‘Gentrification is not improving my health’: a mixed-method investigation of chronic health conditions in rapidly changing urban neighborhoods in Austin, Texas

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Abstract

Though there are extensive studies on neighborhood effects on health, this relationship remains elusive and requires continuous empirical evidence to support existing findings. Gentrification is a process of neighborhood change that affects most longtime residents. This study examined the health impact of the rapidly changing physical and cultural environment using oral history interviews, electronic interviews, and a quantitative structured survey. The study draws on the social determinants of health framework to explain the self-reported chronic health conditions (SR-CHCs) among 331 residents in Austin, Texas. The study employed non-linear techniques suitable for Poisson distribution to estimate the association between gentrification and SR-CHCs and complemented by direct quotes from in-depth interviews (IDIs). Perceived gentrification score significantly vary by marital status \( (p < 0.001) \), educational attainment \( (p < 0.001) \), and gender \( (p < 0.01) \), while SR-CHCs only significantly varies by educational attainment, \( p = 0.015 \). Multivariate results show that gentrification was positively associated with SR-CHCs, after adjusting for socioeconomic variables. Compared to the Hispanics, blacks were 97% more likely to report multiple counts of SR-CHCs \( (IRR = 1.969, 95\% \ CI 1.074–3.608) \), and participants with high household income were 8% less likely to report multiple CHCs \( (IRR = 0.920, 95\% \ CI 0.870–0.973) \). Drawing from the empirical findings, this study recommends both area-based and individual-level policies to mitigate neighborhood change’s impact on residents’ health. Finally, this study further adds to the understanding of social determinants of health in understanding chronic health within the changing urban physical and socio-ecology systems.

Keywords Chronic conditions · Social determinants of health · Gentrification · Medical geography

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1 Introduction

Chronic diseases and health conditions (CHCs) are a type of health situation that lingers for at least six months and requires ongoing medical attention, and they limit daily living activities (Bernell & Howard 2016; Centers for Disease Control & Prevention 2020). CHCs account for 73% of global deaths, and 15 million people between the ages of 30 and 69 die from CHCs annually (World Health Organization 2018a, 2018b). According to the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), chronic diseases—heart disease, cancer, and diabetes—are the leading causes of death and disability in the United States (US) (Centers for Disease Control & Prevention 2020). These conditions tend to exact and have gruesome financial implications. For example, they account for $3.5 trillion in annual health care costs in the US. Complex factors such as behavioral, gene-environmental interaction, and biosphere, interact to create disease ecology such as CHCs. Due to these complex factors, an individual could have multiple diagnoses of CHCs. A chronic condition can be another pathway to other chronic diseases leading to comorbidity of diseases. For instance, obesity is a risk factor for asthma in children, cardiovascular diseases, a risk factor for adult physical and mental health, and other related quality of life (Dixon 2010; Perrin et al. 2007).

Though extant literature has shown how the living environment could contribute to adverse health outcomes such as obesity; there is limited research to show the link between gentrification and CHCs. Neighborhoods experience gentrification when an influx of investment and changes to the built environment leads to rising home values, family incomes, and educational levels of residents, usually leading to the displacement of low-income longtime residents (Freeman & Braconi 2004; Freeman & Cai 2015). Cultural displacement occurs when minority areas see a rapid decline in their numbers as affluent, white gentrifiers replace the incumbent residents.

This study aimed to examine the association between gentrification and reports of CHCs. Gentrification research is situated in the neighborhood change framework. In recent times, the 'neighborhood effect' has emerged as a framework in which health disparities are being studied for achieving health equity through public health intervention. One such dimension of the neighborhood indicator is gentrification, chiefly produced from government policies (urban renewal and housing policies), globalization, urbanization, and structural inequality (Bailey 1959; Davidson 2010; Kovács et al. 2013). Eastside of Austin is known for its historical segregationist policies (e.g., the 1928 zoning policy) that moved people of color to the eastside together with the redlining policies that financially segregated minority community across cities in the United States. Consequently, neighborhoods in East Austin, Texas, suffer longtime disinvestment and deterioration, leading to blight and decay (City of Austin 1999) before the recent reinvestment through a series of urban renewal programs (Busch 2017).

Despite the long-debated impact of gentrification on health, the mechanisms remain poorly understood among public health practitioners. Therefore, this study investigates the perception of gentrification and health among residents of East and Southeast Austin, Texas, for policy implications toward improving residents’ health. The rest of the paper is divided into different sections. The literature and theoretical framework section reviews related studies situated within the determinant of health framework, and it includes a subsection on the perceived measure of gentrification. In the ‘Method’ section, we describe the source of data and approaches used to analyze our data. The results section concurrently
presents the quantitative and qualitative results. Lastly, we discuss the findings and compare our results with the existing research.

2 Literature review and theoretical framework

This study draws from the social determinants of health (SDOH) framework (Fig. 1). The World Health Organization defines SDOH as "the conditions in which people are born, grow, work, live, and age and the set of forces and systems shaping the conditions of daily life" (World Health Organization 2008). The definition extends beyond the understanding of health and includes social behavior, global economy, discrimination, and violence. SDOH also takes the social and physical environment, income inequality, family social status, nutrition, lifestyles, gene-environment interaction, and political environment into consideration. In most cases, the etiology of a disease is unknown but social determinants of health can be a plausible causal pathway to understanding the changing pattern of health.

Theorists suggest that displacement of low-income longtime residents is largely responsible for the changing neighborhood dynamics that result from the gentrification process (Freeman & Braconi 2004) and that such changes to socio-spatial and cultural environments have detrimental implications on health and health equity (Mehdipanah et al. 2018). A growing body of literature suggesting that gentrification may lead to adverse health and mental health outcomes (Atkinson 2004; Ellen & Captanian 2020; Izenberg et al. 2018; Schnake-Mahl et al. 2020; Smith et al. 2020; Tran et al. 2020). Accordingly, several social science, public health, and epidemiological studies have used the SDOH framework to understand the determinant of health outcomes. In Fig. 1, we present how we apply the concept of SDOH in our study. We mainly focus on gentrification, which has two possible hypothetical positive and negative impacts (±). On the other hand, access to community resources, such as health resources, is likely to mediate the impact of gentrification on the report of chronic health conditions, and we propose that community resources will be beneficial to improved health (+) or serve as a buffer to temper the negative impact of gentrification.

Fig. 1 Social determinants of health framework. (Note: The broken line indicates the possibility for mediation, and the signs are the expected associations)
Previous research has examined the link between built environment such as neighborhood and health’s positive and negative characteristics (Fig. 1). For example, scholars have found significant associations between neighborhood characteristics—walking environment, availability of healthy foods, safety, and social cohesion—and chronic health conditions such as hypertension (Chiu et al. 2016; Kaiser et al. 2016; Lagisetty et al. 2016; Morenoff et al. 2007; Mujahid et al. 2008; Viruell-Fuentes et al. 2012), cardiovascular diseases and indicators such as blood pressure, glucose, and cholesterol (Correa et al. 2015; Cubbin et al. 2006; Mujahid et al. 2017); and diabetes (Auchincloss et al. 2009; Bilal et al. 2018; Christine et al. 2015; Gariepy et al. 2013; Gaskin et al. 2014; Gebreab et al. 2017; Lagisetty et al. 2016). Using electronic health records of 116,760 patients living in Durham County between 2008 and 2016, Bhavsar et al. (2019) found that longtime residents in gentrifying neighborhoods had higher rates of cardiovascular disease-related conditions than non-gentrifying neighborhoods.

Furthermore, the place of residence is a critical determinant of health, and scholars have argued that aggregate increase in the education, occupational status, and income of a neighborhood’s residents would positively affect resident wellbeing through improved neighborhood institutional resources, increased collective socialization, and in the long run have contagion effects (Keels et al. 2013). Nevertheless, not all residents, particularly the low-income longtime residents, can share equally in this economic revitalization which raises the question of equity and social injustice. Neighborhood effects theories that emphasize competition for resources and relative deprivation theory posits that higher SES classes are well-positioned to take advantage of neighborhood opportunities than lower groups. Therefore, it is expected that high SES should serve as a buffer for the report of adverse health outcomes. Generally, low-income residents in gentrifying neighborhoods tend to report no or little change in subjective neighborhood quality and have reported possible impacts on general wellbeing (Vigdor et al. 2002). Similarly, the subculturalist theory argues that a minority portion of the population is more likely to be deprived of various opportunities available to the dominant groups. Extensive evidence of racial/ethnic disparity in access and health inequality exists in the literature. However detail review of racial/ethnic disparity and health inequality is beyond the scope of the study.

SDOH has also proven useful in studying social relationships, stress, chronic disease, and mental health (Ben-Shlomo & Kuh 2002; Goosby 2013; Pearlin et al. 2005; Shoham et al. 2005; Tran et al. 2020; Umberson et al. 2010). In a cross-sectional study, Goosby (2013) investigates the extent to which childhood socioeconomic disadvantage and maternal depression increase the risk of major depression and chronic pain in US working-aged adults (25–64 yr.). The study found that childhood household poverty—operationalized as aid received by household—significantly amplified the risk of adulthood depression, but adulthood SES attenuate the association. In another study of childhood psychological status among cohort children, Dragan et al. (2019) found a significant link between gentrification and anxiety/depression(Dragan et al. 2019).

3 A subjective measure of gentrification

Some important factors motivated this present study. First, the cross-examination of existing work suggests that studies specifically designed to examine the impact of gentrification on residents’ health are limited. Most studies depend on secondary data (e.g., census data, google street view) to measure indicators of gentrification (Ohmer et al. 2018). Generally,
quantitative measures of gentrification are a reasonably and somewhat convenient approach undertaking by quantitative gentrification researchers; however, gentrification measures lack standardization; that is, there is no current universal way to operationalize gentrification (Williams 2015). In quantitative gentrification research, the use of administrative or census data to measure gentrification has been reported to have several limitations. For example, in a study that examines the impact of gentrification on student academic performance/improvement, Keels and colleagues (2013) reported that administrative data did not explain schools’ outcomes and did not fit the prevalent pattern in their study. Literature has also underscored the inherent difficulty in determining the exact time when gentrification starts based on administrative data. Thus, administrative data limit the precise and direct measure of the study population’s characteristics. As a result, Keel et al. (2013) suggest using qualitative and quantitative approaches to understand gentrification’s impact on different outcomes including health and wellbeing.

Furthermore, existing evidence also indicates that neighborhood perceptions strongly affect residents’ health even after adjusting for individual-level factors suggesting that neighborhood perceptions uniquely affect individuals’ health. As a result, scholars have argued that it is also important to understand how individual residents within those communities perceive these factors other than relying on researcher’s perspective or quantitative data (e.g., census data and google street view). Specifically, experts suggest that subjective measures of residents’ perceptions may be as necessary as objective measures in understanding neighborhood characteristics (Centers for Disease Control & Prevention 2017; Ohmer et al. 2018).

Second, our literature survey also indicates that scant research focusing on gentrification and chronic health conditions exists. Supporting our point is a recent systematic review of the impacts of gentrification on health which found that very few studies have documented the relationship between gentrification and health (Schnake-Mahl et al. 2020; Smith et al. 2020). Smith and colleagues (2020) systematically reviewed six papers that examine health within the context of gentrification, most focused on self-rated health, and limited research exists on chronic health conditions. Another important point highlighted in the review study was the lack of universal operationalization of gentrification, which contributed to the considerable variation and inconclusive findings on the association between gentrification and health in the US.

In this study, unlike other studies that used geospatial techniques and objectively measured gentrification, this study subjectively measured gentrification based on the considerable empirical evidence of gentrification’s impacts. Our subjective operationalization of gentrification is based on the perception of gentrification (DeVylder et al. 2019). In this case, we considered questions about increasing property tax and rent and other known impacts of gentrification such as displacement. In neighborhood effect research, "studies that have used qualitative methods which focus on the experiences and perceptions of residents have tended to report stronger and more consistent results than those that relied solely on quantitative methodologies" (van Ham et al. 2012, p. 4). As a result, the study follows those studies that used a mixed-method to understand gentrification (Davidson 2010; Loukaitou-Sideris et al. 2019; Newman & Wyly 2006) by combining quantitative and qualitative research approaches. The researchers conducted an oral history interview with a community leader to understand the actor’s role in gentrification formation and resistance, one-on-one electronic interviews, and quantitative structured surveys to study reports of chronic health outcomes.
4 Current study

This study’s primary aim was to examine the association between perceived gentrification and the report of chronic health conditions among residents in neighborhoods undergoing gentrification. The secondary aim was to examine the association between chronic health conditions, access to community resources (health resources, loans/mortgage), and sociodemographic variables such as race/ethnicity, duration of residence measure, household income, and educational attainment. Hence, three research questions are associated with the two study aims: (1) Does the perception of gentrification significantly vary by race/ethnicity, age group, sex, marital status, educational attainment, and residence duration? What is the relationship between perceived gentrification and report of chronic health conditions among residents in East/Southeast Austin? (2) To what extent will disparity in access to community resources influence the relationship between gentrification and SR-CHCs?

5 Methods

This study focused on urban residents living in gentrifying neighborhoods in East and Southeast Austin, Texas. Six zip codes fall within the areas delineated for this study. Based on the American Survey data between 2000 and 2015, 25 census tracts gentrified in Austin, and 6 (25%) were in East and Southeast Austin (Maciag 2015). Based on Way et al. (2018) work on gentrification in Austin, we used the geographic information system or GIS technique to identify gentrifying/gentrified neighborhoods, capturing all neighborhoods in East and Southeast Austin to represent our study area. Our survey design delineated the City of Austin into four hypothetical regions, regions 1 and 2 represent East Austin and Southeast Austin, respectively. In our Facebook setup, we only targeted the study area. Participants who clicked on the two regions were allowed to continue taking the survey, while those whose residential address falls outside the study area were automatically sent to the end of the survey. Out of the 1,338 survey link clicks, only 331 respondents completed the survey, which formed our sample size. The institutional review committee at the Texas State University Office of Research Compliance (ORC) approved this study (# 7134).

5.1 Measures

5.1.1 Outcome variable

Self-rated Chronic Health Conditions (SR-CHCs): Data on chronic health conditions were collected based on a question that asked whether participants had been diagnosed with any listed health conditions (response: Yes or No). The outcome health conditions include diabetes, depression, anxiety, asthma, chronic pain, hypertension, chronic migraine, difficulty breathing, panic attack, high blood pressure, and chronic stress, according to the existing literature on gentrification and health (Anguelovski, Triguero-Mas, et al., 2019; Smith et al. 2020) and perceived neighborhood (Kim & Kawachi, 2017) (see Table 1). The count of all the yeses was used to form the self-rated chronic health condition score (SR-CHCs).
Table 1  Frequency distribution of key variables

| Category                        | Frequency | Percent |
|---------------------------------|-----------|---------|
| **Region**                      |           |         |
| East Austin                     | 190       | 59.9    |
| Southeast                       | 127       | 40.1    |
| **Gender**                      |           |         |
| Male                            | 92        | 29.1    |
| Female                          | 220       | 69.6    |
| **Marital status**              |           |         |
| Married/partnered               | 145       | 45.9    |
| Widowed/divorced                | 70        | 22.2    |
| Single                          | 99        | 31.3    |
| **Race/ethnicity**              |           |         |
| Asian                           | 45        | 14.2    |
| Black/African American          | 21        | 6.6     |
| Hispanics                       | 59        | 18.7    |
| White                           | 179       | 56.6    |
| Mixed                           | 9         | 2.8     |
| **Homeownership**               |           |         |
| Owner                           | 216       | 68.4    |
| Renter                          | 99        | 31.3    |
| **Educational attainment**      |           |         |
| < High school                   | 37        | 11.8    |
| Associate degree                | 36        | 11.5    |
| Bachelor                        | 127       | 40.4    |
| Graduate                        | 112       | 35.7    |
| **Duration of residence**       |           |         |
| Recent                          | 190       | 60.3    |
| Longtime                        | 125       | 39.7    |
| **Perceived change**            |           |         |
| Yes                             | 268       | 91.2    |
| No                              | 26        | 8.8     |
| Plan to move                    | 1         | 0.3     |
| Yes                             | 23        | 7.3     |
| Maybe                           | 62        | 19.6    |
| No                              | 230       | 72.8    |
| **Threatened by gentrification**|           |         |
| Yes                             | 109       | 40.8    |
| No                              | 158       | 59.2    |
| **Perceived gentrification (ICC = 0.676)** | | |
| Increase tax or rent            |           |         |
| Extremely unlikely              | 12        | 3.6     |
| Somewhat unlikely               | 9         | 2.7     |
| Neither likely nor unlikely     | 9         | 2.7     |
| Somewhat likely                 | 76        | 23      |
| Extremely likely                | 179       | 54.1    |
| Move out (displacement)                  | Frequency | Percent |
|-----------------------------------------|-----------|---------|
| Extremely unlikely                      | 51        | 15.4    |
| Somewhat unlikely                       | 65        | 19.6    |
| Neither likely nor unlikely             | 54        | 16.3    |
| Somewhat likely                         | 80        | 24.2    |
| Extremely likely                        | 33        | 10      |
| Sell property due to tax                |           |         |
| Extremely unlikely                      | 44        | 13.3    |
| Somewhat unlikely                       | 61        | 18.4    |
| Neither likely nor unlikely             | 65        | 19.6    |
| Somewhat likely                         | 65        | 19.6    |
| Extremely likely                        | 45        | 13.6    |
| Unable to pay for bills/groceries       |           |         |
| Extremely unlikely                      | 105       | 31.7    |
| Somewhat unlikely                       | 84        | 25.4    |
| Neither likely nor unlikely             | 47        | 14.2    |
| Somewhat likely                         | 35        | 10.6    |
| Extremely likely                        | 14        | 4.2     |
| Lose your connections/relationships     |           |         |
| Extremely unlikely                      | 100       | 30.2    |
| Somewhat unlikely                       | 60        | 18.1    |
| Neither likely nor unlikely             | 63        | 19      |
| Somewhat likely                         | 41        | 12.4    |
| Extremely likely                        | 21        | 6.3     |
| Chronic health conditions               |           |         |
| Diabetes                                |           |         |
| No                                      | 231       | 69.8    |
| Yes                                     | 100       | 30.2    |
| Depression                              |           |         |
| No                                      | 150       | 45.3    |
| Yes                                     | 181       | 54.7    |
| Chronic stress                          |           |         |
| No                                      | 187       | 56.5    |
| Yes                                     | 144       | 43.5    |
| Hypertension                            |           |         |
| No                                      | 223       | 67.4    |
| Yes                                     | 108       | 32.6    |
| High blood pressure                     |           |         |
| No                                      | 210       | 63.4    |
| Yes                                     | 121       | 36.6    |
| Chronic pain                            |           |         |
| No                                      | 195       | 58.9    |
| Yes                                     | 136       | 41.1    |
| Panic attack                            |           |         |
| No                                      | 196       | 59.2    |
Table 1 (continued)

| Item                                      | Frequency | Percent |
|-------------------------------------------|-----------|---------|
| Yes                                       | 135       | 40.8    |
| Migraine (chronic)                        |           |         |
| No                                        | 217       | 65.6    |
| Yes                                       | 114       | 34.4    |
| Anxiety                                   |           |         |
| No                                        | 143       | 43.2    |
| Yes                                       | 188       | 56.8    |
| Difficulty breathing                      |           |         |
| No                                        | 226       | 68.3    |
| Yes                                       | 105       | 31.7    |
| Access to community resources (ICC = 0.866) |           |         |
| Health food                               |           |         |
| Extremely difficult = 1                   | 5         | 1.7     |
| 2                                         | 27        | 8.9     |
| 3                                         | 40        | 13.2    |
| 4                                         | 100       | 33      |
| Extremely easy = 5                        | 131       | 43.2    |
| Access to health care services (e.g., mental health) |           |         |
| Extremely difficult = 1                   | 15        | 5       |
| 2                                         | 54        | 17.9    |
| 3                                         | 58        | 19.2    |
| 4                                         | 97        | 32.1    |
| Extremely easy = 5                        | 78        | 25.8    |
| Employment                                |           |         |
| Extremely difficult = 1                   | 21        | 7       |
| 2                                         | 61        | 20.4    |
| 3                                         | 90        | 30.1    |
| 4                                         | 86        | 28.8    |
| Extremely easy = 5                        | 41        | 13.7    |
| Rent a house                              |           |         |
| Extremely difficult = 1                   | 28        | 9.8     |
| 2                                         | 50        | 17.4    |
| 3                                         | 93        | 32.4    |
| 4                                         | 57        | 19.9    |
| Extremely easy = 5                        | 59        | 20.6    |
| A bank loan with a low rate               |           |         |
| Extremely difficult = 1                   | 42        | 14.2    |
| 2                                         | 43        | 14.5    |
| 3                                         | 64        | 21.6    |
| 4                                         | 79        | 26.7    |
| Extremely easy = 5                        | 68        | 23      |
| School enrollment                         |           |         |
| Extremely difficult = 1                   | 7         | 2.5     |
| 2                                         | 15        | 5.4     |
| 3                                         | 151       | 54.3    |
5.1.2 Explanatory variables

Perceived gentrification score (PGS): This study used the perception of residents on the physical and socio-cultural changes in Austin, Texas, similar to the approach used in the measure of perception of gentrification in a different study (DeVylder et al. 2019). Devylder and colleagues attempt to develop a Neighborhood Change and Gentrification Scale (NCGS) that can substitute the quantitative measure of gentrification. In our study, we used a single item to verify whether or not participants were aware of the changes in their neighborhood: Have you noticed new structures, heavy renovations, demolitions, and building remodeling in your neighborhood? This question capture several questions asked by DeVylder et al. (2019) in their study. Out of the ten items proposed on the NCGS scale, only four items capture neighborhood gentrification: (1) I have experienced improved access to neighborhood amenities and city services. (2) I have seen an influx of affluent or nonminority residents moving into the neighborhood. (3) Crime has decreased in my neighborhood, and (4) I have observed a lot of renovation activity in the neighborhood.

We constructed the gentrification score based on the Perceived Gentrification Scale (PGS-5). PGS-5 is a five-item scale based on a 5-point Likert scale (1 = Extremely unlikely to 5 = extremely likely). These items asked questions on increase tax or rent, displacement, loss of property due to gentrification, difficulties in paying for bills and groceries, and loss of social connection/social capital. The selected items were derived based on the existing literature on the impact of gentrification (Freeman 2005; Lees et al. 2013; Newman & Wyly 2006; Wyly & Hammel 1998); hence we combined them as a perceived gentrification score following a similar approach used in Devylder et al.’s study (2019). Note that perceived gentrification increases along the scale; a lower score indicates a low perception of gentrification, while high scores indicate a higher perception level. Internal consistency and scale reliability was determined based on a moderate Cronbach’s alpha (α) of 0.678 higher than the alpha (α = 0.64) reported by Devylder et al.’s for their NCGS.
Access to community resources. We constructed the access to community resources (ACR) variable from a set of eight items related to social and financial access. The items assessed individuals' access to healthy food, health care services, employment, housing, child/adult school enrollment, mortgage/financing with a low rate, car financing/loan, and a bank loan at a low rate. The responses were coded on a 5-Point Likert Scale: 1 = Extremely difficult and 5 = Extremely easy and summed up to develop the ACR index. Before constructing the index, we tested the eight items’ internal consistency and reliability, which yielded an acceptable $\alpha$ of 0.866.

Sociodemographic covariates: Other social determinants of health variables examined in this study include duration of residence measure as a continuous variable, household income measure as an interval variable, numbers of school years (continuous), educational attainment (ordinal: High school or less, associate degree, four years college, Masters/Doctorate), and race/ethnicity (nominal: Asian, Black/African American, Hispanics/Latino, Others).

5.2 Analytical procedure

Since the outcome variable was a count variable, we assumed Poisson distribution. Poisson regression and negative binomial (NB) regression are techniques used to predict count outcomes with those counts occurring within a given space or time. Unlike the ordinary least squares regression (OLS), both Poisson and NB regression do not assume a linear relationship between the independent and dependent variables. Poisson regression assumes that the conditional mean and variances of the count distribution of chronic health outcomes, as it appears in this case, are equal, a condition commonly referred to as equidispersion. The descriptive analysis of the SR-CHCs index indicated that the variance ($\delta^2 = 12.872$) was three times larger than the mean ($M = 4.024$, $SD = 3.587$, 95% Confidence Interval [CI] 3.636, 4.412), which indicated overdispersion. The NB model was selected over Poisson (loglinear) regression based on the Akaike Information Criterion (AIC) and the deviance's best minimum ratio. The result of the loglinear Poisson is presented as supplementary data.

The study developed different models for the estimation of chronic health conditions in gentrifying neighborhoods. The first analysis tested the association between gentrification score and the dependent variable (Unadjusted model) and a model that adjusted for some sociodemographic variables—ethnicity, marital status, sex, household income, and educational attainment. Based on economic deprivation theories, another model included access to community resources (ACR) variable to examine the mediating role of the ACR. Finally, a full model included all the variables to examine the power of each variable. A log form of age (LnAge) was used as an exposure (offset) variable of chronic health conditions in all the models. The exposure variable allowed us to capture the between-person differences in the degree of risk/opportunity for event counts to accrue.

Model fit in both Poisson and NB regression was evaluated based on the likelihood ratio (LR) chi-square test results. We used the full likelihood function to compute the information criteria, a significant chi-square result of the LR (Omnibus $p < 0.05$) indicates a significantly improved model relative to the null. The Likelihood ratio test was chosen over the Wald test because the latter can be overly conservative when testing the regression coefficient against the null. The Likelihood ratio test is a more robust test of the regression parameters because it involves testing the full model without that predictor. This study interpreted the incidence rate ratio (IRR) for both Poisson and NB and their 95% confidence interval.
Smith et al. (2020) recommended exploring factors that could mediate the impact of gentrification on health outcomes. Several studies have suggested access to community resources could serve as buffers to adverse consequences of gentrification (Hankins 2007; Izenberg et al. 2018; Spain 1993; Tulier et al. 2019). Consequently, we explored the mediating of access to community resources (ACR), an indicator derived from individual’s access to healthy food, health care services, employment, housing, child/adult school enrollment, mortgage/financing with a low rate, car financing/loan, and a bank loan at a low rate (Table 1). SPSS Macro Process (Preacher & Hayes 2008) was used to test ACR’s mediating effect on the link between SR-CHCs score and gentrification.

Following the survey, participants were re-invited through email and text messages for a one-on-one follow-up interview. Nine follow-up semi-structured in-depth interviews (IDIs) were conducted with those who agreed to participate. The intention was to use a complementary mixed-method approach to examine qualitative aspects of perceived gentrification and health. Before the survey, the principal investigator conducted a pre-interview with a community leader who granted an extensive interview about how gentrification involved overtime in East Austin. According to the source, gentrification in the Eastside of Austin started around the 1990s. The background information allowed us to include residents who have lived in the neighborhood for at least ten years to capture the longtime perception of neighborhood change over time. We extracted raw texts from the interview transcript and presented important excerpts verbatim to complement the quantitative analysis.

6 Results

6.1 Quantitative results

Tables 1 and 2 present the descriptive statistics for the categorical and continuous variables. Table 1 shows that most of the participants lived in East Austin (n = 190, 59.9%), and more women than men participated in the survey (n = 222, 69.8%). The larger proportion of the respondents were married 146(45.5%), 74(23.1%) were identified as being widowed/divorced/separated, and 101(31.5%) were never married/single. Over half of the respondents identified themselves as white (n = 181, 56.7%), few were black (n = 23, 7.2%), 59 (18.5%) were Hispanics/Latino, 46(14.4%) were Asian, and only ten (3.1%) were identified as other race/ethnicity. About one-third (39.7%) had lived in the study area for more than ten years, and 264 (91%) were aware of neighborhood change. The majority of the respondents (73.2%) did not plan to move out of their neighborhood anytime soon, 20% were not sure, and only 7% declared they wanted to move. Among those who said they

| Table 2 | Descriptive statistics of continuous variables/scores |
|---------|------------------------------------------------------|
|   | Mean   | SD     | 95% CI  |
| Age    | 46.871 | 13.648 | 45.325–48.416 |
| Residece duration | 11.270 | 13.559 | 9.74–12.81 |
| SR-CHCs | 1.519 | 1.894 | 1.309–1.727 |
| Gentrification Score | 14.758 | 3.958 | 14.321–14.693 |
| Years in school | 16.050 | 4.144 | 15.58–16.52 |

SR-CHCs chronic health condition score, SD standard deviation, CI confidence interval
were aware of the changing neighborhood, 40.3% said that change in their neighborhood threatens them. The mean of SR-CHCs and gentrification scores were 1.5 (SD = 1.894, 95% CI 1.309–1.727) and 14.757 (SD = 3.958, 95% CI 14.321–15.195), respectively (Table 2). While the mean age, duration of residence, and total year of education of the respondents were 46.87 years (SD = 13.65), 11.27 years (SD = 13.64), and 16.05 years (SD = 4.14), respectively.

Using nonparametric analysis of variance (Kruskal Wallis H-test/Mann–Whitney U-test), the median of perceived gentrification score significantly varies by homeownership (p < 0.001), educational attainment (p < 0.001), marital status (p < 0.001), and gender (p < 0.01). The median of SR-CHCs only significantly varies by educational attainment (p = 0.015). It is important to note that the report of SR-CHCs was not significantly different by homeownership, marital status, gender, race/ethnicity, and duration of residence.

In the unadjusted model, the perceived gentrification score was significantly and positively associated with SR-CHCs (Table 3), with a one-unit increase in perceived gentrification score contributing to a 10.1% increase in the count of SR-CHCs (IRR = 1.101, 95% CI 1.055–1.149). After adjusting for sociodemographic variables in model 2, the association between perceived gentrification score and SR-CHCs remained strongly significant, but the magnitude was reduced by half (IRR = 1.055, 95% CI 1.055–1.149), implying that gentrification is a strong determinant of health. One unit increase in resident perception of gentrification predicts an increase in the 1.06 unit count of SR-CHCs.

To determine the direct and potential mediating role of access to community resources (see Fig. 1), we conducted a separate analysis (Table 4). Model 1 examines only the association between ACR and SR-CHCs, model 2 simultaneously examined the association between gentrification, ACR, and SR-CHCs, and in model 3 (full model), we adjusted for sociodemographic variables. Note that we did not repeat the step that assesses the association between gentrification and SR-CHCs alone because it is already presented in Table 3 to avoid redundancy. Access to community resources was negatively associated with the count of SR-CHCs, indicating that one unit increase in ACR reduced the report of SR-CHCs by 0.034 units. In the second model, gentrification increases the odds of reporting SR-CHCs by 0.061 units, while ACR significantly reduces it by 0.019. The coefficient of ACR remained unchanged after introducing the gentrification variable in model 2. However, in the full model, the ACR coefficient was not significant, while the gentrification coefficient remained significant (adjusted for other variables). Of all the covariates included in the full model, only race/ethnicity and household income as a proxy for the social class were significant (Sullivan 2007). Compared to the Hispanics, blacks were 97%
Table 4  Assessment of the influence of access to community resources on the relationship between gentrification and SR-CHCs

| Parameter                        | Model 1 |         |         | Model 2 |         |         | Full model |         |         |
|----------------------------------|---------|---------|---------|---------|---------|---------|------------|---------|---------|
|                                  | B       | IRR     | 95% CI  | B       | IRR     | 95% CI  | B          | IRR     | 95% CI  |
|                                  |         | Lower   | Upper   |         | Lower   | Upper   |            | Lower   | Upper   |
| (Intercept)                      | − 2.431‡| 0.088   | 0.053   | 0.145   | − 3.799‡| 0.022   | 0.009      | 0.058   | 0.024   |
| ACR                              | − 0.034‡| 0.966   | 0.951   | 0.982   | − 0.019*| 0.981   | 0.963      | 0.999   | 0.007   |
| Gentrification score             | 0.061†  | 1.063   | 1.025   | 1.103   | 0.052†  | 1.053   | 1.014      | 1.094   |         |
| Age groups (<29 *)               |         |         |         | 0.129   | 1.137   | 0.619   | 2.09       |
| 30–39                            |         |         |         | − 0.171 | 0.843   | 0.441   | 1.612      |
| 40–49                            |         |         |         | − 0.268 | 0.765   | 0.388   | 1.508      |
| 50–59                            |         |         |         | − 0.166 | 0.847   | 0.437   | 1.642      |
| Educational attainment           |         |         |         |         |         |         | 0.375      | 1.454   | 0.907   |
| (< High school *)                |         |         |         |         |         |         | 0.209      | 1.233   | 0.836   |
| 2-year degree/equivalent         |         |         |         |         |         |         | 0.677*     | 1.969   | 1.074   |
| Bachelor degree                  |         |         |         |         |         |         | 0.038      | 1.038   | 0.719   |
| Graduate degree                  |         |         |         |         |         |         | 0.046      | 0.955   | 0.587   |
| Race/ethnicity                   |         |         |         |         |         |         |            |         |         |
| (Hispanics *)                    |         |         |         |         |         |         |            |         |         |
| Asian/others                     |         |         |         |         |         |         |            |         |         |
| White                            |         |         |         |         |         |         |            |         |         |
| Black                            |         |         |         |         |         |         |            |         |         |
| Total household income           |         |         |         |         |         |         |            |         |         |

\* p < 0.001; † p < 0.01; ‡ p < 0.05; ‡ referent category, IRR incidence rate ratio
more likely to report multiple counts of SR-CHCs (IRR = 1.969, 95% CI 1.074–3.608), and participants with high household income were 8% less likely to report multiple CHCs (IRR = 0.920, 95% CI 0.870–0.973).

Based on the hypothetical relationship between SDOH variables presented in Fig. 1, we further explore the possible mediation role of ACR. Access to community resources has the potential to mediate the link between gentrification and SR-CHCs. The total influence of the two variables on the dependent variable was 0.105 (standard error [se] = 0.026, \( p < 0.001, 95\% \ CI \ 0.053–0.157 \)) and the direct influence of gentrification was 0.075 (se = 0.028, \( p = 0.008, 95\% \ CI \ 0.032–131 \)). The indirect effect standard error and confidence interval were computed based on the 10,000 bootstrapped estimation (Preacher & Hayes 2008). Hence, the indirect effect of gentrification via access to community resources was 0.030 (Boot se = 0.013, Boot 95% CI = 0.006–0.058).

### 6.2 Qualitative perception of neighborhood change and health

#### 6.2.1 Residents perception of gentrification

Since there is no universal definition of gentrification, it will be erroneous to assume that everyone knows the meaning of gentrification. Hence, we explore this term from the residents’ perspective. When asked to describe their understanding of gentrification, they described gentrification as a general phenomenon. All the participants demonstrate an adequate understanding of gentrification, which reveals local knowledge and the process of its formation. We present a direct quote from the interview transcript below:

> Ah, I see gentrification occurs when existing folks in the neighborhood get driven out because other folks move in and change the characteristics of the neighborhood; they make the cost of housing increase dramatically so that folks who have been here for a long time can no longer afford to live here, even if they own their property. The property taxes increased dramatically, and sometimes folks can’t even afford to stay in houses that they already own out. People who have the money go and buy a lot of property and buildings in an area that is it’s probably more undesirable based on like location or crime, and usually, the prices there are really low because nobody wants to move there. But then once other people start moving in, the nice things start developing their like new grocery stores, new restaurants, new housing. And so then, more people go there to live. And then these new people kind of kick out the people who have already been living there for a really long time by driving up the property costs and just making it unaffordable to keep living there. So those people, they have to, they’re just kind of pushed out of the area.

My understanding of gentrification is that neighborhoods, established neighborhoods, start seeing a lot of vacancies and new people, young people often Whites move into predominantly neighborhoods of color, and they begin changing the character of the neighborhood, the neighborhood becomes less affordable. So those are the kinds of things that I would use to identify what I mean or how I interpret gentrification.

It means that you come in, and you try to change the demographics of what was already there. I should have mentioned a while ago that property taxes have gone skyrocketing here. That we are looking at maybe having to sell our home because we can’t really afford how much property taxes are paid and who is paid for. And so,
they have people come in and change what’s it used to be primary Hispanics here. Now it’s not. So, they could you come in, and like I said, they built two properties, two houses in one property, so you get more people and you and if I want, back when they were selling the house next door if I wanted to buy it. I wouldn’t have been able to afford it. So, every time something goes up, my property taxes go up. So, if I move, most likely the person that moves into my house is not going to be Hispanic.

The various descriptions of gentrification presented by participants capture the common changes include (1) the increasing cost of housing [economic and physical evidence of gentrification], (2) displacement of longtime homeowners by newcomers, and (3) increasing property tax. Participants’ description of gentrification also underscores the investment opportunities (Freeman, 2005) or the rent gap (Smith, 1987). Community knowledge of gentrification aligns with existing academic definitions, highlighting gentrification as a process of ‘succession and displacement’ described by Lance Freeman (Freeman, 2005; Freeman & Cai, 2015). One participant highlighted the effect of gentrification on the local business environment.

As for businesses, new folks coming in want different amenities in their neighborhood than what has existed for years. [A] good example would be the new Whole Foods Market that was just constructed. What’s going away our small mom-and-pop shops, groceries, entertainment venues. Just small businesses, in general, are being pushed out for larger businesses because that’s what the new folks want.

From the above quote, participants seemed more concerned about how new big businesses had displaced small businesses from gentrifying neighborhoods in East Austin, insinuating the economic impacts of the process of gentrification at the microscale. The participants expressed some form of resistance against gentrification concerns; for example, one of them quipped: "I don’t patronize any of the new establishments that are coming."

6.2.2 Perception of health impacts of gentrification

We inquire about the benefits of gentrification regarding the physical changes in terms of landscape improvements (parks, road, safety) and economic benefits that accompany gentrification. Further, participants were asked to describe their views on how they think the process of gentrification could impact their health. One participant said, "I would generally say that it has not been beneficial in any way," and another person felt otherwise:

I think it has been beneficial because a lot of new stores have opened here because of gentrification. I know back in 2008 when I moved here. There weren’t that many new stores, and I would say it was like, there were no stores. There was like ‘One Dollar’ store and they had just opened some like restaurants. But there were, there wasn’t really anything new. Everything was really old, and then they open the new HEB. And so I think that was really beneficial because for a long time people in the area didn’t have HEB that was close by, but because that opened, people were able to get like food really easily and just unlike before they were going to like, I don’t know, like a small mom and pop grocery store before or like I don’t know the gas station to get milk or something which is a lot more expensive than going to an HEB.
However, when asked about the personal benefit of gentrification, one participant acknowledged how gentrification has contributed to improved neighborhood security and generally referenced reduced crime rate, as seen below:

Over the 13 years that I have been here, property crime has decreased. And I think that simply because there’s more people here than there used to be and more people who have more money, so there’s [a] less property-based crime because people are not in such tight financial situations that happen, …and negatively, Um, I have [had] lost most of the neighbors on my block that were here when I got here. That’s not cool.

The last conversation above highlighted the benefits and loss of social capital—a community resource that can be used to weather the negative influence of gentrification, especially for those with pre-existing chronic health conditions. A participant evoked another important conversation on how the process of gentrification could impact residents’ health. Participants felt that gentrification could increase longtime residents’ stress levels and thereby causing them some sort of health risk. Most of the elder participants in the IDIs indicated that gentrification makes them worry a lot, and those other older persons they have talked to also feel the same. Following the above conversation, the interviewer asked how participants think gentrification could potentially affect residents’ general health and wellbeing:

My physical health is fine. I guess I would say just yesterday; I was diagnosed with Inflammation in my colon. So that’s not good. I have a couple of other chronic health conditions, but they’re controlled by medicine. My mental health has been kind of a roller coaster my whole life. I have suffered from depression and anxiety for the last... more than 30 years, um, I recently and sometimes taken medication for that (mental health), and you know, it changes depending on how society is going [partly could be the current environment]. Right now, my mental health has been extremely challenged because of the pandemic [the pandemic could serve as a confounder], not because of my concern over contracting COVID-19 but the way in which it seems to be affecting everybody negatively. I still have to deal with people, and that has become increasingly difficult as of late.

Participants expressed mixed opinions on the impact of gentrification on health. Participants also demonstrated how gentrification could worsen things for residents in gentrifying neighborhoods who are already suffering from sickness in their conversation. One participant opined that gentrification could potentially contribute to their physical and mental health. In contrast, another participant felt that gentrification does not impact [her] health but instead suggested that it may cause stress to other low-income residents and not enough money to buy healthy foods and medication [confirming access to community resources in the quantitative study]. This perception coincides with Whittle et al. (2015) findings on the effect of gentrification among residents in gentrifying neighborhoods in San Francisco Bay.

Yeah, I think it is because it’s so expensive to pay rent, and it keeps on getting more and more expensive. And so, if you only have like $500 or $1,000 for your whole month and you have to keep on paying increased rent, then you have a lot less leftover at the end to pay, things like medical bills and healthy foods and medication. And so, it’s really easy to buy or try to buy cheap things, for example, fast food. And so that can cause obesity, and it can cause a lot of health problems over time. And so that’s probably making people a lot more sick[er] and not being able to afford like
going to see a doctor every year for like a checkup or going to see a dentist for [a] checkup that is also bad for your health. Definitely, if they already have some sort of sickness, having to sell their property and move away from their whole support system is definitely going to make that worse if they sell their property. The only place they’re going to be able to afford is in Round Rock or Buda, and they’re not going to be able to go to their usual Care provider anymore. That won’t be practical.

Existing evidence indicates gentrification erodes social capital in neighborhoods undergoing gentrification. Social capital or neighborhood ties could serve as a buffer for residents experiencing the impact of gentrification (e.g., increased tax and displacement). When participants were asked whether the loss of friends in the neighborhood could contribute to their health conditions, one participant responded with the following:

Oh yeah, I’m gonna have to go with probably. I mean, generally, it’s very disappointing to me what’s happening in my neighborhood. It’s hard to separate that out from my other mental health conditions. You know, I can’t say that’s what is causing it or not causing it, but it is certainly not making it any better. Gentrification is not improving my health.

While some scholars believe that local government adopts tree planting program to propagate gentrification (Alkon & Cadji, 2020; Anguelovski et al. 2019b, 2019a), residents felt gentrification reduces the numbers of urban trees which are meant to serve as a natural filter of some environmental pollutants and prevent direct reach of ultraviolet ray from the sun which may have an impact on the skin. One elderly participant gave a scenario where the city government is making efforts to overtake a green patch with the study area and convert it to residential or business land use.

Well, like I say, if trees are removed, then that makes the air quality go down, and then it makes it hotter. So that is stress, that is [a] health risk. Also, I’ve had some skin cancer. So, I mean, the last thing I want is less shade; I want more shade because I spent a lot of time outdoors. So that’s important to me and the air quality. And I think definitely [green spaces] better for the mental health of the residents... And so, when the city is trying to come in and rezone those areas and take a little pocket park, then that degrades the Mental Health Quality as well as the air quality in the neighborhood.

7 Discussion and conclusion

7.1 Contextualizing findings

Since Glass’s (1964) study in London, gentrification has become well recognized as an important socio-cultural and physical process. Place of residence, which tends to change based on various factors, including upstream forces such as capital reinvestment in the historically deprived neighborhood, is a determinant of health. This study examined the link between social determinants of health variables and self-reported chronic health conditions among residents in gentrifying neighborhoods. Thus, perceived gentrification and SR-CHCs differed by level of education. Consistent with the SDOH framework, participants
with less than high school education are significantly more likely to report a higher number of CHCs than those with a graduate degree. Findings from both bivariate and multivariate analysis were consistent, indicating that educational attainment and total household income were inversely correlated with SR-CHCs. Higher-income and educational attainment serve as protective factors in the report of an increased count of chronic health conditions. This finding shows the importance of social class in health outcomes (Sullivan, 2007; Ellen and O’Regan 2011; Ellen & Captanian, 2020).

Consistent with other findings from a mixed-method study of gentrification, the perception of gentrification among long and recent residents and race/ethnicity was not different. Sullivan (2007) assessed the residents’ opinion of neighborhood change using survey data and reported that race/ethnicity and years of living in the neighborhood did not predict perceived neighborhood change. The multivariate analysis indicates a significant association between black and report of chronic health but not with other racial/ethnic groups. The plausible explanation for the lack of difference in the burden of chronic health in this current study may be due to the fact that we combined various chronic health conditions. There is a possibility for different results when each of the health conditions is examined separately.

Although existing studies have focused on self-rated health (Gibbons & Barton, 2016; Izenberg et al. 2018), a body of literature indicates that gentrification has a significant impact on housing stock, particularly for the low-income resident because the housing units it brings are mostly not affordable for the low-income longtime residents which consequently determine health outcomes. According to a report by American Heart Association, health is affected by four important dimensions of housing: stability, quality and safety, affordability and accessibility, and neighborhood environment (Sims et al. 2020). It is also important to note that renters’ perception covered under the subsidized housing programs may differ from longtime homeowners because they may not feel the same pressure as the latter. This present study did not investigate how housing subsidies might cause variance in resident perception of gentrification. Future research will investigate and understand how longtime homeowners and renters perceive the health impact of gentrification, considering the possible influence of housing subsidies.

Though researchers have identified gentrification as an environmental stressor in neighborhood change literature (Shmool et al. 2015); however, the residents’ perception of neighborhood change might differ from researchers’, and the qualitative method helps explore this angle. The qualitative interview helps us understand how residents perceived their health in the changing built environment. The result from the quantitative analysis shows that perceived gentrification was associated with reports of chronic health. In the qualitative interview, participants acknowledged that the changing physical and socio-cultural environment could elevate stress. However, some participants who participated in the IDIs grappled with understanding how the process of gentrification could directly worsen or improve their health conditions. Previous studies have shown the social and physical/built environments could impact residents’ health. Researchers have raised concerns about the particularly adverse social stress arising from interpersonal and familial relationships compromised by the gentrification process. Gentrification is generally believed to weakens the social networks within the social environment, and this has implications on chronic physical and psychological health conditions (Waltz et al. 1998).

In the qualitative arm of this study, participants opined that the shift in the demographic landscape and SES to include people of high income might intensify financial difficulty because the low-income longtime resident—both homeowners and renters—are more likely to struggle with increased tax and rents. In San Francisco Bay, Whittle et al. (2015)
found that people living with HIV/AIDS in gentrifying neighborhoods find it difficult to eat and pay rents because a larger portion of their income goes to rents. A further plausible explanation for the relationship between income and report of multiple counts of SR-CHCs could mean that residents in a gentrifying neighborhood with high income may have better access to healthy food and health care services than those with low-income who may not be able to afford healthy foods and (financial) access to good health care. On a general note, based on the qualitative interview, the resident’s perception of gentrification’s probable effect on their health is unclear. Those whom we interviewed acknowledged some benefits of gentrification, such as reduced crime. However, they feel it may cause long residents some anxiety due to financial pressure and the likelihood of being displaced; a similar expression exists (Ellen & Captanian, 2020).

This study found a strong association between perceived gentrification and report of chronic health. The result indicates that gentrification may have widened the health disparity among residents in gentrifying neighborhoods. Residential gentrification is common in the minority community. Gentrification presents a challenge to communities that are trying to achieve economic revitalization without the disruption that comes with displacement. A major transformation is occurring in the most prosperous American cities like Austin. Displacement disproportionately impacted black and Hispanic residents who were pushed away before they could benefit from increased property values and opportunities in revitalized neighborhoods (Richardson et al. 2019). Additionally, low-income longtime residents are likely to face more stress if their socioeconomic position cannot match the newcomers. Thus, not only will longtime residents compete for spaces in their long-lived environment (Chaskin & Joseph, 2015; Dines, 2002), it will become a challenge to have access to resources such as health care due to socioeconomic stagnancy.

Furthermore, there is a current debate on the impact of environmental gentrification on health. Critics of gentrification argue that green projects facilitate the process of gentrification, which in turn leads to contentious local social relations, and may exacerbate health inequities (Anguelovski, Triguero-Mas, et al., 2019; Cole et al. 2017). Correspondingly, participants suggested that the removal of urban trees due to gentrification could affect mental health and can cause skin cancer. Anguelovski and colleagues (2019c) used qualitative data from Boston and Barcelona to comprehensively understand the link between gentrification and health. The authors found a range of potentially detrimental factors and potential pathways associated with gentrification, including individual-level physical and mental health outcomes such as obesity, asthma, chronic stress, and depression.

In light of the present findings, this study has some limitations which must be acknowledged. First, the study was based on a cross-sectional design, limiting the drawing of a causal relationship between variables. Second, this study is only limited to gentrifying neighborhood Austin, and since different conditions may lead to the gentrification process, results may not necessarily apply to other gentrifying neighborhoods elsewhere. Hence, more studies should be conducted at different locations to support findings from this study. Third, gentrification is a process that takes a long time to evolve and therefore requires a couple of decades of longitudinal data. In this study, we used residents’ perceptions to quantify neighborhood change that may be biased based on individuals’ subjective opinions. However, studies have suggested that resident perception is a quality measure of neighborhood characteristics (DeVylder et al. 2019; Sullivan, 2007). To mitigate these limitations, longitudinal data is best used to capture the historical aspect of individuals’ lives.

Despite the limitations mentioned, this study explored, probably for the first time, the concept of multiple CHCs within the changing urban environment. Before this present study, there is insufficient knowledge of the reports of residents’ multiple chronic health
conditions in gentrifying or gentrified neighborhoods in the United States. A study on the prevalence of multiple chronic conditions needs to be brought forward in public health intervention research. Lastly, policy intervention targeting individuals rather than area-based solutions for tax assessment should be based on individuals’ evaluation to reduce the burden of living in gentrifying neighborhoods, especially longtime residents who wish to continue to stay.

8 Conclusion

Based on survey data and in-depth interviews, this study showed that perceived gentrification is associated with the report of chronic health conditions. The IDIs provides complementary evidence of how the process of gentrification increases stress and exacerbate existing health condition due to economic hardship it has on low-income residents. However, access to community resources reduces the impact of gentrification on the report of chronic health. Thus, access to community resources re-echoed the need to bridge social and economic inequality and serves as an intervening opportunity for addressing social and health inequality among urban residents. This study also found no difference in the report of CHCs among different racial/ethnic groups in our study, which instead suggests the importance of socioeconomic status rather than race/ethnicity in understanding health disparity within the urban settings. Our study sets a stage for research investigating the link between gentrification and chronic health condition disparities and therefore calls for more study to investigate the link between gentrification and chronic health conditions for public health intervention in gentrifying neighborhoods.

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Declaration

Conflict of interest The authors declare that they have no conflict of interest.

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