Measuring Perceptions of Social Environments for Walking: A Systematic Review of Walkability Surveys

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Does The Social Environment Matter?

Over two decades of walkability research has led to an abundance of tools to measure and evaluate environments that promote physical activity. Yet disparities in physical activity and health persist, particularly for low-income communities and communities of color. If we hope to understand and support vulnerable communities, we need methods and measures that capture the unique social and cultural barriers and facilitators of walking.

Researchers have long known that the social context – including safety, physical signifiers, and social capital – likely influences when and where individuals walk. However, many walkability instruments have overlooked the social elements that are harder to immediately recognize. Instead, most instruments favor “objective” data describing the physical environment or physical symbols of the social environment. Survey instruments are more likely to contain questions, usually in sections that ask how a resident perceives their neighborhood environment, not instruments that also vary widely in their approach to the social context.

This project seeks to systematically document social environment questions in instruments to better understand strengths and weaknesses of walkability measures from the social perspective.

Method to Identify Instruments and Items

Step 1: Identify Source lists (n=277 Potential Instruments)
Searching both the literature and the internet for walkability measures and tools resulted in the following source lists of potential survey instruments:

- Urbanization of Childhood Obesity Research (NCOCR) Measures Registry https://tools.nccor.org/measures
- Active Living Research (ALR) https://activelivingresearch.org

Step 2: Skim Abstracts and Papers for Inclusion (n=20 Unique Instruments)
We filtered resident surveys about the perceived neighborhood environment with a research correct to physical activity. Exclusion criteria included:
- Instrument that were clearly aimed at youth or seniors
- Audit instruments, secondary data tools, or GIS methods that did NOT contain a survey of residents
- Instruments that focused on specificBuilt Environment and Walking: Empirical Evidence from Northern California. J Urban Health 2004 Dec;81(4):682-7. 1 University of Arizona; *inzelardo@email.arizona.edu characteristics. J Urban Health 2004 Dec;81(4):682-7. 1 University of Arizona; *inzelardo@email.arizona.edu
- Instruments that asked only about the workplace or food environment.

Duplicates within and between source lists were also removed. For example, NCOCR listed 9 different Neighborhood Environment Walkability Scale (NEWS) instruments; these were collapsed into a single “instrument.” Each source list also contained at least 1 NEWS derived instrument; these too were excluded. After exclusion and inclusion criteria were applied and all of the duplicates were accounted for, 20 unique instruments remained.

Step 3: Each Skim Papers/Instrument and Abstract Social Environment Items (n=184 Items)
Using the citation and original instrument, each survey was skimmed for social environmental items for walking. (Walking specific items were ignored.) The item and its response type (i.e. 5-pt Likert) were placed in an excel spreadsheet.

Step 4: Categorize Items by Social Domain
The three authors then categorized each item by social items until the following stable domains emerged:
- Social Capital, further subdivided using Sampson (2009) into interaction/networks; cohesion/control; conduct norms for walking; and organizational capital. We also added a community identity category.
- Personal Safety, further subdivided into crime-specific safety including lighting and non-traff, non-crime “general” safety;
- Physical Signifiers with separate subcategories for aesthetics and upkeep/maintenance/interdiction;
- General Satisfaction for items that discussed a neighborhood being pleasant, good, or nice.

Findings & Challenges

We identified over 180 items addressing social environment elements across the 20 instruments. None were published after 2010. It is unusual for ALL 3 major domains (Social Capital, Personal Safety, and Physical Signifiers) to be included in a single instrument, making the pooled summary below somewhat misleading. Table 1 shows that only 6 of the instruments (the Seattle 2004, Greenspace, 7 Social Capital, 14 Social Ties, 109 Personal Safety, 108 & Off-site, 118 Physical Signifiers, 118) included an item in all three of the major domains. While this finding may be due to study or instrument purpose, it may also reflect lingering silos of disciplines.

Socio-economic indicators, 3 Good and Pleasant, 15 Lighting, 5 Greenspace, 7 Safety - Obstruct, 4 Safety - Crime, 28 Community Identity, 6 Social Conduct Norms for Walking, 10 Participation in Organizations, 4

There were 75 social capital items. Social capital items are most likely to capture social cohesion (23 items). Since a key part of walking is the pedestrian scale기가 DOES NOT align with the themes of social capital (e.g. ‘neighborhood as a pleasant place to live’). This may lead to differences in how a resident perceives their neighborhood environment, not instruments that also vary widely in their approach to the social context.

Fifty questions across 15 instruments asked about safety. Most instruments had 2-3 questions with thirteen instruments including at least one crime-specific item. These asked about non-traff, non-crime, safety, often using general “I feel safe walking language.” Developing non-crime social safety questions may align better with context-specific conduct norms and thus improve our understanding of the walking environments in traditionally marginalized neighborhoods.

Balancing aesthetics with maintenance may help reduce class bias in the instruments. A low-income community may be more utilitarian (i.e. not have a lot of “interesting” or “pretty” houses) and thus less aesthetically pleasing; upkeep and maintenance of both private and public space may be a more pressing signifier of an enjoyable walking environment in low-income neighborhoods. See Ezrehavsky 2004 for many upkeep items balanced by aesthetic items. However, care needs to be taken not to further stigmatize neighborhoods.

General satisfaction questions are difficult to interpret and may be not as relevant to practitioners. Eighteen items in ten instruments were so broad as to make it difficult to categorize “pleasant place to walk” or “neighborhood as a good place to live.” These types of questions are not particularly helpful in identifying what the underlying intervention would be.