The relationship between neighbourhood walkability and leisure-based screen time in adults

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INTRODUCTION

- Sedentary behaviour is a modifiable risk factor for type 2 diabetes, cardiovascular disease, overweight and obesity, and early mortality.[1,2]
- In Canada ≈2/3 of adults' waking hours are sedentary and ≈1/3 watch TV >15 hours/wk.[3,4]
- Little evidence exists regarding associations between the neighbourhood built environment and sedentary behaviour.[5,6]
- Among the existing evidence, findings regarding the associations between self-reported and objectively-assessed built environment characteristics and sedentary behaviour are mixed.[6]

AIM

- To estimate the associations between objectively-assessed and self-reported neighbourhood walkability and leisure-based screen time behaviour in adults.

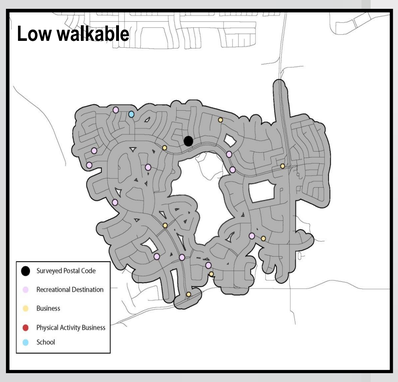
STUDY LOCATION

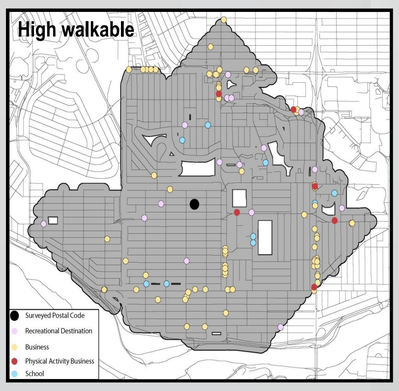
NEIGHBOURHOODS CHARACTERISTICS

Table 1 Descriptive comparison of the built characteristics between objectively determined low, medium and high walkable neighbourhoods*

Built characteristics	Neighbourhood walkability: Low	Medium	High
Walkshed area (km^2)	3rd	2nd	1st
Number of businesses (stores and services)/km^2	3rd	2nd	1st
Number of bus stops/km^2	3rd	2nd	1st
Mix of park types/km^2	1st	3rd	2nd
Mix of recreation destinations/km^2	3rd	1st	2nd
Sidewalk length (m/km^2)	3rd	1st	2nd
Total population/km^2	2nd	3rd	1st
Percent of neighbourhood area as green space	1st	2nd	3rd
Pathway/cycleway length (m/km^2)	2nd	3rd	1st

*Ranks are based on the neighbourhood types average level of built characteristic relative to the two other neighbourhood types. Statistical details associated with these neighbourhood type comparisons are fully described elsewhere.[7]





SAMPLE DESIGN

- Urban adults from Calgary, Alberta, Canada.[7]
- A random cross-sectional sample completed telephone-interviews between July-October, 2007 (n=2199; RR=33.6%) and January-April, 2008 (n=2223; RR=36.7%).
- N=1967 also completed a postal survey.

SURVEY VARIABLES

- **Leisure-based screen time:** hours/day television viewing, computer use and video gaming.
- **Neighbourhood-based moderate-intensity (NMODPA) ≥150min/wk.[8]**
- **Neighbourhood -based vigorous-intensity (NVIGPA) ≥60min/wk.[8]**
- **Self-reported neighbourhood walkability:** Low walkable (LW), medium walkable (MW), high walkable (HW) based on tertiles from total scores derived from NEWS-A items.[9]
- **Body mass index (BMI):** healthy weight (<25kg/m^2) versus overweight (>25kg/m^2).
- **Health:** poor/fair, good or very good/excellent.
- **Sociodemographic characteristics:** gender, age, number of registered motor vehicles, education, household income, children at home, marital status, dog ownership, and ethnicity.

OBJECTIVE WALKABILITY

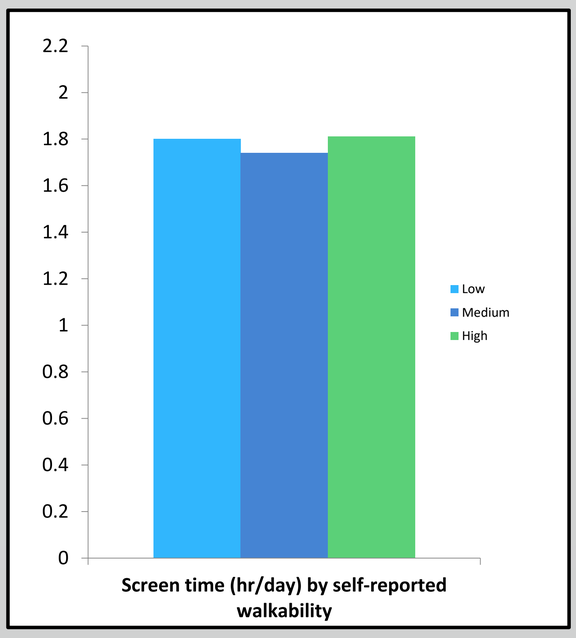
- GIS-derived built characteristics underwent two-staged cluster analysis which identified three neighbourhood types: high walkable (HW); medium walkable (MW); low walkable (LW).[7]

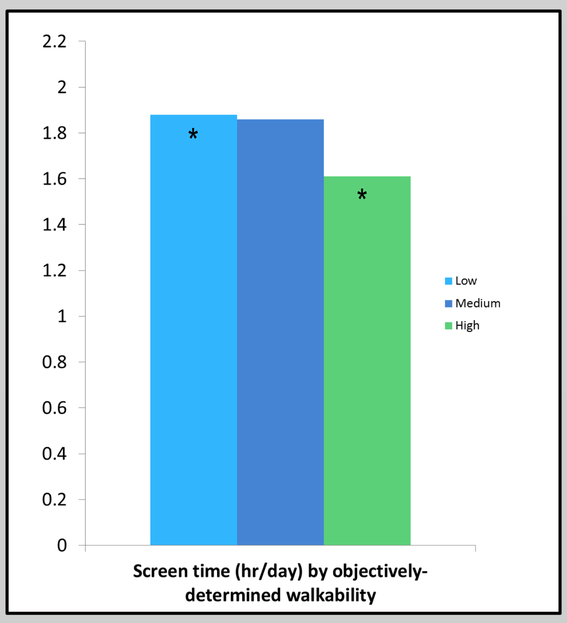
STATISTICAL ANALYSIS

- Fully-adjusted multiple linear regression models were used to regress screen time on all correlates.

FINDINGS

- Sample of participants had higher representation from women, Caucasians, those university educated, and without children.
- On average (±standard deviation), participants undertook **1.78±1.52 hrs/day** of leisure-based screen time.
- **39.5%** of adults undertook ≥2 hours/day of leisure-based screen time.
- Correlates of less screen time (p<.05):
  - objectively-assessed HW neighbourhood
  - women
  - college education
  - at least one child <18 years at home
  - household income ≥$120,000/year
  - registered motor vehicles at home
  - very good-to-excellent health
  - healthy weight
  - achieving ≥60-min/wk of NVIGPA
- No significant association found between self-reported walkability or other correlates and leisure-based screen time.
- All correlates accounted for **7.6%** of the explainable variance in hours of screen time.





CONCLUSIONS

- Our findings suggest that other important correlates of screen time, not captured in our study, likely exist.
- Nevertheless, neighbourhood walkability was associated with screen time, independent of other correlates including sociodemographic characteristics, self-reported health, weight status, and physical activity.
- Improving neighbourhood walkability could decrease leisure-based television and computer screen time.

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