

Do self-efficacy, exercise benefits and barriers, and demographic factors have the same effects on the physical activity across the gender?

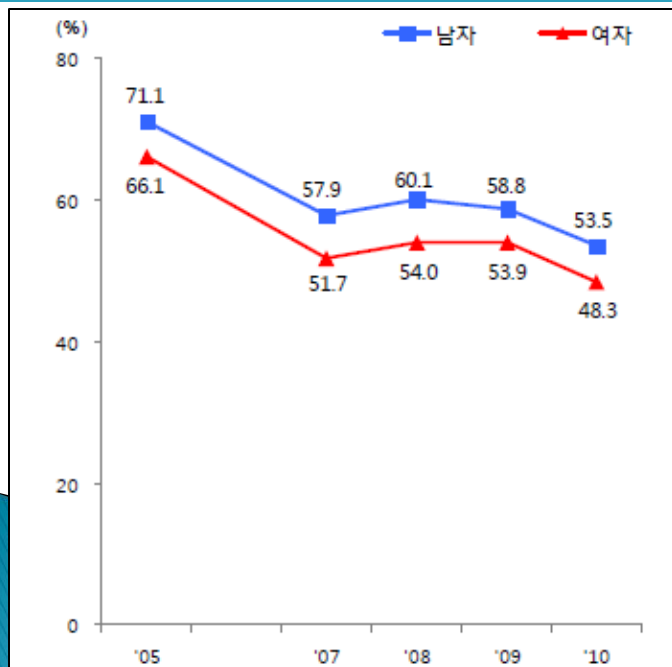
Chung Yul Lee, PhD, RN, Duckhee Chae, MSN, RN,
and Suhee Kim, MSN, RN

Yonsei University College of Nursing

Background (1)

- ▶ While health indices of smoking, hypertension, and diabetes among Korean adults have improved during the last 10 years, physical inactivity and obesity were getting **WORSE** (Ministry of Health and Welfare, 2008).

Physical activity participation rate among Korean adults



- ▶ Vigorous exercise 20 mins/day, 3 days/week **or**
Moderate exercise 30 mins/day, 5 days/week **or**
Walking 30 mins/day, 5 days/week
(<http://knhanes.cdc.go.kr/>, 2010)

Background (2)

- ▶ Among the adults population, 71.7% of male and 49.7% of female are currently employed (Korea Statistical Information Service, 2012).
- ▶ It is well known that worksite health promotion programs targeting physical inactivity are effective in changing lifestyle behaviors and improving health-related outcomes, such as reducing body mass index(BMI) (WHO, 2008).
- ▶ Bandura's Social Cognitive Theory is used most frequently in physical activity intervention studies. Self-efficacy is a key determinant of behavior change in SCT. (Conn et al., 2008).

Background (3)

The purpose of this study was to determine whether self-efficacy, exercise benefits and barriers, and demographic factors have the same effects on the physical activity level across the gender.

Methods (1)

- ▶ **Setting**

A major airline company in Korea

- ▶ **Participants**

Seventy white-collar workers (35 male & 35 female)

- ▶ **Measurements**

- 1) Self-efficacy: Korean version of Exercise Self-Efficacy Scale (Bandura's 1997).
- 2) Exercise benefits/barriers: Korean version of 40 items of Exercise Benefits and Barriers Scale (Sechrist, Walker, & Pender, 1987).
- 3) Daily steps: Yamax CW-700/701, Japan

Methods (2)

- ▶ **Data collection**

Baseline data from an 8-week workplace physical activity intervention program were analyzed. Data collection period was from March to April 2012.

- ▶ **Data analysis**

Simultaneous quantile regression was used in Stata Version 10.0 to identify the degree of homogeneity in the effects of self-efficacy, exercise benefits and barriers, and demographic factors.

Results (1)

- ▶ There were statistically significant differences in age ($p=.001$), marital status ($p=.016$), smoking habit ($p=.025$), having a chronic disease ($p=.024$), and BMI ($p<.001$) between male and female workers (Table 1).
- ▶ Male workers were older and had higher BMI than female. Also, more number of male workers were married, smoker, and having a chronic disease.
- ▶ However, there was no difference in average number of daily steps, self-efficacy, and exercise benefits and barriers between the two groups.

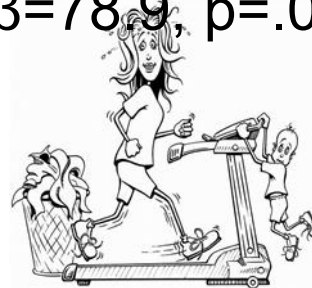
Results (2)

▶ Male workers



Exercise self-efficacy had a significant effect on physical activity, but only when respondents were at 10% ($\beta=109.0$, $p=.018$) and 25% ($\beta=78.9$, $p=.044$) quantiles (Table 2).

▶ Female workers



Marital status was significantly related to physical activity, but only when respondents were at 10% ($\beta=-2316.4$, $p=.013$) and 25% ($\beta=-2286.3$, $p=.014$) quantiles (Table 3).

Table 1. Demographic, Physical and Psychosocial Characteristics of Male and Female Office Workers

	Total (n=70)	Male (n=35)	Female (n=35)	t or χ^2	p
Demographics					
Age	38.21±8.14	41.46±7.98	34.97±7.01	3.61	.001
Marital status					
Single	19 (27.1)	5 (14.3)	14(40.0)	5.85	.016
Married	51 (72.9)	30 (85.7)	21(60.0)		
Smoking					
Smoker	6 (8.6)	6 (17.1)	0(0.0)	6.53	.025
Non-smoker	64 (91.4)	29 (82.9)	35(100.0)		
Previous exercise habit					
Yes	12 (17.1)	6 (17.1)	6(17.1)	0.00	1.00
No	58 (82.9)	29 (82.9)	29(82.9)		
Chronic diseases					
Yes	17 (24.3)	13 (37.1)	4(11.4)	6.29	.024
No	53 (75.7)	22 (62.9)	31(88.6)		
Monthly household income	621.11±266.54	646.25±284.94	595.16±248.11	0.76	.451
Job experience (yr)	13.51±7.24	13.83±7.59	13.19±6.96	0.37	.711
Physical factors					
BMI	23.26±3.37	25.41±3.09	21.11±2.01	6.89	<.001
Psychosocial factors					
Exercise benefits/barriers	120.66±12.05	123.12±12.49	117.87±11.09	1.79	.082
Exercise self-efficacy	41.76±15.30	42.64±13.63	40.87±17.01	0.48	.635
Daily steps	5403.67±1799.06	5,689.03±1863.28	5,118.31±1711.41	1.34	.186

Table 2. Male worker's quantile regression results by daily steps

	MLR	Quantile Regression				
		10%	25%	50%	75%	90%
	β	β	β	β	β	β
Age	-13.2	-158.6	-77.8	-73.5	-83.4	90.3
Marriage	432.2	3387.3	1374.6	1610.7	1375.5	-1180.7
Chronic Diseases	447.0	283.6	227.4	338.0	2129.4	-31.1
BMI	-107.7	-3.2	-18.5	-20.3	-40.7	-178.6
EBB	26.1	-106.4	-46.2	13.8	16.5	33.7
ESE	20.3	109.0*	78.9*	39.5	32.8	25.3

EBB = Exercise benefits/barriers

ESE = Exercise self-efficacy

* $p < .05$

Table 3. Female worker's quantile regression results by daily steps

	MLR	Quantile Regression				
		10%	25%	50%	75%	90%
	β	β	β	β	β	β
Age	76.2	176.6	164.0	124.5	66.7	-129.9
Marriage	-1616.7	-2316.4*	-2286.3*	-1491.6	-1805.6	680.2
Chronic Diseases	-938.9	-315.0	-422.2	-1002.2	-157.5	-3743.7
BMI	-121.0	-118.5	-436.3	-225.0	-202.8	230.8
EBB	-0.9	-14.1	-2.1	-6.8	51.4	15.3
ESE	-5.5	2.9	-2.7	-4.4	-19.2	42.1

EBB = Exercise benefits/barriers

ESE = Exercise self-efficacy

* $p < .05$

Conclusion

- ▶ While exercise self-efficacy was related to physical activity for sedentary male workers, marital status had effect on physical activity among sedentary female workers.
- ▶ This study findings highlight the heterogeneous physical activity determinants among white-collar workers.
- ▶ Therefore intervention strategies for increasing physical activity should be tailored to gender as well as degree of physical activity level.