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Dietary patterns and lifestyle among Slovenian adolescents: A quantitative study

Prehranski vzorci slovenskih mladostnikov in njihov življenjski slog: kvantitativna raziskava

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ABSTRACT

Introduction: Healthy eating, physical activity and sleep are important determinants of the lifestyle of adolescents. The aim of this study is to investigate the relationship between adolescents' dietary patterns and their lifestyle, as well as to analyse the differences by gender and region of residence, and to establish associations between individual lifestyle patterns.

Methods: The study was conducted in the spring of 2019 on a group of third-year students (n = 1,563) from randomly selected secondary schools in Slovenia. The average age of the participants was 18 years. Data were collected using an anonymous questionnaire created with the 1KA online tool, comprising 30 questions. Descriptive and inferential statistics were calculated using SPSS software. The t-test was used to determine statistically significant differences, while χ^2 statistic and Spearman's correlation coefficient were used to determine statistically significant associations.

Results: The study revealed a large deficit in the intake of vegetables, legumes and fish compared to the intake of fruit, as per recommendations, particularly in Eastern Slovenia. Statistically significant differences in nutritional status were identified between the two cohesion regions (U = 275.597, p = 0.003). A positive correlation was observed between the frequency of breakfast consumption during the week and the amount of sleep (r_s = 0.177, p = 0.001), while a negative correlation was established between sedentary behaviour and regular physical activity among adolescents during their free time (r_s = −0.113, p = 0.001).

Discussion and conclusion: The dietary habits of the adolescents participating in the study were not in line with the recommendations. Physical activity guidelines were also not followed by the adolescents. Future research should focus more on older adolescents (18 to 24 years) and examine the relationship between individual lifestyle factors.

IZVLEČEK

Uvod: Zdravo prehranjevanje, telesna aktivnost in spanje so pomembne določilnice življenjskega sloga mladostnikov. Namen raziskave je bil preučiti povezave prehranskih vzorcev mladostnikov z njihovim življenjskim slogom, analizirati razlike glede na spol in regijo bivanja ter ugotoviti povezave med posameznimi vzorci življenjskega sloga.

Metode: Raziskava je bila opravljena spomladi 2019 na populaciji dijakov 3. letnikov (n = 1563) naključno izbranih srednjih šol v Sloveniji. Njihova povprečna starost je bila 18 let. Za namen raziskave je bil uporabljen anonimni anketni vprašalnik, izdelan v spletnem orodju 1KA, ki je vseboval 30 vprašanj. S programom SPSS je bila izvedena opisna in inferenčna statistika. Za testiranje statistično značilnih razlik smo uporabili t-test, statistično značilno povezanost smo preverjali s pomočjo statistike χ^2 ter s Spearmanovim korelacijskim koeficientom.

Rezultati: Raziskava je pokazala, da je primanjkljaj vnosa zelenjave, stročnic in rib glede na priporočila večji kot pri vnosu sadja; poleg tega je večji v vzhodni regiji. Med regijama smo ugotovili razlike v stanju hranjenosti, ki so statistično značilne (U = 275,597, p = 0,003). Dokazali smo pozitivno povezavo med pogostostjo zajtrkovanja med tednom in količino spanja (r_s = 0,177, p = 0,001) ter negativno povezavo med sedentarnim vedenjem in redno telesno aktivnostjo mladostnikov v prostem času (r_s = –0,113, p = 0,001).

Diskusija in zaključek: Prehranske navade anketiranih mladostnikov niso skladne s priporočili. Prav tako mladostniki ne dosegajo priporočil za telesno aktivnost. Prihodnje raziskave bi se morale bolj osredotočiti na starejše mladostnike (18–24 let) ter na povezanost posameznih dejavnikov življenjskega sloga.

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Introduction

The age group of 10–24 year olds accounts for 24% of the world's population. Therefore, investing in the health of this significant demographic segment is not only crucial in terms of their impending adulthood, but also has far-reaching implications for future generations (van Sluijs et al., 2021). As young people mature and interact socially, their lifestyles change, their risk behaviours become more frequent and they are increasingly affected by social change and worsening social inequalities. Health-related behaviours such as healthy eating, physical activity and sleep developed during the transition to adulthood can persist into later life and have an important impact on the development of chronic non-communicable diseases (Due et al., 2011; Frech, 2012; van Sluijs et al., 2021).

Beyond personal health, the increasing human impact on climate and other environmental changes means that we need to empower and equip young people to adopt behaviours that are also beneficial to the planet. This includes, in particular, improving dietary habits that could eradicate all forms of malnutrition and mitigate negative impacts on the environment (de Pee et al., 2021). The *Food and Agriculture Organization* of the United Nations (FAO) and the *World Health Organization* (WHO) define sustainable healthy diets as dietary patterns that promote all dimensions of individual health, have low environmental impact, and are accessible, affordable, safe, equitable, and culturally acceptable (FAO & WHO, 2019). To avoid unintended consequences, such diets should ensure optimal growth and development, sustain the health of all generations, including future ones, prevent all forms of malnutrition (undernutrition, micronutrient deficiencies, overnutrition), and reduce the risk of diet-related chronic non-communicable diseases (FAO & WHO, 2019).

A predominantly plant-based (e.g., semi-vegetarian, flexitarian, pesco-vegetarian, or Mediterranean) diet encourages consumption of plant-based sources while reducing or excluding animal products. The adoption of a plant-based diet is associated with a lower risk of chronic non-communicable diseases and a positive impact on the gut microbiota (Craig et al., 2021). In addition to the proven health benefits, a plant-based diet also reduces environmental impacts and contributes to biodiversity conservation (FAO & WHO, 2019; Craig et al., 2021; WHO, 2021). While a sustainable, predominantly plant-based diet can mitigate harmful impacts on the planet and reduce the risk of diet-related chronic non-communicable diseases, it has been shown that a purely plant-based (vegan) or other vegetarian diet may not be suitable for adolescents as it may not ensure the intake of all the nutrients necessary for growth and development. Nordic and Mediterranean diets, which include local, seasonal and fresh foods of predominantly plant origin, moderate amounts of fish, eggs and dairy products, and limit the consumption of red meat, have been shown to be more suitable for this segment of the population (Moreno et al., 2021). Along similar lines, Craig et al. (2021) conclude that a predominantly plant-based diet is suitable for all age groups, provided that recommendations and knowledge about plant-based nutrient sources are taken into account.

Dietary habits are closely linked to patterns of physical activity. Beyond the school setting, the broader social environment also plays a cruical role in promoting regular physical activity and healthy leisure-time activities. It is vital that adolescents become accustomed to regular physical activities that extend beyond their school or extra-curricular commitments and also take place in their free time. The lifestyle of today's youth is characterised by a high prevalence of sedentary activities, such as the use of smartphones, tablets, computers and other modern technologies. In turn, the decline in physical activity, accompanied with an increase in sedentary behaviour, has detrimental effects on health (Cliff et al., 2016; LeBlanc et al., 2017).

Sleep is another important component of adolescent health. Healthy sleep requires adequate duration, appropriate timing, good quality and absence of sleep disturbances (Paruthi et al., 2016). For older adolescents in particular, increasing school commitments, workloads, evening activities and social interactions can disrupt their sleep patterns and affect sleep duration, quality and timing (Colrain & Baker, 2011; Bruce, Lunt, & McDonagh, 2017). Many adolescents do not get enough sleep. This deficiency has been linked to negative health outcomes such as obesity, mood swings (Colrain & Baker, 2011; Bruce et al., 2017), high blood pressure (Lee & Park, 2014), diabetes, and cardiovascular disease (Cappuccio & Miller, 2017). While much of the research tends to analyse patterns of physical activity, sedentary behaviour and sleep in isolation, the interconnected nature of these behaviours calls for a comprehensive approach that considers them collectively (Chastin, Palarea-Albaladejo, Dontje, & Skelton, 2015).

Aims and objectives

The aims of this study were to (1) investigate the frequency of fruit, vegetable, legume and fish consumption, (2) explore the relationship between breakfast frequency and sleep habits, (3) compare dietary patterns and assess the nutritional status of Slovenian adolescents from the two Slovenian cohesion regions: Eastern Slovenia and Western Slovenia, and (4) investigate habits related to physical activity and sedentary behaviours. To this end, we tested the following hypotheses:

H1: There is a correlation between breakfast frequency and sleep habits.

H2: The deficiency in vegetable and legume consumption among adolescents, as per international guidelines, is greater than the deficiency of fruit intake.
H3: In accordance with international recommendations, the consumption of fruits, vegetables, legumes and fish is more frequent in Western Slovenia.
H4: Students from Eastern Slovenia have poorer nutritional status.
H5: The sedentary behaviour of adolescents correlates with their regular leisure-time physical activity.

Methods

The study employed a quantitative research design.

Description of the research instrument

Data were collected using the EnKlikAnketa online questionnaire, which included 30 questions. An updated and pre-tested questionnaire, (Radivo, 2015), was distributed to secondary schools via email. The questionnaire consisted mainly of closed questions and a few multiple-choice questions with several different response options. Participants self-reported their body weight and height. Their body mass index – BMI (kg/m^2) – was calculated based on their self-reported measurements. To examine the correlations between participants' (self-)assessed nutritional status and other variables, the calculated BMI values were divided into four groups: undernourished (BMI < 18.5 kg/m^2), adequately nourished (BMI 18.5-24.9 kg/m^2), overnourished (BMI 25.0-29.9 kg/m^2), and obese (BMI > 30.0 kg/m^2).

The questionnaire assessed participants' dietary habits using the food frequency assessment method, with portion sizes taken from the *Food Frequency Questionnaire* in the *Open Platform for Clinical Nutrition* (OPKP) online tool (Jožef Stefan Institute, n.d.). To indicate the amount of food consumed, students were given a pictorial representation of portion sizes. The number of meals consumed per day was self-entered by the participants, and three groups were formed for the purposes of statistical analysis: 1 – two meals or less; 2 – three to five meals; 3 – six meals or more. The frequency of fruit, vegetable, legume and fish consumption was assessed using an eight-point scale: 1 – never; 2 – once a month; 3 – two to three times a month; 4 – once or twice a week; 5 – three to four times a week; 6 – five to six times a week; 7 – once or twice a day; 8 – several times a day. For statistical analysis, these frequencies were combined on a five-point scale: 1 – never; 2 – one to three times a month; 3 – once or twice a week; 4 – three or more times a week; 5 – at least once a day. In addition to questions about the frequency of consuming certain foods and the dietary habits of the participants, the questionnaire also included a set of questions about their physical activity and sleep habits. To assess sedentary behaviour and physical activity levels, a six-point scale was used to measure the amount of time students spent in front of screens on weekdays and weekends (1 – zero hours; 2 – half an hour; 3 – one hour; 4 – two hours; 5 – three hours; 6 – more than three hours), as well as the frequency of leisure-time physical activity (1 – never; 2 – once a month; 3 – once a week; 4 – two to three times a week; 5 – four to six times a week; 6 – every day). Sleep duration, expressed in hours, was assessed using a seven-point scale: 1 – less than five hours; 2 – five hours; 3 – six hours; 4 – seven hours; 5 – eight hours; 6 – nine hours; 7 – ten hours or more. For statistical analysis, these durations were categorised into a three-point scale: 1 – less than six hours; 2 – seven to eight hours; 3 – nine hours or more. The questionnaire also included questions on socio-demographic factors (i.e., participants' region of residence, family structure, parental employment, and a subjective assessment of family well-being).

Description of the sample

The study population comprised third-year secondary school students. The surveyed sample, representing 9.1% of the total Slovenian third-year student population in the 2018/2019 academic year (Statistični urad Republike Slovenije, 2019), consisted of 1,563 students, with a gender distribution of 902 girls (57.7%) and 661 boys (42.3%). Geographically, 55.0% of the students were from Eastern Slovenia, with girls constituting more than half of the sample (54.2%). The remaining 45.0% of the students surveyed were from Western Slovenia, with girls constituting 61.9% of the sample. The average age of the students was 18 years. The sample was chosen on the basis of students' age and so as to facilitate a comparison with the HBSC survey, the latest iteration of which (HBSC, 2018) was conducted on a sample which included not only younger adolescents but also third-year students. Physical measurements revealed an average student height of 173 cm (range: 140-204 cm), an average body weight of 67.2 kg (range: 40 - 150 kg), and an average BMI of 22.4 kg/m^2 (range: 15.4–46.2 kg/m^2). The average BMI of students in Eastern Slovenia was 22.7 kg/m^2, while in Western Slovenia it was 21.9 kg/m^2. The majority of the surveyed students lived in a two-parent family (81.8%), while 14.8% lived in a single-parent family. For 84.0% of the students, both parents were employed, while 13.1% reported that only one of their parents was employed. A small proportion (2.2%) reported that both of their parents were unemployed. Students' subjective assessment of their family's well-being revealed that more than a third of all students (35.8%) rated it as average, and 42.2% rated it as fairly good. A small percentage of students rated their family's welfare as poor (0.6%), while 6.1% felt that their family was not doing very well. Regarding physical education, 8.4% of students

were exempt from physical education, with a higher percentage of girls (57.6%). Only 8.6% of the students surveyed resided in a boarding school during the week. Overall, 74.3% of students reported having lunch at school, while 9.0% reported never having lunch at school.

Description of the research procedure and data analysis

The survey was conducted between 18 February and 10 April 2019. Prior to the survey, students were informed by their teachers objectives of the survey and received verbal instructions about the questionnaire. The survey was completed anonymously and voluntarily during class in the presence of the teacher, resulting in a high response rate and a serious approach to completing the questionnaire. Data analysis and processing were performed using MS Excel 2010 and SPSS version 22 (SPSS Inc., Chicago, Illinois, USA). Descriptive and inferential statistics were performed. The t-test and Mann Whitney U-test were used to test for statistically significant differences. To test for statistically significant correlations between individual descriptive variables the χ^2-test was used at the $\alpha = 0.05$ level of significance. To test for statistically significant associations between ordinal variables, Spearman's correlation coefficient was used. For the latter, the degree (strength) of statistical correlation was assessed on the following scale: 0 no correlation; 0–0.2 insignificant; 0.2–0.4 weak; 0.4–0.7 moderate; 0.7–0.9 high; 0.9–1 very high; 1 perfect (functional) correlation (Rosner, 2015).

Results

The majority of students (84.8%) reported typically consuming between three and five meals per day. A smaller proportion of students (10.1%) reported eating two or fewer meals, with a higher percentage of girls (11.1%). A minority of students (5.1%) reported consuming six or more meals per day, with a higher percentage of boys in this group (7.0%).

On weekdays, 39.5% of students reported eating breakfast every day, while nearly a third (29.0%) reported never eating breakfast. On weekends, the proportion of students who had breakfast on both days increased to 74.3%, with the proportion of those who skipped breakfast accounting for 12.2%. We found a statistically significant weak positive correlation between the frequency of breakfast consumption on weekdays and weekends ($r_s = 0.361$, $p = 0.001$). Students who did not eat breakfast during the week also skipped breakfast at weekends.

The data disaggregated by gender show that a higher proportion of boys (43.3%) than girls (36.6%) ate breakfast regularly during the week. Among the students who never had breakfast during the week, 29.3% were girls and 28.7% were boys. The correlation between the frequency of eating breakfast during the week and gender was statistically significant (χ^2 (5) = 19.631, $p = 0.001$), indicating that girls tend to skip breakfast during the week.

When comparing breakfast habits between the two regions, we found that in Western Slovenia, the proportion of students who had breakfast regularly during the week was higher (42.0%) than in Eastern Slovenia (37.4%). When it came to breakfast skipping, the trend was reversed: the percentage of students who never had breakfast during the week higher in Eastern Slovenia (30.0%) than in Western Slovenia (27.8%).

Our study identified a statistically significant positive correlation between breakfast frequency during the week and sleep duration during the week (in hours) ($r_s = 0.177$, $p = 0.001$). Students who slept longer during the week also ate breakfast more frequently. In both regions, we found statistically significant positive correlations between sleep duration during the week and the number of meals per day, as well as statistically significant positive correlations between sleep duration and the frequency of breakfast during the week. Students from Western Slovenia who slept longer also ate a higher number of meals ($r_s = 0.129$, $p = 0.001$) and had breakfast more often during the week ($r_s = 0.209$, $p = 0.001$). Students from Eastern Slovenia who slept longer also had breakfast more often during the week ($r_s = 0.152$, $p = 0.001$) and consumed more meals during the day ($r_s = 0.127$, $p = 0.001$).

Consumption of fresh fruit once or more a day was reported by 27.3% of all students, with a higher proportion of girls (32.7%) than boys (19.8%). This pattern is more pronounced in Western Slovenia, where 30.0% of students consumed fresh fruit daily, compared to 25.5% in Eastern Slovenia. Most students (41.4%) reported consuming fresh fruit at least three times a week, with a slightly higher proportion of boys (42.7%) than girls (40.5%). One fifth of all respondents (19.4%) consumed fresh fruit once or twice a week, while 9.7% did so only one to three times a month. A small percentage of respondents (2.2%) never consumed fresh fruit, with more boys (3.9%) than girls (1.0%) falling in this category. The association between the frequency of fresh fruit consumption and gender was statistically significant (χ^2 (4) = 47.398, $p = 0.001$), indicating that girls were more likely to consume fresh fruit. Of all students, 40.8% never consumed cooked fruit, while 41.7% did so up to three times a month. A smaller percentage of students (7.5%) consumed cooked fruit once or twice a week and 7.0% did so three or more times a week. We found that girls consumed cooked fruit more frequently (χ^2 (4) = 12.782, $p = 0.012$). The proportion of students who never consumed pickled fruit was 38.9%. Of all students, 45.9% reported consuming pickled fruit up to three times a month, 7.9% once or twice a week, and 5.1% three or more times a week. We also found a statistically significant

association between the frequency of pickled fruit consumption and gender ($\chi^2(4) = 15.880$, $p = 0.003$), with girls consuming pickled fruit more frequently. The study found a statistically significant association between the frequency of pickled fruit consumption and the region of residence ($\chi^2(4) = 35.020$, $p = 0.001$). Students from Eastern Slovenia were found to consume more pickled fruits.

While only 3.0% of all students consumed dried fruit once or more a day, 8.8% did so three or more times a week and 10.3% consumed dried fruit once or twice a week. Almost half of the respondents (47.3%) reported consuming dried fruit only one to three times a month, while almost a third (30.5%) did not consume any dried fruit at all. The average fruit consumption per meal was 157.5 g for all students. In total, 1.9% of the students surveyed reported not consuming any fruit.

Of the students surveyed, 3.1% never consumed vegetables. The average vegetable consumption per meal was 161.4 g. Overall, 26.6% of students eat fresh vegetables at least once a day. The proportion of students consuming fresh vegetables at least once a day was higher among girls (31.5%) than boys (19.8%). Overall, 42.9% of students reported consuming fresh vegetables three to six times a week, 14.5% of students once to twice a week and 9.9% up to three times a month. Fresh vegetables were never consumed by 6.1% of all students, including 8.3% of boys and 4.5% of girls. We found a statistically significant association between frequency of fresh vegetable consumption and gender ($\chi^2(4) = 36.282$, $p = 0.001$). Girls were found to consume fresh vegetables more frequently. Cooked vegetables were consumed on a daily basis by 15.0% of all students, with a higher proportion of girls (68.4%) and more than one third of boys (31.6%). Overall, 39.0% of all students (58.5% of girls and 41.5% of boys) reported consuming cooked vegetables three to six times a week. Of the students surveyed, 10.5% never consumed cooked vegetables. This proportion was higher among boys (58.5%) than girls (41.5%). We found a statistically significant association between gender and frequency of consumption of cooked vegetables ($\chi^2(4) = 28.876$, $p = 0.001$). Girls were found to consume cooked vegetables more frequently. While 29.7% of all students (53.0% of girls and 47.0% of boys) never consumed pickled vegetables, 31.3% did so up to three times a month, 8.5% once or twice a week, 15.9% three to six times a week, and 4.5% on a daily basis. A comparison by gender showed that the consumption of pickled vegetables was greater among girls. This association was statistically significant ($\chi^2(4) = 14.220$, $p = 0.007$).

Our study also found a statistically significant association between the frequency of eating pickled vegetables and the region of residence ($\chi^2(4) = 33.612$, $p = 0.001$). Notably, students from Eastern Slovenia consumed pickled vegetables more frequently. In addition, we found a statistically significant association between the amount of vegetables consumed per meal and gender ($\chi^2(2) = 13.197$, $p = 0.001$). It was observed that girls consumed a greater amount of vegetables per meal.

Our study showed a statistically significant moderate positive association between the frequencies of fresh fruit and fresh vegetable consumption ($r_s = 0.448$, $p = 0.001$). This suggests that students who consumed fresh fruit more frequently also tended to reach for fresh vegetables more often.

Overall, 19.1% of all students consumed beans once or twice a week, with a higher proportion of boys (21.0%) than girls (17.6%). The proportion of those consuming beans three or more times a week was 11.7% (with 13.5% of boys and 10.5% of girls). Almost half of the students (46.3%) consumed beans at least three times a month, while over a fifth (21.4%) did not consume beans at all. The association between gender and frequency of bean consumption was found to be statistically significant ($\chi^2(4) = 12.509$; $p = 0.014$). Regarding regional differences, the proportion of students who never consumed beans was higher in Eastern Slovenia (22.5%) than in Western Slovenia (21.4%).

A total of 9.9% of all students reported consuming peas three or more times a week (10.4% of boys and 9.5% of girls). The proportion of students who consumed peas once or twice a week was 19.5% (19.2% of boys and 19.7% of girls). Half of all respondents (50.3%) consumed peas up to three times a month. Overall, 19.0% of students never consumed peas, with a higher proportion of boys (20.1%) than girls (18.2%). Comparing regional differences, we found that the proportion of students who never consumed peas was slightly higher in Eastern Slovenia (20.3%) than in Western Slovenia (17.5%). Overall, 9.3% of respondents reported never consuming legumes. The average amount of legumes consumed per meal was 119.9 g.

In terms of seafood consumption, 13.2% of students reported consuming whitefish once or twice a week, with a slightly higher proportion of boys (14.2%) than girls (12.4%). The majority of students (61.9%) consumed whitefish up to three times a month, while 21.7% did not consume whitefish at all, with a higher proportion of girls (23.1%) than boys (19.8%). As for oily fish, 13.4% of all students consumed oily fish once or twice a week. More than half of the respondents (55.4%) consumed oily fish up to three times a month, and a quarter (25.2%) never consumed oily fish at all (27.4% of girls and 22.2% of boys). We found a statistically significant association between the frequency of oily fish consumption and the region of residence ($\chi^2(4) = 10.067$, $p = 0.001$). A higher proportion of students who reported never consuming oily fish were from Eastern Slovenia (27.8%) compared to those from Western Slovenia (22.0%).

Consumption of freshwater fish once or twice a week was reported by 5.1% of students, with a higher proportion of boys (6.5%) than girls (4.1%). Overall, 50.4% (55.5% of boys and 46.6% of girls) consumed freshwater fish up to three times a month, while 42.6% did not consume it at all (with 48.1% of girls and 35.2% of boys). Slightly more than half of all students (50.4%, with 55.5% of boys and 46.6% of girls) reported consuming freshwater fish up to three times a month, while 42.6% did not consume it at all (48.1% of girls and 35.2% of boys). Of the students who never consumed freshwater fish, 45.5% were from Western Slovenia and 40.4% from Eastern Slovenia. Overall, 13.9% of the students surveyed did not consume fish at all. The average amount of fish consumed per meal was 150.1 g. Table 1 shows the characteristics of the consumption patterns of the surveyed students' by BMI and gender.

The proportion of adequately nourished students is comparable. The association between gender and nutritional status is statistically significant (χ^2 (3) = 41.397, p = 0.001).

A comparison of nutritional status between the two regions (Table 2) shows poorer nutritional status in Eastern Slovenia. The study found statistically significant differences in nutritional status between the two regions *(*U = 275.597, p = 0.003).

Moreover, 43.7% of students reported sleeping less than six hours during the week, with a higher proportion of girls (45.6%) than boys (40.9%). This proportion was significantly lower at weekends (6.6%). Seven to eight hours of sleep during the week was reported by half of all students (51.4%). At weekends, 35.8% of all students (38.2% of boys and 14.0% of girls) reported sleeping seven to eight hours. During the week, 4.3% of students (5.0% of girls and 3.5% of boys) slept nine hours or more. The amount of time students spent watching television and other screens during the week in shown in Table 3.

Table 1: *Nutrition status by gender*

BMI (kg/m)²	***Boys (n = 661)***		***Girls (n = 902)***		***Total (n = 1563)***	
	n	***%***	***n***	***%***	***n***	***%***
< 18.50	26	3.9	96	10.6	122	7.8
18.5–24.9	500	75.6	676	74.9	1176	75.2
25.0–29.9	92	13.9	111	12.3	203	13.0
30.0 and over	43	6.5	19	2.1	62	4.0

Legend: n – number; % – percentage

Table 2: *Breakdown of the sample into BMI groups by region of residence*

BMI (kg/m)²	***Eastern Slovenia (n = 859)***		***Western Slovenia (n =704)***		***Total (n = 1563)***	
	n	***%***	***n***	***%***	***n***	***%***
< 18.50	56	6.5	66	9.4	122	7.8
18.5–24.9	635	73.9	541	76.8	1176	75.2
25.0–29.9	118	13.7	85	12.1	203	13.0
30.0 and over	50	5.8	12	1.7	62	4.0

Legend: n – number; % – percentage

Table 3: *Sedentary behaviour during the week by gender*

Gender	***Sedentary time during the week***					
	None	***Half an hour***	***1 hour***	***2 hours***	***3 hours***	***More than 3 hours***
Boys (%)	1.4	4.2	9.2	24.7	20.3	40.2
Girls (%)	0.8	2.0	10.8	23.4	25.2	37.9
Total (%)	1.0	2.9	10.1	23.9	23.1	38.9

Legend: % – percentage

Table 4: *Frequency of physical activity by gender*

Gender	***Frequency of physical activity engagement***					
	Never	***Once a month***	***Once a week***	***Two to three times a week***	***Four to six times a week***	***Daily***
Boys (%)	2.3	7.9	16.3	26.8	22.4	24.4
Girls (%)	8.2	15.7	22.1	30.9	13.1	10.0
Total (%)	5.7	12.4	19.6	29.2	17.0	16.1

Legend: % – percentage

As can be seen in Table 4, boys engaged in more physical activity than girls. The proportion of inactive students was higher among girls.

Our study found an association between sedentary behaviour during the week and frequency of leisure-time physical activity (r_s = −0.113, p = 0.001). Students who spent more time in sedentary behaviour during the week were less likely to be physically active during leisure time. There is a statistically significant positive association between sedentary behaviour on weekdays and at weekends (r_s = 0.679, p = 0.001), indicating that students have the same lifestyle habits on weekdays and weekends.

Discussion

Our study show that the proportion of adolescents who eat breakfast regularly during the week (39.5%) is in line with the 2018 national average for 17-year-olds (35.3%) (Jeriček Klanšček et al., 2019). We found that girls more frequently skip breakfast during the week. This pattern is consistent with other HBSC studies conducted among younger adolescents in Europe (Băban, Tăut, Balazsi, & Dănilă, 2020; Brooks, Klemera, Chester, Magnusson, & Spencer, 2020; Moreno et al., 2020; Nardone et al., 2020) and Slovenia (Jeriček Klanšček et al., 2019), which also reported that there was a higher proportion of regular breakfast consumption during the week among boys and that the proportion of individuals who skip breakfast appears to increase with age. This trend was also confirmed by the first longitudinal HBSC (2020) study conducted in Slovenia, which focused on young people included in the HBSC 2018 sample (Jeriček Klanšček et al., 2021). A systematic review of studies conducted between 2008 and 2018 among young people aged 18 years and younger across 33 countries confirms that girls are more likely to skip breakfast and that the proportion of those who do not eat breakfast regularly increases with age. This research also shows that skipping breakfast is associated with the choice of less healthy foods and, consequently, with the occurrence of overeating in adolescents (Monzani et al., 2019; Ober et al., 2021). As demonstrated by Croezen, Visscher, Ter Bogt, Veling, & Haveman-Nies (2009) in their study on a sample of Dutch adolescents aged 13-16 years, skipping breakfast is a significant risk factor for the development of obesity in adolescents. Conversely, a review of studies by Giménez-Legarre, Flores-Barrantes, Miguel-Berges, Moreno, & Santaliestra-Pasías (2020) demonstrated that regular consumption of breakfast is associated with a healthier diet and higher intake of fruits and vegetables.

Our study supports the link between breakfast consumption and sleep habits. The association between shorter sleep duration and skipping breakfast has also been confirmed by research conducted among adolescents in Palestine (Badrasawi, Anabtawi, & Al-Zain, 2021), Greece (Tambalis, Panagiotakos, Psarra, & Sidossis, 2018) and China (Liu et al., 2022). In recent decades, there has been a trend towards sleep deprivation accompanied by an increase in overnutrition. Several studies have confirmed the association between sleep duration and the development of obesity and diabetes (Knutson, Spiegel, Penev, & Van Cauter, 2007; Knutson & Van Cauter, 2008). In future research, it would be beneficial to investigate the reasons for skipping breakfast, especially in girls. Greater attention should be paid to the links between skipping breakfast and eating disorders in this population. One possible reason for skipping breakfast among Slovenian adolescents could be the provision of an organised school lunche, an aspect that was not investigated in our study.

As predicted, the deficit in the intake of vegetables and legumes according to the dietary guidelines is greater than that in the intake of fruits. Due to their numerous benefits for growth and development, as well as their content of dietary fibre and protective substances, the recommended daily intake of fruits and vegetables is 400 g (FAO & WHO, 2019), with vegetables highlighted for their stronger protective properties and lower sugar content. Sustainable planetary diets typically recommend higher intakes of fruits and vegetables, with recommended amounts ranging from 200–600 g for vegetables and 100-300 g for fruits (Willett et al., 2019). It is critical to identify the factors that influence adolescents' consumption of fruits and vegetables in order to meet these daily intake recommendations (Darfour-Oduro, Andrade, & Grigsby-Toussaint, 2020). Data from the HBSC international survey from previous years show that younger Slovenian adolescents tend to have a lower intake of vegetables compared to fruits (Stergar, Scagnetti, & Pucelj, 2006; Gabrijelčič Blenkuš, Gregorič, & Fajdiga Turk, 2007; Fajdiga Turk, 2011; Drev, 2015). The most recent HBSC surveys in Slovenia confirm these findings and show that vegetable consumption not only remains lower compared to fruit consumption, but also tends to decrease with age (Jeriček Klanšček et al., 2019, 2021).

Our study shows that the proportion of students who consume fruits and vegetables at least once a day is higher among girls. This pattern is consistent with those identified in younger Slovenian adolescents (Jeriček Klanšček et al., 2019) and adolescents from other countries (Băban et al., 2020; Brooks et al., 2020; Moreno et al., 2020; Nardone et al., 2020). Research on adolescents' dietary habits has found a significant correlation between fruit and vegetable consumption and family socioeconomic status, food availability, parental example and encouragement, as well as age and gender, with the latter being more pronounced among younger adolescents. In contrast, health and school policies play a more important role in promoting fruit and vegetable consumption among older adolescents

(Darfour-Oduro et al., 2020). A review of studies examining the dietary habits of adolescents (aged 10–19 years) in North America, Europe and Oceania over the past decade found that adolescents generally do not meet the recommendations for fruit and vegetable intake, and that not much is known about their consumption of legumes (Rosi, Paolella, Biasini, Scazzina, & SINU Working Group on Nutritional Surveillance in Adolescents, 2019). Similar deviations from a healthy, balanced diet, particularly in the intake of fruits, vegetables, and legumes, have also been observed among Slovenian adolescents (Kobe, Štimec, Ribič, & Fidler Mis, 2012).

Our study confirms the hypothesis that the deficit in the intake of vegetables, legumes and fish is more pronounced than the deficit in the intake of fruits compared to the recommendations. Fish, especially oily marine fish, represent an important source of protein, omega-3 fatty acids, vitamins (e.g., vitamin D) and minerals (e.g., iodine and selenium). Fish intake recommendations vary across European countries, mainly due to the accessibility of seafood and the associated tradition of fish consumption (Lofstedt, de Roos, & Fernandes, 2021). In general, these recommendations recommend that adolescents consume fish once or twice a week, but at least 200 g per week (Lofstedt et al., 2021). Our study found that fish consumption among schoolchildren falls short of these recommendations and that schoolchildren who never consume oily fish are more likely to reside in Eastern Slovenia. The association between the frequency of oily fish consumption and region of residence is statistically significant, which can be attributed to the inclusion of fish in traditional cuisine in Western Slovenia. A report on the quality of students' meals in Slovenia (Gregorič, Gabrijelčič Blenkuš, Klančar, & Fajdiga Turk, 2011) also found that fish was underrepresented in meals across all regions.

Our study confirms the hypothesis that the consumption of fruits, vegetables, legumes and fish, as per the dietary guidelines, is higher in Western Slovenia. A greater proportion of students from Western Slovenia consume fresh fruits and vegetables on a daily basis, while students from Eastern Slovenia show a higher consumption of pickled fruits and vegetables. The proportion of students who reported never consuming beans and/or peas and fish is higher in Eastern Slovenia. The average amount of fruit, vegetables, legumes and fish consumed per meal is also higher in Western Slovenia.

According to physical activity guidelines from the WHO (2020), the recommended weekly duration of moderate-intensity physical activity for adolescents aged 18 years is 150 minutes or at least 75 minutes of vigorous-intensity physical activity, or an equivalent combination of both. The health benefits of regular physical activity during the transition from adolescence to adulthood (18–24 years) need further investigation (van Sluijs et al., 2021). With regard to the recommendations on sedentary behaviour, 18-year-olds are classified as adults. Sedentary behaviour is thus defined as the time spent in activities that require low energy expenditure, whether awake, sitting or lying down, for the purposes of education, occupation and transport. To mitigate the negative health effects of sedentary behaviour, it is recommended that sedentary time be limited or interrupted by physical activity of any intensity (WHO, 2020). Evidence shows that sedentary behaviour has adverse health effects and increases the risk of chronic non-communicable diseases. However, research on the health effects of sedentary behaviour needs to take into account that individuals have different patterns of sedentary behaviour and different methods of interrupting sedentary behaviour (WHO, 2020). Among adolescents, sedentary behaviour associated with the use of various screens is of particular concern (Saunders et al., 2022).

Our study confirmed the association between sedentary behaviour during the week and frequency of leisure-time physical activity, suggesting a recurrent pattern of time spent on physical activity and sedentary activities. Students in our study who spent more time on sedentary activities (reading, watching TV, using a computer or mobile phone) during the week were less physically active. Studies focusing on younger Slovenian adolescents show that 13.5% of 17-year-olds are physically active every day. These studies also show that boys engage in regular physical activity more frequently than girls, and that the proportion of boys who are regularly physically active decreases with age (Jeriček Klanšček et al., 2019, 2021). These findings are consistent with our study, which also confirmed that boys engage in regular physical activity more frequently than girls. This pattern is consistent with several other studies (Croezen et al., 2009; Carson et al., 2016; van Sluijs et al., 2021). A 2018 study focusing on Slovenian adolescents found that more than four hours of sedentary behaviour per day was reported by 42.4% of 17-year-old adolescents, almost half of whom were girls (48.5%), and 36.4% were boys (Jeriček Klanšček et al., 2019). The study by Darfour-Oduro et al. (2020) confirms that physical inactivity is also associated with insufficient intake of fruits and vegetables.

A predominantly sedentary lifestyle, coupled with low levels of physical activity, contributes significantly to the development of overnutrition. Similar to many other European countries, Slovenia is witnessing an increase in the number of overweight adolescents (WHO, 2013). Overweight is associated with several lifestyle factors, including skipping breakfast, ochoosing less healthy foods, picky eating habits, and shorter sleep duration (Monzani et al., 2019; Ober et al., 2021; Špindler, Cilar Budler, Klanjšek, & Kegl, 2021).

Our study confirmed the hypothesis that students from Eastern Slovenia have poorer nutritional status. The higher proportion of overnourished students from this region can be linked to other findings of our study. We found that students from Eastern Slovenia, which is considered less developed with higher unemployment rates and risk of poverty (Statistični urad Republike Slovenije, 2022), are more likely to skip breakfast and consume lower amounts of fruits, vegetables, legumes, and fish. Future research should therefore investigate the impact of social inequalities on the dietary behaviour of Slovenian youth.

Conclusion

Our study confirmed the hypotheses about the inadequate dietary habits of older Slovenian adolescents, which were slightly worse in Eastern Slovenia. Overall, the proportion of overnourished students was higher in Eastern Slovenia. The consumption of fruits, vegetables, legumes and fish was more adequate in Western Slovenia. Girls skipped breakfast more often. Sleep duration was found to be associated with regular breakfast consumption. The results of our study also highlight irregular physical activity patterns among adolescents, with a tendency towards spending more time in sedentary activities. Girls were less physically active. The role of health education and dietetics is indispensable in promoting healthy lifestyles among adolescents. Nutrition education needs to focus primarily on different dietary patterns, recommendations, and sources of specific nutrients. There is an urgent need to raise awareness of the importance of a predominantly plant-based diet for human and planetary health.

Slovenian translation/Prevod v slovenščino

Uvod

Mladi v starosti od 10. do 24. leta predstavljajo 24 % svetovnega prebivalstva, zato je naložba v njihovo zdravje pomembna tudi za odraslost ter za prihodnje generacije (van Sluijs et al., 2021). Vzporedno z rastjo in socializacijo se pri mladostnikih spreminja življenjski slog, pogostejša so tvegana vedenja, hkrati pa imajo nanje vse večji vpliv družbene spremembe ter povečevanje družbene neenakosti. Z zdravjem povezana vedenja, kot so zdravo prehranjevanje, telesna aktivnost in spanje, ki nastanejo na prehodu v odraslost, se lahko ohranijo skozi obdobje odraslosti in pomembno vplivajo na razvoj kroničnih nenalezljivih obolenj (Due et al., 2011; Frech, 2012; van Sluijs et al., 2021).

Poleg skrbi za lastno zdravje moramo zaradi vse večjih človeških vplivov na podnebne in druge okolijske spremembe mlade opolnomočiti in pripraviti na izbiro vedenjskih vzorcev, ki so prijazni tudi planetu. Slednje vključuje predvsem izboljšanje prehranskih navad, ki bi lahko odpravljale slabo hranjenost v vseh oblikah, hkrati pa blažile negativne vplive na okolje (de Pee et al., 2021). Organizacija Združenih narodov za prehrano in kmetijstvo (*Food and Agriculture Organization of the United Nations* – FAO) in Svetovna zdravstvena organizacija (*World Health Organization* – WHO) sta trajnostno zdravo prehrano opredelili kot prehranske vzorce, ki spodbujajo vse razsežnosti zdravja posameznikov in imajo majhen vpliv na okolje; so dostopni in cenovno ugodni, varni in pravični ter kulturno sprejemljivi (FAO & WHO, 2019). Trajnostna zdrava prehrana mora v izogib nenamernim posledicam zagotoviti optimalno rast in razvoj, ohranjati zdravje vseh generacij, tudi prihodnjih, ter preprečiti vse oblike neprimerne hranjenosti (podhranjenost, pomanjkanje mikrohranil, prekomerna hranjenost) in zmanjšati tveganje za kronične nenalezljive bolezni, povezane s prehrano (FAO & WHO, 2019).

Pretežno rastlinska prehrana (semivegetarijanstvo ali fleksitarijanstvo, pescovegetarijanstvo, mediteranska) predstavlja različne prehranjevalne vzorce, s poudarkom na rastlinskih virih, z manjšo porabo ali izključitvijo živalskih proizvodov. Uživanje rastlinske prehrane zmanjšuje tveganje za razvoj kroničnih nenalezljivih bolezni ter ugodno vpliva na črevesni mikrobiom (Craig et al., 2021). Poleg dokazanih pozitivnih učinkov na zdravje ima rastlinska prehrana manjši vpliv na okolje in ohranja biotsko raznovrstnost (FAO & WHO, 2019; Craig et al., 2021; WHO, 2021). Čeprav lahko s trajnostno, pretežno rastlinsko prehrano omilimo škodljive učinke na planet in zmanjšamo tveganje za kronične nenalezljive bolezni, povezane s prehrano, je izključno rastlinska (veganska) ali druge vrste vegetarijanska prehrana neprimerna za mladostnike, saj ne zagotavlja vnosa vseh za rast in razvoj potrebnih hranil. Kot primernejši sta se izkazali nordijska in mediteranska: obe vključujeta lokalna, sezonska in sveža živila, pretežno rastlinskega izvora, zmerne količine rib, jajc in mlečnih izdelkov ter omejujeta uživanje rdečega mesa (Moreno et al., 2021). Craig et al. (2021) ugotavljajo, da je ob upoštevanju priporočil ter poznavanju rastlinskih virov hranil pretežno rastlinska prehrana primerna za vsa starostna obdobja.

V tesni povezavi s prehranskimi navadami so tudi vzorci telesne aktivnosti. Pri spodbujanju redne telesne aktivnosti in zdravih prostočasnih dejavnosti ima poleg šolskega prostora pomembno vlogo širše družbeno okolje. Za mladostnike je pomembno navajanje na redno telesno aktivnost, ki jo lahko neobvezujoče izvajajo v prostem času in ni del šolskih ali obšolskih obveznosti. Današnji način življenja mladih v prostem času vključuje veliko sedečih dejavnosti, kot je uporaba pametnih telefonov, tablic, računalnikov in druge sodobne tehnologije. Opuščanje telesne aktivnosti in

povečevanje trajanja sedečega vedenja imata neugoden vpliv na zdravje (Cliff et al., 2016; LeBlanc et al., 2017).

Bistvenega pomena za zdravje mladostnikov je tudi spanje. Zdrav spanec zahteva ustrezno trajanje, časovni interval, kakovost in odsotnost motenj spanja (Paruthi et al., 2016). Zlasti pri starejših mladostnikih se zaradi povečanja šolskih obveznosti, obremenitev, večernih dejavnosti in socialnih interakcij spremenijo trajanje, kakovost in obdobja spanja (Colrain & Baker, 2011; Bruce et al., 2017). Številni mladostniki ne spijo dovolj, kar se povezuje z negativnimi zdravstvenimi posledicami, kot so debelost, motnje razpoloženja (Colrain & Baker, 2011; Bruce et al., 2017), povišan krvni tlak (Lee & Park, 2014), sladkorna bolezen ter bolezni srca in ožilja (Cappuccio & Miller, 2017). Večina raziskav vzorce telesne aktivnosti, sedentarnega vedenja in spanja obravnava ločeno, vendar so ta vedenja soodvisna in jih moramo obravnavati hkrati (Chastin, Palarea-Albaladejo, Dontje, & Skelton, 2015).

Namen in cilj

Raziskavo smo izvedli z namenom (1) preučitve pogostosti uživanja sadja, zelenjave, stročnic in rib, (2) preučitve pogostosti zajtrkovanja v povezavi z navadami spanja, (3) primerjave prehranskih vzorcev ter ocene stanja hranjenosti med slovenskimi mladostniki vzhodne in zahodne kohezijske regije ter (4) raziskave navad telesne aktivnosti in sedentarnega vedenja. Za doseganje namena raziskave smo preverjali sledeče hipoteze:

H1: Obstaja povezava med pogostostjo zajtrkovanja in navadami spanja.

H2: Primanjkljaj vnosa zelenjave in stročnic je pri mladostnikih glede na mednarodna priporočila večji, kot je pri vnosu sadja.

H3: Glede na mednarodna priporočila je uživanje sadja, zelenjave, stročnic in rib pogostejše v zahodni kohezijski regiji.

H4: Dijaki, ki prihajajo iz vzhodne kohezijske regije, imajo slabšo oceno stanja hranjenosti.

H5: Obstaja povezava med sedentarnim vedenjem mladostnikov in redno telesno aktivnostjo v prostem času.

Metode

Raziskava temelji na kvantitativni metodi raziskovanja.

Opis instrumenta

Za pridobivanje podatkov je bil uporabljen vprašalnik, izdelan v spletnem orodju EnKlikAnketa, ki je vseboval 30 vprašanj. Posodobljen in predhodno testiran vprašalnik, (Radivo, 2015), je bil srednjim šolam poslan po elektronski pošti. Vprašanja so bila v večini zaprtega tipa in deloma izbirnega tipa, pri čemer je bilo ponujenih več različnih odgovorov. Podatki o telesni masi in višini so bili zbrani s samoporočanjem. Iz samoocene telesne mase in telesne višine smo izračunali indeks telesne mase – ITM (kg/m^2). Za preverjanje povezav med (samo)oceno stanja hranjenosti in drugimi spremenljivkami smo dobljene vrednosti ITM združili v štiri skupine: podhranjeni (ITM < 18,5 kg/m^2), normalno hranjeni (ITM 18,5–24,9 kg/m^2), prekomerno hranjeni (ITM 25,0–29,9 kg/m^2) in debeli (ITM > 30,0 kg/m^2).

V vprašalniku smo prehranske navade ocenjevali z metodo pogostosti uživanja posameznih živil, pri čemer smo pri določenih živilih navedli velikosti porcij, ki smo jih povzeli po *Vprašalniku o pogostosti uživanja živil* v spletnem orodju *Odprta platforma za klinično prehrano – OPKP* (Inštitut Jožef Stefan, n. d.). O količini živil so dijaki poročali s pomočjo slikovnega prikaza velikosti porcij. Število zaužitih dnevnih obrokov so dijaki vpisali sami, za statistično analizo smo oblikovali tri skupine (1 – dva obroka ali manj; 2 – od tri do pet obrokov; 3 – šest obrokov ali več). Pogostost uživanja sadja, zelenjave, stročnic in rib je bila merjena z osemstopenjsko lestvico (1 – nikoli; 2 – enkrat na mesec; 3 – od dva- do trikrat na mesec; 4 – enkrat ali dvakrat na teden; 5 – od tri- do štirikrat na teden; 6 – od pet- do šestkrat na teden; 7 – enkrat ali dvakrat na dan; 8 – večkrat na dan). Za statistično analizo smo oblikovali petstopenjsko lestvico (1 – nikoli; 2 – od enkrat do trikrat na mesec; 3 – enkrat ali dvakrat na teden; 4 – trikrat ali večkrat na teden; 5 – enkrat ali večkrat na dan). Poleg vprašanj o pogostosti uživanja posameznih živil ter prehranskih navadah se sklop vprašanj v anketi nanaša tudi na navade glede telesne aktivnosti in spanja. Za ovrednotenje sedečega vedenja in telesne aktivnosti smo s šeststopenjsko lestvico ugotavljali čas, ki ga dijaki pred zasloni presedijo med tednom in ob koncu tedna (1 – nič; 2 – pol ure; 3 – eno uro; 4 – dve uri; 5 – tri ure; 6 – več kot tri ure) in pogostost rekreiranja v prostem času (1 – nikoli; 2 – enkrat na mesec; 3 – enkrat na teden; 4 – od dva- do trikrat na teden; 5 – od štiri- do šestkrat na teden; 6 – vsak dan). Trajanje (ure) spanja smo ugotavljali s sedemstopenjsko lestvico (1 – manj kot pet ur; 2 – pet ur; 3 – šest ur; 4 – sedem ur; 5 – osem ur; 6 – devet ur; 7 – deset ur in več ur). Za statistično analizo smo oblikovali tristopenjsko lestvico (1 – manj kot šest ur; 2 – od sedem do osem ur; 3 – devet ur in več).V vprašalnik smo vključili tudi vprašanja o sociodemografskih dejavnikih (regija bivanja, tip družine, zaposlenost staršev in subjektivna ocena družinskega blagostanja).

Opis vzorca

V raziskavi smo preučevali populacijo dijakov, ki obiskujejo 3. letnik srednješolskega izobraževanja. Vzorec anketiranih dijakov predstavlja 9,1 % celotne populacije dijakov 3. letnikov srednješolskega

izobraževanja v Sloveniji v šolskem letu 2018/2019 (Statistični urad Republike Slovenije, 2019). Vzorec je zajemal 1563 dijakov, od tega 902 deklet (57,7 %) in 661 fantov (42,3 %). 55,0 % dijakov je bilo iz vzhodne kohezijske regije, med njimi je bila več kot polovica deklet (54,2 %); 45,0 % anketiranih dijakov je bilo iz zahodne regije, več je bilo deklet (61,9 %). Povprečna starost je bila 18 let. Vzorec za raziskovalno populacijo smo izbrali zaradi starosti dijakov in aktualne primerjave z raziskavo HBSC, ki je v zadnji opravljeni raziskavi (HBSC, 2018) poleg mlajših mladostnikov zajela tudi dijake 3. letnikov. Povprečna telesna višina anketiranih dijakov je 173 cm (najvišja 204 cm, najnižja 140 cm), povprečna telesna masa je 67,2 kg (najnižja 40 kg, najvišja 150 kg). Povprečen ITM je 22,4 kg/m^2 (najnižji 15,4 kg/m^2, najvišji 46,2 kg/m^2). Povprečen ITM dijakov v vzhodni regiji je 22,7 kg/m^2, v zahodni pa 21,9 kg/m^2. Največ anketiranih dijakov živi v dvostarševski družini (81,8 %), v enostarševski družini živi 14,8 % anketiranih. 84,0 % dijakov ima zaposlena oba starša, 13,1 % navaja, da je zaposlen zgolj eden od staršev. Brezposelnost obeh staršev navaja 2,2 % anketiranih dijakov. Subjektivna samoocena družinskega blagostanja kaže, da dobra tretjina vprašanih dijakov (35,8 %) ocenjuje družinsko blagostanje kot povprečno, 42,2 % kot še kar dobro, kot slabo družinsko blagostanje ocenjuje 0,6 % vprašanih. 6,1 % jih meni, da njihovi družini ne gre preveč dobro. Pouka športne vzgoje je opravičenih 8,4 % dijakov, med njimi je več deklet (57,6 %). Zgolj 8,6 % anketiranih dijakov med tednom živi v dijaškem domu. 74,3 % dijakov vsakodnevno malica v šoli, 9,0 % vprašanih nikoli ne malica v šoli.

Opis poteka raziskave in obdelave podatkov

Raziskava je potekala med 18. februarjem in 10. aprilom 2019. Pred anketiranjem so bili dijaki seznanjeni z nameni in cilji raziskave, učitelji so jim podali ustna navodila glede vprašalnika. Anketiranje je potekalo anonimno in prostovoljno v času pouka ob prisotnosti učitelja, iz česar izhaja dobra odzivnost in resen pristop k reševanju vprašalnika. Od vseh vključenih dijakov jih je anketo v celoti izpolnilo 75,0 %. Analiza in obdelava pridobljenih podatkov je bila izvedena v programih MS Excel 2010 in SPSS, različica 22 (SPSS Inc., Chicago, Illinois, ZDA). Izvedli smo opisno in inferenčno statistiko. Za testiranje statistično značilnih razlik smo uporabili t-test in Mann Whitneyjev U-test. Statistično značilno povezanost med različnimi opisnimi spremenljivkami smo preverjali s pomočjo χ^2 statistike pri stopnji značilnosti $\alpha = 0,05$, med urejenostnimi spremenljivkami pa s Spearmanovim korelacijskim koeficientom. Pri slednjem smo stopnjo (moč) statistične povezanosti ovrednotili po lestvici: 0 ni povezanosti; 0–0,2 neznatna; 0,2–0,4 šibka; 0,4–0,7 zmerna; 0,7–0,9 visoka; 0,9–1 zelo visoka; 1 popolna (funkcijska) povezanost (Rosner, 2015).

Rezultati

84,8 % dijakov običajno zaužije od tri do pet obrokov na dan. Dva obroka ali manj zaužije 10,1 % dijakov, med njimi je več deklet (11,1 %). 5,1 % dijakov navaja, da zaužijejo šest obrokov ali več, med njimi je več fantov (7,0 %).

Med tednom vsakodnevno zajtrkuje 39,5 % dijakov, medtem ko jih skoraj tretjina (29,0 %) nikoli ne zajtrkuje. Ob vikendih je delež dijakov, ki zajtrkujejo oba dneva, večji (74,3 %), delež tistih, ki med vikendom zajtrk opuščajo, je 12,2 %. Ugotovili smo statistično značilno šibko pozitivno povezavo med pogostostjo zajtrkovanja med tednom in ob koncu tedna ($r_s = 0,361$, $p = 0,001$). Dijaki, ki opuščajo zajtrk med tednom, tudi ob koncu tedna ne zajtrkujejo.

Podatki glede na spol kažejo, da je med dijaki, ki redno zajtrkujejo med tednom, več fantov (43,3 %) in manj deklet (36,6 %). Med dijaki, ki med tednom nikoli ne zajtrkujejo, je 29,3 % deklet in 28,7 % fantov. Povezava med pogostostjo zajtrkovanja med tednom in spolom je statistično značilna ($\chi^2(5) = 19,631$, $p = 0,001$). Dekleta med tednom pogosteje opuščajo zajtrk.

V primerjavi navad zajtrkovanja med regijama smo ugotovili, da je delež dijakov, ki med tednom redno zajtrkujejo, večji v zahodni regiji (42,0 %); v vzhodni regiji redno zajtrkuje 37,4 % dijakov. Ravno obratno je pri opuščanju zajtrka. V vzhodni regiji je delež dijakov, ki med tednom nikoli ne zajtrkujejo, večji (30,0 %) kot v zahodni regiji (27,8 %).

Dokazali smo statistično značilno neznatno pozitivno povezanost med spremenljivkama glede pogostosti zajtrkovanja med tednom in količino spanja med tednom (trajanje v urah) ($r_s = 0,177$, $p = 0,001$). Dijaki, ki med tednom več spijo, tudi pogosteje zajtrkujejo. V obeh regijah smo ugotovili statistično značilne pozitivne povezave med trajanjem spanja med tednom in številom obrokov v dnevu ter statistično značilne pozitivne povezave med trajanjem spanja in pogostostjo zajtrkovanja med tednom. Dijaki iz zahodne regije, ki več spijo, zaužijejo večje število obrokov ($r_s = 0,129$, $p = 0,001$) in med tednom pogosteje zajtrkujejo ($r_s = 0,209$, $p = 0,001$). Tudi dijaki iz vzhodne regije, ki več spijo, med tednom pogosteje zajtrkujejo ($r_s = 0,152$, $p = 0,001$) in čez dan zaužijejo več obrokov ($r_s = 0,127$, $p = 0,001$).

Sveže sadje enkrat ali večkrat na dan uživa 27,3 % dijakov, med njimi je več deklet (32,7 %); 19,8 % je fantov. Pogosteje sveže sadje vsakodnevno uživajo dijaki iz zahodne regije (30,0 %), v vzhodni regiji je ta delež 25,5%. Največ vprašanih dijakov (41,4 %) uživa sveže sadje trikrat ali večkrat na teden. Med njimi je nekoliko več fantov (42,7 %); 40,5 % je deklet. Petina (19,4 %) vprašanih uživa sveže sadje enkrat ali dvakrat na teden. Zgolj od enkrat do trikrat mesečno uživa sveže sadje 9,7 % dijakov. 2,2 % vprašanih nikoli ne uživa svežega sadja, med njimi je več fantov (3,9 %);

1,0 % je deklet. Povezava med pogostostjo uživanja svežega sadja in spolom je statistično značilna ($\chi^2(4)$ = 47,398, p = 0,001); dekleta pogosteje uživajo sveže sadje. 40,8 % dijakov nikoli ne uživa kuhanega sadja. 41,7 % vprašanih kuhano sadje uživa do trikrat mesečno, 7,5 % enkrat ali dvakrat na teden in 7,0 % trikrat ali večkrat na teden. Ugotovili smo, da dekleta pogosteje uživajo kuhano sadje ($\chi^2(4)$ = 12,782, p = 0,012). Delež dijakov, ki nikoli ne uživajo vloženega sadja, je 38,9 %. Do trikrat mesečno uživa vloženo sadje 45,9 % dijakov, 7,9 % enkrat ali dvakrat na teden in 5,1 % tri- ali večkrat na teden. Tudi med pogostostjo uživanja vloženega sadja in spolom smo ugotovili statistično značilno povezavo ($\chi^2(4)$ = 15,880, p = 0,003). Dekleta pogosteje uživajo vloženo sadje. Raziskava je pokazala statistično značilno povezavo med pogostostjo uživanja vloženega sadja in regijo bivanja ($\chi^2(4)$ = 35,020, p = 0,001). V vzhodni regiji dijaki zaužijejo več vloženega sadja.

Suho sadje enkrat ali večkrat dnevno uživa 3,0 % dijakov, trikrat ali večkrat tedensko 8,8 % dijakov, 10,3 % vprašanih jih uživa suho sadje enkrat ali dvakrat na teden. Skoraj polovica (47,3 %) vprašanih uživa suho sadje le od enkrat do trikrat mesečno, slaba tretjina (30,5 %) suhega sadja ne uživa. Povprečna količina zaužitega sadja v obroku med vsemi dijaki je 157,5 g. 1,9 % anketiranih dijakov sadja ne uživa.

Med dijaki jih 3,1 % nikoli ne uživa zelenjave. Povprečna količina zaužite zelenjave v obroku med vsemi dijaki je 161,4 g. Svežo zelenjavo enkrat ali večkrat na dan uživa 26,6 % dijakov. Pri uživanju sveže zelenjave je delež tistih, ki uživajo svežo zelenjavo vsaj enkrat na dan, večji med dekleti (31,5 %); pri fantih je 19,8%. 42,9 % dijakov uživa svežo zelenjavo od tri- do šestkrat tedensko, 14,5 % dijakov enkrat ali dvakrat na teden in 9,9 % do trikrat mesečno. Sveže zelenjave nikoli ne uživa 6,1 % dijakov, med njimi je 8,3 % fantov in 4,5 % deklet. Povezava med pogostostjo uživanja sveže zelenjave in spolom je statistično značilna ($\chi^2(4)$ = 36,282, p = 0,001). Dekleta pogosteje uživajo svežo zelenjavo. Kuhano zelenjavo vsak dan uživa 15,0 % dijakov, med njimi je več deklet (68,4 %) in dobra tretjina fantov (31,6 %). Od tri- do šestkrat tedensko uživa kuhano zelenjavo 39,0 % dijakov (58,5 % deklet in 41,5 % fantov). 10,5 % anketiranih dijakov nikoli ne uživa kuhane zelenjave. Delež teh je večji med fanti (58,5%), pri dekletih je 41,5%. Ugotovili smo statistično značilno povezavo med spolom in pogostostjo uživanja kuhane zelenjave ($\chi^2(4)$ = 28,876, p = 0,001). Kuhano zelenjavo pogosteje uživajo dekleta. Vložene zelenjave nikoli ne uživa 29,7 % dijakov (53,0 % deklet in 47,0 % fantov), 31,3 % jih vloženo zelenjavo uživa do trikrat mesečno. Enkrat do dvakrat na teden uživa vloženo zelenjavo 18,5 % dijakov, 15,9 % od tri- do šestkrat tedensko, 4,5 % pa vsakodnevno. Primerjava glede na spol je pokazala, da več vložene zelenjave pojedo dekleta. Povezava je statistično značilna ($\chi^2(4)$ = 14,220, p = 0,007).

Ugotovili smo statistično značilno povezavo med pogostostjo uživanja vložene zelenjave in regijo bivanja ($\chi^2(4)$ = 33,612, p = 0,001). Več vložene zelenjave uživajo dijaki iz vzhodne regije. Povezava med količino zelenjave v obroku in spolom je statistično značilna ($\chi^2(2)$ = 13,197, p = 0,001). Dekleta v obroku zaužijejo večjo količino zelenjave.

Raziskava je pokazala statistično značilno zmerno pozitivno povezavo med pogostostjo uživanja svežega sadja in sveže zelenjave (r_s = 0,448, p = 0,001). Dijaki, ki pogosteje uživajo sveže sadje, pogosteje uživajo tudi svežo zelenjavo.

Enkrat ali dvakrat na teden uživa fižol 19,1 % dijakov, med njimi je več fantov (21,0 %); 17,6 % je deklet. Delež tistih, ki uživajo fižol trikrat ali večkrat tedensko, je 11,7% (13,5 % fantov in 10,5 % deklet). Vsaj trikrat na mesec uživa fižol 46,3 % dijakov, dobra petina (21,4 %) fižola ne uživa. Med slednjimi je več deklet (23,2 %). Povezava med spolom in pogostostjo uživanja fižola je statistično značilna ($\chi^2(4)$ = 12,509, p = 0,014). V vzhodni regiji je delež dijakov, ki nikoli ne uživajo fižola, večji (22,5 %) kot v zahodni regiji (21,4 %).

Trikrat ali večkrat tedensko uživa grah 9,9 % dijakov (10,4 % fantov in 9,5 % deklet). Delež dijakov, ki uživajo grah enkrat ali dvakrat na teden, je 19,5 % (19,2 % fantov in 19,7 % deklet). 50,3 % vprašanih uživa grah do trikrat na mesec. 19,0 % dijakov nikoli ne uživa graha, med njimi je več fantov (20,1 %) kot deklet (18,2 %). Delež dijakov, ki nikoli ne uživajo graha, je večji v vzhodni regiji (20,3%) kot v zahodni (17,5%). Med anketiranimi je 9,3 % dijakov, ki nikoli ne uživajo stročnic. Povprečna količina zaužitih stročnic v obroku je 119,9 g.

Enkrat do dvakrat tedensko uživa bele morske ribe 13,2 % dijakov, med njimi je nekoliko več fantov (14,2 %); 12,4 % je deklet. Največji delež dijakov (61,9 %) uživa bele morske ribe do trikrat na mesec, 21,7 % jih nikoli ne uživa belih morskih rib (23,1 % deklet in 19,8 % fantov). Plave morske ribe enkrat ali dvakrat tedensko uživa 13,4 %. Več kot polovica vprašanih (55,4 %) uživa plave morske ribe do trikrat mesečno, četrtina (25,2 %) jih nikoli ne uživa plavih morskih rib (27,4 % deklet in 22,2 % fantov). Ugotovili smo statistično značilno povezavo med pogostostjo uživanja plavih morskih rib in regijo bivanja ($\chi^2(4)$ = 10,067, p = 0,001). Dijakov, ki nikoli ne uživajo plavih morskih rib, je več iz vzhodne regije (27,8 %); 22,0 % jih je iz zahodne regije. Sladkovodne ribe enkrat do dvakrat tedensko uživa 5,1 % dijakov, med njimi je več fantov (6,5 %); deklet je 4,1 %. 50,4 % (55,5 % fantov in 46,6 % deklet) uživa sladkovodne ribe do trikrat mesečno, 42,6 % pa nikoli (48,1 % deklet in 35,2 % fantov). Med dijaki, ki nikoli ne uživajo sladkovodnih rib, jih 45,5 % prihaja iz zahodne regije in 40,4 % iz vzhodne. 13,9 % anketiranih dijakov ne uživa nobenih rib. Povprečna količina rib v obroku je 150,1 g. Tabela 1 prikazuje značilnosti vzorca anketiranih dijakov glede na kategorije ITM in spol.

Delež ustrezno hranjenih dijakov je primerljiv. Povezava med spolom in stanjem hranjenosti je statistično značilna ($\chi^2(3) = 41{,}397$, $p = 0{,}001$).

Primerjava stanja hranjenosti med regijama (Tabela 2) pokaže slabše stanje hranjenosti v vzhodni regiji. V raziskavi smo med regijama ugotovili statistično značilne razlike v stanju hranjenosti ($U = 275{,}597$, $p = 0{,}003$).

O manj kot šestih urah spanja med tednom poroča 43,7 % dijakov, med njimi je več deklet (45,6 %); fantov je 40,9 %. Med vikendom je ta delež bistveno nižji (6,6 % dijakov). Od sedem do osem ur spanja med tednom navaja polovica dijakov (51,4 %). Ob vikendih od sedem do osem ur spi 35,8 % dijakov (38,2 % fantov in 14,0 % deklet). Med tednom 9 ur in več spi 4,3 % dijakov (5,0 % deklet in 3,5 % fantov). Čas, ki ga dijaki med tednom porabijo za gledanje televizije in uporabo drugih zaslonov, je prikazan v Tabeli 3.

Iz Tabele 4 je razvidno, da se pogosteje rekreirajo fantje. Med neaktivnimi dijaki je večji delež deklet.

Ugotovili smo povezavo med sedentarnim vedenjem med tednom in pogostostjo rekreiranja v prostem času ($r_s = -0{,}113$, $p = 0{,}001$). Dijaki, ki med tednom namenijo več časa sedečemu vedenju, so v prostem času redkeje telesno aktivni. Obstaja statistično značilna pozitivna povezava med sedentarnim vedenjem med tednom in med vikendom ($r_s = 0{,}679$, $p = 0{,}001$), kar nakazuje, da imajo dijaki enake navade življenjskega sloga ob delavnikih in med vikendi.

Tabela 1: *Stanje hranjenosti glede na spol*

ITM (kg/m²)	Fantje (n = 661)		Dekleta (n = 902)		Skupaj (n = 1563)	
	n	%	n	%	n	%
< 18,50	26	3,9	96	10,6	122	7,8
18,5–24,9	500	75,6	676	74,9	1176	75,2
25,0–29,9	92	13,9	111	12,3	203	13,0
30,0 in več	43	6,5	19	2,1	62	4,0

Legenda: n – število; % – odstotek

Tabela 2: *Porazdelitev vzorca v skupine ITM-ja glede na regijo bivanja*

ITM (kg/m²)	Vzhodna regija (n = 859)		Zahodna regija (n =704)		Skupaj (n = 1563)	
	n	%	n	%	n	%
< 18,50	56	6,5	66	9,4	122	7,8
18,5–24,9	635	73,9	541	76,8	1176	75,2
25,0–29,9	118	13,7	85	12,1	203	13,0
30,0 in več	50	5,8	12	1,7	62	4,0

Legenda: n – število; % – odstotek

Tabela 3: *Sedeče vedenje med tednom glede na spol*

Spol	Čas sedečega vedenja med tednom					
	Nič	Pol ure	1 uro	2 uri	3 ure	Več kot 3 ure
Fantje (%)	1,4	4,2	9,2	24,7	20,3	40,2
Dekleta (%)	0,8	2,0	10,8	23,4	25,2	37,9
Skupaj (%)	1,0	2,9	10,1	23,9	23,1	38,9

Legenda: % – odstotek

Tabela 4: *Pogostost rekreiranja glede na spol*

Spol	Pogostost rekreiranja					
	Nikoli	Enkrat na mesec	Enkrat na teden	Dva- do trikrat na teden	Štiri- do šestkrat na teden	Vsak dan
Fantje (%)	2,3	7,9	16,3	26,8	22,4	24,4
Dekleta (%)	8,2	15,7	22,1	30,9	13,1	10,0
Skupaj (%)	5,7	12,4	19,6	29,2	17,0	16,1

Legenda: % – odstotek

Diskusija

Delež mladostnikov, ki med tednom redno zajtrkujejo (39,5 %), je primerljiv s slovenskim povprečjem za sedemnajstletnike za leto 2018 (35,3 %) (Jeriček Klanšček et al., 2019). Ugotovili smo, da zajtrkovanje med tednom pogosteje opuščajo dekleta. Podobno kot nekatere druge raziskave HBSC v Evropi (Băban, Tăut, Balazsi, & Dănilă, 2020; Brooks, Klemera, Chester, Magnusson, & Spencer, 2020; Moreno et al., 2020; Nardone et al., 2020), opravljene med mlajšimi mladostniki, tudi v Sloveniji (Jeriček Klanšček et al., 2019) ugotavljajo, da med tednom redno zajtrkuje več fantov ter da s starostjo narašča delež tistih, ki zajtrk opuščajo. Slednje potrjuje tudi prva longitudinalna raziskava HBSC (2020), izvedena v Sloveniji, ki je zajela mlade, vključene že v vzorec raziskave HBSC 2018 (Jeriček Klanšček et al., 2021). Sistematični pregled raziskav, opravljenih med letoma 2008 in 2018 med mladostniki iz 33 držav do 18 leta, potrjuje, da zajtrk pogosteje opuščajo dekleta in da s starostjo narašča delež tistih, ki ne zajtrkujejo redno. Prav tako dokazuje, da je opuščanje zajtrka povezano z izbiro manj zdravih živil ter posledično s pojavom prekomerne hranjenosti pri mladostnikih (Monzani et al., 2019; Ober et al., 2021). Da je opuščanje zajtrka pomemben dejavnik tveganja za razvoj debelosti pri mladostnikih, so v svoji raziskavi med nizozemskimi mladostniki, starimi med 13 in 16 let, potrdili tudi Croezen, Visscher, Ter Bogt, Veling, & Haveman-Nies (2009). Pregled raziskav, ki so jih opravili Giménez-Legarre, Flores-Barrantes, Miguel-Berges, Moreno, & Santaliestra-Pasías (2020), dokazuje, da je redno zajtrkovanje povezano z bolj zdravim načinom prehranjevanja ter večjim vnosom sadja in zelenjave.

V raziskavi smo potrdili povezavo med pogostostjo zajtrkovanja in navadami spanja. Povezavo med krajšim časom spanja ter opuščanjem zajtrka so potrdili tudi v raziskavi med mladostniki v Palestini (Badrasawi, Anabtawi, & Al-Zain, 2021), Grčiji (Tambalis, Panagiotakos, Psarra, & Sidossis, 2018) ter na Kitajskem (Liu et al., 2022). V zadnjih desetletjih je zaznati trend pomanjkanja spanja, hkrati pa narašča pojav prekomerne hranjenosti. Več raziskav je potrdilo povezavo med trajanjem spanja in razvojem debelosti ter sladkorne bolezni (Knutson, Spiegel, Penev, & Van Cauter, 2007; Knutson & Van Cauter, 2008). V prihodnje bi bilo smiselno raziskati razloge za opuščanje zajtrka, predvsem pri dekletih. Pri slednjih je treba nameniti več pozornosti povezavi med opuščanjem zajtrka ter motnjami hranjenja. Eden od razlogov za opuščanje zajtrka med slovenskimi mladostniki bi bila lahko tudi organizirana šolska malica, česar v raziskavi nismo preučevali.

Kot smo domnevali, je primanjkljaj vnosa zelenjave in stročnic glede na priporočila večji, kot je pri vnosu sadja. Zaradi številnih za rast in razvoj koristnih snovi, prehranskih vlaknin ter zaščitnih snovi je zaželeno uživanje dnevno priporočenih količin (400 g) sadja in zelenjave (FAO &WHO, 2019), pri čemer ima uživanje zelenjave zaradi močnejšega zaščitnega učinka in manjšega vnosa sladkorjev večji pomen. Trajnostna, planetarna prehrana ima za vnos sadja in zelenjave višja priporočila, v razponu 200–600 g zelenjave in 100–300 g sadja (Willett et al., 2019). Za doseganje priporočila dnevnega vnosa sadja in zelenjave je ključno prepoznavanje dejavnikov, ki pri mladostnikih vplivajo na vnos sadja in zelenjave (Darfour-Oduro, Andrade, & Grigsby-Toussaint, 2020). Po podatkih mednarodne raziskave HBSC iz preteklih let je med mlajšimi slovenskimi mladostniki vnos zelenjave v primerjavi s sadjem manjši (Stergar, Scagnetti, & Pucelj, 2006; Gabrijelčič Blenkuš, Gregorič, & Fajdiga Turk, 2007; Fajdiga Turk, 2011; Drev, 2015). Tudi zadnji opravljeni raziskavi HBSC v Sloveniji ugotavljata, da je pogostost uživanja zelenjave v primerjavi s sadjem še vedno manjša ter da s starostjo upada (Jeriček Klanšček et al., 2019, 2021).

Naša raziskava je pokazala, da je delež tistih, ki uživajo sadje in zelenjavo vsaj enkrat na dan, večji med dekleti. Enake so ugotovitve raziskav med mlajšimi slovenskimi mladostniki (Jeriček Klanšček et al., 2019) in med mladostniki iz drugih držav (Băban et al., 2020; Brooks et al., 2020; Moreno et al., 2020; Nardone et al., 2020). Raziskave o prehranskih navadah med mladostniki ugotavljajo, da je uživanje sadja in zelenjave poleg povezanosti s starostjo in spolom pomembno povezano tudi s socialno-ekonomskim statusom družine, dostopnostjo živil ter z zgledom in spodbudo staršev. Slednje je izrazitejše pri mlajših, medtem ko sta pri starejših mladostnikih pomembnejša zdravstvena in šolska politika, ki spodbujata uživanje sadja in zelenjave (Darfour-Oduro et al., 2020). Pri pregledu raziskav, ki obravnavajo prehranske navade mladostnikov (10 do 19 let) v Severni Ameriki, Evropi in Oceaniji, opravljenih v preteklem desetletju, je bilo ugotovljeno, da mladostniki ne dosegajo priporočil za vnos sadja in zelenjave ter da je glede uživanja stročnic pri mladostnikih znanega zelo malo (Rosi, Paolella, Biasini, Scazzina, & SINU Working Group on Nutritional Surveillance in Adolescents, 2019). Med slovenskimi mladostniki so odstopanja od zdrave, uravnotežene prehrane, posebej pri vnosu sadja, zelenjave in stročnic, ugotovili tudi Kobe, Štimec, Ribič, & Fidler Mis (2012).

Potrdili smo domnevo, da je primanjkljaj vnosa zelenjave, stročnic in rib glede na priporočila večji, kot je pri vnosu sadja. Ribe, predvsem mastne morske ribe, so pomemben vir beljakovin, omega 3 maščobnih kislin, vitaminov (vitamin D) in mineralov (jod, selen). Priporočila za uživanje rib se v evropskih državah razlikujejo predvsem zaradi dostopa do morske hrane in s tem povezano tradicijo prehranjevanja z ribami (Lofstedt, de Roos, & Fernandes, 2021). Po priporočilih naj bi mladostniki uživali ribe enkrat ali dvakrat na teden oziroma minimalno 200 g tedensko (Lofstedt

et al., 2021). V raziskavi smo ugotovili, da je uživanje rib med dijaki glede na priporočila neustrezno ter da je dijakov, ki nikoli ne uživajo plavih morskih rib, več v vzhodni regiji. Povezava med pogostostjo uživanja plavih morskih rib in regijo bivanja je statistično značilna, kar povezujemo z dejstvom, da tradicionalna kuhinja v zahodni regiji vključuje ribe. Tudi v poročilu o kakovosti dijaških obrokov v Sloveniji (Gregorič, Gabrijelčič Blenkuš, Klančar, & Fajdiga Turk, 2011) ugotavljajo, da so bile ribe v vseh regijah v obrokih premalo zastopane.

V raziskavi smo potrdili domnevo, da je uživanje sadja, zelenjave, stročnic in rib glede na priporočila večje v zahodni regiji. Vsakodnevno uživa sveže sadje in svežo zelenjavo več dijakov iz zahodne regije, medtem ko več vloženega sadja in zelenjave uživajo dijaki iz vzhodne regije. Delež dijakov, ki nikoli ne uživajo fižola in/ali graha ter rib, je večji v vzhodni regiji. Tudi povprečne količine zaužitega sadja, zelenjave, stročnic in rib v obroku so večje v zahodni regiji.

SZO za mladostnike nad 18 let priporoča 150 minut zmerno intenzivne telesne aktivnosti na teden ali vsaj 75 minut zelo intenzivne telesne aktivnosti ali enakovredno kombinacijo obeh intenzivnosti (WHO, 2020). Kakšne so koristi redne telesne aktivnosti za zdravje v prehodu iz mladostništva v odraslost (18–24 let), bo v prihodnosti treba natančneje raziskati (van Sluijs et al., 2021). Tudi pri priporočilih glede sedečega vedenja se osemnajstletniki uvrščajo v skupino odraslih. Sedeče vedenje je tako opredeljeno kot čas z nizko porabo energije v času budnosti, sedenja ali ležanja z namenom izobraževanja, opravljanja poklica in prevoza. Da bi zmanjšali negativne učinke sedečega vedenja na zdravje, se priporoča čas sedenja omejiti oziroma ga prekinjati s telesno aktivnostjo kakršnekoli intenzivnosti (WHO, 2020). Dokazano je, da ima sedeče vedenje neugoden vpliv na zdravje in povečuje tveganje za kronične nenalezljive bolezni. Vendar je pri raziskovanju vpliva sedentarnosti na zdravje treba upoštevati, da gre pri posameznikih za različne vzorce sedečega vedenja in načine prekinjanja sedenja (WHO, 2020). Med mladostniki je posebej zaskrbljujoče sedeče vedenje, ki je povezano z uporabo različnih zaslonov (Saunders et al., 2022).

Potrdili smo povezavo med sedentarnim vedenjem med tednom in pogostostjo rekreiranja v prostem času. Ugotovitev nakazuje ponavljajoč vzorec porabe časa za telesno aktivnost ter sedentarne dejavnosti. Dijaki iz naše raziskave, ki med tednom namenijo več časa sedečim oblikam preživljanja časa (branje, televizija, računalnik, mobitel), so manj telesno aktivni oziroma se redkeje rekreirajo. Raziskave, opravljene na mlajših slovenskih mladostnikih, so pokazale, da je vsak dan telesno aktivnih 13,5 % sedemnajstletnikov. Ugotavljajo, da je redno telesno aktivnih več fantov ter da delež redno telesno aktivnih s starostjo upada (Jeriček Klanšček et al., 2019, 2021). Tudi naša raziskava je potrdila, da je redno telesno aktivnih več fantov kot deklet. Enako ugotavljajo nekatere druge raziskave (Croezen et al., 2009; Carson et al., 2016; van Sluijs et al., 2021). Raziskava med slovenskimi mladostniki (2018) ugotavlja več kot štiri ure sedečega vedenja dnevno med 42,4 % sedemnajstletnikov, med njimi je skoraj polovica deklet (48,5 %); 36,4 % je fantov (Jeriček Klanšček et al., 2019). Darfour-Oduro et al. (2020) so v svoji raziskavi potrdili, da je telesna neaktivnost povezana tudi z nezadostnim vnosom sadja in zelenjave.

Pretežno sedeči način življenja skupaj z nizko telesno aktivnostjo pomembno prispeva k razvoju prekomerne hranjenosti. Tako kot v mnogih drugih evropskih državah tudi v Sloveniji narašča število mladostnikov s prekomerno telesno maso (WHO, 2013). S slednjo je povezanih več dejavnikov življenjskega sloga, med katere sodijo tudi izpuščanje zajtrka, izbira manj zdravih živil, izbirčnost ter krajši čas trajanja spanja (Monzani et al., 2019; Ober et al., 2021; Špindler, Cilar Budler, Klanjšek, & Kegl, 2021). Domnevo, da imajo dijaki, ki prihajajo iz vzhodne kohezijske regije, slabšo oceno stanja hranjenosti, smo potrdili. Večji delež prekomerno hranjenih dijakov iz vzhodne kohezijske regije lahko povezujemo tudi z drugimi ugotovitvami iz naše raziskave. Ugotovili smo, da dijaki iz vzhodne regije, ki velja za manj razvito, z višjo stopnjo brezposelnosti ter višjo stopnjo tveganja revščine (Statistični urad Republike Slovenije, 2022) pogosteje izpuščajo zajtrk, uživajo manj sadja, zelenjave ter stročnic in rib. V prihodnje bi med slovenskimi mladostniki veljalo raziskati vpliv družbene neenakosti na prehransko vedenje.

Zaključek

V raziskavi smo potrdili domneve o neustreznih prehranjevalnih navadah starejših slovenskih mladostnikov, slednje so nekoliko slabše v vzhodni kohezijski regiji. Delež prekomerno hranjenih dijakov je večji v vzhodni regiji. Uživanje sadja, zelenjave, stročnic in rib je v zahodni regiji ustreznejše. Zajtrkovanje pogosteje opuščajo dekleta. Pokazalo se je, da je dolžina spanja povezana z rednim zajtrkovanjem. Ugotovitve naše raziskave kažejo tudi na neredno telesno aktivnost, mladostniki več časa namenijo sedečim dejavnostim. Dekleta so manj telesno aktivna. Pri promociji zdravega življenjskega sloga mladostnikov je nepogrešljivo sodelovanje zdravstvene vzgoje in dietetike. Predvsem na področju prehranske vzgoje je ključno znanje o različnih prehranskih vzorcih, priporočilih ter virih posameznih hranil. Potrebno je ozaveščanje o pomenu pretežno rastlinske prehrane, ki ima ugoden učinek na zdravje ljudi in planet.

Conflict of interest/Nasprotje interesov

The authors declare that no conflicts of interest exist./Avtorici izjavljata, da ni nasprotja interesov.

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Ethical approval/Etika raziskovanja

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Author contributions/Prispevek avtorjev

Both authors contributed equally to study design, literature search and writing the manuscript./Avtorici sta enako prispevali zasnovi raziskave, pregledu literature in pisanju besedila.

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