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СПОРТНА ПЕДАГОГИКА

SOCIAL EDUCATION

GENDER DIFFERENCES IN THE MEDITERRANEAN DIET AND BODY MASS INDEX (BMI) IN HIGH SCHOOL STUDENTS

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Abstract: *This research was conducted on a sample of 200 respondents (N = 129 males and N = 71 females) aged 17–18 years, divided into four groups: 17-year-old males (N = 66), 18-year-old males (N = 63), 17-year-old females (N = 44), and 18-year-old females (N = 27). Four variables were applied in the research: height, weight, body mass index, and KIDMED index, calculated on the basis of a 16-question questionnaire on Mediterranean diet. So, if the KIDMED index has a value of ≤ 3, it is considered a very low value, which shows that the Mediterranean diet has been incorporated scarcely. The optimal values of the KIDMED index are 4–7, and if the value reaches ≥ 8, it is considered high. BMI (body mass index) is a variable extracted from the height and weight; in this case, it was calculated separately for each student and, according to its values, the students were divided into ones with normal weight, overweight, or obese. The Mediterranean diet index had the lowest value in male students aged 17 years (KIDMED = 7,85), which was close to the high values, but there was no statistically significant difference between the four groups of students included in the research, because they had similar values (KIDMED above 8,00). There was no statistically significant difference in the BMI between the groups, probably because all of them had normal weight and a similar BMI (20–22).*

Keywords: *Mediterranean nutrition; KIDMED index; female and male students.*

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Introduction

Despite the extensive knowledge of modern science about the factors that influence growth and development from birth to late adolescence (Mak et al., 2004), there is insufficient information about the mutual influence of genetic, nutritional and endocrine factors (Ebbeling et al., 2002). Contemporary knowledge still does not explain all the causes of relatively large differences in the body height of healthy children of the same age and gender, as well as of adults. Also, there are no clear explanations for some other known phenomena, such as the secular tendency in early puberty and the increase in adult height (Miller et al., 2004). According to the World Health Organization (WHO), adolescence is a special period of growth and development that includes the period 10–19 years, in which the fastest growth and development from a child to an adult occurs (Geçkil et al., 2004).

During this period, adolescents develop not only morphologically, but also cognitively and psychologically. They search for identity, try to be independent and accepted, and they are too interested in their physical appearance (Mak et al., 2004). Irregular meals, bolting down, eating habits away from home, and eating fast food are the typical characteristics of their nutrition habits. Many factors, such as family, friends and media, usually affect these eating habits (Erol et al., 2010).

Nutrition in childhood and adolescence is, in addition to regular physical activity, the leading determinant of health in later life. The proper nutrition of children and youth ensures adequate intake of nutrients and energy needed for growth and development, offers a variety of foods to develop health eating habits that contribute to the prevention of diseases in adulthood, and controls excessive energy intake (the so-called "empty calories") in order to prevent obesity (Sandstead, 2000). Numerous scientific studies have shown that the nutrition of a developing child can have a decisive impact on his/her current and future health. A diet with insufficient protein, iron, iodine, zinc and folic acid in childhood is associated with slower growth, mental retardation, weaker immunity, poor concentration and memory, and an increased emotional response to stress (Bryan et al., 2004). Calcium and vitamin D deficiency can lead to rickets in childhood and osteoporosis later in life (McGarland et al., 2004).

Mediterranean diet is the general name of the traditional diet patterns of individuals living in the Mediterranean region. It mostly includes plant-based foods such as vegetables, fruits, bread and other cereals, legumes and oilseeds (Gunnars, 2018). Among its characteristics are the preference of olive oil and nuts in terms of fat consumption in the daily diet, the occasional consumption of red meat (1–2 times a month), and the fact that fish has an important place. It is rich in olive oil, free from saturated fats, and contains regular amounts of red wine (one glass a day for women and two glasses a day for men) with meals in a controlled manner (Castello et al., 2018). In addition, it is thought that the Mediterranean diet may have a positive effect on health because it contains high amounts of fiber, mono- and polyunsaturated fatty acids, antioxidants and bioactive compounds (Mazzocchi et al., 2019). Scientific studies have shown that Mediterranean-style eating habits have a protective effect against cardiovascular diseases, stroke, obesity, diabetes, hypertension, various types of cancer, allergies, Alzheimer's disease and Parkinson's disease (Tosti et al., 2018). The research that Jahjaga et al. (2022) conducted on patients diagnosed with a cerebral tumor, cardiac ischemia and colon cancer, indicated that there were statistically significant differences between the groups of different diagnoses in terms of the KIDMED index. It was established that 73% of the group diagnosed with a cerebral tumor, 50% of the patients with cardiac ischemia, and 83% of the colon cancer patients had an optimal KIDMED index, which means that there might be other factors that cause the "inadequate early" strikes of the diseases (smoking or high BMI).

Some studies in recent years have analyzed eating habits in athletes from various individual sports disciplines (combat sports), mountain bike and road cyclists, swimmers, ballet dancers, riders, canoeists and collective sports players (e.g. rugby and soccer players), highlighting that athletes practice mostly incorrect eating habits. For example, in calm water canoeists at the international level, a consumption of fats higher than recommended was found, especially monounsaturated fats, although their diet should be characterized by being low in fat and high in carbohydrates, with adequate protein consumption (D'Angelo & Cusano, 2020). Other research (Vasileva et al., 2022), however, shows that all of the people who

are regularly involved in physical activity (football, basketball, handball, volleyball, tennis, swimming, and martial arts) have an optimal KIDMED index, with the lowest value in football players (5,63) and the highest value in volleyball (7,95) and handball athletes (7,93). Providing quality food (Mediterranean food) and conditions for physical activity to children up to late adolescence contributes to reducing health inequalities among the population of this age, and creates conditions for better health, regardless of their socio-economic status.

The purpose of our research was to see if there were any differences in the adherence to the Mediterranean diet between male and female students, and to see if there was a connection between the diet and the body mass index (BMI) of the respondents.

Materials and Methods

Participants

The research was conducted on a sample of 200 respondents (N = 129 males and N = 71 females) aged 17–18 years, divided into four groups: 17-year-old males (N = 66), 18-year-old males (N = 63), 17-year-old females (N = 44), and 18-year-old females (N = 27). The students filled in a questionnaire anonymously. We received approval from the institution to publish the data.

Measures

Four variables were applied in the research: height, weight, body mass index, and KIDMED index according to Torun and Yildiz (2013). The data of all variables was collected electronically through the questionnaire mentioned above.

BMI (body mass index) is a variable extracted from the height and weight. The World Health Organization (2007) provided the formula for calculating the BMI value for all groups:

BMI = weight in kg/ height (in m)^2

– an index below 15 is considered an extremely underweight person;
– from 15 to 18,4 – an underweight person;
– from 18,5 to 24,9 – a person of normal weight;
– from 25 to 29,9 – an overweight person;
– from 30 to 34,9 – a person with obesity;
– above 35 – a person with extreme obesity.

Table 1. *KIDMED Questionnaire and Index According to Torun N. T., & Yildiz, Y. (2013)*

KIDMED Questionnaire and Index	**Scoring**
Consume fruit or fruit juice every day	+1
Consume fruit a second time every day	+1
Consume fresh or cooked vegetables every day	+1
Consume fresh or cooked vegetables more than once a day	+1
Consume fish regularly (at least 2–3 times a week)	+1
Consume fast food more than once a week (hamburger)	-1
Consume legumes more than once a week (lentils, beans, peas)	+1
Consume pasta or rice almost every day (5 or more times a week)	+1
Consume cereals or seeds (bread) for breakfast	+1
Consume nuts (at least 2–3 times a week)	+1
Use olive oil	+1
Skip breakfast	-1
Consume dairy products for breakfast (yoghurt, milk, etc.)	+1
Consume commercially produced pastries for breakfast	-1

Consume two yoghurts and/or cheese (40 g) per day	+1
Consume sweets and cakes several times a day	-1
KIDMED index: weak ≤ 3; optimal 4–7; high ≥ 8	

The KIDMED questionnaire consisted of 16 questions (each providing a positive or a negative point), related to the consumption of particular foods that are part of the Mediterranean diet. From the sum of those points, the so-called "Mediterranean Diet Quality Index" (KIDMED index) can be obtained, namely a quantitative confirmation about the food choice. So, if the KIDMED index has a value of ≤ 3, it is considered a very low value, which shows that the Mediterranean diet has been incorporated scarcely. The optimal values of the KIDMED index are 4–7, and if the value reaches ≥ 8, it is considered high.

Procedure

The questionnaire was filled in online.

Data Collection and Analysis / Statistical Analysis

The basic descriptive statistical parameters calculated for the variables applied in the research are: arithmetic mean (X), standard deviation (SD), bottom and peak limit of the span within which the results range (Min-Max), variability coefficient (CV%), skewness symmetry (Skew), kurtosis of the distribution (Kurt), as well as the Kolmogorov-Smirnov test (KS). We also established the frequency and percentage representation of each group according to the BMI values: underweight, normal weight, and obese. Due to the research requirements, the one-factor analysis (ANOVA), the multivariant analysis of the variance (MANOVA), and the LSD-test were carried out. The total processing was conducted by the SPSS Statistics software for Windows.

Results

Basic Statistical Descriptive Parameters of Variables

The above-mentioned basic descriptive statistical parameters were calculated for all the variables, with which the normality of distribution was tested. The results of these respondents are presented in Tables 2–5 according to their age and gender.

Table 2 shows that the skewness values of all variables about the group of 17-year-old male respondents are within the limits of the recommended values from -1 to +1, which indicates that the distribution of the results is approximately symmetric. The kurtosis values suggest that the same group has a normal (mesokurtic) distribution of all of the applied variables.

The homogeneity of the surveyed group of 17-year-old men is at a satisfactory level in relation to the calculated coefficients of variability. The highest level of homogeneity is observed in the body height variable (CV = 4,07), while a moderately high level of dispersion of the results is noted in the KIDMED index variable (CV = 24,97). The results of the Kolmogorov-Smirnov test show that all the variables of the male respondents aged 17 are normally distributed.

Table 2. *Descriptive Parameters in 17-Year-Old Males – M17 (N = 66)*

Variable	Mean	SD	Min	Max	CV	Skew	Kurt	KS	Sig.
KIDMED	7,85	1,96	4	13	24,97	,21	,21	,99	,28
Height/cm	178,53	7,26	165	195	4,07	,35	(,42)	,70	,71
Weight/kg	70,97	13,82	46	110	19,47	,70	,19	1,04	,23
BMI	22,22	3,90	16,14	32,98	17,55	,84	,14	1,04	,23

Table 3. *Descriptive Parameters in 18-Year-Old Males – M18 (N = 63)*

Variable	Mean	SD	Min	Max	CV	Skew	Kurt	KS	Sig.
KIDMED	8,00	2,42	1	15	30,25	(,08)	1,05	1.18	,12
Height/cm	177,41	6,26	164	190	3,53	,14	(,60)	,70	,71
Weight/kg	70,40	14,40	43	109	20,45	1,04	,52	1,41	,04
BMI	22,32	4,18	15,99	37,02	18,73	1,30	1,78	1,37	,05

Table 3 reveals that the distortion values of both variables (body weight and body mass index) for the group of 18-year-old male respondents are above the recommended values from -1 to +1, indicating that the distribution of the results is not symmetric, while the variables (body height and Mediterranean diet index) are approximately symmetric. Kurtosis values suggest that the group of male respondents aged 18 have a normal (mesokurtic) distribution of all variables applied. The homogeneity of this group is also at a satisfactory level in relation to the calculated coefficients of variability. The highest homogeneous level is observed with body height (CV = 3,53), while a moderately high level of dispersion of the results is observed in the KIDMED index variable (CV = 30,25). The results of the Kolmogorov-Smirnov test show that the variables (body weight and BMI) of the male respondents aged 18 have deviations from the normal distribution.

Table 4 indicates that the skewness value of all variables about the group of 17-year-old female respondents is within the limits of the recommended values from -1 to +1, which shows that the distribution of the results is approximately symmetric. The kurtosis values suggest that this group has a normal (mesokurtic) distribution of all of the applied variables. The homogeneity of the group is at a satisfactory level in relation to the calculated coefficients of variability. The highest level of homogeneity is observed in the body height variable (CV = 3,92), while an average level of distribution of the results is observed in the KIDMED index variable (CV = 30,74). The results of the Kolmogorov-Smirnov test indicate that all variables of the female respondents aged 17 are normally distributed.

Table 4. *Descriptive Parameters in 17-Year-Old Females – F17 (N = 44)*

Variable	Mean	SD	Min	Max	CV	Skew	Kurt	KS	Sig.
KIDMED	8,23	2,53	3	13	30,74	(,19)	(,64)	,82	,52
Height/cm	165,98	6,51	150	180	3,92	,03	(,04)	,66	,78
Weight/kg	57,73	8,05	45	87	13,94	,97	2,63	,58	,89
BMI	20,98	2,88	16,41	28,0	13,73	,65	(,05)	,98	,29

Table 5. *Descriptive Parameters in 18-Year-Old Females – F18 (N = 27)*

Variable	Mean	SD	Min	Max	CV	Skew	Kurt	KS	Sig.
KIDMED	8,81	2,56	4	14	29,06	,07	(,43)	,63	,82
Height/cm	164,74	5,70	155	175	3,46	(,16)	(1,19)	,70	,70
Weight/kg	61,96	9,99	50	82	16,12	,52	(,86)	1,05	,22
BMI	22,85	3,69	17,30	32,87	16,15	,79	,65	,53	,94

Table 5 reveals that the skewness value of all variables about the group of females aged 18 is within the limits of the recommended values from -1 to +1, which indicates that the results' distribution is approximately symmetric. The kurtosis values suggest that this group has a normal (mesokurtic) distribution of all of the applied variables.

The homogeneity of the group of 18-year-old female respondents is to a satisfactory degree in relation to the calculated coefficients of variability. The highest homogeneous level is observed in the body height variable (CV = 3,46), while a moderately high level of distribution of the results is observed in the KIDMED index variable (CV = 29,06). The results of the Kolmogorov-Smirnov test indicate that all variables in the group are normally distributed.

According to Table 6, most of the students sampled are in the range of normal weight (66,66% – 72,73%), but the percentage of obese ones is from 18,18% to 23,81%. Only the 18-year-old female students have a lower percentage of 7,41%, and 25,93% are underweight.

Table 6. *Number and Percentage of Underweight, Normal Weight* and Obese Students of Both Genders and Ages

Gender	Age	Number (N)	Underweight (N / %)		Normal Weight (N / %)		Obese (N / %)	
Male	17	66	8	12,12%	45	68,18%	13	19,70%
Male	18	63	3	4,76%	45	71,43%	15	23,81%
Female	17	44	4	9,09%	32	72,73%	8	18,18%
Female	18	27	7	25,93%	18	66,66%	2	7,41%

Differences in the KIDMED Index, Body Height, Body Weight and Body Mass Index Between the Groups Divided by Gender and Age

This subchapter provides an analysis of the research results in order to give an answer to the basic research problem, namely what differences are there in the variables between the four groups of respondents (17-year-old male students, 18-year-old male students, 17-year-old female students, and 18-year-old female students). The analysis of the significant differences has been conducted in three ways:

– By a multivariate analysis of the variance (MANOVA), the quantitative differences between the respondents' groups were established in the total system of variables;

– By a univariate (one-factor) analysis of variance (ANOVA), the quantitative differences between the groups of respondents were established on the basis of each variable separately;

– By a post hoc analysis, the quantitative differences between each group separately were established for the variables in which statistically significant differences had been found through the univariant analysis of the variance (ANOVA).

Table 7. *Differences in the KIDMED Index, Body Height, Body Weight and BMI Between the Groups Divided by Gender and Age*

Wilks' Lambda	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
,507	12,48	12	511	,000	,203

Variable	Male 17 (N = 66)		Male 18 (N = 63)		Female 17 (N = 44)		Female 18 (N = 27)		F	Sig.	Eta
	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
KIDMED	7,85	1,96	8,00	2,42	8,23	2,53	8,81	2,56	1,19	0,31	0,02
Height/cm	178,53	7,26	177,41	6,26	165,98	6,51	164,74	5,70	55,15	**0,00**	0,46
Weight/kg	70,97	13,82	70,40	14,40	57,73	8,05	61,96	10,00	13,25	**0,00**	0,17
BMI	22,22	3,90	22,32	4,18	20,98	2,88	22,85	3,69	1,73	0,16	0,03

With the use of the multivariant analysis of the variance (MANOVA), namely through testing, a statistically significant difference was established in the arithmetic means for the system of variables between the four groups of respondents (Table 7). Since Wilks' Lambda is 0,507, and df = 12 and 511 for the freedom levels, there is a statistically significant level of Q = .000. The size of the partial effect of the determinant (partial eta squared) shows a high value: ,203.

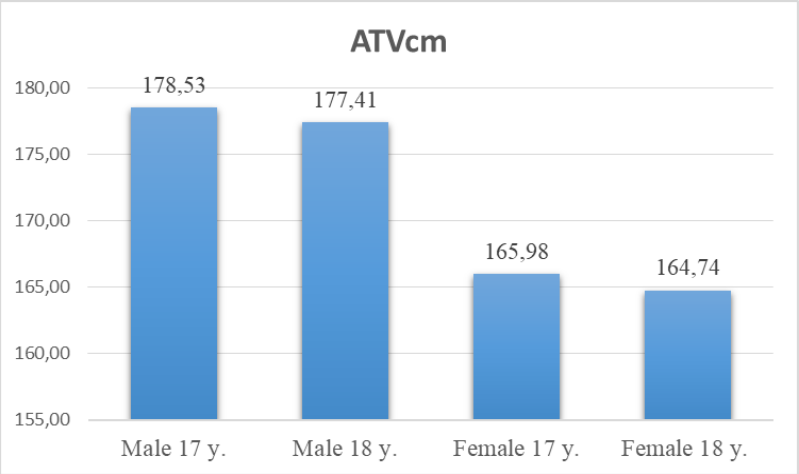
Table 8. *LSD Post Hoc Tests of the Age Variable Between the Four Groups of Students*

Dependent Variable – LSD Test			Mean Difference (I–J)	Std. Error	Sig.	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
Height/cm	M17	M18	1,12	1,16	,34	-1,17	3,41
		F17	12,55*	1,28	**,00**	10,02	15,08
		F18	13,79*	1,51	**,00**	10,82	16,76
	M18	M17	-1,12	1,16	,34	-3,41	1,17
		F17	11,44*	1,30	**,00**	8,88	13,99
		F18	12,67*	1,52	**,00**	9,68	15,66
Weight/kg	M17	M18	,57	2,20	,79	-3,77	4,92
		F17	13,24*	2,43	**,00**	8,44	18,04
		F18	9,01*	2,86	**,00**	3,37	14,64
	M18	M17	-,57	2,20	,79	-4,92	3,77
		F17	12,67*	2,46	**,00**	7,82	17,51
		F18	8,43*	2,88	**,00**	2,76	14,11

In order to establish in which variables there are statistically significant differences between the groups of different diagnoses, the univariant analysis of the variance was conducted for each variable. Table 7 shows that there are statistically significant differences in two out of a total of four variables. Intergroup differences were established in the following variables: height (F = 55,15; p = ,000) and weight (F = 13,25; p = ,000). It may be concluded that there are no statistically significant differences between the groups in the KIDMED index, because all groups have similar values, as well as optimal or high values in that index.

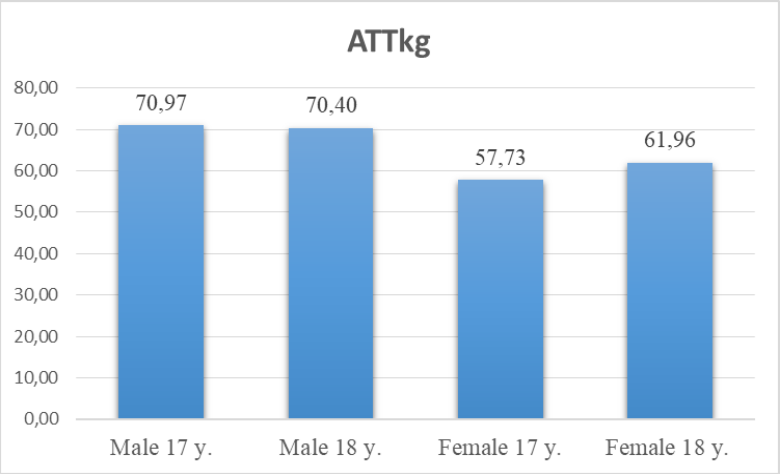
In order to establish the groups of respondents, between which there were statistically significant differences, the post hoc test (LSD – least significant difference test) was applied in each variable, where statistically significant differences were established by the one-factor analysis (ANOVA). The test analyses are presented in Table 8 and in Graphs 1 and 2.

The arithmetic mean values and the level of statistical significance of the post hoc test (Table 8 and Graph 1) show that male students aged 17 differ from female students aged 17 and 18 in terms of the body height variable at the p < ,00 level, but they are not distinct from the male students aged 18. The latter differ in terms of the same variable from the 17- and 18-year-old female students at the p < ,00 level, but they do not differ from the male students aged 17.



Graph 1. *Height/cm of the Four Groups*

The mean values of one year and the level of significance of post hoc test statistics (Table 8 and Graph 2) determine the extent to which male students aged 17 differ in body weight from female students aged 17 and 18 at the p < ,00 level; they do not differ from the male students aged 18. The latter group differs in body weight from female students at the ages of 17 and 18 at the same level, but they are not distinct from the 17-year-old males.



Graph 2. *Weight/kg Between the Four Groups*

Discussion

The analysis results suggest that most of the applied variables have a normal distribution of their results. This leads to the conclusion that the degree of normality of the distribution satisfies the methodological and statistical criteria about the use of multivariate and univariate statistical methods. Besides, it has provided grounds for fairly exact scientific statements, analyzing and comparing the results.

This study investigated the reliability of the KIDMED index, which, in this case, assesses Mediterranean-style eating habits in late adolescents in Kosovo. It also included the body mass index to assess the impact of the Mediterranean diet. Our aim is focused on the impact of this diet on the BMI of students aged 17 and 18.

The results obtained show that the KIDMED index had a lower value in male students aged 17 (7,85) compared to male students aged 18 (8,00), while with female students aged 17 and 18, the value is 8,23 and 8,81 respectively. The difference between the four groups in the Mediterranean diet index has not been statistically significant, because the values are very similar. It is interesting that, with the increase of calendar age, the KIDMED index has also increased.

Archero et al. (2018), after conducting a study on a population of 669 subjects (6–16 years old) attending five schools in Italy, found that the adherence to the Mediterranean diet was poor in 16,7%, average in 63,7%, and high in 19,6% of them. Poor adherence was more frequent in primary than in secondary schools (20,7% vs. 13,7%, $p < 0,04$). The risk of obesity was directly associated with eating at fast-food restaurants, skipping breakfast, or consuming commercial baked goods or pastries for breakfast. According to Rosi et al. (2020), approximately 88% of the sample of 409 Italian secondary school students reported a medium/high adherence to the Mediterranean diet, with 77% reporting to have a moderate/vigorous physical activity level. This proves that students who care for their health try to be careful with eating habits, but are also physically active. 66% of the subjects had a high KIDMED index (above 8,00), and 34% (only 17-year-old male pupils) had a KIDMED index of 7,85, which is close to high values.

De Santi et al. (2020) examined the adherence of Italian middle school adolescents to the Mediterranean diet. It proved high in 13,3%, average in 27,1%, and low in 59,6% of them, with no differences by gender and age. Furthermore, it is interesting that the higher the KIDMED index is, the more the percentage of pupils with normal weight increases (61,5%); and when the index values are average or low, the percentage of overweight (26,8%) or obese (11,7%) pupils increases.

Castro-Cuesta et al. (2022) carried out a research study on 685 university students on Mediterranean diet adherence, which resulted in 4,9 out of 10 points, meaning that university students in Spain hardly adhered to the Mediterranean diet.

On a sample of 1,110 Spanish university students, Barrios-Vicedo et al. (2014) established low, medium and high adherence to the Mediterranean diet in 26,8%, 58,7% and 14,4% of the respondents

respectively. 23,1% of them reported to be in excellent, 65,1% in good, and 11,8% in fair/poor or very poor health.

It is very important to have healthy eating habits as early in life as possible because not only that supports proper growth, development and school success; in this way, the chance to have normal weight is higher, and hence obesity is avoided (DASH, NCCDPHP, CDC, 2006). It is important to know that hypertension, heart failure and diabetes "rejuvenate" and appear in younger people. That is the reason why it is so important to follow BMI as an easy tool to predict health (Vasileva et al., 2022). We expect that BMI values in the range of normal weight are connected with awareness of healthy eating habits like the Mediterranean diet and physical activity (Kusari et al., 2021; Kaciu et al., 2022).

Barrea et al. (2021) explored the connection between Mediterranean diet and obesity, and concluded that women with metabolically unhealthy obesity (BMI = 38.23 ± 6.62 kg/m^2) had lower adherence to the Mediterranean diet on a significant level of $p < ,00$. Bastías González et al. (2022) claim that this diet is significantly associated with BMI. Raffaele Ivan et al. (2022) proved that obesity patients with BMI = 32,64 ± 0,98 lost approximately 2 kg after one month of following the Mediterranean diet, as a result of which the value of their BMI dropped to 31,87 ± 0,97. According to Di Rosa et al. (2022), after implementing the Mediterranean diet for three months, there was a significant decrease in body weight, waist circumference and fat mass, and an increase in total body water and fat-free mass, which led to lower BMI values.

In our research, the students who had high KIDMED index values (around and above 8,00) also had average BMI values in the range of normal weight (20–22). That is why there were no statistically significant differences between the groups. However, when we analyzed how many students had BMI values under 18,5 or above 25, we got the percentage of obese students, which ranged from 18,18% to 23,81%. Only the 18-year-old female group had a lower percentage of obesity – 7,41%, but there were more underweight students – 25,93%.

The percentage of obese adolescents is lower than the percentage in other countries. In Kuwait, for example, 54,4% of the male and 44,6% of the female (or 50% on average) adolescents between 15 and 18 years old are obese (Al-Haifi et al., 2022). In Spain, 28,6% of the adolescents are such (Mendoza-Muñoz et al., 2020). In India, there are 31,1% obese adolescents aged 10–14 (Saikia et al., 2018). In North Macedonia, 36% of the 9-year-old pupils are obese, 18% are underweight (Shukova-Stojmanovska, 2012), and 2% of the children from 6 to 14 years old are underweight, while 34,3% are obese (Gontarev et al., 2018). In Croatia, according to Medanić and Pucarin-Cvetković (2012), 25.3% of the males and 34.1% of the females are obese. In Albania, only 5.7% of the male and 1.6% of the female pupils aged 8–9 are overweight (Kapedani & Mema, F., 2022). 19,7% of the American children from 2 to 19 years of age (CDC et al., 2021) have a similar percentage of obesity to that of the pupils in our research. WHO (2020) claims that 1.9 billion people over 18 years on Earth are obese, which means that 39% of the adults are overweight, 13% are obese, and 340 million children aged 5–19 are overweight or obese (compared to only 1% obese children in 1975).

Conclusion

On the basis of the research conducted, we can draw the following conclusions:

– the Mediterranean diet (KIDMED) index had the lowest value in male students aged 17 (7,85), which was close to the high values; however, there was no statistically significant difference between the four groups of students, because they had similar values (above 8,00);

– there was no statistically significant difference in the body mass index (BMI) between the four groups included in the research, probably because all of them had normal weight and a similar BMI (20–22);

– there was a statistically significant difference on the level of $p < ,00$ in the body height and body weight variables between male students aged 17 and female students aged 17 and 18;

– there was a statistically significant difference on the level of $p < ,00$ in the body height and body weight variables between male students aged 18 and female students aged 17 and 18.

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