IV WPSC
IV WORLD PLANNING SCHOOLS CONGRESS JULY 3-8TH 2016 RIO, BRAZIL

Leisure-time physical activity among adult women in Northern Mexico: relation to neighborhoods, parks provision and social deprivation

Hilda García-Pérez, PhD[1], Francisco Lara-Valencia, PhD[2]

[1]*El Colegio de la Frontera Norte*

mhgarciaperez@colef.mx

[2]*Arizona State University*

Francisco.lara@asu.edu

Background: It has been widely documented around the world that physical inactivity is a major factor in the increasing risk of non-communicable diseases and premature mortality[1]. Cardiovascular diseases, type 2 diabetes, osteoporosis, colon cancer, and obesity are some of the chronic conditions whose incidence across nations is inversely related to physical activity[2]. Despite increased awareness in past years, for most developing countries physical activity remains a pressing public health issue.

Particularly, inadequate levels of physical activity have been associated with the epidemic of chronic diseases and obesity affecting Mexicans, but principally women. Epidemiological data show that 10% of cases of breast cancer, 6.2% of coronary hearth diseases, and 7.7 % of type 2 diabetes affecting Mexican women are attributable to a lack of physical activity [3].

Because of the public health benefits of LTPA, international agencies are recommending programs promoting exercise in developing countries, particularly programs targeting women and other at-risk groups[4]. Authorities in developing countries are responding to these calls by launching ambitious programs to engage people in regular exercise, as well as eliminating barriers to physical activity [5, 6]. A case in point is Mexico City's "*Muevete y Metete en Cintura*" program that promotes physical activity through education, enhancement of public parks, and the transformation of abandoned city parcels into spaces for community recreation [5].

As this case illustrates, authorities are paying increased attention to the influence of the built environment, including the availability of public parks, on physical activity[7-9]. An extensive literature in industrialized nations suggests that density and proximity of parks in residential areas goes further than just stimulating their use; it improves residents' tendencies to engage in various forms of physical activity and healthier lifestyles. In particular, the availability of parks and other green spaces in neighborhoods has been positively associated with the frequency of brisk walking, walking, cycling, and spontaneous free play among residents[10-13]. Some of these studies indicate that the availability and accessibility of safe open space and parks in neighborhoods are particularly important in enabling women's engagement in LTPA[7,14]

However, few studies in Mexico and other developing countries have examined the association between provision of parks and women's propensity to engage in physical activity[15-17]. Understanding women's physical activity patterns and their correlates in urban neighborhoods of developing nations, like Mexico, is needed to expand the existing knowledge of physical activity and contextualize it within the realities of the global south. Accordingly, this article examines whether park availability and accessibility, along with neighborhood social deprivation are independent predictors of women's LTPA in Hermosillo, Mexico. To the best of our knowledge, this is the first study examining the link between neighborhood parks and LTPA among women living in northern Mexico and seeks to enrich a literature whose finding are sustained primarily on research in highly industrialized societies.

Purpose: This study examines whether park availability and accessibility, along with neighborhood social deprivation are associated to women's leisure-time physical activity in northern Mexico.

Methods: A multilevel logistic regression analysis was used to assess the influence of parks on physical activity among adult women in Hermosillo, Mexico. The analysis links two measures of physical activity extracted from a 2005 probabilistic sample of women aged 25 to 54 (n=1285) to data on neighborhood parks and neighborhoods' deprivation (n=44).

Results: Twenty two percent of women engaged in neighborhood-based physical activity (NPA) during the 12 months prior to the survey, while 29 percent engaged in overall physical activity (OPA). After adjusting by neighborhood and individual level variables, parks density, park-to-people ratio, combined service areas, or distance to the nearest park were not related with NPA and OPA. Neighborhood deprivation was the only contextual variable with a significant influence on women's OPA (AOR=1.06; 95% CI 1.01, 1.12). After controlling for neighborhood-level variables, age and education were also statistically associated with physical activity. **Conclusions:** Our findings did not support a connection between the presence of parks and women's physical activity in Hermosillo, Mexico. Other neighborhood level factors could be mediating this connection.

References

1. WHO: Global Strategy on Diet, Physical Activity and Health. Geneva: World Health Organization; 2004:1-20.

2. WHO: Mega Country Health Promotion Network Meeting on Diet, Physical Activity and Tobacco. Geneva: World Health Organization; 2002.

3. Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT: Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet.* 2012;380:219-229.

4. OPS: Estrategia Mundial sobre Alimentación Saludable, Actividad Física y Salud (DPAS). Plan de Implementación en América Latina y el Caribe 2006-2007 Washington, DC Organizacion Panamericana de la Salud; 2006:23.

5. Gobierno del Distrito Federal: Programa Muévete y Métete en Cintura. 2014; http://www.salud.df.gob.mx/ssdf/index.php?option=com_content&task=view&id=4049.**6.** Secretaría de Gobernación: Reglas de Operación del Programa Rescate de Espacios Públicos. In: Secretaría de Gobernación, ed. México D.F. : Diario Oficial de la Federación 2013:38.

7. Day K: Active Living and Social Justice. *American Planning Association. Journal of the American Planning Association.* 2006;72:88-99.

8. Diez Roux AV: Residential environments and cardiovascular risk. *J Urban Health. .* 2003;80:569-589.

9. Doyle S, Kelly-Schwartz A, Schlossberg M, Stockard J: Active Community Environments and Health. *American Planning Association. Journal of the American Planning Association.* 2006;72:19-31.

10. Timperio A, Ball K, Salmon J, Roberts R, Crawford D: Is availability of public open space equitable across areas? *Health & Place.* 2007;13:335-340.

11. Nagel CL, Carlson NE, Bosworth M, Michael YL: The Relation between Neighborhood Built Environment and Walking Activity among Older Adults. *Am J Epidemiol. 2008 August 15; 168(4):.* 2008;168: 461–468.

12. Roemmich JN, Epstein LH, Raja S, Yin L, Robinson J, Winiewicz D: Association of access to parks and recreational facilities with the physical activity of young children. *Preventive medicine.* 2006;43:437-441.

13. Ziviani J, Wadley D, Ward H, Macdonald D, Jenkins D, Rodger S: A place to play: Socioeconomic and spatial factors in children's physical activity. *Australian Occupational Therapy Journal.* 2008;55:2-11.

14. Humpel N, Owen N, Leslie E: Environmental factors associated with adults' participation in physical activity: A review. *American journal of preventive medicine.* 2002;22:188-199.

15. Bauman AE, Kohl IIIHW: Physical Activity and Public Health in Latin America-- Moving Forward. *Journal of Physical Activity & Health.* 2010;7:S135-S136.

16. Parra DC, Gomez LF, Fleischer NL, David Pinzon J: Built environment characteristics and perceived active park use among older adults: Results from a multilevel study in Bogotá. *Health & Place.* 2010;16:1174-1181.

17. Siqueira Reis R, Hino AAF, Ricardo Rech C, Kerr J, Curi Hallal P: Walkability and Physical Activity: Findings from Curitiba, Brazil. *American journal of preventive medicine.* 2013;45:269-275.