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### ASSOCIATION BETWEEN PSYCHOSOCIAL FACTORS WITH PHYSICAL ACTIVITY IN MIDDLE SCHOOL STUDENTS

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#### ABSTRACT

The study identified the physical activity distribution among a random sample of Korean adolescents and investigated relationship of self-efficacy and social norms with physical activity. Participants included 488 students enrolled in 7th to 10th grade (Male: 150, Female: 100, Mage = 14.28, SD = ± 0.96). Three Korean-version questionnaires were used to explore a possible association of self-efficacy and social norms with physical activity among adolescents. Crosstab analysis, correlation analysis and multiple regression analysis were performed to analyze data. Results indicated that the physical activity pattern of Korean adolescents was different by each stage of physical activity: precontemplation (16.3%), contemplation (18.7%), preparation (28.8%), action (19.4%), and maintenance (18.8%). Significant distribution emerged as a function of gender. In addition, the findings revealed that self-efficacy and peer norms were significantly correlated with physical activity. The findings suggested that the health promotion strategy aimed at increasing adolescents' physical activity should be designed to foster self-efficacy and peer norms relating to physical activity.

#### INTRODUCTION

It is alarming that 19% of adolescents responded that they never exercised and 59% of the adolescents who participated in regular exercise did so for less than 1 hour (Kim, 2004). In addition, Ministry of Culture and Tourism (2009) surveyed adolescents' physical activity and reported that 28% of adolescents never exercised. More seriously, among adolescents who participated in physical activity, about 17% exercised once per week, and 16% did so two to three times per month.

Nevertheless, our efforts focused on adolescents' physical inactivity have tried to provide information and education programs without fully considering the psychosocial factors associated with adolescent physical inactivity (Kim, 2004). In this regard, the transtheoretical model (TTM) has been paid much attention as an effective tool to explain physical activity changes. The TTM accounts for the dynamic nature of health behavior change, including physical activity, and recognizes that individuals often must make several attempts at behavior change before they are successful (Prochaska and DiClemente, 1983). This model consists of five stage of physical activity change (Kim, 2004). These physical activity stages have been shown to have predictable relationships with self-efficacy and social norms (Kim and Cardinal, 2010; Titze, Stronegger and Owen, 2005).

Self-efficacy is a component of Bandura's social learning theory, which relates to one's perceived confidence in her/his ability to carry out a specific behavior (Bandura, 1977). For example, in the physical activity domain, someone with high exercise self-efficacy will take part in physical activity in spite of inclement weather, whereas a person possessing low self-efficacy may only do so when the weather is pleasant. Social supports refer to important others' beliefs and expectations that impose someone to do something as what others expect. In the physical activity domain, social support from family, teacher, and friends has been found to be positively related to physical activity (Saunders, Motl, Dowda, Dishman and Pate, 2004).

For over a decade, a large number of studies have demonstrated the existence of a significant relationship of physical activity with self-efficacy and social supports (Deforche, Bourdeaudhuij, Tanghe, Hills and Bode, 2004; Kim and Cardinal, 2010). However, these studies have mainly come from Western countries. Adolescent physical activity, especially in Korea, is recently being considered a crucial factor in the health status of Koreans, and this has fast become an important public health and social issue in Korean society. Moreover, data predicting the links of physical activity with self-efficacy and social norms are limited. Therefore, the purpose of the current study is



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to identify the physical activity distribution among a random sample of Korean adolescents and to examine relationship of their physical activity with self-efficacy and social supports.

### METHOD

#### Participants

Participants included 488 students enrolled in the 7<sup>th</sup> to 12<sup>th</sup> grades (Male: 150, Female: 100, *Age* = 14.28, *SD* = ± 0.96) in Nowon-gu, Northern Seoul. In the initial stage of this study, a total of 555 students were randomly selected from 3 schools. Of the 302 students with parental permission, 250 gave their consent and completed the survey. This study was approved by Institutional Review Board of a university ethical committee.

#### Instruments

In order to measure an adolescent's self-confidence to physical activity, the Korean version of the Exercise Self-efficacy Scale was used (Kim, 2004). The scale consists of 18 items with a 5-point scale ranging from 1 (*cannot do*) to 5 (*certain can do*). 2-week test-retest reliability was performed as a measure of instrument stability, resulting in a reliability coefficient of .86.

For accessing adolescents' beliefs about how much their significant others (i.e., parents, teachers, and peers) encourage them to participate in physical activity, a total of 24-item physical activity social support scale was applied in the study (Kim and Cardinal, 2010). This scale consisted of 2 sub variables and each of sub variables has 12 items (i.e., 12 items for parents and 12 items for peers). Cronbach's coefficient  $\alpha$  was calculated as a measure of internal consistency for the scale, and a standardized  $\alpha$  of .85 for parent norm and .87 for peer norm.

The Korean version of stages of change scale for physical activity was used in the present study to measure participant current stage of physical activity (Kim, 2004). In this scale, stage of physical activity was assessed using a five-item, dichotomous scale ("yes"/"no") related to regular physical activity and intentions. A two-week, test-retest reliability was conducted, resulting in a reliability coefficient of .85.

Additionally, the weekly Leisure-Time Exercise Questionnaire was used in this study to assess habitual physical activity behavior. On this measure, participants were asked to report how many times during a typical week they participated in strenuous (e.g. running), moderate (e.g. fast walking), and mild (e.g. yoga) physical activity for more than 15 minutes duration. From this, an exercise index score was calculated by multiplying each reported exercise session by its metabolic equivalent (MET) value and summing the result [i.e. (strenuous × 9) + (moderate × 5) + (mild × 3)]. In the present study, 2-week test-retest reliability was performed as a measure of instrument stability, resulting in a reliability coefficient of .86.

#### Data analysis

Descriptive statistics (i.e., means, standard deviations, and frequencies), Crosstab analysis with Chi-square ( $\chi^2$ ) and correlation analysis were carried out to investigate the study's hypothesis. All statistical methods applied in this study were conducted using the SPSS 22.0.

### RESULTS

Table 1 shows the result of the frequency analysis concerning the physical activity distribution in the adolescents.

**Table 1. Stages of physical activity distribution**

Variables	Stage of physical activity					Total
	PC	CO	PR	AC	MA	
Male	14(12.3)	7(9.8)	20(19.6)	42(28.2)	41(28.2)	150(100.0)
Female	27(18.8)	40(26.6)	52(36.0)	7(7.8)	6(10.8)	100(100.0)
Total	41(16.3)	47(18.7)	72(28.8)	49(19.4)	47(18.8)	250(100.0)

PC=Precontemplation; CO=Contemplation; PR=Preparation; AC=Action; MA=Maintenance  
Parentheses are percent.



Table 2 shows the correlations among physical activity, self-efficacy, and the social support constructs.

*Table 2. Correlation and descriptive statistics among the study variables*

	Parent support	Peer support	Self-Efficacy	Physical Activity
Parents support	1.00	.46*	.03	-.02
Peer support		1.00	.49*	.44*
Self-efficacy				.54*
Physical activity				1.00
Mean	3.19	2.72	4.42	12.78
SD	0.64	0.67	2.21	7.45

\*p<.01

## DISCUSSION

The current study reported that more than half of adolescent were being inactive, and more seriously 33% of them were totally sedentary. This finding was supported by a wide range of previous studies indicating that a large number of children and adolescents have failed to engage in regular physical activity (Araki, Kodani, Gupta, and Gill, 2013; Korea National Youth Policy Institute, 2011). It is plausible to interpret that the high rates of physical inactivity of the Korean adolescents might be extensively caused by social and environmental limitations such as a lack of available facilities and time for exercise, a social context neglecting exercise and Physical Education, and excessive schoolwork owing to the dominance of an academic-centered curriculum. It is also found significant differences in the physical activity distribution by gender. The finding concerning gender difference was broadly supported by previous studies demonstrating that males were significantly more likely to be active compared with their female counterparts (Jago, Anderson, Baranowski and Watson, 2005; Vilhjalmsson and Kristjansdottir, 2003).

The current findings found that peer support and self-efficacy were significant to predict physical activity. Self-efficacy exerted the largest total effect on adolescents' physical activity. It is plausible to interpret that adolescents with high self-efficacy were more likely to participate in physical activity compared to those with lower levels of self-efficacy. This finding has been supported by several studies (Kim, Cardinal and Lee, 2006; Rovniak, Anderson, Winett, Stephens, 2002), and is consistent with Bandura's theory.

The current study provides the significance evidence of an association of physical activity with self-efficacy and peer support in Korean adolescents. Therefore, adolescents should be encouraged to increase and maintain their confidence to engage in physical activity and to spend much time with peers in participating in physical activity.

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