Parks: A vital community condition

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Abstract

Parks and green spaces serve as integral components of the fabric that comprises social determinants of health. These "green drug stores" are upstream factors that provide physical, mental and social, and environment-related health and well-being benefits. Yet, 100 million people in the United States lack access to a park within a 10-minute walk of their homes. These natural or semi-natural outdoor public spaces hold significant underexplored potential for the health of communities. Decisionmakers across the spectrum of community members, practitioners, researchers, and policymakers have the opportunity to leverage parks as a proactive tool for healthy, resilient, and more equitable places. This article aims to highlight the role of parks and green space in generating community health. It includes a brief review of benefits offered as described in the health literature, challenges experienced in elevating parks for health, potential innovative solutions, and three short case studies and lessons learned about parks and community well-being. The overarching conclusions emphasize (a) access, quality, and inclusion as core pillars in advancing the work, (b) placing community voice at the center, and (c) furthering cross-sectoral partnerships in the design of public spaces.

Introduction

Place-based inequities drive preventable health outcomes, such as prevalence and incidence of disease as well as mortality rates. The practice of community health is one way to address such inequities. Public health researchers offer a definition of "community health" as "a multi-sector and multi-disciplinary collaborative enterprise that uses public health science, evidence-based strategies, and other approaches to engage and work with communities, in a culturally appropriate manner, to optimize the health and quality of life of all persons who live, work, or are otherwise active in a defined community or communities" (Goodman 2014). While public health researchers recognize that significant ambiguity exists in defining and shaping the concept of community health, community-level disparities paint a striking and critical image of what it means to exist outside of a healthy community. These outcome disparities often result from social determinants of health: the places people live, learn, work, and play, including histories of injustice and current unjust policies and practices (Braveman 2014). These social determinants, also referred to as "vital community conditions," include the compounding effects of education, economy, food security, housing, public

health, healthcare, and the built environment. While health professionals have often focused on housing and transportation as central tenants of the built environment, protection of natural spaces, proximity to public parks, and engagement in such areas remain underutilized factors that drive community health and well-being.

Access to nature in the form of high-quality and culturally relevant outdoor public space has become especially important in a context of limited physical engagement and permissibility to spend time in public indoor spaces due to the COVID-19 pandemic. Parks, natural or semi-natural outdoor public spaces, are an underused yet effective solution in the context of these concurrent crises. Whether distant national spaces or local town or city spaces, parks are a proactive tool for healthy, livable communities and an essential part of the fabric of public health resilience. This article aims to highlight the role of parks and green space in generating community health. It includes a brief literature review of benefits offered, challenges experienced in elevating parks for health, and short case studies about parks and community well-being.

Parks can serve as a natural asset and strategic investment to improve health of communities. We must advance a strategy that prioritizes by individual community need to ensure that those experiencing underinvestment, and those which have structural barriers to access to high-quality public spaces, have a fair and just opportunity to derive the physical, mental, social, and environmental health benefits of nature and parks.

Parks and health in the literature

Physical health. Research has long established the value of proximity to natural spaces to one's well-being. Globally, the World Health Organization promotes urban greening as a strategy for healthy, resilient cities (WHO 2016). In 2018, only about one in four adults in the United States (US) engaged in an adequate amount of physical activity, a risk factor for significant number of other medical conditions (NCHS 2018). Inadequate physical activity is associated with $117 billion in healthcare costs annually (HHS 2018). Physical activity helps lower risk of chronic diseases, including some types of cancers, hypertension, and diabetes, and is associated with improvements in cognition, anxiety levels, the incidence of depressive moods, quality of life, and sleep (HHS 2018). Parks and trails provide one opportunity for communities to increase opportunities for people to be physically active. Researchers have found that individuals without a neighborhood park were more likely to be inactive and obese (Reuben 2020). The 2015 Surgeon General's Call to Action Report identified parks and trails as community-based and science-driven methods to increase physical activity. While physical activity remains a key health benefit of parks, many other benefits are also associated with park access, quality, and investment.

Analysis of nearly 30 years of data for all available US counties found that a $100 increase per capita investment in parks and recreation was associated with a decrease in 3.4 deaths per 100,000 people, suggesting that increased funding for parks could be considered a broader public health intervention (Mueller 2019). A systematic review and meta-analysis across nine studies including 8,324,652 participants found an inverse relationship between greenness, measured through a normalized difference vegetation index (NDVI), and all-cause mortality (Rojas-Rueda 2019). Other studies have found greenness has an inverse relationship with stroke and heart disease outcomes, which are multiple leading causes of death (Orioli 2019). A recent review of scientific literature found urban green spaces alone were consistently associated with improved heart rate and reduced violence, including of a randomly controlled trial testing the effects of greening blighted pocket parks (Kondo 2018).

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Mental and social well-being. Depression is significantly related to proximity to an urban park—similar to that of the effects of a 2 percentage point change in unemployment—while NDVI was associated with protective effects on depression, especially among participants living in lower socioeconomic areas (Sturm 2014; Sarkar 2018). Similar to medicinal interventions, a dose-response relationship may also exist with spending time in nature. Spending at least two hours in natural spaces each week is associated with self-reported good health and well-being (White 2019; Jenkins 2020). Exposure to parks and natural environments also may support concentration: 20-minute guided walks in a park were linked to increased concentration among children with attention deficit disorder (Faber Taylor 2009; Donovan 2019). The effects of greenness specifically may have life course impacts, as suggested by researchers from Denmark who found that having higher exposure to cumulative green space experiences between 0 and 10 years of age was associated with lower risks of psychiatric disorders in later life, after adjusting for urbanization, socioeconomic factors, and parental mental health history (Engemann 2019). Additionally, national parks and similar protected areas may serve as a broader mental health intervention. Australian researchers valued national parks and protected areas by comparing visitor well-being to that of the general population. By calculating quality-adjusted life-years along with mental healthcare costs, they conservatively estimated the mental health benefits of national parks at $6 trillion (USD) annually, worldwide (Buckley 2019). In the current COVID-19 pandemic, people are turning to parks to address social isolation and physical distancing (Hwang 2020; Morse 2020). While parks are a source of reduced anxiety and provide physically distant opportunities for social engagement, they may also serve to support resilience during the pandemic.

Climate resilience. While serving as a community resource to mitigate stress, parks concurrently lessen undesirable environment-related health outcomes, such as heat stress illness. An indisputable relationship exists between climate change and the well-being of human beings. On average, extreme heat kills more people in the US than any other weather-related hazard (Epstein 2005). Between 2001–2010, approximately 28,000 individuals were hospitalized for heat stress illness in 20 states alone (Choudhary 2014). These deaths and, of course, the attendant hospitalizations are preventable. Moreover, poor air quality and excess air pollution can impair lung function and increase negative health outcomes such as asthma and other chronic disease. These effects are felt significantly in maternal and child health outcomes. A systematic review of air pollutant and heat exposures found increased risk of preterm births and low birth weights, especially among Black mothers, suggesting the increased need for solutions to improve air quality and reduce heat (Bekkar 2020). Access to parks and the shade of trees is one of the most effective ways to prevent and combat extreme heat and subsequently heat stress illnesses, particularly in urban heat islands. The cooling benefit of parks can extend as far as a half-mile from their boundaries, helping cool the neighborhood and reduce heat stress for residents (Urban Climate Lab at Georgia Institute of Technology 2016). Additionally, a systematic review of over 100 studies of the effects of urban green space on heat and air pollution found that tree, shrub, lawn, and pervious soil coverage can improve air quality, and that trees, in particular, play a vital role in reducing air pollution (Zupancic 2015). Greening as a facet of urban design influences a broad array of psychosocial and environmental health outcomes across a range of risk behaviors, yet significant barriers exist to adding green space in many communities.

Barriers to widespread use of parks

As we seek to address health through high-quality parks and green spaces, we must

> In many places, green spaces may exist but communities of color experience barriers to feeling safe or included

consider significant challenges that communities experience. Rectifying racial and socioeconomic-related inequities must become a central pillar of the conversation. These factors drive health equity—"the fair and just chance for everyone to be as healthy as possible"—and include removing barriers such as racism and economic disadvantages (Braveman 2014).

Structural inequities. Evidence continues to grow linking the effects of nature to community health outcomes, particularly in the context of the COVID-19 pandemic. COVID-19 and the human rights movement for Black lives have elevated the historic and ongoing stark inequities in our society, particularly across vital community conditions that serve as a driving force of health inequities. Parks and green spaces are a component of those inequities. A recent report from The Trust for Public Land on park disparities provides deeper insights. Compared to parks that serve a majority of high-income households, parks that serve primarily low-income households are on average four times smaller and serve over three times as many people per park acre (The Trust for Public Land 2020). On average, parks that serve communities where a majority are of people of color are half as big and serve nearly five times as many people per acre, compared to parks that serve a majority white population (The Trust for Public Land 2020). Finally, compared to parks that serve communities where of low-income white populations are the majority, parks that primarily serve low-income people of color are on average nearly half as big and serve four times as many people per park acre (The Trust for Public Land 2020). It is clear that not all parks are created equal and that disinvestment and lack of community power in prioritization is related to neighborhood characteristics. Such historic, systemic inequities, compounded with a philosophy of pitting one social determinant of health against another, prohibit communities from accessing the potential benefits of public green spaces. These disparities limit close-to-home access to and quality of green space, reducing opportunities for community members to use them and enjoy their physical, mental, social, and environmental benefits.

Finding space. Parks provide significant opportunities to enhance health, but communities struggle to provide sufficient resources, acres, and funds to build new parks. While the benefits of green spaces exist for many, 100 million people—including 28 million children—across the country do not have access to a park within a 10-minute walk of their home. Identifying and finding funds for new spaces to build large parks may present a significant barrier to cities and towns. Opportunity exists to leverage innovative solutions to ensure everyone has access to nature. For example, communities are creating mixed-use spaces through interventions such as greening schoolyards. Green schoolyards transform asphalted spaces into green learning spaces designed by and for children and the community. These renovated spaces provide opportunities to leverage the numerous hours that children spend each day in school to enhance health and educational outcomes for them. Raney et al. (2019) found that greening schoolyards in California Title I schools reduced sedentary behavior among children by 10% a mere four months after the intervention began. Similarly, an ethnographic analysis of children in green schoolyards by Chawla et al. (2014) found that they provide spaces to escape stress and find peace. Green schoolyards present only one example of such a solution; others may include converting rails into trails or renovating vacant lots. Figure 1 shows a before-and-after comparison of what greening interventions can do.

Engagement. Disparities in access and quality are often determined by local policy, community participation, and action (Nesbitt 2019). In addition, disparities exist in use of spaces. In many places, green spaces may exist but communities of color experience barriers to feeling safe or included in such spaces. A report by the

Figure 1. Greening non-traditional spaces: Public School 366 in New York City. (top) Before greening, the schoolyard was an uninviting expanse of deteriorating asphalt. (bottom) After the makeover, trees, play structures, tables, and other assets have transformed the space completely. | THE TRUST FOR PUBLIC LAND

Outdoor Foundation identified a stark disparity in participation in any outdoor activities, with white/Caucasian populations comprising 74.3% of participants (Outdoor Foundation 2019). Thus, the practice of park development must ensure not only investment in creating green spaces reflective of communities but also ensuring activation of these spaces through responsive programming. Looking beyond local parks, being able to access larger natural lands is a critical issue due to cost. While much is yet to be understood in this regard, we know that nature has an impact on mental health, and that there are too few opportunities for interventions that reach large populations. To fully enjoy the benefits of the outdoors, communities must have access to high-quality, inclusive public parks. Deep community engagement and equitable, evidence-driven decisionmaking and planning can be the basis of responsive work that builds toward health equity. However, to achieve any of this, we must fundamentally tighten the relationship between land and people.

Community case studies

As we consider the concept of community health, case studies can serve as instructive models or examples of multidisciplinary work to build community capacity and strengthen partnerships, while improving health outcomes. The three case studies presented next are the work of The Trust for Public Land in partnership with local organizations and community members.

Case study 1: Panorama Park (Colorado Springs, CO)

In Colorado Springs, The Trust for Public Land's efforts are located in the Southeast region of the city and are focused on climate and equity outcomes. Life expectancy in the Southeast is 10–12 years shorter than that of the rest of the city. With support and partnership from El Paso County Public Health, Colorado Springs Health Foundation, and the Colorado Health Foundation, among many others, a group of community partners, called the Resilient, Inspired, Strong, and Engaged (RISE) Coalition, is advancing work to revitalize Panorama Park. Panorama is a 13-acre park with huge potential. Yet, broken and outdated infrastructure deters use, and community members see it as a liability rather than a resource. To address this, the growing city's diverse residents are coming together to redesign the space. The Trust for Public Land, funded by Colorado Springs Health Foundation, led a year-long discovery process in 2018, revealing that the park was the number one priority for the community. Now, guided by community input (Figure 2), the park will include universal accessibility to strive to meet the needs of a wide spectrum of human abilities, and an examination of pedestrian and bicycle connections seeks to ensure connections between the park and key neighborhood resources. The park's climate-centered redesign will effectively manage storm water to improve water quality, and

Figure 2. Asking for community input was key to reimagining Panorama Park in Colorado Springs. | THE TRUST FOR PUBLIC LAND / EMILY PATTERSON

> Community members began to see themselves represented and included in public space in a way they had not before

will also increase tree canopy—of note because only 6% of Southeast is covered with tree canopy. Central to these restoration and renovation processes are community champions from the RISE Coalition. They work across sectors to reach out to community members, providing insights for design and advocating for systems changes, such as ballot measures that ensure improvements in parks and roads include sustainable investment. In Colorado Springs, public park space is bringing people together to create cultural and environmental changes that positively impact community health and well-being.

Case study 2: Kiwanis Methow Park (Wenatchee, WA)

A rural community of about 50,000 people, Wenatchee, Washington, is known as the apple capital of the world, attracting migrant families working on farms and orchards. A significant part of the community is made up of migrant workers. The community faces challenges ranging from vulnerable infrastructure, to safety, to health issues such as childhood obesity and isolation. Until recently, the unsatisfactory condition of the local park, Kiwanis Methow Park, made for a lack of adequate public outdoor gathering space. This had direct negative impacts on the community; it diminished opportunities for people to interact with each other and with services such as healthcare and civic engagement. To inform the renovation of Kiwanis Methow Park, Trust for Public Land project managers partnered with community members over three years, building strong ties through arts and cultural practices. Over 200 members comprised a new community group, Parque Padrinos, or "godparents of the park," to transform the space to be responsive to local culture and needs. For example, new design features included a "kiosko" for cultural performances, a turf field for soccer, health programming, and more shade for community and family gatherings (Figure 3). Community members began to see themselves represented

Figure 3. Community cultural performances were an important consideration in redesigning Kiwanis Methow Park in Wenatchee, Washington. | THE TRUST FOR PUBLIC LAND / MIKE BONNICKSEN

> With the schoolyard now open, the school's 600 students and the nearly 3,000 children nearby are now within a half-mile walk of a dynamic park

and included in public space in a way they had not before. Supported by funding from the local hospital, National Endowment for the Arts, and US Environmental Protection Agency, the process and the project built trust, social capital, and capacity in civic engagement over time. This capacity building has in turn developed into broader movement building. In the 2018 mid-term elections, the Parque Padrinos were called upon to engage with the Latinx community members to encourage voting. They knocked on 3,500 doors and made 4,200 phone calls, helping triple the Latinx voter turnout. The Parque Padrino champions continue to be the same advocates who are mobilizing during the COVID-19 pandemic to lobby for additional resources and action to support vulnerable communities. Not only did the process of community design build inclusion, representation, and capacity with respect to the park, but in a time of crisis it has built community resilience within an often-ignored neighborhood whose members provide an important agricultural commodity for the entire country.

Case study 3: Patterson Park Elementary School (Philadelphia, PA)

The final case study comes from Southwest Philadelphia, an area facing significant economic insecurity. In partnership with the Philadelphia School District, Philadelphia Water Department, and William Penn Foundation, The Trust for Public Land came together to build green schoolyards that yield multiple benefits, including education, social cohesion, and environmental protection. In the city's combined sewer system, storm water mixes with raw sewage, causing pollutants to flow into waterways. To prevent this, as well as potential overflows into streets, key stakeholders collaborated to capture 8.7 million gallons of storm water annually across 11 schoolyards. Before the green schoolyard initiative, Patterson Park Elementary School was facing a high incidence of suspension. Engaging with the principal and teachers who championed the project, The Trust for Public Land began a three-month participatory design process with students and the neighboring community to create a collective vision that would transform the schoolyard. The outcome was a green schoolyard that not only captured storm water, but served the students during the day and community after school hours (Figure 4). After renovation, school staff began to see changes associated with the vibrant green space. The new schoolyard includes a rain garden, basketball court, running track, a turf field, and a variety of play equipment where students and neighbors can exercise, play, and learn. With the schoolyard now open, the school's 600 students and the nearly 3,000 children nearby are now within a half-mile walk of a dynamic park. Additionally, the principal saw a remarkable decrease, to the point of near elimination, in suspensions among students. Suspensions pose significant burdens on families who may have to stay home from work with students, along with other stressors around maintaining consistent education. These anecdotally attested changes were not only limited to students. The daily after-school dismissal process became lengthier; the administration noticed parents and caregivers spent additional time after picking up their children, so children could play. During that time, parents began to connect while they waited and the school began to see increased parent and guardian engagement. The green school yards supported both the environment and the people.

Discussion

While the literature highlights the clear health benefits of the local "green drugstore"—the park—the barriers and case studies provide critical insights into how park access, quality, and inclusion in the development process inform community health. Each of these case studies presents lessons learned and opportunities for replication that will continue to elevate the role of nature and parks as an underutilized but necessary tool for community health. They illustrate that

Figure 4. A student- and community-driven redesign of the outdoor space at Patterson Park Elementary School in Philadelphia has made it into a place used both during and after school. | THE TRUST FOR PUBLIC LAND / JENNA STAMM

(a) access, quality, and the community's sense of belonging in public space is critical; (b) community must be at the center for the work; (c) partnerships facilitate multi-sector benefits.

Access, quality, and inclusion. To ensure we are elevating health through parks, we must continue to ensure everyone has access to them, especially those of high quality that ensure local communities feel a sense of belonging. Whether it was community members in Colorado Springs and Wenatchee or parents in Philadelphia, renovating these spaces increased use. Quality improvements responded to the climate-related challenges and neighborhood-level resilience through storm water capture or shaded infrastructure. Design features responded to the community context and cultures through "kioskos" and other shared spaces to gather. A focus on quality ensured accessibility for individuals who were differently abled and ensured children had a space and place to find respite and thrive.

Prioritize community power from the beginning. To achieve the access, quality, and inclusion features, practitioners prioritized community decisionmaking and design processes to intentionally identify needs and assets. Across each of the examples, communities who did not traditionally have a voice in neighborhood design had the opportunity to share their perspectives, building community strength, developing common visions, and driving shared agendas. These case studies demonstrate the significance of engaging full representation of the community as the end user early and often throughout the design. According to the "ladder of civic participation" concept of engagement, this is the way to advance practice (Arnstein 1969), and it cuts across means of community participatory action, both within

and outside of the health sector. Practitioners must emphasize the relationship between people and the land, which provokes the need to identify ways to assess if the public space is responsive to the community.

Partnership is critical and central to the work. Community health is a multidisciplinary process. Each of these case studies approaches greening from the lens of cross-sectoral partnership, whether through the arts and culture, public health foundations, infrastructure agencies such as the water department, or the education system. The built environment and nature intersect with each sector and opportunities exist to increase collaboration among government agencies, communities, and non-profits. Cross-collaboration also breeds innovative solutions to tough challenges, such as the use of school yards to protect climate or the use of parks to decrease isolation.

Conclusion

Parks are a vital community condition that promote positive physical, mental, social, and environmental health outcomes throughout the country. Additionally, high-quality, inclusive public parks build more resilient communities. COVID-19 and climate crises have elevated the relevance of parks as part of the fabric of public health infrastructure more than ever before. Yet, structural inequities such as racism and socioeconomic factors have created large differences across communities in terms of access, quality, and inclusion. These differences must be addressed to move forward a shared agenda around community health and well-being. Innovative mixed land use, partnerships across sectors, and prioritizing community at the center of the work all require intentional actions during the design phase by practitioners. As practitioners seek to connect place-based conservation to communities in need, decisionmakers in policy, philanthropy, the academy, and business can continue to support the work to maximize the benefits and the relationship between nature and community health. Through these efforts, we seek to ensure that everyone has healthy, livable communities for generations to come.

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