Neighborhood Walkability Perceptions: Associations with Amount of Neighborhood-Based Activity by Intensity and Purpose

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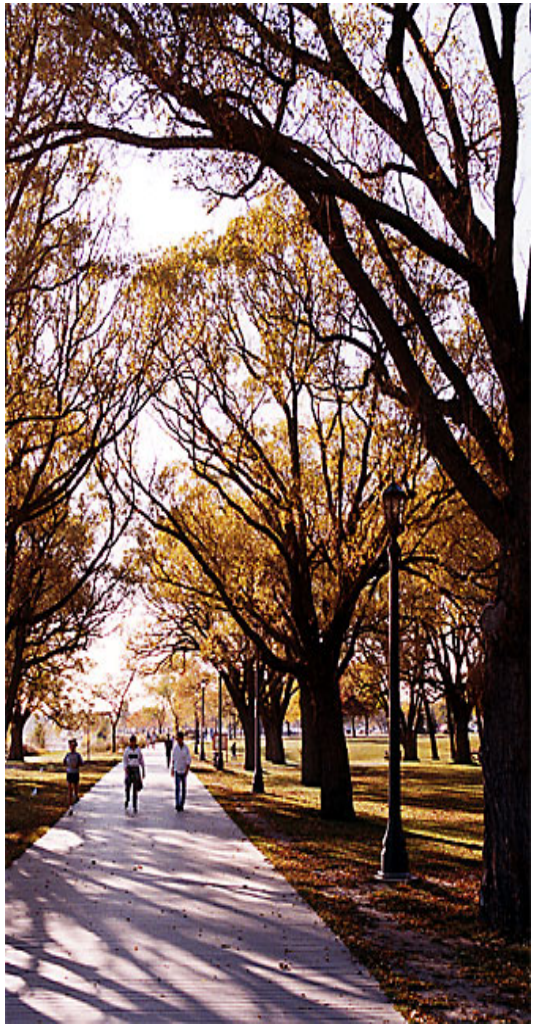
Background

- Increased calls for **specificity** in active living research

- "Rather than using a general model to predict a general behavior (e.g., physical activity overall), the capacity to predict a behavior is enhanced when there is greater correspondence between a specific behavioral outcome measure and the specific environmental behaviors hypothesized to be associated with that behavior" (Giles-Corti et al., 2005, p. 177)

- Most studies of environmental supports for activity continue to examine neighborhood attributes in relation to an **aggregated** measure of PA
  - •ignores location and other contextual details
  - •likely includes a substantial amount of activity that is unrelated to environmental features



Study Purposes

- To describe the proportion of PA episodes that occur within participants' neighborhoods relative to other locations
- To examine how neighborhood walkability attributes are associated with the amount and intensity of PA that occurs specifically within neighborhoods
- To investigate which neighborhood attributes are related to PA engaged in within the neighborhood for recreation and transportation

Data Collection

- Four neighborhoods in Waterloo, Ontario
- 585 (of 960; 61%) randomly-selected residents (adults) completed a questionnaire and physical activity log
  - data from 384 individuals from unique households analyzed here
- Neighborhood Environment Walkability Scale (Saelens et al., 2003; Cerin et al., 2006)
  - residential density
  - land use mix-diversity
  - land use mix-access
  - street connectivity
  - walking/cycling facilities
  - aesthetics
  - safety

Data Collection

- 7-day physical activity log booklet with detailed instructions

- For each episode > 10 minutes:
  - Duration – minutes
  - Intensity – mild, moderate, strenuous
  - Purpose – recreation, transportation, household, job-related
  - **Location** – open ended text coded as:
    - at home
    - in neighborhood (whole or part)
    - in another location

- 3815 total episodes
  - 1.7% unclassifiable
  - neighborhood episodes determined on a case by case basis according to municipal planning district boundaries

Analyses

- Descriptive data on the proportion of PA episodes that occurred at home, in the neighborhood, or in another location

- Multivariate analysis of covariance controlling for age, gender, injury
  - **Level of neighborhood PA** – three groups: 0 vs. 1-59 vs. 60+ min
    - separate models for mild, moderate, strenuous neighborhood PA
  - **Level of recreational PA** – 0 vs. 1+ minutes
  - **Amount of transportation PA** – 0 vs. 1+ minutes

  - Scores on 7 NEWS dimensions used as dependent variables to see how perceptions of neighborhood attributes differed across activity groups

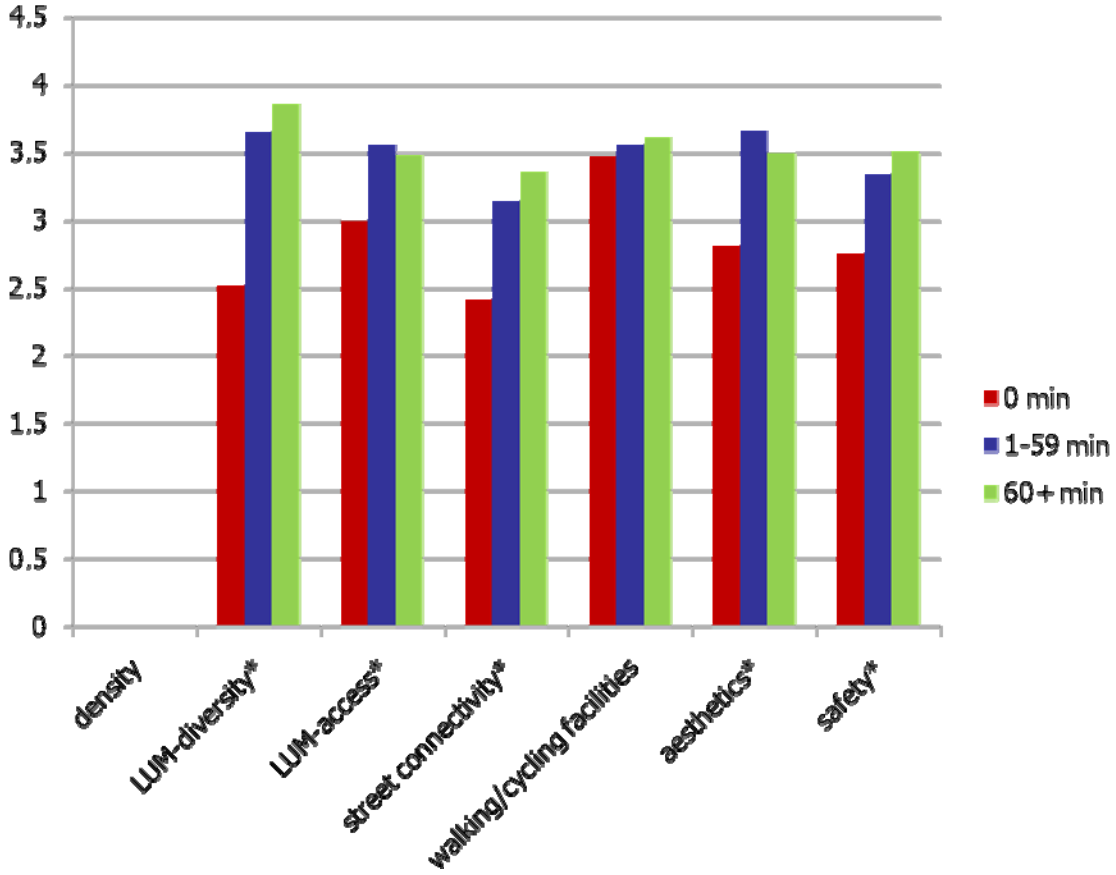
Results

- Purpose 1: To describe the proportion of PA episodes that occur within participants' neighborhoods relative to other locations
  - **32.9% in participant's neighborhoods**
  - 28.5% at home
  - 38.6% in other contexts (e.g., another area of town, out of town)

Neighborhood	Total Episodes	Neighborhood		Home		Other	
		Number	%	Number	%	Number	%
N1: Core	958	386	40.3%	291	30.4%	281	29.3%
N2: Inner suburb	920	281	30.5%	246	26.7%	393	42.7%
N3: Inner suburb	1083	334	30.8%	308	28.4%	441	40.7%
N4: Outer suburb	789	234	29.7%	222	28.1%	333	42.2%
Total (study sample)	3750	**1235**	**32.9%**	**1067**	**28.5%**	**1448**	**38.6%**

Results

- Purpose 2: To examine how neighborhood walkability attributes are associated with the **amount** and **intensity** of PA that occurs specifically within n'hoods
- Ratings of seven NEWS variables not different when examining mild and strenuous activity groups
- Participants engaging in no **moderate** neighborhood PA had significantly lower ratings (*) for 5 of 7 attributes compared to those engaging in 1-59 or 60+ minutes



Results

- Purpose 3: To investigate which neighborhood attributes are related to PA engaged in within the neighborhood for **transportation** and **recreation**

- Participants engaging in at least some **transportation-related** PA (1+ min) had more positive perceptions of land use mix-access, aesthetics, and street connectivity

- Participants engaging in at least some **recreational** PA (1+ min) had higher ratings for only aesthetics

Conclusions

- Context of physical activity (location, activity, purpose) should be considered when drawing associations with neighborhood environments
- A more walkable neighborhood may be a trigger for PA, but other factors (e.g., self-efficacy, family duties) may better explain amount of neighborhood PA
- Nagel et al. (2008) – BE not a significant factor in whether older adults walk, but associated with increased activity levels among those who do walk
- Greenberg et al. (2005) – more than ½ of Black respondents reporting no outdoor exercise would increase activity by 10+ minutes if walkability improved, compared to ¼ of White respondents
- Van Dyck et al. (2009) - living in a high walkable neighborhood associated with taking more steps in adults with a preference for passive transport
- Forsyth et al. (2008) – only less healthy persons walked more overall in high density areas after controlling for sociodemographic characteristics

Conclusions

- Greatest gains in PA promotion may come from stimulating the bulging group of largely sedentary persons to initiate some activity (Blair et al., 2004; USDHHS, 1996)

- Different attributes are associated with transportation-related and recreational neighborhood PA

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