

The role of the environment in the promotion of sports and physical activity

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Introduction

Physically inactive lifestyles are a major cause of morbidity and mortality from chronic diseases in industrialized nations. The need to increase physical activity is a public health priority, but intervention approaches should be based on empirical research that identifies correlates and potential influences on the behavior. Demographic, psychological, and social correlates of physical activity have been widely studied in adults and youth, but physical environmental variables have been much less studied. Principles based on ecological models of behavior posit it is important to understand multiple levels of influences on health behaviors. There is reason to believe that physical environmental variables may play an especially important role in physical activity, because psychosocial and socio-demographic variables explain limited variance in physical activity.

Research is accumulating in two disparate fields that supports the contention that physical environments explain substantial amounts of variance in physical activity. Humpel, Owen, and Leslie reviewed studies in the health and behavioral sciences literature. The authors concluded that accessibility to recreational facilities, opportunities for physical activity, and aesthetic attributes were consistently and significantly related to physical activity. Weather and safety were less consistently associated with the behavior. This emerging evidence that physical environments are related to leisure-time or overall physical activity indicates it is worthwhile to continue investigating this topic.

A completely separate set of studies were performed within this context from the transportation and urban planning fields. Fourteen studies were identified that evaluated the association between neighborhood built environment variables and residents' rates of walking and cycling for transportation. Virtually all reported significant associations, whether environments were assessed objectively or by self-report. The physical environment characteristics associated with more walking and cycling were mixed residential and commercial uses (as opposed to separated uses), high connectivity of the street network (characterized by a grid pattern as opposed to a pattern that includes many cul-de-sacs), and higher residential density. Residents of neighborhoods with these characteristics reported on average making more than twice as many walking/cycling trips per week than residents of neighborhoods lacking these characteristics. Preliminary evidence suggests that these differences in neighborhood environment also are related to differences in overall physical activity.

Although most studies on these topics have been conducted in the United States, international studies suggest a need to understand more about walking and cycling trips and to understand better the great variation in environmental factors related to walking and biking across countries. Thus, it is important to conduct studies of environmental correlates of physical activity in countries other than the United States.

The aim of the present study was to investigate the variance in general and more specific measures of physical activity explained by neighborhood design and recreational environmental variables.

Method

Results from three different samples are reported. The first (n=521) and second (n=100) study included a random sample of inhabitants of Ghent, Belgium. The third sample (n=619) included participants from Belgium (n=372) and Portugal (n=247). All samples included adults between 18 and 65 years old. A questionnaire developed to assess neighborhood environmental variables and psychosocial variables was administered. In the first sample the short International Physical Activity Questionnaire (IPAQ) was included, in the third sample, the long IPAQ was administered. In the second study, a trained interviewer visited the respondents at home to obtain detailed information on daily leisure time physical activity over a one-year period in a structured interview procedure (Minnesota interview).

Results

The environmental questionnaire showed good reliability and adequate validity. In the first study, minutes of walking and of moderate activity were related to quality of sidewalks and accessibility of shopping and public transportation. Vigorous physical activity was related to presence of activity supplies in the home and number of convenient activity facilities. Models explained a maximum of 13% of variance. In the third study, more specific relationships were revealed. For example, walking in leisure time was related to neighborhood density, visibility of pedestrians, and availability of bike lanes (9% explained); whereas walking for transportation was related to neighborhood density, diversity of land use, access to public transport, talking to other people while walking, and satisfaction with neighborhood services (13% explained).

The second study revealed that both psychosocial and environmental correlates of (in)activity explained part of the variance. The relative contribution of psychosocial and environmental variables depends upon the context and intensity of the activity.

Discussion

These studies seem to indicate that: walking and moderate intensity activities were related to sidewalks and access to shops and public transportation facilities, highlighting the importance of community design; and that sport participation was related to access to activity supplies and recreational facilities. Thus, the study indicates that environmental characteristics related to both design and recreational resources must be considered in explaining physical activity. However psychosocial variables still remain very important. Researchers need to refine hypotheses about how specific environmental variables may be related to particular types and purposes of physical activity. Policy makers need to consider how to build communities so they facilitate physical activity for transportation, recreation, and other purposes. Changing environments has the ability to affect entire populations on a relatively permanent basis. The addition of promotion activities will probably be necessary to direct participants to the facilities.

References

Humpel N, Owen N, Leslie E. Environmental factors associated with adults' participation in physical activity: a review. *Am J Prev Med* 2002;22:188-99.

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