

INVESTIGATING DIFFERENCES IN CONSTRAINTS TO OUTDOOR RECREATION IN HIGH-OBESITY COUNTIES OF ALABAMA

AN ANALYSIS OF RACE, INCOME, AND AGE

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INTRODUCTION: THE OBESITY EPIDEMIC

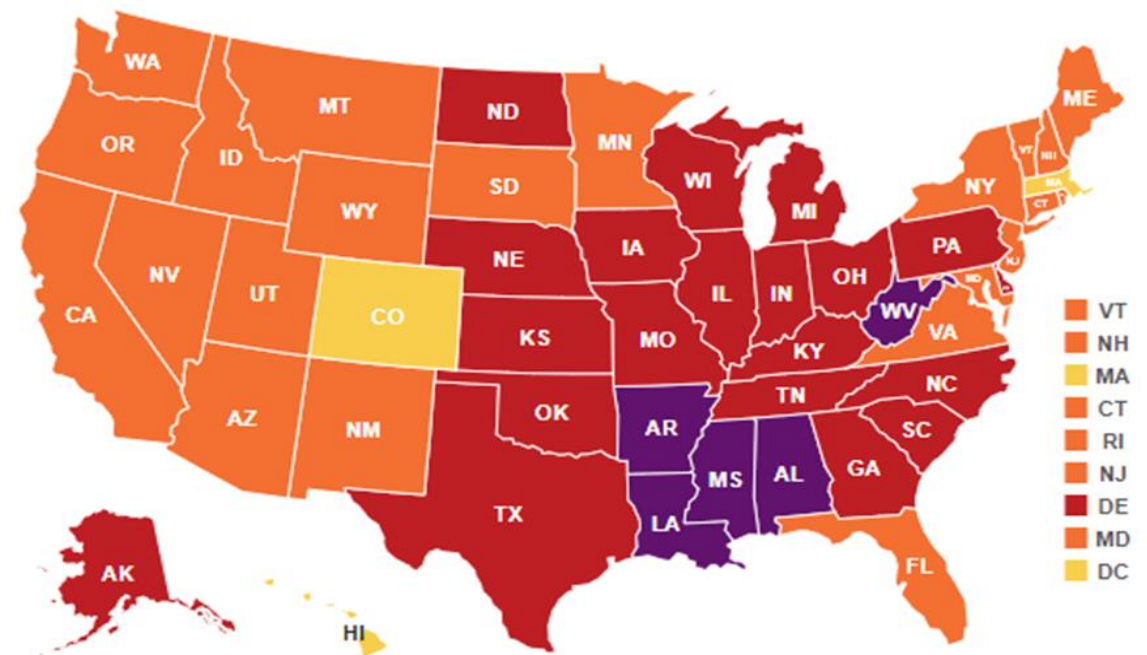
- Obesity rates have reached epidemic levels and continue to climb
- One of the leading drivers in preventable chronic diseases and healthcare costs
 - As BMI increases, so do numbers of sick days, medical claims, and healthcare costs
- In 1990, statewide obesity rates ranged from 7-15%
- Currently, more than one-third of adults are obese
- One in six children are obese

Adult Obesity Rate by State, 2016

Select years with the slider to see historical data. Hover over states for more information. Click a state to lock the selection. Click again to unlock.

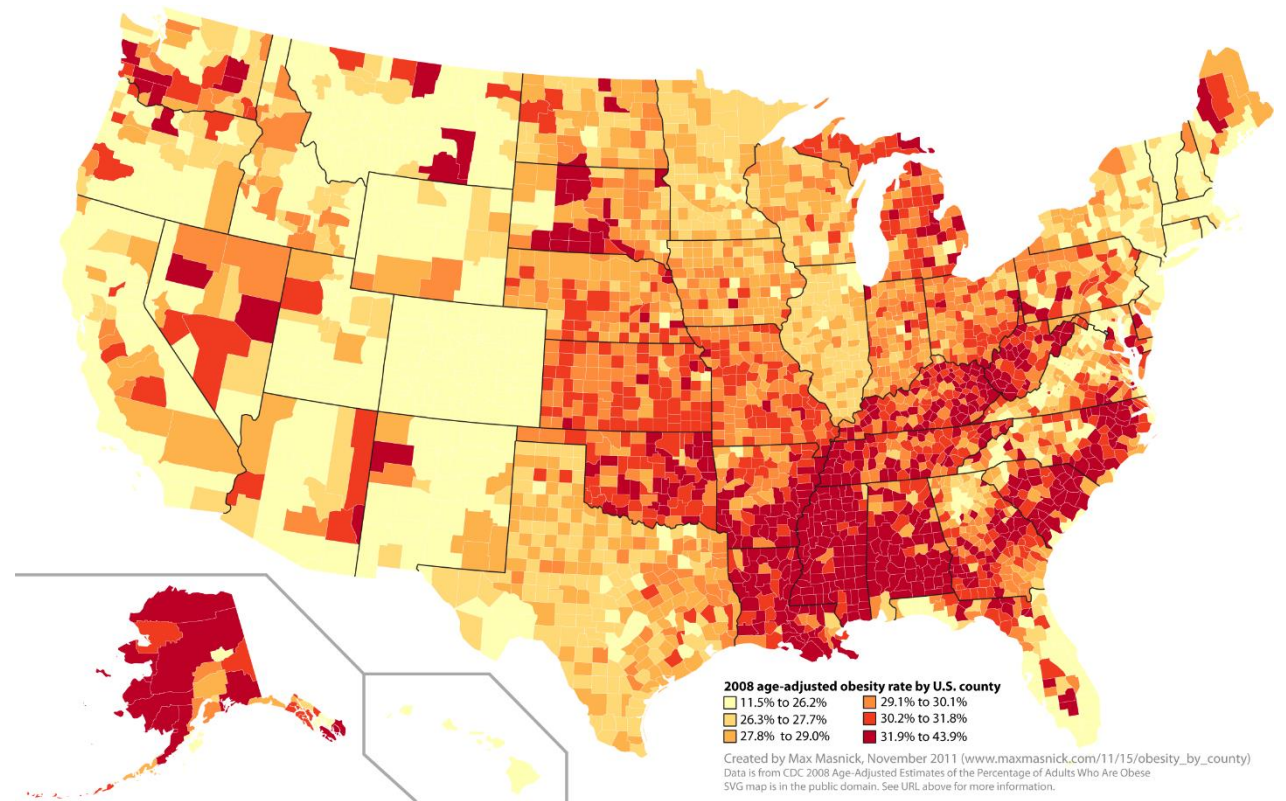
Percent of obese adults (Body Mass Index of 30+)

■ 0 - 9.9% ■ 10 - 14.9% ■ 15 - 19.9% ■ 20 - 24.9% ■ 25 - 29.9% ■ 30 - 34.9% ■ 35%+



INTRODUCTION: THE OBESITY EPIDEMIC

- Disparities exist in obesity rates among demographic groups
 - Low income
 - Elderly
 - African American and Hispanic
 - Rural
- Largely due to lack of access to healthy food sources or locations for outdoor recreation or physical activity
- Outdoor recreation can offer an avenue by which to increase physical activity



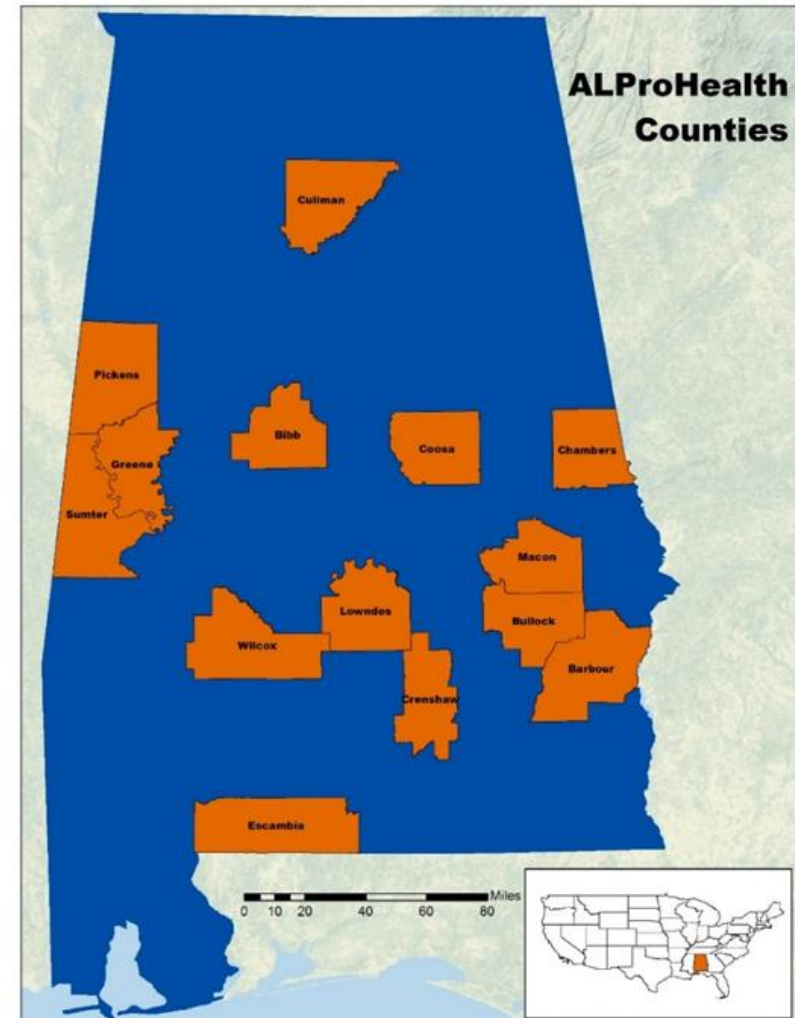
INTRODUCTION: THE OBESITY EPIDEMIC

- Disparities also exist among constraints to participation in outdoor recreation
 - Distance
 - Cost
 - Lack of time
 - Safety concerns
 - Poor health
- Purpose:
 1. to investigate constraints to outdoor recreation for high-obesity counties in Alabama
 2. To identify any differences in constraints among demographic and socioeconomic groups (race, income, and age)



METHODS

- **ALProHealth:** Alabama Preventing and Reducing Obesity – Helping to Engage Alabamians for Long-Term Health
- 4-year project funded by the Centers for Disease Control and Prevention
 - Currently in Y4
- Working with community coalitions in 14 counties with adult obesity rates greater than 40%
- Implementing research-based interventions proven to reduce obesity
- 3-prong approach
 - Nutrition Education
 - Food Retail
 - Physical Activity



NEEDS ASSESSMENT

- **Focus groups with community coalitions**
 - Community coalitions made up of local leaders
 - Questions regarding the health of the local community
- **Mail survey**
 - Survey was developed to elicit responses regarding access to outdoor recreation locations and healthy food sources
 - Participation rates for outdoor recreation activities
 - Community needs for improving outdoor recreation
 - Constraints to participation in outdoor recreation

2016 OUTDOOR RECREATION AND FOOD ACCESS SURVEY

UNDERSTANDING YOUR PARTICIPATION IN OUTDOOR RECREATION ACTIVITIES
AND YOUR ACCESS TO FOOD



A STUDY BY:
ALABAMA COOPERATIVE EXTENSION SYSTEM
AND
THE SCHOOL OF FORESTRY AND WILDLIFE SCIENCES AT AUBURN UNIVERSITY

METHODS

- Constraints to outdoor recreation:
 - 10 potential constraints
 - Respondents asked to rank how strongly a constraint limited their participation in outdoor recreation in the past 12 months
 - Likert scale ranging from 1 (“not important”) to 5 (“very important”)

BARRIERS TO OUTDOOR RECREATION

Now, we would like to know about some of the things that keep you or anyone in your household from participating in outdoor recreation.

14. How important are each of the following reasons for limiting your participation in outdoor recreation in the past 12 months? Please circle the number on a scale from 1 (not important) to 5 (very important).

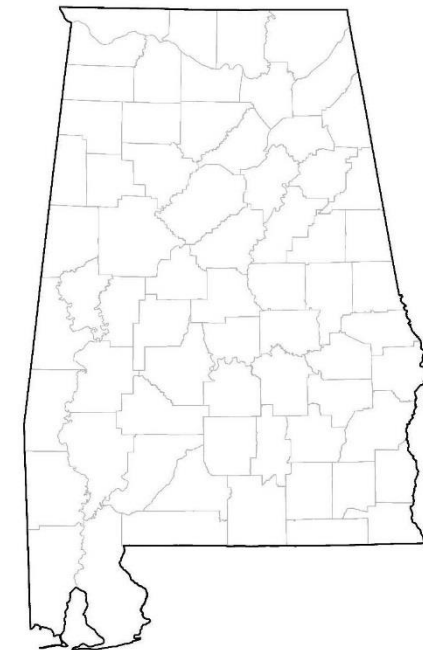
	Not Important	←	→	Very Important
Travel distance; not enough nearby facilities	1	2	3	4 5
Not enough time; too busy with family, work, or other commitments	1	2	3	4 5
Health concerns	1	2	3	4 5
High fees	1	2	3	4 5
Lack of security or feeling of unsafety	1	2	3	4 5
Lack of accessibility for disabled or impaired individuals	1	2	3	4 5
Discrimination of any kind	1	2	3	4 5
Underdeveloped facilities (not enough picnic tables, playground equipment, restrooms, water fountains, etc.)	1	2	3	4 5
Overcrowding	1	2	3	4 5
Not interested; don't like to participate in outdoor recreation	1	2	3	4 5

METHODS

- Dillman's Tailored Design Method
 - Initial questionnaire packet
 - Thank you/Reminder postcard
 - Replacement questionnaire packet (50%) and online version instructions (50%)
- Surveys were sent to 500 random households in each of the 14 ALProHealth counties plus an additional 2 counties
- 8,000 total surveys mailed—7,000 surveys analyzed for this analysis

2016 OUTDOOR RECREATION AND FOOD ACCESS SURVEY

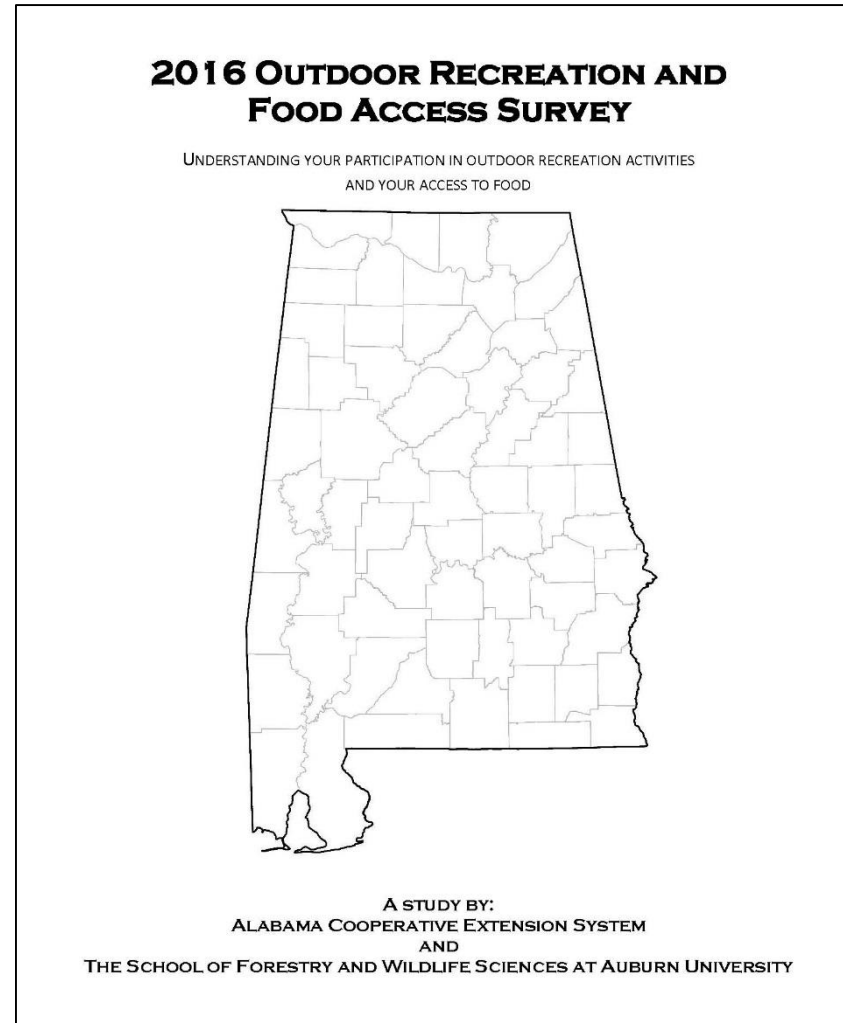
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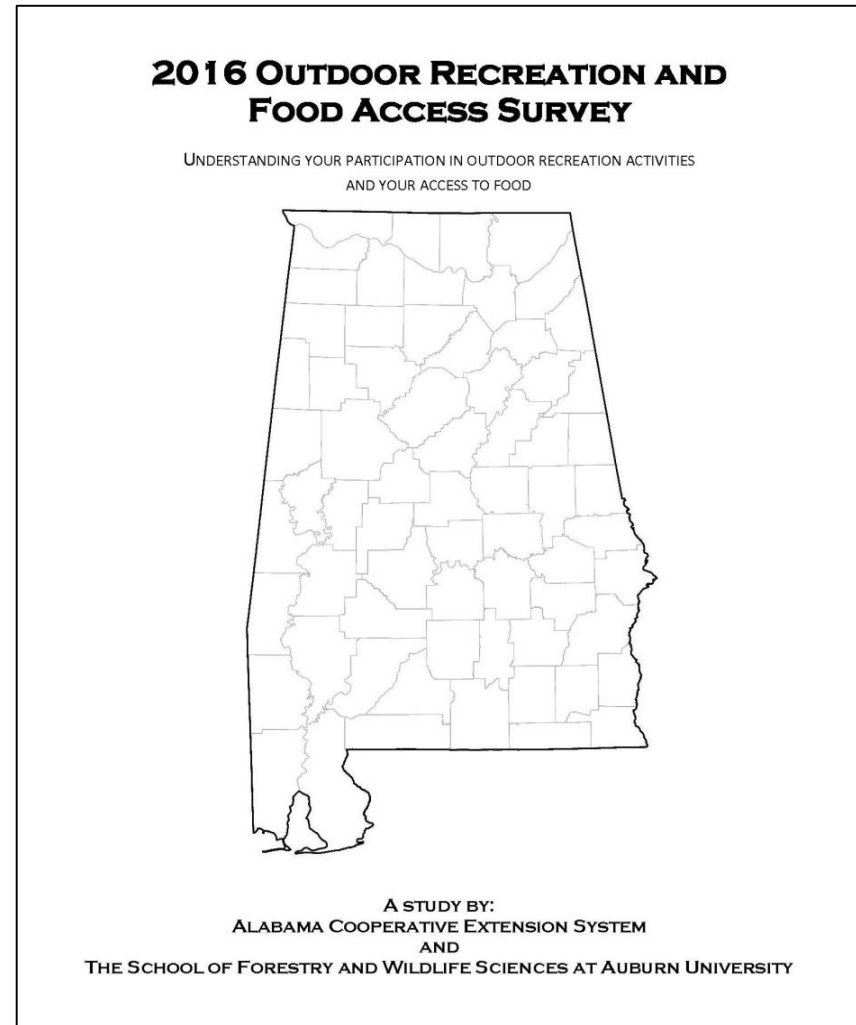
METHODS

- Responses were split into demographic and socioeconomic groups to investigate any differences that exist
 - Race
 - African American
 - White
 - Income
 - Low: less than \$25,000
 - Medium:
 - High: greater than \$75,000
 - Age
 - Low: less than 45
 - Medium: 45-64
 - High: 65+



RESULTS: RESPONSE RATE

- Response rate
 - **1,448 total returned**
 - 1,397 returned questionnaires
 - 51 online responses
 - 605 non-deliverable addresses
 - $\frac{1,448 \text{ (usable responses)}}{7,395 \text{ (deliverable addresses)}} \times 100 = \mathbf{19.6\% \text{ response rate}}$



RESULTS:WEIGHTING

Gender	Sample %	Population %
Male	53.8	49.7
Female	46.2	50.3
Race/Ethnicity		
African American or Black	33.1	36.3
Caucasian or White	64.5	60.7
Age		
Age 18-44	8.2*	43.3
Age 45-64	39.8**	35.7
Age 65+	51.9***	20.9
Income		
Less than \$25,000	33.9	25.6
\$25,000-\$74,999	40.8	50.5
\$75,000+	25.4	23.9

$$Weight = \frac{Sample \%}{Population \%}$$

*Age group 1 was weighted by factor of 4.12

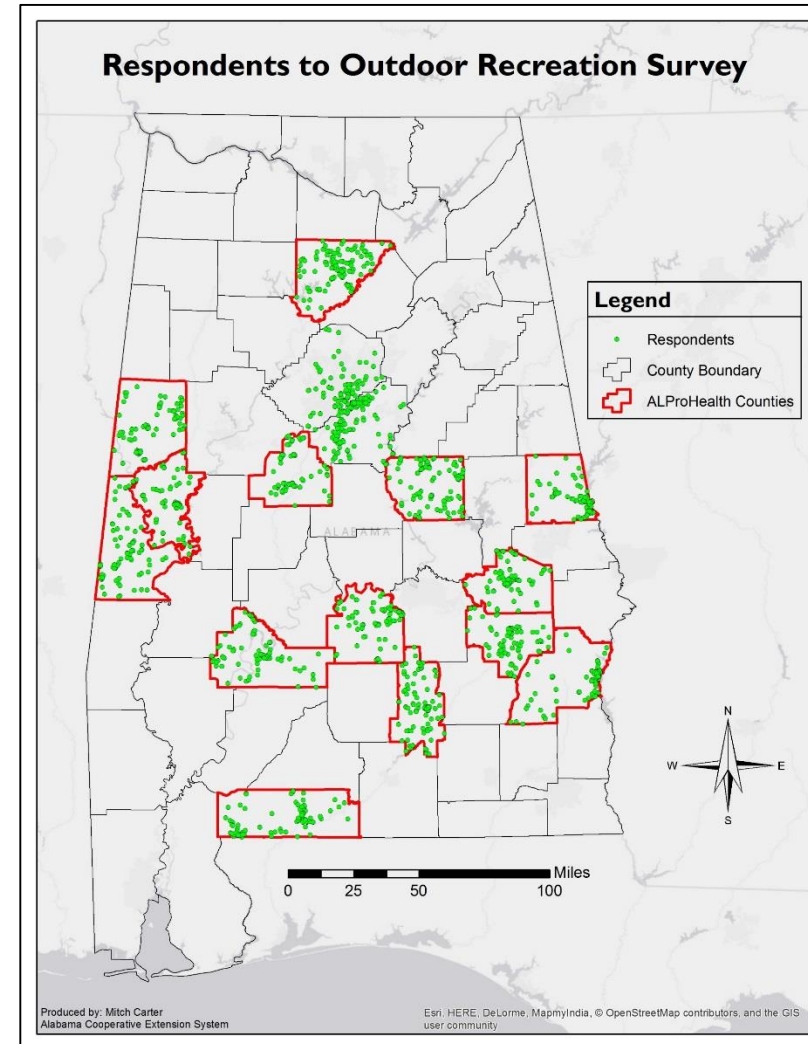
**Age group 2 was weighted by factor of 0.699

**Age group 3 was weighted by factor of 0.314

RESULTS: RESPONSE RATE BY COUNTY

County	Number of Responses
Barbour	92
Bibb	66
Bullock	91
Chambers	88
Coosa	101
Crenshaw	100
Cullman	112
Escambia	93
Greene	80
Lowndes	74
Macon	89
Pickens	83
Sumter	87
Wilcox	87

Average responses per county = 89



CONSTRAINTS TO OUTDOOR RECREATION: DIFFERENCES BY RACE

Constraint	Mean, all respondents	(A) Mean, white respondents	(B) Mean, African American respondents
Not enough time; too busy	3.38	3.43	3.24
Travel distance; not enough nearby facilities	3.18	2.90	3.72
High fees	2.87	2.57	3.33
Health concerns	2.76	2.35	3.37
Overcrowding	2.59	2.44	2.77
Underdeveloped facilities	2.57	2.09	3.46
Lack of security or feeling of unsafety	2.51	2.17	3.20
Lack of accessibility for disabled or impaired individuals	2.16	1.82	2.67
Discrimination of any kind	1.84	1.39	2.62
Not interested in outdoor recreation	1.77	1.42	2.37

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Lack of security or feeling of unsafety	2.51	2.17^b	3.20^a
Lack of accessibility for disabled or impaired individuals	2.16	1.82^b	2.67^a
Discrimination of any kind	1.84	1.39^b	2.62^a
Not interested in outdoor recreation	1.77	1.42^b	2.37^a

CONSTRAINTS TO OUTDOOR RECREATION: DIFFERENCES BY RACE

Constraint	Mean, all respondents	(A) Mean, white respondents	(B) Mean, African American respondents	Cohen's d
Not enough time; too busy	3.38	3.43	3.24	0.13
Travel distance; not enough nearby facilities	3.18	2.90^b	3.72^a	0.54
High fees	2.87	2.57^b	3.33^a	0.49
Health concerns	2.76	2.35^b	3.37^a	0.63
Overcrowding	2.59	2.44^b	2.77^a	0.22
Underdeveloped facilities	2.57	2.09^b	3.46^a	1.12
Lack of security or feeling of unsafety	2.51	2.17^b	3.20^a	0.87
Lack of accessibility for disabled or impaired individuals	2.16	1.82^b	2.67^a	0.71
Discrimination of any kind	1.84	1.39^b	2.62^a	1.19
Not interested in outdoor recreation	1.77	1.42^b	2.37^a	0.98

Cohen's d thresholds = 0.2 (low), 0.5 (medium), and 0.8 (high)

CONSTRAINTS TO OUTDOOR RECREATION: DIFFERENCES BY INCOME

Constraint	Mean, all respondents	(A) Mean, low income respondents	(B) Mean, medium income respondents	(C) Mean, high income respondents
Not enough time; too busy	3.38	3.22 ^c	3.25 ^c	3.75 ^{a,b}
Travel distance; not enough nearby facilities	3.18	3.67 ^{b,c}	3.32 ^{a,c}	2.59 ^{a,b}
High fees	2.87	3.45 ^{b,c}	2.96 ^{a,c}	2.26 ^{a,b}
Health concerns	2.76	3.54 ^{b,c}	2.73 ^{a,c}	1.91 ^{a,b}
Overcrowding	2.59	2.91 ^c	2.67 ^c	2.18 ^{a,b}
Underdeveloped facilities	2.57	3.15 ^{b,c}	2.69 ^{a,c}	1.81 ^{a,b}
Lack of security or feeling of unsafety	2.51	3.14 ^{b,c}	2.47 ^{a,c}	1.94 ^{a,b}
Lack of accessibility for disabled or impaired individuals	2.16	2.92 ^{b,c}	2.08 ^{a,c}	1.47 ^{a,b}
Discrimination of any kind	1.84	2.35 ^{b,c}	1.80 ^{a,c}	1.41 ^{a,b}
Not interested in outdoor recreation	1.77	2.22 ^{b,c}	1.71 ^{a,c}	1.29 ^{a,b}

CONSTRAINTS TO OUTDOOR RECREATION: DIFFERENCES BY INCOME

Constraint	Mean, all respondents	(A) Mean, low income respondents	(B) Mean, medium income respondents	(C) Mean, high income respondents
Not enough time; too busy	3.38	3.22 ^c	3.25 ^c	3.75 ^{a,b}
Travel distance; not enough nearby facilities	3.18	3.67^{b,c}	3.32^{a,c}	2.59^{a,b}
High fees	2.87	3.45^{b,c}	2.96^{a,c}	2.26^{a,b}
Health concerns	2.76	3.54^{b,c}	2.73^{a,c}	1.91^{a,b}
Overcrowding	2.59	2.91 ^c	2.67 ^c	2.18 ^{a,b}
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CONSTRAINTS TO OUTDOOR RECREATION: DIFFERENCES BY INCOME

Constraint	Mean, all respondents	(A) Mean, low income respondents	(B) Mean, medium income respondents	(C) Mean, high income respondents	Cohen's d (A vs. C)
Not enough time; too busy	3.38	3.22 ^c	3.25 ^c	3.75 ^{a,b}	0.41
Travel distance; not enough nearby facilities	3.18	3.67 ^{b,c}	3.32 ^{a,c}	2.59 ^{a,b}	0.76
High fees	2.87	3.45 ^{b,c}	2.96 ^{a,c}	2.26 ^{a,b}	0.86
Health concerns	2.76	3.54 ^{b,c}	2.73 ^{a,c}	1.91 ^{a,b}	1.17
Overcrowding	2.59	2.91 ^c	2.67 ^c	2.18 ^{a,b}	0.55
Underdeveloped facilities	2.57	3.15 ^{b,c}	2.69 ^{a,c}	1.81 ^{a,b}	1.04
Lack of security or feeling of unsafety	2.51	3.14 ^{b,c}	2.47 ^{a,c}	1.94 ^{a,b}	0.96
Lack of accessibility for disabled or impaired individuals	2.16	2.92 ^{b,c}	2.08 ^{a,c}	1.47 ^{a,b}	1.26
Discrimination of any kind	1.84	2.35 ^{b,c}	1.80 ^{a,c}	1.41 ^{a,b}	0.79
Not interested in outdoor recreation	1.77	2.22 ^{b,c}	1.71 ^{a,c}	1.29 ^{a,b}	0.97

Cohen's d thresholds = 0.2 (low), 0.5 (medium), and 0.8 (high)

CONSTRAINTS TO OUTDOOR RECREATION: DIFFERENCES BY AGE

Constraint	Mean, all respondents	(A) Mean, low age group respondents	(B) Mean, medium age group respondents	(C) Mean, high age group respondents
Not enough time; too busy	3.38	3.71 ^{b,c}	3.38 ^{a,c}	2.59 ^{a,b}
Travel distance; not enough nearby facilities	3.18	3.28 ^c	3.23 ^c	2.84 ^{a,b}
High fees	2.87	2.91	2.95	2.59
Health concerns	2.76	2.47 ^{b,c}	2.87 ^a	3.12 ^a
Overcrowding	2.59	2.58	2.74 ^c	2.37 ^b
Underdeveloped facilities	2.57	2.44 ^b	2.77 ^a	2.45
Lack of security or feeling of unsafety	2.51	2.46	2.61	2.41
Lack of accessibility for disabled or impaired individuals	2.16	2.03	2.20	2.29
Discrimination of any kind	1.84	1.69 ^b	1.99 ^a	1.78
Not interested in outdoor recreation	1.77	1.49 ^{b,c}	1.91 ^a	2.05 ^a

CONSTRAINTS TO OUTDOOR RECREATION: DIFFERENCES BY AGE

Constraint	Mean, all respondents	(A) Mean, low age group respondents	(B) Mean, medium age group respondents	(C) Mean, high age group respondents
Not enough time; too busy	3.38	3.71^{b,c}	3.38^{a,c}	2.59^{a,b}
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Health concerns	2.76	2.47^{b,c}	2.87^a	3.12^a
Overcrowding	2.59	2.58	2.74^c	2.37^b
Underdeveloped facilities	2.57	2.44^b	2.77^a	2.45
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CONSTRAINTS TO OUTDOOR RECREATION: DIFFERENCES BY AGE

Constraint	Mean, all respondents	(A) Mean, low age group respondents	(B) Mean, medium age group respondents	(C) Mean, high age group respondents	Cohen's d (where significant)
Not enough time; too busy	3.38	3.71^{b,c}	3.38^{a,c}	2.59^{a,b}	1.10
Travel distance; not enough nearby facilities	3.18	3.28^c	3.23^c	2.84^{a,b}	0.26
High fees	2.87	2.91	2.95	2.59	
Health concerns	2.76	2.47^{b,c}	2.87^a	3.12^a	0.37
Overcrowding	2.59	2.58	2.74^c	2.37^b	0.24
Underdeveloped facilities	2.57	2.44^b	2.77^a	2.45	0.23
Lack of security or feeling of unsafety	2.51	2.46	2.61	2.41	
Lack of accessibility for disabled or impaired individuals	2.16	2.03	2.20	2.29	
Discrimination of any kind	1.84	1.69^b	1.99^a	1.78	0.23
Not interested in outdoor recreation	1.77	1.49^{b,c}	1.91^a	2.05^a	0.61

Cohen's d thresholds = 0.2 (low), 0.5 (medium), and 0.8 (high)

DISCUSSION

- 9 of 10 constraints showed differences among races
- 10 of 10 constraints showed differences among income groups
- 7 of 10 constraints showed differences among age groups
- Strongest associations (largest effect sizes) exist among income groups



DISCUSSION

- Where can we focus attention?
 - Race
 - Strongest association found with underdeveloped facilities
 - Focus on the improvement and upkeep of current facilities
 - Cost-effective
 - Income
 - Lack of accessibility for disabled individuals showed the strongest association; also a strong association with underdeveloped facilities
 - Outdoor recreation opportunities in low income areas could focus on ADA compliance
 - Age
 - Lack of time showed the strongest association with older respondents not being constrained by a lack of time
 - Focus on the engagement of older populations; grandparents/grandchildren activities
- These results can assist in choosing effective interventions and strategies to reduce obesity



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