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Striding Toward Social Justice: The Ecologic Milieu of Physical Activity

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Abstract

Disparities in physical activity should be investigated in light of social justice principles. This manuscript critically evaluates evidence and trends in disparities research within an ecologic framework, focusing on multi-level factors such as neighborhood and racial discrimination that influence physical activity. Discussion focuses on strategies for integrating social justice into physical activity promotion and intervention programming within an ecologic framework.

Keywords

Exercise; Socioeconomic Factors; Race; Ethnicity; Social Environment; Walking; Gender

INTRODUCTION

The U.S. population reports lower than optimal levels of physical activity according to current guidelines (23), with populations of color and those with low socioeconomic status, position, or social class (SES) reporting the lowest levels. These population subgroups are most vulnerable to health-compromising conditions associated with physical inactivity, including heart disease, cancers, hypertension, diabetes, and obesity(23). Investigations of these vulnerable groups suggest that there may be systematic differences in environmental factors that influence physical activity. The coupling of these differences with other social inequalities, such as inequalities in access to high quality housing in safe neighborhoods, healthcare, education, and occupational opportunities, leads to tremendous inequalities in the ability to meet even the most minimal physical activity guidelines. Our work has shown that social justice plays an important role in health and the ability to meet physical activity guidelines at both individual and environmental levels (4–7,12,15,17) Based on our work we hypothesize that social injustices shape individual behaviors and interactions with environments. This manuscript will highlight some of our work and that of others in this area and make recommendations for future research and practices to close the social injustice gap.

Social Justice in Health

Braveman and Gruskin operationalize social justice in health to mean “the absence of systematic disparities in health (or in the major social determinants of health) between social groups who have different levels of underlying social advantage or disadvantage — that is,

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different positions in a social hierarchy, ” (3) (*e.g*., as measured with SES, race or ethnicity, and/or gender). The *absence* of systematic disparity is rooted in the ethical principle of fairness, in that opportunities to be healthy should be an equal right, not a privilege, for everyone in a fair society (3). It is closely related to the concept that social factors are fundamental causes of health, in that persons who are socially advantaged (*e.g*., by way of class, race, and/or gender) command more resources and are more able to take advantage of opportunities to be healthy, compared with their socially disadvantaged counterparts (18). Further, it is crucial to recognize that historical conditions determine the starting points; that is, past social injustices (*e.g*., racial discrimination, oppression of women) have lead to current social disparities in health, which are in turn further worsened by current conditions of social injustice.

In the case of physical activity, populations of color, those with low SES, and women, in general, have less (a) access to safe and affordable places to exercise, (b) leisure time and energy, and (c) exposure to norms and networks supporting physical activity and exercise, compared with their non-Hispanic white, high SES, and male counterparts. At the same time, members of the former groups have more (d) stressful living conditions. Taken together, these factors provide significant barriers to physical activity, and result in systematic disparities in physical activity and its related health outcomes.

The manifestation of systematic disadvantage affecting particular subgroups of the population is perhaps most clearly illustrated by the long history of racial discrimination toward populations of color, particularly African Americans. Williams and Collins define it as, “Incorporating ideologies of superiority, negative attitudes and beliefs toward racial and ethnic outgroups, and differential treatment of members of those groups by both individuals and societal institutions” (24). Racial discrimination, like other forms of systematic oppression, can influence health through three main pathways, causing (a) lower levels of population-level SES, (b) residential segregation, and (c) psychological distress. For example, not only do African Americans have lower average levels of SES than whites, but the indicators of SES are not necessarily equivalent. On average, African American high school graduates are more likely to have received inferior quality educations than white high school graduates. African Americans receive less income for a given level of education than do whites, and college-educated African Americans are four times more likely to experience unemployment than whites. (1) As well, the measures typically used as indicators of SES mask the level of inequality found between populations of color and whites. Although measures of income are frequently included in health research, these do not account for accumulated wealth. According to the latest decennial U.S. census, among the lowest household income quintile, white-headed households had over 400 times more wealth compared with black-headed households (1). These measurement issues have implications for research on disparities in physical activity, discussed further below.

Historical and present day racial discrimination creates inequalities at an individual level as well as at environmental and neighborhood levels. Neighborhoods throughout the United States are still highly segregated by race or ethnicity, partly because of a long history of housing discrimination. African Americans and Latinos are far more likely to live in socioeconomically disadvantaged neighborhoods compared to whites (4). A considerable body of literature has demonstrated that neighborhood socioeconomic characteristics exert independent effects for a wide variety of health outcomes, (15) including physical activity (4,5). Neighborhoods influence the health of all residents, regardless of the residents’ own characteristics, because they share the same local environment, including social aspects (*e.g*., norms and safety); goods and services (*e.g*., parks and recreational facilities); and other physical characteristics (*e.g*., street and traffic conditions).

Residence in an impoverished neighborhood, as well as interpersonal racial discrimination, may increase psychological stress that can in turn lead to lower rates of physical activity. Stress has been linked to numerous psychological maladies, including depression, anxiety, anger, and apathy. Although physical activity has been associated with decreasing feelings of stress along with related psychological maladies, it is often very difficult to begin or continue doing physical activity when one is distressed. Physical activity for fitness or enjoyment may be seen as an additional stressor that is too exhausting or overwhelming to someone who already endures numerous stressors.

SOCIAL JUSTICE AND PHYSICAL ACTIVITY IN AN ECOLOGIC FRAMEWORK

The putative mechanisms and outcome manifestations of social injustice are complex, dynamic, and multileveled. A useful framework to investigate social injustice includes the whole ecologic milieu of the human (22) and accounts for the systemic, interactive, and dynamic nature of the problem. Ecological models of health have recently begun to show promise for guiding research and practice across a variety of health domains. Ecologic models provide a structure to account for multiple levels of influences and the linkages and processes among them. Spence and Lee describe the Ecological Model of Physical Activity that conceptualizes influences on physical activity as micro-, meso-, exo-, and macro-environmental and suggest individual level health behavior and disease states as outcomes (22). The micro- and macro-environmental elements may be thought of as relatively static, but these are linked by dynamic meso- and exo- linkages and processes, and influenced by extra-individual forces of change (*e.g.*, technological innovation), and intra-individual factors that are biological and psychological in nature. Although ecologic models somewhat artificially categorize factors, they provide a useful heuristic to investigate how the multiple factors associated with social justice interact and influence physical activity.

To illustrate an ecologic interpretation of social justice and physical activity, let us consider two examples: Ellen and Jennifer. Ellen completed high school and a two year certificate program at the local junior college. She lives with her aging aunt in her aunt's home in an older and decaying, urban neighborhood. Her aunt also provides after-school care to her two children. Ellen has a job at a city government agency that includes full health insurance coverage for her family. Ellen has no car, but is able to get to work via public transportation, and she has avoided buying a car in order to save up for her own home. She has resisted leaving the "old neighborhood" because of the stories of discrimination that she has heard at the beauty salon — her weekly source of current events and information exchange — about moving to the middle-class, but mostly white, neighborhoods in her community. Ellen is African American.

Jennifer got pregnant during her senior year of high school and, consequently, never finished. She barely makes enough money to support herself and her two children. She has no savings or health insurance, but qualifies for government assistance to provide healthcare for her two children. She is living paycheck-to-paycheck in order to make the monthly rent on her modest townhouse in a middle class suburb. She has recently taken a second job at a local fast food restaurant in the evenings to help pay for school supplies, recent car repairs to her older, used car, and the extra food consumed by her live-in boyfriend, Scott. Although Scott is not the father of her children, he is home most of the time, so her children have someone in the house while she is at work. She believes it is vitally important to maintain her current home to ensure that her children attend a good school, although this decision presents great strain on her day-to-day quality of life. Jennifer is white.

As presented in the figure, the *micro environment* includes the day-to-day environments in which a person lives, works, and plays. The most commonly reported barriers to physical activity are lack of time and competing demands. For some, these barriers may be more like

excuses than true barriers, but for others, who work long hours for low wages in a work environment where there are few recreational physical activity opportunities, these are significant issues. Most women who work and have children spend more hours working and caring for children than do their male counterparts, leading to less time for recreational fitness pursuits (17,19). For example, as primary caretaker and breadwinner, Jennifer has virtually no time that is not scheduled, even though she lives in a residential area that would lend itself well to recreational activities. In contrast, in both Ellen's work and home urban neighborhoods, there are few safe places for physical activity, especially after dark; and, without a car, she relies on her neighborhood for most of her needs after work. Thus, although Ellen may be able to set aside some time to be physically active, her micro-environments are unsupportive for her to do so.

The quality of the pedestrian environment in the neighborhood plays an important role in the decision to walk or be active. A large, representative study of walking for leisure exercise showed that participants were able to achieve recommended amounts of walking when they lived near public open space, streets with minor traffic and trees, or streets with footpaths or sidewalks and shops, regardless of individual SES (8). Walking for transportation is dependent, in part, on having goods and services located within the residential neighborhood (14). In a synthesis of studies of walking for transportation, others show that street elements such as automobile traffic and the general safety of the walking environment between residential neighborhoods and shopping areas influences walking trips for shopping (9–11). Of particular note, among lower SES individuals, in lower SES neighborhoods, improved access to physical activity resources (17), particularly if they are well maintained and located in highly connected areas (12), has been associated with greater physical activity. Ellen and her neighbors have been hoping for some time that the city would see fit to transform the space holding disintegrating buildings, long closed from business gone for years, into useable green space.

Although research has shown that low SES individuals and those living in low SES neighborhoods engage in physical activity when they are exposed to supportive physical environments, those who suffer from social injustices tend to live in neighborhoods where there may be few opportunities for physical activity both within and nearby the home. Neighborhood SES can be considered as both a micro- and a macro-environment factor. For example, as a micro-environmental factor, low neighborhood SES is associated with few physical activity resources (7), and those resources may be lower quality or less well maintained than those found in more affluent areas (16), Higher SES neighborhoods not only tend to have more physical activity resources, but also tend to have more *free* physical activity resources (7 16, (19). As well, low SES neighborhoods may be less safe, requiring children and adults alike to avoid time spent out of doors, reducing opportunities for physical activity. In our example, Jennifer's neighborhood has better sidewalk maintenance, good quality resources for physical activity, little automobile traffic and very low crime. These neighborhood characteristics allow her to easily be physically active on rare unscheduled, Sunday afternoons, and allow her children to safely play outside without constant supervision, a luxury she knows she would not have if she were not willing to work two jobs to stay in her neighborhood.

The *meso-environment* is the link that connects an individual's micro-environments. This includes both the physical environment linkages and the interactive processes, or the lack thereof, which may occur across micro environments such as conversations and other shared experiences with others. Commuting between work and home represents a meso-environment that may differentially affect populations of color and those with low SES. Jennifer spends about 80 minutes each day commuting to and from work, and an additional 10 minutes, at least, with child transport to school in the mornings. She has tried to get a day job closer to home, but given her limited education, there are few higher paying positions nearby her suburban neighborhood so she sacrifices time for the added income.

The increase in the amount of commuting time, particularly if reliant upon public transportation, reduces leisure time that might be spent in physically active pursuits. Gains in energy expenditure among residents of lower SES neighborhoods have been attributed to greater reliance on public transportation (17). However, the potential limitations of promoting public transportation as it currently exists as a physical activity strategy outweigh these small benefits. Commuting via public transportation is not inexpensive, is almost always inconvenient in terms of time and schedules, and may actually increase sedentary time while one is waiting or riding. As well, increases in physical activity resulting from walking to a transportation stop are unlikely to translate to increases in physical activity in other domains since transportation stops are usually located in areas that are more convenient for automobile traffic and less appealing and appropriate for pedestrian recreational activity. Ellen finds the 45 minutes of time that she commutes by bus each morning and again each evening as mostly wasted time. She spends only 9 – 12 minutes on either bus, but her transfer is always a long wait in a noisy and smelly location where she feels she must pay close attention to her belongings lest they go missing.

Time spent commuting not only limits the discretionary time of the commuter but also limits the time that the commuter has to interact with important others, yielding less time for shared physical activity experiences. For example, as we have seen with Jennifer, parents who spend long hours commuting have less time to play with their children, supervise child play out of doors, or interact actively with other family members. As well, this time spent commuting reduces opportunities for social interactions with neighbors that might build collective efficacy in neighborhoods, enhancing both real and perceived safety, further contributing to a micro-environment not fit for human physical activity.

The *exo-environment* is the link that connects an individual's micro-environment with other micro environments that do not typically include the individual. For example, one might not ever step foot into a neighbor's home, but that micro environment may still be connected to activities that happen in one's own home. One advantage to Ellen's public transportation commute is that she has an opportunity to interact with her neighbors on her way home as she walks from her bus stop, if the weather is fair and she gets off early enough. This conversation and time spent with neighbors is an exo-environment link. However, if she leaves work later, or the bus is late, she is rushed to get home to protect her personal safety, then this link is no longer available.

Another exo-environment linkage exists between the workplace of a parent and the child's school. The school does not typically include the parent, and the workplace does not typically include the child, but experiences that happen in each of these micro-environments may influence each other via exo-environmental connections. For example, the schools in Jennifer's neighborhood are recognized as leaders in academic subjects, as well as physical activity and the arts. Jennifer's children enjoy high quality physical education programming and have, on occasion, taught their mother a few things about physically active games on those rare unscheduled Sundays in the park. In converse, a conversation "around the water cooler" at work about the increasing worries of childhood obesity may then lead to a parent who supports school-based physical activities at her child's school, even though she, herself, is not usually at the school. Parents who participate in workplace-based physical activity programs may have children who perceive physical activity during the day as normative, and be more likely to do physical activity during their day as well, and later as adults. Ellen's children also receive physical education programming at school, but the instructor is also the school English teacher, who has no formal training in physical education, and the equipment is the same as when Ellen when to school. Everyone in Ellen's family has struggled with weight control, and she has similar fears for her children. Knowing that the school offerings are slim, she has tried to teach her children about physical activities in their shared time together. This is usually done in the

home while watching televised sports, rather than out of doors, because their neighborhood does not afford them a safe space for physical activities.

The *macro-environment* is the broader social context that encompasses the micro-, meso- and, exo- environments. This includes pervasive influences like institutional discrimination and policy. Macro-environmental factors directly influence the behavior of people, above and beyond their individual characteristics. Although the specific mechanisms underlying these relationships are not well conceptualized, the associations are reliable and enduring. Some have conceptualized neighborhood SES as a macro-environment factor, as well as a micro one as discussed earlier, as it has aggregate characteristics and has been shown to influence individual resident health behavior and outcomes, including physical activity and energy expenditure (17). These studies typically define neighborhood with census or other neighborhood-scale catchment boundaries (5,6,7,15,16,17) and hypothesize that neighborhood factors influence behaviors through the built environment, norms and values, and/or other social processes.

Institutional discrimination lies within the macro-environment social structure itself, in comparison to interpersonal discrimination, that happens between individuals, or internalized discrimination, that happens within individuals. Institutional discrimination is usually examined by its results, such as disparities in political and civic representation, access to education and occupational opportunities and health behaviors and outcomes. In the realm of physical activity, institutional discrimination is also reflected by the lack of health promoting urban planning in deprived areas, as we see in Ellen's neighborhood, and the converse of greater investment in higher income areas, as we see in Jennifer's neighborhood. As well, institutional discrimination may underlie the association between higher crime rates in neighborhoods with lower SES. More deprived areas may have fewer resources for enforcement of policies that reduce crime, such as community policing, as well as fewer educational and job opportunities to prevent crime in the first place.

Macro-environmental level policies can be used to increase physical activity participation; however, these too favor some groups over others. For example, national policies to increase time spent in physical education during the school day (*e.g.*, Child's Nutrition Act) are only effective when implemented and enforced. Schools in deprived areas, like in Ellen's neighborhood, may have fewer resources, in terms of certified physical education specialists, places and equipment to do physical activity and time during the school day for physical activity. Thus, even with a national policy requiring physical activity, if there are no resources allocated to enact, enforce, and evaluate it, children at schools in more deprived areas may not gain the skills necessary for a lifetime of physical activities.

Macro-environmental policy can have a direct impact on individuals but is also mediated by micro-environmental factors. Other macro-environmental level policies centering on transportation and automobile traffic regulation, urban development and air quality stand to enhance the quantity and quality of the pedestrian environment. These policies occur at the macro-environment level, but can directly impact the physical activity choices of residents at the individual level. Jennifer's traditional suburban neighborhood has a safe and appealing green space for recreational leisure time activity, but zoning regulations provide few goods and services located near her home. Although her neighborhood has safe and attractive opportunities of physical activity, walking is typically only done for leisure, rather than for active transportation since there are no destinations except other residences available.

The micro-, meso-, exo-, and macro-environments all contribute to the greater *ecologic milieu* of the individual. The *ecologic milieu* is everything that contributes to the location and presence of healthy, physically active people living in a given environment. The multi-leveled environmental influences all contribute to promoting an abundant or faltering ecologic milieu.

In both cases of low individual SES and low neighborhood SES, it may be challenging to get sufficient physical activity, not because of any particular genetic tendency, but rather because micro-environments (home, school, work) do not support physical activity, meso-environments (commute) do not allow for time or opportunities to promote physical activity, macro-environments (discrimination, policies) do not favor physical activity opportunities, and other subtle forces that may benefit higher SES individuals (globalization, technology) may actually create greater hardship for lower SES individuals. This situation is not unique and describes many who then find themselves within an ecologic milieu comprised of sedentary individuals who are over represented among lower SES, women, and populations of color.

The ecologic milieu is dynamic, influenced both from external and internal forces. *Pressure for macro system change* has manifest as technological innovation, modernization, and globalization. These pressures will differentially affect some groups more or less favorably. Technological innovation is only useful to those who can access and use the technology. For example, Jennifer's tight budget does not allow for a computer or internet at her home, but the fact that her incomplete educational foundation does not give her the understanding of fundamental computer skills renders her lack of monetary resources moot. As well, the fact that many traditional labor jobs have been moved to less industrialized nations to capitalize on very low wage earners in those countries dramatically limits the types of jobs for which she is qualified, landing her a job in the service industry with little chance for advancement. These realities will differentially affect those with low SES regardless of race or gender, but when coupled with macro-environmental factors such as institutional discrimination and persisting gender roles for women, this effect will be greatly amplified in some groups over others. For example, if Jennifer were walking in Ellen's shoes, in a lower SES neighborhood, with no car, and few opportunities, the probability of meeting good health recommendations would be exponentially lower.

In the face of the ecologic milieu, *intra-individual factors*, the biology and psychology underlying daily and lifelong experiences may be less influential for achieving optimal health. There continues to be a perception that physical activity and related health outcomes are guided by individual choice and independent decisions, but this does not acknowledge the fact that there are not equal opportunities to be physically active. Individual beliefs about physical activity suggest that many people truly believe that if they just had the "willpower" to stick with a lifestyle change, they too could be more physically active. This misperception is based in the reality that the individual "willpower" does not account for the many extra-individual environments that exert influence on the individual. Although an individual must have the physical capacity to be active, actually adopting and maintaining a physically active lifestyle may have very little to do with any individual biology, beliefs, attitudes, or knowledge (6, 19).

RECOMMENDATIONS

It is remarkable that environmental factors at even the most macro levels contribute to poor individual health behaviors and outcomes. The social injustices that have occurred in the United States are not something to be recovered from overnight. Recovery from social injustices takes consistent, sustainable, coordinated efforts at all levels, along with broad-based adoption and promotion prior to tangible and measurable impact on population physical activity levels. We propose integrating strategies couched within an ecological framework, drawing on theory and working within existing social and political structures.

Ameliorating social injustices is a challenging and complex goal that cannot be accomplished by any single strategy. From theory to research to practice, there must be systematic efforts to close social disparities in health behaviors and outcomes. There is need to develop and refine

theoretical and conceptual models that account for putative mechanisms and suggest ameliorative strategies. The following recommendations can be linked to the ecologic framework described above; however, many connect and overlap with more than one element. The disadvantage to this is that the complexity makes it nearly impossible to solve the problems and issues with simple strategies. The advantage to this is that even a relatively small effort can have far-reaching impact, and a coordinated effort at multiple levels may have a powerful impact of not only providing the place, and opportunity, but increasing the individual capacity to choose physical activity as well.

Micro-Environmental Strategies

Measurement and Monitoring—Physical activity is a behavior done by humans, and thus must be measured as an individual characteristic. The single most vexing factor in physical activity promotion historically has always been measurement. Self-report measures are often inaccurate, and traditionally these measures have focused on the relatively narrow range of leisure time physical activity. Improved self report measures now include assessment of multiple domains of physical activity, including work and transportation, as well as time spent sedentary. In answer to questions of the reliability of self-report measures, researchers have turned to electronic monitors such as heart rate monitors, pedometers, and accelerometers. Monitoring devices come with their own set of limitations, primarily focused on limitations with norms and standards for community samples, disagreement among data interpretation, limitations in the type of physical activity measurable, and problems with wearers, wearing them ineffectively, or losing them. There is room for development and refinement of existing measurement strategies that include multiple measurement strategies.

As awareness of multilevel promotion efforts develop, individuals must be educated to understand the importance of appropriate and accurate measurement of physical activity. Just as the public recognizes that appropriate measurement and monitoring of blood pressure is vital to good health, physical activity must be recognized the same, to avoid misrepresentation of behavior and misuse, loss, or theft of equipment.

Another measurement factor of particular import to social justice issues is SES, which is especially critical in studies of racial and ethnic disparities in health. Indicators of individual- or household-level SES have consistent and persistent associations with nearly all health behaviors and outcomes. However, there are numerous conceptual and methodological concerns with how SES indicators are selected, defined, and interpreted in heath research. Previous methodological work has found that conclusions regarding racial and ethnic disparities could vary with how SES is measured (1,2); recommendations from this work include choosing measures that are outcome- and population-specific, and chosen based on plausible pathways. In addition, at a minimum, researchers must acknowledge the limitations in their measurement and interpret their findings accordingly.

Monitoring individual-level and micro-environment social inequalities in physical activity, and the health consequences of physical inactivity, is crucial for evaluating the effects of programs and policy. Programs and policies, even when well implemented, can have the unintended consequences of increasing — rather than decreasing — social inequalities in health, since those with more resources are more able to benefit from them. From a social justice perspective, the goal should be to increase physical activity levels for all groups, but with those more disadvantaged increasing at the fastest rate. Routine monitoring is important to evaluate new programs and policies and provide insight into whether current efforts should be continued or modified.

Appropriate intervention—One key to sustainability is that behavior change must be easy to maintain within the environment in which it occurs. There are many innovative intervention

strategies that have promoted many kinds of physical activity. For example, a recent focus for increasing physical activity in African American youth has been the implementation of drill teams and dance groups (20). Interventions like this are novel, exciting and fun; however, it is uncertain how sustainable they are after the intervention is over, because they require special settings, equipment, training and resources for instructors, uniforms and other gear. The most popular physical activity, regardless of individual characteristics, is walking, perhaps in part because it is almost universally supported to some degree by most human environments. Walking is an excellent form of physical activity, because it provides increased cardiovascular benefits without significant stress to the body, it is cost-effective, and it is adaptable to many different lifestyles. We propose that a global intervention and public health promotion message focus on walking, while at the same time devoting funds to building and improving neighborhoods with pedestrian activities in mind. Physical education programming, individual cultural traditions, the media, and individual interest should continue to focus on enjoyment of a variety of physical activities. However, a single public health message focused on a single behavior with coordinated efforts at multiple levels of analysis would have the biggest bang for buck for the majority of the population not meeting physical activity recommendations.

Meso- and Exo-environments

Community based participatory action research stands to enhance the linkages and process among micro environments, and from participant micro environments to researchers. Participatory action research is predicated on the notion that human research participants from the population under investigation must be included in the planning, implementation, and dissemination of the research, although in practice, the level of involvement varies on a kind of continuum. This research can be accomplished by varying levels of involvement of the community. At the low involvement end, researchers must invite key members of the population under investigation to serve as community advisors. Community advisors can be community leaders who can provide valuable feedback about how to recruit and retain research participants, appropriateness of intervention and assessment materials, and dissemination of findings to the people who can implement strategies and techniques learned from the research.

At the high end of involvement, researchers can engage in participatory action research. In participatory action research, members of the community under investigation are involved at all levels of the project. Community members are involved in study development, design, implementation, assessment, and dissemination. Although this can be overwhelming to the science, it can also be extremely invigorating. As well, the community perspective can provide invaluable insight into the feasibility of projects prior to proposal development and submission.

Community-based and participatory action research has the potential to reduce social inequalities, because it gives power to disadvantaged groups to shape research designs and activities by enhancing the meso- and exo-environmental links. These strategies may have the boon of resulting in more robust and sustainable outcomes, especially when combined with time-tested behavioral techniques.

Macro-environments

Policy implementation, enforcement, and monitoring have great potential for improving the health of many. Since policy occurs at a macro-environmental level, one well-crafted policy can change behavior in millions with relatively little cost and without requiring the individual to be a member of a particular group or change other individual factors (*e.g.*, motivation). Poorly crafted policies and policies that are not properly implemented and enforced can have divisive effects, and can actually worsen social inequalities. As with the case of smoking reduction over time in the United States, increasing physical activity at the population level may require a multi-level, multi-pronged approach. Such an approach requires focusing on

addressing the fundamental structural determinants of health over the long term (*e.g.*, educational quality and employment opportunities, institutional racism), outside the realm of the health sector, as well as localized efforts over the short term. Such efforts might include urban planning or design initiatives (such as smart growth strategies and mixed use design), work policies that encourage physical activity (*e.g.*, flexible work schedules, job sharing, exercise classes, release time for physical activity and grooming, on site showers, and grooming facilities), establishment of neighborhood walking groups, maintaining parks and recreation facilities, crime reduction and traffic calming strategies, and school-based programs (*e.g.*, physical education requirements, after-school physical activity programs, sports). These efforts must be sustainable and targeted to those populations and localities most in need in order to reduce social disparities.

CONCLUSIONS AND FINAL THOUGHTS

Promotion, adoption, and maintenance of physical activity itself is challenging, but when linked to a social justice framework, as we have illustrated from our work and that of others, there are many other issues resulting from the many levels of environment. In a social justice framework, environmental factors must be considered carefully. In our work, we have found that micro-environmental factors including like the home and work environment, time spent there, as well as numerous other dimensions must be included. The meso- and exo-environment connections among micro-environments must be considered and measured, including interactive and dynamic processes. For example, measures of social support and connectedness can yield insight into the social processes and linkages that occur as part of the meso- and exo-environments. Macro-environmental factors must be accounted for, either through direct or proxy measurement. Other dynamic forces that influence the human ecology must be accounted for as well and limitations in or absence of measurement should be acknowledged (1)

We have framed our research investigating health and physical activity from a social justice perspective to highlight ongoing societal struggles and suggest ameliorative solutions, many of which may not, at first blush, seem to have apparent connections to physical activity or even health more broadly defined. Our data, as well as that from other research, provide a glimpse of the problem and can show us how we have gotten to this point. It is now time to take the next steps to understand and promote strategies to reduce social injustices, providing equitable opportunities for health for all.

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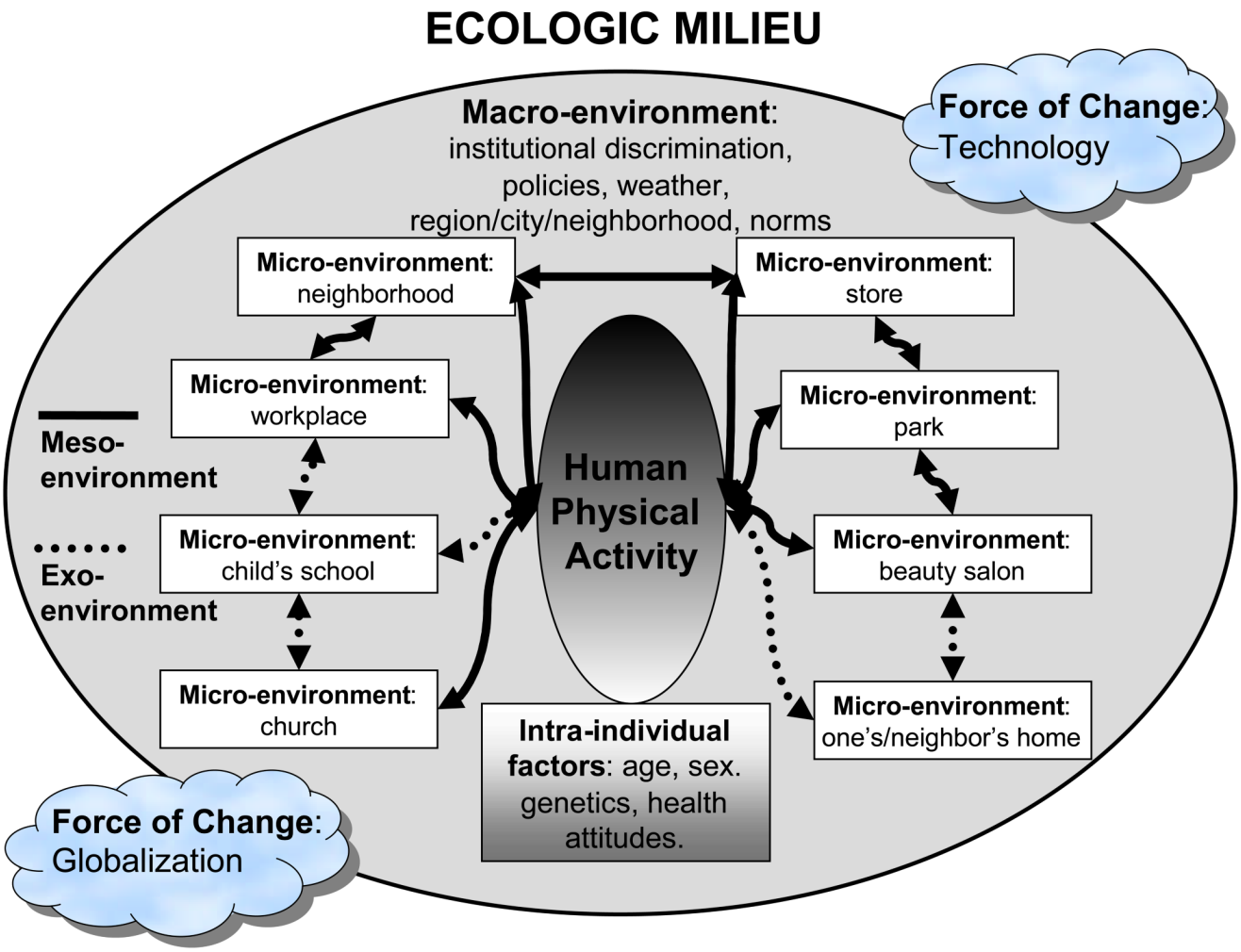

Figure 1. A social justice re-interpretation of the Ecological Model of Physical Activity

Note. Neighborhood may be considered both a macro- and micro-environmental factor, depending on how it is defined. Meso-environments are the linkages and process connecting the human outcome with micro-environments where she typically works, plays or lives; exo-environments are the linkages and processes connecting the human outcome to micro-environments where she typically does not work, play, or live.