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Participatory Mapping for Community Empowerment and Health Equity

Jason A. Douglas
Chapman University

Andrew M. Subica
University of California, Riverside

Laresha Franks
Community Coalition

Gilbert Johnson
Community Coalition

Carlos Leon
Community Coalition

Sandra Villanueva
Loyola Marymount University

Cheryl T. Grills
Loyola Marymount University

Abstract

Participatory mapping is an empowering, yet underutilized method for investigating social determinants of health disparities. To elucidate the empowering approach of participatory mapping, this paper explicates the process and outcomes of a CDC Racial and Ethnic Approaches to Community Health-funded community-academic partnership that leveraged participatory mapping to investigate access to public parks, and community organizing to advocate for environmental change and health promotion in South Los Angeles (SLA), CA. Thirty-five SLA residents partook in two participatory mapping sessions in March and April, 2015. Using 4'x5' paper maps, residents drew mobility routes to their local park, ranking community assets and deficits along those routes. Process forms were used to document resident participation in ensuing community organizing events and activities to disseminate mapping results and advocate for policy change. Tobacco shops were identified as problematic spaces that attract subversive activity and crime including loitering, theft, and drug dealing. Subsequent geospatial analysis confirmed significant clustering of crime around SLA tobacco shops. Following, 81 SLA residents participated in community outreach events and activities from 2016-2018 to advocate for policies limiting the proliferation of tobacco shops. As a result of community organizing around resident interests grounded in empirical data, the Los Angeles County (LAC) Board of Supervisors voted to introduce legislation banning tobacco shops in residential areas of LAC. As illustrated by this community-academic partnership, we argue that participatory mapping is an empowering approach for (1) investigating social determinants of health disparities, and (2) redefining neighborhood spaces toward the implementation of health policies that reflect community interests.

Introduction

Systemic inequities have historically contributed to wicked health disparities in low-income communities and communities of color (Link and Phelan 1995; Phelan, Link, and Tehranifar 2010). For example, inequitable access to community-level resources associated with healthy behaviors (e.g., public parks) frequently manifests in poor health outcomes (e.g., obesity) that plague disadvantaged communities (Borrell et al. 2013; Gordon-Larsen et al. 2006; Sallis et al. 2012). To address these inequities, empowerment for health equity seeks to emphasize individual and collective efficacy in the active reconstitution of social and built environments toward improving community health (Douglas et al. 2016). In this context, champions of empowering, resident-centered approaches for redressing public health disparities have accordingly advocated for research and policy change efforts, wherein individuals, organizations, and communities collaboratively claim voice and control over their social and environmental circumstances (Cheezum et al. 2013; Minkler and Wallerstein 2011; Speer and Christens 2012).

Participatory mapping is an empowering mode of community engagement and coproduction of knowledge that involves community members in the active "representation and explication" of their social and physical environments (Literat 2013). In the participatory mapping context, empowerment emerges through community participation in the collection of spatial information about community-level social and physical environments, which in turn imparts knowledge for changing those environments (Tulloch 2007). Community-academic partnerships have accordingly emphasized that persons exposed to social and environmental inequities possess expert spatial, community contextual knowledge that can better inform research and action toward rectifying poor health outcomes (Douglas et al. 2018). Thus, participatory mapping is ideally suited for (1) examining socio-ecological determinants of public health disparities; and (2) empowering community organizing partnerships toward redressing public health disparities.

Empowerment theory explicates a trifecta of powerful outcomes including (1) *individual* participation in organizational processes leading to actions and demands for social and environmental change; (2) *organizational* ability to mobilize community members and shape public debate regarding public health; and (3) organizational partnerships at the *community* level focused on collective action toward improving community health (Christens, Inzeo, and Faust 2014; Douglas et al. 2016; Speer and Hughey 1995; Zimmerman 2000). However, research concerning the empowering role of participatory mapping is limited. One study outlined a number of empowering outcomes regarding participatory mapping of water supply and sanitation resources in Zimbabwe, wherein community partners became more knowledgeable about their local circumstances and were "empowered" to find solutions to the issues they face (Glöckner, Mkanga, and Ndezi 2004). Another study concerning the nexus of environmental degradation and community livelihoods in China contended that participatory mapping was central to the initiation of community decision-making processes, while simultaneously enhancing communication and information sharing between local communities and government officials (Fox, Suryanata, and Hershock 2005). However, research has yet to explicitly ground

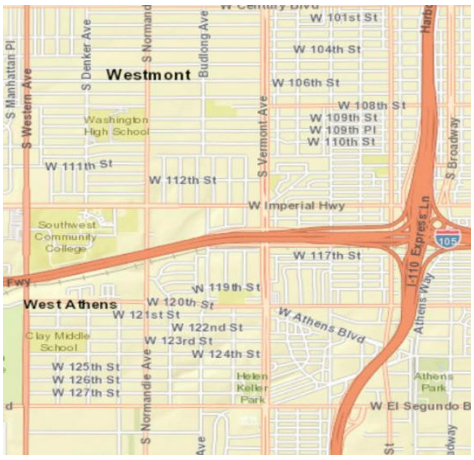
participatory mapping outcomes in an empowerment framework and identify policy change pathways toward improving community health from a grass roots perspective. This paper seeks to address this gap by describing the process and outcomes of a community-academic partnership that leveraged participatory mapping as an empowering methodology for identifying and redressing social and environmental determinants to public health disparities.

Participatory Mapping for Community Health

Our collaborative participatory mapping investigation was part of a community-academic partnership funded by the Centers for disease Control and Prevention (CDC) Racial and Ethnic Approaches to Community Health (REACH) initiative. Our partnership included The Community Coalition (a South Los Angeles-based community-based organization), Loyola Marymount University Psychology Applied Research Center, Los Angeles Department of Public Health, St. John's Well Child and Family Centers and To Help Everyone Health and Wellness Centers, and Advocates for Urban Peace and Unity (AUPU) and Reclaiming American's Communities through Empowerment (RACE) gang intervention organizations. We accordingly aimed to address unequal South Los Angeles (SLA) community health outcomes through a number of empirically supported health interventions and community organizing efforts intended to improve access to healthcare exchanges, community health clinics, community exercise programs, and physical activity spaces (e.g., community parks).

South Los Angeles is a predominantly LatinX (64%) and African American (31.4%) community with a total population of 768,456 (U.S. Census Bureau 2010) that has suffered from historical disinvestment, resulting in inequitable access to resources commonly associated with community health and wellbeing (Scott and Brown 1993; Spencer and Ong 2004). For example, SLA has more fast food restaurants and liquor stores, and fewer acres of public parks than more affluent communities (Lewis et al. 2005; Rigolon 2016; Vallianatos et al. 2010; Wolch, Wilson, and Fehrenbach 2005). Inequities such as these contribute to obesity and cardiovascular disease (CVD) disparities impacting SLA communities (Grills et al. 2014; Los Angeles County Department of Public Health 2017). Exacerbating these poor health outcomes, the limited selection of public parks in SLA is often underutilized as a result of community concern over proximal crime and safety issues (Subica et al. 2018).

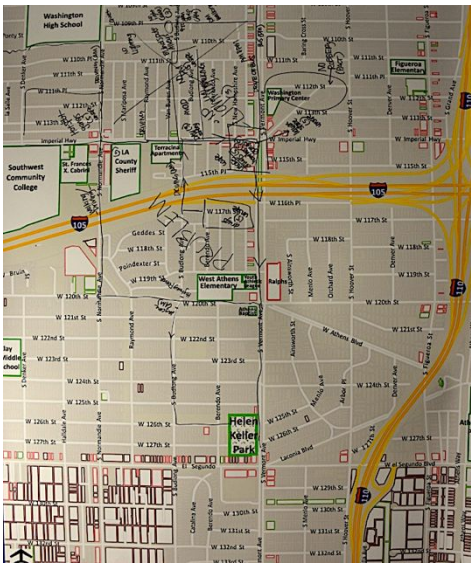
This study used participatory mapping to identify community assets and deficits concerning access to Helen Keller Park in the Westmont and West Athens communities of SLA (Figure 1). The overall goal of the mapping session was to elucidate resident experiences regarding access to Helen Keller Park. This information would then be applied to developing grass-roots solutions toward improving community recreational access and related health outcomes.



To achieve mapping objectives, participating community residents (N=35) were briefed on the

overall goals and objectives of the participatory mapping sessions as a large group. Following, participants joined one of four contemporaneous,
1-hour mapping sessions. Two mapping sessions were organized according to resident location—North West (n=8) and North East (n=9) of Helen Keller Park. To be comprehensive and inclusive, a third session was conducted in Spanish (n=9), and community youth (n=9) participated in a fourth session. These varied mapping sessions were developed to account for social and geographic variability of resident experiences. Psychology Applied Research Center investigators and CoCo community organizers co-facilitated mapping sessions.

Mapping sessions utilized large, 4' x 5' paper street maps detailing locations of readily identifiable local schools, law enforcement centers, community clinics, and Helen Keller Park. Mapping sessions began with facilitators 1) reviewing mapping objectives, and 2) geographically orienting participants to key map points to confirm participant map awareness. Following, residents traced their travel routes on each map, with facilitators marking key points where residents identified social and built environment factors that encouraged or encumbered access to Helen Keller Park. All mapping sessions were audio recorded to ensure data integrity. After completion of the initial mapping sessions, we reconvened into one large group to debrief, with space provided for participants to add any additional data points that were missed during breakout sessions.



While a number of community assets and deficits were identified, residents were particularly concerned about "nuisance properties" that attract crime and violence to the community, and limit community mobility and access to local health promoting resources. For example, one community member explained that a motel proximal to Helen Keller Park was a hotspot for prostitution. Community members also identified several problem liquor stores— a CoCo policy target since the 1990s—where they commonly see public arguments, physical altercations, and gang activity. Thus, CoCo and local residents were keenly aware of the impact of these types of businesses. However, our mapping session revealed residents were particularly concerned about the proliferation of tobacco shops in SLA, as they posed a new community problem that attracted crime, violence, and gang presence (Figure 2). This startling finding had never been identified in the academic literature, and had yet to be addressed in community organizing efforts.

Participatory Mapping and Community Organizing for Empowerment

Twenty-eight community members reconvened one month after the initial mapping session to review our data and decide how to use the data to inform health interventions and policy advocacy efforts. Residents reviewed 8.5" x 11" paper printouts of digitized versions of our participatory maps including all identified point locations of interest. Community residents

commented on the maps, indicating that tobacco shops and liquor stores were a priority concern, as well as medical marijuana dispensaries that may similarly attract crime and violence. This first reconvening exemplified a growing sense of empowerment based on *individual participation* in ensuing community change efforts, which sparked a 3-year collaborative effort to further investigate tobacco shops in SLA and advocate for policies limiting their impact.

Based on resident input from the reconvening, our community-academic partnership (1) launched a grass-roots intervention designed to improve resident safety proximal to Helen Keller Park, and (2) geospatially investigated resident concerns regarding tobacco shops. The Community Coalition subsequently partnered with AUPU and RACE gang interventionists to launch Safe Passage Patrols along resident walking routes proximal to Helen Keller Park that were identified during our mapping sessions. This outcome illustrated *community empowerment,* evidenced by organizations coming together to launch a grass-roots intervention to improve park access and associated health outcomes.

Our team subsequently conducted a geospatial investigation of crime and violence surrounding tobacco shops, liquor stores, and medical marijuana dispensaries across SLA. Study results revealed concerning tobacco shop location and density associations with property and violent crime in SLA after controlling for pertinent social determinants of health (Subica et al. 2018). This analysis confirmed convergent validity of our novel participatory mapping results, and verified resident concerns regarding the deleterious impact of tobacco shops in SLA. Thus, SLA resident *community empowerment* was strengthened by partnering with a research center to empirically confirm their experiences of place toward launching additional community change efforts.

The Community Coalition consequently disseminated participatory mapping and geospatial investigation results to local decision makers, prompting the Los Angeles County Board of Supervisors to initiate a county-level motion, *Addressing Nuisance Tobacco Shops,* which directed county agencies to further investigate the impacts of tobacco shops and identify best practices for limiting their proliferation (Ridley-Thomas 2018a). This result invigorated CoCo and their resident constituency to conduct a community poll to garner additional community-level information regarding tobacco shops, as well as other pertinent resident interests, thus exemplifying *organizational* and *community empowerment* via CoCo's capacity to organize residents to shape the debate about tobacco shops and community health supported by residents and county agencies.

In November 2018, CoCo hosted a tobacco shop forum attended by over 80 community residents, community organizers, public health professionals, researchers, local decision-makers, and tobacco lobbyists. Community-academic partners presented participatory mapping and geospatial investigation results, community poll data that further verified resident concern about crime around tobacco shops, and information about the health impacts of tobacco and tobacco-related products such as electronic nicotine delivery systems (ENDS). This forum illustrated *individual* and *community empowerment* with continued resident participation in CoCo's tobacco shop organizing with the support of community organizations and academic partners working together to address the tobacco context.

The following day, 15 residents provided testimony at the Los Angeles County Board of Supervisors meeting to provide empirically verified resident testimony of their first-hand experiences of these "nuisance businesses." The Board of Supervisors subsequently voted to prohibit tobacco shops in residential zones county-wide, alongside the creation of spatial buffers prohibiting tobacco shop locations proximal to sensitive land uses that serve children including schools, public parks, youth centers, and libraries (Ridley-Thomas 2018b), marking (1) a major policy win toward reducing crime and violence, as well as a range of other tobacco-related health disparities, in disadvantaged communities, and (2) the culmination of a series of *empowering individual*, *organizational,* and *community* outcomes.

Discussion

The empowering approach of participatory mapping is rooted in resident participation in the visual representation of social and environmental circumstances impacting community health (Literat 2013). Our collaborative community-academic partnership leveraged participatory mapping to investigate ongoing resident concerns about inequitable access to health promoting resources. While residents had identified a number of nuisance properties throughout SLA that have well-documented crime and violence associations, such as liquor stores (Block and Block 1995; Toomey et al. 2012; Zhu, Gorman, and Horel 2004), our partnership revealed a startling research and policy blind spot concerning the deleterious impact of tobacco shops in disadvantaged communities (Subica et al. 2018).

Dovetailed by wide ranging community organizing and policy advocacy efforts, our participatory mapping approach ultimately contributed to an *empowered* community-academic partnership at *individual*, *organizational*, and *community* levels to leverage our visual, empirically verified evidence to demand policy change in Los Angeles. These outcomes suggest participatory mapping is an empowering methodology for identifying spatial information regarding resident concerns and interests at a level of granularity that could not be gleaned in any other way in disadvantaged communities. We accordingly contend that it would behoove research and policy advocacy efforts concerned with health disparities to integrate empowering participatory mapping approaches to advance health and wellbeing in disadvantaged communities.

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