration policies. We combined data on whether and when California's 482 cities implemented a sanctuary city policy with data from the large, multi-year California Health Interview Survey (CHIS). Using our sanctuary city policy data and CHIS data over the period 2007 to 2018, we determined whether sanctuary city policies preceded improvements in mental health on Latinxs youth and adults. This study focused on Latinxs because they disproportionately experience immigration policy enforcement and comprise a large segment of the population that sanctuary policies intend to protect. California is an ideal setting for this research because of its population size (39 million people) and its large numbers of immigrants (10 million) of which 5 million are Latinx and 3

million are undocumented (Migration Policy Institute, 2019). This setting coupled with the large CHIS dataset identifying Latinxs within the state over time offered a unique opportunity to study whether sanctuary city policies reduce the inequalities in Latinx mental health.

1. Immigration policy, Latinx families, and mental health

Immigration policy enforcement is racialized. Being an immigrant and being undocumented have, in far too many instances, come to be conflated with being Latinx (Viruell-Fuentes et al., 2012). Officials and the public often make assumptions about a person's origin and immigration status based on racial/ethnic markers and behaviors (Cisneros and Dechaine, 2012). Officials may erroneously detain non-immigrant Latinxs, believing they are immigrant or undocumented because they appear to be Latinx (Sabo & Lee, 2015). Similarly, members of the public may mistrust or mistreat non-immigrant Latinxs, believing they are immigrant or undocumented (Sabo et al., 2014). The racialization of immigration policies and enforcement is evident, as Latinx immigrants are disproportionately detained or deported (Nichols et al., 2018). Mexicans and Central Americans account for 91% of removals (Rosenblum & McCabe, 2014), and raids frequently target Latinx-dense communities or Spanish-speaking communities or employment sites (Li, 2019; Rigg, 2011). The negative sequelae of restrictive immigration policies and immigration enforcement on Latinx mental health, regardless of immigration status, are well documented. Latinx residents in states with more exclusionary policies report 1.14 times the number of poor mental health days than Latinxs in states with fewer restrictive immigration policies (Hatzenbuehler et al., 2017a).

Actual detention and deportation have myriad economic, legal, and social consequences which are, in turn, associated with adverse mental health (De Genova, 2002; Nichols et al., 2018). Fear of detention and deportation is also highly consequential for mental health (De Genova, 2002; Ryan et al., 2021). Family members worry about family separation (Ayers et al., 2013), and parents worry about impacts on their children (Satinsky et al., 2013). To cope with fear and avoid detection, many Latinx immigrants avoid social contact and experience social isolation (Asad & Rosen, 2019; Lee et al., 2020). Others who are separated from their families through immigration enforcement experience loneliness, depression, and post-traumatic stress (Santa-Maria & Cornille, 2007). The prolonged, continuous stress associated with real and feared immigration enforcement can result in physiological changes that contribute to increased rates of chronic disease and mental health disorders (Artiga & Ubri, 2017). Immigrants and Latinxs perceive restrictive immigration policies to be discriminatory (Almeida et al., 2016; Cisneros and Dechaine, 2012), and these perceptions are associated with poor health (Nichols et al., 2018).

The aforementioned research focused on adults, but the results are similar for children. There are approximately 2.3 million mixed-immigration-status families – that is, families in which at least one child is a U.S. citizen and one parent is undocumented (Passel, 2011). Children in these families are aware of and live with the uncertainty of their family's safety. They learn that immigrant or Latinx communities are targeted and that enforcement strategies can lead to the deportation of a parent and family fragmentation (Ayón, 2016; Dreby, 2012; Rubio-Hernandez & Ayón, 2016a, 2016b). In turn, across developmental stages, children experience mental health consequences (Artiga & Ubri, 2017; Barajas-Gonzalez et al., 2018). For example, young children experience fear, hyperawareness, hypervigilance (Satinsky et al., 2013), depression, anxiety, and frequent crying (De Genova, 2002; Rubio-Hernandez & Ayón, 2016a, 2016b), and adolescents experience anxiety, sleep problems, elevated blood pressure (Eskenazi et al., 2019), depression, and suicidal thoughts (Rinaldi & Shah, 2017; Romero, Edwards, Bauman, & Ritter, 2013; Henderson, 2018.). Restrictive immigration policy produces chronic stress in children (Asad & Rosen, 2019; Ryan et al., 2021), and exposure to such stress predicts "significant risk for adverse long-term outcomes from which children do not

recover easily." (National Scientific Council on the Developing Child, 2010).

2. Sanctuary policies and Latinx mental health

Sanctuary policies emerged to counter restrictive immigration policy, but their potential health effects have not been studied. These policies designate a state, county, or city as a "sanctuary" to protect immigrants from restrictive immigration policy, such as by prohibiting use of local funds or resources to further federal immigration enforcement. As of December 2018, 82 of California's 482 cities had sanctuary policies, and 45 cities had anti-sanctuary policies. Of the top ten largest cities in California, seven have sanctuary policies. San Francisco, through the passage of two pieces of legislation in 1985 and 1989, was the first of these cities to become a sanctuary city (Mancina et al., 2013). San Jose became a sanctuary city in 2007, Anaheim, Berkeley, Los Angeles, and Sacramento became sanctuary cities in 2017, and Long Beach and Oakland became sanctuary cities in 2018. San Diego, Fresno, and Bakersfield are not sanctuary cities. Of California's 58 counties, seven enacted sanctuary county policies as of December 2018: Alameda, Humboldt, Marin, Monterey, San Francisco, Santa Clara, and Santa Cruz, all of which are in northern California. These policies were enacted in 2016 or later. California enacted sanctuary state policy in 2017 (SB54 California Values Act). (Siders, 2017).

While prior studies focused on restrictive state or national policies (Hatzenbuehler et al., 2017b; Philbin et al., 2018), we examined city policies that aim to increase the sense of belonging and protect immigrants from restrictive immigration policies and enforcement. We reasoned that the sense of protection provided by the policies would be greater if enacted at the local (city) level, relative to the more geographically diffuse county or state levels. This notion is supported by research in education, arguing that immigrants experience nested contexts of reception, whereby supportive local contexts can positively affect immigrants, despite the existence of an unsupportive national context (Golash-Boza & Valdez, 2018). It is also supported by research showing benefits of sanctuary policies – specifically, people in metropolitan statistical areas with at least one sanctuary policy were more likely to report violent crime victimization to law enforcement (Martinez-Schuldt & Martinez, 2021).

The present study examined whether sanctuary city policies positively affect Latinx mental health. Support for our hypotheses would indicate that a "sanctuary city" designation could improve Latinx mental health. Null findings would be equally important as such findings would indicate that achieving health protection requires other policy initiatives or policies at different (i.e., state or federal) levels, at least with respect to mental health.

We employed the social ecological model, which describes how factors at multiple societal levels affect health (Bronfenbrenner, 1979; Coatsworth et al., 2002), to examine how policies at the city level (macro system) relate to mental health (individual level). We reason that persons with knowledge of specific restrictive immigration policies may experience diminished mental health, given that the policies target them or people they know. People, such as children, unaware of specific restrictive policies may nonetheless be affected by policies by observing their effects in everyday life. For example, people may learn that a peer was detained or deported, an immigration raid has taken place in their community, or a friend or family member is concerned about losing their job or being detained. These observations may negatively affect the person's mental health by portraying their living context as threatening. In a sanctuary city, there may be less restrictive immigration policy-related activity (e.g., fewer raids and deportations), giving residents fewer opportunities to observe negative policy effects. Furthermore, residents may have witnessed efforts to enact sanctuary policies in their city, increasing residents' sense of inclusion. Thus, residents in sanctuary cities may have better mental health than residents in cities without a sanctuary policy. Social ecological theory guides the study's

design, as it posits that macro-level factors affect mental health; just as restrictive policies are associated with poorer mental health, integrationist policies, such as sanctuary city policies, may be associated with better mental health. The best possible empirical test of this hypothesis not only connects available data on sanctuary enactments with data on population mental health, but also requires construction of an appropriate counterfactual to sanctuary cities to draw causal inference. We chose a combination of propensity score matching and a difference-in-differences regression analysis for this purpose.

Because sanctuary policies are designed to communicate acceptance of immigrants in the community and protect immigrants from the threat of detention and deportation, and because immigration policy enforcement is racialized, we hypothesized that residing in a sanctuary city, relative to residing in a non-sanctuary city, would be associated with better mental health for Latinxs. Specifically, the benefits would be greatest for undocumented immigrant Latinxs, since they are explicitly targeted by the policy, followed by documented immigrant Latinxs and native-born Latinxs whose exposure to racialized enforcement may be reduced by the policy.

3. Methods

3.1. Data and sample

Whereas our key dependent variable is mental health at the person-level, we used data at the city- and person-levels. The city-level dataset was created for this study by reviewing the legislative records of each of California's 482 incorporated cities, excluding unincorporated areas, for sanctuary enactments. Sanctuary policies include directives that expressly forbid city-level officials, including law enforcement, from inquiring into the immigration status of residents and/or cooperating with the U.S. Immigration and Customs Enforcement. Our dataset indicates each city's sanctuary status as of December 2018 and the month and year of the policy's passage.

The person-level dataset was assembled by pooling waves 2007 through 2018 of the California Health Interview Survey (CHIS). (UCLA Center for Health Policy Research) CHIS is the largest state-level health survey in the US and provides representative data on California's non-institutionalized population living in households. It uses land-lines and cell phones to gather information. CHIS interviews adults (ages 18 and above), adolescents (ages 12 through 17) and via proxy adult respondents, children (ages 11 and below) with response rates similar to or higher than comparable surveys by telephone (California Health Interview Survey, 2017). Interviews were conducted in six languages: English, Spanish, Chinese (Mandarin and Cantonese dialect), Vietnamese, Korean, and Tagalog. The dataset includes values imputed by CHIS for any missing data. According to CHIS methodology reports, data imputation accounted for no more than 1–2% of values for most variables, and nonresponse rates reached 20% only for the household income variable, which we do not use in our study (California Health Interview Survey, 2009). CHIS data have been used effectively in prior research to assess policy effects on immigrant health, specifically water policy (Patler et al., 2019).

Because our analyses relied on personally-identifying location data (respondent zip code to identify city of residence), we employed CHIS personnel to merge our sanctuary city data with CHIS' restricted-access health data and to perform the empirical analysis with Stata 16. do files provided to CHIS by the research team. CHIS then provided us de-identified results of statistical analyses, thereby protecting anonymity while allowing our hypotheses to be tested.

The analytic sample included CHIS participants who resided in one of the propensity-score matched (details below) cities in California. It included 141,817 adults, of whom 25% were Latinx, 6423 adolescents, of whom 40% were Latinx, and 12,976 children, of whom 38% were Latinx. Within each age group, we identified three sub-samples corresponding to our hypotheses: 1) foreign-born, non-citizen, and non-

permanent resident Latinxs, representing an approximation of the undocumented population (Patler et al., 2019); 2) foreign-born and either naturalized citizen Latinxs or legal, permanent resident Latinxs; 3) US-born citizen Latinxs. A fourth sub-sample included people who did not self-identify as Latinx and thus, included all other racial/ethnic groups.

3.2. Measures

Table 1 provides the study's outcome measures. For adults and adolescents, CHIS measured psychological distress over the previous 30 days with the Kessler-6 (Kessler et al., 2002). This widely used and reliable six-item self-report measure is a quick screening tool for non-specific psychological distress and serious mental illness, especially mood and anxiety disorders, and is valid for adults and adolescents (Ferro, 2019; Kessler et al., 2002, 2003; Mewton et al., 2016). The items were, "During the last 30 days, about how often did you …" "feel so depressed that nothing could cheer you up," "feel hopeless," "feel restless or fidgety," "feel that everything was an effort," "feel worthless," and "feel nervous." Response options were "all of the time," "most of the time," "some of the time," "a little of the time," and "none of the time." They were reverse coded so that higher frequencies received higher values (0 = "none of the time" and 4 = "all of the time") and then, summed so that the total ranged between 0 and 24, with higher totals indicating greater distress.

Children's mental health was measured by two dichotomous questions, answered by parents. The first asked, "Overall, do you think your child has difficulties in any of the following areas: emotions, concentration, behavior, or being able to get along with other people?" The second asked, "During the past 12 months, did (Child name) receive any psychological or emotional counseling?" The response options for both were "Yes" and "No."

Adult covariates included gender, age, age squared and educational level. Adolescent and child covariates included gender, age and age squared. Table 3 lists the means and standard deviations of key variables by the sanctuary status of the respondent's city. City-level covariates included demographic characteristics, political affiliation, crime rates, and concentrated disadvantage. We took demographic data from the U. S. Census, including % Latinx, % Black, % foreign born, % in an owner-occupied dwelling, and concentrated disadvantage, a composite of city-level welfare receipt, poverty, unemployment, female-headed households, and density of children. The latter is a variant of Sampson's measure (Sampson, 2008); we excluded % Black from our composite measure because it did not correlate strongly with the other items. We included % Black as a separate covariate. We used California Secretary of State data to identify the percentage of people who were registered

Table 1
Adult, adolescent, and child sample outcomes, time periods, and sizes.

Sample	Ages	Outcomes	Time Period	Observations
Adult	18+	Psychological distress	2011–2018	141,817
Adolescent	12–17	Psychological distress Needed help for mental health problems.	2011–2018	6423
Children	0–11	Had emotional/focus/ behavioral difficulties Received psychological counseling	2007–2009 and 2017–2018	12,976

Note: Beginning in June 2011, the monthly frequency of CHIS responses is great enough to allow us to adjust for seasonality in mental health reports of adults and adolescents using a simple ARIMA process. We performed our empirical analyses using both the full sample of observations (all waves of CHIS between 2007 and 2018) and the subset amenable to the ARIMA adjustment (CHIS waves 2011 through 2018). Both samples yielded the same inference. Approximately a third of each sample is comprised of sanctuary city respondents.

Democrat each year, and the Federal Bureau of Investigation's Uniform Crime Report to obtain rates of violent crime, property crime, and rape, each of which we included as covariates. Preliminary analyses showed that sanctuary cities contained more registered Democrats and foreign-born residents than non-sanctuary cities did. They also saw a decline over time in violent and property crimes and concentrated disadvantage, unlike non-sanctuary cities. We also controlled for county-level sanctuary policy enactment, the data for which came from the Center for Immigration Studies (cis.org). Lastly, we controlled for seasonality in mental health outcomes (described below). (Box et al., 1994).

See Table 2 for means and standard deviations by sanctuary status.

3.3. Statistical analyses

Table 3 shows estimates of the minimum detectable effect (MDE) sizes for psychological distress using achieved N's in the adult sample and setting power iteratively at 80%, 90% and 95% while requiring a statistical significance level of 5%. MDE sizes were 0.06, 0.07 and 0.08 respectively. They correspond to what are generally considered small effects, suggesting that our analysis had adequate to excellent power to detect effects larger than these (Cohen, 1988).

We combined city-level data on the timing and location of sanctuary policies with CHIS data on individual mental health. We observed individuals randomly selected to participate in CHIS from cities before a sanctuary policy was implemented, individuals randomly selected to participate after a sanctuary policy was implemented, and individuals randomly selected to participate from cities that did not implement a sanctuary policy as of December 2018 ("control" cities). We tested our hypotheses using a difference-in-differences (Wing et al., 2018) model in respondent mental health.

Because there was no pre/post demarcation in the policy environment of control cities, we first used propensity-score matching to find a treatment counterfactual for the control cities (Guo & Fraser, 2015; Pan and Bai, 2015). We identified a subset of city covariates that best predicted sanctuary enactment and calculated propensity scores. We then chose a non-sanctuary city's counterfactual by selecting the sanctuary city with the nearest propensity score to its own. Because there were

more control cities than sanctuary cities, a single sanctuary city could be matched to more than one control city as its counterfactual.

Once matched, we then assigned to control cities the date on which their matched counterpart had implemented a sanctuary policy. Thus, each city had its own enactment date, enabling us to compare people in that city who were interviewed before enactment and people in that city who were interviewed after enactment. We then implemented a difference-in-differences analysis of mental health among matched cities to evaluate the impact of sanctuary policies. An individual's exposure to sanctuary policy depended on not only their city of residence but also the timing of the policy. Thus, every respondent's exposure was distinguished along two dimensions: their city of residence and their date of interview relative to their city's date of sanctuary enactment. Respondents in a sanctuary city and its matched control cities were assigned a "0" if they were interviewed before the date that a sanctuary policy was implemented and a "1" if they were interviewed after that date. Respondents were assigned a "0" if they resided in a control city or a "1" if they lived in a city that passed a sanctuary policy at some point in the period of analysis. These exposure designations divide the sample of respondents into four groups: (i) interviewed in control cities before a policy was passed (ii) interviewed in control cities after a policy was passed (iii) interviewed in sanctuary cities before a policy was passed (iv) interviewed in sanctuary cities after a policy was passed. We derived the impact of sanctuary policy on mental health by computing a two-way difference: pre versus post and sanctuary cities versus non-sanctuary cities. The inclusion of pre-exposure information on mental health enabled us to precisely control for the counterfactual expectations (i.e., the fitted time-propensity values) of mental health in 2018 if, counter to fact, sanctuary city policies in certain places had not been enacted. The before/after difference helped to remove shared trends in sanctuary and control cities related to population mental health.

The estimation equation is $Y_i = \alpha + \beta_1 \text{PreVsPost} + \beta_2 \text{SanctuaryVsControl} + \delta (\text{PreVsPost} * \text{SanctuaryVsControl}) + \varepsilon_i$ (Angrist & Pischke, 2015). Y_i is the self-reported mental health of respondent i. PreVsPost is an indicator that equals one (zero) if respondent i was interviewed after (before) sanctuary policy was implemented in their city. SanctuaryVsControl is an indicator that equals one if respondent i resided in a location that became a sanctuary city by December 2018

Table 2
Means (SDs) by sanctuary status.

Panel A. Adults			Panel B. Adolescents (12–17 years)			Panel C. Children (0–11 years)		
Variable	**Control**	**Sanctuary**	**Variable**	**Control**	**Sanctuary**	**Variable**	**Control**	**Sanctuary**
	n = 98,051	n = 43,76		n = 4529	n = 1894		n = 9291	n = 3685
Psychological distress	3.36 (3.87)	3.49 (3.86)	Psychological distress	4.23 (3.69)	4.26 (3.48)	Had emotional problems overall	0.24 (0.43)	0.23 (0.42)
						Received emotional counseling	0.07 (0.26)	0.08 (0.27)
Age (years)	56.34 (18.36)	54.30 (18.63)	Age (years)	14.57 (1.69)	14.49 (1.67)	Age (years)	7.70 (2.37)	7.66 (2.34)
Female	0.58 (0.49)	0.56 (0.50)	Female	0.49 (0.50)	0.48 (0.50)	Female	0.47 (0.50)	0.50 (0.50)
Latinx	0.23 (0.42)	0.25 (0.43)	Latinx	0.42 (0.49)	0.46 (0.50)	Latinx	0.37 (0.48)	0.38 (0.49)
Foreign-born	0.21 (0.41)	0.32 (0.47)	Foreign-born	0.10 (0.31)	0.13 (0.34)	Foreign-born	0.05 (0.22)	0.07 (0.26)
US-born	0.79 (0.41)	0.68 (0.47)	US-born	0.90 (0.31)	0.87 (0.34)	US-born	0.95 (0.22)	0.93 (0.26
Naturalized citizen	0.13 (0.34)	0.20 (0.40)	Naturalized citizen	0.04 (0.21)	0.05 (0.22)	Naturalized citizen	0.02 (0.13)	0.03 (0.16)
Legal permanent resident (LPR)	0.05 (0.22)	0.07 (0.26)	Legal permanent resident (LPR)	0.03 (0.17)	0.04 (0.19)			
Neither a citizen nor LPR	0.03 (0.17)	0.05 (0.22)	Neither a citizen nor LPR	0.03 (0.17)	0.04 (0.20)	Non-citizen	0.03 (0.18)	0.05 (0.21)
Primary language is English	0.71 (0.45)	0.60 (0.49)	Primary language is English	0.57 (0.49)	0.46 (0.50)	Primary language is English	0.59 (0.49)	0.46 (0.50)

Note: Tables show means followed by standard deviations in parentheses for adult, adolescent, and child samples collected by CHIS between 2011 and 2018.

Table 3
Minimum detectable effect sizes for a two-sample means *t*-test given power, unbalanced samples, control mean, equal variance and significance level set to 5%.

Panel A. Adult Psychological Distress						
Significance level	Power	Control sample	Sanctuary sample	Mean	Standard deviation	Minimum detectable effect
0.05	0.8	98051	43766	3.4	3.9	0.0628
0.05	0.9	98051	43766	3.4	3.9	0.0727
0.05	0.95	98051	43766	3.4	3.9	0.0808

Panel B. Adolescent Psychological Distress						
Significance level	Power	Control sample	Sanctuary sample	Control mean	Control sample standard deviation	Sanctuary sample standard deviation	Minimum detectable effect
0.05	0.8	4529	1894	4.23	3.69	3.48	0.2717
0.05	0.9	4529	1894	4.23	3.69	3.48	0.3144
0.05	0.95	4529	1894	4.23	3.69	3.48	0.3496

and zero otherwise. PreVsPost Sanctuary x SanctuaryVsControl is the cross-product term whose coefficient captures the difference-in-differences parameter of interest. This cross-product term takes a non-zero value only for individuals who reside in a sanctuary city and responded to the CHIS survey after the sanctuary city policy was enacted. This specification ensures that we estimate the mental health outcome only after that individual is exposed to the policy.

Mental health exhibits temporal patterns, such as trend, seasonality, and the tendency for high (or low) values to persist into subsequent months (Ayers et al., 2013; Twenge et al., 2019). Anxiety, depression, and suicidal ideation, which show increases over our test period more broadly in the US, may also coincide with a cluster of sanctuary city policy enactments late in the study period (i.e., 2016 and thereafter) but not be caused by the policy *per se*. To minimize this temporal confounding, we employed time-series methods recommended in the literature (Catalano et al., 2008) and used in mental health studies (Harper & Bruckner, 2017; Morey et al., 2021). We modeled self-reported mental health in California (overall, at the state level) over 92 study months: June 2011 to January 2019. This model's fitted values gauge the propensity, conditional on time, of CHIS respondents' mental health score. We then assigned these fitted time propensity values back to each individual (matching by MMYY of interview) and used them as a covariate in the regression equation. This time propensity variable controls for generally occurring, patterned confounders that affect self-reported mental health in California and uses fewer degrees of freedom than do other routinely used strategies (e.g., year and month indicator variables).

We also refined the analysis by adding county fixed effects to control for unobserved but stable county-level influences on city enactments of sanctuary policies. Examination of mental health following ecological "shocks," such as the enactment of a sanctuary city policy, may suffer from confounding by inherent county-level attributes. Accounting for such time-invariant attributes, through a "fixed-effects" analytic approach, helps reduce confounding by these unobserved, county-level factors. County-level factors controlled for by fixed-effects analyses, which do not tend to change quickly over time, include local law enforcement leadership, social cohesion, and political participation.

The potential importance of sanctuary city policies for mental health in the population of Latinxs as a whole is judged by the statistical significance and magnitude of the difference-in-differences parameter represented in our equation as δ. However, we expected heterogeneity in this parameter across specific sub-populations of Latinxs. We hypothesized that the mental health benefits of sanctuary city policies would be largest among undocumented Latinxs, followed by documented, foreign-born Latinxs and US-born Latinxs.

After completing the statistical analyses, we convened a panel of six community representatives from immigration-related advocacy, policy, and human services organizations in California to elicit their interpretations of the results and initiate discussion of next steps. Our goal was to ensure that the study information is accessible and action oriented. We incorporated the panel's insights into our discussion of the findings.

4. Results

Table 4, Panel A presents the means of psychological distress in four adult sub-groups: sanctuary cities prior to the passage of sanctuary policies, sanctuary cities following the passage of sanctuary policies, control cities prior to the (assigned counterfactual date of) passage of sanctuary policies, and control cities following the (assigned counter-factual date of) passage of sanctuary policies. The difference between pre- and post-means in control cities is 0.37 whereas in sanctuary cities, it is 0.22. In both city types the average distress score is higher post-policy, which coheres with the notion of rising trends in the US over time in reported mental disorders. The increase in adult distress in control cities is greater than the corresponding increase in sanctuary cities. The difference between these increases is (0.22–0.37) −0.15, which indicates that, descriptively, adults in sanctuary cities reported a smaller increase in distress after sanctuary policies were implemented than did adults in control cities.

A similar descriptive result is evident among adolescents (Table 4, Panel B), where the increase in distress is greater among control city adolescents (0.62) than among sanctuary city adolescents (0.36). The difference between these differences is −0.26, which we may regard as the unadjusted relation between sanctuary policies and adolescent

Table 4
Difference-in-differences in adults and adolescent psychological distress.

Panel A. Adults:			
Location of respondent	Timing of CHIS interview relative to sanctuary enactment		
	Pre	Post	Difference
Control cities	3.27 (3.84)	3.64 (3.94)	0.37
Sanctuary cities	3.42 (3.84)	3.64 (3.91)	0.22
Difference	0.15	0.00	**−0.15**

Panel B. Adolescents			
Location of respondent	Timing of CHIS interview relative to sanctuary enactment		
	Pre	Post	Difference
Control cities	4.16 (3.63)	4.78 (4.11)	0.62
Sanctuary cities	4.19 (3.41)	4.55 (3.76)	0.36
Difference	0.03	−0.23	**−0.26**

distress. In Figs. 1 and 2, we plotted the yearly means of adult and adolescent psychological distress respectively. We did not graph trends in children's mental health because the data were relatively sparse, available only in 4 waves: 2007, 2009, 2017 and 2018. Because we did not see a parallel trend between sanctuary city adolescent distress and control city adolescent distress (Fig. 2), we did not interpret the mean difference of −0.26 as the causal effect of sanctuary policies on adolescent distress.

In Table 5, we present the results on the sanctuary policy impacts on the adult sub-samples. The first three columns of the table distinguish Latinx adult sub-groups based on their origin and immigration status, and the last two columns compare all Latinx adults to all non-Latinx adults. The difference-in-differences estimate was positive but not statistically significant in every regression, except in the case of non-Latinx adults, where it was negative but not significant. So, while sanctuary policies did not reduce distress in the groups that it was intended to benefit, it did not aggravate their distress either. This inference did not change in subsequent estimations that controlled for seasonality in self-reported distress and city- and county-level covariates of sanctuary policies.

Table 6 shows similar regressions on the adolescent sample (ages 12–17) and reveals a similar lack of associations. In columns 1 through 3, the difference-in-differences estimator was occasionally statistically significant, but inferences must be made cautiously as the standard errors were very large. In column 4, pooling all Latinx adolescents yielded a more precise but null impact estimate. In column 5, the estimate for non-Latinx adolescents was negative but not statistically significant. Table 7 shows the relation of sanctuary policies to a second adolescent outcome, the need for emotional counseling in the previous 12 months. Once again, we did not detect a relation in any sub-sample of adolescents.

Tables 8 and 9 show the regression results on the relation of sanctuary policies for the two outcomes for children (ages 11 and under). In columns 1 through 3, each of which involve a different subset of Latinx children, and in column 4, which pools all Latinx children together, the estimated difference-in-differences parameter (δ), denoting the impact of sanctuary policies on the outcome, was never statistically significant. For non-Latinx children, sanctuary policies had no discernible impact on the incidence of emotional problems (Table 8, column 5) and was associated with a slight and mildly significant decline of 4% in the share
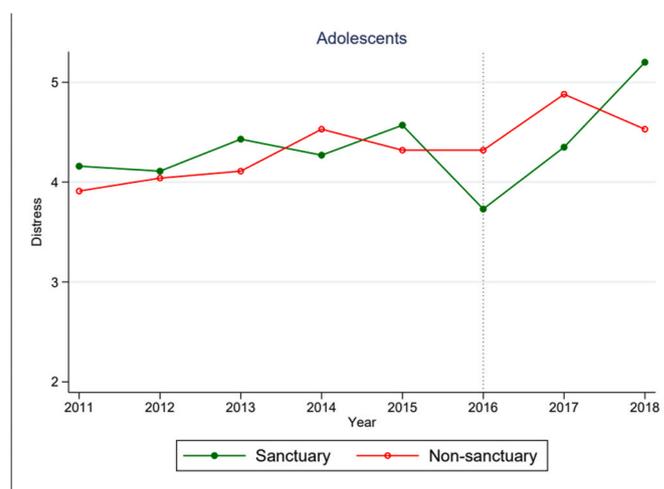

Fig. 2. Adolescent psychological distress in control and sanctuary cities between 2011 and 2018
Notes: Green dots indicate averages for sanctuary cities while red dots indicate averages for control cities in the study. A vertical line at 2016 is a rough demarcation of pre- and post-policy environments in the sample. . (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

of children who received emotional counseling (Table 9, column 5).

We conducted exploratory analyses to investigate possible explanations for our results. Our hypothesis of a mental health benefit of sanctuary city policies assumed that policy enactment would reduce Immigration and Customs Enforcement (ICE) apprehensions. However, because sanctuary city policies were implemented in opposition to harsh federal policies, federal policy might have sought to countervail the impacts of sanctuary policies. The fundamental cause theory of health inequalities (Clouston & Link, 2021; Phelan & Link, 2015) predicts just such a response in its insistence that if a powerful group is blocked in its efforts to dominate, exploit, control, or exclude through one mechanism, it will reinvigorate efforts to achieve the same outcome in another way. With this possibility in mind, we examined trends in county-level ICE arrests and found that they trended downward at the end of President Obama's administration and then, upward in President Trump's administration. A majority of sanctuary city policies were enacted in this latter period. Thus, despite the increased passage of sanctuary city policies, ICE arrests increased. This rise in federal enforcement activity in California has been attributed to a concerted effort by the Trump administration to punish California for its sanctuary state status (Kretesedemas et al., 2017). Thus, although city-level data on ICE arrests were not available, our analysis of county data suggests that the assumption of reduced apprehensions in sanctuary cities may be false.

5. Discussion

This study used a population-representative survey and a quasi-experimental strategy to test whether sanctuary city policies were associated with better Latinx mental health. There was a trend toward improved mental health in sanctuary cities after policy enactment, but the patterns of mental health in the three Latinx sub-groups of each age group did not conform to our hypotheses. We could not reject the null for any subgroup in that we observed no relation between the enactment of sanctuary city policies and mental health. It is critically important to have learned that the hypotheses were not supported, as many other scholars, like us, might have thought they would be. Knowing that the protective impulse behind sanctuary city policies does not extend to reducing the psychological distress of Latinxs underscores the need to find other ways to buffer the effects of harsh policies, at least in California. Additionally, probing the reasons why our hypotheses may not
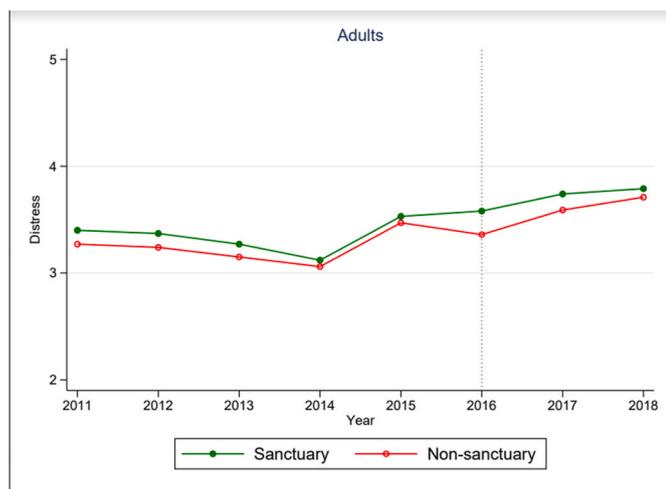
Fig. 1. Adult psychological distress in control and sanctuary cities between 2011 and 2018
Notes: Green dots indicate averages for sanctuary cities while red dots indicate averages for control cities in the study. A vertical line at 2016 is a rough demarcation of pre- and post-policy environments in the sample. . (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

Table 5
Regression results for adult psychological distress, by subgroup.

Sample	Latinx foreign-born "undocumented" (1)	Latinx foreign-born documented immigrant (2)	Latinx native-born citizen (3)	Latinx (4)	non-Latinx (5)
	Panel A: baseline regressions				
Observed in sanctuary city ($\beta2$)	0.014	0.161	−0.005	0.101	0.181**
	[0.187]	[0.112]	[0.097]	[0.068]	[0.035]
Observed after enactment ($\beta1$)	−0.563*	−0.522**	0.563**	0.114	0.380**
	[0.227]	[0.128]	[0.102]	[0.076]	[0.037]
Observed in sanctuary city post-enactment (δ)	0.507	0.163	0.180	0.097	−0.083
	[0.318]	[0.191]	[0.162]	[0.116]	[0.055]
time-propensity distress	−0.019	0.009	0.365+	0.260+	0.499**
	[0.431]	[0.261]	[0.202]	[0.151]	[0.069]
Observations	4356	12,735	15,900	32,991	108,826
	Panel B: control for city-level covariates of sanctuary				
Observed in sanctuary city ($\beta2$)	0.139	0.318	0.082	0.109	0.084
	[0.593]	[0.332]	[0.259]	[0.189]	[0.082]
Observed after enactment ($\beta1$)	−0.445	−0.540**	0.705**	0.234*	0.415**
	[0.278]	[0.160]	[0.121]	[0.092]	[0.045]
Observed in sanctuary city post-enactment (δ)	0.389	0.042	0.069	−0.061	−0.067
	[0.364]	[0.221]	[0.182]	[0.131]	[0.064]
time-propensity distress	0.040	0.237	0.230	0.232	0.447**
	[0.498]	[0.308]	[0.232]	[0.174]	[0.083]
Observations	3442	9395	12,224	25,061	78,563

Notes: Robust standard errors in brackets. Controls include adult gender, age, age squared and the education level of the respondent. Regressions also include time propensity distress values and county fixed effects. The first subsample includes but is not restricted to undocumented immigrant Latinxs. The second subsample is composed of foreign-born Latinxs who are naturalized citizens or legal, permanent residents.
**p < 0.01, *p < 0.05, + p < 0.1.

Table 6
Regression results for adolescent psychological distress, by subgroup.

Sample	Latinx foreign-born "undocumented" (1)	Latinx foreign-born documented immigrant (2)	Latinx US-born citizen (3)	Latinx (4)	non-Latinx (5)
	Panel A: baseline regressions				
Observed in sanctuary city ($\beta2$)	−0.786	−0.573	−0.062	−0.097	0.318+
	[0.793]	[0.733]	[0.227]	[0.206]	[0.185]
Observed after enactment ($\beta1$)	−2.133*	0.976	−0.290	−0.259	0.992**
	[0.951]	[1.353]	[0.300]	[0.284]	[0.246]
Observed in sanctuary city post-enactment (δ)	3.761+	−1.382	0.164	0.173	−0.470
	[1.987]	[1.915]	[0.523]	[0.486]	[0.377]
time-propensity distress	0.120	−0.358+		−0.083*	−0.147**
	[0.364]	[0.213]		[0.040]	[0.043]
Observations	190	255	2341	2786	3637
	Panel B: control for city-level covariates of sanctuary				
Observed in sanctuary city ($\beta2$)	16.465+	−43.308+	0.135	−0.014	0.830
	[8.600]	[22.246]	[0.602]	[0.561]	[0.555]
Observed after enactment ($\beta1$)	0.536	1.498	−0.493	−0.425	1.005**
	[1.936]	[2.309]	[0.394]	[0.376]	[0.300]
Observed in sanctuary city post-enactment (δ)	−0.784	−7.945**	0.058	0.021	−0.307
	[2.825]	[2.970]	[0.679]	[0.636]	[0.482]
time-propensity distress	−3.298	−2.077	0.848	0.719	2.141**
	[3.720]	[3.243]	[0.786]	[0.714]	[0.636]
Observations	143	160	1781	2084	2622

Notes: Robust standard errors in brackets. Controls include gender, age, age squared of adolescent respondent. Regressions also include time propensity distress values and county fixed effects. The first subsample includes but is not restricted to undocumented immigrant Latinxs. The second subsample is composed of foreign-born Latinxs who are naturalized citizens or legal, permanent residents.
**p < 0.01, *p < 0.05, + p < 0.1.

Table 7

Regression results for past-12-month adolescent emotional counseling, by subgroup.

Sample	Latinx foreign-born "undocumented"	Latinx foreign-born documented immigrant	Latinx US-born citizen	Latinx	non-Latinx
	(1)	(2)	(3)	(4)	(5)
	Panel A: baseline regressions				
Observed in sanctuary city (β2)	−0.087	−0.143+	0.012	−0.008	0.017
	[0.085]	[0.085]	[0.022]	[0.020]	[0.020]
Observed after enactment (β1)	−0.115	−0.097	0.036	0.021	0.075**
	[0.095]	[0.124]	[0.032]	[0.030]	[0.025]
Observed in sanctuary city post-enactment (δ)	0.228	0.024	−0.060	−0.036	−0.041
	[0.196]	[0.217]	[0.056]	[0.052]	[0.042]
time-propensity distress	−0.548*	0.060	−0.042	−0.041	−0.018
	[0.241]	[0.221]	[0.069]	[0.064]	[0.055]
Observations	190	255	2341	2786	3637
	Panel B: control for city-level covariates of sanctuary				
Observed in sanctuary city (β2)	−0.081	−1.394	−0.099	−0.191**	−0.061
	[0.755]	[1.739]	[0.067]	[0.067]	[0.054]
Observed after enactment (β1)	−0.234	−0.039	0.005	−0.009	0.066*
	[0.238]	[0.180]	[0.041]	[0.039]	[0.031]
Observed in sanctuary city post-enactment (δ)	0.467	−0.039	0.004	0.035	0.019
	[0.343]	[0.230]	[0.072]	[0.067]	[0.054]
time-propensity distress	−0.422	0.003	−0.102	−0.079	0.002
	[0.393]	[0.319]	[0.082]	[0.075]	[0.068]
Observations	143	160	1781	2084	2622

Notes: Robust standard errors in brackets. Controls include gender, age, age squared of adolescent respondent. Regressions also include time propensity distress values and county fixed effects. The first subsample includes but is not restricted to undocumented immigrant Latinxs. The second subsample is composed of foreign-born Latinxs who are naturalized citizens or legal, permanent residents.
**p < 0.01, *p < 0.05, + p < 0.1.

Table 8

Regression results for children's emotional difficulties, by subgroup.

Sample	Latinx foreign-born "undocumented"	Latinx foreign-born documented immigrant	Latinx US-born citizen	Latinx	non-Latinx
	(1)	(2)	(3)	(4)	(5)
Observed in sanctuary city (β2)	−0.047	0.272	−0.01	−0.009	−0.003
	[0.074]	[0.271]	[0.019]	[0.018]	[0.014]
Observed after enactment (β1)	0.024	−0.245	−0.048*	−0.047*	−0.008
	[0.128]	[0.172]	[0.020]	[0.019]	[0.016]
Observed in sanctuary city post-enactment (δ)	−0.125		0.023	0.015	−0.034
	[0.200]		[0.035]	[0.035]	[0.027]
Observations	276	63	4541	4880	8096

Notes: Robust standard errors in brackets. Controls include gender age, and age squared.
**p < 0.01, *p < 0.05, + p < 0.1.

have been supported can lead to greater insights, as it moves us to think of other processes at work that should be investigated in future research. With this in mind, we offer several possible explanations for these unexpected results.

First, sanctuary city policies were implemented in the context of an alternative "treatment" in the form of heightened federal immigration enforcement in the state. These countervailing initiatives may have offset any potential individual-level benefits of sanctuary city policies. The evidence about increases in ICE raids – potentially in response to the enactment of sanctuary policies – supports this possibility. Second, as suggested by our community panel, the policies may not have been

effective because there was insufficient awareness or understanding of it among city residents. A related possibility is that if aware of the policies, people did not feel protected by them because their activities of daily life require them to circulate in more than one city, including cities that may have no sanctuary policies or an anti-sanctuary policy. Thus, one city's policy may not have reduced residents' exposure to risk.

Third, sanctuary city policies may be insufficient to counter the long-term psychological consequences of decades of restrictive immigration policy, affecting multiple generations of people (Barajas-Gonzalez et al., 2018). Well documented are the significant health harms of restrictive policy (Almeida et al., 2016; Artiga & Ubri, 2017; Barajas-Gonzalez

Table 9

Regression results for children's past-12-month emotional counseling, by subgroup.

Sample	Latinx foreign-born "undocumented"	Latinx foreign-born documented immigrant	Latinx US-born citizen	Latinx	non-Latinx
	(1)	(2)	(3)	(4)	(5)
Observed in sanctuary city (β2)	−0.037	−0.236	−0.011	−0.016	0.020*
	[0.030]	[0.153]	[0.011]	[0.011]	[0.009]
Observed after enactment (β1)	0.04	−0.109	0.047**	0.046**	0.048**
	[0.080]	[0.136]	[0.014]	[0.013]	[0.012]
Observed in sanctuary city post-enactment (δ)	−0.077		−0.02	−0.019	−0.036+
	[0.086]		[0.026]	[0.025]	[0.020]
Observations	276	63	4541	4880	8096

Notes: Robust standard errors in brackets. Controls include gender, age, and age squared.
**p < 0.01, *p < 0.05, + p < 0.1.

et al., 2018; Cisneros and Dechaine, 2012; De Genova, 2002; National Scientific Council on the Developing Child, 2010; Rubio-Hernandez & Ayón, 2016a, 2016b; Ryan et al., 2021; Santa-Maria & Cornille, 2007; Satinsky et al., 2013), the mistrust of government and the resultant resistance to the uptake of services (Ryan et al., 2021; Zayas & Cook Heffron, 2016), and the lack of access to mental health treatment, especially for undocumented immigrants (Ayón et al., 2020). For youth in immigrant and mixed status families, the impact of restrictive policy will be experienced differently depending on their developmental stage and their awareness of the immigration policy climate (Barajas-Gonzalez et al., 2021). For instance, infants may not be aware of their parents' immigration status or the threat experienced by their family. Yet, they may be impacted indirectly through their parents' exposure to discrimination, raids, workplace exploitation, or barriers to needed resources (Barajas-Gonzalez et al., 2021; Gassman-Pines, 2015). Older children and adolescents may be more aware due to their interactions with the media, peers, school staff, parents and other family members (Rubio-Hernandez & Ayón, 2016a, 2016b). Similar to infants they are exposed to the indirect effects through their parents experiences; and they are subjected to the direct effects as they may be more aware of the threat immigration policy poses for their family. For adults and children, the presence of a sanctuary city policy may be inadequate to overcome negative experiences in the past and/or provide reassurance of protection in the future. As such, the policy may operate like a bandaid on a gaping wound, neither healing the wound nor protecting from future injury. This possibility highlights how the federal level remains a key target for policy change to improve Latinx mental health and reduce inequities. Alternative local policies, such as increased access to mental health care, may help to redress the harm from restrictive policies.

Fourth, we may have failed to capture the benefits of sanctuary city policies owing to our choice of spatial and temporal resolution. For example, the policies may increase trust or permit people to increase their geographic mobility and in turn, reduce their social isolation. Other research found a positive association between sanctuary policies and help-seeking but at the level of metropolitan statistical area (Martinez-Schuldt & Martinez, 2021). These outcomes are potential precursors to a mental health effect, but at a geographic level larger than a city. In addition, a longer time horizon may be needed to capture a chain of impact. Due to the timing of the enactment of sanctuary city policies late in the period of our analysis for many of the cities we assessed, the amount of time post-policy was short. Mental health or other benefits may be captured using a dataset with a longer post-policy time horizon for all cities.

Fifth, the level of intervention may explain the lack of a mental

health benefit. Local policy may be unable to overcome the effects of federal policy. That said, local policy may create momentum to change policy at higher levels. Research on public policy has shown that lower-level policy can drive higher-level policy, such as in the case of chemical regulation where city-, county-, and state-level policies led to policy change at the federal level (Matus & Bernal, 2020). As suggested by our community panel, the presence of sanctuary city policies may signal to policy advocates that they can achieve other policies and lay the political groundwork for policies at other levels which could have a future impact on mental health. For example, the Health4All Campaign in California advocates for federal and state support for access to health care for all people, regardless of immigrant status. In 2016, it succeeded in getting health care coverage for children, regardless of immigration status (https://health4allkids.org/). In 2019, immediately after the bulk of sanctuary city policies were enacted, it succeeded in getting the coverage extended to people up to age 26 (California Legislative Information, 2021). Thus, sanctuary city policies may operate to produce fertile ground for the growth of other, immigrant-friendly policies. This possibility is consistent with the idea of nested contexts of reception (Box et al., 1994) to characterize Latinxs' social ecology and its relation to health.

Our findings suggest that to address Latinx mental health inequities associated with immigration policy, we need to focus on the past and future in addition to the present; interference with and/or divestments from restrictive federal immigration policy may be ineffective in addressing the decades of consequences to Latinx mental health. Investments in integrative policies, enabling Latinxs' and immigrants' integration into American society, and reparative policies, facilitating healing from past exclusion, may be needed. For example, health care coverage for all, as pursued by the Health4All Campaign mentioned earlier, would both convey a message of inclusion and provide access to needed mental health services.

We note several limitations to our study. First, it is possible that persons with poor mental health selectively move into cities that enact sanctuary city policies only in years after (but not before) policy enactment. Whereas we know of no literature in mental health services which documents, or predicts, migration among such a group in response to the enactment of a non-mental health policy, we cannot rule out this possibility. Second, the available data for child mental health was based on only two dichotomous variables based on parental reports. Though limited, it enabled us to explore another angle of possible impact of sanctuary city policies: effects on children. Third, we compared sanctuary cities to all other cities and did not examine within-category variation, such as whether the control city ever attempted but failed to pass a sanctuary policy. Fourth, our study focused on California,

a sanctuary state; the results may not generalize to non-sanctuary states. Future studies should account for population mobility, measure child mental health with a comprehensive measure, assess variation with the categories of sanctuary and control cities, and examine other states.

Although our hypotheses were not supported, the study provided valuable insights for future research. Scholars should examine alternative policy strategies (e.g., expanded health care access), policy momentum effects, the relation of sanctuary city policies to other mental health measures and other non-health measures that may be mechanisms of effects on mental health, and public awareness of sanctuary policies. Future research should also assess the clustering of city policies as potential geographic bubbles of protection, the effects of sanctuary city policies under the Biden administration (i.e., when California was not targeted for increased enforcement), and sanctuary city policy effects among children aged 12 and under. Future studies would ideally have a longer post-policy time horizon to allow more time than our study did for effects to manifest themselves. Studies with adolescents and children should have larger samples of undocumented and documented immigrant Latinxs than our sample had. Additionally, studies should screen for adverse childhood experiences (ACEs) that reflect the experiences of immigrant families. The following additions to traditional ACEs measures have been suggested: detention and deportation of a parent or guardian; being a victim or witnessing ICE raids or arrests; family separation due to migration; anti-immigrant discrimination; prolonged exposure to food, housing, and economic insecurity due to loss of breadwinner; parental work exploitation; and precluded from resources (Barajas-Gonzalez et al., 2021; Flores and Salazar, 2017). Finally, research should examine potential sanctuary *county* policy effects, given that federal enforcement involves extensive coordination with county-level prison and jails, suggesting that a sanctuary county, in contrast to a sanctuary city, may provide more reprieve from immigration enforcement.

Ethical statement

This material is the authors' own original work, which has not been previously published elsewhere. The manuscript is not currently being considered for publication elsewhere. It reflects the authors' own research and analysis in a truthful and complete manner.

Author statement

CA, BL, and TN conceptualized the study and wrote the grant application that made the study possible. All authors contributed to the study design and its implementation. TN, MR, CA, and BL drafted the paper. MR and TB conducted the analysis. All authors contributed to the interpretation of the results and revised the drafted paper.

Declaration of competing interest

None.

Data availability

The CHIS data are available through the University of California Los Angeles. The sanctuary city policy data are available from the authors upon request.

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