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Physical Activity Profiles of Overweight and Obese Women in Rural Georgia

The value of moderate and vigorous physical activity (PA) is well-known and substantiated by a large body of research.¹ In addition, research on the value of light activity and the negative effect of sedentary behavior is starting to accumulate.^{2,3} However,



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little is known about PA in relation to time spent sedentary and the frequency and length of interruptions in sedentary behavior in overweight and obese patients of safety-net primary care practices such as federally qualified health centers (FQHCs). This study investigated the PA profiles of overweight and obese women, focusing on light activity and breaks in sedentary behavior.

Methods | We recruited women aged 35 to 65 years from FQHCs for the Healthy Home/Healthy Families Study, a randomized controlled trial for prevention of weight gain. Baseline PA was assessed using accelerometers that participants were asked to wear for 7 consecutive days. Activity levels were scored using the cut points of the National Health and Nutrition Examination Survey.⁴ The light activity category was further split into quartiles. We calculated descriptive statistics and conducted multivariate regression analysis. The Emory institutional review board approved this study, and all participants provided informed consent.

Results | Participants (N = 303) with valid data (≥4 days with ≥10 hours spent wearing the accelerometer) had a mean (SD) body mass index (calculated as weight in kilograms divided by height

in meters squared) of 38.3 (8.4 [range, 25.0-80.8]); were mostly African American (83.5%); and reported an annual household income of \$25 000 or less (62.4%). They wore the accelerometers for a mean of 13.6 h/d (Table 1). Most of the time was spent sedentary (mean [SD], 10.8 [1.8] hours) or in light activity (mean [SD], 2.8 [1.1] hours). Most of the time spent in light activity (95.9%) was spent in the lowest quartile. The women spent a mean duration of less than 1 min/d in moderate PA and none in vigorous PA. No participant met the 2008 US Department of Health and Human Services PA guideline. The participants' body mass indexes were positively associated with time spent being sedentary, and employed participants were significantly less sedentary than those who were not employed.

Participants interrupted their sedentary behavior for at least 1 minute 79 times per day (Table 2). Of those breaks, almost two-thirds lasted at least 2 minutes. However, data showed a mean of only 9.5 interruptions per day of at least 10 minutes and only 3.0 interruptions of at least 20 minutes. Those participants who were employed interrupted their sedentary behavior for more than 1 minute more often than those who were not. More overweight participants had fewer 10- and 20-minute interruptions of sedentary behavior than those with a lower body mass index.

Discussion | To our knowledge, this study is one of the first to obtain accelerometer data on PA levels among a relatively large sample of low-income, predominantly African American overweight and obese female patients of FQHCs in rural Georgia

Table 1. Descriptive Statistics on Time Spent in Different PA Levels

Study Time	Mean (SD) [Range]
Nonmonitored, h/d	10.4 (1.6) [2.3-13.6]
Sedentary, h/d	10.8 (1.8) [4.2-18.6]
Light activity, h/d	2.8 (1.1) [0.4-7.8]
Light activity quartile, min/d ^a	
1	159.8 (63.5) [23.5-415.3]
2	6.3 (6.5) [0.7-51.9]
3	0.5 (0.6) [0.1-7.0]
4	0.1 (0.1) [0-2.3]
Moderate activity, min/d	0.01 (0.03) [0-0.2]
Vigorous activity, min/d	0

Abbreviation: PA, physical activity.

^a Determined by dividing the range of light activity into 4 equal categories.

Table 2. Interruptions of Nonsedentary Activity for Different Minimum Times

Minimum Interruption Time, min	No. of Interruptions per Valid Day	
	Mean (SD) [Range]	Mode
1	79.0 (16.5) [28.0-120.3]	88.0
2	49.2 (10.1) [18.6-74.9]	50.0
5	22.4 (5.7) [5.0-37.7]	18.0
10	9.5 (3.6) [0.2-20.3]	6.3
20	3.0 (19.6) [0.0-8.8]	1.0

and to show extremely sedentary behavior in this population. Participants spent a negligible amount of time in moderate activity, and the time spent in nonsedentary activity was mostly of very low intensity and short duration.

What do these findings mean for safety-net health care providers as they implement the Patient-Centered Medical Home Standards?⁴ Clinicians need to assess their patients' levels of PA and subsequent inactivity to tailor counseling. Their focus might need to shift to increasing light PA and the number and lengths of breaks in sedentary behavior. However, this change is unlikely to be addressed effectively in typical primary care office visits or by physicians alone. More intensive strategies need to be developed to address the motivational changes required.⁵

In conclusion, results from this study might indicate a new silent epidemic of a supersedentary lifestyle that might contribute significantly to the health disparities seen in poor and minority populations served by FQHCs. These findings highlight the challenges faced by safety-net providers in promoting healthy lifestyles in their patients.

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Study concept and design: Haardörfer, Hotz, Kegler.

Acquisition of data: Alcantara.

Analysis and interpretation of data: Haardörfer, Alcantara, Patil, Hotz.

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Editor's Note

Approaches to Increase Physical Activity

Haardörfer et al measured physical activity among low-income, predominantly African American women observed in a federally qualified health center in rural Georgia. Most of the study participants were obese, with a mean body mass index (calculated as weight in kilograms divided by height in meters squared) of 38.3. The findings are impressive. The women spent a mean time of less than 1 minute per day in moderate physical activity and no time in vigorous activity. None of the 303 participants met recommendations for a healthy physical activity level. Although these results may not be fully generalizable to other populations served by community health centers, they highlight the crucial problem of almost total lack of physical activity among obese, low-income African American women. Some approaches to increasing physical activity have had modest success. For example, in the Shape Program, 70% of overweight and obese African American women who enrolled in a weight-maintenance program initiated a YMCA membership when provided without charge, and 40% visited the facility at least twice during the 12 months of the study (*JAMA Intern Med*. doi:10.1001/jamainternmed.2013.9263). However, environmental and cultural barriers that limit opportunities and motivation for safe and inexpensive exercise must be addressed. Successful approaches probably need to link clinical interventions with community-, work-, and home-based activities.

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