Active living environment assessments in four rural Latino communities

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ABSTRACT

Objective. Latinos and rural residents are less active and have a greater prevalence of overweight/obesity compared with their non-Latino white and urban counterparts. The objective of this study was to assess the active living environment in four rural, predominantly Latino communities.

Methods. Assessments were taken using the Rural Active Living Assessment (RALA) in four rural predominantly Latino communities in Central Washington from September–November 2013. Street Segment Assessments of town center, thoroughfare, neighborhood and school zones were assessed for features related to walkability. Physical activity amenities, programs and policies in each town were assessed. Scores were generated for amenities, programs and policies. Data were analyzed with descriptive statistics and logistic regression.

Results. A total of 103 segments were assessed. Sidewalks in good condition were present in 32% of segments and shoulders in 44% of segments. Half of street segments were rated as walkable. Parks and playgrounds were available; however, half of these were rated in poor condition. All four districts offered after school physical activity programming but only two had a late bus option.

Conclusions. These four rural towns have some policies, programming and infrastructure in place that support active living. The information from the RALA can be used to inform program and policy development to enhance physical activity in these rural communities.

Introduction

Worldwide physical inactivity is estimated to contribute to 5.3 million deaths per year (Lee et al., 2012). In the US physical inactivity is a leading cause of morbidity and premature death (Danaei et al., 2009, 2010), in part due to its relationship with obesity (Flegal et al., 2012; Ogden et al., 2012) and its direct impact on long-term health through cardiovascular disease and numerous types of cancers (Physical Activity Guidelines Advisory Committee, 2008).

Engaging in regular physical activity can reduce the risk for developing obesity, chronic health conditions (e.g. diabetes, heart disease) and certain cancers (United States Department of Health and Human Services, 2008). The US government recommends 150 min per week of moderate-to-vigorous activity for adults to achieve health benefits (Physical Activity Guidelines Advisory Committee, 2008). However, the majority of Americans are not sufficiently active to achieve the preventive health benefits of physical activity (Troiano et al., 2008).

Physical activity levels are lower among racial/ethnic minorities and rural residents. Latinos are less physically active than non-Latino whites (Tucker et al., 2011) and rural residents are less active compared with urban and suburban residents (Martin et al., 2005; Parks et al., 2003). This disparity in physical activity contributes to the greater burden of obesity, heart disease and diabetes among rural residents and rural Latinos in particular, compared with non-Hispanic whites and urban residents (Blackwell et al., 2014).

Evidence from a growing body of literature suggests that physical activity, particularly walking, is associated with characteristics of the built environment. Neighborhood physical features which have been associated with increased levels of physical activity include the connectivity of local street networks (Hirsch et al., 2014; Rothman et al., 2014), diverse land-use mix with a range of walkable destinations (Nagel et al., 2008; Saelens et al., 2012), access to public transportation (Morency et al., 2011; Rissel et al., 2012), the presence and condition of sidewalks (Cain et al., 2014; Kwarteng et al., 2014), and distance to parks or green spaces (Coombes et al., 2010; Sugiyama et al., 2013). However, the majority of these studies were conducted in urban settings, and research in rural communities has been limited (Frost et al., 2010). Few

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studies to date have assessed the active living environment of rural communities using audit measures specifically designed for these settings, and no published work to date has focused on predominantly Latino rural communities.

The goal of this study was to assess the active living environment in four rural, predominantly Latino communities in central Washington. In 2007, approximately 25% of county residents reported no leisure time physical activity, 50% reported physical activity levels below recommended levels (Centers for Disease Control and Prevention, 2009). In 2012, in response to a community-identified concern regarding childhood obesity, we embarked on a community-based participatory research project with these rural communities in order to address childhood obesity. The data presented in this paper were collected as part of a community assessment conducted to inform the development and implementation of physical activity and healthy eating program that would be germane to the community.

Methods

Setting

Table 1 presents the US census characteristics of the 4 rural agricultural towns in this study. The percentage of Latino residents ranged from 74.0% to 90%. Less than 2% of residents reported walking to work (United States Census Bureau, 2013).

Assessment tool

We used the Rural Active Living Assessment (RALA), which consists of three components (Yousefian et al., 2010). The Town-wide Assessment (TWA) assesses 18 characteristics, including topography, geography, and an inventory of the presence and condition of fifteen recreational amenities such as parks and walking trails. The Program and Policy Assessment (PPA) consists of 11 questions regarding community-level policies, such as snow removal, and programs, such as walk to school, that support active living. The Street Segment Assessment (SSA) assesses features of the built environment (e.g. sidewalks, lighting, aesthetics) that are associated with walkability. For the SSA, four zones are identified: town center, neighborhood, isolated school, and thoroughfare. The town center zone and a portion of the thoroughfare zones are located within a pre-determined one-mile radius drawn from a centric landmark or location. Then a representative sample of street segments of approximately a quarter-mile in length is identified within each of the zones for assessment. The RALA codebook provides detailed instructions on how to identify the zones and segments (Hartley, 2010). Once street segments have been identified, raters note the presence and condition of specific walkability-related features, as well as provide a global assessment of walkability and aesthetics (sense of beauty) of each segment (Table 2).

Table 2
RALA segment assessment categories.

RALA category	Definition
Commercial features	Presence of one or more of the following: Restaurant, bar, food market, theater, convenience store, fitness center, small retail, large retail, private medical office, private general office.
Public/civic features	Presence of one or more of the following: Library, museum, community center, post office, town offices, courthouse, church/religious building.
Activity features[a]	Presence of one or more of the following: Athletic fields/courts, playground, swimming pool.
School features	Presence of one or more of the following: Elementary school, middle school, high school, (public or private).
Sidewalks	Sidewalks present on one or both sides of the street
Shoulder/Buffer	Most sidewalks in the segment have a sidewalk buffer strip separating them from the road or roads have a defined shoulder separating the traffic lanes from the edge of the road.
Safety features	Presence of one or more of the following: Crosswalks, pedestrian signage, traffic lights, stop signs, yellow school flashing lights, speed bumps, public lighting.
Traffic volume	High: a steady stream of significant traffic Medium: noticeable, but not constant traffic Low: Little or no traffic
Barriers	Significant barriers to pedestrian and bike traffic in the segment, including highway, train tracks, posted private property/no trespassing, construction, natural features (e.g., a river, thick woods, steep terrain) or other obstacle.
Aesthetically pleasing	Trained subjective assessment (see methods)
Connectivity	Indicates whether non-vehicular routes such as sidewalks, bike paths or trails connect this segment with other parts of town/attractions or with other segments or roads.
Global walkability	Trained subjective assessment (see methods)

[a] In the RALA tool, these features are contained in the 'public/civic features category'. We split them off in order to specifically examine the presence of parks and playgrounds.

We trained two local community research staff employed by the local field office of Fred Hutchinson Cancer Research Center, the Center for Community Health Promotion in the use of the RALA tools. The RALA codebook (Hartley, 2010) has detailed instructions on each question in the TWA, PPA and SSA. There are also detailed descriptions along with a photo depicting the condition of a feature for each rating (fair/poor vs. good/excellent). We held a training session at the local field office during which we discussed the questions in the TWA and the PPA to ensure that mutual understanding and agreement on requested information. We discussed the features in the SSA and how to arrive at a rating the RALA codebook descriptions and photos as a guide. For the global assessment of the walkability and aesthetics we discussed features of each quality and came to a mutual agreement on the key features needed for a segment to be rated as walkable or aesthetically pleasing. After the raters had completed the SSA for several segments we held another session to address any questions and concerns. The two trained raters

Table 1
US census characteristics of towns included in study and Washington State, 2009–2013.
Source US Census Bureau, 2009–2013 American Community Survey.

	Town 1	Town 2	Town 3	Town 4	Washington State
Population, N (+/−)	3227 (44)	10,893 (73)	15,940 (67)	8970 (30)	6,819,579 (n/a)
Hispanic persons, % (+/−)	89.9 (3.8)	74.0% (4.1)	80.7 (3.0)	80.4 (4.5)	11.5 (n/a)
High school graduate or higher, 25+, % (+/−)	44.0 (7.3)	58.6 (5.8)	54.2 (4.6)	46.5 (6.1)	90.0 (0.1)
Median per capita earnings, 25+, dollars (+/−)	20,854 (2709)	23,047 (2024)	20,993 (2707)	18,779 (1793)	39,381 (209)
Persons below poverty level, % (+/−)	34.2 (8.9)	24.2 (6.2)	26.1 (6.1)	35.5 (6.7)	13.4 (0.2)
Median household income, dollars (+/-)	38,400 (5175)	39,709 (2656)	34,698 (5750)	29,692 (5721)	59,478 (291)
% Owner-occupied housing, % (+/−)	57.6 (7.4)	63.6 (6.3)	56.6 (6.3)	49.9 (5.9)	63.2 (0.3)
Median home value, dollars (+/−)	95,000 (8100)	117,600 (8301)	118,700 (8066)	115,400 (9157)	262,100 (870)
Travel to work					
Walking, % (+/−)	1.5 (1.5)	0.8 (0.7)	1.8 (2.1)	1.3 (0.9)	3.5 (0.1)
Bicycle, % (+/−)	0.0 (3.2)	0.4 (0.6)	0.0 (0.6)	0.0 (1.1)	0.9 (0.1)
Public transportation, % (+/−)	0.0 (3.2)	0.0 (0.9)	2.6 (2.1)	0.3 (0.5)	5.8 (0.1)

independently rated the same street segments until an inter-rater reliability of 81% was achieved. Then only one rater conducted the assessment of a street segment. The assessments were conducted from September to November 2013. The institutional review boards of Fred Hutchinson Cancer Research Center and Oregon Health & Science University approved this study.

Scoring and analysis

The TWA and PPA instruments were scored; both total and domain scores were calculated in accordance with the published guidelines (Hartley, 2010). The total possible score of the TWA and the PPA is 100 with sub-scores for each of the different domains. A higher score indicates greater support for active living. There is not a scoring rubric for the SSA; therefore, street segment items were examined individually. The proportion of segments with each measured segment feature (e.g. sidewalks, safety features, commercial buildings) was calculated for each of the four study sites to provide an overall assessment of features associated with walkability in each town. In addition, segments were grouped by zones to assess differences in the proportion of segment level-features across zones. Fisher's exact test was used to assess for differences in the proportion of segment-level features both between towns and between zones. Finally, logistic regression was used to identify the specific features associated with raters' global assessment of segment walkability. First, the association between each measured segment characteristic and global walkability was tested in a bivariate logistic regression model. Next, segment characteristics with a p-value of ≤0.2 in bivariate models were included in a multiple logistic regression model. We choose a threshold of $p < .20$ because more stringent selection criteria (for example, $p < .10$ or $p < .05$) have previously been shown to fail in identifying covariates known to be important (Hosmer and Lemeshow, 2004; Mickey and Greenland, 1989). Multicollinearity between segment characteristics was assessed by examining variance inflation factor (VIF) values, with a threshold of >5 designated as indicative of multicollinearity (Cohen et al., 2013). To adjust for potential town-level clustering effects, robust standard errors were calculated and used in significance testing of model coefficients. Analyses were conducted using Stata13 (StataCorp PL, College Station, Texas).

Results

Town-wide assessment

The range of scores on the TWA was 47–77 (total possible score 100; Table 3). All of the four towns had a public park and school or public playgrounds and playing fields within one mile of the town center; however, in three of the four towns the parks were rated in poor condition, in two the playgrounds were rated in poor condition, and in two the playing fields were rated in poor condition. All four towns had a walking trail and two had a biking path. In one town all three of these amenities were rated in poor conditions and in one town all three were rated in good condition. All four towns had a walking trail and all four were rated in good condition.

Program and policy assessment

The range of scores on the PPA was 40–85 (total possible score 100; Table 3). There are public and private facilities that offer physical activity programming in three of the towns; however, facilities in two towns did not offer a sliding fee scale, making the programs out of reach for low-income residents. Two towns had a policy in place requiring bikeways and walkways in new infrastructure development. Three regularly cleared snow from sidewalks. All four school districts allowed public access to school facilities after school hours. All four districts offered after school programming but only two had a late bus option.

Street segment assessment by town

A total of 103 segments were assessed across the four towns included in this study (15 in town 1, 24 in town 2, 34 in town 3, and 30 in town 4). Town-level street segment characteristics are presented in Table 4. Sidewalks were present on one or both sides of the road in 43% of segments (range 20–53%). However, sidewalks in good condition were only available in 32% of segments (range 20–38%). Shoulders, where people could potentially walk, were present in 44% of segments (range 37–56%), but the majority (60%) was in fair or poor condition. Safety features were present in 69% of segments (range 40–80%). Overall, approximately half the segments were rated as walkable (51%, range 33–63) and 49% were rated as aesthetically pleasing (13–67%). Fishers exact test revealed a significant between-town difference in the proportion of segments rated as aesthetically pleasing (p = 0.01). No other significant between-town differences were observed.

Street segment assessment by zone

There were significant differences in segment characteristics between zones (43 segments in Town Center, 33 in Thoroughfare, 21 in Neighborhood, and 6 in School; Table 5). The presence of sidewalks was significantly lower in Neighborhood zone segments (9%) than in Town Center (58%), Thoroughfare (42%) and Isolated School (50%) zones (p = 0.01). Conversely, shoulders were less frequent in Town Center segments (19%) compared to Neighborhood (57%), Thoroughfare (68%) and Isolated School segments (p < 0.01). Neighborhood zones had the lowest proportion of aesthetically pleasing segments (38%, p = .03) of any zone type. Overall, the Town Center zones contained the highest proportion of segments rated as walkable (65%), compared to 42% of Thoroughfare, 38% of Neighborhood, and 33% of Isolated School zone segments, although these differences did not reach the level of statistical significance (p = .09).

Association of street segment items with global walkability assessment

In bivariate analyses, the presence of physical activity amenities (odds ratio (OR) = 8.47, p = .003), schools (OR = 7.77, p = .01), safety features (OR = 6.81, p = .002), sidewalks (OR = 12.09, p < .001) and street connectivity (OR = 11.47, p < .001) were associated with greater odds of the segment being rated as walkable. Conversely, the presence of shoulders was associated with significantly reduced odds of being rated as walkable (OR = 0.16, p < .001). There were no significant bivariate associations between raters' assessment of global walkability and

Table 3
Town program and policy assessment scores.[a]

Domain (domain score)	4 towns				
	Town 1	Town 2	Town 3	Town 4	Overall Mean (SD)
Town-wide assessment					
School location (15)	15	15	15	15	15.0 (0.0)
Trails (20)	8	16	16	8	12.0 (4.6)
Parks and playgrounds (25)	16	16	16	16	16.0 (0.0)
Water activities (10)	1	4	4	4	3.3 (1.5)
Recreational facilities (30)	7	19	26	14	14.0 (8.5)
Total score (100)	47	70	77	57	62.8 (13.4)
Program and policy assessment					
Town policies (10)	10	10	0	3	5.8 (5.1)
Town programs (30)	0	30	26	22	19.5 (13.4)
School policies (30)	15	30	15	30	22.5 (8.7)
School programs (30)	15	25	30	15	21.3 (7.5)
Total score (100)	40	95	71	70	69 (22.5)

[a] Program and policy assessment total possible score = 100, town-wide assessment total possible score = 100.

Table 4
Segment characteristics by town.

	4 towns				Total (N = 103)	p-Value[a]
	Town 1 (N = 15)	Town 2 (N = 24)	Town 3 (N = 34)	Town 4 (N = 30)		
N (%)						
Commercial features	3 (20.0%)	6 (25.0%)	16 (47.1%)	8 (26.7%)	33 (32.0%)	0.17
Public/civic features	3 (20.0%)	5 (20.8%)	8 (23.5%)	6 (20.0%)	22 (21.4%)	0.99
Activity features	1 (6.7%)	6 (25.0%)	6 (17.6%)	8 (26.7%)	21 (20.4%)	0.41
School features	2 (13.3%)	3 (12.5%)	8 (23.5%)	7 (23.3%)	20 (19.4%)	0.68
Sidewalks	3 (20.0%)	10 (41.7%)	18 (52.9%)	13 (43.3%)	44 (42.7%)	0.20
Sidewalks: good condition	3 (20.0%)	9 (37.5%)	13 (38.2%)	8 (26.7%)	33 (32.0%)	0.53
Shoulder	6 (40.0%)	9 (37.5%)	19 (55.9%)	11 (36.7%)	45 (43.7%)	0.39
Shoulder: good condition	3 (20.0%)	2 (8.3%)	7 (20.6%)	6 (20.0%)	18 (17.5%)	0.59
Safety features	6 (40.0%)	15 (62.5%)	27 (79.4%)	23 (76.7%)	71 (68.9%)	0.88
Traffic volume: low	9 (60.0)	17 (70.8)	18 (52.9)	17 (56.7)	61 (59.2)	0.57
Traffic volume: medium	3 (20.0)	4 (16.7)	12 (35.3)	5 (16.7)	24 (23.3)	0.29
Traffic volume: high	3 (20.0)	3 (12.5)	4 (11.8)	8 (26.7)	18 (17.5)	0.42
Barriers present	4 (26.7)	15 (62.5)	21 (61.8)	14 (46.7)	54 (52.4)	0.09
Aesthetically pleasing	2 (13.3%)	16 (66.7%)	17 (50.0%)	15 (50.0%)	50 (48.5%)	0.01
Connectivity: good/excellent	10 (66.7)	12 (50.0)	20 (58.8)	16 (53.3)	58 (56.3)	0.75
Walkable	5 (33.3%)	14 (58.3%)	14 (41.2%)	19 (63.3%)	52 (50.5%)	0.14

[a] Fisher's exact test.

commercial or public walking destinations, traffic volume, barriers, or aesthetics.

Results of the multiple logistic model examining the relationship between global segment walkability on selected segment characteristics are presented in Table 6. The strength of bivariate associations was somewhat attenuated in the multivariable model. The presence of sidewalks was strongly associated with segment walkability (OR = 7.9, p = 0.003), as was the presence of physical activity amenities (OR = 3.0, p = 0.005), and segment connectivity (OR = 3.8, p = 0.004). The presence of shoulders was negatively associated with global walkability (OR = .29, p = 0.04).

Discussion

This study assessed the active living environment in four rural predominantly Latino communities. The TWA revealed that there were a low number of amenities in two towns and an adequate amount in two towns to support active living. All four towns had parks and playgrounds and half of these were rated in poor condition. All four had a walking trail and two had a biking path. One town lacked a public recreational center/facility. Three towns had policies and programs in place to support physical activity (PPA scores 70–95); however, one town's environment was less supportive of active living (PPA score of 40). School programs and policies to encourage physical activity were

present in all four towns. All four school districts offered after school programs, a community strategy recommended by the Centers for Disease Control and Prevention to prevent childhood obesity (Khan et al., 2009); however, only two offered a late bus option. This lack of transportation limits access for some children (Yousefian et al., 2009). All four school districts allow public access to school recreational facilities after school hours.

A study using the RALA in 4 counties in Alabama and 4 counties in Mississippi found a similar range of amenities (TWA 34–70 vs. 44–77 in present study) and slightly lower number of programs and policies (15–86 vs. 40–95 in present study) in place to support active living (Robinson et al., 2014). There was not a discernable difference or pattern in availability of policies, program or amenities to support active living between the Latino communities in the present study and the communities in the southern counties. Similar to the towns in the Latino communities, all 8 southern counties had some school policies supporting active living. However, the four towns in the Latino communities had after school programs whereas, two of the southern counties did not have any after school programs. Similar to the 4 towns in the Latino communities, all 8 southern counties had parks and playgrounds. Both the rural Latino communities and the southern counties had a similar average per capita income ($20,918 and $22,002 respectively) and average percent of persons below poverty level (30% and 20%) and differed on the percent ethnic/racial minority (81% Latino and 32% black).

Table 5
Segment characteristics by zone.

	Zones				p-Value[a]
	Town Center (N = 43)	Thoroughfare (N = 33)	Neighborhood (N = 21)	Isolated School (N = 6)	
N (%)					
Commercial features	15 (34.9)	14 (42.4)	3 (14.3)	1 (16.7)	0.13
Public/civic features	13 (30.2)	7 (21.2)	0 (0.0)	2 (33.3)	0.02
Activity features	11 (25.6)	5 (15.2)	2 (9.5)	3 (50.0)	0.11
School features	12 (27.9)	3 (9.1)	1 (4.8)	4 (66.7)	<0.002
Sidewalks	25 (58.1)	14 (42.4)	2 (9.5)	3 (50.0)	0.001
Sidewalks: good condition	15 (34.9)	13 (39.4)	2 (9.5)	3 (50.0)	0.05
Shoulder	8 (18.6)	22 (66.7)	12 (57.1)	3 (50.0)	<0.001
Shoulder: good condition	0 (0.0)	14 (42.4)	2 (9.5)	2 (33.3)	<0.001
Safety features	43 (100.0)	23 (69.7)	14 (66.7)	5 (83.3)	<0.001
Traffic volume: low	32 (74.42)	7 (21.21)	17 (80.95)	5 (83.33)	<0.001
Traffic volume: medium	9 (20.93)	10 (30.3)	4 (19.05)	1 (16.67)	0.77
Traffic volume: high	2 (4.65)	16 (48.48)	0 (0)	0 (0)	<0.001
Barriers present	16 (37.2)	24 (72.7)	13 (61.9)	1 (16.7)	.003
Aesthetically pleasing	18 (41.9)	18 (54.5)	8 (38.1)	6 (100.0)	0.04
Connectivity: good/excellent	37 (86.1)	16 (48.5)	3 (14.3)	2 (33.3)	<0.001
Walkable	28 (65.1)	14 (42.4)	8 (38.1)	2 (33.3)	0.09

[a] Fisher's exact test.

Table 6
Association of segment characteristics with global segment walkability.[a]

Feature	OR	Std. err.	P > |t|	95% CI
Public/civic features present	1.099	0.588	0.860	0.385–3.137
Activity features present	3.657	1.701	0.005	1.470–9.098
School features present	1.872	0.920	0.202	0.714–4.907
Sidewalks present-one or both sides of street	5.408	3.352	0.006	1.605–18.22
Shoulder present	0.245	0.135	0.011	0.084–0.720
Safety features/crosswalks present	0.651	0.151	0.064	0.413–1.026
Barriers present	0.988	0.934	0.990	0.155–6.306
Connective segment	3.284	1.371	0.004	1.449–7.442

[a] Global segment walkability = perceived walkability by trained raters.

Results from use of the RALA in 4 towns in Maine, 1 in California, 1 in Mississippi, 1 in Alabama and 1 county in Kentucky showed a similar range of programs and policies across the towns without a discernable pattern based on geographic location (Yousefian et al., 2010). Thus, in these geographically diverse rural communities there does not appear to be a difference in support of active living based upon location or the racial/ethnic composition.

All four of these rural Latino towns had parks, playgrounds and playing fields within a mile radius of the town center; yet, the condition of the majority of them was poor. Access to parks has been associated with physical activity in rural residents (Frost et al., 2010) and rural residents who use recreational facilities are more likely to be physically active (Addy et al., 2004; Deshpande et al., 2005; Parks et al., 2003). However, living a long distance from recreational facilities is a barrier to using them (Seguin et al., 2014) and is associated with being inactive (Moore et al., 2013). Yet, in a study looking at trail use in rural areas some users reported traveling more than 30 miles to use a walking trail with 52% reporting increasing walking since using the trail, suggesting that some rural residents are willing to travel long distances in order to be physically active (Brownson et al., 2000). Furthermore, a lack of transportation is a barrier for rural youth using schoolyards, parks or other recreational facilities for physical activity (Yousefian et al., 2009). Thus, situating physical activity amenities, such as parks, open spaces, walking trails, and indoor recreation facilities throughout town where residents could walk to them could lead to greater levels of physical activity among rural residents (Yousefian et al., 2009). However, in rural communities the population is dispersed resulting in a small pool of potential users in any one area of the community to support facilities. Concentrating them in the town center allows for a larger pool of potential users to support them; yet, they would not necessarily be accessible to all community residents because this would require traveling longer distances to the facilities for those residents living far from the town center.

Sidewalks and shoulders are places in which rural residents could walk or bike. In these four towns sidewalks were present in 43% of the segments with 32% in good condition and shoulders were present in 44% of street segments, with the majority in poor condition. A review of the built environment in rural areas found only 4 out of 9 studies reported a significant positive association between sidewalks and shoulders and walking or physical activity (Frost et al., 2010). In our study sidewalks were positively associated with perceived walkability of the raters and the presence of shoulders was negatively associated with walkability. The majority of shoulders were rated in poor condition (not well maintained with apparent neglect and/or deterioration) with a greater percentage of shoulders present in thoroughfares and neighborhoods compared with town centers. Thus potentially they were perceived as unsafe and not walkable because of their poor condition, making it difficult to walk on the shoulders. Sidewalks might provide more of a perceived barrier from traffic because they are raised up from the traffic and this perception is likely enhanced when there is a parking/tree strip between the sidewalk and road compared with shoulders, which are level and continuous with the road. Also traffic on thoroughfares is likely to be busy and fast. Rural women have reported feeling unsafe walking because of fast traffic, busy roads and poor safety features (specific safety features were not mentioned) (Seguin et al., 2014) and rural residents who feel unsafe from traffic have a greater likelihood of being inactive and obese (Boehmer et al., 2006). Thus, enhancing the safety of shoulders through improved condition, such as smooth surface/pavement and safety features, such as widening shoulders and creating a buffer from the traffic could encourage increased walking on roads with shoulders (US Preventive Health Task Force, 2015). Another option could be to create paved walking paths that are separated from the road.

Creating an environment conducive to active living in rural areas poses challenges. Rural communities have less resources and higher rates of poverty and lower median incomes compared with urban areas (Economic Research Service, 2014). Low population density results in a lower tax base to support environmental changes, including organized programming through a public parks and recreation department, and diminished political influence for state resources (Barnidge et al., 2013). There are less places (built and natural) to be active in rural areas compared with urban and suburban areas and the likelihood of meeting physical activity guidelines increases with increasing number of places to be active among rural, urban and suburban residents (Parks et al., 2003). Possible strategies to combat these challenges include building upon language in existing policies to promote physical activity, for example adding wording to require new housing developments build walking trails (Barnidge et al., 2013), increasing physical activity opportunities during school hours (e.g. length of recess) (Yousefian et al., 2009), building partnerships or coalitions to leverage existing resources, such as between schools, hospitals, parks and recreation departments (Barnidge et al., 2013). Furthermore there is a need to build an evidence base for what works in rural communities through rigorous research with rural communities to ascertain which strategies are effective in promoting active living in rural communities (Barnidge et al., 2013; Yousefian et al., 2009).

This study fills a gap in the literature by providing a comprehensive assessment of the built environment in rural predominantly Latino communities experiencing health disparities. There are limitations to this study. We assessed the built environment in just four towns and our findings might not be generalizable to other rural communities. We did not measure physical activity among community members and evaluate associations between the built environment and levels of physical activity. We did not assess community member's perceptions of the built environment or use of the amenities or programming and perceptions of the environment have been associated with physical activity (Hume et al., 2007). The strengths of this study are that we used a tool designed specifically for rural communities and conducted a comprehensive assessment of programs, policies, amenities and characteristics of the built environment that are supportive of active living. Other communities that have used this tool were located in the southeastern US, northeastern US and California; we did not find a published report of an assessment in predominantly Latino communities.

Conclusions

These four rural towns have some policies, programming and infrastructure in place that supports active living. The RALA tool provides a comprehensive assessment of policies, programs, amenities and infrastructure supportive of active living in rural communities that could inform intervention development. Identifying and implementing policy and environmental changes that can promote physical activity within a rural community could begin to diminish health disparities experienced by rural communities.

Conflict of interest

None.

Acknowledgments

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