Leisure-time physical activity dose-response effects on obesity among African American adults in Indianapolis

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Presenter Disclosures

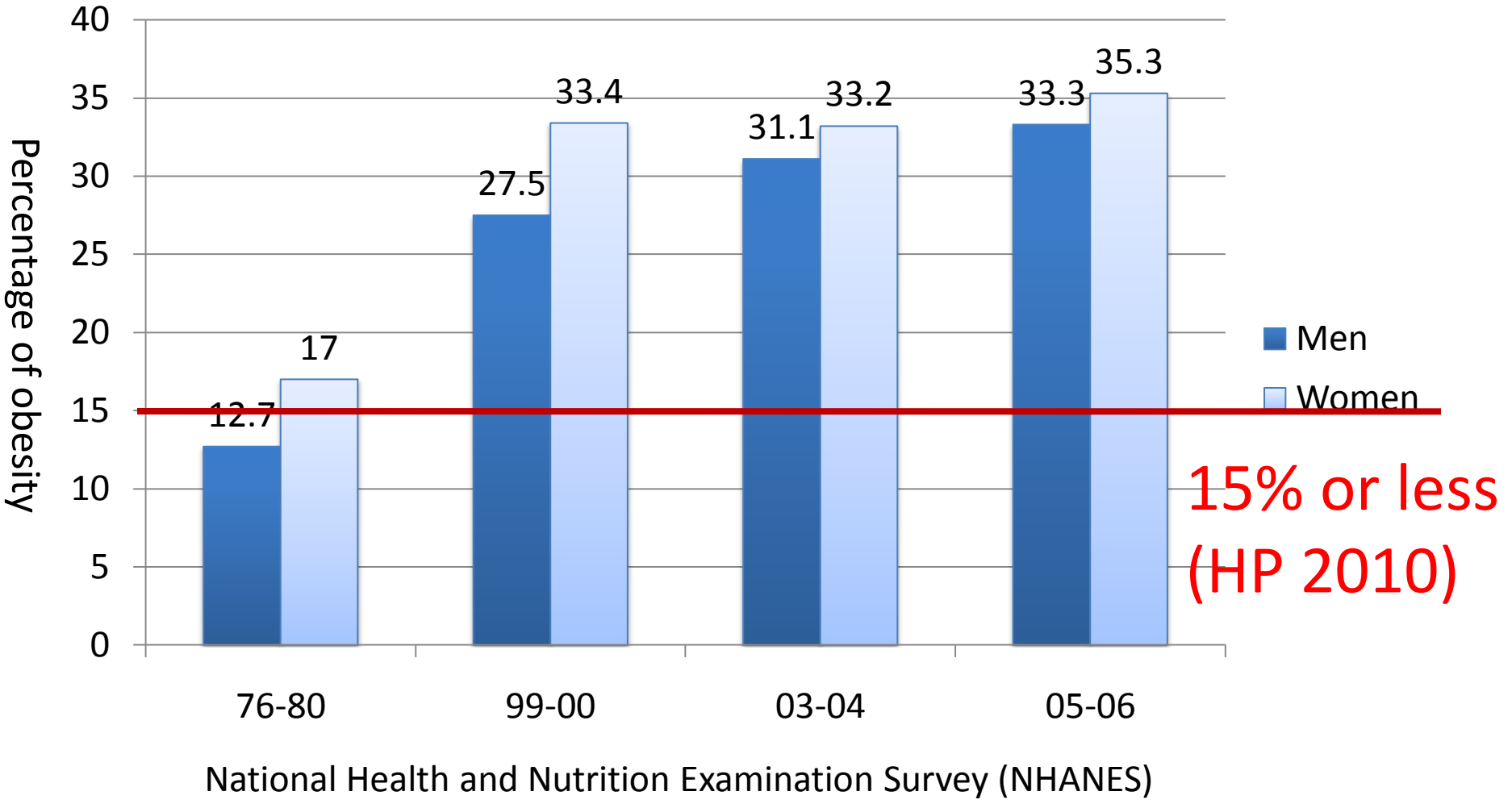
Kaigang Li

(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

- No relationships to disclose

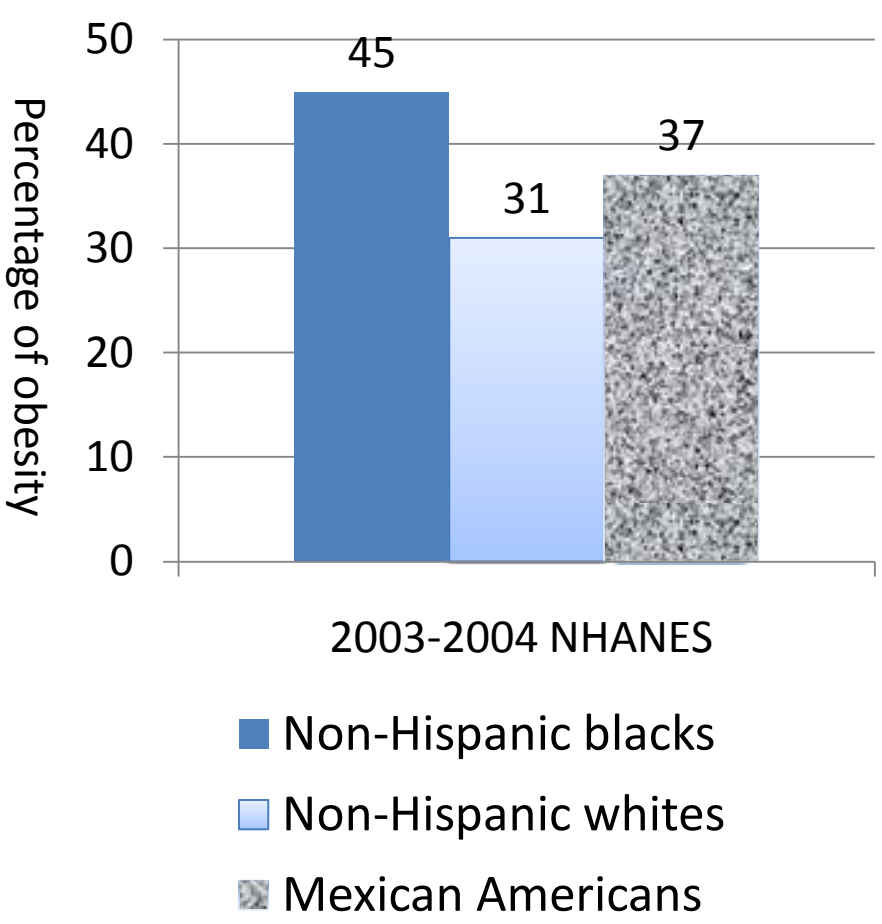
Background - 1

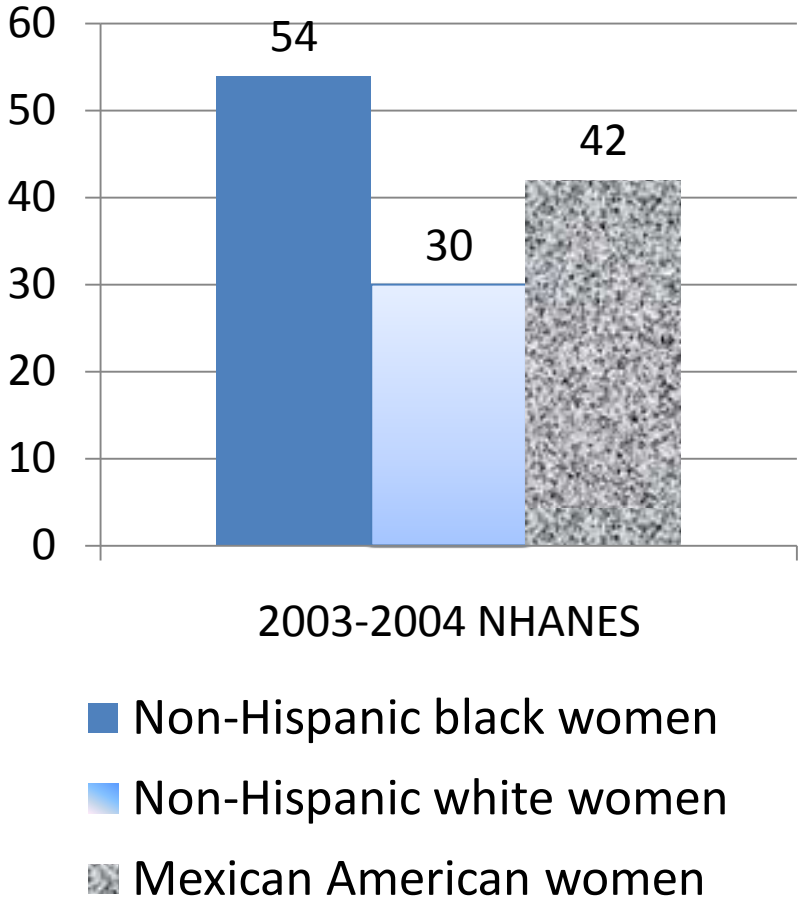
Obesity is a leading public health concern in the United States.



Background - 2

Racial/ethnic disparities in obesity exist.





Background - 3

Drawbacks were noted in previous PA recommendations.

- In 1995, CDC and ACSM: ‘‘Every US adult should accumulate **30** minutes or more of **moderate-intensity physical activity** on most, preferably all, days of the week.”

- In 1996, a report of the surgeon general: **20** minutes of **vigorous activity** on 3 days or more per week.

Background - 3

Drawbacks were noted in previous PA recommendations.

- (1) The 1995-96 physical activity guideline failed to address health benefits of physical activities that lasted less than the recommended thresholds.

- (2) Existing evidence could not differentiate health benefits of 2 different physical activities with the same total volume

- (3) The 1995-96 guideline failed to consider the combined effects of moderate and vigorous physical activity.

Background - 3

Updated Physical Activity Guidelines for Americans in 2008.

- **Total volume of physical activity** that combines both moderate and vigorous activity.
- Adults and older people are recommended to engage in at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic activity per week to gain **important health benefits**.
- The new guidelines add that participating in at least 300 minutes of moderate-intensity or 150 minutes of vigorous-intensity aerobic activity per week would yield **increased health benefits**.
- It is also noted that the duration of moderate activity is equivalent to 2 times the duration of vigorous activity in terms of health benefits.

http://www.cdc.gov/physicalactivity/everyone/guidelines/index.html

Objective

To examine the evidence of dose-response relationship between leisure-time physical activity (LTPA) and obesity among African American adults.

Methods

–Sample and measures

- A cross-sectional sample of 649 African American adults from 27 churches in Indianapolis, Indiana.

- The primary outcome variable: body mass index (BMI)
  Obese (BMI ≥ 30 kg/m^2) vs. non-obese (BMI < 30 kg/m^2) groups.

- The primary predictor: leisure-time physical activity:
  "LTPA is exercise, sports, recreation, or hobbies that are NOT associated with activities as part of your regular job duties, housework, or transportation."

Methods

– LTPA – questions

1. In the past 7 days, did you do leisure-time vigorous physical activities for at least 20 minutes at a time, such as running, fast bicycling, aerobics, basketball games, steady paced swimming laps, etc., that causes LARGE increases in breathing or heart rate (e.g., conversation is difficult or "broken")?

***(Note: Leisure-time physical activity** is exercise, sports, recreation, or hobbies that are **NOT** associated with activities as part of your regular job duties, housework, or transportation.)*

A. Yes (go to Question 2); **B. No** (skip to Question 3)

2. Please indicate the amount of time you spent doing leisure-time vigorous physical activities in the past 7 days (Please fill out all the days you exercised and write "0" if not applicable) .

Please think about **only vigorous physical activities** in your **leisure time**							
Time	Yesterday	2 days ago	3 days ago	4 days ago	5 days ago	6 days ago	7 days ago
Hours							
Minute(s)							

Methods

– LTPA – questions

3. In the past 7 days, did you do leisure-time moderate physical activities for at least 30 minutes at a time, such as brisk walking, bicycling, recreational swimming, basketball-shooting baskets, etc., that causes SOME increases in breathing or heart rate?

***(Note: Leisure-time physical activity** is exercise, sports, recreation, or hobbies that are **NOT** associated with activities as part of your regular job duties, housework, or transportation.)*

A. Yes (go to Question 4); **B. No** (skip to Question 5)

4. Please indicate the amount of time you spent doing leisure-time moderate physical activities in the past 7 days (Please fill out all the days you exercised and write "0" if not applicable).

Please think about **only moderate physical activities** in your **leisure time**.							
Time	Yesterday	2 days ago	3 days ago	4 days ago	5 days ago	6 days ago	7 days ago
Hours							
Minute(s)							

Methods

– LTPA

- The total amount of VLTPA and MLTPA was computed by summing respective activities in the past 7 days. The total amount of LTPA was computed by multiplying VLTPA by 2 and adding it to MLTPA.

- **The MLTPA was categorized into four groups by the total volume**:

  No LTPA: 0 minutes per week

  Low amount of LTPA: <150 minutes per week

  Moderate amount of LTPA: 150-299 minutes per week

  High-amount of LTPA: ≥ 300 minutes per week

Methods

– Total daily physical activity

- **Total daily physical activity (DPA)**
  - the amount of occupational physical activity
  - the amount of other physical activities in the past 7 days

- **The continuous DPA was categorized into 6 levels:**

  (a) no moderate DPA,

  (b) less than the minimum goal (< 150 minutes per week)

  (c) the amount between the minimum goal and the goal for greater health benefit (150 to 299)

  (*d*) below the first quartile (300 to 599)

  (*e*) between the first and third quartile (600 to 2039)

  (*f*) above the third quartile (≥ 2040).

Methods

- other independent variables and analysis

- Besides LTPA and DPA, **other independent variables** included:

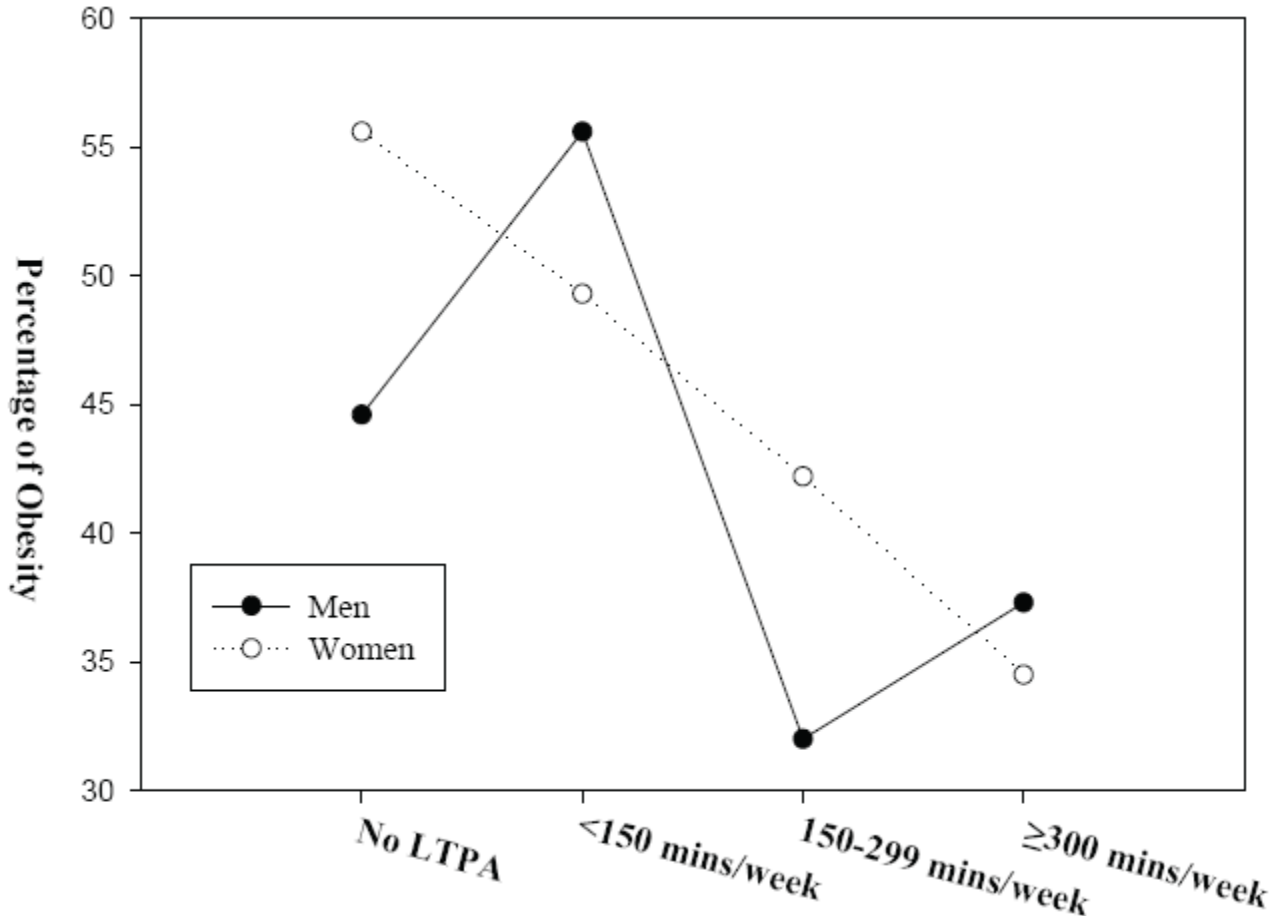
  education, spouse/partner's education, job status, income, health status, marital status, and morbid conditions

- Data were analyzed using the statistical program SAS®

- Logistic regression analysis was used to examine the association between LTPA and obesity.

Figure 1

Percentage of obesity for African American men and women aged 18-90 years in relation to leisure-time physical activity



Logistic Regression Analyses of Obesity on Different Levels of LTPA With and Without Adjusting for DPA and Other Correlates Among African American Women

LTPA	Unadjusted Model (n=415), R^2 = .043			Adjusted Model[a] (n=362), R^2 = .089			Adjusted Model[b] (n=381), R^2 = .269			Adjusted Model[c] (n=321), R^2 = .335		
	OR	95% CI	P	AOR	95% CI	P	AOR	95% CI	P	AOR	95% CI	P
None	1.00	reference		1.00	reference		1.00	reference		1.00	reference	
<150	0.78	0.44-1.36	0.37	0.72	0.39-1.34	0.31	0.83	0.43-1.60	0.58	0.77	0.37-1.59	0.48
150-299	0.58	0.30-1.13	0.11	0.55	0.26-1.18	0.13	0.66	0.31-1.39	0.27	0.55	0.23-1.33	0.18
≥ 300	0.42	0.26-0.68	<.001	0.38	0.23-0.65	<.001	0.50	0.28-0.89	0.02	0.47	0.24-0.91	0.02

Conclusion

- A high level of LTPA (eg, 300 minutes or more moderate LTPA per week) is significantly associated with a decreased likelihood of obesity after controlling for non-LTPA physical activities and demographic characteristics among African American women, but not men. These results provide useful information for health promotion professionals to develop physical activity or obesity prevention interventions for African American adults.

For further information

- The findings of this study are in press in the *American Journal of Health Behavior*.

- My contact information:

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