An Audit of a Diverse Community for Safe Routes to Age in Place
Environmental Policy Implications

Adriana Perez, PhD, ANP-BC, FAAN; Anamarie Garces, MPH; Rebecca H. Hunter, MEd; and David X. Marquez, PhD

ABSTRACT

Physical and cognitive limitations often accompany aging, increasing the importance of a safe and supportive environment to help older adults maintain mobility. Neighborhood design and maintenance must be evaluated to promote physical activity, mobility, and safety. Audit tools, geographic information system data, and resident interviews are used for this purpose, but often fail to provide information that can be translated to practice. The current project is part of a larger Miami-Dade Age-Friendly Initiative to create a metropolitan area that fosters a healthy environment for diverse adults of all ages and abilities. Safe Routes uses a toolkit based on the 5-E model providing practical resources to guide stakeholders in meeting the needs of the community. Findings include the Centers for Disease Control Healthy Aging Research Network Audit Tool assessment for environmental walkability factors. Results from street segment audits along with input from residents can be used to inform sound environmental policies. [*Journal of Gerontological Nursing, 41*(3), 13-21.]

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ABOUT THE AUTHORS
Dr. Perez is Assistant Professor and Southwest Boarderlands Scholar, College of Nursing and Health Innovation, Arizona State University, Phoenix, Arizona; Ms. Garces is Partner, Urban Health Solutions LLC, and Executive Director, Urban Health Partnerships, Inc., Miami, Florida; Dr. Hunter is Research Associate, University of North Carolina Center for Health Promotion and Disease Prevention, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina; and Dr. Marquez is Associate Professor, Department of Kinesiology and Nutrition, University of Illinois at Chicago, Chicago, Illinois.

Address correspondence to Adriana Perez, PhD, ANP-BC, FAAN, Assistant Professor and Southwest Borderlands Scholar, College of Nursing and Health Innovation, Arizona State University, 500 N. 3rd Street, Phoenix, AZ 85004; e-mail: G.Adriana.Perez@asu.edu.

The aging population in the United States is growing rapidly and expected to double in size to approximately 90 million by the year 2050 (U.S. Census Bureau, 2011). Similarly, ethnically diverse and vulnerable populations will also increase, including those living with disabilities and chronic health conditions (He, Sengupta, Welkoff, & Debarros, 2005). The World Health Organization (WHO; 2007) suggests that as the population grows older, so do cities. It is estimated that the number and proportion of urban dwellers will continue to rise in the next decade. The aging environment and changing demographics present both challenges and opportunities for public health researchers and clinicians focused on creating communities. For example, the Blue Zones project uses a broad systems approach, including civic engagement to promote healthy communities. The Centers for Disease Control and Prevention Healthy Aging Network (CDC-HAN) has more than one decade of work to better understand place-based determinants of health and translate that knowledge to real-world practice, with a focus on environmental strategies. The interaction between older adults and the built environment is especially important, as a growing body of research suggests that a community's physical characteristics can play a major role in promoting or discouraging physical activity (Li, Fisher, Brownson, & Bosworth, 2005), mobility (Rosso, Auchincloss, & Michael, 2011), safety, and ultimately health (Yen, Michael, & Perdue, 2009).

For the past 20 years, physical activity has remained a top leading health indicator for the nation, as noted in the *Healthy People 2020* report by the Centers for Disease Control and Prevention (CDC; 2011). The benefits of moderate intensity physical activity, including brief 10-minute episodes, have been well documented. Older adults,

especially those living with chronic disease or those with disabilities, can experience significant health benefits with a moderate amount of daily physical activity. Programs that promote walking among older adults have shown a significant reduction in falls in this population (Gillespie, Gillespie, Cumming, Lamb, & Rowe, 2000). Older adults are sensitive to the effects of physical activity, and even small amounts of activity are healthier than the alternative. Public health strategies to promote physical activity across generations must include multilevel approaches that consider the built environment. Research suggests that the level and type of physical activity, in which older adults engage, is affected by the design and characteristics of the environment, including the availability of walking paths (Li et al., 2005).

Safe Routes to Age in Place (SRTAP) is a program aimed at fostering local, accessible, safe, comfortable, and appealing active transportation options (e.g., walking, biking, taking mass transit) across all adult age groups and abilities in a diverse community. SRTAP follows a 5-E (*engineering*, *education*, *enforcement*, *encouragement*, and *evaluation*) Model (National Center for Safe Routes to School Task Force, 2008) to incorporate multilevel stakeholders in creating an environment that enables adults the opportunity to independently live in their communities for as long as they desire. Briefly, the 5-E Model includes approaches for:

(a) creating a physical environment that is safer and more convenient, with connections to the community and local resources and services (i.e., engineering);

(b) increasing knowledge about transportation safety and access to healthy food, recreational opportunities, health care, open spaces, libraries, and employment and economic opportunities so that younger and older residents can live in their community confidently and indepen-

dently for as long as possible (i.e., education);

(c) enforcing laws and policies that promote safety, whether it is regulating driving, pedestrian, or criminal laws (i.e., enforcement);

(d) promoting and advocating for safe, multimodal transportation and using community resources and services that would facilitate older adults' ability to access daily needs (encouragement); and

(e) using strategies to measure results (outcomes) of the efforts taken as part of this program (i.e., evaluation).

The choice to age in place independently is impacted by the ability to access goods and services and engage in daily activities without assistance.

Several measurement approaches have been used to examine environmental features that are important to health and aging (Weiss, Maantay, & Fahs, 2010) and consistent with the purpose of the engineering and evaluation components of SRTAP. An audit of the built environment can provide a helpful assessment of these features and their impact on mobility, including physical activity, transportation, and safety for older adults. Audit tools, geographic information system data, and resident interviews are used for this purpose, but often fail to provide information that can be translated to practice. Only a few tools have been tested for reliability (Moudon & Lee, 2003). Researchers recommend the use of both perceived and objective measures to more accurately capture key neighborhood characteristics that can enhance physical activity and mobility from the perspective of the target population (Weiss et al., 2010).

BACKGROUND

SRTAP was developed from a larger age-friendly initiative led by multiple partners (i.e., Alliance for Aging; Miami-Dade County Parks, Recreation and Open Spaces Department; the Miami-Dade County

Department of Regulatory and Economic Resources; ReServe Miami; and Urban Health Partnerships) and provides an opportunity to engage older residents in this process from the start as part of the encouragement component of the initiative. The collective wisdom of older, diverse residents can help better understand the needs and strengths of the community and add another dimension to the ongoing evaluation component of this initiative. The current article describes preliminary findings using the CDC-HAN Environmental Audit Tool and focus group data to assess environmental walkability factors, including (a) safety; (b) comfort and appeal; (c) accessibility; (d) wayfinding and land use for walking, bicycling, and use of transit; and (e) the generation of key indicator reports to guide environmental health policy improvements. Results from street segment audits are included along with input from older adults living in a predominately Hispanic community who participated in a series of community-based group sessions that included team walking audits. Results were used in the refinement of the SRTAP program and contribute to the overall understanding of healthy aging and healthy communities and can ultimately inform and help shape public policy that enhances the physical, social, psychological, and civic dimensions of positive aging.

SRTAP is part of a larger, Miami-Dade Age Friendly Initiative to create a metropolitan area that fosters a healthy environment for diverse adults of all ages and abilities. In Florida, 17.3% of the total state population comprises individuals 65 and older (U.S. Census Bureau, 2011). Miami-Dade County includes cities that have been rated as the "Top Ten Places with the Highest Percentage of Their Population 65 Years and Older" (U.S. Census Bureau, 2011). By 2030, 27.1% of Florida's total population is projected to be 65 and older, as compared to

19.7% nationwide (U.S. Census Bureau, 2011). As part of Miami-Dade County, Miami's Little Havana, La Pequeña Habana, reflects the growing older adult population, with a diverse ethnic community that includes >85% Hispanic or Latino (predominantly Cuban) residents (City of Miami, n.d.).

Within the Little Havana community, a high percentage of adults 65 and older do not own a car, and their pedestrian crash rate is among the highest in South Florida, with more than five pedestrian crashes per square mile among this population per year (Miami-Dade Metropolitan Planning Organization, n.d.). This is especially significant in a community with a high percentage of Hispanic older adults, as they are more likely to die as pedestrians than White and Black older adults of the same age (Transportation for America, 2011). A recent Fatality Analysis Report conducted by the National Highway Traffic Safety Administration found that compared to their peers of the same age, Hispanic adults 65 and older have a fatality rate that is twice that of Black older adults, and 173% higher than for White older adults (Transportation for America, 2011). The oldest (i.e., 75 and older) Hispanic adults suffer a pedestrian fatality rate of 8 per 100,000 individuals, compared to 3.08 for White older adults and 3.84 for Black older adults (Transportation for America, 2011). Although many related factors may exist, Clifton, Burnier, and Akar (2009) found that environmental conditions are associated with pedestrian injury. Therefore, a safe environment for active transportation (e.g., walking, bicycling, taking transit) throughout life should be considered in the design of communities that promote healthy aging in place.

METHOD

The SRTAP initiative pilot was conducted from January to June 2013 and included community-based participatory approaches, including

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mixed methods, to examine environmental walkability factors to design and implement environmental planning policies that promote health and well-being across generations.

Setting and Sampling Approach

A criteria analysis was conducted for the selection of the community setting based on three primary factors: (a) safety, (b) density, and (c) need. *Safety* was determined by older adult pedestrian crash density. Pedestrian crash data for the 7 most recent years was measured, with a threshold of more than five older adult pedestrian crashes per 1 square mile per year. *Density* was determined by the number of older adult residents per 1 square mile, with a threshold of more than 3,000 residents per 1 square mile. Finally, *need* was determined by the percentage of households with zero automobile

availability, with a threshold of more than 1,500 households per 1 square mile with no vehicle available.

A confirmation factor of readiness was used to narrow the pilot location in the Miami neighborhood of Little Havana. Readiness was determined by a survey with a three-level scale: 1 = *not ready*, 2 = *somewhat ready*, and 3 = *ready with leveraging opportunities present*. Further analysis of Little Havana's community readiness indicated that it was a prime site for implementing the pilot SRTAP initiative.

Measures

The CDC-HAN Environmental Audit Tool was designed to provide a detailed quantitative and qualitative inquiry into community scale and streetscape factors associated with mobility in older adults. The tool includes an extensive set of environmental factors to enable a detailed assessment of permanent and transient environmental factors that may influence older adult safety and mobility. The tool has been tested for reliability across multiple sites, including qualitative walking interviews with older adults familiar with specific routes (Kealey et al., 2005). The interrater reliability of the most recent version of the CDC-HAN Environmental Audit Tool is based on a joint rating of 31 segments and 27 intersections. The range of kappa statistics generally fell into the good/fair category (i.e., 0.4 to 0.7 agreement) to very good (i.e., ≥0.7), with higher levels of agreement for intersection items and lowest levels for items with a behavioral component (e.g., aggressive drivers).

Domains assessed as part of the CDC-HAN Environmental Audit Tool include *land use/destinations*, *safety and accessibility* (e.g., walkways, roadways, public transportation, comfort order, appeal), and *wayfinding*, which is described as the process that individuals use to navigate their communities as they move from place to place. Including older

residents as part of the audit provides an opportunity to assess these domains from the perspective of this population. Special considerations for older adult populations consist of (a) capacity for activity; (b) visual acuity; (c) sensitivity to loud noises, bright lights, and extreme temperatures; (d) cognitive ability and memory; (e) slower walking pace; (f) susceptibility to steep inclines or cross-slopes; (g) urgent or more frequent need to use the bathroom; and (h) gait or balance difficulties that increase fall risk (CDC, 2009).

Level of Walkability and Safety (LWS) indicators are rated using a scoring protocol that ranges from 1 to 4 for each segment:

- 1 = *a pristine crossing environment*, which is safe and accessible for all ages and abilities;
- 2 = *a lack of some amenities*, with a few visible but avoidable problems but still accessible, walkable, and navigable. Some challenges exist for individuals with severe visual impairments;
- 3 = *a more demanding level of walkability*, with problems or barriers that are difficult to avoid that require attention and may not be suitable for individuals with severe functional challenges; and
- 4 = *the most demanding crossing environment*, with unavoidable accessibility barriers, safety hazards, or navigational challenges. This is not suitable for individuals with functional challenges and requires vigilance of all others.

The LWS is assigned per segment or intersection. For a walking route, the total score can only be as good as its weakest component.

Community Engagement

Older adult residents of a local apartment complex of Calle Ocho were invited to participate in a three-part series of local workshops. This community is part of a U.S. Department of Housing and Urban Development Program, which offers subsidized housing and rental

assistance to senior individuals who meet the requirements of the program. The Cuban American National Council (CNC; n.d.), which manages the apartment complex, is a national non-profit organization whose mission is to provide "human services to persons in need from all racial and ethnic groups" (para. 1). CNC (n.d.) assists individuals to "become self-reliant and builds bridges among America's diverse communities" (para. 1). The CNC assisted in participant recruitment and facilitation of the workshops. More than one half of the participants have lived at the facility or in the neighborhood of Little Havana for ≥10 years. Most (83%) participants have lived in the community for more than 5 years.

Procedures

Three sessions were scheduled over the course of 3 weeks, held on consecutive Wednesdays at the same time in the afternoon when most older adult residents were present in the building. As per the request of the participants, the first two sessions were conducted in Spanish, and the third session was conducted in Spanish and English simultaneously to accommodate participating public officials. Sessions 1 and 2 were each 60 minutes, and Session 3 was 90 minutes. Refreshments, snacks, and raffles were provided following each session. All sessions were video- and audiorecorded, transcribed, and translated into English. During the first community session, resident participants were informed of the SRTAP Initiative and discussed elements related to actively commuting in Little Havana and how to implement the 5-E Model.

Prior to Session 2, the CDC-HAN Environmental Audit Tool and protocol was conducted by trained facilitators along the Calle Ocho corridor during the same time of afternoon that the Viste Alegre residents (i.e., the local apartment complex of residents participating in the study) would be walking the

following week. The audit included the use of Google Maps to outline the walking routes based on recommendations of older residents as the most commonly used. The section of a street between two intersections is identified as a *segment*. Each segment and intersection was numbered to facilitate organization and rating of data. The audit is conducted by walking both sides of the street to obtain a complete impression of attributes and answer all audit tool questions. Photographs were used to document the barriers that older residents identified while actively commuting to daily destinations and obtain the detail necessary to specify desirable changes for a safe route. The findings were used to develop the Session 2 facilitation guide and informal walking audit. Participants were divided into two groups. Both groups traveled the same street; however, one walked along a segment of the corridor on the east side, whereas the other traveled a corridor segment on the west side of the starting point. In partnership with older adult residents, Session 2 informed which barriers and facilitators identified through the walking audit were a priority to address in Session 3.

Session 3 was aimed at translating the walking audit findings into a platform for discussion among older resident participants, with public officials, a Virtual Advisory Committee, and other community stakeholders. The Virtual Advisory Committee comprises policy leaders, such as those from the Department of Transportation, and City officials, healthy aging clinical experts, residents, and other community stakeholders, who join from remote locations through Skype® and conference calls. The session highlighted items of importance to older residents, including community barriers for mobility, physical activity, and transportation. Field notes and written transcripts were used as a basis for data analysis. The use of qualitative methods was necessary to explore cultural context, including the unique experiences of older adults living in this historical community. Based on findings, a community action plan was established, and a Virtual Advisory Committee comprised of stakeholders, representing the 5-Es, as well as community residents, have guided the implementation.

Audit Tool Analysis

Each segment was examined using the CDC-HAN Environmental Audit Tool by two trained team members (A.P., A.G.). Data for audit results were entered into SPSS version 21 for preliminary descriptive analysis. This analysis provides insights into the basic quality and LWS indicator for each segment and ultimately for the walking route assessed.

Qualitative Analysis

Focus group interviews were conducted in Spanish, then transcribed and translated to English. Transcripts and audio- and videorecorded sessions were compared to ensure accurate translation and documentation.

Qualitative content analysis guided the description of participant verbal responses (Hsieh & Shannon, 2005) focused on environmental concerns during the walking audit. This analysis was also used to capture and extend knowledge and understanding of cultural contextual issues that impact mobility, including physical activity among older residents in a predominantly Hispanic community.

To ensure methodological rigor, techniques outlined by Lincoln and Guba (1985) were used to ensure credibility of findings and included "member check" sessions to discuss pictures taken during the walk and obtain feedback from resident participants related to the conclusions drawn from the focus group sessions, as well as "peer debriefing" with the project team.

RESULTS

Eighteen older adult residents participated in the public forums fo-cused on all 5 Es, which included the walking audit. The residents, both men and women, were all of Hispanic origin and had been living in the neighborhood between 2 and 23 years. Several residents are members of the community's Virtual Advisory Committee. Specific to *engineering* and *evaluation*, the CDC-HAN Environmental Audit Tool examines an extensive set of environmental factors; however, in addition to LWS indicators, results reported highlight the major themes that emerged as concerns for older adults living in this community, including safety, comfort, and wayfinding.

Level of Walkability and Safety

Intersection LWS ratings ranged between 2 and 4, with the most (44%) rated as 4, indicating that along this route most intersections represent *the most demanding environment*. None of the intersections were rated 1 (*pristine crossing environment*). In comparison, segments along this route were rated either a 1 (20%) or 4 (80%).

Pedestrian Infrastructure and Traffic Safety

Sidewalks were present on at least one side of the street in 80% of the segments audited. Buffers between the sidewalk and street were observed in 40% of the segments, and few sidewalks were less than 3 feet in width. In 100% of segments, the sidewalks were continuous within the segment and continued into the adjacent segments. However, poor sidewalk maintenance was common. Of the 8 block faces (i.e., one side of the street in a segment) that had a sidewalk, 100% had poorly maintained sections. On 80% of these sections, the extent of poor maintenance was judged to be *moderate* or *major* (as opposed to *minor*).

With regard to sidewalk design features, 20% of block faces had a moderate or steep slope that made it difficult to walk, and 80% had a moderate or steep cross-

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slope. Permanent obstructions (e.g., telephone poles, trees) were common (100% of segments). Temporary obstructions (e.g., seasonal debris) were also common (100%). Curb ramps were present in 100% of block faces with sidewalks.

With regard to roadway design, 100% of segments audited had marked lanes. The volume of traffic was rated as mostly *moderate* (80%) and *heavy* categories, with high-speed traffic on 100% of the segments and aggressive drivers on 20% of the segments.

Neighborhood Safety Features

Pedestrian safety is strongly associated with the nature of adjacent roadways. In the route audited in Little Havana, Southwest 8th Street is predominately three lanes, with

some two-way lane blocks. Volume of traffic is relatively high, approximately 19,500 vehicles on average, with a speed limit of 30 miles per hour. The width of the roadway, traffic volume, and speed collectively increase risk of pedestrian–vehicle crashes or near misses. Some features were noted to help compensate for these challenges, including sidewalks and some walkway buffers (including on-street parking).

The quality of crossing features, whether at intersections or mid-block, is of particular importance to older adults, who often move more slowly than their younger counterparts and are at high risk of death or injury at crossings, with Hispanic older adults at the highest risk of all groups (Weiss et al., 2010). Along this walking route in Little Havana, 66.7% of intersections had some form of traffic movement control (e.g., stop sign, traffic signal). Pedestrian walk signals were present at 66.7% of the nine intersections audited; 66.7% of these had a countdown signal. However, 66.7% of intersections with walking signals were noted to provide inadequate crossing time, ranging from 18 to 27 seconds.

Walkways are also important to older adult safety. Poorly designed or maintained walkways reduce accessibility and increase risk of falls and other injuries. On the route audited, paved sidewalks of adequate width were consistently present. There were three segments with one to three trip hazards or barriers, and two segments with four or more trip hazards or barriers. Twenty percent of the poor maintenance was classified as *minor*, 60% as *moderate*, and 20% as *major*. *Moderate problems* are those that cannot be easily seen or avoided, whereas *major problems* make the section inaccessible or extremely dangerous, highlighting the need for immediate correction by public works. Other safety issues highlighted by the audit per segment included slipping hazards on

two segments and all segments had a railing or barrier where needed and none were noted to have temporary obstructions. The neighborhood has little elevation, so walkway slope was not an issue.

Additional observations relevant to personal safety included windows, porches, or other "eyes on the street" evident in a majority of segments (58.6%). Benches were present on 25% of segments. Working public restrooms or water fountains were scarce (20%, respectively). Call boxes, also important for safety, were also scarce (20%).

Comfort Supports

Along this route, most segments were found to provide adequate marked bus transit stops with route information available. Sixty percent were noted to provide places to rest (e.g., a bench) with trees offering shade. Of particular interest for older adults, only 20% were found to provide restroom amenities or working drinking fountains. Most (80%) segments provided opportunities for pedestrians to be seen when walking, which addresses both comfort and perceived safety.

Comfort Problems

Specifically problematic for older adults was the loud noise along this route (100% of segments). Although 20% of segments were found to be crowded or chaotic, 80% of walkways had competing use with other types of transit or stationary items (e.g., bicycles, skateboards, retail shop signs, utility poles, trees).

Regarding daytime crime rate, in a 6-month period (December 2012 to June 2013), 135 crimes were reported overall, with 83 crimes in the corridor. The majority of crimes (16.3%) were related to liquor law violations (Miami-Dade Police Department, 2014).

In terms of aesthetics, only 20% of segments had pleasant features. Although buildings were noted to be well-maintained, 60% of segments

included graffiti along this route. Broken glass and broken windows were found along some of this walkway (40% of segments), and litter was noted along the entire (100%) walkway and street. Regarding extent of physical disorder, the entire walkway (100%) was found to have some physical disorder, whereas 40% of segments had some social disorder (e.g., stray dogs, gangs, hostile behaviors). However, people of all ages were noted to be walking along the route (i.e., 60% of segments included children, 40% included teenagers, 100% included adults, and 80% included older adults).

Speeding traffic and air pollutants were found along 100% of the route, which is especially problematic for vulnerable residents living with asthma, cardiovascular disease, or other respiratory diseases (e.g., chronic obstructive pulmonary disease). Segments had mixed land use, including (a) 40% residential (i.e., apartments/condos and senior housing), (b) 100% industrial and commercial (i.e., office buildings), and (c) 40% had schools. Although the entire route was noted to include green spaces/parks, most (60% of segments) included underdeveloped land/vacant lots.

Wayfinding

Wayfinding features to support orientation and walking along the route were found among 100% of segments. These included directional signs, neighborhood flags/markers, informational boards with maps, or "you are here" cues. Calle Ocho is considered a cultural/historical landmark that is often shut down for celebrations and festivals. The entire route (100% of segments) included text and icons paired on signs or the pavement, whereas 40% of segments included advance street name signs. Additional supports included aids for low vision and hearing (i.e., audible or Braille directions) among 100% of segments.

Problems related to wayfinding included poor or inconsistent wayfinding aids (20% of segments) and poor, dirty, or obstructed wayfinding aids (20% of segments). Of specific importance to older adults and those with poor or low vision, problems included signs with text too small for easy reading (100% of segments) and poorly lit streets (100% of segments). Many segments did not appear to conform to the U.S. Department of Transportation (2009) mandate that states that street name signs shall be in uppercase and lowercase letters when replaced, instead of permitting signs to be made in capital letters. The Federal Highway Administration claims the switch will improve drivers' ability to identify words more quickly, whereas the Department of Transportation argues that studies show motorists find it easier to read lowercase signs (Transportation for America, 2011). Although the community is predominantly Hispanic/Latino, most (60%) segments included wayfinding aids or signs in only English language. Problems were identified with limited or no boundary definition along 100% of segments, as well as limited sight distances, which make it difficult to see the next corner or beyond immediate buildings.

Focus Group Data

Qualitative results illuminate a more detailed description of environmental concerns from the perspective of older residents, who also shared collective solutions to many of these issues. Regarding safety, comfort, and wayfinding for SRTAP, residents shared concerns about the following issues during the walking audit and public forum sessions.

Safety. Most residents discussed concern for bicycles on the sidewalk, many of which do not have bells or horns, travel very fast, and do not stop for pedestrians. According to many residents, cyclists generate fear and discourage many older residents from walking on sidewalks. Most

residents identified the narrow sidewalks as a hazard, especially when cyclists ride by quickly, displacing pedestrians, in particular older residents. Most residents also shared concern for uneven sidewalks, tree stumps or vacated tree wells, and trees with no protection base or grating, which can increase the tripping hazards and number of falls along a corridor.

Given the high pedestrian mortality rate in this community, concern was noted regarding the lack of enforcement laws, particularly traffic speed and pedestrian rights, as well as drivers who do not watch out for pedestrians when they make turns. Regarding the crime rate, most residents discussed a perceived lack of crime enforcement and loitering by individuals who appear homeless as contributors to their fear of physical harm in the neighborhood. Some residents voiced concern that vacant buildings encouraged loitering and other intimidating behaviors by homeless individuals.

The experience of living in this community provided older residents with a unique perspective on feasible solutions to address many of the safety concerns along this route. Potential solutions discussed included additional crosswalks that could act as signals for drivers to slow down and help in crossing safely. They suggested organizing forums to educate other residents about SRTAP, and in particular, to help educate drivers in this community. Other education and communication recommendations included sharing ideas in local newspapers and with community partners.

Comfort. Most older residents substantiated the audit findings that sidewalks along this route are extremely polluted. Although streets are consistently cleaned, sidewalks are not, and residents noted the inundation of sidewalks caused by poor drainage due to accumulation of leaves. They also shared concern for the lack of garbage cans and law

enforcement regarding littering. This problem was noted to be worse with bushes and tall ground cover that reportedly increased the accumulation of trash and large boxes.

Also consistent with the audit, residents discussed their concern that the route does not include adequate benches or sitting opportunities for rest or working drinking fountains.

Wayfinding. Older residents highlighted the current landmarks that are also considered important social resources and attractions along Calle Ocho, including colorful murals, towering city clocks, local grocery stores, churches, restaurants, and theaters that make this route enjoyable to walk. They emphasized the convenience, low-cost, and opportunity for exercise that walking to their destination provides.

Little Havana is considered a major tourist destination. Although tour buses and tourists can promote economic opportunities, they also contribute to drivers not looking where they are supposed to, in addition to "outsiders" coming through on their way to work. To facilitate wayfinding and promote mobility, residents talked about the need for signage in English and Spanish or universal pictures that could be interpreted by any cultural and linguistic preference.

DISCUSSION

Walking continues to be the most commonly accepted leisure time physical activity in the United States, especially among older adults (Rafferty, McGee, Petersmarck, & Miller, 2004). However, opportunities for walking or other physical activities, especially from the perspective of older adults, are not always fostered by the physical environment. Indeed, others have found that older residents' perceptions of specific community features, such as access or proximity to places for physical activity and walking, are significantly related to neighborhood walking (Li et al., 2005).

Results reported herein are consistent with the purpose of the SRTAP Initiative, which focuses on making walking safer and accessible for residents of all ages and abilities. Results provide a quantitative assessment of the existing physical attributes and factors amenable to change as a future guide for potential targets of urban design and planning interventions. Focus group data captured environmental concerns that were important to older Hispanic residents along Calle Ocho, a historical route that brings the community together and is commonly used as a route for access to food, banks, health care, social services, and community resources. Some studies suggest that inequality in the built environment might contribute to important ethnic and sociodemographic health disparities (Gordon-Larsen, Nelson, Page, & Popkin, 2006).

Older residents shared a sense of empowerment with the level of engagement and encouragement component of this process. This empowerment was noted during public forums and meetings with public officials. The residents' stories and concerns captured the attention of local media, which also helped identify the importance of safe routes across generations, demonstrating the potential influence and mutual benefit of including older adults in environmental walking audits. In addition to voicing the most significant concerns, they were knowledgeable of current community strengths, including the presence of the SRTAP Initiative, as well as partnerships with stakeholders, the Virtual Advisory Committee, local policy and planning agencies, and non-profit leaders in this community, which provide guidance and commitment for improving the walking conditions.

The audit and focus group data also highlighted helpful features for pedestrian infrastructure and traffic safety to help compensate for many of the challenges identified, including sidewalks, walkway buffers (e.g., on-street

parking), traffic calming devices, and well-designed crossing features (e.g., refuge islands, center median strips, curb extensions, advance stop lines).

Long-term, LWS scores or profiles on the different audit tool domains can be compared to determine environmental improvements over time. Only specific key indicators trigger changes to the LWS score. Pedestrian crash rates and future Virtual Advisory Committee data can be used to evaluate positive changes related to safety, comfort, and wayfinding.

LIMITATIONS

The incorporation of the CDC-HAN Environmental Audit Tool into the SRTAP pilot was assessed in a dense urban environment among older adults accustomed to walking as a daily means of transportation. The generalization of these findings to suburban or rural settings may not hold true. In addition, translation of these findings and subsequent action items are relevant to similar communities of high density where older adults are currently walking to commute to their activities. The tool continues to be refined and tested, and a scoring algorithm is under development.

This pilot was conducted among a predominately Hispanic community in which most participants were native Cubans. The inclusion of shade and protection from the sun, which has previously been identified as an age-friendly commodity, was not a concern for this group of participants. On the contrary, the participants enjoyed being exposed to sun during their daily commutes on foot. Therefore, conducting this study among distinct cultural groups of other Hispanic, non-Island subgroups may provide consistent results with previous research and support the need for shade to protect older adults from heat-related illness.

ENVIRONMENTAL POLICY IMPLICATIONS

The 5-E Model provided practical resources to help guide stakeholders

in environmental, age-friendly policy initiatives that meet the needs of aging, diverse populations. The current article focused specifically on the engineering and evaluation components, consistent with the purpose of the CDC-HAN Environmental Audit Tool assessment, as a first step in creating and supporting age-friendly neighborhoods. The authors emphasize the importance and benefit of engaging older residents in this process. Regarding the significance of culture, Rapoport (2005) suggested that the purpose of design is to create environments that suit users and, therefore, should be responsive to culture. In other words, the environment can be understood as the "cultural landscape" (Rapoport, 2005, p. 55).

Environmental health policies should be informed by research that includes a comprehensive correlation analysis that evaluates the similarities and differences between resident perceptions and environmental audit measures for each component of walkability (e.g., land-use mix, street connectivity/maintenance, neighborhood aesthetics, pedestrian safety, neighborhood safety). It would be important to also determine which environmental audit items correlate with actual walking behavior in diverse older adults. The study of environmental audits, including sound measures, is growing and will experience future progress in the field.

Findings from the current study have led to the development of action items and a Virtual Advisory Committee, comprising key stakeholders, to help improve the walking environment in Little Havana. This information, including residents' main concerns, will be used to develop an action plan to promote the design of safe routes for older residents to access during their daily activities. Data have been used to inform and support policy makers in designing programs and leading environmental initiatives to increase physical activity among these populations. The input,

from public forum discussions, has also helped inform the creation of a digital Resource Guide to be used by any community or professional leader looking to learn from best practices in the 5-Es of safe and healthy walking environments. Nurses may be well positioned to inform and promote environmental health policies for healthy aging, contributing expertise that includes health and well-being across generations.

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