



# Preservice Elementary School Educators Healthy BMI and Physical Activity

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WHAT STARTS HERE CHANGES THE WORLD

## BACKGROUND

- Elementary teachers are required by law to provide 135 minutes of physical activity for their K-6 students.
- Teachers who model physical activity (PA) are more likely to have physically active students (Morgan et al., 2007). Positive PA behavior was associated with being physically active, but negative PA behavior is a major contributor to obesity (Poobalan et al., 2012).
- Body mass index (BMI) has moderately negative associations with physical activity participation.
- Young overweight and obese individuals show lower PA participation and have a less positive attitude toward physical activity (Deforche et al., 2006).
- Little is known about the association between BMI status and PA level and the individual behavior and attitude toward promoting PA and implanting PA program in preservice teacher.

## OBJECTIVE

To identify the individual behavior and attitude toward PA that were associated with BMI level and PA level in preservice elementary education teachers.

## METHOD

**Participant:** A total 233 preservice teachers (N female = 194; 90.2%) comprised of 47.2% Hispanic, 31.3% White, 8.2% Asian, 3.4% Black, 1.3% other)

### Procedure:

- Daily PA level: FITstep™ pedometer or Actigraph GT3X accelerometer for 14 days over the semester
- Individual characteristics toward PA: Questionnaire administered via survey.

### Measure:

- Self-report information on sex, race, grade, age, height, weight and BMI.
- Data of daily steps and calorie expenditure measured using the pedometer or accelerometer.
- School PA Promotion Attitudes Questionnaire and School PA Promotion Competence Questionnaire used to measure PA Behavior (i.e., I am physically active), PE Behavior (i.e., My elementary physical education experiences were positive), PA Competence (i.e., Integrate physical activity into classroom lessons), and PA Attitudes (i.e., Elementary classroom teachers should play a major role in physical activity programs at school; Webster, Monsma, & Erwin, 2010)

### Data analysis:

- Pearson's correlation (see Table 1)
- Multiple linear regression (see Table 2 & 3)

## RESULTS

Table 1. Descriptive Statistics and Correlations among Variables

Variable	1	2	3	4	5	6	7
1. PA Behavior	-						
2. PE Behavior	.442**	-					
3. PA Competence	.243**	.209**	-				
4. PA Attitudes	.288**	.327**	.268**	-			
5. BMI (kg/m <sup>2</sup> )	-0.112	-0.08	-0.078	-.172**	-		
6. PA level (Steps)	.280**	0.056	0.055	0.11	-0.007	-	
7. Caloric expenditure (kcal/min)	.271**	0.040	0.018	.129*	0.082	.932**	-
Mean	15.31	12.34	65.67	30.75	22.40	7794.64	254.55
Standard deviation	2.56	2.48	20.49	2.93	3.69	2910.98	109.85

Abbreviations: BMI, body mass index; PA, physical activity; PE, physical education.  
\*  $p < .05$ . \*\*  $p < .01$ .

- BMI level was negatively correlated with attitude toward PA while daily PA level and caloric expenditure were positively correlated with behavior toward PA.

Table 2. Results of Multiple Regressions on BMI level

Predictor	R <sup>2</sup>	$\beta$	t Value	P-value
	<b>0.238</b>			
PA Behavior		-0.109	-1.229	0.221
PE Behavior		0.070	0.827	0.409
PA Competence		0.086	1.108	0.270
PA Attitudes		-0.165	-2.023	0.045*
PA Level (Steps)		-0.574	-2.932	0.004**
Caloric Expenditure (kcal/min)		0.664	3.437	0.001**

BMI level was significantly predicted attitudes toward PA ( $\beta = -.17, p < .05$ ), PA level ( $\beta = -.57, p < .01$ ), and caloric expenditure ( $\beta = .66, p < .001$ ) and accounted for 24% of the variance while controlling for age, gender, and race.

- Preservice teachers with higher daily step counts and positive attitude toward physical activity had a greater likelihood of having lower BMI.

Table 3. Results of Multiple Regressions on daily PA level

Predictor	R <sup>2</sup>	$\beta$	t Value	P-value
	<b>0.113</b>			
PA Behavior		0.265	3.375	0.001**
PE Behavior		-0.127	-1.685	0.094
PA Competence		-0.013	-0.192	0.848
PA Attitudes		0.085	1.187	0.237

Daily PA level was significantly predicted behavior toward PA ( $\beta = .26, p < .001$ ) and accounted for 11% of the variance while controlling for BMI, age, gender, and race.

- Preservice teachers with positive behavior toward physical activity had a greater likelihood of having higher daily step counts.

## CONCLUSIONS & IMPLICATIONS

Preservice elementary education teachers with lower BMI and higher PA are likely to exhibit more positive behavior and attitude toward PA.

Teachers with more positive attitudes and behavior are more likely to actively engage in PA related teaching that enhances the overall success of school PA promotion (Webster et al, 2010).

Therefore, coursework for preservice elementary school teachers should provide instruction on the health benefits of physical activity, introduce the energy balance equation, and foster positive behaviors and attitudes related to physical activity.

## CONTACT INFORMATION

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