



The COVID-19 Pandemic Contributed to Disparities in Housing-Cost Burden Among WIC-Participating Households in the Most Populous County in California

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Abstract

Affordable housing is necessary for the health and well-being of children and families. The coronavirus disease 2019 (COVID-19) pandemic affected the ability of low-income families to pay for housing. The aim of this study is to evaluate associations between household characteristics of participants of the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), and housing-cost burden during the pandemic. WIC is a federally-funded nutrition assistance program for low-income mothers, infants, and children up to the age of 5. Data were from a 2020 survey of a random sample of WIC households ($n=5815$) in Los Angeles County. Ordinal logistic regression determined the odds of being housing-cost burdened by parent respondent's race/ethnicity, household composition, employment, residence, and housing cost. Logistic regression determined if the pandemic contributed to the housing-cost burden. A total of 61% of households reported housing-cost burden, with two-thirds attributing the burden to the pandemic. Spanish-speaking Hispanic parents and white parents reported a higher prevalence of pandemic-related burden, while Asian, Black, and English-speaking Hispanic parents reported a higher prevalence of burden unrelated to the pandemic. Single-parent households, those experiencing residential instability, and those with high housing costs had higher odds of burden. Spanish-speaking Hispanic parents, white parents, homeowners, and those with high housing costs were more likely to attribute the burden to the pandemic. To ensure that existing inequities are not exacerbated, it is vital that housing assistance be available to low-income households that were disproportionately affected by the pandemic.

Keywords Housing-cost burden · COVID-19 pandemic · WIC · Racial/ethnic disparities · Early childhood · Low-income families

Introduction

Safe, stable, and affordable housing is necessary for the well-being and health of children and families. Even before the pandemic, millions of households were struggling to pay for housing. In 2019, more than 37 million American

households were housing-cost burdened (spending > 30% of their income on housing costs), with minority and low-income households disproportionately affected [1]. Very low-income households may be as much as 10 to 13 times more likely to experience housing-cost burden as their wealthier counterparts [2]. Black and Hispanic households are 1.7 and 1.6 times, respectively, more likely to experience housing-cost burden than non-Hispanic white households [2]. The COVID-19 pandemic and resulting stay-at-home orders implemented in many states and counties, including Los Angeles County, California [3], significantly impacted low-income and minority families. With millions losing their jobs or experiencing pay cuts during the pandemic, many families struggled to make their housing payments [1]. Low-income households and women were disproportionately represented in the industries that were severely hit by the pandemic, such as service, agriculture, and transportation

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[4, 5]. Women, especially women of color and single mothers, were more likely to become unemployed during the pandemic compared to men [5, 6]. Women of color and households with children were more likely to fall behind on their housing payments [7, 8]. As of March 2021, a quarter of low-income renter households were still behind on rent, with Black and Hispanic households more likely to still be in arrears compared to white households [1].

While California and many local governments implemented COVID-19 responsive tenant protections, such as eviction moratoriums that impose limits on evictions for failure to pay rent due to financial distress caused by COVID-19, low-income households may also experience the most barriers to accessing that assistance, such as limited English, not having an internet connection, and not understanding the renter protection laws [4]. Households that struggle to pay their rent or mortgage can experience a persistently increased risk of food insecurity and having unmet medical needs because the households will cut back on food and medical expenses to pay for their housing [1, 9–15]. Housing-cost burdened adults are more likely to suffer from poor physical and mental health [10, 14–16]. Children living in housing-cost burdened households are also more likely to suffer from poor health [17] and poor cognitive outcomes [18] and be exposed to adverse childhood experiences, including food insecurity [19, 20].

The aim of this study is to describe housing-cost burden during the COVID-19 pandemic and identify the sociodemographic characteristics associated with housing-cost burden among low-income households with young children. We studied households participating in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) in Los Angeles County, the most populous county in the nation, where the housing-cost burden is particularly acute [1] and the COVID-19 pandemic was particularly severe [21, 22]. WIC is a federally-funded nutrition assistance program for low-income [$\leq 185\%$ of the federal poverty level] and at nutritional risk pregnant, breastfeeding, and postpartum women, infants, and children up to their fifth birthday. The reach of WIC is broad, as it provides nutrition education and supplemental food packages to approximately half of all infants in the county [23]. This study also updates our previous work from before the pandemic [19] and provides a current snapshot of the housing-cost burden of WIC households in Los Angeles County.

Methods

Data came from the 2020 Los Angeles County WIC Survey (lawicdata.org/survey), a triennial survey of a random sample of 6753 WIC-participating families who live in Los Angeles County. Adult respondents are asked questions

about the health and behaviors of one child or a pregnant mother, their parenting practices, child care, and their home environment. In 2020, Black and Asian participants were oversampled, as were high-risk communities across LA County that were identified by the funder, First 5 LA (<https://www.first5la.org/best-start-networks/>). Computer-assisted phone interviews were conducted in English and Spanish from the last week of July through December 2020. The survey was approved by the Committee for the Protection of Human Subjects for the California Health and Human Services Agency.

Measures

Our dependent variable was perceived housing-cost burden. The measure was obtained from the answer to the question “How easy or difficult is it for you to pay for housing—very difficult, somewhat difficult, somewhat easy, or very easy?” A response of “somewhat easy” or “very easy” was considered to be “no burden.” A response of “somewhat difficult” was considered to be “moderate burden” and response of “very difficult” was considered to be “severe burden.” The follow-up question, “Is the difficulty paying for housing related to the COVID pandemic or some other reason?”, determined if the burden was at least partially due to the pandemic. For our bivariate analyses, we created a composite housing-cost burden measure that incorporated information from both questions: no burden, moderate burden at least partly due to COVID, moderate burden not due to COVID, severe burden at least partly due to COVID, and severe burden not due to COVID.

Our exposures of interest were race/ethnicity, different dimensions of housing, employment, and household composition. Race/ethnicity was a composite based on the respondent’s reported race/ethnicity and preferred language for the interview (English or Spanish). It was categorized as Non-Hispanic (NH) White, NH Black, NH Asian, English-speaking Hispanic, and Spanish-speaking Hispanic. For the dimensions of housing, we examined residence type, residential instability, household size, and housing cost. Current residence was determined from the question, “Which of the following best describes where you currently live?” and included: home owned by their parents or relatives; apartment or home that they own; apartment or home that they rent, rented room/space in house or apartment; a shelter, homeless, transitional housing, hotel or motel; garage, or mobile home/RV; or other. A binary residential instability measure determined if they reported moving 2 or more times in the past 3 years. Last month’s housing payment was obtained from the question, “How much did your household pay for rent or for a mortgage last month?” and was categorized as nothing (we do not pay rent/mortgage); nothing, we

skipped last month's payment; < \$500 a month; \$500 to \$999 a month; \$1000 to \$1499 a month; \$1500 to \$1999 a month; and \geq \$2000 a month.

We examined household measures of composition and employment. A binary single-parent household measure indicated whether the child's other parent did not live in the household. A binary large household measure indicated if there were 5 or more members, including the respondent, currently living in the household. A binary measure, at least 1 parent does not work, was created from the responses "not at all" to the questions, "Are you currently working for pay full-time (at least 35 h or more), part-time, or not at all?" and "Thinking about the employment situation of your spouse or partner, is he or she currently working for pay full-time (at least 35 h or more), part-time or not at all?" A binary measure, at least 1 parent works full time, was created from responses of "full-time" to at least one of the employment questions. Essential worker status was determined if they responded "yes" to "Do you work in an industry that is considered an essential service during the COVID pandemic?" or to "Does your spouse work in an industry that is considered an essential service during the COVID pandemic?" Since these measures determine employment stability and type of employment, all households, including single-parent households, were included in these three employment measures. Pregnancy status indicated whether the respondent reported being pregnant at the time of the interview.

Because minority and low-income households are at greater risk of experiencing housing-cost burden [1, 2], the regression analyses adjusted for household income during the past month [$<$ \$1200, \$1200 to \$1800, \$1800 to \$2400, $>$ \$2400], and respondent's educational attainment [less than high school, high school, some college, college or more]. For the models where our exposures of interest were the different dimensions of housing, employment, and household composition, we also adjusted for race/ethnicity since households of different racial/ethnic backgrounds experience different rates of housing-cost burden [1, 2].

Analyses

Differences in housing-cost burden by each independent variable were assessed with Rao-Scott chi-square tests. Associations between housing-cost burden (no burden, moderate burden, and severe burden) and each of the exposures of interest were assessed with ordinal logistic regression models, adjusting for parent's race/ethnicity, educational attainment, and monthly household income. Among those who experienced housing-cost burden, logistic regression models were used to test associations between each exposure of interest and whether the housing-cost burden was in part due to the COVID-19 pandemic, adjusting for parent's race/ethnicity, educational attainment, and household income.

Due to small sample sizes for multiple response categories for race/ethnicity and residence type variables, the largest categories (English-speaking Hispanic, and apartment or home they rent) were selected as the referent category to provide estimated measures of association of greater precision. Analyses were weighted to address the oversampling. Our final analytic sample included 5815 subjects. Analyses were conducted using SAS 9.4 (SAS Institute, Cary, NC, USA).

Results

The majority of households were Hispanic, had a monthly household income less than or equal to \$1800, and had no more than a high school degree (Table 1). Approximately one third of households only had one parent. At least one parent did not work in one third of all households. However, in nearly half of households, there was no parent who worked full time. Almost half of the households had at least one parent who reported being an essential worker. The majority of households (73%) lived in an apartment or home that they rented. More than half of households spent between \$1000 and \$1999 on their rent. Only 2% of households reported being unable to make their last month's housing payment. A total of 61% of households experienced housing-cost burden (moderate and severe), with approximately two-thirds of them reporting that the burden was at least partly due to the COVID-19 pandemic (Table 1).

The prevalence of housing-cost burden by each of the sociodemographic measures and exposures of interest are in Table 1. Spanish-speaking Hispanic households experienced the highest prevalence of total housing-cost burden, followed by NH White households (Table 1). English-speaking Hispanic households experienced the lowest prevalence. Spanish-speaking Hispanics and NH whites reported more COVID-19-related housing-cost burden than other groups (Fig. 1). NH Asian, NH Black, and English-speaking Hispanic households reported experiencing a higher prevalence of housing-cost burden that was not attributable to the COVID-19 pandemic (Fig. 1).

A dose-response relationship existed with household income; households with lower monthly income experienced a higher prevalence of total housing-cost burden (Table 1). This appears to be because of the higher prevalence of pandemic-related burden that lower-income households experienced (Fig. 2). Households where the respondent had less than a high-school education experienced the highest prevalence of housing-cost burden (Table 1). More than 60% of households that had a pregnant mother, had a single parent, or consisted of five or more people reported being housing-cost burdened (Table 1). Households that did not have a parent who worked full-time experienced a high prevalence

Table 1 Sociodemographic and household characteristics of our sample, 2020 Los Angeles County WIC Survey ($n = 5815$)

	Unweighted % (no.)	Weighted sample % (95% CI)	Prevalence of housing-cost burden % (95% CI)
Parent's race/ethnicity			
Hispanic-English speaking	38.0 (2207)	53.4 (52.1, 54.8)	53.7 (51.6, 55.8)
Hispanic-Spanish speaking	35.9 (2085)	30.0 (28.8, 31.2)	74.0 (72.1, 75.9)
NH Black	10.3 (600)	9.0 (8.3, 9.7)	58.4 (54.4, 62.5)
NH White	4.2 (244)	4.8 (4.2, 5.5)	67.3 (60.9, 73.8)
NH Asian	11.7 (679)	2.7 (2.5, 2.9)	65.1 (61.5, 68.8)
Last month's household income			
< \$1200	31.2 (1812)	32.3 (30.9, 33.6)	69.2 (66.9, 71.6)
\$1200–\$1800	32.0 (1863)	31.5 (30.2, 32.8)	64.4 (62.0, 66.8)
\$1800–\$2400	23.7 (1379)	23.6 (22.4, 24.7)	55.0 (52.1, 57.9)
> \$2400	13.1 (761)	12.7 (11.7, 13.6)	44.1 (40.1, 48.1)
Parent's educational attainment			
Less than high school	26.5 (1540)	24.4 (23.3, 25.5)	70.9 (68.5, 73.3)
High school	29.5 (1718)	30.7 (29.4, 32.0)	59.1 (56.6, 61.7)
Some college	30.1 (1751)	33.3 (31.9, 34.6)	55.9 (53.4, 58.4)
College or more	13.9 (806)	11.7 (10.8, 12.6)	61.1 (57.1, 65.1)
Pregnant	5.9 (343)	6.3 (5.6, 7.0)	61.0 (59.5, 62.4)
Household composition			
Single-parent household ^a	33.1 (1927)	35.3 (34.0, 36.7)	62.9 (60.6, 65.2)
Large household ^b	47.8 (2777)	47.5 (46.1, 48.9)	61.5 (59.5, 63.5)
Household employment			
At least 1 parent does not work	32.0 (1863)	33.4 (32.1, 34.8)	63.1 (61.4, 64.7)
No parent works full-time	49.2 (2860)	48.8 (47.4, 50.2)	68.8 (67.0, 70.7)
At least 1 parent is an essential worker	46.2 (2685)	47.4 (46.0, 48.8)	57.2 (55.2, 59.3)
Housing-cost burden			
No housing-cost burden	36.9 (2144)	38.8 (37.5, 40.2)	–
Moderate burden at least partly due to the pandemic	31.1 (1806)	29.7 (28.5, 31.0)	–
Moderate burden not due to the pandemic	16.3 (1806)	16.0 (15.0, 17.0)	–
Severe burden at least partly due to the pandemic	10.7 (621)	10.3 (9.5, 11.2)	–
Severe burden not due to the pandemic	5.1 (297)	5.1 (4.5, 5.8)	–
Residence			
Apartment or home they rent	73.8 (4294)	73.1 (71.8, 74.3)	63.1 (64.7, 61.5)
Apartment or home they own	6.6 (383)	5.8 (5.2, 6.4)	48.0 (42.3, 53.7)
Home owned by parents or relatives	17.0 (987)	18.8 (17.6, 19.9)	56.7 (53.3, 60.0)
Rents a room/space in house or apartment	1.3 (77)	1.2 (0.9, 1.5)	67.9 (45.8, 89.9)
Shelter, homeless, transitional housing, hotel or motel	0.3 (19)	0.3 (0.2, 0.5)	67.0 (55.5, 78.5)
Garage or mobile home/RV	0.6 (36)	0.5 (0.3, 0.7)	77.8 (62.0, 93.6)
Other	0.3 (19)	0.3 (0.1, 0.4)	61.5 (38.0, 85.1)
Last month's housing payment			
Nothing	3.6 (210)	3.4 (2.9, 4.0)	48.8 (41.2, 56.4)
< \$500	5.6 (324)	5.8 (5.1, 6.4)	54.8 (49.0, 60.7)
\$500–\$999	24.6 (1432)	25.6 (24.3, 26.8)	56.2 (53.4, 59.0)
\$1000–\$1499	35.0 (2036)	35.0 (33.7, 36.3)	63.7 (61.4, 66.0)
\$1500–\$1999	20.0 (1164)	19.6 (18.5, 20.8)	65.0 (62.0, 68.1)
≥ \$2000	9.3 (539)	8.9 (8.1, 9.7)	60.7 (56.0, 65.4)
Could not make last month's payment	1.9 (110)	1.7 (1.4, 2.1)	86.8 (78.8, 94.8)
Residential instability ^c	7.2 (416)	7.0 (6.3, 7.7)	72.5 (67.7, 77.2)

NH, non-Hispanic

^aSingle-parent household refers to a household where only one of the child's parents is present.

^bLarge household includes 5 or more persons.

^cResidential instability refers to 2 or more moves in the last 3 years

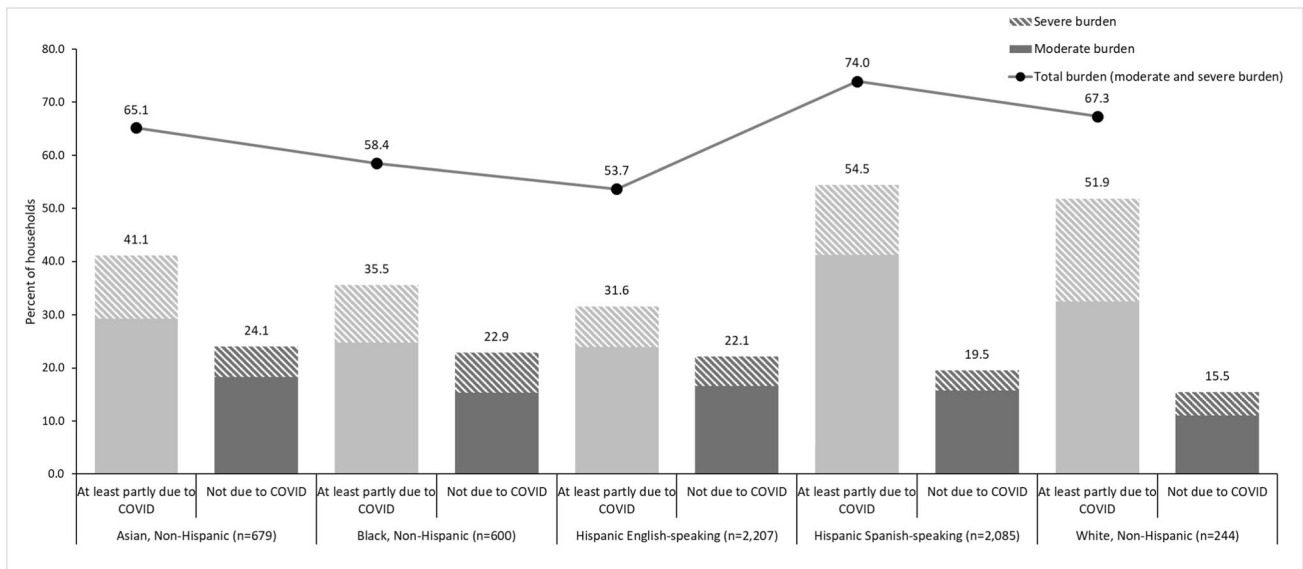


Fig. 1 Prevalence of housing-cost burden by parent respondent’s race/ethnicity, 2020 Los Angeles County WIC Survey ($n = 5815$). Note: Rao-Scott chi-square test of differences of housing-cost burden by race/ethnicity, p -value = <0.0001

of burden while households with at least one parent who was an essential worker experienced a lower prevalence of housing-cost burden (Table 1).

Differences in housing-cost burden existed by place of residence (Table 1). Households that owned their residence or lived with parents or relatives experienced a lower prevalence of housing-cost burden, while those living in a garage or mobile home/RV experienced a high prevalence of burden. Households with higher monthly housing costs

experienced a higher prevalence of housing-cost burden (Table 2). Those who were not able to make last month’s housing payment experienced the highest prevalence of burden. Housing-cost burden was also reported among those who do not pay rent or a mortgage. Nearly three quarters of residentially unstable households reported experiencing housing-cost burden.

Even after controlling for educational attainment and household income, those who were Spanish-speaking

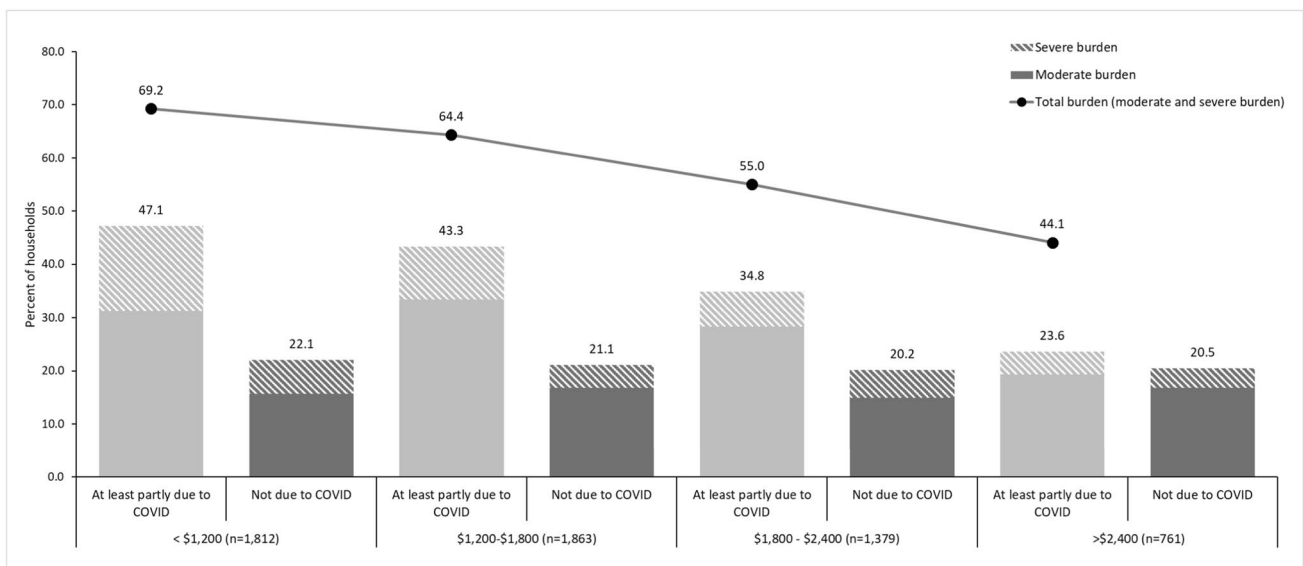


Fig. 2 Prevalence of housing-cost burden by monthly household income, 2020 Los Angeles County WIC Survey ($n = 5815$). Note: Rao-Scott chi-square test of differences of housing-cost burden by monthly household income, p -value = <0.0001

Table 2 Adjusted odds ratios for the association of each of the household measures with increasing severity of housing-cost burden (model 1) and with housing cost-burden partly due to the COVID pandemic (model 2), 2020 Los Angeles County WIC Survey ($n=5815$)

	Model 1 aOR (95% CI)	Model 2 aOR (95% CI)
Parent's race/ethnicity ^a (Ref = English-speaking Hispanic)		
Spanish-speaking Hispanic	1.87 (1.64, 2.13)^b	2.12 (1.75, 2.56)
White	1.86 (1.48, 2.35)	2.28 (1.48, 3.52)
Black	1.27 (1.06, 1.51)	1.05 (0.81, 1.35)
Asian	1.61 (1.19, 2.20)	1.20 (0.93, 1.54)
Pregnant (Ref = not pregnant)	1.12 (0.90, 1.40)	0.86 (0.64, 1.18)
Household composition		
Single parent (Ref = 2 parents)	1.21 (1.07, 1.37)	0.59 (0.50, 0.70)
Large household (Ref = < 5 members)	1.02 (0.91, 1.14)	1.09 (0.93, 1.27)
Household employment		
≥ 1 full-time employed parent (Ref = no full-time employed parent)	0.60 (0.54, 0.68)	0.52 (0.44, 0.62)
≥ 1 parent without a job (Ref = no parent without a job)	1.05 (0.93, 1.18)	1.55 (1.32, 1.83)
≥ 1 parent is essential worker (Ref = at least one working parent who is not an essential worker) ($n=4613$)	1.12 (0.97, 1.28)	0.87 (0.71, 1.06)
Residential instability (Ref = < 2 moves in 3 years)	1.62 (1.32, 1.99)	0.95 (0.72, 1.25)
Last month's housing payment (Ref = does not pay anything)		
Could not pay last month	6.13 (3.57, 10.53)	3.86 (1.83, 8.12)
< \$500	1.22 (0.80, 1.85)	1.20 (0.70, 2.07)
\$500 to \$999	1.13 (0.79, 1.61)	1.44 (0.91, 2.29)
\$1000 to \$1499	1.57 (1.11, 2.23)	1.74 (1.10, 2.74)
\$1500 to \$1999	1.85 (1.29, 2.65)	1.87 (1.17, 3.00)
≥ \$2000	1.73 (1.18, 2.55)	1.89 (1.13, 3.15)
Residence (Ref = apartment or home they rent)		
Home owned by parents/relatives	1.05 (0.89, 1.22)	0.62 (0.50, 0.76)
Apartment/home they own	0.73 (0.57, 0.93)	2.31 (1.54, 3.47)
Renting a room or space	1.17 (0.44, 3.11)	0.90 (0.28, 2.90)
Mobile home, RV, or garage	0.80 (0.52, 1.24)	1.51 (0.75, 3.03)
Shelter, transitional housing, hotel, motel, and homeless	1.92 (0.99, 3.72)	0.84 (0.36, 1.97)
Other	0.69 (0.29, 1.67)	0.51 (0.16, 1.62)

aOR, adjusted odds ratio, CI, confidence interval

Ordinal logistic regression (model 1) was used to model the change in odds of 1-category more severe housing-cost burden. Logistic regression (model 2) was used to model the change in odds of COVID-19 contributing to housing-cost burden among households experiencing housing-cost burden. Except for the model for race/ethnicity, all the models are adjusted for respondent's race/ethnicity, educational attainment and monthly household income

^aModel is adjusted for respondent's educational attainment and monthly household income.

^bValues in bold are statistically significant.

Hispanic, NH Black, NH Asian, and NH White had greater odds of experiencing housing-cost burden compared to English-speaking Hispanic households (model 1, Table 2). Spanish-speaking Hispanic households [adjusted odds ratio (aOR) and 95% confidence intervals (CI): 2.12 (1.75, 2.56)] and NH White households [aOR (95% CI): 2.28 (1.48, 3.52)] were more than twice as likely to attribute the housing-cost burden to the pandemic than English-speaking Hispanic households (model 2, Table 2). After controlling for parent's race/ethnicity, educational attainment and household income, the following groups had statistically significantly greater odds of experiencing housing-cost

burden than their counterparts: households with a single parent; experienced residential instability; paid more than \$1000 in housing costs or could not make last month's housing payment (model 1, Table 2). Households with at least one full-time employed parent [aOR (95%CI): 0.60 (0.54, 0.68)], and those that owned their own homes [aOR (95%CI): 0.73 (0.57, 0.93)] had significantly lower odds of experiencing housing-cost burden (model 1, Table 2). The pandemic was more likely to be part of the cause of the burden for households with at least one parent who was not working, who were paying ≥ \$1000 in housing costs or not able to pay for their housing and those that owned their

home (model 2, Table 2). There were significantly lower odds of the pandemic being the cause of the burden for households where there was only one parent [aOR (95%CI): 0.59 (0.50, 0.70)], at least one full-time employed parent [aOR (95%CI): 0.52 (0.44, 0.62)], and if they were living in a home owned by parents or relatives [aOR (95%CI): 0.62 (0.50, 0.76)] (model 2, Table 2).

Discussion

Our study of WIC-participating households in one of the most expensive housing markets in the nation found that more than 60% experienced housing-cost burden and two-thirds of these households reported the burden to be attributable, at least in part, to the pandemic. Compared to English-speaking Hispanics, all racial/ethnic groups reported a higher prevalence of housing-cost burden. However, only Spanish-speaking Hispanic households and NH White households were significantly more likely than English-speaking Hispanic households to experience the burden because of the COVID-19 pandemic.

While other researchers have found that low-income Hispanic households were more likely than their NH white counterparts to be unable to pay for housing during the pandemic [1, 2], we found that differences exist based on the primary language spoken. Spanish-speaking Hispanic households experienced the highest rate of housing-cost burden while English-speaking Hispanic households experienced the lowest rate. Language is an indicator of acculturation [24], and when we explored the issue, we found that Spanish-speaking Hispanic households were more vulnerable to a crisis than their English-speaking counterparts. They were significantly less likely than their English-speaking counterparts to have graduated high school (42% vs. 89%), to be an essential worker (51% vs. 75%), to live in a home owned by their parents/relatives (5% vs. 26%) and to be able to turn to someone if they needed practical help (63% vs. 86%). Finally, Spanish-speaking Hispanic households may have been less likely to receive the three federal economic impact payments (the stimulus checks). Undocumented immigrants, those who file using an Individual Taxpayer Identification Number (ITIN) instead of a social security number, and mixed immigration status families with an ITIN holder were initially ineligible for the stimulus checks [25]. It was only in December 2020, the end of the data collection for the Los Angeles County WIC Survey, that mixed immigration status families with an ITIN holder could qualify [25]. Finally, in February 2021, California voted to provide a stimulus payment of \$600 to eligible undocumented taxpayers who were not able to receive the federal stimulus payments [26].

Contrary to other studies, we did not find that Black households were more likely than non-Hispanic white

households to experience pandemic-related housing-cost burden. Black WIC-participating households may be more likely than white households to “stretch their finances” [27]. It might also be that they had a more stable employment status. We found that 60% of Black WIC-participating households reported having a parent without a job compared to 71% of non-Hispanic white households; 80% had at least one essential worker compared to 62% of non-Hispanic whites. Due to the long-standing systemic racism in the housing and labor markets [28], Black households may also have support networks in place to help them weather the crisis. We found that 85% reported that they had someone they could turn to if they needed practical help versus 63% of Spanish-speaking Hispanic households. A study by Threet and colleagues [29] found that half of the households with no confidence in their ability to pay their rent were likely to rely on friends and family to pay bills.

Similar to prior publications, housing-cost burden was more prevalent among households that were low-income or headed by a single parent, or who had a parent who was unemployed or with low educational attainment [1, 30, 31]. Among this low-income sample, housing-cost burden was more prevalent among those with higher housing costs. However, housing-cost burden was also reported among those who did not pay rent or a mortgage. While they might not be responsible to pay for housing every month, these families might have an arrangement to contribute to household costs, such as rent or utilities.

Housing-cost burden varied by type of residence. Living in a home owned by parents or relatives decreased the likelihood that households would experience housing-cost burden due to the pandemic. Living with relatives can provide protection as they may not have to pay the full amount of housing or they may be able to rely on relatives to cover the cost of housing. Similar to other research, housing-cost burden was less prevalent among homeowners [1]. The wealth and equity that homeownership can provide [32, 33] may protect against crises. However, among those who did experience burden, the burden was more likely to be attributable to the pandemic. Data from the Census Household Pulse Survey show that low-income families were more likely to be behind on their mortgages in early 2021 [1]. The CARES Act that was signed in March 2020 included moratoriums on foreclosures for certain types of home loans and provided COVID-19-related 18-month forbearance plans to those with federally backed mortgage loans. The federal foreclosure moratorium ended July 31, 2021 [34], and it may be difficult for low-income households to pay the missed payments [1]. Families who are not caught up on their housing payments when eviction moratorium and rental assistance programs end, may be more likely to be food insecure, and to be unable to pay needed expenses like child care and medical bills [1, 11, 20].

While we did not ask about rental assistance, relatively few households in California had obtained rent relief. As of June 2021, only 8% of those who had applied had received aid [35], partly due to a shortage of staff to process the applications [36]. With billions in aid available for California households, the lengthy application process has since been streamlined and is now available in six different languages [37]. However, more needs to be done to ensure that households are aware of the program [37] and that barriers to access aid are lifted. The circumstances of the household can make it more difficult to compile all the paperwork needed [38] to apply for assistance, such as single parents caring for young children; household members with limited education or precarious employment situations; households without internet, an email address or the ability to upload documents; and households with an informal lease [4, 37, 39]. Having the application in only six languages, sometimes with incorrect translation, makes it difficult for non-English speakers to complete the application process [37, 39]. Households who still worry about being deemed a public charge may also be less likely to apply for assistance. While city, county, and federal support helped many renters stay in their homes, waitlists for rental assistance programs in Los Angeles County and City are currently closed. The Los Angeles County Temporary Eviction Moratorium prevents tenants from being evicted due to COVID-19 related financial distress as well as other COVID-19 related reasons. While the eviction moratorium was extended to September 30, 2021 [40], landlords can still evict tenants for reasons unrelated to the pandemic. California recently proposed to pay 100% of the unpaid rent of low-income families [35]. It is possible that this will have a significant impact on addressing housing-cost burden and preventing evictions. The scope of the program is unprecedented [35] and its effectiveness will need to be studied.

This study's strengths include a large, well-characterized sample randomly drawn from a defined sampling frame. Analyses incorporated statistical weights to ensure respondents were representative of all English- and Spanish-speaking WIC-participating families in Los Angeles County in April 2020. The sample of low-income families in one of the most expensive housing markets in the nation ensured a high prevalence of housing-cost burden, allowing sufficient statistical power to evaluate multiple categories of severity and whether COVID-19 contributed to the housing-cost burden. Furthermore, many studies and reports only examine differences in housing-cost burden by race/ethnicity and household income. We studied housing-cost burden by different dimensions of housing, employment, household composition, and language preference.

Limitations of the study include the observational study design precluding causal inference. The measure used for housing-cost burden is a perceived measure and not an

objective measure based on the share of their gross income spent on housing. However, perceived measures are frequently used in research [14, 15, 41]. They may better capture difficulty paying for housing since objective measures do not account for the number of household members who rely on the income [14, 42]. The cross-sectional study design does not allow for the assessment of the directionality of some associations. For instance, we are not able to ascertain if families moved in with parents or relatives as a consequence of the pandemic or if they lived with them before the pandemic began. Additionally, our findings may not be generalizable to other counties in the US with different housing markets and demographics or to families who are not low-income with young children.

Our findings describe the sociodemographic characteristics of families who experienced housing-cost burden during the pandemic and highlight the extent that the pandemic has affected the ability of low-income families with young children to pay for their housing. To ensure the pandemic does not exacerbate child health inequities, it is important to identify households who are struggling to pay for housing, ensure the application process for rental assistance is easy, and provide enrollment assistance to those who need it. While state and federal policy solutions have focused on addressing the housing-cost burden caused by the pandemic, it is also critical to not lose sight of the households who experience burden unrelated to the pandemic.

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Author Contribution TZN developed the research question; TZN and SEW conceptualized the study design; TZN, CEA, and SEW conceptualized the analysis approach; TZN conducted the data analysis; TZN drafted the manuscript and all authors reviewed and approved the final manuscript version.

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Data Availability The data are not publicly available. However, data inquiries can be submitted to lawicdata.org/requests.

Code Availability Not applicable.

Declarations

Ethics Approval The 2020 Los Angeles County WIC Survey was approved by the Committee for the Protection of Human Subjects for the California Health and Human Services Agency. The California State University, Fullerton Institutional Review Board (CSUF IRB) approved this study.

Consent to Participate Informed consent to participate in the 2020 Los Angeles County WIC Survey was obtained from all respondents.

Consent for Publication Not applicable.

Conflicts of Interest The authors declare no competing interests.

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