

## Barriers to and Benefits of Leisure Time Physical Activity in the Elderly: Differences Across Cultures

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The purpose of this study was to compare ethnic differences in attitudes toward barriers and benefits of leisure-time physical activity (LTPA) in sedentary elderly Mexican (MAs) and European Americans (EAs). An in-home, cross-sectional survey was performed on 210 community-dwelling elders from 10 primary care practices in south Texas that are part of the South Texas Ambulatory Research Network, a practice-based research network. Analytical variables included ethnicity, age, sex, income, education, marital status, and LTPA. Fisher exact test was used to analyze the 100 sedentary elders (LTPA <500kcal/wk; 63 MAs and 37 EAs). Self-consciousness and lack of self-discipline, interest, company, enjoyment, and knowledge were found to be the predominant barriers to LTPA in both groups. Both groups held similar beliefs about benefits gained from exercise, such as improved self-esteem, mood, shape, and health, but the beliefs about the positive benefits of exercise were more prevalent in MAs. These findings remained after adjusting for age, income, education, marital status, and sex. Some might think that a major barrier lies in misconception about benefits of LTPA, but in this study, both ethnic groups were accurate in their perceived benefits of LTPA. When attempting to engage elderly in LTPA, it is important not only to consider what barriers exist but also what beliefs about the benefits exist. *J Am Geriatr Soc* 51:863–868, 2003.

**Key words:** Mexican-Americans; elderly; physical activity

Leisure-time physical activity (LTPA) is part of a healthy lifestyle and has positive health effects across various age cohorts, ethnic populations, and chronic dis-

eases.<sup>1–5</sup> LTPA is defined as exercise performed during free time for at least 20 minutes without stopping that is strenuous enough to make the heart rate and breathing increase substantially.<sup>6</sup> There are several different LPTAs that can be performed, including walking, jogging, running, bicycling, swimming, and aerobics, and all of these activities expend some amount of energy. Over a 7-day period, a sedentary individual is one who expends less than 500 kcal/wk.

Various groups recommend that adults expend 1,500 kcal/wk or more. The American College of Sports Medicine (ACSM) and the Centers for Disease Control and Prevention (CDC) suggest that all Americans should participate in 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week.<sup>7</sup> Adults who participate in activity at this level experience the beneficial effects of physical activity on their health and quality of life. These studies have been performed on men and women and demonstrate protection against several disease processes, including hypertension, diabetes mellitus type II, certain cancers, osteoporosis, depression, heart disease, and functional impairment.<sup>1–5</sup> One study showed that even modestly increased physical activity levels in older adults might have major public health benefits.<sup>2</sup> In a study focusing on elderly women, even those at the lowest level of physical activity were shown to have a lower risk of death.<sup>5</sup>

Despite these recommendations, the number of adults aged 65 and older participating in adequate LTPA is low. Approximately 58% are totally sedentary, and only 29% perform any amount of regular LTPA. Only 10% of elders follow the ACSM and CDC recommended guidelines for light to moderate exercise of at least 30 minutes each day.<sup>3,5</sup>

This lack of adequate LTPA highlights that sedentary living in the elderly is a serious and pervasive health problem in the United States.<sup>7</sup> Thus, it is imperative that those who are involved with patient care work toward increasing LTPA in older adults.

Societal influences, expectations, and attitudes can affect the level of LTPA in the elderly. Limited availability of income, for dues and transportation to exercise facilities or clubs, decreases the likelihood of LTPA.<sup>8</sup> These factors may also predispose to living in an unsafe neighborhood, further decreasing the routine engagement in LTPA.<sup>8</sup> These

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negative factors are more prevalent in minority populations. The differing societal and cultural roles between sexes may also influence physical activity. Older women experience activity and its benefits through errands and "getting out," whereas older males experience activity and its benefits through more-formal regular exercise.<sup>8</sup> In addition, one study discovered that a common perception is that social norms urge older people to relax and that older respondents viewed participation in more-vigorous activities as less appropriate for older persons.<sup>2</sup> One myth that has emerged from all of these studies is that all of these health benefits from LTPA can only come about through vigorous or high-intensity activities, but studies have shown that even low to moderate amounts of LTPA have some health benefits.

Although limited, the available data indicate that ethnic minorities, particularly Mexican Americans (MAs), are less physically active than European Americans (EAs).<sup>9</sup> The reason for this relative inactivity is unclear, but several factors seem to be involved. On average, ethnic minorities tend to have a lower level of education and socioeconomic status,<sup>10</sup> both of which are associated with a lower level of physical activity. Ethnic minorities also tend to have a lower level of LTPA during childhood, poorer health and functional status as adults, and less social support in general.<sup>10</sup> All of these factors can play a role in a decreased level of LTPA.

Previous research has found that regular LTPA has numerous beneficial effects in the elderly. Because of these findings, it is important to increase the level of physical activity in sedentary older adults, including minority elders, and to continue to encourage older adults who engage in regular LTPA. To increase the level of LTPA in the sedentary population, it is first necessary to identify the reasons why these older adults remain sedentary. It is imperative to discover and understand what the sedentary elderly view as the important benefits of regular LTPA. The purpose of this study was to determine ethnic differences in the barriers to physical activity and the benefits of physical activity in a cohort of sedentary elders.

## METHODS

### Subjects

Data presented in this analysis were derived from in-home, one-on-one interviews with 210 community-dwelling elders. Although the participants were recruited consecutively, attempts were made to recruit equal numbers of MAs and EAs. In total, 98 MAs and 112 EAs agreed to participate. These patients were recruited from 10 primary care practices in south Texas between April 1994 and April 1996. All of the participating clinics were part of a practice-based research network (PBRN), the South Texas Ambulatory Research Network.<sup>11</sup> Acting as a collaborative research group, PBRNs are sufficiently representative of family practice as a whole and therefore their practices can be useful and relevant to other practicing clinicians.<sup>12</sup> PBRNs also can make important contributions to developing and testing strategies for improving the quality of primary care practice.<sup>13</sup> For this study, subjects who were younger than 60, having an office visit due to acute illness, and with a Mini-Mental State Examination score of less

than 17 were excluded. Bilingual (Spanish and English) interviewers conducted the visits, if required. The data collection instruments were translated into Spanish using a back-translation process.<sup>14</sup> Only the subset of 100 sedentary elders (63 MAs and 37 EAs) were included in this analysis.

Two questions were used in the interview. The San Diego Health and Exercise Questionnaire (SDHEQ) was employed to determine the various attitudes toward physical activity.<sup>1</sup> The SDHEQ includes 16 questions that ask about barriers to LTPA. Subjects chose from the following range of response categories in answering questions about the frequency that barriers to LTPA occur: 1 = never to 5 = very often. This survey also includes 10 questions about the benefits of LTPA. Subjects were asked to indicate their level of agreement with individual statements. Responses range from 1 = strongly disagree to 5 = strongly agree. A modified version of the Minnesota Leisure Time Physical Activity Questionnaire was used to measure self-reported physical activity.<sup>11</sup> This survey asked subjects to recall their LTPA over the previous 7-day period. Table 1 shows selected characteristics of the study population.

### Data Analysis

LTPA is defined as exercise performed during free time for at least 20 minutes without stopping that is strenuous enough to make heart and breathing rates increase substantially.<sup>6</sup> Energy expenditure during LTPA is measured in kilocalories per week. In this study, sedentary individuals were defined as those who expended less than 500 kcal/wk, whereas those who were considered active expended 500 kcal/wk or more. Only the 100 elders who reported sedentary activity levels were used in this analysis.

The independent variables in this study included ethnicity (MA or EA), age, sex, income, education, and marital status. The dependent variables were represented by the barriers and benefits questions. After examining the frequency distribution of the dependent variables, the responses to the questions about barriers to LTPA were dichotomized into two categories: 1 = never and 2 = anytime. The responses to the questions about benefits were normally distributed and analyzed as continuous variables.

The bivariate association between ethnicity and each survey item about perceived barriers to and perceived benefits from LTPA was examined using the Fisher exact test. Statistical significance was set at  $P < .05$ . All analyses were performed using SPSS 10.0 for Windows (SPSS Inc., Chicago, IL).

## RESULTS

### Sample Characteristics

As presented in Table 1, this cohort included 100 sedentary subjects: 63 MAs and 37 EAs. The average age was 73.8. Average body mass index was 29.6 kg/m<sup>2</sup>, and the average number of chronic diseases was 2.8. Of these 100 sedentary subjects, 68% were female and 32% were male. Sixty-three percent of these individuals had an average annual income less than \$12,000, 38% had completed eighth grade, and 57% were not married at the time of the initial study. When examining the sample characteristics between the two ethnic groups (MAs and EAs), there were

**Table 1. Within-Group Demographic Characteristics**

Characteristic	Total (N = 100)	MAs (n = 63)	EAs (n = 37)
Age mean $\pm$ SD	73.76 $\pm$ 6.82	72.54 $\pm$ 6.14	74.98 $\pm$ 7.50
Body mass index, mean $\pm$ SD	29.56 $\pm$ 7.12	29.69 $\pm$ 5.68	29.42 $\pm$ 8.55
Number of chronic diseases, mean $\pm$ SD	2.82 $\pm$ 1.72	2.59 $\pm$ 1.68	3.05 $\pm$ 1.75
Sex, n (%)			
Female	68 (68.0)	39 (61.9)	29 (78.4)
Male	32 (32.0)	24 (38.1)	8 (21.6)
Income, n (%)			
<\$12,000	63 (63.0)	46 (73.0)	17 (37.5)
$\geq$ \$12,000	37 (37.0)	17 (27.0)	20 (62.5)
Education, n (%)			
<Eighth grade	62 (62.0)	57 (90.5)	5 (13.5)
$\geq$ Eighth grade	38 (38.0)	6 (9.5)	32 (86.5)
Marital status, n (%)			
Married	43 (43.0)	27 (42.9)	16 (43.2)
Not married	57 (57.0)	36 (57.1)	21 (56.8)
Habitual physical activity, n (%)			
Sedentary (<500 kcal/wk)	100 (100.0)	63 (100.0)	37 (100.0)
Active ( $\geq$ 500 kcal/wk)	0 (0.0)	0 (0.0)	0 (0.0)

MA = Mexican American; EA = European American; SD = standard deviation.

no significant differences in marital status, sex, comorbid diseases, activities of daily living, instrumental activities of daily living, or depressive symptomology, but MAs in the sample tended to be younger and have less education and lower income.

### Barriers to LTPA

Responses to seven of the 15 questions asked regarding barriers to LTPA were different between the two ethnic groups (Table 2). Of the 63 MA and 37 EA sedentary participants, 19.0% of MAs and 45.9% of EAs reported a lack of interest as a barrier ( $P = .002$ ). EAs were 3.6 times (95% confidence interval = 1.47–8.90) more likely to identify a lack of interest as a barrier than MAs. A lack of self-discipline was also significant, with 11.1% MAs and 45.9% EAs reporting this as a barrier ( $P \leq .001$ ). Other barriers to physical activity were self-consciousness (0% of MAs, 18.9% of EAs;  $P \leq .001$ ), lack of company (6.3% of MAs, 21.6% of EAs;  $P = .001$ ), lack of enjoyment (9.5% of MAs, 29.7% of EAs;  $P \leq .001$ ), and lack of knowledge (1.6% of MAs, 16.2% of EAs;  $P \leq .001$ ). One barrier question that had a high percentage of positive responses in both MAs and EAs was a lack of good health (76.2% of MAs, 64.9% of EAs). Sex, age, income, marital status, and education did not correlate significantly with or explain the ethnic differences between any of the above barriers.

### Benefits from LTPA

To consider reasons why these elders remain sedentary, the study examined whether ethnicity is associated with perception of the potential benefits from LTPA. All of the nine questions asked regarding perceived benefits of LTPA had responses that were significantly different between MAs and EAs (Table 3). Almost 94% of MAs and 67.6% of EAs agreed that LTPA leads to decreased depression ( $P = .005$ ). Additionally, 94.0% of MAs and 70.3% of

EAs agreed that LTPA also leads to increased self-esteem ( $P = .002$ ). A smaller percentage (52.4% of MAs, 32.4% of EAs;  $P = .039$ ) agreed that LTPA can lead to meeting more people, but a much larger percentage agreed that LTPA increases strength (93.6% of MAs, 86.5% of EAs;  $P = .004$ ) and improves shape (96.8% of MAs, 86.5% of EAs;  $P = .037$ ). Ninety-five percent of MAs and 70.3% of EAs agreed that LTPA can decrease tension and/or stress ( $P \leq .001$ ), whereas 77.8% of MAs and 51.3% of EAs agreed that LTPA can also increase attractiveness ( $P = .026$ ). When considering overall health, a larger proportion of MAs than of EAs agreed that LTPA can improve health and decrease risk of disease (98.4% of MAs, 78.4% of EAs;  $P \leq .001$ ), and increase heart and lung function (98.4% of MAs, 94.6% of EAs;  $P = .049$ ).

### DISCUSSION

Although numerous studies demonstrate the beneficial health effects of regular LTPA, the majority of the elderly remain sedentary. Societal expectations about aging tend to promote a sedentary lifestyle for elderly persons<sup>15</sup> and are exacerbated by a focus on high-intensity exercise.<sup>16</sup> These expectations may be a significant barrier to physical activity, because many elderly patients may believe that they have to be careful and not overexert themselves.<sup>16</sup> The findings of this study that self-consciousness and lack of time, knowledge, companionship, and facilities are prevalent barriers are similar to those of another study.<sup>17</sup> That study included an intervention to overcome these barriers that involved structured exercise education and LTPA participation, resulting in increased LTPA during the intervention period. That study also found perceived benefits from LTPA similar to those mentioned in this study. Participants in the other study who valued the perceived benefits of regular LTPA, such as improved health and function, tended to engage in LTPA more, particularly over the long term, but the authors of the study did not

**Table 2. Perceived Barriers to Physical Activity in Sedentary Elders**

Question	Mexican Americans	European Americans	<i>P</i> -value
	n (%)		
Does self-consciousness about your looks keep you from exercising?			
Never	63 (100.0)	30 (81.1)	≤.001
Anytime	0 (0.0)	7 (18.9)	
Does a lack of interest keep you from exercising?			
Never	51 (81.0)	20 (54.1)	.002
Anytime	12 (19.0)	17 (45.9)	
Does a lack of self-discipline keep you from exercising?			
Never	56 (88.9)	20 (54.1)	≤.001
Anytime	7 (11.1)	17 (45.9)	
Does a lack of time keep you from exercising?			
Never	49 (77.8)	31 (83.8)	.009
Anytime	14 (22.2)	6 (16.2)	
Does a lack of energy keep you from exercising?			
Never	45 (71.4)	20 (54.1)	.001
Anytime	18 (28.6)	17 (45.9)	
Does a lack of company keep you from exercising?			
Never	59 (93.7)	29 (78.4)	.001
Anytime	4 (6.3)	8 (21.6)	
Does a lack of enjoyment keep you from exercising?			
Never	57 (90.5)	26 (70.3)	≤.001
Anytime	6 (9.5)	11 (29.7)	
Does discouragement keep you from exercising?			
Never	53 (84.1)	31 (83.8)	.135
Anytime	10 (15.9)	6 (16.2)	
Does a lack of equipment keep you from exercising?			
Never	62 (98.4)	33 (89.2)	.020
Anytime	1 (1.6)	4 (10.8)	
Does a lack of good weather keep you from exercising?			
Never	43 (68.3)	29 (78.4)	.845
Anytime	20 (31.7)	8 (21.6)	
Does a lack of skills keep you from exercising?			
Never	55 (87.3)	31 (83.8)	.429
Anytime	8 (12.7)	6 (16.2)	
Does a lack of facilities or space keep you from exercising?			
Never	62 (98.4)	33 (89.2)	.012
Anytime	1 (1.6)	4 (10.8)	
Does a lack of knowledge keep you from exercising?			
Never	62 (98.4)	31 (83.8)	≤.001
Anytime	1 (1.6)	6 (16.2)	
Does a lack of good health keep you from exercising?			
Never	15 (23.8)	13 (35.1)	.071
Anytime	48 (76.2)	24 (64.9)	
Does a fear of injury keep you from exercising?			
Never	48 (76.2)	28 (75.7)	.649
Anytime	15 (23.8)	9 (24.3)	

evaluate the influence of ethnicity on perceived barriers and benefits.

Among ethnic minorities, sedentary lifestyles are more prevalent than in the general population.<sup>11</sup> Minorities tend to have lower levels of LTPA during childhood, poorer health and functional status as adults, and less social support.<sup>10</sup> In an earlier study, it was found that, although MAs perceived less barriers and greater benefits to LTPA than their EA counterparts, MAs had a lower level of

LTPA than EAs.<sup>11</sup> Despite some studies demonstrating that lower education and socioeconomic status contribute to a lower level of LTPA, this study demonstrated that these factors did not play a significant role in this population of elders.

In this study, many beliefs about the benefits gained from LTPA were similar between the two ethnic groups. Although MAs and EAs have almost equivalent perceptions about some of the beneficial health effects of LTPA,

**Table 3. Perceived Benefits of Physical Activity in Sedentary Elders**

Question	Mexican Americans	European Americans	<i>P</i> -value
	n (%)		
Does exercise lead to decreased depression?			
Strongly disagree	0 (0.0)	0 (0.0)	.005
Disagree	3 (4.8)	5 (13.5)	
Neutral	1 (1.6)	7 (18.9)	
Agree	48 (76.2)	20 (54.1)	
Strongly agree	11 (17.4)	5 (13.5)	
Does exercise lead to increased self-esteem?			
Strongly disagree	0 (0.0)	1 (2.7)	.002
Disagree	4 (6.3)	2 (5.4)	
Neutral	0 (0.0)	8 (21.6)	
Agree	47 (74.6)	20 (54.1)	
Strongly agree	12 (19.0)	6 (16.2)	
Does exercise lead to meeting more new people?			
Strongly disagree	2 (3.2)	2 (5.4)	.039
Disagree	22 (34.9)	12 (32.4)	
Neutral	6 (9.5)	11 (29.7)	
Agree	27 (42.9)	12 (32.4)	
Strongly agree	6 (9.5)	0 (0.0)	
Does exercise improve your shape?			
Strongly disagree	0 (0.0)	2 (5.4)	.037
Disagree	0 (0.0)	1 (2.7)	
Neutral	2 (3.2)	2 (5.4)	
Agree	36 (57.1)	26 (70.3)	
Strongly agree	25 (39.7)	6 (16.2)	
Does exercise increase your strength?			
Strongly disagree	0 (0.0)	1 (2.7)	.004
Disagree	1 (1.6)	1 (2.7)	
Neutral	3 (4.8)	3 (8.1)	
Agree	29 (46.0)	28 (75.7)	
Strongly agree	30 (47.6)	4 (10.8)	
Does exercise decrease tension and/or stress?			
Strongly disagree	0 (0.0)	3 (8.1)	≤.000
Disagree	3 (4.8)	2 (5.4)	
Neutral	0 (0.0)	6 (16.2)	
Agree	40 (63.5)	24 (64.9)	
Strongly agree	20 (31.7)	2 (5.4)	
Does exercise improve your health & decrease risk of disease?			
Strongly disagree	0 (0.0)	0 (0.0)	≤.000
Disagree	1 (1.6)	4 (10.8)	
Neutral	0 (0.0)	4 (10.8)	
Agree	30 (47.6)	23 (62.2)	
Strongly agree	32 (50.8)	6 (16.2)	
Does exercise make you feel more attractive?			
Strongly disagree	0 (0.0)	1 (2.7)	.026
Disagree	3 (4.8)	6 (16.2)	
Neutral	11 (17.5)	11 (29.7)	
Agree	39 (61.9)	18 (48.6)	
Strongly agree	10 (15.9)	1 (2.7)	
Does exercise increase your heart and/or lung function?			
Strongly disagree	0 (0.0)	0 (0.0)	.049
Disagree	0 (0.0)	0 (0.0)	
Neutral	1 (1.6)	2 (5.4)	
Agree	28 (44.4)	24 (64.9)	
Strongly agree	34 (54.0)	11 (29.7)	

there are still important barriers. These barriers may reflect important reasons why MAs remain sedentary and represent areas that may respond to a targeted intervention to encourage elderly MAs to participate in LTPA.

The finding in this study that both MAs and EAs reported lack of good health and fear of injury as barriers agrees with findings from other studies. These studies have demonstrated that the elderly may be more susceptible to injuries, simply because of age-related physiological changes. Cartilage becomes more brittle; bones tend to break more easily; and older muscles, tendons, and ligaments strain under lower force and effect.<sup>18</sup> These factors may contribute to a high incidence of injuries in older exercisers, but more research needs to be performed to confirm these findings. If education about LTPA from physicians includes ways to avoid injuries and instructions about how to manage an injury should it occur, then physicians may be able to help overcome this perceived barrier.

Although the authors believe these are important findings, this study had some limitations. First, because the total number of sedentary subjects (100) is low, the percentages obtained may be overestimated when compared with the general population. Because all of these subjects were asked to participate in the initial study questionnaire during regular visits with their primary care physician, their responses may have been influenced by a desire to give the "medically correct" answer. Their beliefs about the benefits of physical activity may also have been overestimated because patients who visit their physicians more frequently may inadvertently or intentionally receive more education about physical activity. In addition, because all subjects were actively seeking medical care, they may represent a greater number of chronic diseases than in the general population.<sup>11</sup> Despite the fact that this population would benefit more from LTPA, a greater disease burden may represent a barrier to physical activity. Another limitation may exist in that all of the measures of LTPA were self-reported, typically leading to overestimation. As a result, the true level of physical activity may not exactly correlate with that reported by the participants, thus resulting in fewer participants in the sedentary cohort.

Despite these limitations, this study suggests that there are differences in the barriers to and benefits from LTPA in MAs and EAs. The importance of this study is that it can help physicians to become aware of what keeps their patients from exercising. Once an exercise program is established and these barriers have been addressed, partici-

pation in and adherence to these programs will increase. It is also helpful for physicians to be aware of what their patients perceive as benefits to LTPA. If the perceptions are correct, then physicians can further encourage their patients, using these beliefs as support. Alternatively, if their patients' perceptions are incorrect or incomplete, then physicians can educate their patients. This too may help increase the amount of participation in regular physical activity. Examining these and other barriers and beliefs specific to MAs, such as caring for grandchildren, may provide a target for interventions to improve physical activity in areas like south Texas, which are heavily populated with this ethnic group.

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