Perceived access to neighborhood destinations and its influence on neighborhood-based walking

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BACKGROUND

- Regular participation in physical activity can reduce the risk of cardiovascular disease, hypertension, type II diabetes, hyperlipidemia, osteoporosis, depression, some cancers, and overweight and obesity.[1]
- Similar to other countries, Canadian Physical Activity Guidelines recommend that adults achieve at least ***150 minutes*** of moderate-to-vigorous intensity physical activity per week to accrue optimal health benefits.[2]
- Walking is a commonly reported physical activity that can be undertaken for transportation and recreational purposes and is often undertaken in residential neighborhoods.
- Objectively-assessed (i.e., spatial and geographical information systems databases and audits) and self-reported (i.e., 'perceptions') measures of the neighborhood built environment are associated with walking for different purposes.[3]
- Having a variety of land-uses and destinations close to home supports walking behavior, but less is known about whether or not specific types of destinations encourage walking.[4,5]

STUDY AIM

- To examine the associations between neighborhood-based transportation and leisure walking and self-reported access to local neighborhood destinations.

METHOD

STUDY DESIGN AND SAMPLE RECRUITMENT

- The Economic Evaluation of Using Urban Form to Increase Activity (EcoEUFORIA) was undertaken in Calgary, Alberta, Canada.[6]
- A random cross-sectional sample of adults completed telephone-interviews between July-October, 2007 (n=2199; response rate=33.6%) and January-April 2008 (n=2223; response rate=36.7%) capturing physical activity-related behavior, attitudes, and socio-demographic characteristics.
- N=1875 also completed a self-administered questionnaire capturing physical activity behavior, and perceptions regarding neighborhood walkability and provided complete data (62.2% women; 44.7% university educated, 13.7% renters, mean age: 50.8 ±15.3 years, mean tenure: 12.8 ±12.0 years).

VARIABLES MEASURED

- **Neighborhood-based transportation walking (NTW)**
  Participation (none vs. any) and time spent (<150 vs. ≥150 min/week) walking for the purpose of transportation to or from destinations undertaken within a 15-minute or 1.6 kilometer walk of home during the past week. **41%** of respondents participated in NTW and **10%** achieved ≥150 min/week of NTW.
- **Neighborhood-based leisure walking (NLW)**
  Participation (none vs. any) and time spent (<150 vs. ≥150 min/week) walking for the purpose of leisure, recreation, or exercise undertaken within a 15-minute or 1.6 kilometer walk of home during the past week. **56%** of respondents participated in NRW and **22%** achieved ≥150 min/week of NLW.
- **Perceptions of neighborhood walkability**
  Self-reported time (<15 vs. ≥15 minutes) required to walk from home to the closest: book store, clothing store, cafe/coffee shop, bank, transit, drug store, post office, supermarket, convenience store, fast food restaurant, gymnasium, hair salon/barber, recreation centre, video store, library, dry cleaner/laundromat, farmers market, park, school, hardware store, and trail.

STATISTICAL ANALYSIS

- Logistic regression odds ratios (OR) adjusted for socio-demographic characteristics (gender, age, country of birth, highest education achieved, home ownership, number of dependents <18 years of age, attitude towards walking) estimated the associations between self-reported access and cumulative mix of destinations inside the neighborhood and NTW and NLW (including participation and minutes).

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FINDINGS

- Destinations most frequently reported within a 15-minute walk of home included: transit (90%), parks(88%), convenience stores (79%), elementary schools (68%), and trails (62%).
- Respondents were more likely to walk to parks, convenience stores, transit, trails, and supermarkets and least likely to walk to hardware and book stores, famers markets, gyms, and libraries (Table 1).
- Destinations close to home appear more likely to be associated with NTW than NLW (Table 2).
- NTW participation was more likely (p<.05) if a convenience (OR=1.33), clothing (OR=1.38) or book (OR=1.45) store, a bank (OR=1.42), or transit (OR=1.71) was reported but less likely if a hardware store (OR=0.69) was reported inside the neighborhood.
- NTW was more likely (p<.05) if a library (OR=1.62) or book store (OR=1.79) was reported, but less likely if an elementary school (OR=0.66).was reported inside the neighborhood.
- NTW became more likely (p<.05) as the count of different non-recreational destinations increased (participation: OR 1.07 and ≥150min/wk :OR 1.06).
- NLW was more likely (p<.05). if a trail was reported inside the neighborhood (participation: OR=1.24 and ≥150min/wk: OR=1.45)

Table 1. Proportion of people reporting they had walked to specific destinations

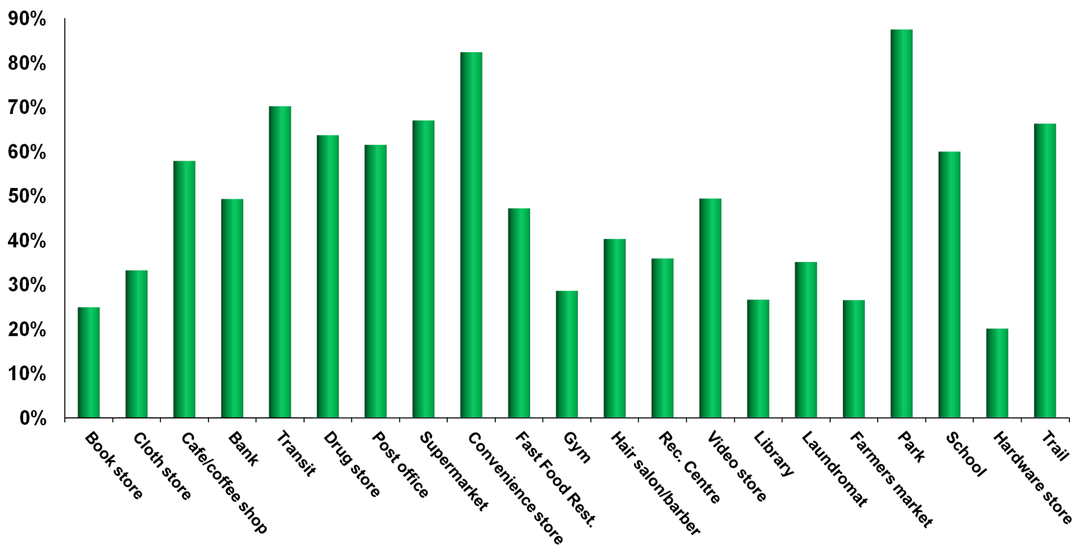
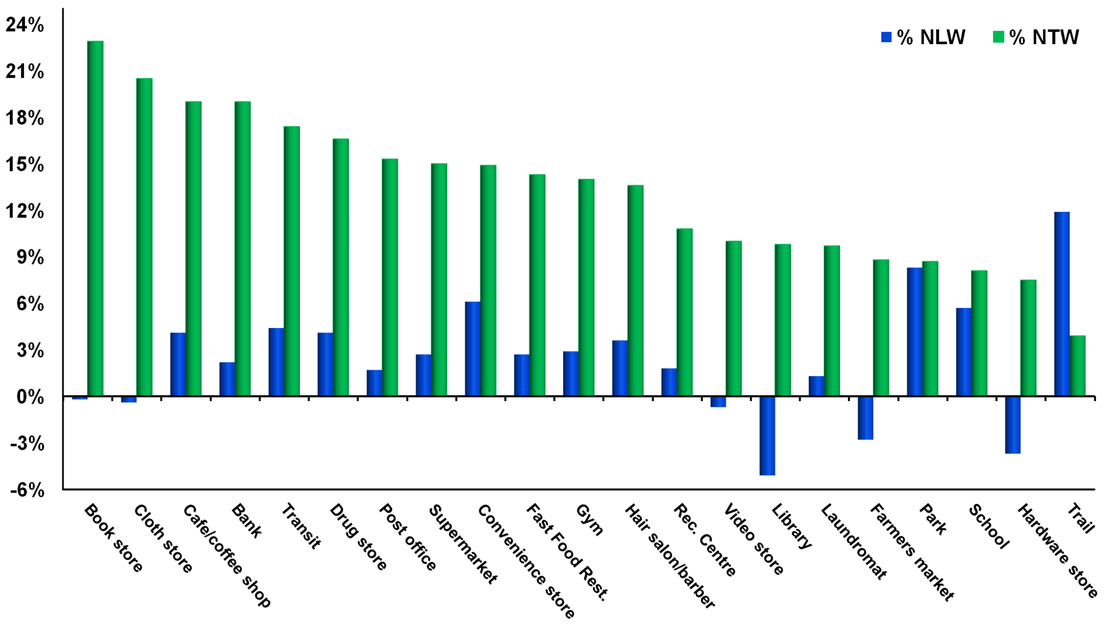


Table 2. Difference in the prevalence (%) of NLW and NTW participation between those reporting destinations within 15-minutes versus >15-minutes from home



Positive %: Walking more prevalent in neighborhoods with destination within 15-miniute walk from home
Negative %: Walking less prevalent in neighborhoods with destinations within 15-minutes walk from home

CONCLUSIONS

Multilevel interventions that improve access to and increase the mix of neighborhood destinations and that increase people's awareness of these destinations may encourage higher levels of local walking, contribute to the accumulation of physical activity, and in turn improve health and wellbeing.

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