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## The effect of family attitudes and preparation of high school entrance exam on habitual physical activity in children

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### Abstract

Physical activity level (PAL) is an important factor to promote and maintain a healthy lifestyle along the whole life cycle. The children and adolescent period is the critical time to acquire positive lifestyle habits. The purpose of this study was to investigate the effect of both high school entrance exam (HSEE) and parental behaviors on habitual PAL of students during the preparation of this exam. Totally 319 Elementary School students (154 girls, 165 boys) between ages of 11-13 were selected randomly for this study. PAL of students were evaluated by using the Beacke Physical Activity Questionnaires. There were no significant differences between attendance and non attendance to extra courses for HSEE in terms of word activity (WA), sport activity (SA), and leisure activity (LA) scores ( $p < .05$ ) among the students. It was shown that regular physical activity attendance of mothers plaid a significant role in LA scores ( $p \leq .03$ ) among the students. However, WA, and SA scores of students were not affected from their mother's habitual activities ( $p < .05$ ). On the other hand, there were significant differences in WA, and SA according to father's regular physical activity attendance ( $p \leq .01$ ). As a conclusion, parental habitual physical activity level played an important role in high score of student's LA. It is recommended to monitor and promote parental physical activity.

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*Keywords:* Sport activity, leisure activity, work activity, children;

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### 1. Introduction

In our urban community, the rapid evolution in the way of life has induced some sociocultural changes affecting the habitual physical activity level (HPAL). The increase in the prevalence of cardiovascular diseases, obesity, hypertension, diabetes, osteoporosis, and stress is partly linked to the reduction in physical activity.

Holstein et al. (2007) examined the determinants of physical activity in children and proposed several recommendations for future research. One of them was to take into account the different settings where children engage in physical activity. An increasing number of studies have analyzed HPAL of children and adolescents in relation to the type of day (Trost et al, 2000).

Few studies have analyzed HPAL in relation to educational context in the Turkish education system (Uskun et al, 2005, Kudaş et al, 2005). With the requirements of the modern world and increasing population of developing countries, testing has become an inevitable practice. It is a frequently used way to set standards of achievement for students who want to be placed in an educational institution. In Turkey high stakes tests have been used due to

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scarce educational opportunities and the high school entrance exam (HSEE) is one of them (Gündoğdu et al, 2010). The main purpose of this study was to investigate the effect of both HSEE and parental behaviors on HPAL of students during the preparation of this exam (Gavarry et al, 2003).

## 2. Material and methods

### 2.1. Subjects

This study was held in Beykoz province of Istanbul. Totally 319 Elementary School students (154 girls, 165 boys) between ages of 11-13 were selected randomly for this study. HPAL of students were evaluated by using the Beacke Habitual Physical Activity Questionnaires (Baecke et al, 1982). Attendance of private courses for HSEE and parental behaviors of students were determined by using pre-prepared Questionnaires.

### 2.2. Baecke's HPAL Questionnaire

The original questionnaire on habitual physical activity consisted of 29 items concerning the following five components: occupation, movement, sport, leisure time activities excluding sport, and sleeping habits.

All responses were preceded on five-point scales with the exception of the questions on the name of main occupation and the types of sport played. Three levels of occupational physical activity were defined: the low level for occupations such as, clerical work, driving, shop keeping, teaching, studying, housework, medical practice, and all other occupations with a university education; the middle level for occupations such as, factory work, plumbing, carpentry, and farming; and the high level for occupations such as, dock work, construction work, and sport.

Sports were subdivided into three levels of physical activity according to Durnin and Passmore (1967) the low level for sports such as, billiards, sailing, bowling, and golf (average energy expenditure 0.76 MI/h); the middle level for sports such as, badminton, cycling, dancing, swimming, and tennis (average energy expenditure 1.26MI/h); and the high level for sports such as, boxing, basketball, football, rugby, and rowing (average energy expenditure 1.76 MI/h).

A sport score was calculated from a combination of the intensity of the sport which was played, the amount of time per week playing that sport, and the proportion of the year in which the sport was played regularly.

*Calculation of the simple sport-score ( $I_9$ ):*

(a score of zero is given to people who do not play a sport)

$$I_9 = \sum_{i=1}^2 (\text{intensity} \times \text{time} \times \text{proportion})$$

$$= 0/0.01-<4/4-<8/8-<12/\geq 12$$

*Calculation of scores of the indicates of physical activity:*

$$\text{Work index} = [I_1 + (6 - I_2) + I_3 + I_4 + I_5 + I_6 + I_7 + I_8] / 8$$

$$\text{Sport index} = [I_9 + I_{10} + I_{11} + I_{12}] / 4$$

$$\text{Leisure-time index} = [(6 - I_{13}) + I_{14} + I_{15} + I_{16}] / 4$$

2.1. Statistical analysis

A one-way analysis of variance was used in order to test effect of education status of parent on Work Activity (WA), Sports Activity (SA), and Leisure Activity (LA), as measured by the Habitual Physical Activity Questionnaire (HPAQ).

Independent samples t test was used in order to test the effect of gender, attending private course for HSEE, status of the mother or father to participate in regular sports activity on WA, SA, and LA. Furthermore, frequency analysis was used in general.

The alpha level was set at  $p \leq .05$  for all procedures.

3. Tables

There was a significant differences between boys and girls in terms of WA, SA, and LA scores [ $t_{(316)} = 3.75, p=.00, t_{(317)} = 2.81, p=.01, t_{(309)} = 3.54, p=.00$ , respectively] (fig. 1).

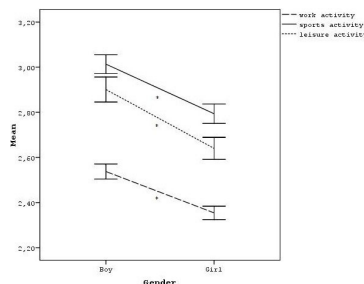


Figure 1. WA, SA, and LA scores ( $\pm$  SE) for boy and girl students (\* $p < .05$ ).

There were a no significant differences between attendance and non attendance to private courses for HSEE in terms of WA, SA, LA scores. [ $t_{(316)}=.24, p=.81, t_{(317)} = -1.01, p=.31, t_{(309)}= -1.38, p=.17$ , respectively] among the students (fig. 2). The education statuses of students’ parents were given in table 1.

Table 1. Parental educational status of students.

Education Status	Mothers of Students		Fathers of Students	
	Number	Percentage (%)	Number	Percentage (%)
Elementary School	230	72.1	177	55.5
High School	59	18.5	91	28.5
Under graduate	24	7.5	37	11.6
Graduate degree	2	0.6	11	3.8

Results showed that there was no statistically significant difference in WA, SA, and LA scores for the three education status of mothers [ $F_{(2, 309)} = 1.60, p=.20, F_{(2, 310)} = 1.19, p=.31, F_{(2, 303)} = 1.62, p=.20$ , respectively], and there was no statistically significant difference at the  $p < .05$  level in WA, SA, and LA scores for the three education status of fathers [ $F_{(2, 301)} = 0.11, p=.90, F_{(2, 302)} = 0.32, p=.73, F_{(2, 294)} = 0.15, p=.86$ , respectively]. Graduate degree was omitted for this statistical process (fig.3).

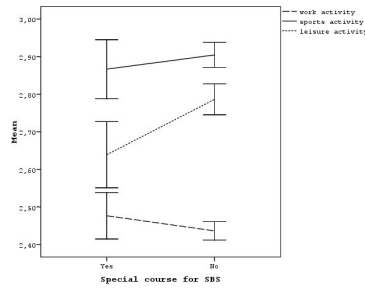


Figure 2. WA, SA, and LA scores (± SE) of students attended a private course for HSEE (p>.05).

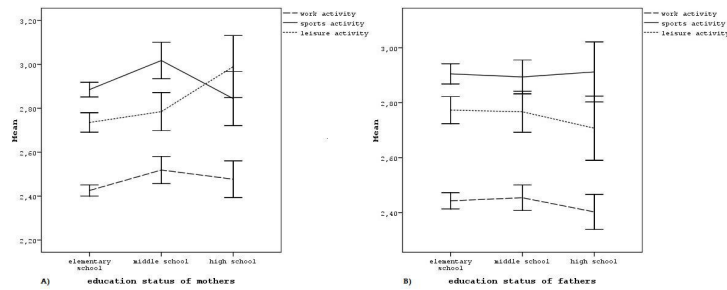


Figure 3. (A) WA, SA, and LA scores (± SE) for each mother's education group, (B) WA, SA, and LA scores (± SE) for each father's education group (p>.05)

It was shown that regular physical activity attendance of mothers played a significant role in LA scores [ $t_{(307)} = 2.12, p=.03$ ], among the students (fig.4). However, WA, and SA scores of students were not affected from their mother's habitual activities [ $t_{(316)} = .49, p=.63, t_{(315)} = 1.30, p=.20$ , respectively].

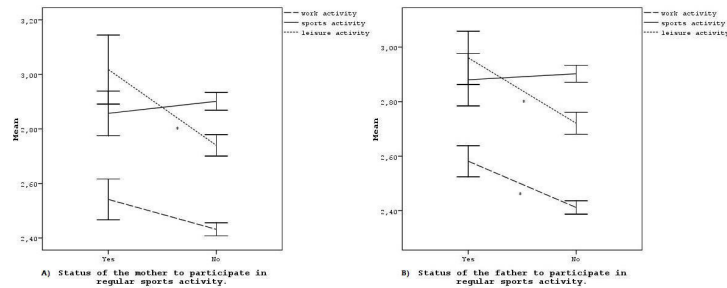


Figure 4. (A) WA, SA, and LA scores (± SE) according to status of the mother to participate in regular sports activity, (B) WA, SA, and LA scores (± SE) according to status of the father to participate in regular sports activity (\*p<.05).

#### 4. Discussion

In conclusion, this study revealed significant differences in the mean level of WA, SA, and LA in elementary school students (age of 11-13 years) when compared with their genders. Boys were found to be more physically active than girls' counterpart in this study.

Few studies have been designed and conducted in order to examine differences in the level of Habitual physical activity in children or young people. However, a study by Eisenmann et al. (2004) proved evidence of increased LA

in Canadian adolescents between 1981 and 1988, but thereafter activity remained relatively stable until the end of examination in 1998 (Møller et al, 2009).

HSEE was taken by more than three million Turkish elementary students and only one third of them may be eligible for registering to quality high schools. Therefore, this causes a stressful environment for children and also for their families. On the other hand, this study revealed no significant differences in the mean level of WA, SA, and LA in students, neither when paying special attention to attend private courses nor non attendance for preparation of HSEE.

Although there were no relationship between parental educational status and children HPAL, their parents' participation in regular PA played important role in their LA scores in this study.

There is evidence that the family is an important socializing agent regarding physical activity, and intervention program designers are encouraged to develop methods to use these family influences for the initiation and maintenance of health-related physical activity habits. Besides providing mutual support and encouragement for physical activities, families can participate together in active recreational pursuits. The success of family-based interventions for childhood obesity (Malina, 2010) suggests that family-based physical activity programs should be more thoroughly studied.

Although the physical activity recall measure appears to be a valid measure for children and adults, more accurate measures such as long-term direct observation or mechanical monitoring may produce different results. The study was limited because the effects of single versus dual parents could not be tested. Similarly the effects of multiple children in the family and child sex were not assessed. It would also be useful to determine how much time family members spent doing physical activities together. These are issues to be addressed in subsequent studies (Armstrong et al, 2007, Drenowatz et al, 2010, Pinar et al, 2011, Pinar et al, 2012).

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