

# Malnutrition among adolescents

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## Abstract

Malnutrition among result from inappropriate eating behavior that leads to changes in body weight. Consuming excessive amounts of salt, sugar, carbonated drinks, alcohol or inactivity causes overweight or obesity. To prevent malnutrition, it is necessary to prevent nutrition and to motivate pro-health behaviors that should be targeted at a given group of society. Thanks to this, it may limit or even exclude the emergence of eating disorders, which intensify the increase in the incidence of civilization diseases. The aim of the article is an attempt to present selected elements of lifestyle. The survey was addressed to 3<sup>rd</sup> grade students from 2 public secondary schools (189 boys and 178 girls). A proprietary questionnaire entitled “My health – I care for them” was used for the study. The questionnaire included questions about the diet, forms of spending free time and participation in physical education classes at school. Watching TV is the most common form of spending free time (37% boys and 32% girls). Only 7% of girls and 18% of boys chose participation in sports as a form of spending their free time. 28% of boys and as much as 31% of girls admitted that they do not participate in physical education classes. The type of drinks consumed by students was significantly dependent on their gender. The sandwich is chosen by 31% of boys and 23% of girls. Fruit is declared by 28% of the surveyed girls and only 2% of boys. Research has shown that there are many abnormalities in the diet of adolescents. The widespread belief that a slim figure is an asset nowadays prompts many people to use many slimming diets or fasting, which when used excessively can pose a threat to the developing organism. The respondents also show insufficient physical activity. Students more and more often choose passive recreation, because physical activity does not give them as much satisfaction as playing on a computer.

**Key words:** adolescents, eating habits, overweight, physical activity

**Słowa kluczowe:** aktywność fizyczna, nastolatki, nadwaga, odżywianie

## Introduction

Currently, adolescents and children make numerous nutritional mistakes. These include: excessive consumption of food, increased consumption of sweet drinks, frequent and plentiful meals, easy purchase of ready-to-eat, high-fat fast food, reduced consumption of vegetables and fruit, and increased consumption of sweets. The consequence of improper diet and low physical activity is the growing problem of obesity at an early stage of life. Knowing about the lifestyle of young people and trying to modify the wrong elements can help to reduce this problem [1].

Health, according to the World Health Organization (WHO), is not only the absence of disease, but a state of complete, physical, mental and social well-being. It emphasizes the aspect of multidimensionality and the subjective nature of health. The human lifestyle plays an important role in the process of shaping and protecting health, and above all the habitual pattern of behavior towards one's own body. It can take the form of behaviors

aimed at maintaining or restoring health, and behaviors that cause direct or long-term harm to health. Health behaviors can be divided into health-promoting (pro-health, positive) and anti-health (negative, self-destructive) behaviors. Health-promoting behaviors serve to support health, prevent disease and support recovery. On the other hand, anti-health behaviors contribute to health disorders and negative emotional, physical and mental influences [1, 2].

From the perspective of applying the mechanisms of social influence, the level of awareness of one's own health behaviors is of significant importance. It is the level of consciousness of the individual that determines the development of pro or anti-health behavior. The shaping of health behaviors is influenced by many factors both on the part of the individual and the environment.

Behavior modeling by parents and guardians in the early stage of a child's life results in the development of specific habits. This process is then strengthened or modified as part of further socialization taking place in the pre-school, then school and peer environment, and in later years also

in the professional and social environment. Behavior modeling relates to health and its aspects: quality of nutrition, physical activity and preventive health care.

Health behaviors are also determined by the so-called social and health context. Culture shapes, among others general standard of living of members of a given community, perceptions of health and disease, ways of perceiving, feeling, describing and interpreting disease symptoms, knowledge about the causality of diseases, attitudes and behavior towards their own disease, as well as the lifestyle of a given community [3].

Various types of media are not without significance in shaping health behavior. Due to the intensive development of technology, the media has become an important source of information, including information on health. Various social campaigns also help to disseminate knowledge about health and disease. Among campaigns and social movements, we can distinguish those that favor health-promoting behaviors and those that may have a negative impact on health (e.g. various types of websites promoting starvation, arguments against vaccination of children, etc.).

One of the pro-health behaviors is physical activity. The basic factor building awareness is education in the field of physical recreation. Physical education lessons at school and extracurricular physical activities are the optimal place to provide children and adolescents with the necessary dose of exercise. However, an important role is played by physical education classes, which are still aimed at making a young person independent in the field of physical recreation. Systematic motor activities of children and adolescents are the cause of many beneficial changes taking place in their bodies. These include improving the body shape, increasing muscle mass, elastic gait, increased resistance to fatigue during physical work, better well-being and the body becomes stronger, faster and more enduring. The researchers set the minimum physical activity for a child for 6 hours of organized exercise a week. Children show the greatest need for exercise in preschool and early school age. It is beneficial for the proper mental and physical development of a child. Failure to meet the minimum standard of physical activity contributes to the limitation of all processes occurring during the child's development and may become a factor that inhibits the development of awareness and motor activity in later stages of life [1, 2].

The aim of the article is an attempt to present selected elements of lifestyle.

## Material and methods

The research material was collected in January 2022. A proprietary questionnaire entitled "My health – I care for him" was used for the study. An anonymous questionnaire contained several questions about the diet, forms of spending free time and participation in physical education classes at school. The survey was addressed to 3<sup>rd</sup> grade students from 2 public secondary schools (189 boys and 178 girls). On the basis of the calculations made (broken down by sex), appropriate tables were made and interpreted.

The survey contained the following questions:

1. Enter the most common form of spending your free time.
2. Do you attend school regularly in PE lessons?
3. Enter how often you eat a certain type of food.
4. List the drink most frequently drunk by you.
5. Provide the food that you eat most often for lunch.

## Results

The surveyed group is represented by students of the 3<sup>rd</sup> grade of secondary schools aged 16–17, regardless of gender. The survey did not include questions about parents' education.

Watching TV is the most common form of spending free time (37% boys and 32% girls). On the other hand, using a computer as a leisure activity was declared by 27% of the surveyed boys and 28% of girls. 28% of the surveyed girls and 25% of boys spend their free time with their peers. Only 7% of girls and 18% of boys chose participation in sports as a form of spending their free time (Fig. 1).

72% of the surveyed boys and 61% of girls regularly participate in physical education classes. 28% of boys and as much as 31% of girls admitted that they do not participate in physical education classes. The conducted research also shows that as many as 75% (boys and girls) of the respondents answered that the main reason for the lack of physical activity is the lack of willingness and the appearance of their body (Fig. 2).

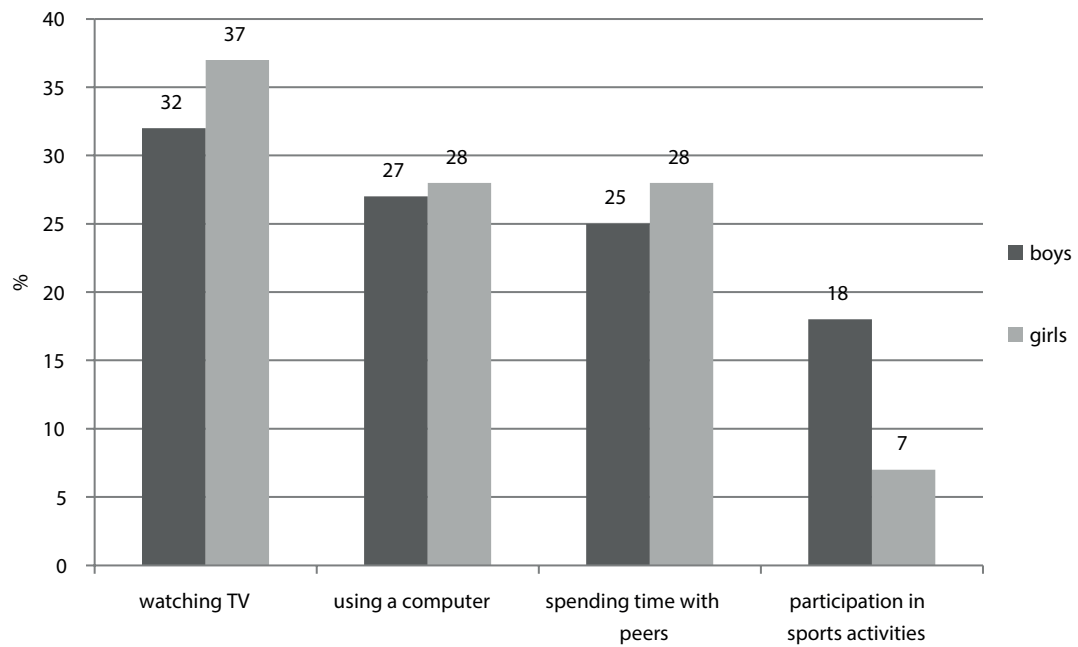
As many as 46% of the surveyed boys and 42% of girls admitted that they eat sweets at least 5 times a week and fast food at least once a week by 24% of boys and 21% of girls. In addition, a relationship between the preferred meal and gender of the respondents was observed on the basis of the questionnaires. Girls chose vegetables and fruit more often (21%) than boys (8%), while 22% of boys chose meat dishes, as opposed to 16% of the surveyed girls (Fig. 3).

The type of drinks consumed by students was significantly dependent on their gender. Girls preferred still mineral water (38%) and fruit juices (21%) as opposed to boys. The most frequently chosen drink by boys are carbonated drinks (46%). 19% of the surveyed boys and 7% of girls admitted that their preferred type of drink is coffee (Fig. 4).

As many as 37% of the surveyed boys do not eat lunch at school. The bun is chosen by 31% of boys and 23% of girls. Fruit is declared by 28% of the surveyed girls and only 2% of boys. Yoghurt is preferred as a second breakfast by 11% of girls and 4% of boys, and a sandwich by 26% of girls and only 15% of boys (Fig. 5).

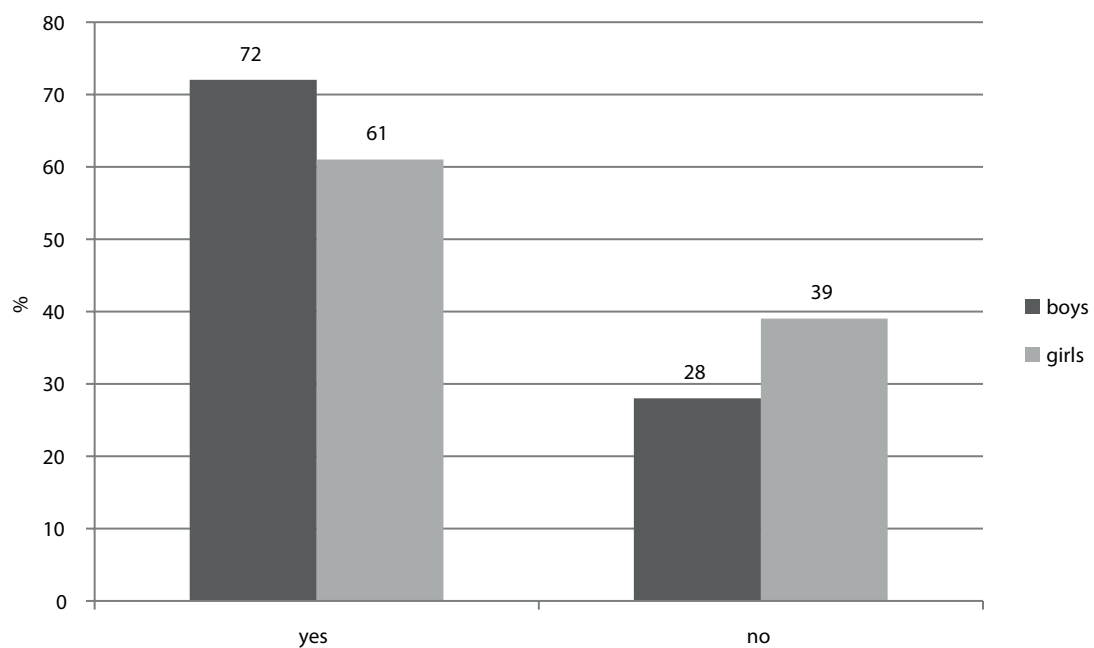
## Discussion and conclusions

Nowadays, little physical activity is a great threat to the health of a child. Movement disorders, including posture defects, are one of the most common diseases among children and adolescents. Unfortunately, other disadvantages also give a disturbing picture of the current health situation of children, i.e. back problems or a visual defect. Overweight



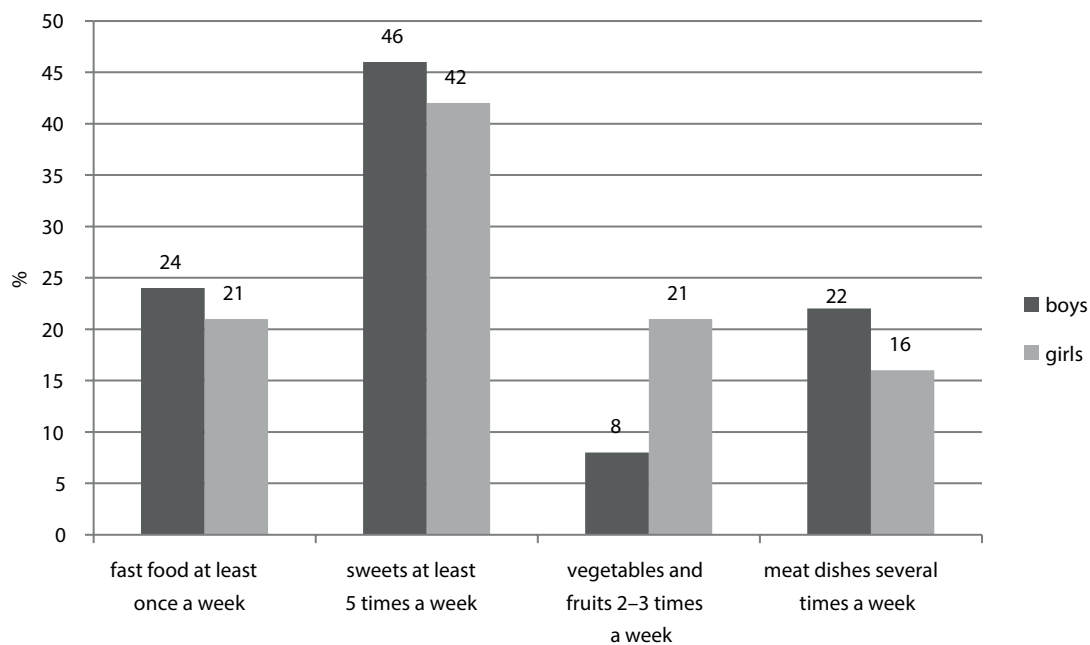
**Figure 1. Leisure activities**

*Source: own elaboration based on the collected data.*



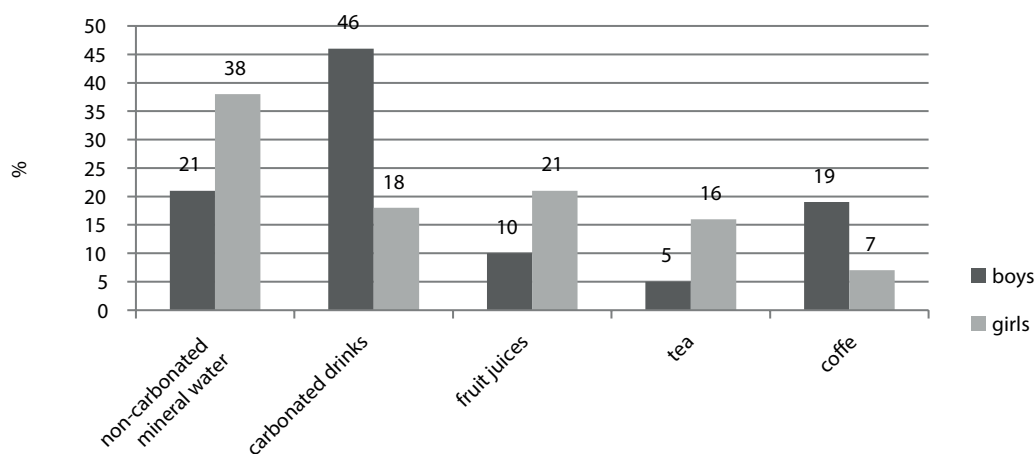
**Figure 2. Participation in physical education classes**

*Source: own elaboration based on the collected data.*



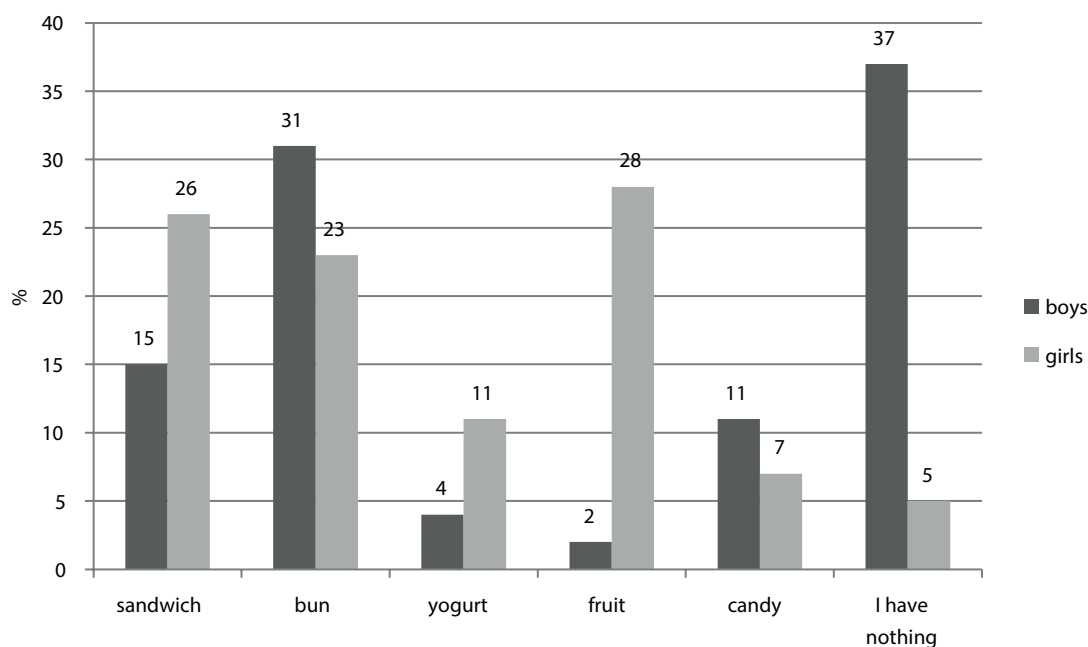
**Figure 3. The frequency of eating particular type of food**

*Source: own elaboration based on the collected data.*



**Figure 4. The drink most often drunk by the students**

*Source: own elaboration based on the collected data.*



**Figure 5. A food product that students usually had with them for a second**

Source: own elaboration based on the data collected.

and obesity show a particular tendency. This can be prevented, among others, through systematic physical activity, otherwise there is a possibility of other diseases related to the child's health disorders. These include diseases of the skeletal system such as osteoporosis. The cause of its occurrence is insufficient load on the skeletal system. The body loses bone tissue density without prolonged physical activity, and there is a marked loss of calcium and phosphorus, and an increased breakdown of bone tissue. Only increased motor activity is of great importance for reducing the occurrence of osteoporosis [4].

Another disease that may threaten the health of a child caused by a lack of physical activity is ischemic heart disease. It is caused by atherosclerosis of the coronary arteries, i.e. the deposition of fatty substances on the inner walls of the arteries. Reduced physical activity results in less circulating blood, which reduces the number of red blood cells. As a consequence, it leads to hypoxia in the body, which in turn leads to a decrease in physical capacity and impairment of the body. Remaining inactive for a long time may lead to obesity [5, 6].

In Europe, Polish society is classified as not very active in physical activity, especially in terms of organized sports activities. With age, the number of people preferring passive, static forms of rest increases. Numerous studies have shown that also children and adolescents more and more often show low physical activity and a passive way of spending free time. Students spend more time in front of the TV or computer and avoid sports.

The survey conducted in Bielsko-Biała also shows that the youth of upper secondary schools are not eager to participate in physical education classes at school. 28% of

boys and 39% of girls admit it. Only 7% of girls and 18% of boys consider sports activities to be a form of spending their free time (Fig. 1, 2).

Obesity is a pathological condition of increasing the amount of adipose tissue as a component of the whole organism. Then, damage to the functions and structure of individual organs and systems occurs, which increases the risk of shortening the average life expectancy. It is a disease which, even when the organism with an increased amount of adipose tissue does not show pathological symptoms, threatens, as it lasts longer, with the development of organ and general damage in the future [7, 8].

In fact, overweight and obesity have many serious health consequences for the child and later also the obese adult. It is worth noting that these consequences are not only related to physical functioning, but may also apply to the mental and social health of a young person. Obesity, as one of the most common disorders in the development of children and adolescents, affects all elements of health (physical, mental and social) of a young person, and then an adult, limits their development potential, life possibilities and quality of life [9].

Aggressive marketing and advertising mean that modern people eat too many products containing high content of fats and easily digestible simple carbohydrates (mainly sweets) and of little nutritional value, and high-calorie dishes served in fast food bars. Drinks popular all over the world (cola, beer, lemonades and other sweetened drinks) pose another, often unnoticed by the consumer, danger of consuming extra calories.

Too little consumption of low-calorie foods rich in fiber (fruits and vegetables), vitamins and many minerals

is another nutritional error. Favorite products (burgers, fries, crisps, sweets) are high in calories and do not ensure sufficient supply of these most important ingredients [8, 9].

The examined youth from Cieszyn also showed numerous improper eating mistakes: lack of lunch (37% of boys), 46% of boys eat sweets at least 5 times a week, 24% of boys and 21% of girls eat fast food at least once a week (Fig. 3, 4).

Obesity is an epidemic of the 21st century recognized by the World Health Organization [9]. Epidemiological data indicate that in 2015 2.3 billion worldwide were severely overweight and 704 million were obese. In Europe, approximately 20% of children under the age of 14 have excess body weight and 5% are obese. In Poland, the problem of excess body weight among school-age children concerns about 18% [9, 10]. The problem of excess body weight in Poland concerns 10% of girls and 14% of boys in early school age (7–9 years). In the group of 13–15-year-old Polish adolescents, obesity occurs in 4.5% of respondents, more often in girls than in boys, and overweight in 9% of adolescents. In 2010, according to HBSC (Health Behavior in School-aged Children) research, the percentage of Polish teenagers with excess body weight was one of the highest in Europe. Almost every fourth 11-year-old, every fifth 13-year-old and every seventh 15-year-old had excess body weight, and in the years 2002–2010 the percentage of overweight and obese adolescents was systematically increasing [11].

According to the World Health Organization, increased body weight is responsible for more than one million deaths each year in Europe. It is also the sixth most important risk factor responsible for the number of deaths worldwide [12, 13].

In the past 25 years, the incidence of obesity in Europe has tripled. In European countries, overweight and obesity among children were found in over 30% of girls and in 20% of boys aged 6–10 [11].

About 25–45% of genetic predisposition is responsible for the occurrence of obesity and overweight. Other

factors include poor eating habits, snacking between meals, a sedentary lifestyle, lack of physical activity, hormonal and neurological disorders, short sleep time, marketing and advertising [11].

The typical health consequences of overweight and obesity in children and adolescents include: diabetes mellitus, high cholesterol, hypertension, atherosclerosis, heart failure, fatty liver, gallstones, bronchial asthma, sleep apnea syndrome, orthopedic complications, decreased physical efficiency, attention deficit disorder [12].

Obesity treatment is a difficult process, often ineffective and frustrating for the child, parents and the doctor. Its effectiveness depends on socio-economic, cultural, emotional and motivational factors. The treatment of obesity is by definition neither pharmacological nor surgical. This process is based on dietary treatment, increased physical activity and behavioral therapy. Nutritional changes consist in introducing a properly balanced, low-energy, norm-protein diet with a reduced share of fats and carbohydrates. It is necessary to reduce the portion of consumed meals, avoid snacking between meals of sweets and salty snacks, and also limit the consumption of fried foods, rich in salt, sugar and fat [10]. Health education plays an important role in the prevention of overweight and obesity among school children and youth [14].

Research has shown that there are many abnormalities in the diet of adolescents. The widespread belief that a slim figure is an asset nowadays prompts many people to use many slimming diets or fasting, which when used excessively can pose a threat to the developing organism. The respondents also show insufficient physical activity.

Students more and more often choose passive recreation, because physical activity does not give them as much satisfaction as playing on a computer. It is mainly necessary for parents to cooperate with their children, because it is them who largely determine how they spend and will spend their free time in the future.

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