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Walking trips to parks: Exploring demographic, environmental factors, and preferences for adults with children in the household

Jenna H. Tilt

Oregon State University, 2960 NW Firwood Drive, Corvallis, OR 97330, USA

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ABSTRACT

Objectives. (1) To understand demographic and environmental factors influencing walking trips to parks for adults with children living at home; and (2) To determine if preferences for walking environments may influence walking trips and why.

Methods. Neighborhoods with varying levels of canopy coverage and access to destinations were selected within the city of Seattle, Washington and surrounding suburbs. Walking trip frequency, preferences for walking environments, and demographic information were measured through a postal survey in fall 2006 (21% response rate, N = 617; 41% adults with children living in the household, n = 250). Analysis of variance and multiple linear regressions were used to test the associations between variables. Chi-square and qualitative content analysis were used to understand preferences for walking environments.

Results. Adult respondents with children living at home walked most frequently to parks compared to other destinations. Owning a dog, living within close proximity to a variety of destinations, perceptions of ample neighborhood vegetation, and preference for natural-looking environments were factors positively associated with these walking trips.

Conclusions. Demographic and environmental factors influence walking trips, particularly perceived level of neighborhood vegetation and individual preferences. However, highly vegetated walking environments also elicited concerns about safety for some respondents.

Introduction

Walking is one of the most amenable ways for adults to meet the minimum guidelines for physical activity (Sallis and Owen, 1999). Numerous studies have confirmed that living within close proximity to a variety of destinations promotes walking for transportation (Ball et al., 2001; Hoehner et al., 2005; Humpel et al., 2002, 2004; Lee and Moudon, 2006; Pikora et al., 2006; Suminski et al., 2005) and recreational (Booth et al., 2000; Duncan and Mummery, 2005; Giles-Corti et al., 2005; Tilt et al., 2007) purposes. Being able to access a park easily is fundamental to park use and to increasing physical activity levels for a wide variety of populations (Kahn et al., 2002; Cohen et al., 2007). Living within close proximity to a park allows people to take an alternative form of transportation to the park setting, such as walking or biking, and thus increases their overall physical activity. In addition, some studies have also shown that those who travel to parks on foot or bike, especially children and adolescents, are more active in the park setting than those arriving by other means (Grow et al., 2008).

Further understanding the correlates of walking behaviors for adults with children in the household is warranted as physical activity continues to decline among both children (Dollman et al., 2005) and adults (Brownson et al., 2005; Transportation Research Board and Institute of Medicine, 2005). The purpose of this study is to understand how demographic and environmental factors can influence walking behavior for adults who reported children under the age of 18 living in their household.

Methods

Neighborhood and household selection

This study took place within 24 neighborhoods of Seattle, Washington and surrounding suburbs (approximately 20 miles from downtown Seattle) and was a part of a larger study assessing household walking behaviors, neighborhood vegetation, and preferences for walking environments (Tilt, 2007). The term "neighborhood" often denotes conflicting definitions and sizes (see Moudon et al., 2006, for a review). In this study, neighborhood selection was based on cohesive areas smaller than 500 acres (Moudon et al., 2006), level of neighborhood vegetation, and access to destinations.

Using National Land Cover Tree Canopy data (United States Geological Survey, 2003), the mean percent canopy coverage of each neighborhood was calculated and classified into low vegetation (2%–9% mean canopy coverage), medium vegetation (10%–21% canopy coverage), and high vegetation (25%–38% mean canopy coverage) using Jenks natural breaks in ArcMap (ESRI, 2005). Neighborhoods were then classified into either low (0% to 5.2%) or high (>10%) accessibility according to the percentage of destination parcels (i.e., restaurants, grocery stores, banks, etc.) found within a 1 km (0.6 miles)

E-mail address: tiltj@onid.orst.edu.

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network distance of the neighborhood, using the Walkable Bikeable Communities GIS Software (Hurvitz, 2001-04) and King County GIS data (Washington State, 2006). Five hundred single residential parcels were then randomly selected from this six-level neighborhood sampling strata, comprising three levels of neighborhood vegetation and two levels of accessibility.

Data collection and instruments

A postal survey was sent to each household with instructions for one adult member of the household to complete it. The survey included three different measures: (1) walking behavior measures; (2) a photo-questionnaire; and (3) demographic information. This study was approved by the University of Washington Institutional Review Board/Human Subjects Committee. A cover letter, sent with the survey, outlined confidentiality and implied informed consent. Return postage was provided.

Walking behavior measure

Frequency of walking to the following destinations was measured: grocery stores/market, work, restaurants, coffee shops, bars or pubs, schools, and parks. The destinations included in the survey were chosen because they have been shown to be frequent walking destinations for adults from residential homes in the study area (Lee and Moudon, 2006; Tilt et al., 2007). Frequency of walking to each of the destinations was measured by the question: "How often do you walk to each of these destinations?" with five response categories ranging from 1 ("never") to 5 ("more than once a week").

Photo-questionnaire: Subjective measure of vegetation and preference for vegetation

The postal survey included 24 black-and-white photos of neighborhood scenes taken within the selected neighborhoods during July and August 2006, which illustrated varying degrees of vegetation. The 24 images represented eight low, eight medium, and eight high vegetation neighborhood scenes. This number of scenes representing each category allowed for factor analysis and cross-validation of the ratings (Kaplan, 1985). These photos were chosen from 60 photos reviewed and rated for vegetation by a five-member expert panel. The expert panel included two environmental psychologists and an urban planner/forester, who all have expertise in photo-questionnaire development, plus two community members who are associated with non-profit organizations committed to improving walking and sustainability of the study area. The photo-questionnaire asked respondents to first rate each scene for "How similar is the scene is to where you walk in your neighborhood?" with five response categories from 1 ("not at all similar") to 5 ("very similar"). Respondents were then asked to rate each scene again for preference: "How much would you like to walk in this neighborhood?" with five response categories from 1 ("not at all") to 5 ("very much"). For the last three scenes (Fig. 1), which represented the low, medium, and high vegetation groups, respectively, respondents were asked to explain the rationale behind their preference ratings for these scenes.

Demographics

The final section of the survey included demographic questions measuring characteristics shown to influence walking and physical activity behavior (Wilson et al., 2004). Items included in this section of the survey were: tenure in neighborhood, home ownership, number of cars available to the household, sex, age, ethnicity, income, education, and dog ownership. Critical to this study, respondents were asked to report whether they had children under the age of 18 living at home. If children were present in the household, respondents were then asked to indicate how many children belonged to the following age groups: 0–5 years, 6–10 years, and 11–18 years. Self-reported physical health was assessed using the universal health question from the SF-12® (Gandek et al., 1998; Johnson and Coons, 1998): "In general, would you say your health is?" measured on a 5-point Likert scale, with 1 representing "excellent heath" and 5 representing "poor health." This scale was reversed from the original order to have the same direction as other measures in the analysis.

	High Vegetation Factor	Medium Vegetation Factor	Low Vegetation Factor
			
Similarity Factor Mean†	2.7 (1.1)	2.6 (0.8)	2.0 (0.7)
Preference Factor Mean*	4.1 (0.9)	3.0 (0.8)	2.2 (0.9)
Individual Preference Mean	4.0 (1.2)	3.0 (1.0)	1.9 (1.1)

† Factors generated from Principle Components Analysis (PCA) from photo similarity ratings: "*How similar the scene is to where you walk in your neighborhood?*" with five response categories from 1 "*not at all similar*" and 5 indicating "*very similar*." Similarity means of only those in the corresponding high, medium or low neighborhood canopy coverage classification respectively.

* Factors generated from Principle Components Analysis (PCA) from photo preference ratings: "*How much would you like to walk in this neighborhood?*" with five response categories from 1 "*not at all*" to 5 "*very much*."

Fig. 1. Representation of the three vegetation factors with preference and similarity ratings.