

The investigation of physical activity levels and eating habits in adolescents

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ABSTRACT

In this study, it was aimed to investigate the relationship between eating habits and physical activity and to reveal differences in adolescents. A total of 200 children between 13-17 ages were included to the study. As data collection tools, 18-question survey prepared based on expert opinion and Godin Leisure-Time Exercise Questionnaire survey were administered to students. Multidimensional Scaling Analysis technique was used to investigate the relationship between physical activity and eating habits and t-test and Chi-square analysis were used to compare the genders in terms of physical activities. The values of doing breakfast of the students in terms of eating habits were found high. Lunch was observed as the most frequently skipped meal and it was detected that the reason of it was arisen from reluctance and shortage of time. Any statistically significant differences were not found between the girls and boys in terms of the low-intensity exercises. It was observed that the sports done by considering 7 days a week showed significant differences in favor of males according to genders [$p=0,001$]. As a result, besides adequate and balanced diet to achieve the desired quality in basic education, giving importance to physical activity can significantly improve physical fitness features.

Key words: Adolescent, eating habits, Physical Activity.

INTRODUCTION

Adolescence is a period in which anatomical and physiological changes and developments are in maximum level and a set of problems are sometimes encountered in adapting to these changes. The World Health Organization [WHO] defines adolescence as age group between 10-19 ages [1; 2,3]. Infancy and adolescence are the periods in which growth is the fastest throughout the life. Therefore, nutrient requirements, primarily energy, are increased [4]. People in this period can be more easily exposed to injuries as a result of overuse depending on the imbalance in strength and flexibility of muscles during development. The growth in an orderly manner throughout childhood is accelerated in adolescence. Hormonal, cognitive and emotional changes occur [5].

Due to reduced physical activity in recent years, childhood and adolescent obesity has become a major health problem. One of the most effective methods of prevention of this and similar problems is diet and exercises done together with it [1]. Protection from unbalanced and irregular eating habits is based on principle changing unhealthy eating and exercise habits with healthy behavior on behalf of childhood obesity. Prevention from many adult chronic diseases in the future is dependent to prevent the onset of obesity in children. For this purpose, it is necessary to make exercise for 30-40 minutes a day and to initiate lifestyle changes [6].

In this study, it was aimed to analyze the relationship between eating habits and physical activity of the adolescent children between 13-17 ages randomly selected and studying in elementary and high schools in province of Gaziantep according to genders and to determine whether there was any difference.

MATERIALS AND METHODS

Research Methods and Applications

A total of 200 children [85 girls and 115 boys] between 13-17 ages from secondary school and high school first year students, whose mean age was $14,93 \pm 0,06$ years, mean height was $163,11 \pm 0,58$ cm, mean body weight was $53,30 \pm 0,74$ kg and mean BMI was $19,93 \pm 0,22$, were included to this study conducted for investigation of the relationship between eating habits and physical activity with respect to genders and to reveal the differences in adolescents. The students having no inconvenience to participate in physical education classes in terms of health were enrolled to the study. In order to make questionnaires filled in a regular and healthy manner, they were filled in classrooms by taking help from physical education teachers and tutors. Necessary legal permissions were taken to conduct the study and verbal consents were obtained from the students who participated in the study.

Data

18-question questionnaire prepared on the basis of expert opinion was performed to determine eating habits. Body weight and height were measured as physical fitness features. God in Leisure-Time Exercise Questionnaire survey was performed to determine the characteristics of physical activity. Children answered how many times they made exercise with activity for 15 minutes or more [by counting 15-minutes as one unit] in their free times in a week.

Statistical Techniques

Multidimensional Scaling Analysis technique was used to investigate the relationship between physical activity and eating habits [7, 8,9] and t-test and Chi-square analysis were used to compare the genders in terms of physical activities. Statistical analysis mentioned was performed using SPSS for Windows ver. 18.0 statistical software package program.

RESULTS AND DISCUSSION

In this study, majority of the students in public schools were found to be more careful on making breakfast as in the study conducted by Kuşgöz [10]. Gleason emphasized in his study that children's participation in school breakfast programs might be a protective factor against obesity that might occur in the future [11]. In our study, children's reluctance to make breakfast could be said to arise from the fact that they don't know the drawbacks of this

A finding that the vast majority of 37 girls [43,53%] and 66 boys [57,39%] ate three meals was obtained. In a study conducted on high school students, it was reported that 80% ate three meals, 9,2% two meals and 10% ate four meals of 260 students [12]. It was detected 64,3% of 300 students studying in Dereköy primary schools consumed three meals a day [13]. Özmen et al stated that high school students didn't have regular eating habits [14].

In our study, it was determined that the most skipped meal was lunch. In the study conducted by Kuşgöz, it was reported that morning and afternoon meals were mostly skipped [10]. In many studies, the ratio of skipping breakfast was determined to be quite high particularly [15,16]. In a study conducted by Erolet et al, it was reported that the most skipped meals were lunch and breakfast [17]. The most skipped lunch meal has been reported as lunch in primary schools in different socio-economic levels [18,19]. It was detected that the most skipped meal was breakfast and this increased with the age proportionally in a study investigating of the healthy behaviors of children and young people [19]. Regarding this issue, according to the results of another study conducted on university students, it was determined that university students often skipped meals, the most skipped meal was lunch, the first reason for skipping meal was not having enough time and the students have unbalanced eating habit [20]. According to these results, it is thought that daily eating habits of growing children are not balanced and regular.

In studies conducted, it was reported that the inadequate and unbalanced diet seen in the students reduced the attention spans and perceptions and caused a drop in school performance together with learning difficulties and behavioral disorders [3,21,22]. Akman et al showed that adolescent children didn't have healthy eating habits and indicated that healthy eating behaviors could be corrected as a result of interventions made with education in their study [23].

As reasons for skipping meals of children, it was detected that they skipped the meals because of reluctance. Gumus determined that students participating in the research didn't have enough time and were unwilling in his study [5]. Demirezen et al informed in their study that the students had substantially unhealthy eating habits and carried significant risks in this respect. Increase in unhealthy eating habits with age pointed out the importance of preventive interventions aimed at teaching healthy eating habits in children and young people starting from early period [2]. Unhealthy, unbalanced eating habits and diseases induced by these were placed in the first row [24].

The fact that the amounts of the daily pocket money given by the families are very low quantities suggested that socio-economic statuses of families are very low. In the study conducted by Suligon Polish children, it was determined that children of families with good socio-economic level had more regular eating habits [25]. Açık Kurt et al reported that socio-economic status greatly affected growth-development levels of Turkish children in their study conducted in different regions [26]. Therefore, food and beverages received occasionally from the school canteens showed great variety and this also indicated the students not having enough level of nutritional knowledge. Croll et al attracted attention to that children in adolescence period had unhealthy diet [27]. In conducted studies, it was emphasized that increase in the intake of milk and dairy products recommended to adolescents could be advanced through a family component targeting parents' healthy food intakes [28,29].

Physical activity, nutrition and physical fitness are important factors affecting the health of children and adults. Some physical and physiological changes occurring together with reduction in physical activity levels and pubertal growth attack particularly in adolescence reveal how much determination of the physical fitness of children is needed in this period [30].

Throughout childhood, physical activity is an important element to be taken into consideration in order to maintain normal growth and development [31a].

Statistically significant differences were found between the genders in terms of high intensity exercises and medium intensity exercises. Means of both high intensity exercise and medium intensity exercise of boys were found higher than those of girls at significant levels. It was observed that there was no statistically significant difference between boys and girls in terms of low intensity exercises.

Kuşgöz reported in his study that men made sports more frequently than women according to the evaluation made in terms of intensity of physical activity considering seven days a week [10].

Gençet al emphasized in their study on adults that the fact that men's total physical activity time was more than that of women might contribute the quality of life to be higher in men. To increase medium and high physical activity in young women was reported to be a more effective method to improve health-related quality of life [32]. In similar studies in which physical activity were examined, it was reported that boys were more active than girls but decline in physical activity of girls was generally more than that of boys during this period [33b,34].

Sulig detected in his research that girls made more physical activities than boys in families having good socio-economic level [8]. In boys and girls between the ages of 7-16, it was declared that physical activity durations increased together with the age however those of boys having greater ages were more than those of girls having the same ages [35]. According to the study conducted by Tros et al, it was emphasized that the median intensity and high intensity physical activity times improved in favor of men [36,37]. It was reported that reputable boys tend to medium intensity activities more frequently and girls tend to low intensity activities [33b].

In our study, the most important result between students' eating habits and physical activities was observed as that changes between favorite dishes and nutrition information in courses affected high and medium intensity exercises positively while changes between eating times in school and school meal satisfaction decreased the physical activities [low intensity activities] of the students.

Nutrition knowledge levels of adolescent children were important factors in the development however besides factors such as heredity and environment must be taken into consideration. This because other countries' thoughts of giving children physical fitness habits in early childhoods and then adding courses relating physical fitness in their curriculums.

Table 1. Numbers and Percentages According to Individuals' Genders

Gender	Number	%
Girl	85	42,5
Boy	115	57,5
Total	200	100.0

As seen in the table, it was detected that there were 85 girls (42,5%) and 115 boys (57,5%) among the students who participated in the study.

Table 2. General Introductory Statistics for Age, Weight, Height, BMI and Upper Arm Features

Anthropometric Characteristics	$\bar{X} \pm S_{\bar{x}}$
Age	14,93±0,06
Weight	53,30±0,74
Height	163,11±0,58
BMI	19,93±0,22
Upper Arm	23,83±0,20

\bar{X} : Mean, $S_{\bar{x}}$: Standard Deviation

According to the statistical analysis, mean of ages was 14,93, weights was 53,30, heights was 163,11, BMIs was 19,93 and mid-upper arm circumferences was 23,83 of the subjects.

Table 3. General Introductory Statistics of High, Medium and Low Intensity of Exercises

Physical Activity Habits	$\bar{X} \pm S_{\bar{x}}$
High Density Exercises	133,15±12,80
Medium Density Exercises	99,05±12,67
Low Density Exercises	58,24±8,60

\bar{X} : Mean, $S_{\bar{x}}$: Standard Deviation

According to the results of the students' physical activity habits values, it was found that high density exercises were performed most commonly with the mean value of 133,15 min and low density exercises were performed least commonly with the mean value of 58,24 min.

Table 4. The Numbers and Percentages Indicating the Ratio of High Intensity Exercises Made Considering 7 Days a Week

How Often Do You Do Sports in Part A Considering 7 days a week? (High Density Exercises)	Girl		Boy	
	Number	%	Number	%
Never	8	9,41	1	0,87
Seldom	18	21,18	14	12,17
Sometimes	38	44,71	48	41,74
Often	21	24,71	52	45,22
Total	85	100,00	115	100,00

As can be seen in table, it was observed that while 38 of girls (44,71%) and 48 of boys (41,74%) made sometimes high intensity exercises, 21 of girls (24,71%) and 52 of boys (45,22%) made often these exercises.

Comparison of Genders with Respect to Physical Activities

Table 5. Results of Arithmetic Means (\bar{X}), Standard Deviations ($S_{\bar{x}}$) and "t" Test Related to Physical Activity Habits of the Students

Physical activities	Gender	$\bar{X} \pm S_{\bar{x}}$	P-values
High Density Exercises	Boy	189,4±20,1	0,000
	Girl	57,06±7,1	
Medium Density Exercises	Boy	124,8±21,2	0,018
	Girl	64,2±6,6	
Low Density Exercises	Boy	71,0±14,0	0,056
	Girl	41,0±6,8	

Table 6. Number and Percentages and Chi-Square Test Results of Physical Activity Habits According to Genders of the Students

Physical Activities	Boy		Girl	
	Number	%	Number	%
Never	1	0,50	8	4,00
Seldom	14	7,00	18	9,00
Sometimes	48	24,00	38	19,00
Often	52	26,00	21	10,50
Total	115	57,50	85	42,50
		$\chi^2 = 16,135$	P=0,001	

When the tables were analyzed, it was seen that statistically significant differences were found in terms of high intensity exercises and medium intensity exercises. Means of both high intensity exercise and medium intensity

exercise of boys were found higher than those of girls at significant levels. In terms of low intensity exercises, it was observed that there was no statistically significant difference between boys and girls.

When the table was examined, it was seen that sports made considering 7 days a week showed significant differences according to gender of the students ($p = 0,001$).

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