

Factor Scoring for the Neighborhood Environment Walkability Scale (NEWS)

Updated: September 26, 2007

The NEWS is a self-report perceived environment survey (for the complete survey see <http://www.drjamessallis.sdsu.edu/measures.html>; Saelens, B.E., Sallis, J.F., Black, J., Chen, D. (2003). Neighborhood-based differences in physical activity: An environment scale evaluation. *American Journal of Public Health*, 93, 1552-1558). A priori subscales were created by the authors. Follow-up multi-level confirmatory factor analysis were conducted, based on data from the Neighborhood Quality of Life Study, are reported elsewhere (see Cerin, E., Saelens, B.E., Sallis, J.F., & Frank, L.D. (2006). Neighborhood Environment Walkability Scale: validity and development of a short form. *Medicine and Science in Sports and Exercise*, 38, 1682-1691). The scoring procedures proposed below stem from these confirmatory factor analyses. **THE SCORING PROCEDURES BELOW ARE APPLICABLE ONLY IF RESPONDENTS COMPLETED THE FULL NEWS.** There is an abbreviated version of the NEWS, which has a similar factor structure to the full version, but fewer number of items on select subscales.

The residential density and land use mix-diversity subscales were not evaluated as part of the multi-level CFA. The multi-level confirmatory factor analysis allowed for the establishment of individual-level subscales and blockgroup level subscales. For reasons provided in the discussion of Cerin et al. (2006), scoring below refers to the individual-level subscale scoring.

Subscale A: Residential density (higher score denoting higher walkability)

- A1. How common are detached single-family residences in your immediate neighborhood?
- A2. How common are townhouses or row houses of 1-3 stories in your immediate neighborhood?
- A3. How common are apartments or condos 1-3 stories in your immediate neighborhood?
- A4. How common are apartments or condos 4-6 stories in your immediate neighborhood?
- A5. How common are apartments or condos 7-12 stories in your immediate neighborhood?
- A6. How common are apartments or condos more than 13 stories in your immediate neighborhood?

Responses:

None (1) A few (2) Some (3) Most (4) All (5)

Score on subscale A = A1 + (12 * A2) + (10 * A3) + (25 * A4) + (50 * A5) + (75 * A6)

Subscale B: Land-use mix – diversity (higher score denoting higher walkability)

- B1. Convenience/small grocery store
- B2. Supermarket
- B3. Hardware store
- B4. Fruit/vegetable market
- B5. Laundry/dry cleaners
- B6. Clothing store
- B7. Post office
- B8. Library
- B9. Elementary school
- B10. Other schools
- B11. Book store

- B12. Fast food restaurant
- B13. Coffee place
- B14. Bank/credit union
- B15. Non-fast food restaurant
- B16. Video store
- B17. Pharmacy/drug store
- B18. Salon/barber shop
- B19. Your job or school
- B20. Bus or trolley stop
- B21. Park
- B22. Recreation center
- B23. Gym or fitness facility

Responses:

1-5 min(5) 6-10 min(4) 11-20 min(3) 21-30 min(2) 31+ min(1) don't know (1)

Note: A 'don't know' response is coded as a "1" because if it is not known whether the facility is within walking distance, the actual walk is likely more than 31 minutes.

Score on subscale: Mean of items

Alternative scoring: For some purposes it may be useful to tally the number of stores or facilities within a 5, 10, or 20-minute walk.

Subscale C: Land-use mix – access (higher score denoting higher walkability)

- C1. I can do most of my shopping at local stores.
- C2. Stores are within easy walking distance.
- C3. There are many places to go within walking distance at my home.
- C4. It is easy to walk to a transit stop (bus, train) from my home.

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale C = $(C1 + C2 + C3 + C4) / 4$

Subscale D: Street connectivity (higher score denoting higher walkability)

- D1. The distance between intersections in my neighborhood is usually short.
- D2. There are many four-way intersections in my neighborhood.
- D3. There are many alternative routes for getting from place to place in my neighborhood.

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale D = $(D1 + D2 + D3) / 3$

Subscale E: Infrastructure and safety for walking (higher score denoting higher walkability)

- E1. There are sidewalks on most of the streets in my neighborhood.
- E2. The sidewalks in my neighborhood are well maintained.
- E3. There are bicycle or pedestrian trails in or near my neighborhood that are easy to get to
- E4. Sidewalks are separated from the road/traffic in my neighborhood by parked cars.
- E5. There is a grass/dirt strip that separates the streets from the sidewalks in my neighborhood.
- E6. It is safe to ride a bike in or near my neighborhood.
- E7. My neighborhood is well lit at night.
- E8. Walkers and bikers on the streets in my neighborhood can be easily seen by people in their homes.
- E9. There are crosswalks and pedestrian signals to help walkers cross busy streets in my neighborhood.
- E10. The crosswalks in my neighborhood help walkers feel safe crossing busy streets

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale E = (E1 + E2 + E3 + E4 + E5 + E6 + E7 + E8 + E9 + E10) / 10

Subscale F: Aesthetics (higher score denoting higher walkability)

- F1. There are trees along the streets in my neighborhood.
- F2. Trees give shade for the sidewalks in my neighborhood.
- F3. There are many interesting things to look at while walking in my neighborhood.
- F4. My neighborhood is generally free from litter.
- F5. There are many attractive natural sights in my neighborhood.
- F6. There are attractive buildings/homes in my neighborhood.

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale F = (F1 + F2 + F3 + F4 + F5 + F6) / 6

Subscale G: Traffic hazards (higher score denoting lower walkability)

- G1. There is so much traffic along the street I live on that it makes it difficult or unpleasant to walk in my neighborhood.
- G2. There is so much traffic along nearby streets that it makes it difficult or unpleasant to walk in my neighborhood.
- G3. The speed of traffic on the street I live on is usually slow.
- G4. The speed of traffic on most nearby streets is usually slow.
- G5. Most drivers exceed the posted limits while driving in my neighborhood.
- G6. When walking in my neighborhood there are a lot of exhaust fumes

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale G = (G1 + G2 + 5-G3 + 5-G4 + G5 + G6) / 6

Subscale H: Crime (higher score denoting lower walkability)

H1. There is a high crime rate in my neighborhood.

H2. The crime rate in my neighborhood makes it unsafe to go on walks during the day.

H3. The crime rate in my neighborhood makes it unsafe to go on walks at night.

H4. My neighborhood is safe enough so that I would let a 10-yr-old boy walk around my block alone in the daytime

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale H = $(H1 + H2 + H3 + 5-H4) / 4$

Single-item subscale I: Lack of parking (higher score denoting higher walkability)

I1. Parking is difficult in local shopping areas.

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale I = I1

Single-item subscale J: Lack of cul-de-sacs (higher score denoting higher walkability)

J1. The streets in my neighborhood do not have many cul-de-sacs.

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale J = J1

Single-item subscale K: Hilliness (higher score denoting lower walkability)

K1. The streets in my neighborhood are hilly, making my neighborhood difficult to walk in.

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale K = K1

Single-item subscale L: Physical barriers (higher score denoting lower walkability)

L1. There are major barriers to walking in my neighborhood that make it hard to get from place to place (for example, freeways, railway lines, rivers, canyons, hillsides).

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale L = L1

Single-item subscale M: Walkways connecting cul-de-sacs (higher score denoting higher walkability)

M1. There are walkways in my neighborhood that connect cul-de-sacs to streets, trails, or other cul-de-sacs.

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale M = M1

Single-item subscale N: Social interaction while walking (higher score denoting higher walkability)

N1. I see and speak to other people when I am walking in my neighborhood.

Responses:

Strongly disagree (1) Somewhat disagree (2) Somewhat agree (3) Strongly agree (4)

Score on subscale N= N1