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Health behaviour of children in adolescence and their parents

Zachowania zdrowotne dzieci w okresie adolescencji oraz ich rodziców

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Abstract

Introduction. The WHO defines health as total physical, mental, and social well-being. The implementation of healthy habits in childhood is crucial to the future health and well-being of the individual and society. The adolescence period is particularly important because it shapes lifelong health habits that we nurture as adults.

Aim. The aim of this study is to analyse and compare the health behaviour of pupils in grades 5–8 of elementary school, and their parents.

Methods and materials. The study involved 250 pupils in grades 5–8, and 242 parents of adolescents included in the study. The standardised questionnaire "Health Behaviour Inventory" was used to survey the parents. A modified version of the questionnaire was used to survey the adolescents.

Results and conclusion. The study showed that the parents' group was characterised by a medium level of health behaviour, while the adolescent group was characterised by a low level. Adolescents showed lower health behaviours than their parents. Women presented higher scores on proper eating habits and preventive behaviours compared to men. Girls showed higher scores on health practices than boys. BMI and parental education did not affect the level of health behaviours in the surveyed parents. The main source of information on health behaviours for adolescents is the family. It is necessary to expand the knowledge of children and adolescents' positive health behaviour, including modern medical applications and information in social media. It is necessary to pay attention to the special role of the family in children's health education.

Keywords: children, parents, health behaviour, adolescents, IZZ.

Abstrakt

Wprowadzenie. WHO definiuje zdrowie jako stan całkowitego dobrego samopoczucia fizycznego, psychicznego i społecznego. Wdrażanie zdrowych nawyków w dzieciństwie jest kluczowe dla przyszłego zdrowia i samopoczucia jednostki oraz społeczeństwa. Okres dorastania jest szczególnie istotny, ponieważ kształtuje nawyki zdrowotne, które pielęgnujemy jako dorośli przez całe życie.

Cel. Celem pracy było zbadanie i porównanie zachowań zdrowotnych wśród nastolatków i ich rodziców. Ponadto celem było sprawdzenie źródeł, z których nastolatkowie dowiadują się o zachowaniach zdrowotnych, oraz przyjrzenie się różnicowaniu zachowań zdrowotnych ze względu na BMI, wykształcenie (dorośli) i płeć (obie grupy).

Metody i materiały. W badaniu wzięło udział 250 uczniów klas 5–8 oraz 242 rodziców badanych nastolatków. Do przeprowadzenia badania rodziców wykorzystano standaryzowany kwestionariusz Inwentarz Zachowań Zdrowotnych. Do badania dzieci zastosowano jego nieznacznie zmodyfikowaną wersję.

Wyniki i wnioski. Badanie wykazało, że grupa rodziców charakteryzuje się średnim poziomem zachowań zdrowotnych, podczas gdy grupa dzieci cechuje się poziomem niskim. Kobiety i dziewczęta prezentowały wyższe wyniki w zakresie prawidłowych nawyków żywieniowych i zachowań profilaktycznych w porównaniu do mężczyzn i chłopców. Wskaźnik BMI i wykształcenie rodziców nie wpływa na poziom zachowań zdrowotnych u badanych rodziców. Głównym miejscem czerpania informacji o zachowaniach zdrowotnych przez dzieci jest rodzina. Niższy wynik zachowań zdrowotnych u dzieci w porównaniu do ich rodziców wskazuje, że należy poszerzać wiedzę z zakresu pozytywnych zachowań zdrowotnych dzieci i młodzieży. Warto rozważyć włączanie w to nowoczesnych aplikacji medycznych oraz informacji zawartych w mediach społecznościowych. Należy także zwrócić uwagę na szczególną rolę rodziny w zakresie edukacji zdrowotnej dzieci.

Słowa kluczowe: dzieci, zachowania zdrowotne, adolescencja, IZZ, rodzice.

Introduction

Health is considered a fundamental value, especially in the context of caring for the development of children and young people (Augustyn, Rutkowski, & Pac-Pomarnacka, 2021). According to the World Health Organisation (WHO) definition, which takes a holistic approach to understanding this value, health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 2023). This understanding allows us to think of health as a potential that we can multiply or develop, something we can think about constantly every day, not just when illness or disorders arise. Shaping a healthy lifestyle is a process that begins in the earliest stages of development and gains momentum during adolescence, when teenagers become increasingly decisive about their daily choices regarding nutrition, sleep and leisure activities. Adolescence is also a time of major biological and psychosocial changes. Peers and popular culture begin to play an important role. Alongside the family, school also becomes a place where educational processes take place, including both the learning and internalisation of beneficial health behaviours and harmful behaviours or habits. The attitudes towards health that develop during this time can be of significant importance for the future lives of young people (Sikora, Ryba, & Zoldi, 2017).

Childhood and adolescence are particularly important periods for shaping health behaviours, as this is when they are first formed (Brzezińska, 2000). Health attitudes are shaped by the acquisition of knowledge and observation of role models from various environments: home, kindergarten, school, local community and the me-

dia. Adolescence, when young people begin to test the boundaries set by their environment, is a time not only for the consolidation of habits but also for the emergence of risky behaviours (Korpak, 2021). Therefore, changes occurring at this time can either lead to beneficial health attitudes or contribute to the emergence of risk factors for one's health and that of others (Woynarowska, 2007). In this context, prevention in the area of physical and mental health is particularly effective during adolescence.

Health behaviours – state of research and research issues

Health behaviours are defined as "[...] all human behaviours that directly or indirectly affect health" (Marmola, Wańczyk-Welc, 2017, p. 186). It can take two forms: pro-health (including physical activity, healthy eating habits, and prevention) and anti-health (substance abuse, chronic stress, and unhealthy eating habits) (Marmola, Wańczyk-Welc, 2017).

Research conducted by Health Behaviour in School-aged Children (HBSC) in collaboration with the WHO Regional Office for Europe in 2021–2022 shows that only 25% of boys and 15% of girls engage in moderate physical activity for 60 minutes a day. Two-fifths of adolescents do not meet the requirements for intense physical activity three times a week. The rate of both moderate and intense physical activity decreases with age (Rakić et al., 2024).

The results are also worrying when it comes to eating habits: in more than half of the countries surveyed, there was a significant decline in daily breakfast consumption between 2018 and 2022. In addition, the report shows that only 38% of teenagers say they eat fruit and vegetables every day. On the other hand, the consumption of unhealthy products is observed, with girls eating sweets more often and boys drinking sweetened beverages. These difficulties contribute to health problems, including overweight and obesity. Analysing children's health behaviours, HBSC recommends that in the future, an initiative be taken to tax sweet drinks and fast food to improve the health behaviours of young people (Rakić et al., 2024). Małgorzata Marmola and Anna Wańczyk-Welc (2017) emphasise that health behaviours are universal and social – they arise from interactions with an individual's environment, including their family. This influence can both contribute to the development and internalisation of pro-health behaviours and cause anti-health behaviours.

Research indicates that parents functioning in an unhealthy environment and exhibiting unhealthy habits may contribute to the development of diseases in family members and adversely affect their children's development (Kim & Lee, 2023). Such predictors may include excessive working hours, poor eating habits, and substance

abuse. One of the negative behaviours noted by the above-mentioned researchers and others (Wu, Sun, & Xi, 2021; Wang, Ho, & Lam, 2011) is smoking by parents in the presence of children. In addition to the toxicity of being a "passive smoker," children are more likely to start smoking at an early age. That is why it is so important to coordinate adult behaviour as an example for children and young people to follow. By maintaining a healthy lifestyle, we set an example for young people on how to behave and what choices to make in order to be healthy. The child-parent relationship is an extremely important aspect of building healthy behaviours.

Assuming that parents' health behaviours can influence their children's health behaviours, the following research questions were formulated:

Main problem: Are there significant differences in the presentation of health behaviours between the parent and child generations?
Assuming that, as a result of the upbringing process (including, above all, modelling), children imitate and internalise their parents' behaviours, the following *main hypothesis* was formulated: Children and parents present a similar level of health behaviours.

Specific questions:

1. Do parents and children have similar levels of overall health behaviour?
2. If so, in which areas (healthy eating habits, preventive behaviour, positive mental attitude, health practices) are there differences between parents and children?

In addition, the following question was asked:
Does the level of education of parents influence their health behaviour?
It was assumed that a higher level of education would be associated with better results in health-promoting behaviour.

Does BMI correlate with health behaviour outcomes?
It was assumed that high BMI scores would correlate with unfavourable health behaviour outcomes.

The last question concerned the source of knowledge about health behaviours. The authors of the HBSC study claim that health behaviours depend on the external conditions in which adolescents function – their family and local environment, as well as school (Mazur, 2015). Therefore, it seems that these environments will be the main source of knowledge about the described behaviours for children and young people. During adolescence, the media, especially the Internet, also play a significant role. The report *Teenagers 3.0* shows that children have been using the Internet independently since

the age of 7, and the time spent by teenagers on the Internet is increasing – in 2022 it was an average of 5 hours and 36 minutes per day, in 2020 – 4 hours and 50 minutes, and in 2014 – 3 hours and 40 minutes. In addition to entertainment, the Internet is also a source of knowledge for teenagers (Lange, 2023), which is why in the last question (What are the sources of children's knowledge about health behaviour?) we were also interested in whether, and if so, to what extent, alongside school and family, the Internet is a source of knowledge about health behaviour.

Materials and methods

Research sample

The study participants were primary school students in grades 5–8 (132 girls and 118 boys) and their parents (187 women and 55 men). The children were selected at random, and their parents were then invited to participate. In both groups, gender was the demographic variable examined, and in the case of adults, education and BMI were also examined.

Research tools used

The study utilised the *Inwentarz Zachowań Zdrowotnych* (IZZ) [Health Behaviour Inventory] (Juczyński, 2012). The questionnaire consists of 24 items related to healthy behaviours. The tool contains four categories: healthy eating habits (HEH), preventive behaviours (PB), positive mental attitude (PMA), and health practices (HP). The first category concerns the type of food consumed (products and beverages), the second refers to compliance with medical recommendations and ways of obtaining health information, the third covers psychological factors such as avoiding strong emotions, stress and tension, and the last one concerns daily habits related to sleep and physical activity (Marmola, Wańczyk-Welc, 2017). The inventory allows for the calculation of an overall score. To adapt the questions to children and adolescents, the IZZ questionnaire was slightly modified (the same number of questions was retained, the meaning of the questions was not changed, and only some words were changed). The original version was used for adults.

The study of both groups also used a self-designed questionnaire containing demographic questions. Statistical analysis was performed using IBM SPSS Statistics 29 software. The tests used in the calculations were: Student's t-test, ANOVA, Pearson's chi-square test, and Spearman's test.

Aim of the study

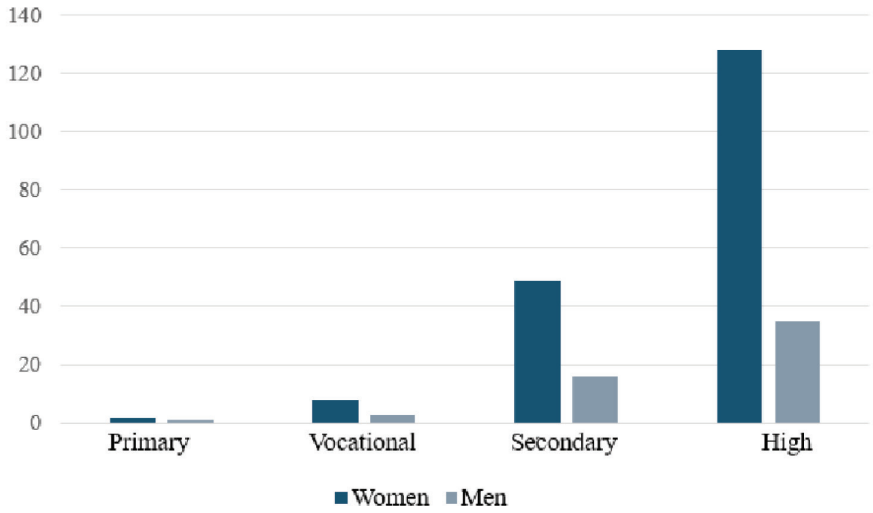
The study aimed to examine and compare health behaviours among teenagers (students in grades 5–8 of primary school) and their parents. In addition, the aim was to identify the sources from which teenagers learn about health behaviours and to examine differences in health behaviours based on BMI, education (adults) and gender (both groups).

Results

Characteristics of the respondents

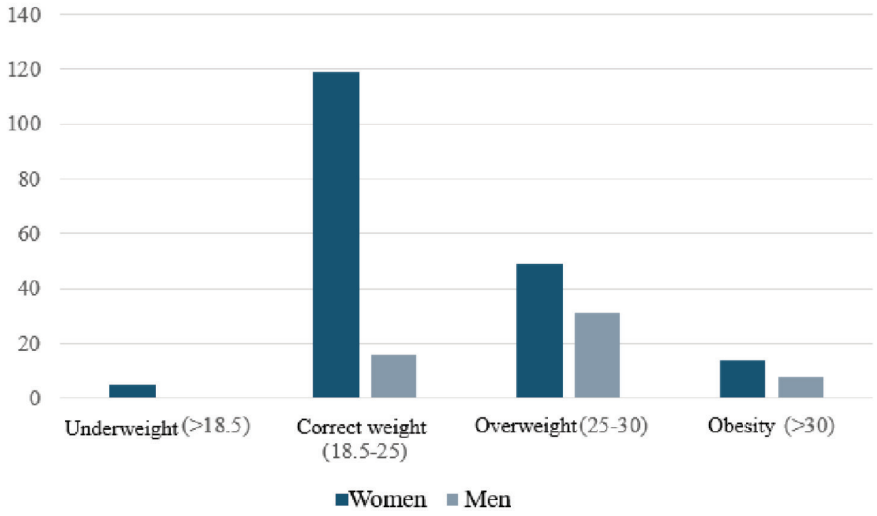
The adult group consisted mainly of women, while the gender distribution among children was almost equal (47% boys and 53% girls). Among adults, 69% were between 36 and 45 years old, and 25% were 46+. The smallest group (5%) was the 26-35 age group. As many as 67% of respondents had higher education, 27% had secondary education, 5% had vocational education, and only 1% had primary education (Figure 1). According to BMI, most women (64%) were of normal weight, but 26% of respondents were overweight. Among men, 29% were of normal weight, and most of them (56%) were overweight. Underweight and obesity in both groups were found in the smallest number of people (Figure 2).

Figure 1. Statistical distribution of the educational level of the parents surveyed.



Source: Author's own study.

Figure 2. BMI distribution of the parents surveyed.



Source: Author's own study.

Health behaviours of children and parents – comparison

Overall health behaviour score in the group of parents and children

Research has demonstrated that parents and children differ in terms of health behaviour. It is concerning that the result for children (4.82 stens) indicates a low level. Parents, on the other hand, achieved a result that can be classified as average health behaviour (5.76 stens).

Differences between the group of children and the group of parents in individual health behaviour indicators

The study revealed statistically significant differences ($p < 0.05$) between the behaviours of parents and children on all IZZ scales. Children scored lower on each scale (Table 1).

Table 1

Differences in health behaviour between the group of children and the group of parents

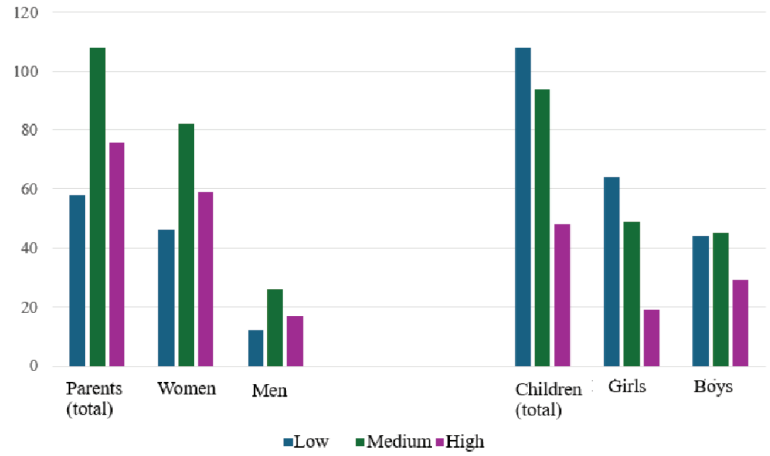
		N	Mean	Standard deviation	p
PNŻ	Children	250	18.6	4.5	0.000
	Parents	242	21.2	4.3	

		N	Mean	Standard deviation	p
ZP	Children	250	20,5	4.9	0.012
	Parents	242	21.5	4.1	
PNP	Children	250	19.9	5.1	0.000
	Parents	242	22.2	3.6	
PZ	Children	250	17.6	4.7	0.000
	Parents	242	20.0	3.8	
Total score	Children	250	76.6	15.1	0.000
	Parents	242	85.0	12.2	
Score in stens	Children	250	4.8	2.0	0.000
	Parents	242	5.8	1.7	

Source: Authors' own study.

The parents most often had average results (108 people, which is 44.6% of the respondents), while the children had low results (108 people, which is 43% of the respondents). The parents most rarely had low results (58 people, 24% of the respondents), while the children most rarely had high results (48 people, 19% of the respondents).

Figure 3. Number of respondents who obtained low, medium and high scores on the Steno scale of health behaviours.



Source: Authors' own study

Individual health behaviour indicators for parents

Among adults, the highest score can be observed on the Positive Mental Attitudes scale, while the lowest score can be observed on the Health Practices scale (Table 2).

Table 2

Results for individual IZZ test indicators in adults

	PNŻ	ZP	PNP	PZ	IZZ	stens
Mean	21.2	21.5	22.2	20.0	85.0	5.8
Standard deviation	4.3	4.1	3.6	3.8	12.2	1.7
Min	11	8	7	10	40	1
Max	30	30	30	28	115	10

Source: Authors' own study

Statistically significant differences were found between women and men on two scales. In both scales, women scored higher. The first scale was Healthy Eating Habits: x = 21.8; SD = 4.1 (women); x = 19.4; SD = 4.4 (men), (p = 0.000). The second scale with a predominance of high scores among women was Preventive Behaviour: x = 21.9; SD = 4.4 (women); x = 20.2; SD = 4.4 (men); (p = 0.008) (Table 3).

Table 3

Differences between women and men in IZZ test scores (adults)

Variables		N	Mean	Standard deviation	p
PNŻ	Women	187	21.8	4.1	0.000
	Men	55	19.4	4.4	
ZP	Women	187	21.9	4.0	0.008
	Men	55	20.2	4.5	
PNP	Women	187	22.3	3.6	0.814
	Men	55	22.1	3.5	
PZ	Women	187	20.0	3.8	0.872
	Men	55	19.9	3.7	

Variables		N	Mean	Standard deviation	p
ZZ	Women	187	86.0	11.9	0.021
	Men	55	81.7	12.8	
Steny	Women	187	5.7	1.7	0.704
	Men	55	5.8	1.7	

Source: Authors' own study.

BMI and educational attainment about general health behaviour among adults

In the group of parents surveyed, there are no significant differences between the expected and observed distributions of general health behaviours concerning education (Pearson's chi-square test is 0.465) or BMI (Pearson's chi-square test is 0.447). This means that the level of education and BMI are not significant indicators of health behaviours. No correlation was found between the level of education and BMI.

Average results for individual health indicators in children

In the case of children, the highest score is observed on the ZP scale, while the lowest score, as in the case of adults, is observed on the PZ scale (Table 4).

Table 4

Average results for individual IZZ test indicators in children

	PNŻ	ZP	PNP	PZ	IZZ	stens
Mean	18.6	20.5	19.9	17.6	76.6	4.8
Standard deviation	4.5	4.9	5.1	4.7	15.1	2
Min	6	6	6	6	24	1
Max	30	30	30	30	116	10

Source: Authors' own study.

A significant statistical difference between the sexes was found in only one scale. As in the case of adults, girls scored higher on the PZ scale (girls: x = 18.2; SD = 4.4 *vs.* boys: x = 16.8;

SD = 4.9) (p = 0.028) (Table 5).

Table 5

Differences between girls and boys in IZZ test scores (children)

Gender		N	Mean	Standard deviation	P
PNŻ	Girls	139	19.0	4.2	0.109
	Boys	111	18.1	4.8	
ZP	Girls	139	20.8	4.4	0.318
	Boys	111	20.1	5.5	
PNP	Girls	139	19.9	5.0	0.989
	Boys	111	19.8	5.1	
PZ	Girls	139	18.2	4.4	0.028
	Boys	111	16.8	4.9	
ZZ	Girls	139	77.8	13.5	0.138
	Boys	111	75.0	16.8	
steny	Girls	139	4.7	1.8	0.135
	Boys	111	5.0	2.1	

Source: Authors' own study

Sources of knowledge about health behaviours

It is important to note that for the largest number of students (41.2%), the family is the source of knowledge about healthy behaviours. The Internet, including social media, ranks second (31.1%). Peers account for 8%, while only 5.8% of students indicated that social programmes/campaigns promoting health are a source of information. Unfortunately, few people indicated that they learn about healthy behaviour from teachers (11.3%) (Table 6).

Table 6

Sources of information on health behaviour (children)

	n	%
Peers	40	8.0
Teachers	52	11.3

	n	%
Health promotion programmes/ social campaigns	29	5.8
Internet	134	31.1
Family	187	41.2

Source: Authors' own study.

Discussion

Research has shown that there are differences in the level of health behaviour between parents and children. Both in the overall results and in the separate scales, children scored lower than their parents. Given the importance of parental influence, it was assumed that the health behaviour of parents and children would be similar. The difference in favour of parents is puzzling, especially since, according to our research, the family is the main source of knowledge about health behaviours for children. These results indicate a need for further research to identify the causes of this discrepancy.

Our research shows that parents exhibit an average level of health behaviours. For men, the result was 81.65 points, which corresponds to the results of other studies, e.g., by Celina Łepecka-Klusek et al. (Łepecka-Klusek, 2015), where the average result was 78.5 points, and Anna Arendt et al. (2014), where men scored 76.28 points. In each of these studies, men showed an average level of health behaviour of 5–6 stens.

For most women (44%), the results of our own research also indicate a moderate level of health behaviour. This is a more favourable result compared to the research by Marlena Duda (2021), according to which the majority of women (53%) exhibited a low level of behaviour. Differences can also be seen in the frequency of high-level health behaviours. Our research shows that such behaviour is characteristic of 32%, while in the above-mentioned study, a high level was found in only 11%.

Other demographic data taken into account in adults (level of education and BMI) did not differentiate the respondents in terms of health behaviours. No correlation was found between BMI and level of education. Such a relationship has been observed in other studies. For example, a study conducted by Silke Hermann et al. (2011) found a negative correlation between BMI and educational attainment in adults. A lower BMI was more likely to co-occur with higher educational attainment. Interestingly, research by Chunxiao Liao et al. (2018) found that gender

can differentiate the direction of the correlation. According to this study, in men, higher education was more often associated with a higher BMI.

The results obtained by the children correspond to the results of studies by Aleksandra Michalak (2022) and Anna Witek et al. (2012). The researchers show that for most children, the results are in the 4–5 range, i.e., between low and average. In the present study, most children (43%) were characterised by a low level of health behaviours, while 5% fewer children exhibited average behaviour (38%), and only 19% exhibited a high level.

The study also looked at the sources of knowledge from which children learn about health behaviours. This information is important for several reasons. Firstly, because they may vary in terms of reliability, secondly, it was important to examine the role of the family in transmitting knowledge on this subject. In the study, as many as 41.2% of children indicated the family as their main source of knowledge. Much fewer, only 11.3%, indicated teachers. As far as the first source is concerned, this corresponds to the results of a research study by Anna Bednarek and Magdalena Bednarz (2013), in which 42% of children indicated their family; in the case of the second source, the difference is several percent in favour of the research by A. Bednarek and M. Bednarz (2013), in which 23% of the students surveyed indicated teachers and educators. In the findings of Ewa Czarniecka-Skubina (2008), most children chose the Internet as their source of knowledge (in our study, the Internet was in second place). The Internet can certainly also contain very important and verified information, but alongside this, one can also find information that is not only useless but also harmful. Children have a lower ability to filter this type of data.

Conclusion

The study revealed two fundamental differences related to the adoption of healthy behaviours: the level of healthy behaviours varied according to age and gender. Although parents demonstrate a satisfactory level of healthy behaviours (average), their children's behaviours are at a low level. In an educational context, this fact seems puzzling. Questions arise: why do children not internalise the behaviours presented at home, and why do parents not correct their children's health behaviours? In the context of these questions, it is worth considering the educational competencies of contemporary parents and the source of knowledge about healthy lifestyles. Our study indicates that, for children, this place is still the family. It is essential that parents not only pass on this knowledge but also skilfully justify and develop the need to instil healthy habits in their children from an early age. It is also important to be able to set and maintain boundaries that prevent children from

succumbing to temptations associated with unhealthy eating habits and choosing activities that are detrimental to their development during their free time. Research and clinical observation demonstrate that an increasing number of children at an increasingly younger age choose to use electronic devices (e.g., computer games, scrolling) as their main activity, often at the expense of sleep, thus compromising another important area of health (Lange, 2023).

Another difference revealed by the study is that women score higher than men in terms of healthy eating habits and preventive behaviours. What is more, this difference is also observed in children: girls score higher than boys in terms of health practices. When developing social programmes/campaigns on health behaviour, it is worth taking gender differences into account.

In summary, we can see that the results of the study indicate that knowledge about positive health behaviours among children and young people should be expanded, taking into account gender differences in approaches to the issue. It is worth considering the inclusion of modern medical applications and information contained in social media in knowledge transfer. Attention should also be paid to the special role of the family in children's health education, including the development of parenting skills.

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