

Environmental Justice: A Framework for Collaboration Between the Public Health and Parks and Recreation Fields to Study Disparities in Physical Activity

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Background: Despite the importance of physical activity (PA) for good health, not all populations have equal access to PA facilities and resources. This disparity is an environmental justice (EJ) issue because of the negative impact on the health of low-income and racial/ethnic minorities. *Methods:* This paper reviews the first wave of the EJ movement, presents the second wave of the EJ movement, discusses the implications of adopting principles from the EJ movement to focus on research in parks and recreation services (PRS), and recommends future research directions. *Results:* Studies on EJ have documented the disproportionate burden of environmental challenges experienced by low-income and racial/ethnic minorities. With regard to PA, these communities face inadequate access to, quality of, financing for, and public involvement in recreation opportunities. *Conclusions:* EJ is a useful framework to facilitate collaborative research between public health and PRS to study racial/ethnic and socioeconomic disparities in PA.

Key Words: racial/ethnic minorities, low-income populations, socioeconomic status, equity, community empowerment

Racial and ethnic minorities account for an increasing proportion of US residents. In the 2000 census, racial/ethnic minorities represented 25% of all US residents.¹ By 2010, that number will increase to 33% and by 2050, racial/ethnic minorities are expected to represent 50% of the US population.² Racial/ethnic minorities and low-income populations bear a disproportionate health burden of a myriad of chronic diseases.^{3,4} Reducing and ultimately eliminating health disparities is a national health goal.

The prevalence of both morbidity and mortality for cardiovascular disease, diabetes, and cancer is increased among most racial/ethnic minorities and

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low-income populations as compared with non-Hispanic whites.^{5,6} These increases are due to higher rates of overweight and obesity and related risk factors. For example, heart disease is the leading cause of death for both women and men in the US. However, in 2002, age-adjusted death rates for cardiac diseases were 30% higher among African Americans than among non-Hispanic whites.⁷ Heart disease risk factors are more prevalent among African American, Mexican American, and American Indian/Alaska Native women than among non-Hispanic white women of comparable socioeconomic status (SES).⁸

Stroke is the third leading cause of death for both African Americans and non-Hispanic whites. However, stroke death rates are higher for African Americans than for whites, even at younger ages. Between 1999 and 2002, age-adjusted rates of hypertension per 100,000 persons were higher among African American men and women aged 20 to 74 y than among their white counterparts.⁵

Similarly, the burden of diabetes is much greater for racial/ethnic minority populations than for the non-Hispanic white population. For example, 2005 National Health and Nutrition Examination Survey (NHANES) estimates show 13.3% of African Americans, 9.5% of Mexican Americans, and 12.8% of American Indians have diabetes, compared with 8.7% of non-Hispanic whites.⁶ Additional research has shown that diabetes affects American Indians and Alaska Natives disproportionately compared with other racial/ethnic populations⁹ and increased in prevalence among native populations between 1990 and 1997.¹⁰

Although a steady increase in the average life span has occurred, racial and ethnic disparities, as well as differences by educational level, persist.⁵ In 2002, age-adjusted death rates for the African American population exceeded those for the white population for stroke, heart disease, cancer, and HIV. In addition, since 1990, stroke mortality rates for Asian men and women aged 45 to 74 y have regularly exceeded those of non-Hispanic white men and women of the same ages.⁵ When controlling for race and ethnicity, death rates vary by educational attainment. In 2002, among persons aged 25 to 64 y, the age-adjusted death rate was 2.7 times higher for those with less than 12 y of education as opposed to those having 13 or more years of education.⁵

African Americans and Hispanic Americans in the US have higher rates of overweight and obesity than do non-Hispanic white Americans.¹¹ African American women have the highest rates of overweight and obesity compared to Hispanic and non-Hispanic white women.¹¹ Hispanic men have higher rates of overweight and obesity compared with both African American and non-Hispanic white men, and Hispanic women have higher rates of overweight and obesity than non-Hispanic white women.¹¹

Although the health benefits of physical activity (PA) have been well reported,^{12,13} racial/ethnic minority and low-income populations are less likely than non-Hispanic whites to meet the guidelines for PA put forth by the Centers for Disease Control and Prevention and the American College of Sports Medicine.¹⁴ The reasons for this disparity in meeting PA guidelines involve a combination of social, economic, cultural, and environmental barriers and constraints. Lack of time and lack of energy are reasons given by individuals from a range of ethnic and socioeconomic groups for not participating in regular PA.^{15,16} However, a disparity in access to PA facilities and resources has been documented among low-income and racial/ethnic minorities.¹⁷⁻¹⁹ Even when there is equitable distribution and

accessibility of facilities and resources, there is often a disparity in the quality and condition of those facilities and resources.¹⁸ Recent studies have framed such a disparity as an environmental justice (EJ) issue.²⁰

This paper advances EJ as a framework to facilitate collaborative research on racial/ethnic and socioeconomic disparities in PA between the fields of public health and parks and recreation services (PRS). This paper reviews the first wave of the EJ movement, presents the second wave of the EJ movement, discusses the implications of adopting principles from the EJ movement to focus on research in PRS, and recommends future research directions.

First Wave of the Environmental Justice Movement

Environmental justice is concerned with fair treatment and meaningful involvement of all people (regardless of race, ethnicity, income, national origin, or educational level) in the development, implementation, and enforcement of environmental laws, regulations, and policies.²¹ “Fair treatment,” as defined by the US Environmental Protection Agency (EPA),²¹ means that no population, because of policy or economic disempowerment, is forced to bear a disproportionate burden of negative human-health impacts. These impacts include air and water pollution and other environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. On February 11, 1994, President Clinton’s Executive Order 12898 required every federal agency to develop an EJ strategy “that identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies or activities on minority populations.”²² These policies and legislation resulted from empirical studies related to the first wave of the EJ movement. In addition, grassroots organizing and protests provided the impetus for policy change and implementation.²³

The first wave of the EJ movement has been dedicated to locally unwanted land uses (e.g., landfills; hazardous waste incinerators; chemical, metal, and oil production facilities), lead in homes, and other pollutants.²⁴ Several empirical studies have documented environmental injustices. For example, in Houston, Texas, 6 of 8 incinerators and 15 of 17 landfills were in African American communities.²⁵ In the 1980s, African Americans represented one-fourth of the population; however, three-fourths of the landfills were in African American communities. This example from Houston epitomizes environmental injustice.²⁵

A study by the US General Accounting Office in 1983 determined that, in the eight southeastern states representing EPA Region IV, three of the four communities containing large commercial hazardous-waste landfills were composed predominantly of African Americans and that in all four of the communities, at least one-fourth of the population was living below the poverty line.²⁶ This finding became the impetus for a study by the Commission for Racial Justice and United Church of Christ in 1987 that compared the demographic characteristics of zip code areas without waste treatment, storage, or disposal facilities to those of areas with such a facility. The study showed that the ZIP codes without a facility had 12.3% racial/ethnic minorities, ZIP codes with one facility had 24% racial/ethnic minorities, and ZIP codes with more than one facility or with one of the nation’s

five largest landfills had 38% racial/ethnic minorities.²⁷ The authors concluded, "...three out of every five Black and Hispanic Americans lived in communities with uncontrolled toxic waste sites."²⁷ Since these early studies, several additional empirical studies have investigated environmental justice claims.^{21,23,28}

Second Wave of the Environmental Justice Movement

Environmental justice is not a static concept.²⁴ The second wave of the EJ movement has been dedicated to urban design, public health, and access to and quality of outdoor recreation (e.g., parks).^{20,24,28} *Healthy People 2010* has two goals: to increase quality and years of healthy life and to eliminate health disparities.²⁹ One of the health indicators for *Healthy People 2010* is physical inactivity.²⁹ EJ represents a useful framework for researching disparities in PA.

Emerging efforts to reduce racial and ethnic disparities in PA follow an ecological model and recognize the role that public parks, playgrounds, and other recreation facilities play in providing community-based PA opportunities. Ecological models include environmental and policy variables as determinants of PA.³⁰ EJ explicitly recognizes that availability of and access to parks and recreation areas are compromised by structural disadvantages associated with race/ethnicity and SES.²⁸ Progress toward eliminating PA disparities depends on deepening our understanding of whether and how race/ethnicity and SES contribute to disparities in availability of and access to PRS. Further research must examine the allocation of fiscal resources across jurisdictions and communities of various racial/ethnic and SES composition and the barriers to meaningful involvement in decision-making processes.

PRS lend themselves to EJ analysis in several respects. First, PRS are public goods and are provided as a matter of public policy. They are an important function of government and are found at all levels of government (municipal, county, state, and federal).²⁸ Eighty percent of US citizens report using public parks, and nearly one in four use them "frequently."³¹ Second, the leisure-studies literature shows that use of parks and recreation opportunities is associated with numerous benefits, including psychological (e.g., stress reduction), social (e.g., family bonding), economic (e.g., increased property values), environmental (e.g., open space), and health (e.g., benefits of exercise). Driver and associates catalogued more than 100 specific beneficial outcomes associated with PRS.³² If disparities in exposure to the benefits (as opposed to costs) of PRS arise from racial and class inequalities, then PRS appear to fall within the environmental justice framework. This line of reasoning follows the EJ concerns pertaining to outdoor recreation articulated by Floyd and Johnson.^{28,33}

As a matter of public policy, disparities in access to or benefits from PRS become an injustice issue when public policies fail to address the conditions giving rise to inequalities or when policy makers fail to define disparities in PRS as a social problem. Hastings, Zahran, & Cables' work on disparities in drowning rates—particularly their argument as to why drownings become a social justice issue—is used to draw parallels with access to PRS and the health benefits of PA and PRS.³⁴ Differential access to PRS becomes an injustice under three conditions: 1) when racial/ethnic minorities and low-income communities suffer disproportionately from physical inactivity and obesity and show significant differences in life

chances; 2) when these communities lack access to PRS (e.g., parks, playgrounds, and recreation programs); and 3) when no policies are effected to counter the effects of race and class on access to PRS. Differences in life chances of racial/ethnic minorities versus non-minorities are well documented.³⁵ Minority race/ethnicity and low SES are associated with lower PA and lower access to PA resources. No explicit policies exist to ameliorate these conditions. The preceding conditions suggest that lack of access to or poor quality of PRS represents a social injustice. Thus, PRS appear to be amenable to EJ analysis, including documentation of a disproportionate burden and the need for fair treatment and meaningful involvement. Moreover, PRS represent an area of common focus among public health and parks and recreation researchers.

A major challenge in research on EJ in relation to parks and recreation facilities and other PA environments is to identify a set of variables for investigation. In the first wave of EJ research, empirical analyses examined proximity to sources of pollutants and locations of locally unwanted land uses such as incinerators, landfills, and other environmental burdens. Only three studies³⁶⁻³⁸ on EJ have appeared in the recreation and parks literature, and none investigated EJ in relation to urban parks or PA.²⁸ As a result, no models are available from this literature to guide future empirical studies. On the other hand, the broader social science and health literature is investigating the availability of and access to PRS by low-income and minority communities. Given the priorities of *Healthy People 2010*,²⁹ the following subsections review the literature related to environmental characteristics, PA, and race/ethnicity and SES. Four specific areas of research are reviewed: 1) race/ethnicity, SES, and environmental correlates of PA; 2) distribution of and access to parks and other PA environments; 3) quality of parks and recreation facilities and other PA environments; 4) financing of public parks and recreation facilities; and 5) extent of public involvement in decisionmaking by low-income and racial/ethnic minority communities.

Race/Ethnicity, Socioeconomic Status, and Environmental Correlates of Physical Activity

After controlling for age, education, and income, Sallis and colleagues³⁹ found that participation in vigorous-intensity PA was associated with proximal density of pay-for-use exercise facilities. Three studies among African American women^{40,41} and Hispanic/Latina women⁴² found that self-reported perceived factors relevant to the physical environment were not statistically significant correlates of PA patterns. In contrast, King et al.¹⁶ found that significant environmental variables relevant to PA differed among non-Hispanic white, African American, Hispanic, and American Indian/Alaska Native populations. Another study⁴³ found that, among persons who reported having access to walking trails, people with low incomes and those with only a high school education (or less) had significantly increased their walking as a result of trail use compared with people of higher incomes and those with a college education.

Few research studies have assessed changes in the physical environment and the concomitant effects on PA by sociodemographic groups. Two studies indicated that cultural factors can be used to promote PA in relation to environmental variables.^{44,45} For example, locating destination amenities (e.g., grocery stores/markets, restaurants, banks, drug stores, and churches) along a trail or walking path might

promote walking and increase PA. When determining what amenities to locate on the trail or walkway, planners would consider cultural preferences, which would vary by sociodemographic factors.⁴⁴

Inequalities in the availability of PRS have been associated with racial/ethnic and socioeconomic disparities in PA and obesity. A national study found that higher SES block groups had significantly greater odds of having one or more PA and recreation facilities, and lower SES and high racial/ethnic minority block groups were 50% less likely to have a PA and recreation facility.¹⁷ Moreover, the presence of one facility (versus no facility) per block group was associated with decreased odds of overweight and increased odds of PA (measured by five bouts of moderate-vigorous PA per week). Similarly, Wilson et al.⁴⁶ found that low-SES and racial/ethnic minority residents had less access to trails and less usage, and that access to and usage of trails predicted the accumulation of sufficient levels of PA and walking (150 min/wk). These two studies demonstrate the importance of investigating differential exposure to “healthy environments.” That is, disparities in PA, overweight, and obesity may be linked to unequal or inequitable access to PRS. More rigorous studies are needed to establish the link between lower access to PRS and disparities in PA, overweight, and obesity. Nevertheless, such studies further illustrate how EJ extends to PRS and how EJ provides a platform for research collaboration between investigators in public health and those in parks, recreation, and leisure services.

Distribution of and Access to Parks and Other Physical Activity Environments

“Deprivation amplification” is a pattern of diminished opportunities related to the features of the local environment.⁴⁷ In places where people have fewer personal resources, the local facilities that enable people to lead healthy lives are poorer than in areas that are not impoverished and socially deprived.⁴⁷ With PA, for example, deprivation amplification indicates that in places where people have limited resources (e.g., money, private transportation), there are fewer safe, open green spaces where people can walk, jog, or take their children to play; children’s playgrounds are less attractive; and there are more perceived threats (e.g., litter, graffiti, youth gangs, assaults) in these environments.⁴⁷ Residents living in poorer areas are less likely to engage in PA.⁴⁷ The limited research in this area supports the hypothesis of deprivation amplification and confirms that residents living in poorer areas have substantially more barriers to overcome to be physically active.

Reports in the literature indicate that low-income and racial/ethnic minority populations have less access than other populations to PA-friendly environments (i.e., safe, affordable, well-maintained, and appealing environments). In a study adjusting for age, sex, smoking status, body mass index, and baseline PA score, those living in a poverty area showed a greater decrease in PA during a 10-y period compared with those living in a non-poverty area.⁴⁸ In another study, higher median household income and lower poverty rates were associated with increasing availability of PA-related settings.¹⁸ Wilson et al.⁴⁶ reported two dissimilar findings. Respondents from areas of low versus high SES had substantially fewer walking or bicycling trails. In the same study, however, the presence of sidewalks, recreation facilities, and crime did not differ by socioeconomic area.⁴⁶ Estabrooks et al.⁴⁹ found

that low-, medium-, and high-SES neighborhoods did not differ in the number of pay-for-use facilities; however, low-SES and medium-SES neighborhoods had significantly fewer free resources (i.e., walking paths, parks, and playgrounds) than high-SES neighborhoods. Similarly, Brownson and colleagues⁴³ reported that people with more education and higher incomes were more likely to have access to walking trails and indoor exercise facilities.

In addition to income level, relationships between race/ethnicity and PA resources have been investigated. When people were asked to rate their neighborhoods with respect to pleasantness and availability of PA resources, African Americans rated their neighborhoods lower than did non-Hispanic whites, and individuals with higher incomes rated their neighborhoods higher than did individuals with lower incomes.⁵⁰ In a study in Los Angeles, Wolch et al.¹⁹ reported that African American- and Latino-dominated census tracts had less access to park land than did majority white tracts. For example, areas that were 75% or greater Latino had 0.6 acres of parkland per 1000 residents and areas that were at least 75% African American had 1.7 acres, whereas areas that were 75% non-Hispanic white enjoyed 31.8 acres per 1000 population. The study also showed that children and youths who were Latino or African American and of low income had lower access to park land. Although some metro-based studies have shown greater access or availability among low-income or minority populations,^{37,51,52} national studies have indicated that access to public parks, green spaces, and public pools is significantly lower in communities with high concentrations of African Americans.^{17,18} Powell et al.¹⁸ counted parks and other PA resources in 409 communities across the US selected to be representative of the 8th-, 10th-, and 12th-grade student populations. They found that an increasing concentration of African Americans in the population meant a decreased probability of observing parks, open spaces, public pools, and bike paths. Poverty was also associated with reduced availability of sports areas, parks, and bike paths. Research investigating inequalities in commercial recreation services (e.g., fitness clubs) yielded similar results. Commercial facilities were less likely to be found in ZIP codes that had high concentrations of African Americans or Latinos as compared with non-Hispanic whites.⁵³ These findings underscore the need to understand the differences in availability of and access to public parks because low-income and racial/ethnic minority populations may be most dependent on public PRS.⁵⁴

In other research, gender differences were reported.¹⁵ Women with higher incomes (as opposed to lower incomes) reported greater general and specific access to PA areas or equipment, such as walking or jogging trails, parks, and treadmills. In contrast, in the same self-report telephone survey, men with lower incomes reported greater access to specific PA areas such as neighborhood streets and parks than did men with higher incomes.¹⁵ On the other hand, higher-income men reported greater general access to indoor or outdoor places to exercise.¹⁵

Quality of Parks, Recreation Facilities, and Other Physical Activity Environments

Beyond mere availability of and access to PRS, the use of public parks and other community recreation facilities for PA depends on the quality and level of mainte-

nance of the facilities. Quality and maintenance of parks are likely to be associated with racial/ethnic minority status and SES of the community. Few studies in the parks, recreation, and leisure field have explicitly investigated interrelationships among quality of PRS, race/ethnicity, SES, and park use. However, a study from the US Forest Service reported that along the Chicago River Corridor (an urban recreation area), areas adjacent to lower-income racial/ethnic minority neighborhoods exhibited poor vegetation quality, lower levels of maintenance, and less accessibility than areas adjacent to higher-income and non-minority neighborhoods.⁵⁵ Focus group research from another Chicago study indicated that poor quality of parks was a barrier to use. Participants in the study reported not using nearby parks because they were poorly maintained and suggested that parks in white neighborhoods received better maintenance because of their locations.⁵⁶ These reports are consistent with the literature on deprivation amplification.⁴⁷ To date, not enough studies are available to effectively describe how park quality becomes compromised. Inequality in funding for parks may be a key factor.

Financing of Public Parks and Recreation Facilities

The financing of PRS has been studied periodically.⁵⁷⁻⁶² Because public recreation and park agencies rely heavily on public financing, they are vulnerable to political and policy shifts. Thus, research attention related to funding has focused on monitoring the fiscal health of local parks and recreation agencies. Funding is the most critical factor in providing PRS and maintaining facilities.⁶¹ Over time, funding for PRS has shifted from public tax to user support, and about one in three dollars for PRS comes directly from users rather than from government or tax support.⁶² Within an EJ framework, research should examine how spending and available funding influence PRS in low income and racial/ethnic minority communities.

As far as we know, to date no study from the parks, recreation, and leisure field or the public health field has given explicit attention to the financing of PRS by sociodemographic groups. In their study of Los Angeles, Wolch et al.¹⁹ examined whether spending for parks development differed by race/ethnicity and income. They concluded that areas of the city that were heavily Hispanic and with a greater density of children, thus with a greater need for parks development, received the lowest levels of Proposition K funding. Areas of the city with minimum poverty, a lower concentration of children, and above-average park acreage received above-average funding. Although the methodology for this type of analysis is not as sophisticated as spatial analysis of parks and facilities, the study does support the use of spending or funding as a critical measure of inequality. In addition, the study suggests using success rates in obtaining grants, overall per capita spending, and per capita spending per child as funding indicators. Giving attention to the funding of PRS raises concerns related to policy formation and implementation of funding mechanisms. As a result, identification of policy and decision-making process variables (e.g., public involvement) to complement outcomes variables (e.g., park access, location, and availability) becomes important. Sponsors such as Active Living Research of the Robert Wood Johnson Foundation have shown interest in evaluating how policy processes affect PA.

Extent of Public Involvement in Decision Making by Low-Income and Racial/Ethnic Minority Communities

The involvement of low-income and racial/ethnic minority communities in PRS planning and program delivery has not received research attention. EJ encompasses consideration of procedural processes and community involvement along with the distribution of environmental costs and benefits.^{28,33} To what extent do individuals and communities of low income and racial/ethnic minority status have access to decision-making processes? Are their preferences represented? Some scholars believe that public parks and recreation agencies are not effective in meeting the needs of disadvantaged communities. Scott, for example, argued that the shift to entrepreneurial financing strategies and the emphasis on serving traditional patrons exclude low-SES and racial/ethnic minority groups from decision making about PRS.⁶³ Absent empirical studies, some conceptual discussions give greater weight to procedural justice than to distributional outcomes (e.g., location of PRS). According to this perspective, a greater injustice results when there is failure to achieve representation and meaningful involvement not only about where to locate PRS, but also about the nature of the amenities and available options.⁶⁴ This emphasis is consistent with increased interest in recent decades in conducting community-based participatory research. According to Israel et al.,⁶⁵ community-based research “equitably involves, for example, community members, organizational representatives, and researchers in all aspects of the research process.” It is instructive to recall that the EJ movement is a grassroots social movement. Activists and individuals from low-income communities of color organized and educated themselves to advocate for improved environmental quality in their home communities.²³ Federal and state responses to EJ concerns were responses to grassroots action. This fact should not be overlooked when planning collaborations to address disparities in PA through parks and recreation opportunities.

Summary

Although not definitive or causal in nature, these cross-sectional studies begin to suggest an association between disproportionately low access to PRS and other activity-friendly environments in low income and racial/ethnic minority communities and the prevalence of lower levels of PA and higher rates of obesity in these communities. Such differences seem to parallel the EJ literature, which documents the disproportionately greater number of toxic landfills in low income and racial/ethnic minority communities. These differences violate the fair treatment principle necessary for EJ. The emerging body of work on racial/ethnic and socioeconomic disparities also suggests enormous opportunity and potential for collaborative research involving public health and PRS. For many decades, professionals and academicians in the PRS field have been dedicated to enhancing quality of life.^{30,32} Similarly, public health researchers and practitioners have been concerned with promoting healthful lifestyles and behaviors, yet these fields have done little collaborative research. Environmental justice offers a framework for bridging the two fields to address disparities in PA and access to parks and other PA environments.

Future Directions

The previous sections reviewed the EJ movement and associated research and detailed how EJ issues can be used as a framework for research on PRS. Several factors that are relevant to EJ may also influence research on PRS, such as the following: 1) the availability of, access to, and quality of resources; 2) one's level of dependence on public facilities; and 3) the availability of funding, decisions related to funding, and funding allocations. Combined, these factors may influence personal choices related to the ability to use PRS and PA facilities.

Although we have identified several common themes related to the EJ movement in general and the way the EJ movement can frame research related to PRS specifically, additional research may be needed to advance the field. We propose the following suggestions to expand the research agenda related to EJ issues that influence PRS and PA participation in low income and racial/ethnic minority communities.

1. Conduct research by race/ethnicity and SES to assess perceptions of “friendly” and “unfriendly” environments for PRS. For example, how do individuals in various groups define PRS? How do individuals in various groups determine whether an environment is “friendly” or “unfriendly”? Do these perceptions match the definitions and perceptions of the researchers and agencies providing services?
2. Conduct additional research by race/ethnicity and SES to determine the prevalence of “friendly” and “unfriendly” environments for PA. Research on the presence of PRS in low income and racial/ethnic minority communities has shown mixed results; some studies have found lower access^{18,19} and other studies have found greater access.^{37,51,52} Are particular types of PRS more influenced (e.g., commercial facilities) or less influenced (e.g., greenways, parks) by race/ethnicity or SES? Researchers should also consider the notion of deprivation amplification⁴⁷ and determine whether deprivation amplification exists in the area of PRS. For example, in areas where resources are limited, what PRS are available, are they free or fee-for-service, and how accessible are they?
3. Conduct additional research by race/ethnicity and SES to characterize PA participation in “friendly” versus “unfriendly” environments and to quantify, using objective measures, the type, frequency, intensity, and duration of PA occurring in these environments.
4. Conduct additional research by race/ethnicity and SES to assess environmental correlates and determinants of PA and use of resources. For example, what triggers opportunities for people to use PRS and to engage in PA? What are the constraints? What social norms are related to the use of PRS, and do these social norms differ by race/ethnicity and SES?
5. Conduct additional research to characterize the nature of racial discrimination as it relates to EJ issues in PRS. Floyd and Johnson²⁸ noted the difference between the pure discrimination model and the institutional racism model. Under the pure discrimination model, one would have to prove that decisions related to the allocation of resources for PRS were purely racist in intent and that these decisions have a disproportionately negative impact on racial/ethnic minorities and low-income populations. Under the institutional racism model, one would

have to prove that EJ issues in PRS stemmed from discrimination in other social institutions. For example, poor access to PRS among low income and racial/ethnic minority populations may not be a direct result of racist intent, but may be related to unfair housing practices or below-average incomes, which could force those individuals to live in areas with lower access to resources. Further understanding of how racial discrimination influences PRS may be necessary to improve access and quality for low income and racial/ethnic minority communities.

6. Investigate public involvement of low income and racial/ethnic minority communities. What is the nature of constraints and barriers to involvement? What are the preferences for alternative methods of public involvement? Yancey et al.⁶⁶ provided case studies on attempts to engage underserved communities in the diffusion and evaluation of PA promotion. Research is needed to understand how public involvement models should be adapted for different racial/ethnic populations.
7. Develop interdisciplinary and transdisciplinary research teams. Interdisciplinary research refers to the “integration of several disciplines creating a unified outcome that is sustained and substantial enough to enable a new discipline to develop over time.”⁶⁷ Transdisciplinary research refers to the “development and application of a shared, integrative conceptual framework based on discipline-specific theories, concepts, and methods.”⁶⁷ To fully understand the issues that influence PRS and the use of these facilities and services for PA in low income and racial/ethnic minority communities and to create additional opportunities for collaboration and effective research partnerships, new research teams should be formed. Potential partners include behavioral scientists, PA specialists, epidemiologists, exercise physiologists, experts in leisure studies and PRS, PRS providers, and representatives from the populations being served.

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