Designed to Deter: Community Barriers to Physical Activity for People with Visual or Motor Impairments

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Research Objectives:

**Substantive:** Explore urban environmental factors affecting physical activity of People with Disabilities

**Methodological:** Apply and enhance the “International Classification of Functioning, Disability and Health” (ICF) as conceptual framework for including PwDs in Active Living Research
ICF as Conceptual Framework - 1

- **Apply** distinction between “impairment” and “activity”:
  - Mobility = activity (*getting around community; being physically active*)
  - Term “mobility impairments” confounds two concepts
  - Impairment types in study: *Visual* and *Motor*
ICF as Conceptual Framework - 2

- **Enhance** environmental dimension
  - Community types: *Neighborhoods within metropolitan type* ("immediate vicinity" 10-15 blocks from home)
  
  - Accessing one’s community: *Assistive Mobility Technology types (AMTs)= study groups*
    - Guide dog users
    - Long cane users
    - Manual wheelchair users
    - Motorized wheelchair users
Study design features – 1a

Telephone survey #1 – N=188 nonrandom, self-selected via outreach to agencies & CILs --To classify study groups by High vs. Low on Physical Activity & Neighborhood Accessibility

“Intensive” random sub-sample – N=32 (8 people per AMT type): Qualitative interviews and observation: To learn barriers and strategies from persons out in the community doing typical activity
Study design features – 1b

Telephone survey #2 – contacted initial sample, to quantify barriers & strategies

- Guide dog users (N=33)
- Long cane users (N=40)
- Manual wheelchair users (N=20)
- Motorized wheelchair users (N=41)
Study design features - 2

- Test objective measures of physical activity
  - Constraints:
    - Cost and critiques of heart monitors, accelerometers
    - Need to adapt affordable instruments
      - “talking” pedometers for visually-impaired users
      - Arm-band “pedometers” for motor-impaired users
    - Data from daily reports for 1 week (not analyzed)

- Other: Illustrative “GIS” analysis of neighborhood accessibility
  (Hunter College student project)
- Other: Some photos from observation phase
Neighborhoods rated “mostly accessible”

- **Good news**: Nearly everyone (90%) reported immediate vicinity as “mostly” or “completely accessible”: [manual wheelchair users- 75%]

- **Bad news**: Only 19% reported vicinity “completely accessible” [VI about 25%; MI about 10%]

- **Explanations? sample bias; selection of and advocacy in neighborhoods; overall rating vs. specifics; repertoires of “coping” strategies**
Sample Bias “The Active Advocates”

- Nearly all (98%) consider themselves to be “independent” -- “very” (58%) or “somewhat” (40%)

- Three-quarters (74%) report moderate to vigorous physical activity at least once-per-week--

- Two-fifths (41%) are involved in advocacy as part of job; they and others also report individual advocacy about access.

- The bias suggests relative advantage for choice of, and improvement of, residential neighborhoods
Overall rating vs. specific barriers

- Tested question order – slight effect (more favorably rated when the general question was asked 1st)

- Asked about 20 potential specific barriers -
  - Over three-quarters (77%) of the sample named from 5 to 15 barriers
  - Users of AMT types differed slightly in frequency of barriers mentioned; in general, guide dog users cited fewest and manual wheelchair users most
Specific barriers by AMT type - 1

- Few barriers named to same extent by all 4 types: E.g., few named crime; many named certain sidewalk conditions, i.e., street vendors in the way; cars parked on pavement; sidewalks too narrow

- Few barriers named to same extent by impairment, but not AMT, types: E.g., subways a barrier for wheelchair users; construction, for most wheelchair users but also for many users of dogs or long canes
Specific barriers by AMT type - 2

- Differences by AMT type within impairment:
  (Selected examples)
  - Inadequate lighting – more by long cane users
  - Problems with noise – long cane users
  - Puddles/poor drainage – guide dog users
  - Negative public attitudes – most by manual wheelchair users, but problem for all
Repertoire of “Coping” Strategies –

- Planning details of outings in advance
- Altering originally planned routes; going slower or waiting for a different time of day
- Asking for help from strangers (esp. guide dog users, but high for all)
- Getting unsolicited help (slightly less for long cane users)
Discussion: How should we interpret ‘Designed to Deter’?

- Neighborhood design is not completely inaccessible, but also not completely accessible.

- NYC may be relatively high on “livable” features for PwDs: has many services; esp. accessible transportation: subways for people with VI and buses for people with MI, but much room for improvement.

- We didn’t include PwDs who don’t get out at all; those included are at the high end of resources for choosing residence, and for advocating.
Discussion: How should we interpret ‘Designed to Deter’?

- “Independent-minded” PwDs are not deterred from many activities by using individual strategies to avoid barriers.
- Even positive strategies in general take more time, trouble and/or cost than for people without disabilities.
- Specific strategies, and especially, specific solutions, require attention to types of AMTs.
“Designing to include” people with disabilities requires the will and know-how.

“Know-how” includes:
- (a) public education for attitudinal receptivity
- (b) technical education for designers re barriers and solutions suited to specific AMT types.

If communities don’t design to include, they will -- by default and without evil intent -- continue to “design to deter.”

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