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## Physical Activity Among Older Filipino-American Women

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### Abstract

Filipino women (N = 530, mean age 63 years, predominantly low income) were recruited through various community based organizations and churches in Los Angeles County. All women were randomly invited to attend a single group session with a Filipino health educator to discuss breast and cervical cancer screening or the health benefits of exercise. At 3 months after the group session, the exercise assessment tool used in the National Health and Nutrition Examination Survey III was completed by 487 women (92 percent retention rate). This paper describes the pattern of physical activity among older Filipino-American women and a physical activity intervention specifically designed for this group.

### Keywords

Filipino older women; immigrants; physical activity pattern; intervention; randomized design

## INTRODUCTION

The 1996 U.S. Surgeon General's Report on Physical Activity and Health summarizes the benefits of physical activity in the prevention of many chronic diseases, including cardiovascular disease, hypertension, non-insulin-dependent diabetes mellitus, and obesity. Physical activity also enhances mental health, fosters healthy muscles, bones and joints, and helps maintain function and preserve independence in older adults. In spite of these health benefits, more than 60 percent of American adults are not physically active on a regular basis. Physical inactivity is most prevalent among women. African-Americans and Hispanics, older adults, and the less affluent. The Surgeon General's Report (1996) identifies the need to further research and assess the patterns of physical activity and to develop interventions that promote physical activity which address the specific needs and circumstances of racial/ethnic groups.

National surveys such as the National Health Interview Survey and the National Health and Nutrition Examination Survey over-sample Black and Hispanic populations to obtain statistically reliable estimates of health behaviors among these groups. In addition, there are a few local studies that address physical activity specifically among African-American and Hispanic populations (Ransdell and Wells, 1998; Smith et al., 1996). However, similar studies among Asian Americans are lacking. National studies usually have insufficient sample size to report findings separately for Asian Americans. If results are published, they are presented for

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all Asian-American groups combined, thereby masking differences between Asian ethnic groups with diverse cultural backgrounds and immigration experiences. In addition, national surveys are limited to English speaking Asian Americans. Therefore, the results may not reflect the physical activity of more recent immigrants, those with lower levels of education and income, and those who are linguistically isolated. As part of the Filipino Women's Health Study, we had the opportunity to assess and promote physical activity among older women of Filipino descent. Because Filipinos are one of the most populous Asian groups in Los Angeles, this study has the potential to make a significant contribution to the literature related to physical activity in this underserved population.

The Filipino Women's Health Study is a 4-year NCI funded randomized trial to test an intervention designed to increase cancer screening among Filipino women. Women randomized to the intervention arm learned about breast and cervical cancer screening, while those randomized to the control arm learned about the health benefits of exercise. As one of the first randomized intervention trials conducted among Filipino-Americans, findings from this study will guide future intervention efforts to increase breast and cervical cancer screening in this target population. Physical activity is a secondary focus of this study because it was discussed and encouraged among women randomized to the control arm. This paper describes the pattern of physical activity among 483 older Filipino-American women and a physical activity intervention specifically designed for this group.

## METHODS

### Overview of Research Design

A total of 530 Filipino women over 40 years of age were recruited through various community based organizations and churches in Los Angeles County. The study was limited to women 40 and above because of its focus on mammography, which is not routinely recommended for younger women. After completion of a short interviewer administered face-to-face baseline interview, all women were invited to attend a group session with some of their peers and a female Filipino health educator. Group sessions were held at the community based organizations, churches, or a private home. Women were randomized to receive a cancer screening module or a physical activity module. All attendees received a \$15 cash reimbursement for transportation expenses and/or their time. Telephone follow-up interviews were conducted 3 months after the group session to assess short term outcomes, including physical activity. This article focuses on women who completed baseline and 3 month follow-up surveys.

### Physical Activity Intervention

Because the physical activity intervention served as a sham-intervention control for a study that focused on cancer screening, it was short compared to other physical activity interventions reported in the literature (e.g., Dunn et al., 1999). The intervention was developed based on informal discussions with Filipino women and a literature review that suggested the importance of several theoretical constructs (Marcus and Forsyth, 1998; Sternfeld et al., 1999). The intervention was designed to raise physical activity *self-efficacy* by demonstrating and practicing physical activities that older women can easily perform and by providing examples of how participants can incorporate physical activities in their daily lives. *Social support* was provided by providing information about how to exercise, motivation (exercise is healthy, fun and easy), and modeling of specific exercises. Physically active participants described how they incorporated exercise into their lives and the benefits they perceived from exercise in an attempt to establish positive *peer norms* towards physical activity. *Perceived barriers*, such as fear of injury, physical limitations, gross body development, association with masculinity and other cultural misgivings about exercises were discussed. The significance of exercise and its

health benefits were emphasized to debunk misconceptions toward physical activity and women were encouraged to start slowly and gradually build up their energy levels.

The group sessions were also based on the indigenous model (Chen, 1989) which postulates that an underserved group must be reached on its own cultural terms by peers with whom it identifies. These peers are culturally, linguistically, and socially similar to the target population. Our prior research among Filipino women has shown that a recommendation by a health professional is extremely influential for obtaining preventive care (Maxwell et al. 1997). Three female Filipino nurses and one physical therapist were therefore trained to conduct the exercise session. They completed one training session on the study background and the exercise curriculum and another practical training session in which each educator conducted a group session with feedback from the Principal Investigator (A.E.M.) and the Study Coordinator (P.V.). The group sessions lasted 60–90 minutes and were typically conducted in “Taglish,” which is a mix of English and Tagalog. Participants were invited to attend in comfortable clothing to be able to fully participate in the exercises.

The content of the exercise program was developed based on the 1996 Surgeon General’s Report on Exercise. The program included very concrete illustrations of aerobic and strengthening exercises, and stressed the importance of flexibility and warm-up exercises. The health benefits of sustainable exercise were also addressed. The emphasis was on identifying and maintaining forms of exercise that the target population may enjoy (e.g., dancing to popular Filipino music). Duration and frequency were emphasized, but not intensity. Several large print visual aids were used that listed the health benefits of physical activity and showed pictures of various stretching and strengthening exercises.

The educator started the exercise sessions by stating the importance of exercise for maintaining and improving health at any age. She then discussed aerobic, strengthening and stretching exercises. She sought group input and encouraged discussion by frequently posing questions. The educator demonstrated about 10 different stretching exercises and participants took about 10 to 15 minutes to practice these stretching exercises while the educator provided individual feedback. Brisk walking and dancing were cited as good examples of aerobic exercise, and the women danced for about 10 minutes to popular Filipino music. The women were also told various strengthening exercise that can be done at home, such as lifting canned goods, books or other safe household items that offer resistance. They were then given the opportunity to lift canned foods properly during the sessions. The health educators recommended that women do aerobic exercises at least 3 times a week for 20 minutes, strengthening exercises 3 times a week and stretching exercises 3–5 times a week, before and after aerobic exercises. The groups discussed exercise safety and ways to make exercising fun. The women received handouts in English and Tagalog showing different stretching exercises and a fact sheet on walking. The sessions concluded with an informal discussion and refreshments.

### Questionnaires

Two different assessment tools were used at baseline and 3 month follow-up. The baseline questionnaire was kept as brief as possible so as not to deter women from attending the group session. Because past participation in physical activities has been shown to be an important determinant of future participation (Dishman et al., 1985), two questions were asked at baseline regarding participation in any regular physical activity and frequency of exercise per week. The only other covariates that were collected at baseline were age, education, comorbidities, and time since last mammogram and Pap test. A few additional covariates were collected at 12 month follow-up (percent of lifetime spent in the U.S., marital status, family income). These latter variables are available for the subgroup of women who completed both follow-up surveys (435/483 = 90 percent of those who completed 3 month follow-up).

At 3 months after the group session, the exercise assessment tool used in the National Health and Nutrition Examination Survey III was administered (NCHS 1994). This tool assesses the frequency of walking, jogging or running, bicycling, swimming, doing aerobics, aerobic or other dancing, calisthenics, gardening, weight lifting or other physical activities during the past month. All surveys and materials that were handed out during the session were translated into Tagalog and back-translated into English by two bilingual staff members. Inconsistencies between the English and Tagalog versions were resolved by discussion of the staff with the Principal Investigator or consultation with bilingual staff from participating community based organizations. Both language versions of the surveys were pilot tested with 5 to 10 women. Women were given the choice of completing the baseline and follow-up surveys in English or Tagalog. Interviewers who conducted the follow-up surveys were blind to the women's intervention group status.

## ANALYSIS

A total exercise score for the last month was computed from information obtained at 3 month follow-up, by first converting each reported activity to number of times reported per month, and then adding the scores for each reported activity. For example, the total exercise score for a subject who reported dancing three times a week ( $3 \times 4.28 \text{ weeks} = 12.84 \text{ times/month}$ ), swimming once a month (1 time/month), and walking daily (30 times/month) is 43.84. Although a small number of women reported doing a specific physical activity more than once a day, including walking ( $N = 23$ ), stretching ( $N = 5$ ), gardening ( $N = 4$ ), dancing ( $N = 2$ ), jogging ( $N = 1$ ), and riding a bicycle ( $N = 1$ ), each activity was counted only up to one time per day or 30 times per month in an effort to avoid overreporting. The NHANES III exercise scale asks how often subjects walked 20 minutes or more at a time without stopping, but does not assess the length of time for any of the other physical activities. Thus, a subject reporting gardening twice a day may have been active for two short time periods. In addition to closed ended questions that asked about specific physical activities, an open-ended question was asked about "other" exercises. Responses to this open-ended question varied considerably and were not included in the computation of the total exercise score. Based on the total exercise score, four subjects with the highest exercise scores (exceeding 4 times the standard deviation) were excluded from all analysis (2 subjects in each arm of the study), because the exercise score distribution indicated that they were outliers.

## RESULTS

Between February 1998 and February 2000, a total of 48 group sessions were conducted, 24 on screening and 24 on exercise. Of the 530 women invited, 444 attended a session, for an overall attendance rate of 84 percent. Attendance was higher for exercise sessions ( $239/267 = 90$  percent) than for cancer screening sessions ( $205/263 = 78$  percent,  $p < .001$ ). On average, exercise sessions were attended by 10 women and attendance at most sessions ranged from 5 to 15 women. A total of 487 women completed the 3 month follow-up interview, for an overall retention rate of 92 percent (95 percent among group session attendees and 76 percent among non-attendees). After exclusion of 4 outliers, 483 women were included in the analysis.

### Subjects

As shown in Table 1, women who were randomized to attend the exercise arm of the study were not significantly different from those randomized to attend the screening arm with respect to age, education, comorbidities and physical activity reported at baseline. Additional data collected at 12 month follow-up ( $N = 435$ ) indicated that all but one of the subjects were foreign-born. Women randomized to the exercise arm had spent slightly less of their lifetime in the

U.S. than women randomized to the screening arm of the study. About half of the women were married and 60 percent reported a family income of less than \$25,000 per year.

Women who attended an exercise session were not different from non-attendees with respect to age, education, physical activity reported at baseline, and history of heart problems, stroke, diabetes and cancer. Non-attendees, however, were more likely to report hypertension than attendees (73 percent versus 46 percent,  $p < .02$ ).

### Physical Activity

At three months after the intervention, the most frequently reported physical activities were walking, stretching, dancing and gardening or yard work (Table 2). Only stretching was found to be reported significantly more frequently by women in the exercise arm than by those in the screening arm of the study. A total of 78 women reported doing other exercises, including walking less than 20 minutes without stopping ( $N = 14$ ) and housework ( $N = 32$ ). Women who were randomized to the exercise condition had a significantly higher total exercise score than women randomized to the screening condition (intent to treat analysis), suggesting an intervention effect or reporting bias or a combination of both at 3 month follow-up (Table 3). It should be noted that among women who were randomized to the exercise condition, attendees had a significantly higher total exercise score than non-attendees (50.6 versus 33.5,  $p < .01$ ; data not shown).

Because age and physical activity at baseline were bivariately related to the outcome (total exercise score), we conducted a multiple regression analysis in which group was entered as a predictor variable while controlling for age and physical activity at baseline. Table 4 shows that group remained a statistically significant predictor of exercise reported at three months post intervention ( $p < 0001$ ), after controlling for age and level of exercise at baseline. Exercise scores also increased with age (borderline significant at  $p < .06$ ) and with exercise at least once a week reported at baseline ( $p < .0005$ ). We repeated the multivariate analyses by adding percent of lifetime in the U.S. as a predictor variable to control for the only known difference between the two groups. Percent of lifetime was only weakly correlated with age (correlation coefficient =  $-0.25$ ), indicating that older women were more likely to be more recent immigrants. The multivariate analysis with the additional predictor variable “percent of lifetime in the U.S.” ( $N = 438$ ; data not shown), yielded almost identical results: group status and exercise at baseline emerged as statistically significant predictors of total exercise score, but not age and percent of lifetime in the U.S. Results did not change after inclusion of the 4 outliers. It should be noted that the purpose of the multivariate analysis was to confirm the intervention effect after controlling for baseline behavior. Our model is not suited to *predict* physical activity at 3 months follow-up, since it only explains 8 percent of the variability in total exercise score.

The acceptability of the intervention was assessed at three months follow-up among women who had been randomized to the exercise arm of the study and who attended a session. The vast majority of women stated that they learned something important in the group session (96%), that they felt comfortable asking questions (96%) and sharing their experiences with other women (94%), and that they would recommend the session to a friend or family member (96%). Sixty percent of the women stated that they would attend another session on another topic if it was offered to them and another 28 percent said they *might* attend another session.

## DISCUSSION

This study is unique in that it assesses physical activity in older Filipino women, a population that has been understudied in this regard. It also tested a physical activity intervention using a randomized design.

There is ample evidence in the literature demonstrating that a single session intervention does not result in *long-term* lifestyle changes (Harland et al., 1999). While our results may indicate a *short-term* increase in physical activity, they could also be explained by social desirability and reporting biases. There are literature reports indicating that a short physical activity counseling effort by a medical provider can be moderately effective in the short term (Eakin et al., 2000; Calfas et al., 1997). Although the health professionals who conducted the intervention were not the participants' medical providers, our pilot data indicate that they were regarded as credible sources of health information. Moreover, our intervention far exceeded a short counseling effort by providing information, motivation and practical training to enable women to include physical activities in their daily routine. Since exercise was only a secondary focus of the study, we used a relatively short assessment tool and did not assess potential changes in self-efficacy, social support, peer norms and barriers that could help to explain behavioral change.

On the other hand, it is possible that women who attended an exercise session became aware that walking, stretching, and lifting objects can be counted as physical activities, and therefore were more likely to report such activities than women in the screening arm. Additionally, prior studies suggest that non-white, female, and older respondents tend to be more likely than other groups to answer questions in a socially desirable manner (Warnecke et al., 1997). In the case of our study, this may have contributed to over-reporting of physical activity, despite our efforts to encourage honest reporting by having female Filipino interviewers who were blind to the intervention group status.

The fact that we only asked a global exercise question at baseline seriously limited our study because it may not have been sensitive enough to detect possible baseline differences between the two arms of the study. However, randomization and the fairly large sample size are expected to protect against any undetected group differences. In addition, only short-term outcomes were collected that were completely based on self-report.

Despite these limitations, we gained information that will be valuable for future efforts to increase physical activity in this population. Our process data and the high attendance rate demonstrate that the group session was well accepted by Filipino women. This intervention format takes advantage of the strong personal bonds that exist between members of community based organizations or churches, their interest in educational and social events, and the high regard for health professionals and the advice they give. Thus, it appears to be well suited for older Filipinos or other Asian-American groups who can be accessed through community based organizations. Much of the intervention *content* was tailored to meet the needs and abilities of older, low-income women in general, regardless of ethnic background. The emphasis on low-impact exercises that do not require special equipment and that can be incorporated in small increments in women's life are examples of this tailoring. Focus groups and survey research that were conducted prior to designing the sessions also resulted in ethnically specific tailoring including the choices for the aerobic exercises (ballroom dancing and walking), the type of food that was served in the social part of the program (traditional noodles or chicken pie empanadas), the incentives to participate (cash), the location of the sessions (in the community), the type of group leaders (female Filipino health professionals), and the language used (Taglish). Overall, there was more ethnic tailoring in regards to the intervention *delivery* than in regards to the intervention *content*. Future research on sociocultural determinants of physical activity and related knowledge, attitudes, supports and barriers could facilitate more ethnic tailoring of the intervention content (Henderson and Ainsworth, 2000).

A comparison between physical activities reported by our sample and older women who participated in the NHIS (Table 2) suggests that our Filipino sample was quite active. When comparing the study sample with the NHIS sample, one has to keep in mind that the NHIS

participants reported specific activities in the previous 2 weeks (NHIS 1991) and the study sample in the past 4 weeks. Dancing other than aerobic dancing is particularly popular among older Filipino women. It was the third most frequently mentioned activity in our sample, but is not mentioned among the top 7 activities in the NHIS sample. In future studies assessing physical activity in non-white groups, it will be important to identify and include culturally specific activities such as dancing, tai-chi, or others, in assessment instruments. Our data also underscore the need to include activities into assessment scales that are traditionally important to women such as home chores and care giving (Tortolero et al., 1999; Ainsworth et al., 1999).

In summary, this is one of the first intervention studies addressing physical activity in an Asian ethnic group. Lessons learned regarding assessment tools, intervention format, content and acceptability should be taken into account when developing future more intensive programs. Ballroom dancing emerged as a culturally specific activity that was reported by about half the women in the last 4 weeks. Acculturation, measured as percentage of lifetime in the U.S., did not appear to influence physical activity in this sample.

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**TABLE 1**  
 Characteristics of Women Who Completed the 3 Month Follow-Up

	Exercise (N = 248)	Screening N = 235)	P*
Age (mean ± standard deviation)	63.2 ± 10.4	63.3 ± 9.6	0.96
Number of comorbidities (mean ± standard deviation)	0.92 ± 0.94	0.86 ± 0.94	0.49
	%	%	
Education			0.44
< High school	18	18	
High school	16	12	
> High school	66	70	
Currently participates in any regular physical activity	68	66	0.61
Exercises			0.32
Daily or more than 3 times a week	35	36	
1–3 times a week	56	51	
No regular exercise	9	13	
History of			
Heart problems	18	20	0.61
Stroke	3	3	0.71
Hypertension	49	43	0.20
Diabetes	17	16	0.81
Cancer	6	4	0.35
	N = 225	N = 210	
% of lifetime in the U.S. (mean ± standard deviation)	25.3 ± 16.1	28.6 ± 17.3	0.05
	%	%	
Marital Status			0.70
Married	54	49	
Widowed	29	31	
Divorced/Separated	9	10	
Single	8	10	
	N = 201	N = 187	
Annual Family Income			0.49
< \$10,000	34	28	
\$10,000-\$25,000	30	27	
\$25,000-\$40,000	15	20	
\$40,000-\$55,000	9	11	
> \$55,000	11	14	

\* t-test for continuous variables, chi-square test for categorical variables.

**TABLE 2**

Proportion of Women Reporting Specific Physical Activities at 3 Month Follow-Up

In the past month, did .....	Exercise (N = 248) %	Screening (N = 235) %	P*	NHIS** In the past 2 weeks.... %
Walking (at least 20 minutes)	79	74	.23	50
Stretching	75	51	.001	21
Dancing (other than aerobic dancing)	56	47	.05	-
Gardening of yard work	49	48	.80	29
Aerobics or aerobic dancing	33	22	.01	5
Jogging	20	13	.04	-
Weight lifting	19	13	.10	4
Ride a bicycle or exercise bicycle	15	12	.34	12
Swimming	4	4	.82	4
Other exercise	21	12	.01	-

\* chi-square test Adjusting for multiple comparisons, a p-value of  $\leq .005$  indicates a significant difference.

\*\* Females ages 45–74 who participated in the 1991 Health Interview Survey (USDHHS, 1996).

- Not reported.

**TABLE 3**Frequency of Self-Reported Physical Activities at 3 Month Follow-Up (Mean  $\pm$  Standard Deviation)

Number of times past month	Exercise (N = 248)	Screening (N = 235)	p*
Waling (at least 20 minutes without stopping)	14.0 $\pm$ 11.4	12.9 $\pm$ 12.0	.33
Stretching	13.6 $\pm$ 12.0	8.3 $\pm$ 11.2	.0001
Dancing (other than aerobic dancing)	4.4 $\pm$ 7.3	2.5 $\pm$ 5.0	.0007
Gardening of yard work	6.3 $\pm$ 9.8	5.6 $\pm$ 9.3	.47
Aerobics or aerobic dancing	3.2 $\pm$ 6.3	1.9 $\pm$ 5.2	.01
Jogging	2.6 $\pm$ 6.5	1.3 $\pm$ 4.6	.01
Weight lifting	2.1 $\pm$ 5.6	1.5 $\pm$ 5.5	.29
Ride a bicycle or exercise bicycle	1.8 $\pm$ 6.0	1.4 $\pm$ 4.0	.35
Swimming	0.3 $\pm$ 2.3	0.2 $\pm$ 1.7	.69
Total exercise score (mean $\pm$ standard deviation)	48.4 $\pm$ 31.2	35.6 $\pm$ 25.0	.0001

\* t-test Adjusting for multiple comparisons, a p-value of  $\leq .005$  indicates a significant difference.

**TABLE 4**

Multiple Regression Analysis Confirming the Intervention Effect After Controlling for Age and Level of Exercise at Baseline (N = 483, Outcome = Total Exercise Score)

Variable	Parameter Estimate	Lower Confidence Interval	Upper Confidence Interval
Age	0.24	-0.01	0.50
Exercise at least once a week versus no exercise at baseline	14.33	6.26	22.40
Exercise versus screening group	12.19	7.21	17.17