Social Science & Medicine 131 (2015) 18–30

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Review

Urban environment interventions linked to the promotion of physical activity: A mixed methods study applied to the urban context of Latin America

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ARTICLE INFO

Article history:
Available online 28 February 2015

Keywords:
Latin America
Physical activity
Urban environments

ABSTRACT

This study summarizes the evidence from quantitative systematic reviews that assessed the association between urban environment attributes and physical activity. It also documents sociopolitical barriers and facilitators involved in urban interventions linked with active living in the ten most populated urban settings of Latin America. The synthesis of evidence indicates that several attributes of urban environments are associated with physical activity, including land-use mix and cycling infrastructure. The documentary analysis indicated that despite the benefits and opportunities provided by the programs and existing infrastructure in the examined cities, an overall concern is the rising inequality in the coverage and distribution of the initiatives in the region. If these programs and initiatives are to achieve a real population level effect that helps to reduce health disparities, they need to examine their social and spatial distribution within the cities so they can reach underserved populations and develop to their full potential.

1. Introduction

There is compelling evidence on the benefits of physical activity, including a lower risk of cardiovascular disease, diabetes mellitus, and some cancers (Jeon et al., 2007; Monninkhof et al., 2007; Sattelmair et al., 2011; Teychenne et al., 2008). Physical inactivity is responsible for 9% of global premature mortality (Lee et al., 2012) and is estimated to be the sixth and eighth major risk factor contributing to the burden of disease in Central and Andean Latin America, respectively (Lim et al., 2012).

To face this growing public health challenge, there is a need to undertake interventions that have a broader impact at the population level (e.g., policy and environmental changes), instead of relying on individual counseling alone (Brownson et al., 2006). There are many studies, mostly conducted in high-income countries, which have established a relationship between urban environment attributes and physical activity (Ferdinand, 2012; McCormack and Shiell, 2011). While the urban environmental characteristics examined in these studies may have an important impact on physical activity levels in North America and other affluent countries, there is uncertainty about the applicability of

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http://dx.doi.org/10.1016/j.socscimed.2015.02.042
0277-9536/

this evidence in low- and middle-income countries. Latin America is one of the most urbanized regions in the world ranging from 57% in Central American countries to 89% in the Southern Cone (Chile, Argentina and Uruguay). Even Brazil and Mexico, the most populated countries of the region, have urbanization rates of 87% and 77%, respectively (ONU-HABITAT, 2012). The aims of the present study are twofold: 1) to summarize the evidence from quantitative systematic reviews and meta-analysis that assessed the associations between urban environment attributes and physical activity; and 2) to conduct a documentary analysis of the sociopolitical facilitators and barriers involved in the interventions identified in the review of the urban context of Latin America.

2. A brief overview of urban processes in Latin America

The current patterns of physical activity among the different socioeconomic strata and other social conditions in Latin America are closely related with the urban processes of the region. These processes have been characterized by a prevalence of social and environmental inequalities, unplanned and disorganized growth, and underlying convergence of political and socioeconomic factors (Chant and Mcilwaine, 2009; ONU-HABITAT, 2012; Sabatini, 2003). The migration from rural to urban areas was influenced by different internal and external factors, such as globalization, the implementation of Import Substitution Industrialization (ISI) policies, structural adjustment plans (SAPs), and land conflicts in rural areas. In the 1950s, ISI policies were implemented as a trade and economic strategy aimed at reducing dependence on foreign manufacture goods by investing in local industry in larger cities of the region (Baer, 1972). ISI policies further exacerbated the large socioeconomic inequalities between rural and urban areas observed today in Latin America because they were accompanied by profound changes in the modernization of agricultural production and rapid urbanization (Baer, 1972). As a consequence, most Latin American countries experienced a massive and unprecedented migration from rural to urban settings during 1950–1980 (ONU-HABITAT, 2012).

The internal migration caused by these social and economic changes has contributed to the creation of massive metropolitan areas with 10 million or more inhabitants, such as Greater México City, São Paulo, Rio de Janeiro and Buenos Aires (ONU-HABITAT, 2012). The relatively small industrial growth and the lack of state intervention were unable to meet the job demands of this new population. As such, these new migrants have usually resorted to employment in informal economic activities as street vendors, porters, handymen, and other odd jobs in public spaces such as sidewalks, pedestrian bridges, parks and plazas located in commercial areas, (Ghersi, 1997; Portes, 2005). The magnitude of this problem is quite large and in 2007, it was estimated that 57% of the employment in urban areas of the region came from the informal sector, such as street vendors (Inter-American-Development-Bank, 2011; Perry, 2007).

In most cases, these new migrants to Latin America's megacities are not only part of the informal labor economy; they are also usually settled in informal housing developments. The pace of informal settlement creation has increased and abetted by land speculation, political corruption, and inappropriate land regulations (Clichevsky, 2000). These informal settlements are known as “favelas,” “tugurios”, “pueblos jóvenes”, “comunas”, and “zonas marginales” depending on the country of the region. Usually, these areas are divided into plots by “pirate urban developers” and are acquired by the newcomers who usually build their own dwellings (Chant and Mcilwaine, 2009; ONU-HABITAT, 2012; UN-HABITAT, 2008). These settlements have important deficits, not only in dwelling quality and public services, but also in recreational spaces, public transportation, and urban safety which are all linked with physical activity patterns (ONU-HABITAT, 2012). Due to their informal nature, many are located in geologically vulnerable areas, increasing the exposure to natural disasters. Moreover, governments do not have the capacity to address housing needs for the constant flow of migrants, thus high risk zones that have been previously evacuated are occupied again by new waves of newcomers (ONU-HABITAT, 2012).

In countries that have experienced internal armed conflicts, like Colombia, this process has been accompanied by a large migration of nearly 6 million internally displaced people (IDPs) (Victimas, 2013). Colombia has the highest number of IDP in the world followed by Sudan and Congo. Guatemala, Mexico, and Perú are other Latin American countries that have also suffered from forced displacement, but at a smaller scale (Centre, 2013).

These urban areas experienced increasing crime and violence in the 1980's when a deep economic and social crisis occurred in Latin American. Much of this has been closely linked to illegal drug trade (Montoya, 2004). The failed demobilization processes of illegal armed forces in Latin America has contributed to the growth of crime and violence due to many former combatants being recruited by urban gangs and post-conflict mafias (Pearce, 1999; Rozema, 2008). The evidence of violence perpetrated by these groups is reflected in the homicide rates where nine out of the ten cities worldwide with the highest rates were in Latin America, including Ciudad Juárez, San Pedro de Sula, and Caracas (Inter-American-Development-Bank, 2011). Studies in some Brazilian cities suggest that this situation could negatively impact physical activity during both leisure time and active transportation (Reis, 2013, Reis et al., 2014; Rech, 2014; Salvador, 2009). It is important to note that even considering the complexity of violence and crime in the Latin American context, many may walk simply due to a lack of alternative options, regardless of safety concerns (Reis et al., 2014).

Despite the overall trend of economic growth and the remarkable reduction of inequality in the last decade, Latin America is by far the most unequal region in the world. Among the cities with the highest Gini coefficient (a measure commonly used to assess inequality based on income distribution) are São Paulo, Rio de Janeiro (0.62 respectively), Bogotá (0.61), and Belo Horizonte (0.60) (ONU-HABITAT, 2012; United Nations Development Programme, 2013). Such pronounced social inequalities are not only observed in the income distribution, but also in access to adequate dwellings, public spaces, and educational and health services (ONU-HABITAT, 2012). According to data available for Bogotá, São Paulo, and Belo Horizonte, the poorest areas of these cities have the lowest index of green areas and public space per inhabitant (Bonduki, 2011). In addition, the population is affected by inadequate transport causing individuals to travel long distances from home to work. As a consequence of these urban environmental inequalities, human development and quality of life have substantially decreased (PNUD, 2008; Moraes-Pereira, 2011).

Although these statistics paint a gloomy scenario, the socioeconomic and urban conditions of Latin American have improved since 2000, with a slow reduction in the number of people living under the poverty line in the past 10 years (UN-HABITAT, 2008). In the past two decades the proportion of inhabitants living in slums or substandard dwellings has decreased from 33 to 24%; however, in absolute values the number increased from 106 to 111 million in the same period (ONU-HABITAT, 2012).

Together, these urban processes have had an impact on the urban densities and other urban attributes. While the urban densities in Latin American have somewhat diminished in the last decade (ONU-HABITAT), they are still higher compared to North American and lower than those observed in China, India, and Pakistan. There