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An Investigation of Physical Activity, Obesity and Leisure Time Levels of Bussed and Central Secondary School Students with Different Variables (Sanliurfa Sample)

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Abstract

This study aims to investigation of variables of physical activity, obesity and leisure time levels of bussed and central secondary school students. The study employs a quantitative research model. The study group consists of a total of 1474 students from 18 secondary schools, nine central secondary schools and nine bussed secondary schools affiliated to Sanliurfa city. Out of bussed secondary school students, 397 were males and 525 were females, and out of central secondary school participants 411 were males and 341 were males. Baecke Habitual Physical Activity Questionnaire (BHPAQ) was used in the study. For data analysis, frequency distributions with means, Chi square test, Kolmogorov-Smirnow and Shapiro-Wilk analyzes, Spearman correlation analysis, and Mann Whitney U test for differences between groups were conducted. As a result of the research, it has been found out that the male students from central secondary schools have less free time and participate in more physical activities than male students from bussed secondary school in terms of school and sports variables. It has also been found that central secondary school female students participate in sports activities more frequently than those at bussed secondary schools. A statistically significant difference has been determined between variables of physical activity, obesity and leisure time at the level of .05. The findings obtained from the study have been discussed within the scope of the related literature.

Keywords

Bussed Secondary School
Central Secondary School
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Introduction

Efforts to raise the quality of education for its promotion in Turkey, scattered settlements due to domestic migration, and efforts to reduce costs and ensure equality of opportunity have made bussed education system inevitable. In line with Article 42 of the Constitution of Republic of Turkey "Education and training are carried out under the supervision of the state according to the principles of modern science and education in the direction of Ataturk's principles and reforms. The state provides the necessary assistance with scholarships and other means in order to ensure that successful students lacking financial means can continue their education. The law states that "no one shall be deprived of the right of education" (Constitution of the Republic of Turkey, 1982). The aim of education and learning is to train people as a whole in every aspect. One of these aspects is related to the fact that individuals should be healthy both physically and mentally (Ono et al., 2007; Caspersen, Powell, & Christensen, 1985). It is important for students to acquire habits related to regular physical activity, obesity and leisure, and to maintain them for life. (MEB, 2017).The main reason for the increase in the frequency of obesity in the last 10-20 years has been reported to be the shift from lifestyle based on physical power to inactivation-based lifestyle, and consumption of foods with high calories, along with industrial developments (Babaoğlu & Hatun, 2002). As a consequence of the sedentary lifestyle resulting from physical inactivity, body weight increases and balance is disturbed as a result of the energy imbalance between what is taken from foods and what is consumed physically. Studies have also reported that physical activity decreases and obesity increases considering daily activities such as television viewing and sitting time (Martinez-Gonzalez, Martinez, Hu, Gibney, & Kearney, 1999; Pitta et al., 2006; Salmon, Bauman, Crawford, Timperio, & Owen, 2000). In a study conducted with 300 students and 93 physical education teachers, indicating that physical activity is decreasing, it has been determined that weekly physical education lesson hours at schools are not sufficient to reach specific and general purposes (Taşmektepligil, Yılmaz, İmamoğlu, & Kılcıgil, 2006). In addition to this, it has been stated that the lack of playgrounds in schools and the shortcomings of the curriculum reduce the participation in physical activity (Atıcı, 2018).In order to promote physical activity habits, It has been reported that it will be useful to prepare recreational programs including activities such as exercise and dance considering the educational intensity and gender differences across classes (Albayrak, Ziyagil, &Çekin, 2015). There are also some other related studies in literature on bussed and central secondary schools.

Bussed secondary school is the day-to-day transportation of school-age children, particularly from scattered settlements with low population where instruction is carried out in multi-grade classrooms, to central secondary schools in order to ensure that continuity of their education (MEB, 1994). The purpose of practice is to ensure, through day-to-day transportation to central schools, that school-aged students from secondary schools, which carry out instruction in multi-grade classrooms or are closed for various reasons, have a better education (MEB, 2000). It is therefore necessary for schools, in addition to education and training, to be able to provide physical activities for students to enjoy their leisure time. It has been shown that qualities of school gardens in schools positively affect creativity, sense of responsibility, success, socialization, physical activities, health, cognitive abilities, perception-motor ability and coordination, and decrease bad habits (truancy, smoking, alcohol and drug use etc.) (Fjortoft & Sageie, 2000; Özdemir, 2011a, 2011b; Özdemir & Çorakçı, 2011). In Ergüneş and Altunsaray's (1998) study, in which they examined central schools, they found that the education equipments and physical condition were not enough. It has been stated that school gardens are insufficient in contributing to children's education, physical, psychological and sociological development, and even have qualities that threaten their safety (Karadağ, Mutlu, & Sayın, 2012). According to İnce et al. (2016), indirect studies stand out related to physical activities, obesity and enjoying leisure time, which are in the category of internal and external necessities, by means of developing habit of physical activity and teaching how to deal with obesity and utilize leisure time.

Physical activity is defined as body movements that result from contraction of skeletal muscles and provide energy consumption (Caspersen, Pereira,& Curran, 2000).According to Ono et al. (2007), it is a multi-directional variable that includes all the physical work that people do at home, at work, and during leisure time. The model used to increase physical activity is "Transtheoretical Model" (Fallon & Hausenblas, 2004). This model, which is internationally accepted, is also referred to as "stages of change model" (Burbank, Reibe, Padula, & Nigg, 2002). Transtheoretical Model was developed by Prochaska and Diclemente in 1983 (Hills, 2000).It is obvious that there is no gain for their health, especially considering that most of the activities performed by individuals as their job is sedentary (Duncan, Badland, & Mummery, 2010).Physical activity at an adequate level contributes to the control of body weight and mental health, reduces risks of cardiovascular disease, diabetes and certain types of cancer. It also helps people to be involved in the social life (Castillo, Molina-Garcia, & Pablos, 2009).The World Health Organization defines its main objective as including all the activities necessary to develop, restore and sustain health (WHO, 2001; Murray & Frenk, 2001).With the spread of noncommunicable diseases such as high blood pressure, high blood sugar and obesity, physical inactivity threatens general health as the fourth major risk factor that causes deaths at global level.. It is recommended that moderate-intensity regular physical activity be performed for the development of health (WHO, 2008). Regular physical activity, which is necessary for mental health as well as physical health, is one of the most important factors for keeping healthy (WHO, 2011). Physical fitness is the component that provides the overall health and performance of physical activity (Baltacı & Düzgün, 2008). Physical fitness, which is related to performance, includes endurance, strength, competence, power, speed, flexibility, balance, reaction time, cardiorespiratory fitness and body composition of skeletal muscle (Vanhees et al., 2005).According to the model of Bouchard, Shephard and Stephens (1994), physical fitness related to health refers to five basic items, cardiorespiratory, metabolic, morphological, motor and muscular features, which influence physical activity habits and reflect health status. Monitoring and evaluation of these items is important not only in youth, but also in old ages and childhood, in terms of maintaining health (Bouchard et al., 1994). One of the other internal and external needs that will allow students to continue their physical activity habits for life is obesity (İnce et al., 2016).

Obesity is the result of complex interaction of cultural, social, genetic, physiological, behavioral and psychological factors (Atalay & Hasçelik, 2000). According to Babaoğlu and Hatun(2002), obesity can also be defined more clearly as the existence of excessive amount fat stored in the form of triglycerides. Among the theories in the related literature on obesity are psychosomatic theory, Kaplan and Kaplan's obesity theory, Bruch's theory, Schachter's "internal, external" obesity theory, restraint theory and escape theory (Sevinçer & Konuk, 2013). Obesity components in these theories consist of internal, external, cultural, social, genetic, physiological, behavioral and psychological factors. Age onset in obesity is known to extend to childhood in the vast majority of adults. Obesity prevention and treatment are becoming increasingly important in childhood and adolescence, especially since obesity, starting in 4-11 years of age and continuing in adulthood, causes hypertension, cardiovascular and diabetes mellitus problems (Trowbridge, Sofka, Holt, & Barlow, 2002). Martinez et al. (1999) noted that being overweight and obesity are very closely related to the lack of physical activity and sedentary lifestyle. As a consequence of the sedentary lifestyle resulting from physical inactivity, body weight increases and balance is disturbed as a result of the energy imbalance between what is taken from foods and what is consumed physically. In the study conducted by Martinez et al. (1999); Pitta et al. (2006) and Salmon et al. (2000), it has been reported that physical activity decreases and obesity increases in daily life due to sitting time in activities such as watching TV. It has been indicated that turning physical activities into a part of live will be helpful in preventing obesity in children (Savaşhan, Erdal, Sarı, & Aydoğan, 2015). İnce et al. state that the last of the internal and external necessities that allow students to continue their physical activity habits lifelong is leisure time.

Leisure time is the period of time which people do not work atand they can spend as they wish, and that is outside of life obligations and formal duty (Kılbaş, 1994). Lesiure time follows Neulinger's paradigm model (Leitner & Leitner, 2012). There are intrinsic and extrinsic motivations in the model (Munusturlar, Kurnaz, Yavuz, Özcan, & Karaş, 2017). If the needs of the students for leisure and entertainment are met in an efficient way, their engagement in their life will be strengthened, and this leads to a successful, happy, balanced and consistent personality both physically and mentally, which shows the importance of free time. From another perspective, free time activities are influential in the socialization of individuals, becoming integrated into society and becoming productive. Leisure time activities appear to be an important factor in increasing success and contributing to being educated (Tezcan, 1992). It has been mentioned by children at the 1st National Children's Congress and the National Children's Forum that children and young people need appropriate places to spend their free time outside of school and working hours; however, such places are not enough and there are inequalities of opportunities. The lack of places for children and young people to spend their free time can lead them to turn to environments that can affect their mental and physical development negatively (Buküşoğlu & Bayturan, 2005). The lack of practitioners, practices and materials may appear to be a factor regarding the free time of children and young people (Birgül, 2018).

There seems to be no study in the related literature which investigates physical activities, obesity and leisure time levels of bussed and central secondary school students in terms of age, height, body weight, body mass index, and school, work and sports indexes.

By studying the variables related to physical activity, obesity and leisure time levels, it will be possible to contribute to the related literature and stakeholders through a better definition of the nature of these variables.

Method

In the method section of the research, the model used in conducting the research, the research group, the data collection tools used in the research, the data collection process of the researcher, the analysis of the research data and the information about the approval of the ethics committee are provided.

Research Design

The present study, investigating the variables of physical activity, obesity and free time of the students who are studying in bussed and central secondary schools, adopts the survey method within the scope of quantitative research design. According to Karasar (2009), the survey model is a research method aimed at describing the past or present situation as it is. According to Büyüköztürk, Çakmak, Akgün, Karadeniz, and Demirel (2008), the survey model is defined as studies in which perceptions or similar characteristics of participants related to situations or events are described. With this research method, it is aimed to reach a general opinion about the research group. The current situation of the research group has been investigated and described with the aim of having an insight into the research topic.

Study Group

Study group of the study was formed through convenience sampling, a specific type of non-probability sampling method. The reason for choosing the convenience sampling method in the study is to choose the sample from easily accessible and applicable groups because of the limitations in terms of physical activity, obesity and leisure time. The study group consists of a total of 1474 students from 18 secondary schools, nine central secondary schools and nine bussed secondary schools affiliated to Sanliurfa city. The descriptive statistical information of the research group is given in Table 1.

Table 1. Comparison of the Personal Characteristics of the Study Group

Group	Variables		Age (years)	Height (cm)	Body Weight (kg)	BMI (kg/m²)	School (work index)	Sports Index	Leisure Time Index
			Mean	Mean	Mean	Mean	Mean	Mean	Mean
Bussed	Male	397	14.16	161.56	51.73	19.69	2.95	2.32	3.07
	Female	325	13.98	158.58	51.31	20.33	2.86	2.00	2.90
Central	Male	411	14.03	163.98	55.03	20.31	3.02	2.50	2.91
	Female	341	13.93	161.02	53.18	20.52	2.92	2.16	2.88

Table 1 provides the personal characteristics of the male and female students at bussed and central secondary school. As given in the table, while 397 male students continuing bussed education have a mean age of 14.16, mean height of 161.56cm, mean body weight of 51.73kg, mean body mass index of 19.69kg / m², mean work index of 2.95, mean sports index of 2.32 and mean leisure time of 3.07; 325 female students continuing bussed education have a mean age of 13.98, mean height of 158.58 cm, mean body weight of 51.31 kg, mean body mass index of 20.33 kg / m 2, mean work index of 2.86, mean sports index of 2.00, mean leisure time of 2.90. While 411 male students who attending central secondary schools have a mean age of 14.03, mean height of 163.98cm, mean body weight of 55.03kg, mean body mass index of 20.31kg / m², mean work index of 3.02, mean sports index of 2.50, and mean leisure time of 2.91; 341 female students attending central secondary schools have a mean age of 13.93, mean height of 161.02 cm, mean body weight of 53.18 kg, mean body mass index of 20.52 kg / m 2, mean work index of 2.92, mean sports index of 2.016, and mean leisure time of 2.88.

Data Collection Instruments

Personal Information Form: The personal information form developed in the research process is a form that includes information such as gender, age, height, body weight, body mass index (BMI), school (work) index, sports index and leisure time index, which define the study group.

Habitual Physical Activity Assessment Questionnaire (HPAAQ): In this study, the Habitual Physical Activity Questionnaire (HPAQ) developed by Baecke, Burema and Frijters (1982) was used as the data collection instrument. This questionnaire consists of three sections. The first section is related to work, which includes activities that students perform during school time. The second section is on the participation in sports activities. The third section is related to leisure time activities other than sports activities. It has been proven by many researchers that, in both males and females, this survey correctly identifies heavy and light activities (Richardson, Ainsworth, Wu, Jacobs, & Leon, 1995), and accurately and reliably measures physical activity habits (Matthews et al., 2000; Philippaerts, Westerterp, & Lefevre, 1999; Schmidt et al., 2006).Habitual Physical Activity Assessment Questionnaire (HPAAQ) developed by Karaca and Turnagöl (2007) was also used in the study (Albayrak, 2016). Karaca and Turnagöl (2007) analyzed reliability and validity of 7-days Physical Activity Assessment Questionnaire (7D-PAAQ), 24-hours Physical Activity Assessment Questionnaire (24H-PAAQ) and Habitual Physical Activity Assessment Questionnaire (HPAAQ). They reported in their study that 7D-PAAQ, 24H-PAAQ and HPAAQ are reliable and valid in terms of both their sections and as a whole, and they can be used to determine physical activity levels of individuals between ages of 18 and 65. The questionnaires are divided into two main sections covering both work and non-work activities. Total amount of work and non-work activities gives total energy consumption. Non-work activities have two parts, which are sleeping and leisure time activities. Leisure time activities consist of transportation (walking), climbing stairs, home activities and sports activities. Home activities that are part of leisure time activities are divided into three parts as mild and moderate activities, and cleaning (Karaca & Turnagöl, 2007). The first section is about work-related activities that are the activities of the students during school time. The second section is about participation in sports activities. The third section is on leisure time activities other than sports activities. When the validity coefficients of the questionnaires and the Pearson correlation coefficients are considered, it has been determined that their validity was

moderate and high in the three questionnaires. The correlation coefficients obtained are between.51 and .89 for 7D-PAAQ, between .42 and .90 for 24-PAAQ and between .42 and .86 for HPAAQ. The reliability scores have been found to be between .84 and .98 for 7D-PAAQ, between .79 and .96 for 24H-PAAQ and between .78 and .94 for HPAAQ. Participants' level of involvement in physical activity and at what level they are has been shown.

Body Mass Index (BMI) Calculation: Today, body mass index (Kg / m^2), skin thickness measurement, computed tomography (ct), magnetic resonance imaging (mri), bioelectrical impedance (tanita), and underwater weighing methods are used for evaluation of obesity and body composition (Mousa, 2008).One of the best methods for evaluating body composition is the body mass index (BMI) method. For this index, the body weight in kilograms is calculated by dividing weight by the square of height (CDCP, 2015).Body mass index categories defined by Turkish Demographic and Health Survey (TDHS, 2004) are the following (kg/m^2): 18.4 and below (underweight), 18.5-24.9 (normal), 25-29.9 (overweight), 30-39.9 (obese), 40 and over (morbidly obese).The height of the study group was measured by stadiometer with naked feet, and body weight was measured by electronic scale (Seca, Germany) as the subjects wore only shorts.

Data Collection

The research process started with the decision of the ethics committee of the Social Sciences Research of Mersin University dated 28.02.2017 / 13.Afterconducting necessary meetings and receiving required permissions, three schools were administered on weekdays for three days, and for a total of six weeks in eighteen central and bussed secondary schools. The research was carried out on the volunteer students from nine central secondary schools and nine bussed secondary schools in Sanliurfa. Data collection instruments were given to the students during their free time. Prior to the application, the research group was informed about the purpose of the research and the data collection tools. In addition, for the study group consisting of eighteen schools, a sample application was conducted separately at each school on how to respond to data collection tools and how to participate in body mass index measurements. The application was initiated after these procedure as to prevent data loss and obtain valid and reliable results from the research. The research group first filled out the Habitual Physical Activity Assessment Questionnaire, then the height of the participants was measured and body weight measurements were taken. During implementation, an assistant and 21 physical education teacher provided assistance. The data was collected from 1491 participants. Collected data were checked thoroughly before coded into the statistical package program (SPSS), and 17 missing or incorrectly filled ones were not coded into SPSS. As a result, the data from 1474 participants were coded into the SPSS program, and the the data analysis process was initiated.

Preparing Data for Analysis

SPSS 21 statistical package program was used to analyze the data obtained in the research. For the analysis and interpretation of the data, normality tests and non-parametric analyzes were utilized as well as descriptive statistics such as frequency, percentage, mean and standard deviation. Before the analysis of the research data, possible outliers and extreme values in the research data set that can affect the results were identified. Frequency distribution was investigated, and then it was found out that the data of 7 participants were coded incorrectly into the SPSS program and these errors were therefore corrected. Furthermore, the Z scores of the data of each individual was computed, as a result of which five extreme values in the data outside the range of +3 and -3 were cleared, and the data file was re-recorded. Kolmogorov-Smirnov and Shapiro-Wilk tests were performed to see if the data were normally distributed. According to Hair, Anderson, Tatham, & Black (1998), these two tests can be used for normality distribution. Results of Kolmogorov-Smirnow ($D(1474)=.11$, $p<.01$ and Shapiro-Wilk ($t(D(1474)=.98$, $p<.01$. were found to be significant. According to Hair et al. (1998), if significance value is below 0.05, the data significantly deviate from a normal distribution. Therefore, the data set was found to be not normally distributed considering the analysis results of Kolmogorov-Smirnow and Shapiro-Wilk tests. Therefore, nonparametric tests were preferred for the analysis of the study. Spearman's rank correlation method was used to compute the correlation between the characteristics of the research

group and the activities. In order to determine the differences between body mass index distributions of the students, Chi-square test was employed. A significance level of .01 was used. The physical activity habit scores of the two groups in school, sport and leisure activities were compared with the Mann Whitney U test to reveal differences between bussed and central secondary schools.

Results

In this part of the study, in which the students at the bussed and central secondary schools are examined in terms of variables of physical activity, obesity and free time, Mann Whitney-U test, Chi-square analysis, body mass index and Spearman correlation results are included.

Table 2. Comparison of Physical Characteristics and School, Sports and Leisure Time Activities of Male Students from Bussed and Central Secondary Schools

Variable	Group	N	Mean	SD	Minimum	Maximum	M. W. U	Sig
Age (years)	Bussed	397	14.16	.56	13	16	72744.00	.00**
	Central	411	14.03	.55	13	16		
	Total	808	14.09	.56	13	16		
Height (cm)	Bussed	397	161.56	8.59	138	185	69173.00	.00**
	Central	411	163.98	8.66	136	185		
	Total	808	162.79	8.71	136	185		
Body Weight (kg)	Bussed	397	51.73	11.33	30	101	69243.00	.00**
	Central	411	55.03	12.77	30	105		
	Total	808	53.41	12.19	30	105		
BMI (kg/m^2)	Bussed	397	19.69	3.33	13.67	36.73	73500.00	.15*
	Central	411	20.31	3.71	12.08	37.65		
	Total	808	20.01	3.54	12.08	37.65		
School (work index)	Bussed	397	2.95	.41	2.00	4.25	73323.00	.12*
	Central	411	3.02	.45	1.38	4.38		
	Total	808	2.98	.43	1.38	4.38		
Sports Index	Bussed	397	2.32	.47	1.25	3.75	66389.50	.00**
	Central	411	2.50	.58	1.00	4.75		
	Total	808	2.41	.54	.75	4.25		
Leisure-time Index	Bussed	397	3.07	.53	1.25	4.75	68221.50	.00**
	Central	411	2.91	.52	1.25	4.25		
	Total	808	2.99	.53	1.25	4.75		

*p<.05, **p<.01. M.W.U=Mann Whitney U test

It can be seen in Table 2 that there are differences between bussed and central secondary school male students' characteristics and their school, sports and leisure time activity indexes. As a result of the comparison with the Mann Whitney U test, it is concluded that male students from bussed education are older than male students from central schools, and that male students from central schools are taller and heavier than male students from bussed schools. While BMI score, school (work) index and sport index are higher in male students from central schools, leisure time index is higher in male students from bussed schools ($p<.05$).

Table 3. Comparison of Physical Characteristics and School, Sports and Leisure Time Activities of Female Students from Bussed and Central Secondary Schools

Variable	Group	N	Mean	SD	Minimum	Maximum	M. W. U	Sig
Age (years)	Bussed	325	13.98	.60	13	16		
	Central	341	13.93	.55	13	16	52928.00	.21
	Total	666	13.95	.58	13	16		
Height (cm)	Bussed	325	158.58	6.15	140	180		
	Central	341	161.02	6.19	145	179	43877.50	.00**
	Total	666	159.83	6.28	140	180		
Body Weight (kg)	Bussed	325	51.31	9.12	32	87		
	Central	341	53.18	10.89	34	150	50453.50	.46*
	Total	666	52.27	10.10	32	150		
BMI (kg/m^2)	Bussed	325	20.33	2.98	14.15	33.20		
	Central	341	20.52	4.17	13.84	62.43	54620.00	.75
	Total	666	20.43	3.64	13.84	62.43		
School (work index)	Bussed	325	2.86	.40	1.63	4.00		
	Central	341	2.92	.35	1.88	3.75	50922.50	.69
	Total	666	2.89	.37	1.63	4.00		
Sports Index	Bussed	325	2.00	.52	.75	3.50		
	Central	341	2.16	.57	.75	3.75	47768.00	.02*
	Total	666	2.08	.55	.75	3.75		
Leisure-time Index	Bussed	325	2.90	.48	1.50	4.75		
	Central	341	2.88	.52	1.25	4.50	54348.50	.66
	Total	666	2.89	.50	1.25	4.75		

*p<.05, **p<.01. M.W.U=Mann Whitney U test

It can be seen in Table 2 that there are differences between bussed and central secondary school female students' height and body weight, and their sports index. According to the Mann Whitney U test results, there is no difference in the age distribution of female students from bussed and central schools ($p>.05$). The female students from central schools are taller and heavier than those from bussed schools. No statistically significant difference has been found between females students from both types of schools in terms of BMI score, school (work) index and leisure time index ($p>.05$). In terms of sports index, the female students from central schools have been found to have higher scores ($p>.05$).

Table 4. Chi-Square Results Related to the Differences in Body Mass Indexes of Male and Female Students from Bussed and Central Secondary Schools

	BMI Groups	Underweight <18.5	Moderate 18.5 - 24.9	Overweight 25 - 29.9	Obese >30	Total
Male	Bussed	173 (43.58%)	195 (49.12%)	24 (6.05%)	5 (1.26%)	397 (100%)
	Central	141 (34.31%)	221 (53.77%)	41 (9.98%)	8 (1.95%)	411 (100%)
	Total	314 (38.86%)	416 (51.49%)	65 (8.04%)	13 (1.61%)	808 (100%)
Female	Bussed	91 (28.00%)	202 (62.15%)	31 (9.54%)	1 (.31%)	325 (100%)
	Central	112 (32.84%)	193 (56.60%)	30 (8.80%)	6 (1.76%)	341 (100%)
	Total	203 (30.48%)	395 (59.31%)	61 (9.16%)	7 (1.05%)	666 (100%)

Table 4 gives the classification of female and male students in terms of body mass indexes. As is shown in the table, while out of 397 male students from bussed schools, 173 (43.58%) are underweight, 195 (49.12%) moderate, 24 (6.05%) overweight and 5 obese (1.26%); out of 411 male students from central schools 141 (34.31%) are underweight, 221 (53.77%) moderate, 41 (9.98%) overweight and 8 (1.95%) obese considering their body mass indexes. While out of 325 female students from bussed schools, 9 (28.00%) are underweight, 202 (62.15%) moderate, 31 (9.54%) overweight and 1 (.31%) obese; out of 341 female students from central schools 112 (32.84%) are underweight, 193 (56.60%) moderate, 30 (8.80%) overweight and 6 (1.76%) obese considering their body mass indexes.

The results of the Chi-square test show that the male students from the bussed and central schools do not significantly differ in terms their body mass index distributions (χ^2=9,785; p>.05). The same comparison has also been made for female students, and it has been found out that female students from bussed and central schools also do not significantly differ in terms of their body mass index values (χ^2=5,584; p>.05).

Table 5. Spearman Correlations Among Physical Characteristics and School, Sports and Leisure Time Activities of Male Students from Bussed and Central Secondary Schools

	School	Sports	Leisure Time	Age	Height	Body Weight	BMI	Type of School
School	1.000							
Sports	.16*	1.000						
Leisure Time	-.02.	07*	1.000					
Age	.02	.02	.05	1.000				
Height	.06	.08*	-.08*	.19**	1.000			
Body Weight	.00	-.01	-.09*	.10**	.67**	1.000		
BMI	-.03	-.02	-.06	.01	.27**	.88**	1.000	
Type of School	.09*	.16**.	-.14**	-.12**	.13**	.13**	.09*	1.000

*p<.05, **p<.01

As demonstrated in Table 5, there are significant correlations between physical characteristics of male students from bussed and central education and their indexes of school, sport and leisure time activity. Spearman rank correlation analysis shows that there are low degrees of relationships between sports and school indexes (r=.16), and between school index and type of school (r=.09), and that the

difference is significant. It has also been found that there are low degrees of relationships and a significant difference between sports and leisure time index (r=.07), between sport index and height (.08) and between sport index and type of school (r=.16). There seems to be negative low degrees of relationships between leisure time index and height (r=-.08), between leisure time index and body weight (r=-.09) and between leisure time and type of school (r=-.14). There are also negative correlations between age and height (r=.19), age and body weight (r=.10) and age and type of school (r=-.12). While A high level of significant difference has been found between height and body weight index (r=.67), low degrees of significant relationships have been found between height and BMI (r=.27), and between height and type of school (r=.13). In addition, a very high and significant correlation has been found between body weight index and BMI (r=.88). The correlation between body weight and type of school is also low (r=.13). Finally, a very weak and significant correlation between BMI index and type of school (r=.09).

Table 6. Spearman Rank Correlation Among Physical Characteristics and School, Sports and Leisure Time Activities of Female Students from Bussed and Central Secondary Schools

	School	**Sports**	**Leisure Time**	**Age**	**Height**	**Body Weight**	**BMI**	**Type of School**
School	1.000							
Sports	.40**	1.000						
Leisure Time	.021	.00	1.000					
Age	.10**	.00	.07	1.000				
Height	.13**	.11**	-.05	.07	1.000			
Body Weight	.07	.08*	-.05	.09*	.43**	1.000		
BMI	-.01	.03	-.04	.06	-.00	.88**	1.000	
Type of School	.07	.12**	-.02	-.05	.18**	.08*	-.01	1.000

*p<.05, **p<.01

Table 6 provides findings through the Spearman correlation coefficient as to whether there is a relationship between physical characteristics of bussed and central school female students and their school, sport and leisure activity indexes. When the table is considered, it has been found out that there are significant relationships between some variables. Among female students, there seems to be a low degree of significant relationship between school and sports indexes (r=40), very low degree of relationship between school index and height (r=.10), and a very low degree of relationship again between school index and height (r=.13)., very low degrees of relationships have been observed between sports index and height (r=.11), between sports index and body weight index (r=.08) and between sports index and school type (r=.12). No significant relationship has been observed between leisure time index and any other variable (p>.05). There is a very low degree of relationship between age and body weight index (r=.09). It has been found that there is a moderate degree of relationship between height and body weight index (r=.43) and a very low degree of relationship between height and type of school (r=.18). While a very strong positive relationship has been found between body weight index and BMI index (r=.88), a low degree of relationship exists between body weight and type of school (r=.08).

Discussion, Conclusion and Suggestions

In this section, the findings obtained through the analysis are discussed by comparing them to those in literature within the scope of the theoretical information about the variables. This section is organized in line with the flow in the findings section. Furthermore, recommendations related to the discussion and conclusions of the study are included in this section.

The findings of the study show that the male students from bussed schools are older and have higher leisure time scores than those from central schools. There seems to be no study in literature that supports the finding of this study. However, studies that indirectly support the findings have been

found. (Haase, Stepteo, Sallis, & Wardle, 2004; Şimşek et al., 2005; Akış, Pala, İrgil, Aydın, & Aksu, 2003; Yeoman &Una, 2004). It has been reported in the study by Çeker, Çekin, and Ziyagil (2013) that regular physical activity participation rate of individuals between 20-29 years of age in Turkey is 30.7% for woman and 46.51% for men. In other words, 69.3% of Turkish women and 53.49% of men aged 20-29 years have a sedentary lifestyle. In the study conducted by Haase et al. (2004), the inactivity rates of men and women over 20 years in Japan over the ten-year period have been reported to be 70% in females and over 60% in males. In Şimşeket al. (2005) conducted to measure the obesity frequency in children aged 12-17 years, obesity frequency has been found to be 5.4%. In a study conducted by Akış et al. (2003) with 5795 children in 6 primary school ages 6 to 14, the prevalence of obesity has been found to be 1.8% in males. In another study conducted through a questionnaire on 190,000 people aged 6-16, 60% of the young people have been reported to spend their free time doing sports (Yeoman& Una, 2004). The reason why the male students from bussed schools have been found to be older than those from central schools could be due to the late registration of child births in rural areas and the late registration of students to the school. It can also be claimed that the reason why male students from bussed schools have more leisure time can be due to the lack of traffic, technology and social activities in rural areas.

According to the findings of the study, female and male students from central and bussed schools are taller and heavier compared to male students from bussed schools, and also that the male students from central schools have higher BMI scores, and higher school (work) and sports indexes. There are a numberof studies supporting these findings directly (Neyzi et al., 2008; Kaya, 2006; Trost, Owen, Bauman, Allis, &Brown, 2002; Aksoy & Ziyagil, 2015; Yalçın, 2006).

In a study conducted by Neyzi et al. (2008) on body weight, height, head circumference and body mass index reference values of 13-14-15-year-old Turkish children, it has been reported, considering the anthropometric evaluation results of children, that height values are similar to the values of US children, body weight and body mass index have been found to increase from pre-pubertal ages, and that Turkish society has an obesity problem. The reason why male and female students from bussed schools are shorter that those from central schools can be because their parents are short and these students have had to carry heavy goods since childhood. In the study by Kaya (2006) on physical conditions of primary bussed school students, it has been stated that students from bussed primary schools want to participate in social and physical activities but do not have time to participate. Trost et al. (2002) report that being in a high-risk group for health, such as occupational status, education, income and socioeconomic status, injury history, genetic traits, obesity and heart diseases, has an effect on physical activities.

In the study conducted by Aksoy and Ziyagil (2015) on physical activity, the rate of continuity of exercise behavior change is 20.59% in males, 25.19% in females and, women have been reported to participate more in physical activity and exercise than men. The reason why male and female students from central schools are heavier that those from bussed schools is believed to be because of irregular eating habits and consuming fast-food and fizzy drinks, not being involved in regular physical activities, inadequate and unfavorable school gardens for activities, and using transport vehicles.

Yalçın (2006) believes that the students from central schools can make friendship more easily through physical education and sports and that the students who are away from home are disturbed by the feeling of loneliness, and that this leads to big problems for them in terms of socialization. The fact that Arı (2003) proposes to improve physical facilities and other existing conditions, such as the construction of sports halls in bussed primary schools, supports our study. In another study, it is stated that schools do not have physical means to organize and implement extracurricular activities, and that parents try to keep their children away from such activities for different reasons, preventing students from participating in extracurricular activities (Ekici, Bayrakdar, & Uğur, 2009). While the BMI, school (work) index and sports index are higher in the male students from central schools, only the sports index is higher than these indexes in the female students from central schools. This may be due to the fact that central schools provide better facilities than those provided by bussed schools.

Since the correlations of the factors related to the evaluation of physical activity habits used in the research are very high and their correlations between the body mass indexes give very close values, the interpretations in the discussion are generalized. This is thought to be due to the limitations of the research. The fact that the research group is from similar level groups can also be the reason. Different age groups can be included in a different study, and the results of the present study can be compared. Moreover, the study group consists of bussed and central secondary schools. The students from central schools may have different lifestyles, eating habits and sports activities; however, the fact that the students from central schools are not yet within these variables, or that their experience is limited, may have influenced the evaluation related to physical activity, obesity and leisure time. Therefore, the results of this research can be compared by carrying out a different study with students from bussed primary and secondary schools, and students from central primary and secondary schools. Furthermore, the nature of physical activity habits of secondary school students can be better understood through multi-faceted studies on all factors affecting the physical activity levels, studies on improving physical conditions in schools and school environments and increasing participation in physical activity, and studies on encouraging participation in physical activities.Considering the results of the research, the following recommendations are made for future research: The sports and physical activity programs in accordance with the demands of the students should be prepared considering gender differences to increase physical activity habits, physical areas should be improved in order for students at bussed schools to spend their leisure time in a more active way, social and cultural events should be more, students from central schools should be trained for food habits, gyms should be free and more attractive and various incentives should be provided for students to participate in physical activities.

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