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**How are Environmental Factors Related to Modifiable Health Risk?  
Depends on Whose Environment It Is**

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**Background:** Increasing attention is turning to the importance of physical and social environmental factors that shape the modifiable health risks (MHR) that may prevent or delay onset of chronic disease. This project examined the simple and moderated relationships between respondent characteristics, self-reported and GIS-derived measures of environmental features and self-reported MHR in a community-based sample of survey respondents. Aims were to assess whether subjective and/or objective environmental measures were predictive of MHR, and identify personal characteristics that moderate environment-MHR relationships.

**Methods:** A community based survey of 1350 adults assessed personal characteristics – age, sex, education, employment, chronic disease; subjective environmental measures (SEnv) –neighborhood nuisances, vendors and amenities, neighbor involvement, safety; and MHR – functional health status (FHS), smoking, weight and height, walking, moderate activity, food diversity. Home address geocodes and GIS-based data were used to create objective environmental measures (OEnv) of area deprivation, population density, commercial development and green space. Bivariate correlations and multivariate regressions examined simple and moderated relationships between personal characteristics, environmental measures and MHR.

**Results:** In bivariate analyses, SEnv measures were modestly and inconsistently correlated with MHR while area deprivation was one OEnv measure consistently correlated with higher MHR. Regression models accounting for response bias and including interactions between environmental measures and personal characteristics showed complex relationships between both SEnv and OEnv measures and MHR. The relationships between OEnv measures (population density, commercial development, green space) and FHS were each moderated by respondent age, sex, employment, education and/or chronic disease: Fewer relationships were observed between SEnv and FHS. All SEnv measures (neighborhood nuisances, vendors and amenities, safety, neighbor involvement) predicted body mass index (BMI), and were moderated by sex, education and employment, while the relationships between OEnv and BMI were moderated by age and chronic disease. Food diversity was predicted by moderated relationships between SEnv measures and sex, employment and education. Smoking, walking and moderate activity were only sporadically predicted from environmental measures.

**Conclusions:** Environmental factors did not uniformly predict modifiable health risk. Subjective and objective environmental factors tended to be related to different risk factors, and were modified by different stable respondent characteristics.