COMMENTARY AND DEBATE

Gentrification and health in two global cities: a call to identify impacts for socially-vulnerable residents

Isabelle Anguelovski a,b,c,d, Margarita Triguero-Mas a,b,c, James JT Connolly a,b,c, Panagiota Kotsila a,b,c, Galia Shokry a,b,c, Carmen Pérez Del Pulgar a,b,c, Melissa García-Lamarca a,b,c, Lucia Argüelles a,b,c, Julia Mangione a,b,c, Kaitlyn Dietz a,b,c and Helen Cole a,b,c

* UAB - Universitat Autònoma de Barcelona, Barcelona, Spain; † ICTA - Institute for Environmental Science and Technology, Barcelona, Spain; ‡ MIM - Medical Research Institute, Hospital del Mar, Barcelona, Spain; ‡ICREA - Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain

ABSTRACT

In global cities, the impacts of gentrification on the lives and well-being of socially vulnerable residents have occupied political agendas. Yet to date, research on how gentrification affects a multiplicity of health outcomes has remained scarce. While much of the nascent quantitative research helps identify associations between gentrification and determined health outcomes, it tends to draw from static datasets collected for other studies to draw a posteriori and non-longitudinal conclusions. There is little attention in traditional public health research to purposely understand the health impacts of the complex, multi-layered, and rapid change produced by gentrification. Moreover, few studies examine the pathways and socio-spatial dynamics of the association between gentrification and health. In response, we use qualitative data collected in Boston and Barcelona to comprehensively identify how the health and well-being of long-term residents may be affected by gentrification and to call for new multi-methods research. In this initial assessment, we find a range of potential detrimental factors and potential pathways associated with gentrification, including individual-level physical and mental health outcomes such as obesity, asthma, chronic stress, and depression; neighborhood-level health determinants such as safety and new drug-dealing/use; and institutional-level health determinants such as healthcare precarity and worsened school conditions.

In global cities such as Chicago, Seattle, Vienna, or Barcelona, concerns over gentrification – transformations in a neighborhood built, retail and social environment together with changes in demographic composition toward higher socio-economic or ethnic status residents – have moved to the top of local political agendas. Mass tourism, short-term housing, real estate (re)development and speculation, and even green interventions (Anguelovski et al. 2018b) are all contributing to gentrification through increased cost of living and consequent displacement of long-term, low-income, working- or middle-class, and minority residents (Lees et al. 2015).

Yet, progressive policy-makers are often constrained by legacies of segregation and inequalities, supramunicipal regulations, real estate investors and tourism businesses who demand and/or promote urban revitalization and the ‘clean-up’ of disinvested neighborhoods in the name of increased tax revenue and profits. (Fullilove 2004, Fullilove and Wallace 2011) And while some revitalization schemes may enhance neighborhood conditions, services, property values, and quality of life (Freeman 2011) for some, regeneration targeting these benefits – as previous studies and reports argue – is often followed or accompanied by gentrification, thus seldom providing equitable outcomes for socially-vulnerable residents. This process of inequitable regeneration is especially acute in global cities, that is in cities embedded in flows of international investments, transactions, and movements of citizens – which all undermine housing affordability and affect public and open/green space access (among others) for long-term residents (Smith 2002, Slater 2006, Lees 2012). Yet, to date, research on how gentrification affects a multiplicity of health outcomes for residents who tend to be more socially vulnerable and traditionally experience worse health has remained scarce. Furthermore, existing research does not empirically investigate the pathways connecting gentrification to health.

A need to move beyond existing research on neighborhood environments and health

Public health researchers have long acknowledged the importance of neighborhood-level physical and social environments – including public transport, social networks, disorder, crime, economic structure, or level of unemployment in a neighborhood – for

CONTACT Isabelle Anguelovski Isabelle.Anguelovski@uab.cat www.bcnuej.org Barcelona Lab for Urban Environmental Justice and Sustainability, Universitat Autònoma de Barcelona, ICTA - Institute for Environmental Science and Technology, IMIM - Medical Research Institute, Hospital del Mar, Carrer del Dr. Aiguader, 88, Barcelona 08003

This article has been republicated with minor changes. These changes do not impact the academic content of the article.

© 2019 Informa UK Limited, trading as Taylor & Francis Group
health (Kawachi and Berkman 2003, Sampson 2003, Hill et al. 2005, Roux and Mair 2010, Fullilove and Wallace 2011, Acevedo-Garcia et al. 2014). For instance, neighborhood disorder has been associated, among others, with poorer sleep quality and psychological distress (Hill et al. 2005). Some quantitative studies have also begun to analyze the associations between gentrification and health, acknowledging the importance of a multi-layered, dynamic, and changing neighborhood social environment on the health of populations, and subpopulations, finding generally that the gentrification processes were linked with better health for privileged groups, while showing no association or negative associations for vulnerable populations (Huynh and Maroko 2014, Gibbons and Barton 2016, Smith et al. 2017, Izenberg et al. 2018a, 2018b, Cole et al. 2019).

These findings point to a need to expand our conceptualization and understanding of neighborhood effects – including gentrification – on health to include a more dynamic and multi-layered depiction of neighborhood environments and how they shape health and wellbeing. Particularly, attention has been drawn to a full accounting for the ways that broad political and social-spatial context shapes the continual evolution of neighborhood environments (Sampson 2003, Acevedo-Garcia et al. 2014). While it is well understood that the interplay between structural context and neighborhood environments generates uneven health impacts when it leads to sustained poor conditions in certain neighborhoods, it is not often acknowledged that there also may be health impacts when this interplay leads to a rapid shift toward the preferences of higher socioeconomic status gentrifying residents.

Moreover, while valuable for understanding specific trends of associations, including psychological and physiological distress or depressive symptoms, much of the nascent research on gentrification and health uses static datasets, with data collected for other purposes than understanding the relationship between gentrification and health, to draw a posteriori and non-longitudinal conclusions about the associations between gentrification and determined health outcomes, including pre-term birth or self-rated health for minority residents (Huynh and Maroko 2014, Gibbons and Barton 2016). To our knowledge, no formal test of potential pathways through which associations become visible has been undertaken. Furthermore, public health research generally relies on secondary measures of gentrification and may miss important aspects of neighborhood change detected only through inclusion of the perceptions of neighborhood residents, community activists, and health workers.

In response, this short paper contributes preliminary empirical insights into the complex neighborhood processes and socio-spatial dynamics which long-term residents and workers of gentrifying neighborhoods perceive and/or experience as affecting long-term residents’ health. We focus this initial analysis on Barcelona’s Ciutat Vella and Boston’s East Boston – two neighborhoods in global cities undergoing acute gentrification.

East Boston has historically hosted a high proportion of working-class immigrant Latino and Italian residents. For most of the 20th century, the neighborhood suffered from noise and water contamination from industrial activities along the Boston Harbor, the Chelsea Creek and the nearby Boston Airport as well as, most recently, climate-induced coastal flooding (Douglas et al. 2012). Yet, recent municipal, State, and non-profit efforts have improved environmental quality and access to new green space through the clean-up of the waterfront, new green space development such as Lopresti Park (Figure 1(a)), and climate-resilient green infrastructure, such as Piers Park II or the East Boston Greenway (Figure 1(b)). Today, those amenities are also increasingly linked by local activists and researchers to risks of environmental or climate gentrification.\(^4\) In addition, over the last 5–7 years, East Boston received a large influx of young upper-class residents working in the technology and financial industries living in new high-end luxury condos, combined with the growth of short-term apartment rentals for visitors and tourists (Figure 1(c,d)),\(^5\) all contributing to soaring housing costs\(^6\) and real estate development-driven gentrification concerns among residents.\(^7\)

Barcelona’s Ciutat Vella has also traditionally welcomed waves of immigrants, mostly working-class residents of Latino, North African, and Pakistani origin, although it has also been a tourist destination and, most recently, a living destination for new high-income foreign residents and tourists from Northern Europe and North America (Degen and García 2012). In the 1990s and 2000s, several municipal plans of neighborhood regeneration demolished several streets of the Raval and Sant Pere/Santa Caterina areas to create public spaces and cultural centers (i.e. Barcelona Museum of Contemporary Art), rehabilitate markets (i.e. Santa Caterina), improve road, sewage, or electricity, infrastructure, pedestrianize streets, or create new social housing, although displaced residents far outnumbered rehoused residents (Anguelovski 2014, Arbaci and Tapada-Berteli 2012). Since the early 2000s up to the current post-economic crisis period, Ciutat Vella also saw the mobilization of neighborhood movements against gentrification, in favor of new community-managed public and green spaces (including community gardens (Figure 2(a)) and outdoor sports and recreational spaces Figure 2(b,c), improved access to social housing, and control of mass tourism (Figure 2(d)) (Anguelovski 2014, Hughes 2018).

Our initial research findings draw on municipal reports, 30 semi-structured and unstructured interviews, observations and participant observation in both cities, most of which were conducted as part of a larger research
study on urban greening and equity and green gentrification in 25 cities within the European Research Council (ERC) project, GreenLULUs. Fieldwork in other cities is ongoing and broader results are expected to be written by 2020 using qualitative and quantitative/spatial analysis. Interview instruments were designed upon preliminary field work and after multiple rounds of instrument design and testing among the team researchers. Interviews took place in 2018 and 2019 among residents and activists, health care professionals, and members of community organizations, whom we selected through snowball sampling techniques, following widely-used practices of identifying initial respondents via expert or key stakeholder contact and building out of this list. Each of our respondents has a long-time history of working or/and living in each neighborhood and among long-term residents. We conducted multiple rounds of observation and/or participant observation (for instance in public parks or public meetings) to triangulate interview responses. Because of the limited length of this paper, we only include selected interview quotes, although the pathways and trends we present draw on our full data analysis. In addition, we cite ongoing relevant discussions presented in the grey and popular media.

In this initial assessment, we present the range of impacts by classifying them by individual-level health outcomes, neighborhood-level health determinants, and institutional-level health determinants (See Figure 3).

The fragility of individual health

Our respondents’ account of how mental and physical health is affected by living in gentrifying neighborhoods complicate traditional understandings of the health effects of neighborhood improvements accompanying gentrification such as becoming greener, more livable, and more walkable. While all these features are associated with improved health, we see here that there is more to the picture than traditional epidemiology studies reveal (Triguero-Mas et al. 2015, Nieuwenhuijsen 2018) and can be linked to what is known as green gentrification (Anguelovski et al. 2018).

Mental health concerns

First, gentrification illustrated by increased real estate and tourism speculation and pressures seems to contribute to chronic stress, depression, and suicidal thought patterns among residents threatened by eviction and displacement in both neighborhoods. In the Ciutat Vella of Barcelona, residents and community organizations we interviewed reported having or

Figure 1. Overall title: ‘Boston: New green and play spaces and adjacent high-end condominium development in East Boston’. (a) Lopresti Park. (b) East Boston Greenway. (c,d) New high real estate development and large-scale construction project.
treating frequent anxiety and depression, particularly those faced with sudden and abrupt rent increases or direct evictions when foreign investors buy entire buildings on revitalized and gentrified streets/blocks. A recent study (Palencia et al. 2016) supports this connection with a finding that 84% of men and 91% of women under threat of displacement have poor mental health, including anxiety and depression. In East Boston, residents also directly report anxiety and depression, especially so youth who suffer from the fear of their families being displaced because of rent increases, increases in short-term rentals for visitors and tourists, and, overall, because of life opportunities fading away. A community organization leader describes the health impacts of gentrification on their youth constituency: ‘They’re stressing out. We have had in the past three years a massive increase in the amount of discussion around suicide here and people feeling suicidal and talking about that and we’ve had to get training for our staff around that. […] We’ve worked with the East Boston Health Center Trauma Team to train our staff.’ (Respondent 1). Such finding complements recent work by US CDC researchers whose research highlighted that housing loss constitute a significant crisis that can ‘precipitate suicide’ among affected residents (Fowler et al. 2015).

These reported concerns about gentrification and how residents experience it have added importance for immigrants due to the specific vulnerabilities they face in the US, and increasingly in Europe. In East Boston, many immigrants or refugees are particularly fearful of displacement pressures due to soaring rental costs, or if they have already been displaced by war or conflict, constituting double trauma. With recent stricter immigration laws, immigrant families often decide to ‘self-evict’ to avoid the courts and a possible eviction record. Moreover, even documented immigrants explained that they rarely denounce abusive landlords for fear of retaliation that would affect their immigration status, and link those fears with self-esteem, feelings of unworthiness, and overall mental health impacts.

Similarly, residents and community organizations also report socio-cultural displacement and erasure (Fullilove and Wallace 2011), that is experiences of not belonging, not feeling part of a place or a community. Many long-term families interviewed East Boston and Ciutat Vella mention that children often feel unwelcome in the public spaces, playgrounds, and green spaces upon which they tradition-ally relied, due to the high presence of newcomers and their new practices in public/green spaces. In
East Boston, community organizations explain that youth are starting to avoid new or renovated green spaces and sportsgrounds, such as the Lopresti Park, because they feel out-of-place. Our field observations reveal that such trends tend to increase risk of social isolation and degrade the neighborhood fabric and residents’ traditional uses of public spaces and nature, with undeniable mental health (and possible long-term physical health) impacts.

**Physical health issues**

Respondents also mention gentrification as a contributing factor to worse physical health. First, in East Boston and Ciutat Vella, many residents report sleep deprivation from air and noise pollution, much of it linked to uncontrolled real estate construction and, in other cases, to noisy visitors and tourists. Second, in Boston, East Boston Health Center workers also report increased rates of patient asthma associated with uncontrolled building construction and/or faulty housing maintenance by landlords eager to sell or rent future renovated units to higher-income gentrifiers.

One respondent explains: ‘Now with the new building, the concern is not the building themselves, but the sites you are digging up – the quality of the soil and what is going through the air’ (Respondent 2).

Additionally, food gentrification is also noted to be associated with poor health outcomes because residents may encounter greater difficulty to buy fresh affordable food. In gentrifying areas, residents might be faced with the combination of both food deserts – areas with little or no availability of fresh and affordable food – and food mirages – areas with more or new fresh and healthy food stores but that are too pricy for local long-term residents (Joassart-Marcelli and Bosco 2018). In East Boston in particular, healthcare workers reported that youth and adults’ cardiovascular disease and obesity rates are raising, in part because of what they witness as poor eating behaviors exacerbated by high stress and the difficulty to afford fresh food due to gentrification processes. Those interviewed pointed out that these trends are of particular concern because neighborhood improvements related to fresh food provision combined with preventive health care programs (i.e. obesity-related programs) in the 2000s had managed to curb rising obesity.

**Neighborhood-level determinants of health**

The most flagrant factors reported relate to the neighborhood social environment, including drug consumption, drug dealing, and violence, which, incidentally,
runs counter to some gentrification research on the benefits of gentrification (Freeman 2011), especially in reducing crime, although the relationships remain difficult to fully uncover (Papachristos et al. 2011).

**Increased drug-dealing and consumption**

The growing presence of drug dealing or/and consumption was reported by residents, police officers, and health organizations in both cities. In East Boston, a police officer explained that dealers frequently go to new luxury buildings to sell their drugs and that drug consumption has increased in local parks. “They did an all new soccer field and waterpark, basketball court, but you can’t go, you can’t play there at night, that’s where [...] the [new] people drinking and doing all their stuff are on it” (Respondent 3). In Ciutat Vella, the areas of Sant Pere/Santa Caterina have legal marijuana ‘clubs’ – many of which attract tourists – and many other illegal ones. As several media also reported in 2018, many visitors consume drugs or alcohol in new parks, during the same hours when children are playing. This public consumption debilitates structures of informal social care and collective child care and limits opportunities to use public space among residents: either to socialize or to be physically active. Similar concerns and fears are reported for and by elderly residents. In these contexts, drug use plays a dual role: those drawn to gentrifying neighborhoods by the drug culture generate new impacts for those living there and drug use particularly is reported as increasing among vulnerable residents by community workers because of their higher difficulty in dealing with constant stress and insecurity.

**Street and home insecurity**

Frequently reported unruly social attitudes and behavior – sometimes by gang members selling drugs to tourists or to new wealthy residents and, other times, by gentrifiers or tourists (tourists for Barcelona) – is causing fear and overall insecurity according to residents in both neighborhoods. Families mention changing their routes to avoid certain streets and having witnessed fights between dealers. A school parent in Ciutat Vella reported: ‘I have to avoid certain streets because of fights between youth who are either drugged or deal drugs. Neighbors had organized to improve the neighborhood, to make it greener and more livable. Now, we have this crazy contrast between families leaving because they can’t afford rents, living among tourists and wealthy speculators, and, on the other hand, others are leaving because they can’t take the fights or the drugs anymore’ (Respondent 4).

In Barcelona, narcopisos (‘narco-flats’) are also growing in the Ciutat Vella, mostly due to vacant speculated-upon bank- or investment fund-owned flats since the 2008 real estate crisis. Between 2008 and 2017, at least 80,000 evictions have been ordered in the province of Barcelona, leaving thousands of flats in the hand of banks and investment funds, many of which are being held for speculation as neighborhoods gentrify. In the Raval section, at least 50 narco-flats were identified in 2018 in a hotspot (Gutiérrez and Domènech 2018) of empty bank-owned flats. Despite recurring calls from the city administration, banks and speculative funds which have taken ownership of many foreclosed apartments since 2008 engage in what is known as property mobbing, that is harassment of residents to evict them before rehabbing buildings for wealthy foreigners in a process of planned gentrification.

Additionally, residents and police officers report that, linked to mass tourism and new wealthier residents, petty street theft and house break-ins have increased in East Boston and in Barcelona. Those trends are confirmed by reports: In the Old Town of Barcelona, violent theft has increased by 50% from summer 2017 to summer 2018, while larceny has increased by 35% in East Boston from 2017 to 2018.

**Poor traffic safety**

Finally, residents explain that they are also faced with increased risk of injury due to traffic accidents resulting from chaotic traffic. In Barcelona, tourists’ and visitors’ use of electric scooters and bikes (even next to schools and zipping around tight streets) are also reporting increasing collisions and accidents, especially for children and the elderly. In East Boston, similar threats presented by gentrifiers with luxury cars have been reported by the local police we interviewed.

**Institutional-level determinants of health**

Changes in access to essential institutions, such as healthcare facilities and services and schools, present another pathway by which gentrification may affect long-term residents’ health.

**Fragile and incomplete health care**

Anxiety and chronic stress combined with increased financial strain for residents also affect healthcare and care delivery. A recent study from New York City demonstrates that residents displaced from gentrifying neighborhoods were almost twice as likely to make emergency room visits, or to be hospitalized, primarily for mental health problems, compared to those who were not displaced (Lim et al. 2017). Yet, in the US, and even in Spain, which has a universal healthcare system, many healthcare coverage plans do not offer mental health provisions.

In East Boston, healthcare providers and community health workers explained that families who suffer
from financial stress are often being forced to choose between paying for healthcare or rent. Consequently, many increasingly resort to the local community health center for emergency visits rather than primary or preventive care. As a community health center staff member explains, ‘If folks have to move further away, it’s our job to help these people manage these conditions. We are trying to respond to this by opening up more satellite services to better serve patients’ (Respondent 5). Combined fear and discouragement cause disruptions to the continuity of care necessary to provide adequate control of chronic conditions or treatment.

Residents of gentrifying neighborhoods also face challenges in seeking continuous care due to disruptions in the availability of services, particularly those serving under- and un-insured residents in the US. Respondents in East Boston declared that public health care facilities – federally-qualified community health centers in particular – are under stress when they themselves are confronted with increased rent; when health care might be discontinued as patients are forced out of their neighborhoods; and when increased traffic and density in gentrified neighborhoods create access issues for care workers who suddenly face longer commuting times. In Ciutat Vella, public health workers report losing funding from the Catalan government or having a higher patient load as their neighborhood recently became ranked as less ‘socio-economically complex’ – meaning as ‘gentrifying.’ This increased burden is accompanied by medical staff-reported impacts on care for elderly, immigrant, and lower-income residents. In contrast, private health centers or facilities are sprouting up in gentrifying neighborhoods, exemplifying what has been termed ‘healthcare gentrification.’

**Concerns over public education and safety of school environment**

Last, quality and continuity of education is also affected by gentrification and displacement (and by increased street insecurity), with potentially accrued impacts on children’s health and wellbeing. In the Ciutat Vella, the Cervantes school reported losing 40 families during summer 2018, that is 18% of its families – either because of insecurity issues or high housing prices. One parent explained: ‘Our rental contract ends in 6 months, we don’t know whether we will be able to stay because we are the only family remaining in the whole building. Some private investors have bought all the flats […]. If they kick us out, then we would have to move neighborhoods and schools, maybe in the middle of the year’ (Respondent 6). In both cities, as explained by families themselves and community workers, families have had to relocate to new neighborhoods or schools, contributing to stress, trauma, and anxiety for both parents and children.

Some even compare such school relocation to helping children, parents, and families address griefing. One school administrator in the Ciutat Vella states: ‘We have to work through the theme of mourning, with teachers and with families. When they move schools and/or have to leave their home, for them it’s a loss. Loss is not only about death. But it’s about loss of school, teachers, community. A mother has to leave the flat and can’t find anything in the neighborhood. She even has to leave the city, in the middle of the year. Kids were crying when she told them. Now she is so frozen she can’t even work. It’s a trauma for them. The kids are doing terrible’ (Respondent 7).

This turnover rate brings down local public school ratings, thus jeopardizing their budget and ability to provide adequate services and education. Many of these schools see their reputation affected, are closing or become forced to compete with charter or private schools which in turn attract new gentrifiers, feeding the gentrification wheel. This trend, where gentrification-oriented upgrading ‘stops at the schoolhouse door’ when it counter-intuitively degrades local school environments is seen in many other rapidly gentrifying cities.

School closures can also signify new indirect exposure to violence. In other US cities, school closures have been reported to endanger the lives of kids having to walk through more dangerous areas to get to school. School closures also cause many families to lose access to school green spaces and playgrounds that remained open to the public after hours.

**Next steps for research and policy**

In sum, our initial field findings about health and wellbeing of long-term residents affected by gentrification reveal a multiplicity of impacts (Figure 3) – some of them severe and rather unexpected – and call for urgent research and policy action. Those include individual physical and mental health outcomes shaped by neighborhood-level (i.e., drug dealing and consumption; street and home insecurity; and traffic safety) and institutional-level determinants (i.e., access to health care and public schools), and related with inter-personal factors and pathways (i.e., social-cultural erasure; multiple forms of trauma; or lesser physical activity and social contact).

These impacts points to the need for additional research, since the number of neighborhoods we studied remains limited and qualitative research does not allow to quantify trends. In our research’s next steps, we are examining the following questions: What is the magnitude and scope of the gentrification-related health impacts, especially for different population groups, including minority, immigrant, elderly,
children, and female residents? What is the full range of objective and subjective neighborhood changes related with gentrification that affect health? What is the interplay between neighborhood environmental interventions and gentrification in terms of health impacts (Cole et al. 2017, 2019, Anguelovski et al. 2018a), and how do those further shape the well-being and life opportunities of long-term residents?

Those novel findings encourage us – and hopefully other multidisciplinary teams of researchers and planners – to develop extended research and evaluation which involves a comprehensive response to these questions. We also call here for greater examination and comparison of gentrification drivers (urban greening, tourism, artist-based, or real estate development gentrification), and their impact on residents’ long-term health in a greater number and diversity of global cities across the US and Europe, two regions where nascent gentrification and health research has taken place and where several city governments – from Seattle to San Francisco, Boston, Washington, Manchester, or Barcelona – are working to address displacement due to gentrification.

There is also a need for mixed methods studies purposely designed to investigate gentrification and health. Here, qualitative methods are most suited to fully understand the ways in which the cultural, social and even physical displacements bounded with gentrification affect one’s daily neighborhood experiences – and health – and uncover how different planning processes, urban transformations, and neighborhood built environments differentially affect health. Moreover, quantitative methods are needed through case control or longitudinal cohort studies to quantify the impacts of gentrification.

Currently, hopeful policy initiatives to address the negative impacts of gentrification for long-term residents include social housing quotas and turning unoccupied bank-repossessed properties into affordable housing in Barcelona or Philadelphia Land Bank’s vacant lot scheme designed to ‘preserve and enhance affordability,’ although many remain insufficient to address widespread displacement trends. Public action must also value local ways of life and identities when (re)developing neighborhoods, rather than succumbing to tourist uses and fleeting gentrifiers’ tastes. There must thus be a focus on interactional and recognition justice (Kabisch and Haase 2014) or the ways amenities and spaces are actually being valued and used by residents, beyond just a focus on participation or better distribution of amenities.

Last, we call for genuine cooperation between public entities and institutions from different sectors and at different territorial levels to ensure that public authorities do not ignore long-term and vulnerable residents, and through mechanisms like community-based organizations (Pastor et al. 2018) are able to create equitable, healthy, and livable urban spaces.

Notes
1. See for example in Barcelona: https://ajuntament.barcelona.cat/alcaldeasa/en/noticia/common-front-by-world-cities-to-combat-gentrification_573419.
2. https://www.wsj.com/articles/middle-class-families-feel-more-squeezed-by-rising-u-s-rents-1462738692.
3. https://globalboston.bc.edu/index.php/home/immigrant-places/east-boston/.
4. https://www.wbur.org/earthwhile/2019/05/02/moakley-park-east-boston-climate-resiliency.
5. https://northendwaterfront.com/2018/04/extinction-events-and-airbnb-there-goes-the-neighborhood./6. https://boston.curbed.com/boston-development/2018/7/26/17616206/east-boston-new-development-moratorium.
9. http://mitsloan.mit.edu/newsroom/articles/new-study-gentrification-triggered-16-percent-drop-in-city-crime/.
10. https://www.tourinews.es/resumen-de-prensa/notas-de-prensa-espana-turismo/turistas-acampan-en-la-barceloneta-entre-suciedad-y-drogas_4449746_102.html
11. https://www.lavanguardia.com/local/barcelona/20180809/451261804567/acampada-parque-barceloneta-drogas-botellon.html
12. https://www.lavanguardia.com/local/barcelona/20180914/451798456626/colau-buch-discrepan-nar-copios-ciutat-ve talla.html
13. https://elpais.com/elpais/2018/02/19/inenglish/1519026164_598479.html.
14. https://elpais.com/elpais/2018/08/09/451261804567/acampada-parque-barceloneta-drogas-botellon.html
15. https://www.lavanguardia.com/local/barcelona/20180919/451895906402/delitos-ciutat-ve talla-robes.html
16. http://eastetimes.barcelona/2018/10/13/crime-is-up-slightly-in-easie-police-explain-why/.
17. https://www.usnews.com/news/articles/2015/02/20/how-gentrification-is-leaving-public-schools-behind.
18. https://www.theatlantic.com/education/archive/2018/03/is-school-choice-contributing-to-gentrification/555845/.
19. https://grist.org/cities/gentrification-doesnt-fix-inner-city-schools/; https://www.theatlantic.com/business/archive/2015/10/gentrification-schools/408568/.
20. http://www2.philly.com/philadelphia-news/education/mansion-hs-closing-philadelphia-gentrification-school-district-20180604.html
21. http://www.msnbc.com/msnbc-2.
22. https://www.citylab.com/equity/2018/04/barcelona-is-taking-over-repossessed-homes/558239/.
23. http://www.philadelphialandbank.org.

Data Availability Statement
The data presented here is part of a broader dataset collected for the ERC funded project called GreenLULUs. The data is unfortunately not available upon request. Data is not available due to confidentiality agreements with the participants of this study.

Disclosure statement
No potential conflict of interest was reported by the authors.
Funding

This work was supported by the European Research Council [GA678034], by the Spanish Ministerio de Ciencia, Innovación, y Universidades [JCI-2016-31100; FJCI-2016-30586; FJCI-2017-33842; and MDM-2015-0552.

Notes on contributors

Prof. Isabelle Anguelovski is the director of BCNUEJ, an ICREA Research Professor, a Senior Researcher and Principal Investigator at ICTA-UAB, and coordinator of the research group Healthy Cities and Environmental Justice at IMIM. Trained in Urban Studies and Planning (MIT, 2011), her research examines the extent to which urban plans and policy decisions contribute to more just, resilient, healthy, and sustainable cities. The current ERC-funded project she coordinates, GreenLULUs, explores the extent and magnitude of environmental gentrification in 40 cities as well as civic mobilization to address physical and socio-cultural green displacement and create greater urban green equity.

Dr. Margarita Triguero-Mas is Co-Coordinator of the urban environment, health and equity research area of BCNUEJ and member of the research group on healthy cities at UAB-ICTA-IMIM, where she also holds a Juan de la Cierva-Formación Fellowship. She is an environmental and public health scientist trained in urban planning, environmental epidemiology, environmental justice and mixed methods. Her research focuses mainly on (i) natural outdoor environments (but also on air pollution, transport and climate), (ii) gentrification, (iii) mental health, (iv) vulnerable populations. Before her current position, she was a researcher at Barcelona Institute for Global Health (ISGlobal).

James JT Connolly is Co-Director of BCNUEJ and Juan de la Cierva-Incorporación Fellow at ICTA-UAB. He is a social scientist trained in urban planning and geography with specializations in spatial analysis and urban social-ecological conflicts. His research is supported by the US National Science Foundation, the European Research Council, the US National Social-Environmental Synthesis Center, and others. Before his current position, he was Assistant Professor at Northeastern University in Boston and Resident Fellow at the Northeastern Humanities Center.

Dr. Panagiota Kotsila is a postdoctoral researcher at ICTA-UAB and BCNUEJ. Her research examines the unequal distribution of risk, affecting livelihoods, health and well-being, and how the very concepts of risk, health and well-being are constructed, mobilised and interpreted through and for power. Her recent work critically studies different forms of urban greening/re-naturing and the way interventions inform (in)justice in cities. She is also a member of the WEGO EU network for feminist political ecology and the UAB PI on the WEGO project.

Galia Shokry is a doctoral researcher at ICTA-UAB and BCNUEJ. Her research focuses on how current approaches to urban climate risk and resilience relate to socio-political vulnerabilities to displacement and what practices to protect cities and livelihoods mean for equity, inclusion and wider structural transformation. She has an MSc from the Department of Sociology of the London School of Economics, a Master of Urban Studies and Planning from the École d’Urbanisme de Paris.

Carmen Pérez del Pulgar is a doctoral researcher at ICTA-UAB and BCNUEJ. Her research focuses on the inclusiveness and environmental justice of urban spaces. She explores the political and social production of green-playful entanglements in cities and questions how conflicting discursive, affective and material registers of green and child friendly cities become populated, renegotiated and fragmented through everyday urban spaces by race, gender and class. She holds an MSc in Human Geography from the Universiteit van Amsterdam and a Bachelor in Political Science from the Universidad Complutense de Madrid.

Melissa García-Lamarca is a postdoctoral researcher at ICTA-UAB and BCNUEJ. Her research seeks to untangle the structures and channels through which political economic processes generate urban inequalities, as well as how collective urban struggles can disrupt the inglorious status quo and open up new alternatives. A geographer by training, she is particularly concerned with issues related to housing injustice, as both a researcher and an activist.

Lucia Argüelles is an affiliated researcher at ICTA-UAB and BCNUEJ. Her research focuses on how socio-environmental transformations interact with broader political and economic dynamics as well as how people imagine and perceive such relations. In her Ph.D. dissertation at ICTA-UAB, she studied the power and privilege dynamics entangled in the emergence and consolidation of the alternative food networks with case studies in Europe and US.

Julia Mangione is an affiliated researcher at ICTA-UAB and BCNUEJ. She holds a dual MSc in International Cooperation in Urban Development from the Technische Universität Darmstadt and in International Cooperation in Sustainable Emergency Architecture from the Universitat Internacional de Catalunya. Her research focuses on the impacts, opportunities, and challenges of social and spatial factors in cases of environmental racism and corresponding environmental justice movements in California.

Kaitlyn Dietz is an affiliated researcher at ICTA-UAB and BCNUEJ and holds a dual MSc in International Cooperation in Urban Development from the Technische Universität Darmstadt and in Sustainable Emergency Architecture from the Universitat Internacional de Catalunya through the Mundus Urbano program. Previously, she completed a BSc in Architectural Engineering from the University of Texas at Austin with high honors. Her research focuses on a spatial analysis of community mobilization around the right to housing.

Dr. Helen Cole is a postdoctoral researcher at BCNUEJ, ICTA-UAB, and IMIM and Co-Coordinator of the urban environment, health and equity research area of BCNUEJ. Her research explores whether, and how, healthier cities may also be made equitable, placing urban health interventions in the context of the broader urban social and political environments. She holds a Doctorate in Public Health from the City University of New York Graduate Center/Graduate School of Public Health and Health Policy and an MPH from the University of North Carolina at Chapel Hill.

ORCID

Isabelle Anguelovski http://orcid.org/0000-0002-6409-5155
Margarita Triguero-Mas http://orcid.org/0000-0002-1580-2693
James JT Connolly http://orcid.org/0000-0002-7363-8414
References

Acevedo-Garcia, D., et al., 2014. The child opportunity index: improving collaboration between community development and public health. Health affairs, 33 (11), 1948–1957.

Anguelovski, I., 2014. Neighbourhood as refuge: environmental justice, community reconstruction, and place-remaking in the city. Cambridge: MIT Press.

Anguelovski, I., et al., 2018a. Do green neighbourhoods promote urban health justice? The lancet-public health, 3.

Anguelovski, I., Connolly, J., and Brand, A.L., 2018b. From landscapes of utopia to the margins of the green urban life: for whom is the new green city? City, 22 (3), 417–436.

Arbaci, S. and Tapada-Berteli, T., 2012. Social inequality and urban regeneration in Barcelona city centre: reconsidering success. European urban and regional studies, 19 (3), 287–311.

Cole, H.V.S., et al., 2017. Are green cities healthy and equitable? Unpacking the relationship between health, green space and gentrification. Journal of epidemiology and community health, 71 (11), 1118–1121.

Cole, H.V.S., et al., 2019. Determining the health benefits of green space: does gentrification matter? Health & place, 57, 1–11.

Degen, M. and Garcia, M., 2012. The transformation of the ‘Barcelona model’: an analysis of culture, urban regeneration and governance. International journal of urban and regional research, 36 (5), 1022–1038.

Douglas, E.M., et al., 2012. Coastal flooding, climate change and environmental justice: identifying obstacles and incentives for adaptation in two metropolitan Boston Massachusetts communities. Mitigation and adaptation strategies for global change, 17 (5), 537–562.

Fowler, K.A., et al., 2015. Increase in suicides associated with home eviction and foreclosure during the US housing crisis: findings from 16 national violent death reporting system states, 2005–2010. American journal of public health, 105 (2), 311–316.

Freeman, L., 2011. There goes the hood: views of gentrification from the ground up. Temple University Press.

Fullilove, M., 2004. Root shock: how tearing up city neighborhoods hurts America, and what we can do about it. 1st. New York: One World/Ballantine Books, 292.

Fullilove, M.T. and Wallace, R., 2011. Serial forced displacement in American cities, 1916–2010. Journal of urban health, 88 (3), 381–389.

Gibbons, J. and Barton, M.S., 2016. The association of minority self-rated health with black versus white gentrification. Journal of urban health, 93 (6), 909–922.

Gutiérrez, A. and Domènech, A., 2018. The mortgage crisis and evictions in Barcelona: identifying the determinants of the spatial clustering of foreclosures. European planning studies, 26 (10), 1939–1960.

Hill, T.D., Ross, C.E., and Angel, R.J., 2005. Neighborhood disorder, psychophysiological distress, and health. Journal of health and social behavior, 46 (2), 170–186.

Hughes, N., 2018. ‘Tourists go home’: anti-tourism industry protest in Barcelona. Social movement studies, 17 (4), 471–477.

Huynh, M. and Maroko, A., 2014. Gentrification and preterm birth in New York City, 2008–2010. Journal of urban health, 91 (1), 211–220.

Izenberg, J.M., Mujahid, M.S., and Yen, I.H., 2018a. Health in changing neighborhoods: A study of the relationship between gentrification and self-rated health in the state of California. Health & place, 52, 188–195.

Izenberg, J.M., Mujahid, M.S., and Yen, I.H., 2018b. Gentrification and binge drinking in California neighborhoods: it matters how long you’ve lived there. Drug and alcohol dependence, 188, 1–9.

Joasart-Marcelli, P. and Bosco, F.J., 2018. Alternative food and gentrification: farmers markets, community gardens and the transformation of urban neighborhoods. In: W. Curran and T. Hamilton, eds. New York, NY: Just Green Enough, 92–116.

Kabirsch, N. and Haase, D., 2014. Green justice or just green? Provision of urban green spaces in Berlin, Germany. Landscape and urban planning, 122, 129–139.

Kawachi, I. and Berkman, L.F., 2003. Neighborhoods and health. Oxford University Press.

Lees, L., 2012. The geography of gentrification Thinking through comparative urbanism. Progress in human geography, 36 (2), 155–171.

Lees, L., Shin, H.B., and López-Morales, E., 2015. Global gentrifications: uneven development and displacement. Bristol: Policy Press.

Lim, S., et al., 2017. Impact of residential displacement on healthcare access and mental health among original residents of gentrifying neighborhoods in New York City. PloS one, 12 (12), e0190139.

Nieuwenhuijzen, M.J., 2018. Influence of urban and transport planning and the city environment on cardiovascular disease. Nature reviews cardiology, 1.

Palencia, L., Vásquez-Vera, H., and Borrell, C., 2016. Los problemas para hacer frente a la hipoteca y su efecto en la salud: un estudio con personas de la plataforma de afectados por la hipoteca. Barcelona societat, 20, 1–12.

Papachristos, A.V., et al., 2011. More coffee, less crime? The relationship between gentrification and neighborhood crime rates in Chicago, 1991 to 2005. City & community, 10 (3), 215–240.

Pastor, M., Terriquez, V., and Lin, M., 2018. How community organizing promotes health equity, and how health equity affects organizing. Health affairs, 37 (3), 358–363.

Roux, A.V.D. and Mair, C., 2010. Neighborhoods and health. Annals of the New York academy of sciences, 1186 (1), 125–145.

Sampson, R.J., 2003. Neighborhood-level context and health: lessons from sociology. Nueva York: Oxford University Press.

Slater, T.O.M., 2006. The eviction of critical perspectives from gentrification research. International journal of urban and regional research, 30 (4), 737–757.

Smith, N., 2002. New globalism, new urbanism: gentrification as global urban strategy. Antipode, 34 (3), 427–450.

Smith, R.J., Lehning, A.J., and Kim, K., 2017. Aging in place in gentrifying neighborhoods: implications for physical and mental health. The gerontologist, 58 (1), 26–35.

Triguero-Mas, M., et al, 2015. Natural outdoor environments and mental and physical health: relationships and mechanisms. Environment international, 77, 35–41.