

Neighborhood Risk Factors for Fear of Outdoor Falling in Community-dwelling Middle-Aged and Older Adults

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Background: Fear of falling is an important barrier to walking and other outdoor activities, and has been shown to increase the risk of actual fall incidents. Therefore, it can lead to reduced quality of life especially among older adults who may feel more vulnerable to environmental risks. Fear of falling while walking in neighborhoods has been shown to be directly associated with loss of confidence in mobility, decreased social interactions, and lack of physical activities.



Methods

394 subjects aged **50+**
 Community-dwelling
 4 cities in Central Texas
 Baylor Scott & White Electronic Medical Record (EMR) database
 Online and Paper surveys from **2013 to 2014**

A Logistic regression was conducted to identify significant neighborhood risk factors associated with fear of outdoor falling controlling for other variables.

Results

Variables	Descriptions	Odds Ratio	(95% CI)
Demographics			
Age	Year	1.05	(1.00-1.10)
Gender	Female vs. Male	4.94**	(1.93-12.62)
Race/Ethnicity	Non-Hispanic White vs. others	0.71	(0.25-2.01)
Socio-economic			
Education	More than college graduate vs. High school or less	0.94	(0.36-2.46)
Income	\$25,000 - \$34,999 vs. <\$25,000	0.20†	(0.04-1.13)
	\$35,000 - \$49,999 vs. <\$25,000	0.37	(0.09-1.55)
	\$50,000 - \$74,999 vs. <\$25,000	0.49	(0.13-1.83)
	\$75,000 - \$99,999 vs. <\$25,000	0.40	(0.09-1.86)
\$100,000 - \$149,999 vs. <\$25,000	0.95	(0.18-4.88)	
\$150,000+ vs. <\$25,000	0.31	(0.05-1.97)	
Health status and behavior			
Difficulty with walking		4.16**	(1.51-11.48)

Note: **p<0.01, *0.01≤p<0.05, †0.05≤p<0.1; Obs.=324; LR Chi2=107.76

Multivariate Analysis

Variables	Descriptions	Odds Ratio	(95% CI)
BMI	Overweigh and Obese(BM I≥25) vs. BMI<25	2.10†	(0.89-4.99)
Bad health condition	Very good vs. Excellent	0.67	(0.2-2.21)
	Good vs. Excellent	0.59	(0.16-2.21)
	Fair vs. Excellent	1.37	(0.26-7.12)
Actual outdoor falls	Poor vs. Excellent	21.07†	(0.69-647.58)
	Fall while walking on streets or sidewalks within 1 year vs. No fall	4.12*	(1.24-13.71)
Neighborhood Perception			
Slow (30mph or less) speed of traffic on the street	Agree vs. Disagree	0.38*	(0.17-0.85)
Good light Conditions at night	Agree vs. Disagree	0.47†	(0.21-1.08)
Many broken sidewalks	Agree vs. Disagree	5.72**	(2.56-12.78)
High crime rate	Agree vs. Disagree	1.21	(0.29-5.04)
Well maintained walkways	Agree vs. Disagree	0.72	(0.28-1.85)
Good place to live	Agree vs. Disagree	0.17†	(0.02-1.28)

Findings

- Gender**
4.94 times larger for women than men having a fear of outdoor falling.
"The odds of having a fear of outdoor falling are~"
- Difficulty with walking**
4.16 times larger for those who have difficulty with walking than those who have no difficulty with walking.
- Actual outdoor falls**
4.12 times larger for those who have experienced outdoor falls than those who have no experience of falls within last year.
- Slow (30mph or less)**
72% lower for those who perceived that traffic was slower on streets in their neighborhoods than those who did not.
- Many broken sidewalks**
5.72 times larger for those who perceived that the sidewalks in their neighborhoods were broken than those who did not.

Discussions

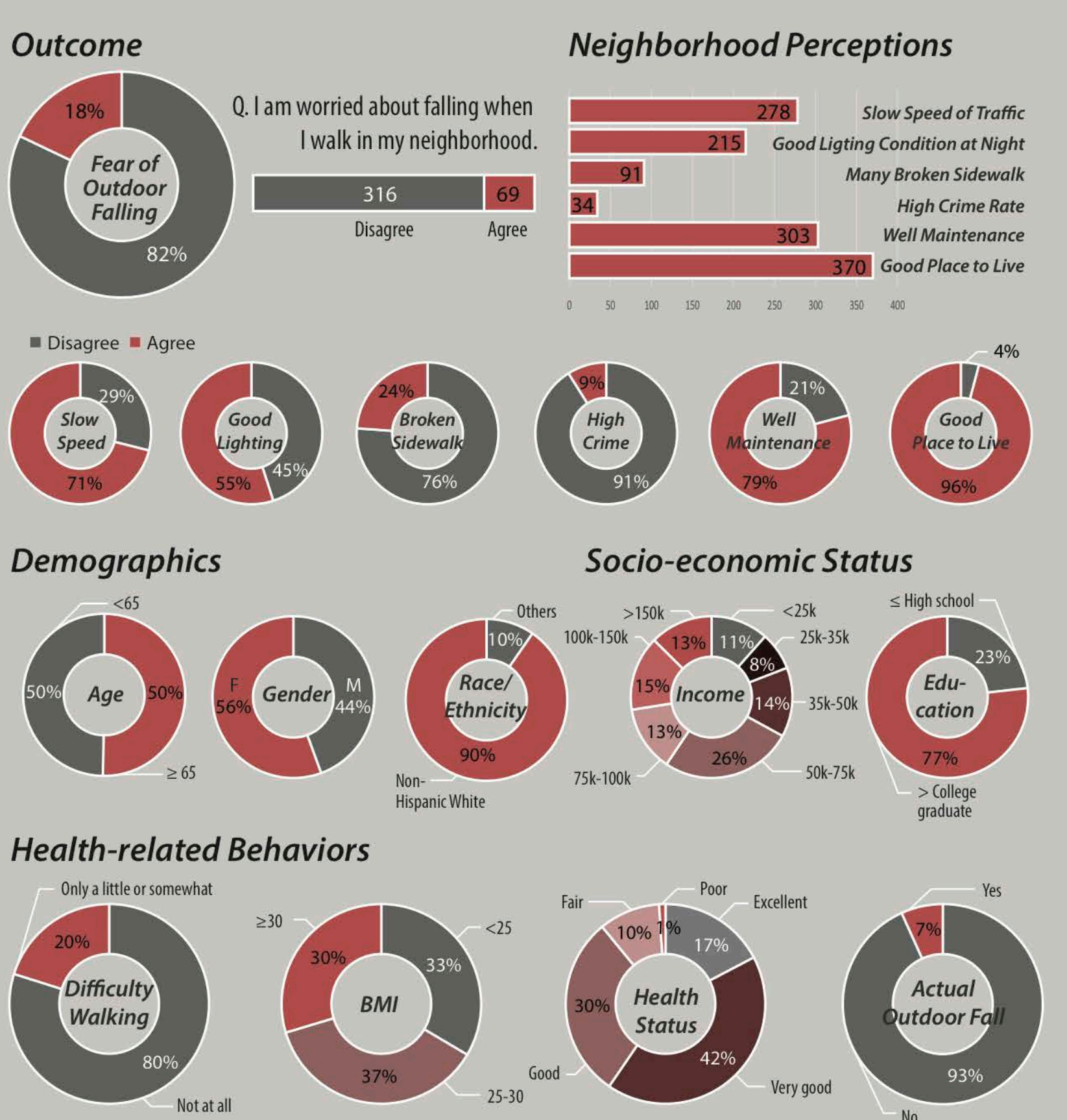
1. An integrated approach to reduce neighborhood safety

Those who have a fear of outdoor falling are more likely to have other concerns about neighborhood safety. Thus, an integrated intervention to reduce phobias about neighborhood is imperative.

2. A walkable neighborhood that can reduce fear of outdoor falling

Before: Poor Maintenance, Broken Sidewalk, High Traffic Speed, Rail Road/ Noise. **Low Physical Activity, High Level of Fear of outdoor falling.**

After: Even Sidewalk, Good Lighting, Slow Speed of Traffic, Good Maintenance. **High Physical Activity, Low Level of Fear of outdoor falling.**



Implications for Practice and Policy: Given the decreased physical activity and increased fall incidents among older adults, it is critical for public health professionals, environmental psychologists, and urban planners to help people of all ages walk outdoors without fear and to help prevent falls while walking in neighborhoods. Policy and design strategies to develop walkable environments by improving pavements or street design, increasing physical security, or providing well maintained street conditions will help promote safe, equitable, and pedestrian-friendly neighborhood environments.

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