

# GREEN NEIGHBORHOOD QUALITY IS ASSOCIATED WITH PHYSICAL ACTIVITY BEHAVIOR AND SELF-RATED HEALTH STATUS IN SCANIA, SOUTHERN SWEDEN

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**Background and aims:** Various studies have shown positive associations between green environments and health or health-related behavior (de Vries et al, 2003, Groenewegen et al, 2006, Maas et al, 2006, Björk et al 2008, Sugiyama et al, 2008). However, neighborhood quality may not be equally important for each population subgroup (de Vries et al, 2003, Cummins et al, 2006). Our aim was to assess how quality of the green neighborhood environment is related to weekly level of physical activity, BMI and self-rated physical and mental health status and whether associations are modified by socio-demographic status.

**Methods:** We used self-assessments (N = 24,847) of five green qualities (culture, lush, serene, spacious and wild) and health status from a cross-sectional public health survey (2008). Area proportions of positive self-assessments for each quality were obtained from a multilevel model and used to create the area-aggregated Scania Green Score (SGS) (de Jong et al, 2011). Associations of the SGS and individual qualities with physical activity level, BMI and self-rated physical and mental health status were assessed in ordinal regression models, all adjusted for sex, age, educational level, economic status, country of origin, type of residence and as a sensitivity analysis for objectively assessed quality (GIS-based). We used the likelihood ratio test to investigate effect modification.

**Results:** Green neighborhood quality and health status were associated with socio-demographic status. SGS was associated with health status (OR 1.07: 1.03-1.21) and physical activity level (OR 1.16: 1.12-1.21), the latter association was modified by age (p=0.01) and educational level (p<0.001). SGS was not associated with BMI. The quality culture was clearly associated with all outcomes but for BMI only among tenants (OR 1.89: 1.19-3.01). Odds ratios were 1.54 (1.19-1.99) and OR 1.43 (1.11-1.84) for physical activity and health status respectively. Effects for other qualities were ambiguous.

**Conclusions:** This study shows that green neighborhood quality can benefit health and health-related behavior, especially among specific subgroups, i.e. those most exposed to their neighborhood environment. Notably these groups live in neighborhoods with least favorable green quality in Scania.

## References:

- de Vries S, Verheij RA, Groenewegen PP, Spreeuwenberg P: Natural environments - healthy environments? An exploratory analysis of the relationship between greenspace and health. *Environment and Planning A* 2003, 35(10):1717-1731.
- Groenewegen P, van den Berg A, de Vries S, Verheij R, Vitarin G: effects of green space on health, well-being, and social safety. *BMC Public Health* 2006, 6(1):149.
- Maas J, Verheij RA, Groenewegen PP, de Vries S, Spreeuwenberg P: Green space, urbanity, and health: how strong is the relation? *J Epidemiol Community Health* 2006, 60:587-592.
- Björk J, Albin M, Grahn P, Jacobsson H, Ardö J, Wadbro J, Östergren P-O, Skärbäck E: Recreational values of the natural environment in relation to neighbourhood satisfaction, physical activity, obesity and wellbeing. *J Epidemiol Community Health* 2008, 62:e2.
- Sugiyama T, Leslie E, Giles-Corti B, Owen N: Associations of neighbourhood greenness with physical and mental health: do walking, social coherence and local social interaction explain the relationships? *J Epidemiol Community Health* 2008, 62:e9.
- Cummins S, Stafford M, Macintyre S, Marmot M, Ellaway A: Neighbourhood environment and its association with self rated health: evidence from Scotland and England. *J Epidemiol Community Health* 2005, 59(3):207-213.
- de Jong K, Albin M, Skärbäck E, Grahn P, Wadbro J, Merlo J, Björk J: Area-aggregated assessments of perceived environmental attributes may overcome single-source bias in studies of green environments and health: results from a cross-sectional survey in southern Sweden. *Environmental Health* 2011, 10(1):4.