Physically Active Leisure and Community Health: Evidence from US Counties

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The benefits of physically active leisure (e.g., participation in sport events, running with friends) to health have been supported in the sport management literature (Berg et al., 2015; Sato et al., 2015). Physically active leisure reduces the risk of cardiovascular disease and type 2 diabetes and improves mental health and life expectancy (Conn et al., 2011). With the growing public awareness of the benefits of physically active leisure to health, assessing its role in health promotion makes an important public policy goal in many countries (Pratt et al., 2014). To date, research findings on the relationship between physically active leisure and health have had limited generalizability because they focused on specific geographic locations or population cohorts (Humphreys et al., 2014). Although recent studies have attempted to address generalizability issues by analyzing the impact of physical activity participation on health-related outcomes using large databases (e.g., Ruseski et al., 2014), these studies are also limited by their individual-level research designs. Given that the effect of physically active leisure on health can be influenced by the heterogeneity of environmental factors (e.g., economic, sociocultural factors; Humphreys et al., 2014), it is imperative that any analyses of the relationship between physically active leisure and health consider environmental differences among communities through a macro-level analysis. Therefore, the purpose of this study was to determine the extent to which physically active leisure contributes to community health, which refers to the health status of a defined group of people (McKenzie et al., 2011).

This study uses a social-ecological model as its theoretical foundation. The social-ecological model assumes that health and well-being are influenced uniquely by and through the interactions between individual-level factors and environmental factors (Stokols, 1992). Individual-level factors include socioeconomic status (e.g., income), demographics (e.g., age, gender), health-related behaviors (e.g., smoking behaviors), and attitudinal orientation toward health and well-being. Environmental factors refer to the home and neighborhood environment (e.g., place of residence), the work environment (e.g., programs that support employees’ health), the sociocultural environment (e.g., family support), and the natural environment (e.g., weather, air quality). The social-ecological model would be an effective framework to understand the benefits of physically active leisure in community health by considering individual-level and community-level factors (Stokols, 1992).

One empirical challenge when examining physically active leisure and health is to overcome potential endogeneity issues embedded in this relationship. For instance, individuals who choose to participate in physical activity might have genetic advantages that predispose them to better health and, therefore, might be healthier regardless of their physical activity participation (Ruseski et al., 2014). Likewise, people might be physically in better shape if they live in a community that provides more resources to promote health (e.g., better neighborhood environment). That is, people might receive health benefits from the environment in which they live regardless of their level of participation in physically active leisure. By accounting for these potential endogeneity issues, this study aims to expand the literature on the link between physically active leisure and community health. Based on the social-ecological model, we hypothesized that the rate of physically active leisure in a community would be positively associated with community health after considering aggregated socioeconomic status, demographics, and other health-related behaviors, as well as community-level factors related to the neighborhood, sociocultural, work, and natural environments.

We used secondary data to assess the relationship between the rate of physically active leisure and community health among US counties. County-level data were obtained from the 2012 Behavioral Risk Factor Surveillance System survey (Centers for Disease Control and Prevention, 2013) and the 2014 County Health Ranking Database (University of Wisconsin Population Health Institute, 2014). The combined data set from the two sources included 2,235 usable counties. Community health, our dependent variable, was obtained from the behavioral survey. In the survey, respondents were asked to indicate their perceived health on a 5-point scale by answering the question...
“Would you say that in general your health is (1) excellent, (2) very good, (3) good, (4) fair, or (5) poor?” This study evaluated community health by calculating the average perceived health score for each county. The rate of physically active leisure in each county (our independent variable) was extracted from the County Health Ranking Database. This variable was originally obtained from the 2010 data collected by the National Center for Chronic Disease Prevention and Health Promotion and represents the percentage of adults age 20 and over who had participated in leisure-time physical activity or exercise during the 30 days prior to the survey. We included 22 county-level individual and environmental factors that can influence community health as control variables in our analysis.

We first conducted an ordinary least squares regression analysis to examine the link between the rate of physically active leisure and community health. Consistent with our hypothesis, the rate of physically active leisure was positively associated with community health ($\beta = 0.205, p < .001$). Second, we used an instrumental variable approach to account for potential endogeneity between the rate of physically active leisure and community health at the county level. Following prior research (Ruseski et al., 2014), we used access to exercise opportunity as an instrumental variable to measure the percentage of the population with adequate access to locations for physical activity in each county. The results from the two-stage least squares regression confirmed that the rate of physically active leisure remained positively correlated with community health ($\beta = 0.066, p = .02$) even when considering all control variables used in the ordinary least squares regression model. The results of the two-stage least squares analysis suggest that the endogeneity between the rate of physically active leisure and community health was unlikely to be a major concern in this study.

Our findings present the first evidence of the benefits of physically active leisure for community health. Based on a social-ecological model, we tested and confirmed a positive association between physically active leisure and community health at the county level, which is consistent with extant findings from individual-level analyses (Berg et al., 2015). Using an instrumental variable approach, we also addressed potential endogeneity of physically active leisure to health. Our results showed that several environmental factors (e.g., severe housing problems—a control variable) were significant predictors of community health, supporting the notion that investigating the benefits of physical activity on health through a macro-level analysis is critical (Humphreys et al., 2014). The findings from the county-level analysis will provide policy implications for public health officials to promote active lifestyles in their communities. Although physical-activity interventions can help people initiate an exercise program, the routine is rarely maintained. Based on our findings, local health departments can make a case for increased prioritization of and investment in physical-activity intervention programs by highlighting the health benefits of physically active leisure in community health. Collectively, our findings provide additional support for the idea that promoting physically active leisure is an integral component to public health policy that aims to create healthier communities.