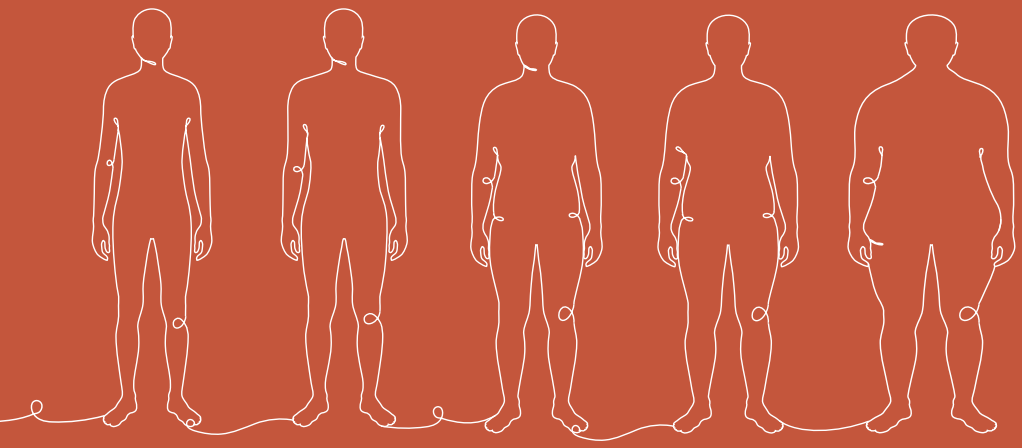
Obesity.

The scale of the phenomenon and its consequences

Assumptions for development of a strategic plan for reducing obesity in Poland



2024

WARSAW

UNIWERSYTET MEDYCZNY ŁAZARSKI | IZWOZ | INSTYTUT ZARZĄDZANIA W OCHRONIE ZDROWIA

PARTNERSTWO NA RZECZ PROFILAKTYKI I LECZENIA OTYŁOŚCI

Scientific supervision:

Małgorzata Gałązka-Sobotka, PhD

Authors:

Paweł Bogdański, MD, PhD

Michał Brzeziński, MD, PhD

Małgorzata Gałązka-Sobotka, PhD

Jakub Gierczyński, MD, PhD, MBA

Matylda Kręgielska-Narożna, PhD

Iwona Kowalska-Bobko, PhD

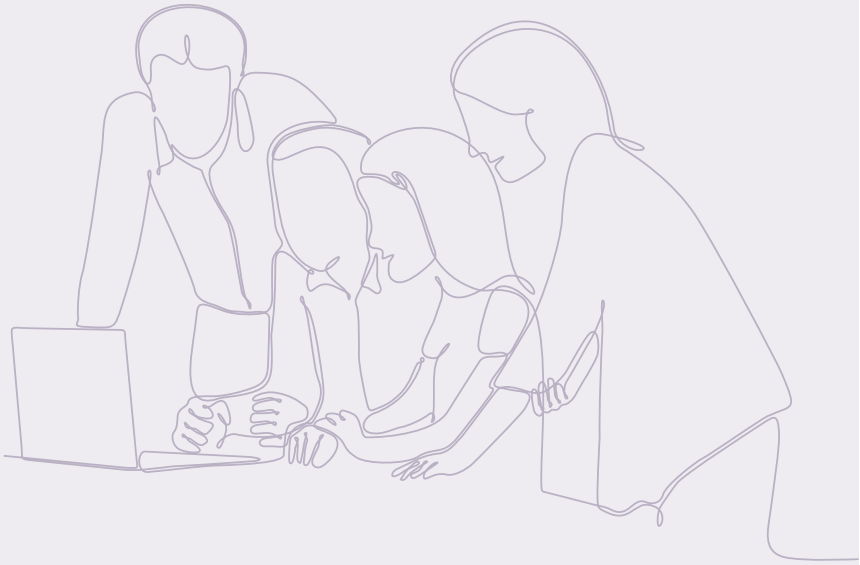
Marta Pawłowska, MBA

Karolina Piotrowska

Mariusz Wyleżoł, MD, PhD

Graphic design:

Katarzyna Kapcia



Warsaw, June 2024

ISBN 978-83-60694-58-9

e-ISBN 978-83-60694-59-6

DOI 10.26399/978-83-60694-58-9

Report under the patronage of:

PTLO Polskie Towarzystwo Leczenia Otyłości

POLSKIE TOWARZYSTWO MEDYCYNY RODZINNEJ

The project was supported by:

novo nordisk®

Medtronic

Table of contents

Introduction

„Never give up on a dream just because of
the length of time it will take to accomplish it.
The time will pass anyway."

/ Harriett Jackson Brown Jr /

Dear Ladies and Gentlemen,

Obesity is one of the most serious health challenges of the 21st century, affecting millions of people around the world, including Poland. According to the World Obesity Atlas, in 2020, approximately 2.6 billion people were overweight, of which as many as 0.99 billion were obese. In Poland, the analyses carried out by the National Institute of Public Health of the National Institute of Hygiene – National Research Institute (NIZP PZH-PIB) show that the percentage of people aged 20 and over, who were diagnosed with too high body weight in 2022 (BMI index ≥25) was 52.2%, and 13.6% of Poles suffered from obesity (BMI ≥30). It should be noted that the problem of overweight and obesity affects men more often than women. Overweight was noted in 62.1% of men and 42.6% of women, and obesity was diagnosed in 15.7% of men and 11.7% of women, respectively. Child population indicators are critical from a public health perspective. In the European region, by 2030, 16.2% of children aged 5-9 years and 11.1 youth aged 10-19 years will suffer from obesity*. Today, 12.2% of boys and 10% of girls of pre-school age and 18.5% of boys and 14.3% of girls of school age in Poland struggle with this disease. However, the prospects are even worse. It is estimated that by 2035, more than half of the world's population will struggle with excess body weight. In Poland, every fourth inhabitant will develop obesity**.

Problems related to excessive body weight are not limited only to aesthetics, but above all have serious health, social and economic consequences. The increase in the number of people with obesity contributes to the escalation of chronic diseases such as type 2 diabetes, metabolic syndrome, non-alcoholic fatty liver disease (NAFLD), arterial hypertension, heart disease and some cancers, mental and endocrine disorders and many others, which, in turn, burdens the healthcare system and national economy.

---

* NCD Risk Factor Collaboration (2017) and World Obesity Federation projections.

** Lobstein et al., 2023, https://www.worldobesityday.org.

For example, the analyses published in 2024 by the National Health Fund (NFZ) show that, among patients, who underwent knee replacement surgery due to knee osteoarthritis in 2023, a half suffered from obesity, over 36% of them had diabetes, 87% had arterial hypertension and over 62% had dyslipidemia***.

Obesity not only affects health, but also leads to premature death. These health problems not only burden the healthcare system, but also impact the economy, by reducing productivity and generating huge medical costs. It excludes millions of people from professional activity and severely limits the potential for economic development. It is estimated that the global direct and indirect costs of overweight and obesity will amount to 2.5% of global GDP in 2025, which is almost USD 2.5 trillion****.

It is not an exaggeration to say that the greatest influence on the improvement of health of the Polish population will be the effective reduction of risk factors for the development of obesity and its consequences. The current focus on the diagnosis and treatment of obesity complications does not solve the source of the problem. By applying only conservative actions, both in prevention and treatment, we escalate phenomena that affect the health of all generations of Polish society today and in the future.

In the face of these challenges, the Institute of Healthcare Management at Łazarski University together with the Polish Society for the Treatment of Obesity initiated the Partnership for the Prevention and Treatment of Obesity and prepared this report, entitled "Obesity. The scale of the phenomenon and its consequences. Assumptions for development of a strategic plan for reducing obesity in Poland." The aim of the report is to present a comprehensive analysis of the current situation regarding obesity in Poland and to propose assumptions for the national strategic plan that will make it possible to effectively counteract this dangerous phenomenon. The Partnership formula includes the idea of involving a wide range of systemic, scientific, social and business stakeholders in dialogue and joint action to stop the epidemic of obesity in Poland. We believe that, based on such a document, under the wings of strong central leadership, it will be possible to launch a widespread grassroots mobilisation, because only multi-environmental determination and coordinated action can improve the health of Poles and stop the risks, which are escalating in Poland along with the growing problem of obesity.

*** NFZ o zdrowiu. Otyłość i jej konsekwencje, Warszawa 2024, www.nfz.gov.pl.

**** Ibidem.

As part of the assumptions for the national strategic plan, we propose a number of initiatives and activities, which encompass health education, promotion of a healthy lifestyle, access to healthy food, infrastructure and media promoting an active lifestyle as well as to effective treatment and support for people already struggling with the problem of overweight and obesity.

We pay particular attention to local governments, schools and non-governmental organisations, which can play a key role in local public health activities. The scope of the proposed activities and interventions has no equivalent in the world, which is confirmed by a review of international practices. Thus, on the eve of its EU Presidency, Poland can set a new tone for the discussion on the policy of the European Community, which should integrate activities for health and the reduction of overweight and obesity.

The authors of the report, aware of the pressure of time we are running out of in the fruitless fight against obesity, present this study to the public for general use with the hope that the implementation of the proposed strategic plan will bring the much-awaited progress and, consequently, significant health and economic benefits for our society. From here, we would like to cordially invite all stakeholders: representatives of the government, local governments, educational institutions, non-governmental organisations and the private sector, for cooperation. Only together we can create better living and health conditions for future generations of Poles.

I invite you to read!

Yours faithfully,,

Małgorzata Gałązka-Sobotka, PhD
Director of the Institute of Healthcare Management
Łazarski University

Expert commentary

Agnieszka Mastalerz-Migas, MD, PhD
Professor at the Wroclaw Medical University (UMW)
National consultant in the field of family medicine,
President of the Board of the Polish Society of Family Medicine

The report "Obesity. Assumptions for creating a strategic plan for reducing obesity in Poland" (*Otyłość. Założenia do stworzenia planu strategicznego redukcji otyłości w Polsce*), prepared under the scientific supervision of Małgorzata Gałązka-Sobotka, PhD, is a very important and valuable voice in the discussion on the systemic approach to the problem of obesity, which is a global challenge for healthcare systems not only in developed, but also in developing countries.

The deteriorating quality of food and lifestyle changes leading to reduced physical activity inevitably result in an increased percentage of people with excess body weight.

Globally, obesity rates are rising faster among children and adolescents. **Childhood obesity rates are expected to more than double between 2020 and 2035.**

Obesity is associated with increased health care costs, and additional costs increase with increasing BMI. These epidemiological data show that obesity is a global problem, which requires comprehensive actions at both the individual and societal level to prevent its further growth.

Based on the epidemiological data presented in the report, it can be estimated that the number of obese adults in Poland will increase to 6.1–11.4 million people. The obesity rate among adult women will be 26% and among adult men – 30%.

In Europe, the average shortening of life expectancy in wealthier EU countries will be around 2.9 years over the next 30 years.

When discussing the problem of obesity, it is difficult not to mention the costs of this health problem. Globally, obesity generates annual costs of USD 4.32 trillion, which is almost 3% of global gross domestic product. Obesity accounts for 70% of diabetes treatment costs, 23% of cardiovascular disease treatment costs, and 9% of cancer treatment costs

In Poland, obesity generates significant costs related to healthcare and loss of productivity. **It is estimated that the costs related to obesity in Poland amount to approximately PLN 10 billion per year.**

An interesting part of the report is the characteristics of obesity management in various European countries. This analysis shows various strategies, but, at the same time, it clearly shows that, various actions already taken are still insufficient to address this growing challenge. This sad conclusion also applies to Poland, which currently does not have a uniform, comprehensive plan for reducing obesity among children or adults.

The authors of the report also present modern methods of treating obesity, considering new developments in pharmacotherapy and pointing out its limitations (availability, price of drugs, lack of registration of some preparations in the paediatric population, etc.).

In the conclusions, they make recommendations to develop a successful strategy: they postulate the inclusion of a wide range of systemic, scientific, social and business stakeholders in dialogue and joint action to stop the obesity epidemic in Poland. It is important to underline that, without a broad, inter-sectoral coalition, it will not be possible to stop the obesity epidemic. Social mobilisation through multi-environmental determination and coordinated action is also important. The strategy should include proposals for initiatives and activities such as health education, promotion of a healthy lifestyle, ensuring access to comprehensive medical care, which would provide comprehensive services for patients with obesity.

The STOP OBESITY ecosystem model proposed in the report consists of 12 steps:

1. Increased social awareness about obesity and its consequences.
2. Introduction of health education into schools and kindergartens.
3. Promoting physical activity and a healthy lifestyle.
4. Improving access to healthy food.
5. Supporting research on obesity.
6. Developing preventive and intervention programmes.
7. Collaboration between public, private and civil society sectors.
8. Introduction of regulations regarding the advertising of unhealthy food and drinks.
9. Promoting physical activity at work.
10. Supporting weight loss programmes.
11. Providing psychological support for people with obesity.
12. Monitoring and assessing the effectiveness of activities undertaken within the Stop Obesity ecosystem.

By implementing these 12 steps, we can effectively counteract the problem of obesity and improve the health of society. The strategic plan is aimed at improving the health of Poles and at stopping the escalation of threats related to the problem of obesity in Poland.

The report constitutes a ready-made "user manual" for any decision-makers, not only for the Ministry of Health, but also for politicians in an inter-sectoral perspective.

While congratulating the authors, I wish us, as a society, to live to see its implementation, or at least, at the beginning, understanding that, without joint, systematically planned and large-scale campaigns, we will not be able to control this global, non-infectious pandemic of the 21st century.

01

Clinical aspects of obesity

Paweł Bogdański, MD, PhD
Matylda Kręgielska-Narożna, PhD

1.1 What is obesity and what are its consequences?

Obesity is a chronic disease resulting from excessively accumulated fat tissue in the body. It is a progressive disease that does not go away on its own and is recurrent. Its occurrence is associated with numerous unfavourable individual and consequences.

Over 200 clinical complications of the disease have been defined, including:

- arterial hypertension,
- type 2 diabetes,
- lipid disorder,
- strokes, cardiovascular diseases,
- non-alcoholic fatty liver disease (NAFLD),
- obstructive sleep apnea,
- cholecystolithiasis,
- cancer diseases, including colon cancer and breast cancer,
- hormonal disorders, including erectile dysfunction, polycystic ovary syndrome, infertility,
- joint diseases,
- depression and mood disorders.

Numerous complications of obesity are associated with a decrease in the quality and shortening of the life expectancy of patients.

Globally, obesity is associated with large financial outlays on healthcare and insurance costs related to lost productivity and inability to work. More and more attention is also being paid to the environmental context of obesity. Excessive and unsustainable production of highly processed food is, on the one hand, a cause of obesity and, on the other hand, a huge ecological burden.

1.2 What is the cause of obesity?

The cause of obesity, in the pathophysiological sense, is the disturbed energy balance of the body. It occurs in case of the so-called positive energy balance, that is in the situation, where the amount of energy (kilocalories, kcal) taken from food is higher than the amount of energy spent by the body. However, **the development of this disease is influenced by many factors,** which that interpenetrate and are often interdependent. **These include:**

- **Social factors (macro-environment)**

The availability of food, the acquisition of which does not require significant energy effort, unprecedented in the human history due to civilisation changes, means that a very large amount of food resources is consumed globally in countries with a high socio-economic status. It significantly exceeds the needs of these populations.

Additionally, the so-called Western style "forces" a sedentary lifestyle associated with paid work and entertainment, among other things, through universal access to means of transport and electronic equipment.

- **Environmental factors (micro-environment)**

The causes of the development of excessive body weight include: eating habits and lifestyle habits learned at home. Health behavioural patterns developed from an early age are most often repeated in adulthood.

- **Psychological factors**

The development of obesity may also be influenced by psychological factors, such as eating disorders (bulimia, binge eating, night eating) and by limited ability to cope with stress, which is an integral part of existence in today's world and may contribute to the development of the above-mentioned disorders and of depression.

- **Genetic and epigenetic determinants**

About 95% of obese people have a polygenic tendency to become obese, but this can be prevented with environmental modifications. These modifications (in foetal life, in early childhood and in adulthood) can cause beneficial epigenetic changes, that is changes that, without changes in DNA, will cause a change in the expression of obesity-related genes.

- **Hormonal and neuro-hormonal determinants and treatment**

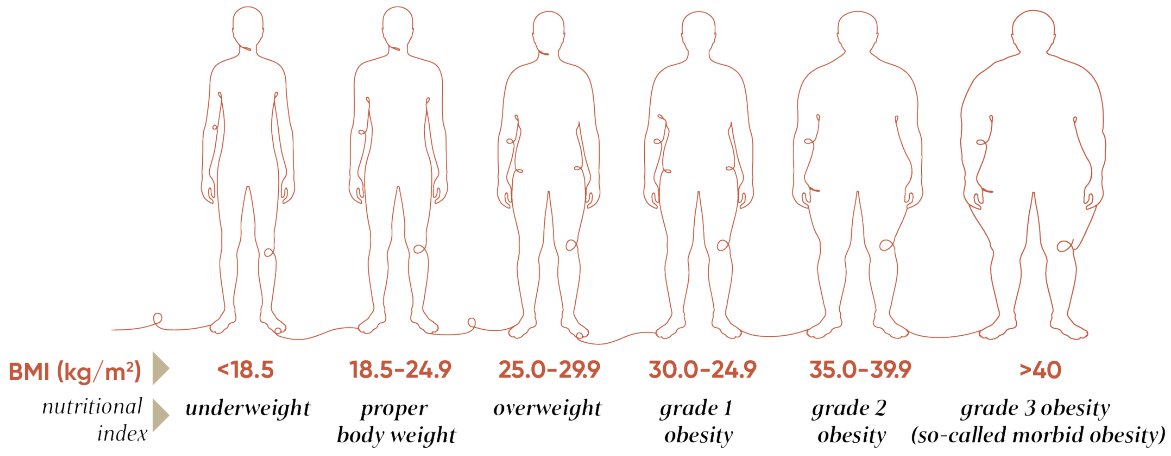
1.3 Diagnostics

The basic diagnostic method for determining the incidence of obesity is to calculate the body mass index (BMI) expressed as the quotient of body mass (in kilograms) divided by the square of height (in meters):

$$BMI = \frac{body\ weight\ [kg]}{(height\ [m])^2}$$

The interpretation of the above-mentioned indicator was proposed by the World Health Organisation (WHO).

FIGURE 1. NUTRITIONAL STATUS ACCORDING TO WHO



Source: WHO.

It should be underlined, however, that BMI is not an ideal method for assessing the incidence and severity of the disease, because it does not assess the content or distribution of fat tissue or the proportions of individual tissues, but, first of all, it does not provide information about the severity of health complications related to excessively accumulated fat tissue. Therefore, in the diagnosis of obesity, in addition to the BMI index, the following is also used:

- Waist circumference measurement. According to the International Diabetes Federation (IDF), abdominal obesity can be diagnosed with a waist circumference of ≥94 cm in men and ≥80 cm in women;
- Assessment of the waist-to-hip ratio (WHR). WHR >0.85 for women and WHR >0.9 for men indicates abdominal obesity;
- Assessment of the content of individual body tissues using bioelectrical impedance analysis (BIA), dual-energy X-ray absorptiometry (DEXA), computed tomography (CT) or magnetic resonance imaging (MRI). The last three methods are primarily used in scientific research due to difficult availability, cost and radiation (concerning computed tomography);
- Assessment of disease complications using biochemical tests. They should be selected individually, taking into account the patient's clinical condition, but, in order to quickly and efficiently assess metabolic risk, it is recommended to measure the concentration of glucose, triglycerides and individual cholesterol fractions and blood pressure.

1.4 Treatment

The aim of treatment for people with obesity is not only to reduce their body weight, but, above all, to protect those patients against the development of complications, reverse them or reduce their severity.

The basic assumptions of treatment are: adaptation to individual conditions and multi-directional treatment. It should include lifestyle changes, medical nutritional therapy, appropriate physical activity, pharmacotherapy and surgical treatment.

In the field of nutritional therapy, it is possible to use various dietary models, the basis of which is always to produce a negative energy balance. Recommendations should be individualized, acceptable, financially affordable and applicable for long-term use. As part of physical activity, obese patients, similarly to the general population, are recommended to engage in ≥150-300 minutes of moderate endurance exercise or 75-150 minutes of high-intensity exercise and in strength training twice a week. The goal of physical activity is not so much to lose weight, but to improve the patient's health. In a situation, where treatment involving the introduction of changes in health behaviour does not bring the expected results, it is recommended to use pharmacological treatment.

It is indicated for people with obesity (BMI ≥ 30 kg/m^2) or overweight (BMI ≥ 27 kg/m^2), who also have at least one obesity-related disease. Pharmacological treatment should only be introduced at the order of a doctor, who, based on the patient's clinical condition, environmental conditions and guidelines, will recommend one of the available drugs. As of pharmacotherapy, five medicinal products indicated for the treatment of obesity are currently registered in the European Union (June 2024). These products contain the following active substances:

- orlistat orlistat (Xenical)[1] – inhibitor inhibitor of lipases produced in the digestive tract, the mechanism of action of which is to inhibit the absorption of fat in the digestive system;
- liraglutide (Saxenda)[2], semaglutide (Ozempic)[3], tirzepatide (Mounjaro)[4] – analogues of the glucagon-like peptide 1 receptor (GLP-1) secreted by the ileum in response to a meal, the action of which consist in, among other things, stimulating the feeling of satiety, inhibiting the feeling of hunger and improving the functioning of carbohydratemetabolismj
- naltrexone hydrochloride and bupropion hydrochloride are part of the combined drug (Mysimba)[5], the main action of which is to inhibit the feeling of hunger in the central nervous system and increase the feeling of satiety.

In Poland, only semaglutide (Ozempic) is eligible for reimbursement from public funds only for the treatment of type 2 diabetes in patients taking at least two hypoglycemic drugs, with HbA1c ≥7.5%, with obesity defined as BMI ≥30 kg/m² and very high cardiovascular risk[6].

Surgical treatment of obesity is recommended for patients with morbid obesity and complications, in whom no improvement was observed after conservative treatment.

It should be noted that, regardless of the form and stage of treatment, patients suffering from obesity should be treated by a multidisciplinary team consisting of a doctor, dietician, physiotherapist and psychologist.

---

1 https://www.ema.europa.eu/pl/documents/product-information/xenical-epar-product-information_pl.pdf (data dostępu 09.06.2024 r)

2 https://www.ema.europa.eu/pl/documents/product-information/saxenda-epar-product-information_pl.pdf (data dostępu 09.06.2024 r)

3 https://www.ema.europa.eu/pl/documents/product-information/ozempic-epar-product-information_pl.pdf (data dostępu 09.06.2024 r)

4 https://www.ema.europa.eu/pl/documents/product-information/mounjaro-epar-product-information_pl.pdf (data dostępu 09.06.2024 r)

5 https://www.ema.europa.eu/pl/documents/product-information/mysimba-epar-product-information_pl.pdf (data dostępu 09.06.2024 r)

6 Obwieszczenie Ministra Zdrowia z dnia 18 marca 2024 r. w sprawie wykazu refundowanych leków, środków spożywczych specjalnego przeznaczenia żywieniowego oraz wyrobów medycznych na 1 kwietnia 2024 r. (DZ. URZ. Min. Zdr. 2024.19 Ogłoszony: 18.03.2024)

1.5 Effectiveness of therapy

Obesity can lead to many diseases. A 2004 article by Bray listed numerous obesity-related conditions, which were divided into two main groups[7]. The first group includes problems resulting from excessive body weight gain, such as psychosocial issues or sleep apnea, and diseases of the bones, tendons, muscles, connective tissue and skin. The second group are diseases related to excessive secretion of substances by enlarged fat cells, which include, among others: type 2 diabetes, insulin resistance, metabolic syndrome, non-alcoholic fatty liver disease (NAFLD) and its inflammatory form, gallbladder diseases, arterial hypertension, heart diseases, cancer and endocrine disorders. A 2018 article by Csige and colleagues[8] highlighted the numerous cardiovascular complications associated with obesity. It is an important risk factor for the development of atherosclerosis and coronary heart disease. Obesity causes changes in both the structure and function of the heart, which may lead to heart failure. These changes also increase the risk of atrial fibrillation and sudden cardiac death (SCD).

Each 10 kg increase in body weight increases the risk of coronary heart disease by 12%, and a one-unit increase in BMI increases the likelihood of haemorrhagic stroke by 6%[9].

The most important goal in the treatment of obesity is to prevent and/or alleviate the complications of excessively accumulated fat tissue.

It is deemed that the **optimum weight loss** during treatment with lifestyle modifications is reduction of the initial body weight **by 5-10% within 3-6 months of therapy.** However, long-term adherence to dietary recommendations remains a challenge, hindering the maintenance of weight loss.

Research suggests that after two years of successful weight loss interventions with dietary changes, half of the weight loss is regained. By the five-year mark, this number climbs to over 80%. This means that only 1 in 5 people maintain their weight loss in the long term. **In pharmacological treatment, we expect ≥5% weight loss over a 3-month period**, with regular intake of the drug at a therapeutic dose In this case weight loss and improvement in patients' health largely depend on the type of drug used.

---

[7] Bray G.SA. (2004), Medical consequences of obesity. The Journal of clinical endocrinology and metabolism 89, 2583-2589

[8] Csige, I., Ujvárosy, D., Szabó, Z., Lőrincz, I., Paragh, G., Harangi, M., Somodi, S., et al., 2018. The impact of obesity on the cardiovascular system. Journal of diabetes research 2018.

[9] Pawlewicz A. (2024), NFZ o zdrowiu. Department of Analysis, Quality Monitoring and Optimisation of Services [Otyłość i jej konsekwencje, Departament Analiz, Monitorowania Jakości i Optymalizacji Świadczeń].

In studies using drugs available on the Polish market, depending on the drug substance, a reduction of ≥5% of the initial body weight was achieved in 48-63.2% of participants, and a reduction of ≥10% in 25-33.1% of participants. Obesity treatment effectiveness goes beyond weight loss. It also reduces and mitigates the development of complications. As in medical nutritional therapy, the challenge here is also to maintain the long-term reduction effects after completion of treatment. This fact encourages clinicians to think of obesity as of a chronic disease and to treat it appropriately, just like in the case of hypertension, type 2 diabetes or lipid disorders.

The next stage in the treatment of obesity is surgical intervention. Surgical treatment is a therapeutic method intended for patients with morbid obesity. **This method of treatment has proven effectiveness in reducing body weight in the long term: it reduces excessive body weight by 50-60% and it reduces the number of complications or causes them to disappear**, but, as a surgical procedure, it carries potential risks, including serious complications and even death. The risk of serious complications from bariatric surgery is very low, affecting less than 1% of patients.

02

Obesity prevention

Paweł Bogdański, MD, PhD
Matylda Kręgielska-Narożna, PhD

Due to the complex etiology of obesity, its prevention can be viewed both from the individual and the healthcare system perspective. Prevention methods can be divided into primary prevention (actions addressed to the entire healthy population in order to reduce the risk of overweight and obesity) and secondary prevention (preventive actions in relation to the consequences of the disease: its early detection and treatment).

The following solutions are proposed for the system:

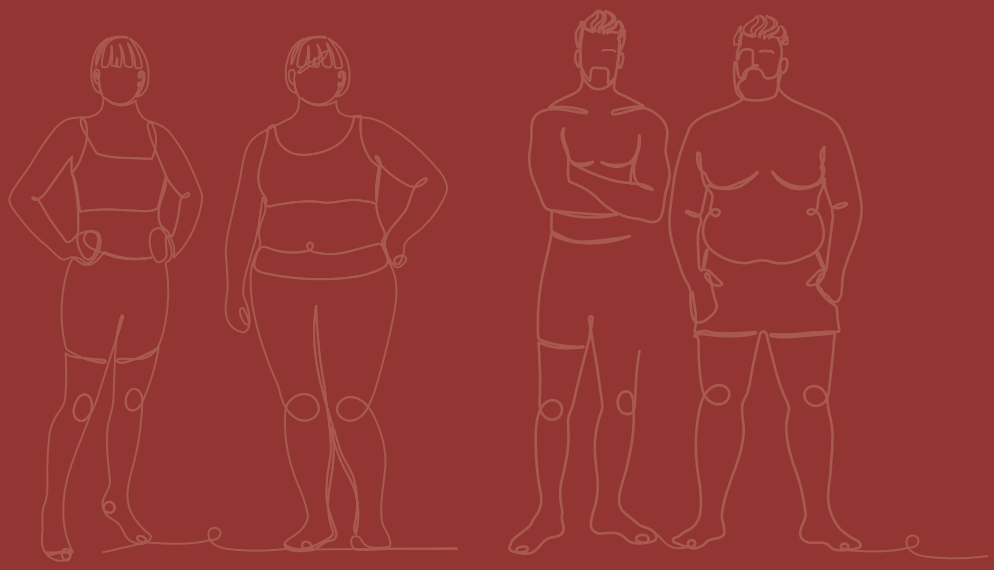
- Broad social education regarding obesity, including systemic education (in schools), social educational campaigns, appropriate labelling of food products;
- Actions related to urbanisation and urban architecture, taking into account physical activity (sidewalks, gyms, sports fields, playgrounds), to the operation of public transport, and even to restrictions on the trade of highly processed food near schools;
- Promotion of physical activity, especially at school, by increasing the number of hours of physical education lessons in the education programme and increasing their attractiveness;
- Supporting preventive campaigns aimed at the family environment;
- Taxing unhealthy food and subsidising healthy food;
- Restrictions on advertising food, which promotes overweight and obesity;
- Education of specialists involved in the prevention and treatment of obesity (education of medical professions);
- Educating state institution employees and health policy-makers on the social consequences of obesity and methods for addressing them.
- Promotion of preventive examinations;
- Availability of free diagnosis and treatment of the disease.

The following solutions are recommended in the individual prevention:

- Using a nutrition model based on minimally processed food, mainly of plant origin, applying the principles of sustainable food consumption;
- Following the recommendations regarding physical activity: 150-300 minutes a week of moderate endurance exercise or 75-150 minutes of high-intensity exercise;
- Natural feeding of infants (prevention of obesity in adulthood);
- Making beneficial lifestyle modifications as a family (outdoor entertainment, eating meals together);
- Education regarding skilful coping with stress and undertaking psychological therapy in situations requiring it;
- Performing preventive tests (including body weight measurement).

These activities require integrated cooperation of all sectors of the economy, consistent with health policy, and the development of a broad strategy of action beyond political and ideological divisions.

Such an action requires focusing on long-term, beneficial effects (including economic and environmental ones) and perceiving the disease not only through the prism of the responsibility of an individual person, but also of the entire social system and state authorities.



03

Epidemiology of obesity in the world, in Europe and in Poland

Jakub Gierczyński, MD, PhD, MBA

"The World Obesity Atlas 2022 projects that, by 2030, as many as 18% of adult inhabitants of the world, **that is every fifth adult (over 1 billion people), will be obese** (BMI ≥30 kg/m^2), 6% (approx. 333 million people) will suffer from grade 2 or 3 obesity, and 2% (111 million people) will suffer from morbid obesity.

Thus, there will be a significant increase in morbidity compared to 2020. At that time, approximately 15% (764 million) of adults were obese, including grade 2 and grade 3 obesity – 5% (238 million people), and grade 3 obesity – 2% (77 million people)[10].

In 2030, every 1 in 5 adult women (20%) globally will be obese (approx. 0.6 billion). The highest percentage of women with obesity (BMI>30) is predicted in 2030 in the Americas (40%), the Middle East (33%) and Europe (30%).

TABLE 1. ESTIMATED PREVALENCE AS A PERCENTAGE AND NUMBER OF **ADULTS** WITH OBESITY IN THE WORLD POPULATION IN 2020, 2025, 2030

	2020		2025		2030	
Adult obesity – prevalence	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**	**Number**
Grade 1, 2 and 3 obesity (BMI ≥30 kg/m²)	**15%**	**764 million**	16%	892 million	**18%**	**1.025 million**
- including grade 2 and 3 obesity (BMI ≥35 kg/m²)	5%	238 million	5%	284 million	6%	333 million
- including morbid (grade 3) obesity (BMI ≥40 kg/m²)	2%	77 million	2%	93 million	2%	111 million

Source: Author's elaboration based on NCD Risk Factor Collaboration (2017) and World Obesity Federation projections.

TABLE 2. ESTIMATED PREVALENCE AS A PERCENTAGE AND NUMBER OF **ADULT WOMEN** WITH OBESITY IN THE WORLD POPULATION IN 2020, 2025, 2030

	2020		2025		2030	
Adult women obesity – prevalence	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**	**Number**
Grade 1, 2 and 3 obesity (BMI ≥30 kg/m²)	17%	445 million	18%	512 million	20%	586 million
- including grade 2 and 3 obesity (BMI ≥35 kg/m²)	6%	159 million	7%	188 million	7%	219 million
- including morbid (grade 3) obesity (BMI ≥40 kg/m²)	2%	54 million	2%	65 million	3%	77 million

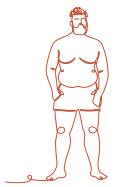
Source: Author's elaboration based on NCD Risk Factor Collaboration (2017) and World Obesity Federation projections.

[10] World Obesity Atlas 2022 https://www.worldobesity.org/resources/resource-library/world-obesity-atlas-2022.

In 2030, every 1 in 7 adult men (20%) globally will be obese (approx. 0.4 billion). The highest percentage of men with obesity (BMI>30) is predicted in 2030 in the Americas (34%), Europe (29%) and the Middle East (22%).

Across the European region, one in three people are expected to be obese by 2030 (29.42% of men and 29.97% of women). This translates to roughly 102 million men and 113 million women projected to be obese in Europe by 2030. Let us recall that in 2010 in the European region, 63 million men and 83.5 million women had a BMI ≥30 kg/m². More than 26 million men are expected to have a BMI ≥35 kg/m², and almost 6 million have a BMI ≥40 kg/m². 44 million women will have a BMI ≥35 kg/m² and 14 million will have a BMI ≥40.

TABLE 3. ESTIMATED PREVALENCE AS A PERCENTAGE AND NUMBER OF **ADULT MEN** WITH OBESITY IN THE WORLD POPULATION IN 2020, 2025, 2030



	2020		2025		2030	
Adult men obesity – prevalence	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**	**Number**
Grade 1, 2 and 3 obesity (BMI ≥30 kg/m²)	13%	207 million	14%	380 million	15%	439 million
- including grade 2 and 3 obesity (BMI ≥35 kg/m²)	3%	44 million	3%	96 million	4%	114 million
- including morbid (grade 3) obesity (BMI ≥40 kg/m²)	1%	11 million	1%	28 million	1%	34 million

Source: Author's elaboration based on NCD Risk Factor Collaboration (2017) and World Obesity Federation projections.

TABLE 4. COUNTRIES IN THE EUROPEAN REGION WITH THE HIGHEST AND LOWEST RATE OF OBESITY AMONG **WOMEN** BY 2030

Countries with the highest prevalence		Countries with the lowest prevalence	
Country	**Prevalence rate in 2030**	**Country**	**Prevalence rate in 2030**
Turkey	50%	**Denmark**	21%
Great Britain	37%	**Switzerland**	21%
Ireland	35%	**Sweden**	23%
Malta	33%	**Bosnia and Herzegovina**	23%
Azerbaijan	32%	**Tajikistan**	23%
Georgia	32%	**Austria**	23%
Lithuania	31%	**Italy**	24%
Belarus	31%	**Iceland**	24%
Greece	31%	**Slovakia**	24%
Croatia	31%	**Estonia**	24%

Source: Author's elaboration based on NCD Risk Factor Collaboration (2017) and World Obesity Federation projections.

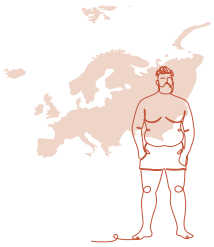


TABLE 5. COUNTRIES IN THE EUROPEAN REGION WITH THE HIGHEST AND LOWEST RATE OF OBESITY AMONG **MEN** BY 2030

Countries with the highest prevalence		Countries with the lowest prevalence	
Country	**Prevalence rate in 2030**	**Country**	**Prevalence rate in 2030**
Malta	37%	**Tajikistan**	17%
Hungary	37%	**Uzbekistan**	20%
Great Britain	37%	**Kyrgyzstan**	20%
Ireland	34%	**Moldova**	22%
Turkey	34%	**Azerbaijan**	23%
Bulgaria	34%	**Turkmenistan**	23%
Czech Republic	33%	**Armenia**	23%
Luxembourg	33%	**Bosnia and Herzegovina**	24%
Israel	33%	**Russia**	24%
Croatia	32%	**Slovenia**	26%

Source: Author's elaboration based on NCD Risk Factor Collaboration (2017) and World Obesity Federation projections.

In 2030, obesity in the world will affect over 100 million children aged 5-9 years and over 150 million people aged 10-19[11]. This translates to roughly 13% of the world's children and adolescents, or one in eight young people, being classified as obese. In 2020, among children aged 5-9, the Americas region had the highest obesity rate (19%), followed by the Western Pacific region (18%) and the European region (13%). The world average was 11%. In 2020, in the 10-19 age group, the highest rate of obesity (15%) was recorded in the Americas region, followed by the Western Pacific region (10%) and Europe (8%). The world average was 7%.

By 2030, in the European region, 16.2% of children aged 5-9 years and 11.13% of youth aged 10-19 years will be obese.

This will correspond to a population of 21 million children and adolescents aged 5-19. Six countries may have more than one million obese children by 2030: Turkey (3.6 million), Russia (3 million), Germany (1.5 million), Great Britain (1.3 million), France (1.3 million) and Italy (1.1 million).

According to the "WHO European Regional Obesity Report 2022", overweight and obesity affect 60% of adults and 7.9% of children under 5 years of age in the European region[12]. WHO estimates that 59% of adults in the European region are overweight or obese. These figures are higher among men (63%) than among women (54%). In many countries, the prevalence of overweight and obesity among men is close to or above 70%.

[11] Atlas on childhood obesity. 2019 https://s3-eu-west-1.amazonaws.com/wof-files/11996_Childhood_Obesity_Atlas_Report_ART_V2.pdf.

[12] WHO European Regional Obesity Report 2022. Copenhagen: WHO Regional Office for Europe; 2022 https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf.

TABLE 6. COUNTRIES IN THE EUROPEAN REGION WITH THE HIGHEST AND LOWEST RATE OF OBESITY AMONG **CHILDREN AND ADOLESCENTS AGED FROM 5 TO 19 YEARS** BY 2030

Countries with the highest prevalence		Countries with the lowest prevalence	
Country	**Prevalence rate in 2030**	**Country**	**Prevalence rate in 2030**
Hungary	19%	**Tajikistan**	8%
Turkey	19%	**Belgium**	8%
Croatia	19%	**Armenia**	8%
Greece	18%	**Denmark**	8%
Bulgaria	18%	**Moldova**	9%
Serbia	18%	**Switzerland**	9%
Albania	18%	**Kyrgyzstan**	9%
North Macedonia	17%	**Sweden**	9%
Slovenia	17%	**Uzbekistan**	9%
Romania	16%	**Turkmenistan**	10%

Source: Author's elaboration based on Atlas on childhood obesity. 2019 https://s3-eu-west-1.amazonaws.com/wof-files/11996_Childhood_Obesity_Atlas_Report_ART_V2.pdf.

Almost a quarter (23%) of adults in the European region are obese. Unlike overweight, obesity is more common among women (24%) than among men (22%). The highest rates of both overweight and obesity may be observed in Mediterranean and Eastern European countries. Obesity is more common in people with lower levels of education. Furthermore, the gender analysis shows that in the WHO European Region, inequalities in overweight and obesity rates between men and women are widespread and heterogeneous with respect to socio-economic factors such as income, education, employment status and place of residence.

A great cause for concern is the rapid increase in overweight and obesity rates among adults. In the European region, in the 10 years to 2016, recent estimates of obesity prevalence increased by 21% and by 138% since 1975, while, in the 10 years to 2016, overweight and obesity increased by 8% and by 51% since 1975. Unfortunately, since the adoption of voluntary global goals for chronic diseases: NCD (non-communicable disease) in 2013, there has been a steady increase in the prevalence of overweight and obesity. Not a single Member State in the WHO European Region is on track to meet the target of halting the rise in the number of people with obesity and diabetes.

Overweight and obesity are not just issues for adults, but also affect children. Joint estimates by UNICEF, WHO and the World Bank show that in 2020, overweight (as well as obesity) was a common problem in the European Region, affecting 4.4 million children under 5 years of age (representing 7.9% of children in this age group), with large differences between countries.

However, the data are sparse and only 26 countries, mainly in the eastern part of the European Region, had sufficient data to allow estimates to be made. The prevalence of overweight and obesity increases in the 5-9 age group, with every eighth child (11.6%) being obese and almost every third child (29.5%) being overweight or obese. The prevalence decreases transitionally in the 10-19 age group: 7.1% of people in this group are obese, and 24.9% are overweight or obese. In both age groups, overweight and obesity are more common in boys. Among countries, those in the Mediterranean basin are particularly affected. The same data show that the prevalence of overweight and obesity among boys aged 5-19 almost tripled between 1975 and 2016 and more than doubled among girls of this age.

Obesity levels were growing rapidly: in 2016, compared to 1975, they were on average about five times higher among children and adolescents aged 5-19. This large increase was partly due to the very low levels of childhood obesity in 1975. The prevalence of obesity increased by 40% and of overweight (including obesity) by 20%. Moreover, in several countries, almost 40% of boys aged 6-9 were overweight or obese, and almost 20% were obese. The data also showed that the prevalence of overweight was higher among children, whose parents had lower educational level.

This correlation was particularly striking in high-income countries: the prevalence of obesity among children, whose parents had low education, was approximately twice then that among children, whose parents had high education. In many middle-income countries, however, the direction of this relation has been reversed.

According to Eurostat, the average percentage of overweight and obese adults in 2019 in the European Union ranged from approximately 46% in Italy to approximately 65% in Croatia. For Poland, it was approximately 58%. The EU average was approximately 53%[13].

With age, there was a notable increase in the percentage of the population with obesity. In 2019, the lowest percentage of people with obesity (25%) was in the 18-24 age group, and the highest (65.7%) was in the 65-74 age group. Exceptions to this pattern were found in Denmark, Ireland and Sweden (as well as Norway and Turkey), where the rate of overweight was highest in the 54-64 age group.

The highest rate of people with obesity, measured using BMI, was recorded in Malta – approximately 28%, and the lowest in Romania – approximately 10%. In Poland, it was approximately 18%, and the EU average is approximately 16%.

[13] Overweight and obesity - BMI statistics. Eurostat https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Overweight_and_obesity_-_BMI_statistics.

TABLE 7. PERCENTAGE OF THE POPULATION WITH OVERWEIGHT AND OBESITY BY SEX AND AGE IN 2019, ACCORDING TO EUROSTAT

	Men	Women	over 18 years of age	18-24	25-34	35-44	45-64	65-74	75 years and over
The European Union	60.2	45.7	52.7	25	39.3	49.7	59.8	65.7	59.3
Belgium	56.2	44.6	50.5	26.2	36.2	49	57.3	62.6	52.7
Bulgaria	64.3	46.3	54.9	23.2	37.2	48.8	63.4	70.2	62.6
Czech Republic	69.8	50.6	60	20.9	43.3	57.8	68.7	76.4	67.8
Denmark	57.8	43.3	50.4	26	40	50.1	59.6	57.6	50.5
Germany	60.7	46.5	53.5	28.2	40.8	52.3	60	66.1	57.4
Estonia	61.7	52.3	56.7	26.5	35.9	51.5	67	75.7	67.8
Ireland	62.3	46.4	54.4	39.7	52.1	52.9	61.5	59.7	57.5
Greece	66.8	49.1	57.6	23.4	39.7	50.4	66	74.7	68.8
Spain	61.7	45.9	53.7	25.1	37.4	49.6	60.4	68.3	66
France	52.9	42	47.2	22.3	37.8	43.7	53.9	57.2	53.6
Croatia	73.2	58.5	64.8	27.3	45.1	59.8	69.3	78.7	70
Italy	55.3	37.1	45.7	18	31.2	39.7	49.9	58.8	55
Cyprus	59.4	40.8	49.8	23.5	32.7	49.2	61.6	65.7	64.7
Latvia	60.1	56.9	58.3	22.3	38.9	52.4	67.8	73.5	71.7
Lithuania	60.2	53.9	56.8	20.1	40	48.2	69.1	74	65.5
Luxembourg	58.5	38.4	48.4	24.1	36.5	46.7	56.9	62.5	57.1
Hungary	67.3	53.3	59.9	31.3	43.9	55.4	68.4	76.4	67.3
Malta	71	58	64.8	38.6	56.6	66.1	73.3	73.7	72.5
The Netherlands	55.1	45.1	50	25	39.4	49.8	57.4	60.2	54.3
Austria	60.6	44.1	52.2	27.2	39	48.3	59.9	66.4	58.7
Poland	**66.9**	**50.2**	**58.2**	**26.6**	**43.4**	**55.3**	**67.8**	**73.7**	**65.4**
Portugal	60.9	51.5	55.9	27.6	39.9	52.3	62.9	70.4	63.6
Romania	66.9	50.9	58.7	25.4	42.8	55.4	70.2	72.3	62.3
Slovenia	66.3	49.8	58.1	26.1	42.7	53.3	66.1	72.9	68.8
Slovakia	67.3	50.5	58.7	23.8	42	58	68.3	77.3	73
Finland	62.5	55.8	59	30.4	45.9	58.9	65.9	69.1	65.7
Sweden	57.1	45.7	51.3	27.5	39.7	50.3	60.9	60.1	52.4
Norway	57.1	43.3	50.6	28.2	40.8	50.9	61	57.6	49.2
Serbia	62.7	45	53.6	24.1	42.1	51.8	62.4	65.1	53.8
Turkey	59.8	57.8	58.8	26.9	44.8	65.1	74.3	73.3	59.8

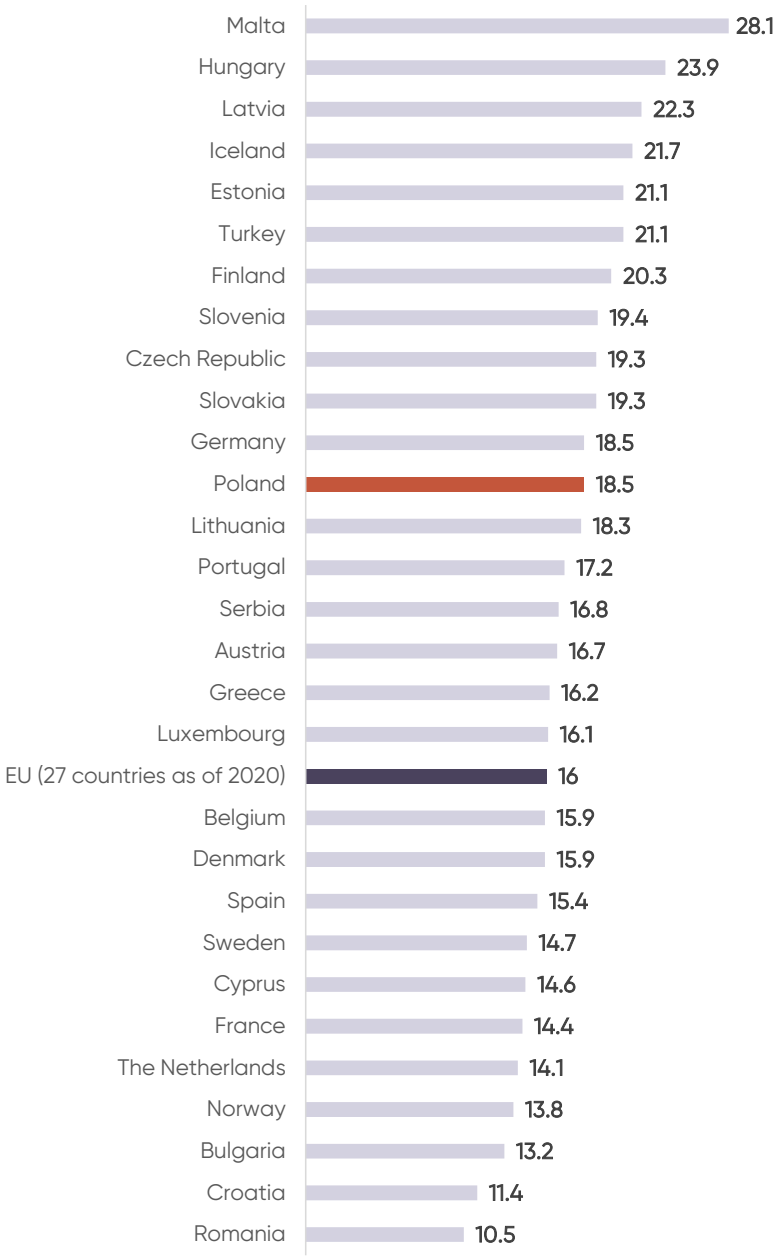
Source: Data by Eurostat.

TABLE 8. BODY MASS INDEX (BMI) BY SEX, AGE AND EDUCATIONAL LEVEL IN 2019, ACCORDING TO EUROSTAT

BMI values	Underweight	Normal weight	Obesity
European Union (27 countries as of 2020)	2.9	45.8	16
Belgium	3.2	48	15.9
Bulgaria	2.4	44.1	13.2
Czech Republic	1.6	40	19.3
Denmark	2.3	48.8	15.9
Germany	2.7	45.2	18.5
Estonia	2.5	42.4	21.1
Ireland	-	-	-
Greece	1.4	42.3	16.2
Spain	2.4	45.3	15.4
France	4.3	50.3	14.4
Croatia	3.9	51.4	11.4
Cyprus	3.9	47.7	14.6
Latvia	2.6	40.7	22.3
Lithuania	2.3	42.7	18.3
Luxembourg	3.7	49.2	16.1
Hungary	2.7	38.9	23.9
Malta	1.9	34.2	28.1
The Netherlands	2.9	48.9	14.1
Austria	2.6	46.3	16.7
Poland	2.7	40.6	18.5
Portugal	2	43.4	17.2
Romania	1	42.5	10.5
Slovenia	1.6	41.8	19.4
Slovakia	2.2	40	19.3
Finland	1.7	40.6	20.3
Sweden	2.4	48	14.7
Iceland	1.4	38.5	21.7
Norway	2	48.4	13.8
Great Britain	-	-	-
Serbia	2.3	45.2	16.8
Turkey	3.8	40.1	21.1

Source: Data by Eurostat.

CHART 1. BMI (OBESITY) IN THE EUROPEAN UNION IN 2019, ACCORDING TO EUROSTAT



Source: Dane Eurostat.

04

Costs of obesity: Poland compared to other countries around the world

Jakub Gierczyński, MD, PhD, MBA

4.1 Costs of obesity around the world

Obesity is a growing public health problem with significant economic consequences[14]. The World Obesity Federation says that within 12 years, more than half (51%) of the world's population will be overweight or obese, unless prevention, treatment and support improve.

By 2035, the impact of overweight and obesity on the global economy will reach **USD 4.32 trillion** annually, almost 3% of global gross domestic product.

This is comparable to the impact of COVID-19 in 2020, and the impact on low- and lower-middle-income countries will be estimated at USD 370 billion per year. The report reveals that nine of the ten countries expected to see the greatest increase in the number of people with obesity globally were low- or middle-income countries, and all were in Africa or Asia. As of 2020, 38% of the world's population was overweight and obese, and no country was on track to meet the World Health Organisation's goal of halting obesity rates from rising to 2010 levels by 2025.

These rates are rising faster among children and adolescents. Globally, childhood obesity rates are expected to more than double between 2020 and 2035, from 10% to 20% among boys and from 8% to 18% among girls[15].

Obesity is a major driver of healthcare costs. Additional costs increase as BMI raise, so people with severe obesity have the highest healthcare costs (Effertz et al., 2016)[16]. This is partly due to increased healthcare use. People with obesity are at greater risk of developing complications such as heart disease, diabetes and cancer, all of which come with increased healthcare costs associated with their treatment. As a result, people with obesity use health care services more intensively: they are more likely to visit primary healthcare facilities (POZ), specialist outpatient care (AOS), they are hospitalised more often, they undergo more surgeries as well as they use diagnostic services and home health care more often (Cecchini, 2018[5]; Bertakis and Azari, 2005 [6]; Andreyeva, Sturm and Ringel, 2004 [7]). People suffering from obesity also receive 2.4 times more prescriptions than people of normal weight (Cecchini, 2018)[17]. In addition to greater use of healthcare services, people with obesity may also incur higher visit costs. A study in the United States shows

[14] Nagi M. A., Ahmed H., Rezq M. A. A., Sangroongruangsri S., Chaikledkaew U., Almalki Z., Thavorncharoensap M., Economic costs of obesity: a systematic review, "Int J Obes (Lond)" 2023 Oct 26. doi: 10.1038/s41366-023-01398-y. Epub ahead of print. PMID: 37884664.

[15] Mahase E., Global cost of overweight and obesity will hit $4.32tn a year by 2035, report warns BMJ 2023; 380 :p523 doi:10.1136/bmj.p523 https://www.bmj.com/content/380/bmj.p523

[16] Effertz T. et al., The costs and consequences of obesity in Germany: a new approach from a prevalence and life-cycle perspective, "The European Journal of Health Economics" 2016, Vol. 17/9, pp. 1141-1158, https://doi.org/10.1007/s10198-015-0751-4.

[17] Cecchini M., Use of healthcare services and expenditure in the US in 2025: The effect of obesity and morbid obesity, "PLOS ONE" 2018, Vol. 13/11, p. e0206703, https://doi.org/10.1371/journal.pone.0206703.

that emergency room and hospitalisation charges are higher for people with obesity, potentially because they require more complex and expensive care (Bertakis and Azari, 2005)[18]. Another study found that the impact of obesity and co-morbidities on the cost of a single inpatient or outpatient visit was additive, and in some cases even greater than additive (Padula, Allen and Nair, 2014)[19]. For example, while the average cost of a visit for someone with obesity was USD 1,908 and for someone with congestive heart failure was USD 1,642, the average cost of a visit for someone with both diseases was USD 5,276. Even after accounting for co-morbidities, which require additional services and may complicate treatment, people with obesity incur higher healthcare costs. Obesity has been shown to increase the cost and length of treatment for total hip arthroplasty (Kremers et al., 2014)[20] and total knee arthroplasty (Kremers et al., 2014)[21], even when other co-morbidities are taken into account.

Similarly, health service use and health care costs during pregnancy have been found to increase with increasing maternal BMI, even after controlling for co-morbidities (Morgan et al., 2014)[22].

In 2019, the OECD report entitled „The Heavy Burden of Obesity. The Economics of Prevention" concluded that overweight and obesity generate huge costs from a social perspective. Overweight and obesity cost OECD countries an average of PPP USD 209 per year per capita in healthcare spending (2020-2050). In the EU-28, the average annual per capita healthcare expenditure related to overweight and obesity was PPP USD 195, and in the G20 countries it was PPP USD 171. These differences are partly due to differences in healthcare costs between countries. High healthcare costs and a high prevalence of overweight and obesity mean the United States spends the most per capita, that is USD 645. Other countries with high healthcare costs, such as Norway, the Netherlands and Germany, also have high per capita spending on fighting excess weight. Countries with lower overall health care budgets but high prevalence of overweight, such as Turkey and Saudi Arabia, will end up allocating a large portion of their healthcare spending toward treating excess weight and related conditions. OECD countries will spend on average 8.4% of their health budget on treating the effects of obesity (however, this will vary greatly between countries). While the

---

[18] Bertakis K., Azari R., Obesity and the Use of Health Care Services, "Obesity Research" 2005, Vol. 13/2, pp. 372-379, https://doi.org/10.1038/oby.2005.49.

[19] Padula W., Allen R., Nair K., Determining the cost of obesity and its common comorbidities from a commercial claims database, "Clinical Obesity" 2014, Vol. 4/1, pp. 53-58, https://doi.org/10.1111/cob.12041.

[20] Kremers H., et al., Obesity Increases Length of Stay and Direct Medical Costs in Total Hip Arthroplasty, "Clinical Orthopaedics and Related Research®" 2014, Vol. 472/4, pp. 1232-1239, https://doi.org/10.1007/s11999-013-3316-9.

[21] Kremers H., et al., The Effect of Obesity on Direct Medical Costs in Total Knee Arthroplasty, "The Journal of Bone and Joint Surgery-American Volume" 2014, Vol. 96/9, pp. 718-724, https://doi.org/10.2106/JBJS.M.00819.

[22] Morgan K., et al., Obesity in pregnancy: a retrospective prevalence-based study on health service utilisation and costs on the NHS, "BMJ open" 2014, Vol. 4/2, p. e003983, https://doi.org/10.1136/bmjopen-2013-003983.

United States will spend almost 14% of its healthcare budget on treating the effects of overweight and obesity, Estonia will spend less than 5%. In total, OECD countries spend PPP USD 311 billion annually on the treatment of overweight and related diseases. Together, all 52 countries will spend PPP USD 425 billion annually between 2020 and 2050, which is an equivalent to Austria's GDP in 2018.

Overweight and obesity reduce life expectancy, increase healthcare expenses, reduce employee productivity, and thus reduce Gross Domestic Product (GDP). According to the OECD, life expectancy in Poland is projected to shorten by almost 4 years (3.9 years) by 2050 due to obesity. In the OECD countries, life expectancy will shorten on average by 2.7 years, and in wealthier EU countries, by 2.9 years. Such a decline in life expectancy could result in a loss of approximately 4.1% of Poland's GDP over the next 30 years, or roughly 0.14% of GDP per year. The average for the European Union and OECD was 3.3% of GDP.

Obesity is estimated to account for 70% of treatment costs for diabetes, 23% for cardiovascular diseases and 9% for cancer[23].

4.2 Costs of obesity in Poland

The National Health Fund (NFZ) estimates an increase in costs related to the treatment of diseases related to overweight and obesity by PLN 0.3-1.0 billion in 2025, compared to 2017, according to its 2019 report entitled "Sugar, obesity – Consequences" (Cukier, otyłość – konsekwencje). The number of adults with obesity will increase to 6.1–11.4 million people; the obesity rate among adult women will be 26% and among adult men will be 30%. By 2025, the number of people with diabetes will increase, by approximately 941,000, compared to 2017[24].

According to the National Health Fund's updated 2024 report, obesity forecasts for Poland predict that over 35% of adult men and over 25% of adult women will be obese by 2035. The National Health Fund estimates that the reimbursement for treatment of the consequences of obesity in 2023 amounted to at least PLN 3.8 billion. It was the sum of reimbursement amounts for services related to the treatment of the following diseases among adults: type 2 diabetes, arterial hypertension, gall bladder diseases, dyslipidemia, sleep apnea, knee degeneration requiring arthroplasty and fatty liver disease.

[23] The Heavy Burden of Obesity: The Economics of Prevention, OECD Health Policy Studies, OECD Publishing, Paris 2019, https://doi.org/10.1787/67450d67-en https://www.oecd.org/health/the-heavy-burden-of-obesity-67450d67-en.htm.

[24] Cukier, otyłość – konsekwencje. NFZ 2019 https://www.gov.pl/web/zdrowie/cukier-otylosc-konsekwencje-prezentacja-raportu.

TABLE 9. VALUE OF REIMBURSEMENT FOR TREATMENT OF SELECTED CONSEQUENCES OF OBESITY IN ADULT PEOPLE WITH OBESITY, 2023

Disease	Value of reimbursement of healthcare services* (in PLN million)	Estimated number of obesity-related cases (in millions)	Estimated value of reimbursement of healthcare services* resulting from obesity (in PLN million)		
			Average value	Lower limit of the 95% confidence interval	Upper limit of the 95% confidence interval
Type 2 diabetes	2688	1.70	1397.7	1394.1	1400.9
Arterial hypertension	2273	6.97	1600.0	1589.0	1601.9
Dyslipidemia	675	2.20	229.6	228.3	230.9
Knee degeneration requiring arthroplasty	815	0.02	487.8	-	-
Sleep apnea	81	0.05	59.6	59.6	59.7
Fatty liver disease	75	0.05	60.2	59.6	60.6
Total	**6 607**	**-**	**3 834.9**	**-**	**-**

**For diabetes, reimbursement included the cost of medications and glucose test strips. For arterial hypertension and dyslipidemia, only medication costs were considered.*

Source: Author's elaboration based on National Health Fund data.

An important element of the treatment of advanced obesity is bariatric surgery, which involves surgically reducing the volume of the stomach. In 2023, 6.5 thousand patients underwent this procedure. Since 2021, a pilot programme for comprehensive specialist care for beneficiaries treated for morbid obesity, KOS-BAR, has been operating in Poland. By 21 March 2024, five thousand five hundred patients in 19 centres took part in the programme. In 2023, 6,500 patients underwent the procedure, which was 97% higher than in 2017. The value of reimbursement of services has been increasing in recent years and in 2023 it reached PLN 128.8 million. This was an increase by 258.8% compared to 2017[25].

The Republican Foundation's 2021 report titled "Obesity – epidemic XXI century" (*Otyłość epidemią XXI wieku*) estimated the direct and indirect costs of obesity in Poland.

The report shows that the direct and indirect costs of obesity treatment **in Poland** amount to **PLN 15 billion.**

Direct costs, including health services and costs of drugs used mainly in the treatment of obesity complications, campaigns and preventive programmes, amount to approximately PLN 5 billion per year. Indirect costs related to absence from work,

[25] NFZ o zdrowiu. Otyłość i jej konsekwencje. NFZ 2024 https://ezdrowie.gov.pl/portal/home/badania-i-dane/zdrowe-dane/raporty/otylosc

lost tax or income, reduced quality of life or lost years of life are estimated at approximately PLN 10 billion per year. Due to the growing problem of obesity, the government must take into account increased healthcare expenses. People with obesity use medical services more often and, on average, spend more time in hospitals. Every fourth hospitalisation may be related to complications of obesity. This causes financial burdens, deepens the system's inefficiency and prolongs the waiting time to see a doctor.

The costs of healthcare for patients with grade 3 obesity are higher by 49-100% compared to the costs of care for people with normal body weight (depending on the region of the world).

It is estimated that the life of an obese person is on average 8-10 years shorter than that of a person with a normal BMI. The government bears the costs of investing in activities aimed at reducing obesity in society, such as social campaigns and prevention programmes.

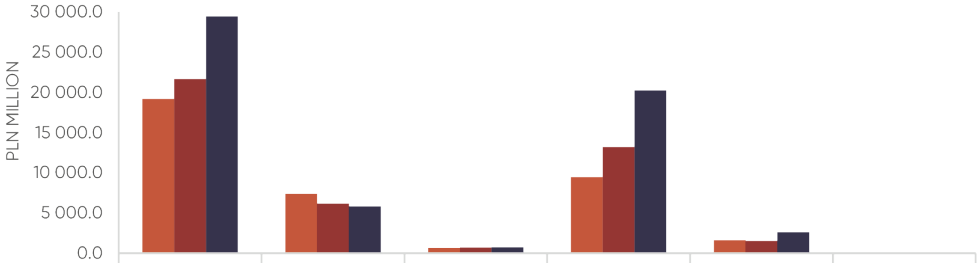
The prevention of overweight and obesity has remained the first operational goal in the National Health Programme (NPZ) since 2011 and will remain so at least until 2025. In the period 2021-2025, no more than PLN 40 million is planned to be allocated for this purpose.

Other expenses include the costs of social support (including social workers' salaries), sickness benefits and unemployment benefits. People with obesity are at greater risk of unemployment and early retirement. Lower productivity of people with obesity reduces revenues, also from taxes. Combined with high medical costs, this results in the country's lower economic growth[26].

Obesity is a disease, which causes temporary inability to work for both men and women. In terms of Social Insurance Institution (ZUS) expenses, obesity generated approximately PLN 29 million in social security expenses in 2022 for benefits related to inability to work. The costs of inability to work due to the consequences of obesity have not been calculated.

[26] Otyłość epidemią XXI wieku. Fundacja Republikańska 2021 https://fundacjarepublikanska.org/otylosc-epidemia-xxi-wieku/.

CHART 2. SOCIAL INSURANCE EXPENDITURES ON BENEFITS RELATED TO INABILITY TO WORK CAUSED BY SELECTED DISEASES, BY TYPE OF BENEFITS IN THE YEARS 2020-2022



	TOTAL	Disability pensions	Social pensions	Sick leave	Rehabilitation benefit	Therapeutic rehabilitation
E66 2020	19 200,.2	7 419.0	688.6	9 476.0	1 598.3	18.3
E66 2021	21 661.1	6 171.0	723.5	13 212.8	1 546.4	7.4
E66 2022	29 424.0	5 819.4	757.6	20 219.3	2 600.6	27.1

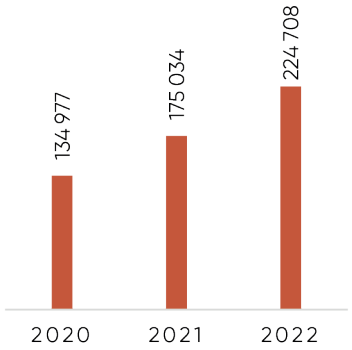
Source: Social Insurance Institution (ZUS) data.

The number of days of sickness absence due to own illness of persons insured with Social Insurance Institution in 2022 was 224,708 days, in 2021 – 175,034, and in 2020 – 134,977 days.

The number of patients diagnosed with E66 who received first-time disability pension decisions from medical examiners establishing inability to work in 2020 was 52, in 2021 – 74, and in 2022 – 93 people.

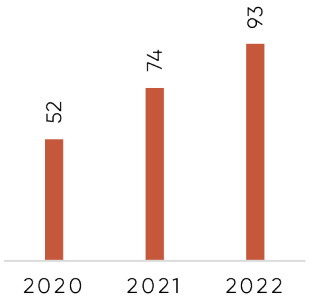
An upward trend is observed in the number of certificates or decisions issued for obesity and overnutrition syndromes (codes E65-E68). Analysis of the number of decisions issued related to long-term benefits, (disability pension or social pension) reveals their gradual increase

CHART 3. THE NUMBER OF DAYS OF SICKNESS ABSENCE DUE TO OWN ILLNESS OF PERSONS INSURED WITH SOCIAL INSURANCE INSTITUTION IN THE YEARS 2020-2022



Source: Social Insurance Institution (ZUS) data.

CHART 4. NUMBER OF PEOPLE WITH A DIAGNOSIS OF E66 AND A FIRST PENSION DECISION FROM MEDICAL EXAMINERS ESTABLISHING INABILITY TO WORK IN THE YEARS 2020-2022



Source: Social Insurance Institution (ZUS) data.

4.3 Conclusions

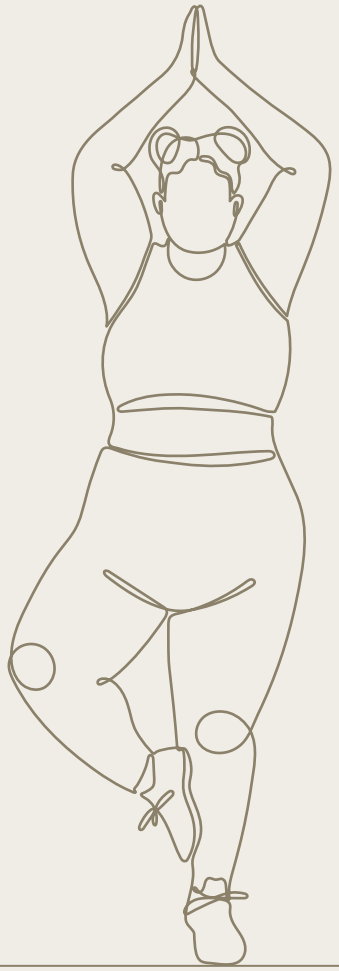
1. The total costs of obesity in Poland and around the world are growing rapidly.

2. The costs of treating obesity and related diseases accounted for an average of 8.4% of healthcare system expenditure in 2019 or an average of USD 211 per capita per year.

3. Over the next 30 years, Poland will spend approximately 4.0% of GDP, that is 0.14% of GDP annually, on the treatment of obesity and co-morbidities.

4. The National Health Fund estimates that the reimbursement for treatment of the consequences of obesity in 2023 amounted to at least PLN 3.8 billion.

5. In 2022, the Social Insurance Institution (ZUS) paid approximately PLN 29 million of benefits for inability to work due to obesity. The number and value of sickness leaves is on an upward trend.



05

Organisation of care for patients with obesity – an international analysis

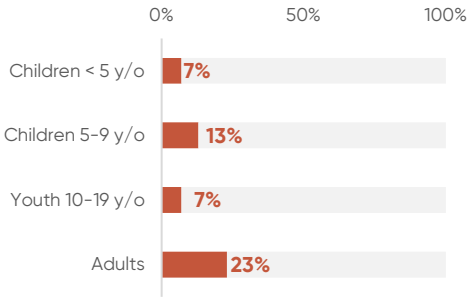
Jakub Gierczyński, MD, PhD, MBA
Marta Pawłowska, MBA
Małgorzata Gałązka-Sobotka, PhD
Iwona Kowalska-Bobko, PhD

5.1. Poland

5.1.1. Health problem – obesity

In Poland, the prevalence of obesity among various age groups is increasing. The problem of obesity is particularly visible among children and adolescents. Estimates provided by WHO indicate that 7% of children under 5 years of age, 13% of children between 5 and 9 years of age, and 7% of adolescents between 10 and 19 years of age are classified as obese. As of adults, every fifth person (23% of the population) is obese[27]. See: Chart 5.

CHART 5. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN POLAND



Source: Author's elaboration based on the WHO report.

5.1.2. Health policy

In Poland, no strategy has been developed, which considers national campaigns related to obesity.

In the National Health Programme for 2021-2025, obesity is recognised as a civilisation disease, and its treatment is one of the priorities[28].

Attention was drawn to the need to develop competences in the field of counteracting obesity through the education of healthcare workers, professional development of physical and health education teachers and organisation of educational activities aimed at society, including children and youth, representatives of government organisations, food industry and employers. Campaigns to maintain proper body weight were also considered, including providing nutritional and dietary advice for pregnant women and children up to 5 years of age and introducing a nationwide nutritional education centre. The National Health Programme also points to ensuring the availability of healthcare services aimed at preventing and diagnosing obesity and to the need to monitor selected indicators.

In the years 2007-2011, the National Programme for the Prevention of Overweight and Obesity and Chronic Non-Communicable Diseases through Improving Nutrition and Physical Activity was carried out. The program under the acronym POL-HEALTH was developed in cooperation with WHO and the European Commission.

[27] WHO European Regional Obesity Report 2022. World Health Organization. Source: https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf [access: 08 June 2022].

[28] Regulation of the Council of Ministers of 30 March 2021 on the National Health Programme for the years 2021-2025 (Journal of Laws of 2021, item 642).

The aim of the programme was to reduce the prevalence of overweight and obesity, morbidity and mortality from chronic non-communicable diseases in Poland and to reduce healthcare expenses related to the treatment of chronic non-communicable diseases, in particular obesity and its complications. The POL-HEALTH programme was also based on campaigns to increase public awareness of the role of nutrition and physical activity in preventing obesity, chronic non-communicable diseases, cardiovascular diseases, diabetes, osteoporosis and cancer. It assumed educating various social groups in this area, including groups professionally related to healthcare, and education of children and youth[29].

There are many regional actions and initiatives aimed at counteracting, preventing, diagnosing and treating obesity. They are not correlated with regional plans and are initiatives implemented independently by local authorities, educational institutions and other entities. There are also no coordinated efforts across different sectors.

The potential emergence of such activities is described in the National Health Programme for 2016-2020, indicating only the relevant ministries responsible for implementing selected priorities in the field of obesity.

At the same time, there is no system for evaluating obesity-related indicators in Poland. Irregular audit activities of the Supreme Audit Office (NIK) are carried out. They were carried out, among others, in 2011 and were aimed at assessing the preventing related to overweight and obesity prevention in children and adolescents. In the report, NIK emphasises the lack of systemic nature of regional and government initiatives in the field of obesity, and in particular the lack of legal and financial conditions for the full implementation of activities related to counteracting obesity[30].

A similar audit of activities regarding the availability of prevention and treatment for children and adolescents with metabolic disorders resulting from obesity and civilisation diseases was carried out by the Supreme Audit Office in 2021. NIK's audit identified two key issues: ineffectiveness of current efforts and a lack of coordination and adherence to established standards for counteracting obesity within healthcare and education. The report prepared by the Supreme Audit Office also indicates the lack of an indicator evaluation system[31].

---

[29] Narodowy Program Zapobiegania Nadwadze i Otyłości oraz Przewlekłym Chorobom Niezakaźnym, poprzez Poprawę Żywienia i Aktywności Fizycznej – „POL-HEALTH" 2007-2011. Source: http://www.archiwum.mz.gov.pl/zdrowie-i-profilaktyka/promocja-zdrowia/dzialania-w-ramach-programow-zdrowotnych/narodowy-program-przeciwdzialania-chorobom-cywilizacyjnym/modul-i-program--zapobiegania-nadwadze-i-otylosci-oraz-przewleklym-chorobom-niezakaznym-poprzez-poprawe-zywienia-i-aktywnosci-fizycznej-pol-health/ [access: 08 June 2022].

[30] Informacja o wynikach kontroli realizacji zadań w zakresie zapobiegania nadwadze i otyłości u dzieci i młodzieży szkolnej. Najwyższa Izba Kontroli 2011. Source: https://www.nik.gov.pl/plik/id,3276,vp,4137.pdf [access: 07 June 2022].

[31] Informacja o wynikach kontroli w zakresie dostępności profilaktyki i leczenia dla dzieci i młodzieży z zaburzeniami metabolicznymi wynikającymi z otyłości i chorób cywilizacyjnych. Najwyższa Izba Kontroli 2021. Source: https://www.nik.gov.pl/plik/id,25237,vp,27987.pdf [access: 07 June 2022].

The lack of effective and systemic actions is results in undertaking various short-term educational programmes implemented locally. There are also some educational programmes for schools aimed at preventing obesity. However, none of the programmes are monitored or evaluated.

Similarly, apart from the mention in the National Health Programme about the need to conduct educational activities in the field of obesity prevention and counteraction among employers, there is no programme actually implemented in this area in Poland.

Nonetheless, the requirement to educate the consumer in the form of the obligation to include nutritional information on most processed food products is regulated by normative acts[32,33]. Moreover, as part of consumer education, the food manufacturers must comply with many other detailed requirements in this respect contained in European Union directives and regulations.

The basis for consumer education are also legal acts introduced by the European Parliament, which are aimed at preventing food manufacturers from abusing advertising of their products by attributing to them properties, which have not been scientifically proven[34]. The basic requirement of the regulation is to avoid misleading the consumer as to the characteristics of products, in particular as to the type, properties, composition, quantity, durability, source or place of origin and production methods, and not to attribute to products activities or properties they do not have.

5.1.3. Diagnosis and treatment

In Poland, there is no routine determination and analysis of BMI or waist circumference. There are also no systems collecting information on this subject.

As of **treatment,** the National Health Fund (NFZ) reimburses medicinal products used in anti-diabetic conditions, such as metformin and drugs used in the treatment of type 2 diabetes, which support weight loss, such as GLP-1 analogues. Drugs used to treat obesity: Mysimba, Saxenda and Xenical are prescription drugs used only under the supervision of a doctor, but are not reimbursed[35].

However, bariatric surgery is subject to reimbursement, for which people over

[32] Regulation of the Minister of Agriculture and Rural Development of 10 July 2007 on the labelling of foodstuffs (Journal of Laws of 2007, No. 137, item 966).

[33] Regulation of the Minister of Agriculture and Rural Development of 23 December 2014 on the labelling of particular types of foodstuffs (Journal of Laws of 2015, item 29).

[34] Regulation (EC) No. 1924/2006 of the European Parliament and of the Council of 20 December 2006 on nutrition and health claims made on foods. Source: https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=CELEX%3A32006R1924 [access: 07 June 2022]..

[35] Odpowiedź Ministra Zdrowia w sprawie objęcia refundacją produktów leczniczych wspierających leczenie otyłości. Ministerstwo Zdrowia, Warszawa 2021. Source: https://www.gov.pl/attachment/e2f9d84d-24cb-4223-9529-caa363ddbbfb [dostęp dn. 07.06.2022r.].

18 years of age are eligible, whose BMI is >40 or >35, in the presence of co-morbidities, in which the surgically induced weight loss will improve the patient's health.

Dietary advice is not included in the basic services package. However, there are centres, where the issue of reimbursement of dietary advice depends on the patient's BMI, when a BMI exceeding 30 kg/m^2 and indicating obesity usually entitles the patient to receive reimbursed dietary advice.

In turn, reimbursement of psychological advice for people with obesity is possible under the introduced comprehensive care programme for people with obesity KOS-BAR. Psychological care is available in selected medical facilities participating in the pilot programme. The psychologist is part of a multidisciplinary team caring for a patient with obesity.

Currently, there is no medical speciality in Poland, which deals with obesity therapy. The introduction of a new medical specialisation – obesitology – is proposed, particularly for existing doctors like internists, paediatricians, diabetologists and surgeons. In 2018, on the initiative of the Polish Society for the Study of Obesity, a program for certification of doctors and accreditation of centres treating obesity patients was launched[36].

A pilot programme called KOS-BAR was launched in 2021 by the Ministry of Health. This programme offers comprehensive medical care for patients with morbid obesity, who are undergoing surgical treatment. The programme is based on the Regulation of the Minister of Health on Pilot Programme for Comprehensive Specialist Care for Patients Treated for Morbid Obesity KOS-BAR[37].

Fifteen centres have been designated to implement the pilot programme and may carry it out, provided that an agreement is concluded with the National Health Fund. Within the KOS-BAR programme, the patient receives comprehensive care, including preparation for bariatric surgery, pre-operative care (from 3 to 6 months) provided by a multidisciplinary team consisting of a specialist in surgery, a specialist in internal diseases or diabetes, anaesthesiology, medical rehabilitation and other specialists: physiotherapist, psychologist, dietician, nurse, medical assistant. The

[36] Certyfikacja i akredytacja w zakresie standardów postepowania z otyłością. Polskie Towarzystwo Badań nad Otyłością. Source: https://ptbo.org.pl/certyfikacja-i-akredytacja/ [access: 07 June 2022].

[37] Regulation of the Minister of Health of 12 August 2021 on the pilot programme for comprehensive specialist care for beneficiaries treated for morbid obesity KOS-BAR (Journal of Laws of 2021, item 1622).

programme also includes qualification for bariatric surgery, surgery procedure itself, follow-up visit, individual therapeutic rehabilitation plan, psychological and dietary assistance through 5 consultations with the doctor coordinating bariatric treatment or with other members of the multidisciplinary team. The programme includes long-term monitoring of effects through follow-up tests, including body weight, BMI, laboratory tests, imaging tests and necessary specialist consultations, including a psychologist's assessment for the occurrence of eating disorders (e.g. compulsive eating). It is also important for the patient to understand the changes, which occurred after surgery.

5.1.4. Financing mechanisms

Due to the lack of national strategies to counteract obesity, there are no special budgets for the implementation of systemic programmes. Nevertheless, financial resources for the KOS-BAR programme were transferred, among others, from the so-called sugar levy, which, in accordance with the regulations, is intended for educational and preventive activities and for healthcare services related to maintaining and improving the health of overweight and obese patients. By May 2021, the National Health Fund received over PLN 283 million from the sugar levy[38].

The sugar levy (so-called sugar tax) was introduced in Poland in 2021 and consists of two parts. The fixed part is 0.50 zł for each litre of sweetened drink and an additional 0.10 zł for each litre of drink with added taurine or caffeine. The variable part is 0.05 zł for every 1 gram of sugar in a drink exceeding the sugar content limit of 5 grams per 100 ml of beverage.

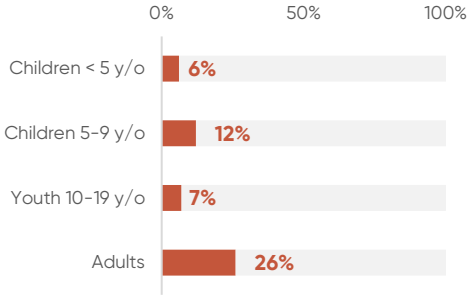
[38] Program kompleksowej opieki medycznej dla chorych na otyłość olbrzymią leczoną chirurgicznie, Ministerstwo Zdrowia, Warszawa 2021. Source: https://www.gov.pl/web/zdrowie/program-kompleksowej-opieki-medycznej-dla-chorych-na-otylosc-olbrzymia-leczona-chirurgicznie.

5.2. Czech Republic

5.2.1. Health problem – obesity

In the Czech Republic, the prevalence of obesity, according to estimates provided by WHO, is 6% among children under 5 years of age. Percentage of children between 5 and 9 years of age with diagnosed obesity is 12%. 7% of young people between 10 and 19 years of age and 26% of adults are classified as obese[39]. See: Chart 6.

CHART 6. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN THE CZECH REPUBLIC



Source: Author's elaboration based on the WHO report.

5.2.2. Health policy

National activities related to counteracting obesity in the Czech Republic are contained in the National Strategy for the Protection and Promotion of Health and Prevention of Diseases (hereinafter referred to as the National Health Strategy 2020). The strategy was introduced by the government in 2014 with Resolution No. 23 and by the Chamber of Deputies of the Parliament of the Czech Republic with Resolution No. 175 of 2014. The aim of the National Health Strategy 2020 is primarily to launch effective and long-term sustainable mechanisms to improve the health of the population. It is also a key document for obtaining funds from European health funds (requirements of the European Commission).

The national strategy outlines key priorities to address obesity, including: supporting the systematic monitoring of the relevance, assessment and research on obesity and related co-morbidities and their determinants, setting an anti-obesity environment, promoting health awareness and lifelong preventive behaviours, especially among the most vulnerable populations, strengthening the healthcare system towards appropriate treatment of obesity following evidence-based treatment (EBM), strengthening state administration in the area of counteracting obesity, activating civil society and building communities[40].

Regional plans are also being implemented, which is the responsibility of the Ministry of Regional Development of the Czech Republic (MRD) in the area of state administration. They have a real impact on prop-

[39] WHO European Regional Obesity Report 2022. World Health Organization. Source: https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf [access: 08 June 2022].

[40] Zdraví 2020 Národní strategie ochrany a podpory zdraví a prevence nemocí. Ministerstvo zdravotnictví 2015. Source: https://www.mzcr.cz/wp-content/uploads/wepub-upload/files/5/ak%C4%8Dn%C3%AD%20pl%C3%A1ny%20-%20p%C5%99%C3%ADlohy/AP%2002b%20prevence%20obezity.pdf [access: 07 June 2022].

er nutrition, a healthy lifestyle and obesity prevention in individual regions. The Ministry of Health collaborates with Regional State Administration Offices to promote healthy eating, lifestyles, and obesity prevention through regional commissions for health and proper nutrition. These commissions are established and financed by individual regions.

The national strategy also includes inter-sectoral actions; it also indicates a detailed schedule of activities related to counteracting obesity along with the units responsible for its implementation[41].

So far, there has been no indicator evaluation system in the Czech Republic. There are also no references to other national strategies. However, the Ministry of Health emphasises the need to evaluate indicators in the long term.

Through managing schools, science, state care for children, youth, physical education, sports, tourism, the Ministry of Education, Youth and Sports of the Czech Republic (MEYS) plays a key role in determining the content of education in schools as well as influences the offer of food and drinks and meals in school vending machines and canteens.

The Ministry of Education, Youth and Sports (MEYS) collaborates with the Ministry of Health and Ministry of Agriculture to develop projects promoting healthy eating in schools. These initiatives include the WHO National Network of "Health Promoting Schools" and European programs like "Fruit and Vegetables at School" and "Milk for Schools". It supports educational activities, such as the nationwide annual seminar "Health Education Forum" and the nationwide competition "SZAFKA - How to live healthily". The findings from experiments on exercise and nutrition (including programmes like "Exercise and Nutrition" and "Nutrition in health education") are shared with other departments for further interventions. The Ministry of Education, Youth and Sports, in cooperation with the Ministry of Health and the Ministry of Agriculture, develops and guarantees a general programme supporting appropriate nutrition in schools and teaching the principles of a varied and balanced diet, including the principles of a healthy lifestyle. To promote balanced and varied diets, school nutrition rules are established. This includes setting and updating nutritional standards for all food and meals available at school or served to children. Consequently, the availability of unhealthy food choices is limited.

[41] Schedule for the National Health Strategy 2020. Source: https://www.mzcr.cz/wp-content/uploads/wepub-upload/files/5/ak%C4%8Dn%C3%AD%20pl%C3%A1ny%20-%20p%C5%99%C3%ADlohy/AP%2002b%20prevence%20obezity_harmonogram.pdf [access 07 June 2022].

In terms of consumer education, the Ministry of Agriculture, in cooperation with the Ministry of Health, determines, manages and is responsible for food reformulation in the Czech Republic, especially in the field of gradual reduction of salt, saturated and trans fats and sugars in food. It is also responsible for labelling food available on the market. In the field of food labelling, it guarantees and provides a publicly available database on the nutritional composition of food, in accordance with Regulation (EU) No. 1169/2011 on the provision of food information to consumers. The database is made available free of charge to state institutions and individuals. Apart from these activities, there are no other activities carried out to educate consumers.

5.2.3. Diagnosis and treatment

There is no system for evaluating obesity-related indicators in the Czech Republic. Neither BMI nor waist circumference is routinely measured.

The reimbursement of anti-obesity drugs in the Czech Republic is determined by insurance companies based on indication criteria set by ČOS ČLS. These criteria prioritize reimbursement for patients with obesity-related co-morbidities.

Medicinal products for specific indications are subject to reimbursement by insurance companies, especially for patients with co-morbidities. These are medicinal products, which centrally suppress appetite, limit the absorption of fat in the gastrointestinal tract, influence gastrointestinal hormones – incretins, and increase the loss of glucose by the kidneys in diabetics (gliflozin).

Health insurance companies reimburse bariatric surgery for patients with a BMI exceeding 40. Health insurance may also cover bariatric surgery for patients with a BMI exceeding 35, but with a confirmed co-morbidity diagnosed by their doctor. Most often it is diabetes, cardiac disease or joint disease.

For people with obesity, the insurance covers consultations with a dietician and a psychologist.

In accordance with Art. 98 and Art. 100 of Decree 55/2011 Coll., which defines the activities of healthcare workers and other healthcare employees[42] and in accordance with Act No. 96/2004 Coll.[43], in non-medical health professions, nutritional assistant, certified nutritional therapist and nutritional therapist are considered nutrition specialists.

---

[42] Decree on the activities of healthcare workers and other specialists of 2011 (Decree No. 55/2011 Coll.). Source: https://www.zakonyprolidi.cz/cs/2011-55 [access 07 June 2022].

[43] Act on the Conditions for Acquiring and Recognising Professional Qualifications to Perform Non-medical Healthcare Professions and to Perform Activities relating to Healthcare Provision and on the Amendment to Some Related Acts (the Act on Non-medical Healthcare Professions) (Act No. 96/2004 Coll.). Source: https://www.zakonyprolidi.cz/cs/2004-96 [access 07 June 2022].

There is currently no postgraduate specialisation in obesity. Specialised postgraduate education in the field of obesity is provided in obesity and bariatric centres accredited by the Czech Obesity Society, possibly also by international professional associations (such as European Association for the Study of Obesity).

Currently, there is no model for coordinated obesity care in the Czech Republic. However, actions are planned to create a network of progressive, comprehensive care for patients with obesity, which would include family doctors (for adults, children and adolescents). Specialist care would then be provided by obesity specialists, in collaboration with specialists in other fields, including: diabetologists, endocrinologists and orthopaedists.

5.2.4. Financing mechanisms

There is no information about targeted public funds for the diagnosis and treatment of obesity.

However, there is a sugar tax in the Czech Republic. It was introduced for sweet non-alcoholic drinks with a sugar content exceeding 5 g per 100 ml of liquid and is CZK 5 per litre of liquid. For drinks exceeding 8 g of sugar per 100 ml of liquid, a rate of CZK 7 is applied for each litre of drink[44].

No information was found about available private insurance products, which offer diagnosis and treatment of obesity.

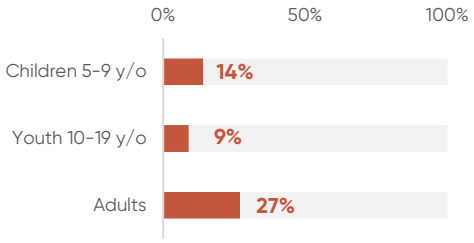
[44] Act on indirect taxes and state financial monopolies (Act No. 30/1946 Coll.). Source: https://www.epi.sk/zz/1946-30 [access: 07 June 2022].

5.3. Hungary

5.3.1. Health problem – obesity

In Hungary, the prevalence of obesity is 14% among children between 5 and 9 years of age, 9% among adolescents between 10 and 19 years of age, and 27% among the general population[45]. See: Chart 7.

CHART 7. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN HUNGARY



Source: Author's elaboration based on the WHO report.

5.3.2. Health policy

One of the national strategies indicates the need to increase physical activity among Hungarians. For this purpose, 60 sports investments have been completed by 2021 with budget funds amounting to HUF 425 billion. In addition, at least 20 sports investments were implemented in cities under the Modern Cities programme (with HUF 328 billion from public funds)[46].

Within the implementation of regional activities, the so-called **health promotion offices** (HPO, which are a new element of the Hungarian primary healthcare system and provide a direct and effective link between health activities and curative medicine, have been introduced.

In 2013 and 2014, 61 health promotion centres started working across the country supported by a subsidy programme financed by the European Social Fund. 20 of them are located in the most economically disadvantaged micro-regions of Hungary. The first organisations in Hungary promoting health and disease prevention were established in local communities at the micro-regional level[47].

Educational activities among children and youth have been undertaken in Hungary since 2009. The "Happy Week" project aims to reduce the consumption of sweetened drinks[48].

Since 2012, regulations have mandated maximum salt content limits for selected bakery products[49]. Hungary introduced a

[45] WHO European Regional Obesity Report 2022. World Health Organization. Source: https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf [access: 08 June 2022].

[46] 2021 National Reform Programme of Hungary. Government of Hungary 2021. Source: https://ec.europa.eu/info/sites/default/files/nrp_2021_hungary_en.pdf [access: 11.06.2022r.].

[47] Hungary – National Institute for Health Development (OEFI) – Health Promotion Offices. EuroHealthNet Magazine. Source: https://eurohealthnet-magazine.eu/health-promoting-offices/ [access: 11 June 2022].

[48] The „Happy Week" project in Hungarian schools. Source: https://ogyei.gov.hu/happy [access: 10 June 2022].

[49] Decree No. 152 of 2009 (XI.12.) FVM of the Ministry of Agriculture and Rural Development on the applicable provisions of Codex Alimentarius Hungaricus. Source: https://leap.unep.org/countries/hu/national-legislation/decree-no-152-2009-xi-12-fvm-ministry-agriculture-and-rural [access: 10 June 2022].

decree in 2013 limiting trans fats to 2 grams per 100 grams of fat[50].

5.3.3. Diagnosis and treatment

In Hungary, several medicinal products are available to aid weight loss in obese or overweight adults. These include orlistat (Xenical), which inhibits fat absorption, and bupropion hydrochloride and naltrexone combined (Mysimba). However, it's important to note that these medications are most effective when used in conjunction with a reduced-calorie diet and regular physical exercise[51].

Reimbursement of bariatric surgery is possible52. People with obesity and a BMI over 40, aged 18 to 65, are eligible for bariatric surgery reimbursement. Even with a body mass index below 40, individuals aged 35 and over, who struggle with obesity-related health issues like sleep apnea, type 2 diabetes, or high cholesterol may still qualify for the procedure.

5.3.4. Financing mechanisms

Na Hungary has a tax on products high in salt and sugar, including salty snacks, chocolate, sweets, ice cream and energy drinks.

The government estimates that the taxes will generate annual revenues of around 20 billion Hungarian forints (74 million euro), with the money going to fund the heavily indebted healthcare system. Sweet food products containing at least 25% sugar are subject to a tax in Hungary. Cocoa products with less than 40% cocoa content and more than 40% sugar are subject to the tax. The tax only applies to packaged foods containing sugar. Sugar itself is not taxed. In 2011, the tax rate was HUF 100 per 1 kg of sweet food, and in the years 2012-2018, it was HUF 130 per 1 kg (HUF 130 ≈ USD 0.43)[53].

A year after the tax was introduced, it was shown that 26-32% of consumers reduced their consumption of taxed products. Tax revenues amounted to EUR 18 million in the first year. 40% of manufacturers changed their recipes, and 30% completely removed sugar from their products. However, negative social moods are observed due to the increase in state revenues, employment problems and discrimination against companies producing sweetened drinks[54].

---

[50] Regulation 71/2013. (XI.20.) Decree of Hungarian Ministry of Agriculture and Rural Development on the maximum amount of trans fatty acids allowed in food. Source: https://extranet.who.int/nutrition/gina/en/node/25332 [access: 10 June 2022].

[51] Website regarding reimbursement of medicinal products in Hungary: www.egeszsegkalauz.hu. Source: https://www.egeszsegkalauz.hu/gyogy-szerkereso/kereses/elhizas-elleni-szerek-a-dietas-keszitmenyek-kivetelevel?atc=A08 [access: 10 June 2022].

[52] Dozsa, Csaba & Illes, Lilla & Lazar, Gy & Mohos, E & Higgins, A & Helter, Timea. Cost-utility analysis of different bariatric surgeries in Hungary. 17/2018, p. 63-68.

[53] A. Biro, Did the junk food tax make the Hungarians eat healthier? Food Policy, Volume 54, 2015.

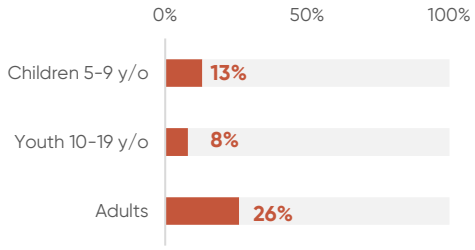
[54] Hungarian news website, article dated 07 August 2019 Source: http://szabadsag.ro/-/nem-mondanak-le-a-cukorado-bevezeteserol.

5.4. Great Britain

5.4.1. Health problem – obesity

WHO data do not show what percentage of children under 5 years of age in the UK has obesity. They indicate that 13% of children between 5 and 9 years of age and 8% of youth between 10 and 19 years of age are classified as obese. In turn, adults with obesity constitute 26% of the general population[55]. See: Chart 8.

CHART 8. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN GREAT BRITAIN



Source: Author's elaboration based on the WHO report

5.4.2. Health policy

In response to the growing social problem, Great Britain has created a number of strategic documents aimed at counteracting obesity.

The current document "*Tackling obesity: empowering adults and children to live healthier lives 2020*" covers such goals as: introducing a new media campaign, weight control through the National Health Fund (NHS), national consultations to collect opinions on healthy food choices, introducing regulations obliging large companies to add calorie labels to food and marking the number of calories on alcohol, not promoting foods high in fat or salt and banning advertising of such products in the media before 9 p.m.[56]. Relevant regional programmes are linked to this programme.

A guide on supporting local initiatives to combat obesity has also been created[57]. However, no information was found about inter-sectoral activities apart from those, which activate social care[58].

The indicator evaluation system operates for the National Child Measurement Programme. It provides data on childhood obesity within the Public Health Outcomes Framework and is part of the Government's approach to tackling childhood obesity[59]. The general indicator evaluation system operates on a dedicated platform[60].

[55] WHO European Regional Obesity Report 2022. World Health Organization. Source: https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf [access: 08 June 2022].

[56] Tackling obesity: empowering adults and children to live healthier lives 2020. Department of Health and Social Care. Source: https://www.gov.uk/government/publications/tackling-obesity-government-strategy/tackling-obesity-empowering-adults-and-children-to-live-healthier-lives [access: 08 June 2022].

[57] Whole systems approach to obesity A guide to support local approaches to promoting a healthy weight. Public England Health 2021. Source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820783/Whole_systems_approach_to_obesity_guide.pdf [access: 08 June 2022].

[58] Social care and obesity at UK. Local Government Association 2020. Source: https://www.local.gov.uk/sites/default/files/documents/1.112%20Social%20care%20and%20obesity_06.pdf [access: 08 June 2022].

[59] National Child Measurement Programme UK. Source: https://digital.nhs.uk/services/national-child-measurement-programme/ [access: 08 June 2022].

[60] Public health profiles: obesity. Office for Health Improvement & Disparities. Source: https://fingertips.phe.org.uk/search/obesity [access: 08 June 2022.].

Many activities are undertaken to support educational initiatives in schools. They are accompanied by activities aimed at increasing children's physical activity[61].

There is growing awareness that the workplace can influence maintaining a healthy weight. The National Institute for Health and Care Excellence (NICE) has made a many recommendations to tackle the problem of obesity in the workplace, emphasizing that all employers, especially large organizations such as the NHS, and local authorities should address the prevention and management of obesity, because of it affects workers' health and brings costs to the economy. The recommendations included: constant promotion of healthy choices in catering outlets (both for employees and customers), providing a supportive environment, among other things, by creating safe bicycle parking lots, providing recreational opportunities (including lunchtime walks), using local recreational facilities, but also, for example, renovation of showers enabling comfortable work, for example, after physical exercise. Additionally, motivational systems in the workplace should be a part of a broader programme supporting weight control, a healthy diet and increasing the level of physical activity. The Department of Health and Social Care in the United Kingdom has established a "Public Health Responsibility Deal". This initiative encourages organizations to support the health and well-being of employees and emphasizes the importance of primary prevention. The basic obligations contained in the Public Health Responsibility Deal are: encouraging and enabling the implementation of a healthy eating style, encouraging employees to increase physical activity and actively supporting leading a healthier life. The deal was based on the understanding that improving employee health and well-being makes business sense, because healthier employees are more productive and effective[62].

Within consumer education in Great Britain, the regulations have been introduced, which, among others, oblige large enterprises, including restaurants, cafés and takeaways, employing more than 250 employees, to add calorie labels to the food they sell and mark the calorie count on the alcohol they sell. Legislation has also been introduced to end the promotion of foods high in fat, sugar or salt, by limiting quantitative promotions and not displaying these products in visible places to encourage purchases. This concerned both online and in-store shopping. A ban on displaying advertisements for selected products on television and the internet before 9:00 p.m. was also introduced[63].

---

[61] Childhood obesity: a plan for action, UK 2016. Source: https://www.gov.uk/government/publications/childhood-obesity-a-plan-for--action [access: 07 June 2022].

[62] Obesity and Work Challenging stigma and discrimination, Institute for Employment Studies 2019. Source: https://www.employment-studies.co.uk/system/files/resources/files/526.pdf [access: 07 June 2022].

[63] New calorie labelling rules come into force to improve nation's health. Department of Health and Social Care 2022. Source: https://www.gov.uk/government/news/new-calorie-labelling-rules-come-into-force-to-improve-nations-health [access: 07 June 2022].

5.4.3. Diagnosis and treatment

Within its long-term plan, the National Health Fund has set up a weight management service for people most at risk – mainly people with obesity, type 2 diabetes and arterial hypertension.

The UK Government has already committed £70 million to improving access to NHS weight management services, while NHS England and NHS Improvement have added £20 million of funding to GP contracts in 2021 and 2022 to encourage body weight management referrals.*

This registry is completed by a primary care physician and includes patients aged 18 years and over with a BMI ≥30 in the last 12 months[64].

Since 2010, orlistat (Xenical) is the only drug available in the UK recommended for the treatment of obesity. It works by reducing the absorption of fat from the diet. Clinical guidelines state that pharmacological interventions should only be used in combination with non-pharmacological interventions such as exercise and diet.

In 2022, NICE issued draft guidelines recommending the use of semaglutide (Wegovy) for adults with at least one obesity-related condition and a BMI of at least 35 kg/m², and exceptionally for people with a BMI of 30.0 kg/m² to 34.9 kg/m². Semaglutide can only be prescribed as part of a specialist comprehensive obesity treatment service with interdisciplinary input (such as a weight management programme or specialist last-grade obesity service, including surgical treatment) and for a maximum of two years[65].

Bariatric surgery is covered by health insurance. To be eligible for surgery, a patient must have a BMI >40 or have a BMI between 35 and 40 and two or more long-term obesity-related conditions. An additional requirement for NHS-funded surgery is that attempts to lose weight through diet and exercise have failed.

Most patients can see an NHS dietician on referral from their general practitioner, other doctor or health visitor. Patients can also self-refer by contacting the nutrition and dietetics team at their local hospital to see if they can benefit from dietician support. Similarly, psychological counselling is available for obese patients.

---

[64] Enhanced service specification. Weight management 2021/22, NHS. Source: https://www.england.nhs.uk/wp-content/uploads/2021/06/B0699-ess-weight-management-21-22.pdf [access: 07 June 2022].

[65] Obesity: identification, assessment and management, NICE 2014. Source: https://www.nice.org.uk/guidance/cg189/chapter/1-Recommendations#pharmacological-interventions [access: 07 June 2022].

* Department of Health and Social Care 2021b; NHS England and NHS Improvement 2021.

There is no separate medical speciality related to obesity in the UK, nor is it possible to obtain a certificate as an obesitologist.

In 2013, specialists from the Royal College of Physicians recommended the establishment of comprehensive obesity care, but it was not reflected in any programme.

The recommendation of the obesity care model assumes various levels of care, the establishment of multi-disciplinary teams working with each other, measurement methods and monitoring of indicators, post-operative care, psychological and dietary support and environmental activities[66]. The standard care pathways established by NICE also emphasise a comprehensive approach[67].

5.4.4. Financing mechanisms

£12 million of government funding has been allocated to the NHS body weight management programme launched in 2021.

With this funding, the programme offers free online support through connecting adults with obesity, who are also diagnosed with diabetes, high blood pressure or both, with general practitioners and primary care teams. In addition, the Government is providing councils across England with £30 million of new funding to introduce expanded management services for adults with obesity. The services can be provided in person, remotely or digitally. Typically, they involve 12-week sessions with nutritional advice, physical activity tips and support to help patients maintain healthier habits. An additional £4.3 million of new funding has also been awarded in 2021-22 to 11 local authorities to support the development of children's weight management services[68].

A tax on the sugar content of soft drinks has been in place since 2018 to motivate manufacturers to reduce sugar levels. Under the rules, drinks containing more than 8 g of sugar per 100 ml are taxed at 24 p per litre. Drinks containing 5-8 g of sugar per litre are taxed at 18 p per litre[69].

There are private insurance products responsible for the diagnosis and treatment of obesity.

---

[66] Action on obesity: Comprehensive care for all. Royal College of Physicians 2013. Source: https://www.rcplondon.ac.uk/file/1283/download [access: 07 June 2022].

[67] Obesity: clinical assessment and management NICE 2016. Source: https://www.nice.org.uk/guidance/qs127/chapter/Introduction#coordina-ted-services [access: 07 June 2022].

[68] New services launched to help people achieve a healthier weight and improve wellbeing, UK Government 2021. Source: https://www.gov.uk/government/news/new-services-launched-to-help-people-achieve-a-healthier-weight-and-improve-wellbeing.

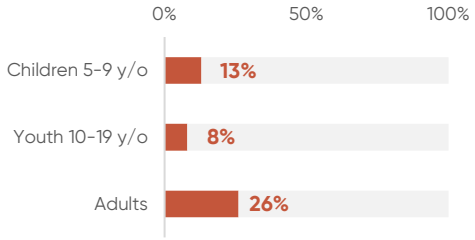
[69] Soft Drinks Industry Levy comes into effect. UK Government 2018. Source: https://www.gov.uk/government/news/soft-drinks-industry-levy-comes-into-effect [access: 08 June 2022].

5.5. Ireland

5.5.1. Health problem – obesity

13% of children between 5 and 9 years of age, 8% of adolescents between 10 and 19 years of age and 25% of the total population are classified as obese[70]. See: Chart 9.

CHART 9. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN IRELAND



Source: Author's elaboration based on the WHO report.

5.5.2. Health policy

To combat obesity, Ireland implemented a comprehensive plan called *"A Healthy Weight for Ireland – Obesity Policy and Action Plan"*[71] for the years 2016-2025. The strategy contains 20 priorities placed in 10 actions, which include: multi-sectoral actions to prevent obesity with the support of government departments and public sector agencies, introducing regulations for a healthier environment and ensuring appropriate support for the commercial sector.

It is also planned to implement a long-term **communication strategy**, which will expand knowledge about the issue of obesity and prepare for changes, with particular emphasis on families with small children.

The Department of Health, through its Healthy Ireland initiative, coordinates multi-sectoral activities and implements best practices to manage the Plan's implementation. The strategy also underlines the need of better prevention of overweight and obesity through effective health promotion programmes in society and faster diagnosis of overweight and obese patients at the primary healthcare tier. The strategy also focuses on developing a specialized care model for both children and adults. This model allocates resources based on specific needs, prioritising groups that require the most support in preventing and treating obesity. The strategy also includes regional activities.

Healthcare centres, NGOs, educational institutions, employers, local authorities and the food industry take part in inter-sectoral activities.

[70] WHO European Regional Obesity Report 2022. World Health Organization. Source: https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf [access: 08 June 2022].

[71] A Healthy Weight For Ireland – Obesity Policy and Action Plan. 2016-2025. Link: Source: https://assets.gov.ie/10073/ccbd6325268b-48da80b8a9e5421a9eae.pdf [access: 09 June 2022].

Within its strategy, Ireland also included short-term (five-year) **goals for reducing overweight and obesity**. These goals include: maintaining the downward trend (an average decrease by 0.5% per year in the level of overweight, averaged for all adults, and by 0.5% in the level of overweight in children), reducing the difference in the level of obesity between groups with the highest and lowest socio-economic levels by 10%.

The strategy mandates progress reviews every two years throughout its ten-year lifespan. These reviews will assess progress towards established targets and consider revising them based on data collected on the effectiveness of specific policies and interventions.

Schools incorporate education about healthy eating, physical activity and the risks of obesity into their curriculum for children and adolescents. Education at school takes place as part of the DIATROFI programme implemented by the Prolepsis Institute (Greece) since 2012, which is attended by 650 schools and which covers 110,000 students[72].

No information was found on employee education in Ireland on obesity prevention, nor on consumer education.

5.5.3. Diagnosis and treatment

BMI is routinely measured as part of Ireland's national health screening programme. There is no information about regular measurement of waist circumference.

In Ireland, the medicinal product liraglutide (Saxenda) is reimbursed as an adjunct to a reduced-calorie diet and increased physical activity for weight control in adult patients with a pre-diabetic body mass index of 35 kg/m^2 and at high risk of cardiovascular disease. Planned introduction of the drug: semaglutide (trade name: Wegovy).

Under current Irish insurance regulations, to be eligible for bariatric surgery, a patient should have a BMI over 45 (or over 40 with underlying health conditions).

Dietary services are available free of charge from the NHS, but availability may vary between Health Service Executive (HSE) regions. The availability of psychological advice for people with obesity is similar.

No information was found on medical specialisation in obesity or additional certificates in obesitology.

Ireland has introduced tiers levels of integrated care: primary care, secondary

[72] The DIATROFI Programme. EuroHealthNet 2019. Source: https://eurohealthnet-magazine.eu/ga/food-aid-and-healthy-nutrition-programmes-in-schools-what-works/ [access: 09 June 2022].

obesity care, hospital obesity specialist care and tertiary obesity care, including surgery[73].

5.5.4. Financing mechanisms

No information was found on specific funding in Ireland for the diagnosis and treatment of obesity, nor information on additional private insurance products providing treatment for obesity.

Tax on sugar-sweetened drinks in Ireland is calculated on a volumetric basis at one of the following rates: EUR 16.26 per 100 litres of drink with a sugar content of 5-8 g/100 ml[74].

[73] Model of Care for the Management of Overweight and Obesity. Source: https://www.hse.ie/eng/about/who/cspd/ncps/obesity/model-of-care/obesity-model-of-care.pdf [access: 08 June 2022]

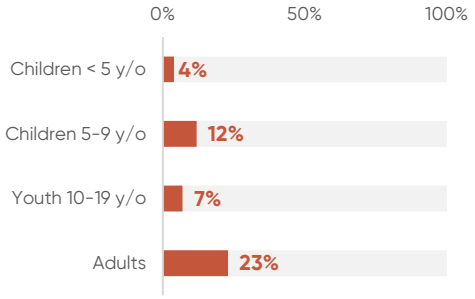
[74] Sugar Sweetened Drinks Tax (SSDT). Office of the Revenue Commissioners in Ireland. Source: https://www.revenue.ie/en/companies-and-chari-ties/excise-and-licences/sugar-sweetened-drinks-tax/rate-of-tax.aspx [access: 08 June 2022].

5.6. Niemcy

5.6.1. Health problem – obesity

WHO estimates in Germany reveal a troubling trend: as many as 4% of young children under 5 years old are classified as obese. Among children aged 5-9, obesity was diagnosed in 12%, and 7% in adolescents aged 10-19. Among adults, 23% of the population is obese[75]. See: Chart 10.

CHART 10. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN GERMANY



Source: Author's elaboration based on the WHO report.

5.6.2. Health policy

In Germany, the National Action Plan "IN FORM – *German national initiative to promote healthy diets and physical activity*" is being implemented to combat obesity. The programme constitutes a national effort to motivate German residents to adopt healthier dietary and physical activity habits. It focuses on preventing malnutrition, lack of exercise, obesity, overweight and related diseases. Since 2008, the IN FORM programme has supported over 250 projects addressed to all age groups[76,77]. The IN FORM National Action Plan is reflected in regional activities. The plan does not include information on sectoral activities nor on an adopted indicator evaluation system.

The Federal Ministry of Health finances projects involving education on obesity among children and adolescents in schools78. However, no information was found about educating employees about obesity or conducting educational activities among consumers in Germany.

5.6.3. Diagnosis and treatment

The IN FORM strategy does not indicate any adopted system for measuring either BMI or waist circumference in obese people in order to monitor any downward or upward trend.

---

[75] WHO European Regional Obesity Report 2022. World Health Organization. Source: https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf [access: 08 June 2022]

[76] IN FORM – Deutschlands Initiative für gesunde Ernährung und mehr Bewegung. Bundesministerium für Ernährung und Landwirtschaft 2021. Source: https://www.bmel.de/DE/themen/ernaehrung/gesunde-ernaehrung/aktionsprogramm-in-form/aktionsprogramm-in-form_node.html [access: 09 June 2022].

[77] Aktionsplan „Weiterentwicklung IN FORM - Schwerpunkte des Nationalen Aktionsplans zur Prävention von Fehlernährung, Bewegungsmangel, Übergewicht und damit zusammenhängenden Krankheiten ab 2021. Source: https://www.bmel.de/SharedDocs/Downloads/DE/_Ernaehrung/GesundeErnaehrung/weiterentwicklung-inform.pdf?__blob=publicationFile&v=3 [access: 09 June 2022].

[78] Förderschwerpunkt Prävention von Übergewicht bei Kindern und Jugendlichen. Bundesministerium für Gesundheit 2021. Source: https://www.bundesgesundheitsministerium.de/themen/praevention/kindergesundheit/praevention-von-kinder-uebergewicht.html [access: 09 June 2022].

As part of the treatment of obesity, health insurance covers medicinal products such as orlistat, liraglutide, cathin and amfepramone.

For obesity surgery, such as gastric bypass, the costs are covered by health insurance companies; the qualification criterion is age (18-65 years), BMI 40 or more (that is grade 3 obesity). For a BMI between 35 and 40, the costs are covered by the insurance company if the patient also has another disease, such as type 2 diabetes, sleep apnea or heart disease. Pregnancy is a contraindication for obesity surgery. Health insurance usually covers the cost of surgery, if a doctor confirms that the procedure is medically necessary.

Health insurance companies subsidise certified nutritional advice from 30% to even 100% of its cost, depending on the type of insurance. Any costs, which exceed the maximum amount or are excluded from the GKV guidelines, must be borne by the patient.

The insurance institution does not cover the costs of behavioural therapy or any other type of psychotherapy for people with obesity. This is only possible in case of co-morbid mental health conditions, including an eating disorder, depression or anxiety disorder.

Many people with obesity develop depression over time, or obesity is accompanied by eating disorders such as binge eating disorder. In such a case, the doctor may refer the obese person to psychotherapy. After the psychotherapist's official request, the costs are covered by health insurance.

No information was found about the possibility of obtaining additional medical speciality in the field of obesity or an obesitologist certificate.

In Germany, there is no model of coordinated care for people with obesity.

5.6.4. Financing mechanisms

The analyses revealed no information regarding a special public fund earmarked for financing obesity diagnosis and treatment.

In Germany, there is no additional revenue from the sugar tax, which could be used for the diagnosis and treatment of obesity, because such a tax was abolished on 1 January 1993 to avoid competition distortions.

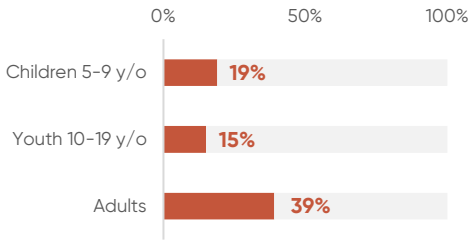
In parallel to the available insurance services, commercial services in the field of obesity diagnosis and treatment are available.

5.7. Canada

5.7.1. Health problem – obesity

Obesity rates in Canada have soared, worsening overall health and significantly increasing healthcare costs. Nonetheless, the obesity rate in Canada remains significantly lower than in the United States. According to data from 2020, 19% of children between 5 and 9 years of age and 15% of youth between 10 and 19 years of age were obese. 39% of adults had BMI ≥ 30 kg/m^2 [79,80]. See: Chart 11.

CHART 11. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN CANADA



Source: Author's elaboration based on the WHO report.

5.7.2. Health policy

There is no national strategy for the prevention and treatment of obesity in Canada. Obesity is not considered a chronic disease[81]. The Canadian Obesity Society, on the other hand, has created new guidelines for dealing with obesity and has prepared a proposal to the future federal budget, in which it asks the government to organise a broad consultation and change the approach to obesity as a chronic disease, to be consulted, at the same time calling for the development of a national strategy for the prevention and treatment of obesity.

The most important demands include counteracting obesity and stigmatisation through education, increasing access to care, improving its quality, establishing comprehensive care including psychological and behavioural consultations, access to bariatric treatment and appropriate medicinal products and creating a register of BMI data[82].

There are no regional anti-obesity plans or inter-sectoral initiatives in Canada. Canada also has no system for evaluating indicators such as BMI. Canada currently lacks a national registry for routinely recording waist circumference measurements.

Canada lacks a national programme for school-based obesity education, leaving the initiative entirely up to individual

[79] World Obesity Atlas 2022. World Obesity Federation 2022. Source: https://s3-eu-west-1.amazonaws.com/wof-files/World_Obesity_Atlas_2022.pdf [access: 25 July 2022].

[80] Canada Health System Review. The North American Observatory on Health Systems and Policies (NAO), 2020. Source: https://apps.who.int/iris/bitstream/handle/10665/336311/HiT-22-3-2020-eng.pdf?sequence=1&isAllowed=y [access: 17 July 2022].

[81] Obesity Canada. Source: https://obesitycanada.ca/oc-news/a-national-obesity-strategy-are-we-there-yet/ [access: 17 July 2022].

[82] Pre-budget Submission to the House of Commons Standing Committee on Finance, August 2020. Obesity Canada. Source: https://obesitycanada.ca/wp-content/uploads/2020/09/Obesity-Canada-Pre-Budget-Submission-2021-FINAL.pdf [access: 17 July 2022].

schools. The Canadian Pediatric Society (CPS) advocates for a national nutrition policy that promotes healthy eating principles and educational initiatives to combat childhood obesity[83].

No information was found on educational activities carried out in the workplace.

As of consumer education, standard regulations apply regarding food labelling and nutritional values.

5.7.3. Diagnosis and treatment

Currently, neither BMI nor waist circumference is routinely analysed in Canada. There is no system for monitoring obesity evaluation.

Three drugs are approved to treat obesity: Xenical, a fat absorption inhibitor, Saxenda, an injectable drug, and Contrave, a drug commonly used to treat alcohol and drug addiction[84]. Contrave and Saxenda are approved for use (with a reduced calorie diet and increased physical activity) in adult patients with a body mass index (BMI) of 30 kg/m² or higher or a BMI of 27 kg/m² or higher and the presence of at least one disease co-morbidities such as arterial hypertension, type 2 diabetes or dyslipidemia (abnormal amounts of triglycerides, cholesterol or fat in the blood)[85].

Canadian clinical practice guidelines recommend that adults with clinically severe obesity (BMI ≥ 40 kg/m² or ≥ 35 kg/m² and severe concomitant disease) should be considered for bariatric surgery, when behavioural intervention is insufficient to achieve a normal body weight. The treatment is covered by reimbursement. Dietician advice is also subject to reimbursement, but psychological advice regarding obesity treatment is not reimbursed.

The Canadian Obesity Society awards the **Certified Bariatric Educator** (CBE) designation, signifying a healthcare professional's specialised knowledge in obesity standards and management practices.

Since April 2017, 80 health care workers in Canada have received this designation. This suggests a growing interest and need among healthcare workers for education in obesity management. These 80 people include 41 dieticians, 22 registered nurses, 10 pharmacists, 3 nurses, 2 doctors, a psychologist and a social worker[86].

---

[83] School nutrition: Support for providing healthy food and beverage choices in schools. Canadian Peadiatric Society, 2020. Source: https://cps.ca/en/documents/position/school-nutrition-support [access: 17 July 2022].

[84] Prescription Medications. Obesity Canada. Source: https://obesitycanada.ca/managing-obesity/prescription-medications/.

[85] Pharmacotherapy in Obesity Management. Guidelines. Obesity Canada. Source: https://obesitycanada.ca/wp-content/uploads/2021/05/Pharmacotherapy-v6-with-links.pdf [access: 17 July 2022].

[86] Become A Certified Bariatric Educator. Obesity Canada. Source: https://obesitycanada.ca/resources/cbe/ [access: 17 July 2022].

There is no comprehensive care model for people with obesity in Canada.

5.7.4. Financing mechanisms

Due to the lack of a national obesity strategy, regional activities and BMI or waist circumference monitoring systems, there is no separate public budget for activities related to the diagnosis or treatment of obesity.

In September 2022, the Canadian government plans to introduce a sugar tax of 20 cents per litre of sweetened beverages. The tax does not target other types of products.

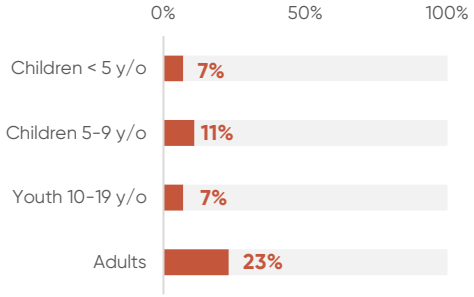
In parallel to public services for obesity treatment – including drugs and bariatric surgery – there are commercial products for patients with obesity, offered by the private healthcare sector.

5.8. Romania

5.8.1. Health problem – obesity

In Romania, 7% of children under 5 years of age, 11% of children between 5 and 9 years of age, 7% of young people between 11 and 19 years of age and 23% of adults are classified as obese[87]. See: Chart 12.

CHART 12. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN ROMANIA



Source: Author's elaboration based on the WHO report.

5.8.2. Health policy

There is no targeted anti-obesity strategy in Romania, despite the high percentage of obese people in society. However, there is a government document entitled "*The Sustainable Development Strategy of Romania 2030*". The Sustainable Development Strategy of Romania 2030 aims to counteract obesity. One of its key goals is to reduce the obesity rate below 10%, bringing it back down to the level recorded in 2014[88].

In Romania, there are no regional actions related to obesity prevention, nor are there any inter-sectoral actions focused on solving this social problem. Due to the lack of a national strategy on obesity, there is no system for evaluating indicators, which would help show changes in improving or worsening the problem of obesity in society.

In the years 2012-2022, the Healthy Traditions Foundation conducted 10 editions of the "Healthy Bag" school programme, in cooperation with Nestlé Romania. The project was carried out in the form of optional education in schools and kindergartens. Over the 10-year healthy lifestyle programme, 50,000 children were educated, including 8,000 children in the last year[89].

There is no education programme related to obesity among adults in the workplace.

As of consumer education, Romania applies standards based on EU Regulation No. 1169/2011. Additionally, introducing food classification by colours is planned: from green meaning healthy food to red meaning unhealthy food. On each product, the consumer will be able to see the corresponding letter highlighted and the interpretation is as follows:

- Products marked in green (A, B) are important products in the diet, which

[87] World Obesity Atlas 2022. World Obesity Federation 2022. Source: https://s3-eu-west-1.amazonaws.com/wof-files/World_Obesity_Atlas_2022.pdf [access: 25 July 2022].

[88] Romania's Sustainable Development Strategy 2030. Source: http://extwprlegs1.fao.org/docs/pdf/rom195029.pdf [access: 17 July 2022].

[89] Programul educațional „Traista cu sănătate" a ajuns la peste 50.000 de copii din județul Iași. Source: https://www.bursa.ro/programul-educational-traista-cu-sanatate-a-ajuns-la-peste-50000-de-copii-din-judetul-iasi-42208642 [access: 17 July 2022].

should be eaten more often. They have the best nutritional value.

- Products marked yellow (C) should be eaten in moderation,
- Products marked in orange and red (D, E) should be eaten in smaller quantities, because they contain more fat, sugar and salt.

Labels will highlight the nutritional value of the product on a per 100 g or 100 ml basis and results may vary even within the same product category due to different formulations. Consultations are ongoing in the Romanian Parliament[90].

5.8.3. Diagnosis and treatment

In Romania, BMI and waist circumference are not routinely measured or analysed.

Current treatment guidelines recommend long-term use of certain anti-obesity medications, including liraglutide, lorcaserin, and extended-release combinations like naltrexone / bupropion and phentermine / topiramate. A low-calorie diet and physical activity are also necessary[91].

Bariatric surgery is not covered by health insurance reimbursement. Within insurance in some insurance companies, people with obesity can benefit from the advice of a dietician, but psychological advice is not available for people with obesity.

There is no certificate in the field of obesitology and there is no postgraduate education for healthcare workers related to the diagnosis, treatment and management of obesity.

Due to the lack of a strategy, there are no models of comprehensive care for patients with obesity in Romania. Meanwhile, in 2022, the Romanian Federation of Diabetes, Nutrition and Metabolic Diseases, Romanian Endocrine Society drawn up recommendations covering the care of people with obesity, early and active detection of obesity, diagnosis, assessment, setting goals and therapeutic strategies, weight loss, maintaining a new weight, disease control co-morbidities, providing appropriate psychological support and socio-economic support. However, the implementation of comprehensive care requires an organizational base with care, functional and multidisciplinary teams at various tiers[92].

---

[90] Sistemul clasificării alimentelor pe culori se va aplica și în România. Culoarea de pe ambalaj, în funcție de cât de sănătoase sunt. Source: https://www.digi24.ro/stiri/actualitate/sistemul-clasificarii-alimentelor-pe-culori-se-va-aplica-si-in-romania-culoarea-de-pe-ambalaj-in-functie-de-cat-de-sanatoase-sunt-1923567 [access: 17 July 2022].

[91] What can the pharmacist do for his adult patients with eating disorders or obesity? MEDICHUB MEDIA 2019. Source: https://www.medichub.ro/reviste/farmacist-ro/ce-poate-face-farmacistul-pentru-pacientii-sai-adulti-cu-tulburari-de-alimentatie-sau-obezitate-id-2333-cmsid-62 [access: 17 July 2022].

[92] Recomandări Pentru Îngrijirea Persoanelor Cu Obezitate in România. Federația Română de Diabet, Nutriție și Boli Metabolice Societatea Română de Endocrinologie, 2022. Source: https://www.sre.ro/wp-content/uploads/Recomandari-POB-full-text-2022.pdf [access: 17 July 2022].

5.8.4. Financing mechanisms

In Romania, no additional financial resources are allocated to counteracting obesity, including its diagnosis and treatment. However, for the first time, in the draft emergency regulation, the government announced that it wanted to impose excise tax on non-alcoholic drinks containing sugar. For drinks containing 5-8 g of sugar per 100 ml, the excise tax will be 0.8 leu per litre. The tax increases to 1 leu per litre for sugary drinks containing more than 8 g of sugar per 100 ml.

Budget revenues calculated for four months will amount to 320 million leu (68 million euro). The proposed tax on sugary drinks is intended to serve a dual purpose. One aim is to discourage consumption of unhealthy beverages, potentially promoting healthier dietary choices. Additionally, the tax revenue would be directed towards investments in education and healthcare[93].

Bariatric surgery is not covered by insurance and is financed from public funds. There are many commercial services available from private companies in the healthcare market.

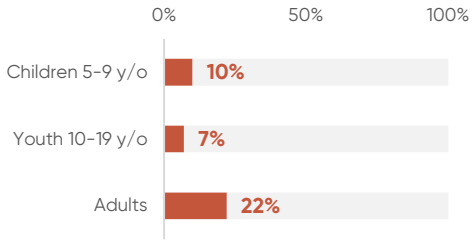
[93] Pe cine îngrașă taxa pe zahăr. Ce alte țări o mai folosesc. Europa Libera Romania. Source: https://romania.europalibera.org/a/pe-cine-ingrasa-taxa-pe-zahar-ce-alte-tari-o-mai-folosesc-/30095557.html [access: 17 July 2022].

5.9. France

5.9.1. Health problem – obesity

WHO estimates do not show data on obesity in the population of children under 5 years of age, but the percentage of children aged 5-9 years with diagnosed obesity is 10.4%. .9% of young people aged 10-19 and 21.6% of adults are classified as obese[94]. See: Chart 13.

CHART 13. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN FRANCE



Source: Author's elaboration based on the WHO report.

5.9.2. Health policy

France's obesity prevention strategy is implemented in accordance with the current Plan "Obesity Management Plan 2019-2022" (*Prise en chargé de l'obesite 2019-2022*), which is part of the French National Health Strategy (SNS). The document developed by the Ministry of Health and Prevention and the Ministry of Solidarity, Autonomy and Disabled People was a "road map" for reducing obesity at the national level drawn up to improve patient care by structuring coordinated and graduated care pathways in a network of specialised coordinated care centres for obesity (CSO), strengthening regulations regarding bariatric surgery, supporting innovation and evaluation and developing and promoting new training, education and information programmes[95].

The obesity management plan 2019-2022 is closely linked to the National Nutrition and Health Programme (Programme National Nutrition Sante – PNNS), containing guidelines on nutritional policy for all social groups. Launched in 2001 and updated periodically, France's National Nutrition and Health Programme (PNNS) aims to improve the population's overall health through a comprehensive approach to nutrition. The PNNS logo honours promoters of healthy eating and guarantees the credibility of the strategy and message of the institutions, to which it is awarded. Launched in September 2019, the 4th National Nutrition and Health Programme (PNNS4) aims to reduce adult obesity by 15% and childhood obesity by 20% by 2023 through inter-sectoral collaboration[96].

---

[94] WHO European Regional Obesity Report 2022. World Health Organization. Source: https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf (access: 16 August 2022).

[95] https://solidarites-sante.gouv.fr/soins-et-maladies/prises-en-charge-specialisees/obesite/article/feuille-de-route-2019-2022?TSPD_101_R0=087dc22938ab2000076765062848 81d7e591d3b7cbd54feff1614eb0cec624d4a0aa0d2ebd4ee007087946f88c143000fce7effafe0b6fa89153a93f8a6b211cf92aa39fdc71b7ca0a39e875cfbe693da076aba83c4688f0901019c0aec6ec8a (access: 16 August 2022).

[96] https://solidarites-sante.gouv.fr/prevention-en-sante/preserver-sa-sante/le-programme-national-nutrition-sante/article/programme-national-nutrition-sante-pnns-professionnels (access: 16 August 2022).

France's comprehensive strategy for public health, with a particular focus on obesity prevention, is outlined in the "Staying healthy throughout life" report (*#Jagispourmasante – Rester en bonne santé tout au long de sa vie*). Launched in 2019, this document aligns with the "Obesity Management 2019-2022" plan and the 4th National Nutrition and Health Programme (PNNS4).

The report contains numerous recommendations for reducing obesity, including the promotion of "health through food" (education in the field of eating habits, promotion of the Nutri-Score system, nutritional education in kindergartens and schools, reformulation of the composition of products with excess salt and sugar content, promotion of healthy food in the workplace and at all stages of education), promoting "health through movement" (physical activity for each age group, combating the exclusion of people with disabilities, physical activity in the workplace, increasing activity in kindergartens and schools), early detection of obesity, improving diagnostics and improving the quality of coordinated care for patients with obesity[97].

Another important document devoted to France's health-promoting nutritional policy for social health is the Senate Report "Towards sustainable food: An important health, social, territorial and environmental challenge for France" (*Vers une alimentation durable: Un enjeu sanitaire, social, territorial et environnemental majeure pour la France*), adopted in 2020. The report presents recommendations for the transformation of France's food system, which should be sustainable in terms of the use of natural resources, impact on the climate and biodiversity, broadly understood human health and civil rights[98].

In France, public health reports have also been created and implemented over the last decade, the recommendations of which constitute a substantive reference for national and regional physical activation and nutritional education projects. Among them, the most commonly known are: Public Health Agency report "Recommendations on nutrition, physical activity and a sedentary lifestyle for adults" (*Recommandations relatives a l'alimentation, a l'activite physique et a la sedentarite pour les adultes*)[99], Report of the National Institute of Prevention and Health Education "Promotion of physical activity among young people" (*Promouvour l'activite physique des jeunes*)[100], Report addressed to school-age children "Eat and Move for Health" (*La santé vient en mangeant et*

[97] https://www.gouvernement.fr/sites/default/files/document/document/2019/03/dossier_de_presse_-_comite_interministeriel_pour_la_sante_-_25.03.2019.pdf (access: 16 August 2022).

[98] https://www.senat.fr/rap/r19-476/r19-476.html (access: 15 August 2022).

[99] https://invs.santepubliquefrance.fr/Publications-et-outils/Rapports-et-syntheses/Maladies-chroniques-et-traumatismes/2019/Recommandations-relatives-a-l-alimentation-a-l-activite-physique-et-a-la-sedentarite-pour-les-adultes. (access: 15 August 2022).

[100] www.inpes.sante.fr (access: 15 August 2022).

en bougeant)[101] and Decree No. 201101277 introducing mandatory nutritional standards for school meals[102].

In 2018, the French Ministry of National Education, Youth, and Sports introduced comprehensive nutrition and physical activity programmes as part of its obesity prevention and health promotion efforts.

School curricula have been expanded to include nutrition education, with lessons on food and taste introduced into the classroom. As part of the so-called health educational path, **nutritional education projects** were introduced into the curricula of various subjects. A programme for **serving balanced and good quality breakfasts** was also launched to reduce nutritional inequalities regarding this meal[103].

In terms of sports activation, "sports fashion" is promoted (in cooperation with the Organising Committee of the Olympic and Paralympic Games Paris 2024 and the National Sports Agency), including, for example, providing every child in France with swimming and independent cycling lessons, improving the quality of sports in schools with the significant participation of local sports clubs (the "*Plan Mercredi*" campaign – Plan for Wednesday), creating pro-sports educational projects (Vademecum Generation 2024) and encouraging primary school teachers to engage in 30-minute physical activity every day[104].

Labelling of packaged food products is regulated by EU Regulation No. 1169/2011 and EU Regulation No. 1924/2006 on nutrition and health claims made on foods[105].

In 2017, the French government introduced the voluntary Nutri-Score system as a consumer education tool. This system provides front-of-pack nutritional labelling for food products. With government support, the system was adopted by 120 food manufacturers by 2022[106]. In the same year, a ban was also introduced on the unrestricted offering of sweetened drinks free of charge or at a fixed price in schools, public restaurants and all facilities serving the education or reception of children under 18 years of age[107].

[101] https://data.worldobesity.org/country/france-71/#data_policies (access: 14 August 2022).
[102] https://data.worldobesity.org/country/france-71/#data_policies (access: 14 August 2022).
[103] https://www.education.gouv.fr/education-l-alimentation-et-au-gout-7616 (access: 14 August 2022).
[104] https://www.education.gouv.fr/plus-de-sport-l-ecole-une-grande-priorite-pour-le-sport-306483 (access: 14 August 2022).
[105] https://data.worldobesity.org/country/portugal-174/#data_policies (access: 17 August 2022).
[106] https://www.foodnavigator.com/Article/2017/10/31/Nutri-Score-labelling-comes-into-force-in-France (access: 14 August 2022).
[107] https://data.worldobesity.org/country/france-71/#data_policies (access: 14 August 2022).

It is worth adding that since 2005, French schools have **banned vending machines for snacks and sweetened carbonated drinks.** And a study conducted in 2018 confirmed that this ban resulted in a 10-gram reduction in sugar consumption from morning snacks at school and a significant reduction in the frequency of eating them[108].

Promoting healthy attitudes to reduce obesity is also reflected in marketing and mass media policy. In 2004, the 2nd National Nutrition and Health Programme mandated that television and radio advertisements for products high in sugar, salt, or artificial sweeteners include additional health messages. Advertisers could opt out of this requirement by paying a 1.5% tax on annual advertising revenue for those products. In 2009, the so-called Charter for the Promotion of Healthy Eating and Physical Activity was introduced by the government, the French Society of Public Health and the National Consumer Organization (updated in 2013) – a document of industry self-regulation in the field of promoting healthy eating and physical activity[109].

5.9.3. Diagnosis and treatment

The spread of obesity in France has been studied in the cyclical OBEPI project since 1997. In the recent 3-year editions the study has been carried out by Roche (OBEPI-ROCHE). Under the supervision of an independent scientific committee, a national study is being conducted in cooperation with Inserm, Pitié-Salpêtrière Hospital and Kantar Health. The study includes measurement of BMI and waist circumference.

In people suffering from obesity, if proper nutritional management fails, treatment with orlistat is available (the condition is the patients' involvement in the treatment process). The inclusion criteria for therapy are BMI >30 or BMI >28 and the presence of certain health risk factors (type 2 diabetes, hypercholesterolemia, hypertension, etc.)[110].

Bariatric surgery is reimbursed for people with a body mass index BMI >40 kg/m² or BMI >35 kg/m² with accompanying complications (for example type 2 diabetes, hypertension, obstructive sleep apnea syndrome). Such treatment may be provided to people aged 18 to 60, who have no psychological or surgical treatment contraindications. This surgery may only be considered if the person has tried unsuccessfully to lose weight with specialist medical care for several months (with diet monitoring, physical activity and psychological care). The decision about surgery is made collectively in consultation between the treating physician, surgeon, endocrinologist, dietician and psychologist or psychiatrist.

[108] https://pubmed.ncbi.nlm.nih.gov/29320810/ (access: 14 August 2022).

[109] https://www.euro.who.int/__data/assets/pdf_file/0006/155436/e96047.pdf (access: 15 August 2022).

[110] https://www.obesite.com/que-faire/medicaments/ (access: 27 November 2022).

In France, dietary advice as part of obesity treatment is typically covered by health insurance. No information on reimbursement of psychological advice was found. It is not possible to obtain a certificate in obesitology or additional specialisation in this field.

A national action plan for managing obesity was adopted in France in 2019. The plan aims to organise and implement health care programmes for people with or at risk of obesity, and in particular to reduce inequalities in access to care and improve its quality. The document developed by the Ministry of Health and Prevention and the Ministry of Solidarity, Autonomy and Disabled People is a "road map" for improving patient care by structuring coordinated and graduated care pathways, strengthening regulations regarding bariatric surgery, supporting innovation and evaluation and developing new training and information programmes.

The most important milestones to be implemented in the national action plan were:

- Early diagnosis of obesity and identification of people at risk of it, by regularly recording weight and height in the common medical record (DMP);
- Implementation of graduated and personalized care pathways for patients – strengthening care coordination;
- Implementing regional information campaigns for people with obesity, offering therapeutic education programmes and providing contact details for obesity specialists and patient associations.
- Qualitative modifications in the field of obesity surgery and dissemination of the results of indicators of quality and safety of care (IQSS) in hospitals;
- Strengthening the most specialised centres (CSO) in the development of coordinated care, dissemination of good practices, monitoring people with the highest obesity, and development of child care;
- Development of competences of obesity treatment networks in French departments and overseas territories;
- Implementation of innovative pilot programmes addressed to target groups: children aged 3-8 at risk of obesity (Mission retrouve ton cap) and children and adolescents with significant obesity ("OBEPEDIA").

In France, there are currently 37 centres specialising in the treatment of obesity. The aim of their activity is the multidisciplinary management of severe and/or complex obesity as well as organisation, coordination and development of care for people with obesity in the region.

These centres have specialist knowledge (including nutrition, endocrinology and metabolism, psychology, etc.) and the necessary equipment. They are reference centres for medical, surgical and paediatric

care and can carry out specialised tests using appropriate equipment. They organise multidisciplinary consultation meetings (RCP) for people referred for bariatric surgery.

These centres bring together medical teams (dieticians, endocrinologists, paediatricians, nurses, massage therapists-physiotherapists, etc.) operating under the direction of a specialist physician as well as surgeons and anaesthesiologists-resuscitators specialising in bariatric surgery). The centres provide three areas of support: nutrition (dieticians), psychology (psychologists, psychiatrists) and adapted physical activity (massage therapists-physiotherapists). The centres identify and establish partnerships with specialist teams with appropriate equipment as well as with medical and social workers and associations[111].

To provide comprehensive care for people with obesity, the healthcare system has been structured into three distinct tiers, each with specific responsibilities. The first tier is Primary Health Care, where the general practitioner and paediatrician are responsible for screening people at risk, assessing and providing initial care for people with obesity as well as for ensuring continuity and consistency of care. The second tier of care involves specialised outpatient treatment provided by a multidisciplinary team including nutritionists, endocrinologists, internists and surgeons. Hospitals, both public and private, are integral to the second tier of care, offering medical and surgical treatment for patients with obesity, including those with severe conditions. The third tier of care consists of specialised centres, which intervene in the most complex situations. They have specialist knowledge (nutritional, endocrinological-metabolic, psychological, etc.) and the appropriate equipment necessary to accept the most difficult cases. They work closely with key specialities (pulmonology, cardiology, hepatoastroenterology) and with the surgical and anaesthesiology-resuscitation team specializing in bariatric surgery[112].

5.9.4. Financing mechanisms

We In France, there is no separate national fund for the diagnosis and treatment of obesity.

In January 2012, France introduced a tax on sugar sweetened beverages. It applies to all soft drinks containing added sugar or sweeteners. It currently is 7.55 euro cents per litre at retail level (including VAT) and is paid by manufacturers and processors in France and by French importers.

There are also private clinics and centres, which offer a range of obesity treatment options.

[111] Comprehensive obesity treatment centres in France. Source: https://solidarites-sante.gouv.fr/soins-et-maladies/prises-en-charge--specialisees/obesite/article/les-centres-specialises-d-obesite (access: 27 November 2022).

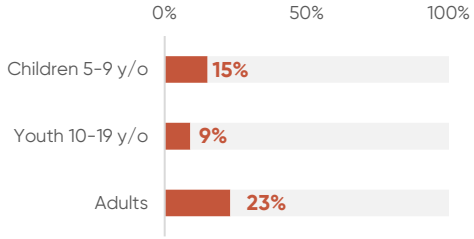
[112] Tiers of comprehensive care for obesity in France. Source: https://www.sante.fr/la-gradation-des-soins-dans-le-plan-obesite (access: 27 November 2022).

5.10. Spain

5.10.1. Health problem – obesity

Adult obesity rates in Spain are higher than the OECD average, and rates for children are among the highest in the OECD countries. There is no WHO data on obesity in the population of children under 5 years of age, while the percentage of children aged 5-9 years with diagnosed obesity is 14.9%. Obesity affects 8.5% of youth aged 10-19 and 23% of adults[113]. See: Chart 14.

CHART 14. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN SPAIN



Source: Author's elaboration based on the WHO report.

Spain is a country with a high percentage of women, who are obese at the time of pregnancy – it is over 20%[114].

5.10.2. Health policy

The most up-to-date national actions to combat obesity in Spain are included in the National Strategic Plan for the Reduction of Childhood Obesity (*Plan Estratégico Nacional para la Reducción de la Obesidad Infantil*), adopted for the period 2022-2030. This document was developed and adopted by the Spanish Government and the Gasol Foundation as an inter-sectoral strategy, involving 15 ministries, 18 scientific institutions, 13 non-governmental organisations and 25 economic sector organisations. The strategy contains guidelines for all involved social groups to cooperate on the problem of childhood obesity through comprehensive implementation and promotion of pro-health habits, including physical activity and sport, healthy eating, adequate sleep and emotional well-being. The recommended inter-sectoral actions are to be implemented at 4 levels: institutional, scientific, social and economic. This is to lead to building an ecosystem promoting a healthy lifestyle in every environment of a child's life.

The National Strategic Plan, adopted by the Spanish Government, prioritizes inter-sectoral collaboration to combat childhood obesity. Key areas of focus include research and innovation, improved communication, public awareness, and increased financial and coordination efforts. **The quantitative goal of the adopted strategy is to reduce excess body weight among children by 20-25% by 2030[115].**

[113] WHO European Regional Obesity Report 2022. World Health Organization. Source: https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf (access: 12 August 2022).

[114] https://www.oecd.org/fr/els/systemes-sante/obesityandtheeconomicsofpreventionfitnotfat-spainkeyfacts.htm (access: 11 August 2022).

[115] https://www.gasolfoundation.org/wp-content/uploads/2022/06/Plan-Estrate%CC%81gico-Nacional-para-la-Reduccio%CC%81n-de-la-Obesidad-Infantil-Gasol-Foundation.pdf (access: 11 August 2022).

The second key strategic document is the NAOS strategy (*Nutrición, Actividad Física y Prevención de la Obesidad*), launched in 2005. It aims to promote healthy eating and physical activity, focusing on consumer education to encourage healthier food choices. The NAOS strategy encourages the involvement, synergy and cooperation of all sectors and social actors, both public (autonomous regions, local councils, other ministries) and private (food industry, scientific societies, consumer organisations, distribution and catering sectors, etc.)[116].

While the initiatives developed under the NAOS Strategy are aimed at the entire population, priority is given to initiatives, which target children, young people and the most disadvantaged population groups, with particular attention to gender and health inequalities. The principles governing the NAOS strategy include: equity, equality, participation, intersectorality, coordination and synergistic cooperation, with the ultimate goal of protecting and promoting health.

The NAOS strategy, centred on the slogan '*Come sano y muevete!*' (Eat healthily and move!), emphasises the importance of balanced nutrition and regular physical activity in preventing obesity and fostering positive lifestyle changes[117]. Since 2008, the national NAOS strategy has collaborated with the Health Departments of the Autonomous Communities of Spain (CCAA) through the permanent working group AECOSAN. This group develops collaborative initiatives focused on promoting healthy eating, nutrition, and physical activity to prevent obesity. These initiatives are aligned with Law 17/2011 on Food and Nutrition Safety[118].

Spain released nutritional guidelines in 2005 specifically targeting children and adolescents, followed by broader guidelines for the general population in 2008. The recommendations were developed within the framework of the Nutrition, Physical Activity and Obesity Prevention Strategy (NAOS) of the Spanish Agency for Consumer Affairs, Food Safety and Nutrition of the Ministry of Health, Social Services and Equality[119].

Evidence-based nutritional recommendations for the prevention and treatment of overweight and obesity have been developed and published since 2012 by two Spanish scientific associations: FESNAD (Spanish Federation of Nutrition, Food and Dietetic Associations) and SEEDO (Spanish Association for the Study of Obesity)[120].

---

[116] https://www.aesan.gob.es/AECOSAN/web/nutricion/seccion/estrategia_naos.htm.

[117] https://www.aesan.gob.es/AECOSAN/web/nutricion/seccion/estrategia_naos.htm (access: 11 August 2022).

[118] https://extranet.who.int/nutrition/gina/en/node/27123 (access: 10 August 2022).

[119] https://www.fao.org/nutrition/education/food-dietary-guidelines/regions/countries/spain/en/ (access: 10 August 2022).

[120] https://pubmed.ncbi.nlm.nih.gov/23114947/ (access: 11 August 2022).

Spain implements a number of educational and support activities in pre-school and school facilities. Since August 2017, "the EU School Fruit, Vegetables and Milk Programme" has also been in force, combining two previous programmes (namely: "the School Fruit and Vegetables Programme" and "the School Milk Programme"). The programme supports the distribution of these products to children (from kindergarten to high school) and also promotes educational and information campaigns on healthy eating habits[121]. Regionally, schools conduct projects to promote proper nutrition and physical activity, but there is no general education programme in this area.

The Strategic Plan for the Reduction of Childhood Obesity, adopted in June 2022, outlines several key initiatives. These include enhancing health education within the curriculum, boosting physical activity both during and after school hours, integrating nutrition and culinary education, and providing financial support for meals to disadvantaged students[122].

As part of the promotion of a healthy lifestyle, **many educational and physical activity programmes** are being implemented in Spain, both at the national level and in individual provinces.

Many of them are implemented as part of the fight against the phenomenon of so-called "poverty obesity" (pobreobesidad), in order to ensure equal access to health education for children from poorer regions and families with low social status.

These include, for example, projects of the Gasol Foundation, including FIVALIN (an obesity prevention project for families with children aged 8–12), SAFALIN (a healthy lifestyle promotion programme for children aged 6–12), ALLEYOOP (a basketball promotion programme), COACH+ (an innovative sports promotion programme for children and youth in sports clubs of various disciplines)[123].

The autonomous communities of Spain implement their own obesity prevention projects. The Delta Nutrition Education Programme in the Autonomous Community of the Canary Islands is considered to be one of the most effective. The project has been carried out by local government units, educational institutions and non-governmental institutions since 1998[124].

[121] https://agriculture.ec.europa.eu/common-agricultural-policy/market-measures/school-fruit-vegetables-and-milk-scheme/school-scheme-explained_en (access: 11 August 2022).

[122] https://elpais.com/sociedad/2022-06-10/el-gobierno-quiere-garantizar-comedores-escolares-en-escuelas-e-institutos-en-2030-para-luchar-contra-la-obesidad-infantil.html (access: 10 August 2022).

[123] https://www.gasolfoundation.org/es/coach/ (access: 10 August 2022).

[124] https://www3.gobiernodecanarias.org/sanidad/scs/content/14b2cfe0-9169-11de-8d13-3319494d7e1b/ProyectoDelta.pdf (access: 10 August 2022).

As part of its efforts to reduce the growing prevalence of overweight and obesity, the Spanish government's projects are largely focused on food products containing sugar, salt and trans fats, with particular emphasis on promoting product reformulation and consumer education.

Labelling of packaged food products is regulated by EU Regulation No. 1169/2011 and EU Regulation No. 1924/2006 on nutrition and health claims made on foods[125]. In 2021, the Nutri-Score system was introduced in Spain for nutritional labelling on the front of food packaging. This is a voluntary system for food sector companies, which, in Spain, has received the greatest support from nutrition scientists and consumer organisations. It has been recognised as the most intuitive for consumers, when it comes to choosing health products. Spain is the fourth country (after France, Belgium and Germany) to implement the system prepared by the European Commission. The Spanish government also announced the launch of legislative and administrative work to strengthen the Code of Advertising Food and Drinks to Minors for the Prevention of Obesity and the Promotion of Health (PAOS) – a voluntary control of food advertisements addressed by companies to children under 12 years of age (it also announced the increase of the age limit to 15 years)[126].

The Food Security and Nutrition Act (Ley 17/2011) bans the sale of foods and beverages high in saturated fat, trans fat, salt or sugar in kindergartens and schools. The law also states that kindergartens and schools should be free from advertising[127].

No information was found on significant obesity prevention programmes in the work environment initiated and implemented at the national level.

5.10.3. Diagnosis and treatment

The Spanish National Health Survey (Encuesta Nacional de Salud de España – ENSE) is carried out every 5 years, alternating with the European Health Survey in Spain (Encuesta Europea de Salud en España – EESE), also carried out on a 5-year cycle. Both surveys share a common core, which allows for international comparisons to address the information needs of national and regional health administrations. In both tests, the BMI index and waist circumference are measured[128].

The Spanish Agency for Medicines and Health Products (AEMPS) currently approves three drugs for the treatment of obesity (in the United States, the Food and Drug Administration (FDA) has already authorised five). All approved

[125] https://data.worldobesity.org/country/portugal-174/#data_policies (access: 17 August 2022).

[126] https://www.lamoncloa.gob.es/lang/en/gobierno/news/Paginas/2020/20200626food-labelling.aspx (dostęp 11.08.2022 r.).

[127] https://data.worldobesity.org/country/spain-199/#data_policies (dostęp 10.08.2022 r.).

[128] Instituto Nacional de Estadistica – obesidad. Source: https://www.ine.es/ss/Satellite?L=es_ES&c=INESeccion_C&cid=1259926457058&p=%5C&pagename=ProductosYServicios%2FPYSLayout&param1=PYSDetalle&param3=1259924822888 (access: 27 November 2022).

drugs are recommended for individuals with a body mass index (BMI) exceeding 30, or for those with a BMI above 27, who have additional health conditions. The drugs approved for use in Spain are Orlistat, liraglutide and the combination of bupropion with naltrexone.

Bariatric surgery is covered by insurance for individuals with a BMI of 40 or higher, or for those with a BMI of 35 or higher, who also have conditions like diabetes, arterial hypertension, or sleep apnea[129].

For patients with obesity, dietary consultations and psychological consultations are also reimbursed.

In Spain, it is not possible to obtain additional certification or specialisation in obesitology. There is also no comprehensive, coordinated obesity treatment programme. The Obesity Group of the Spanish Society of Endocrinology and Nutrition (GOSEEN), together with the Nutrition Department (NutriSEEN) and the Working Group on Endocrinology, Nutrition and Exercise (GENEFSEEN), reviewed the main clinical aspects of the evaluation and treatment of obesity in adults, based on the best available evidence. Topics covered include: diagnosis and initial management in non-specialist consultations, control goals, referral criteria and assessment in specialist consultations, lifestyle changes, pharmacotherapy, obesity surgery, endoscopic treatment and obesity in special situations (elderly and pregnant women)[130]. The recommendations include those related to qualification for bariatric surgery, which should be based on a BMI of ≥40 kg/m² or a BMI of ≥35 kg/m² together with at least one severe complication. Surgery may be considered for BMI 30-34.9 kg/m² in cases of type 2 diabetes with poor control despite intensive treatment and the presence of other severe complications.

In non-diabetic patients with severe complications, who are not adequately controlled with pharmacological treatment and whose quality of life worsened, bariatric surgery may also be considered. Long-term multidisciplinary follow-up after bariatric surgery is also essential.

5.10.4. Financing mechanisms

The Obesity Group of the Spanish Society of Endocrinology and Nutrition (SEEN) indicated in 2019 that obesity in Spain was responsible for expenditure of **€25,136 million**, or 2.1% of Spanish GDP, representing a per capita expenditure of €537.

[129] https://www.cun.es/enfermedades-tratamientos/tratamientos/cirugia-bariatrica (access: 27 November 2022).

[130] SEEN – kompleksowe podejście kliniczne do otyłości w wieku dorosłym, 2022. Source: https://www.seen.es/portal/areas-conocimiento/obesidad/documentos/consensos-guias/abordaje-clinico-integral-seen-obesidad-edad-adulta (access: 27 November 2022).

However, there is no public earmarked fund for the diagnosis and treatment of obesity.

In 2021, in order to stop the growing problem of overweight and obesity among children and adolescents, the Spanish government increased the value added tax (VAT) on sweetened drinks. The new tax rate was set at 21% (up from 10%). This increase was approved by Law 11/2020 of 30 December on the General State Budget for 2021 (LGPE) (Article 69)[131]. In addition, a two-tier tax on sugar-sweetened beverages has been in force in Catalonia since 2017 (up to 12 euro cents per litre)[132].

In April 2019, Royal Decree 308/2019 established a maximum mandatory limit for salt content in bread. It limits the classification of bread as "wholemeal", "sourdough", "artisan" and "multigrain" and establishes that the maximum permissible salt content in ordinary bread as a finished product may not exceed 1.66 g of salt per 100 g of bread (Article 11.2c)[133].

Private medical centres and insurance companies provide various obesity treatment options.

[131] https://policydatabase.wcrf.org/level_one?page=nourishing-level-one#step2=2#step3=315 (access: 11 August 2022).

[132] https://policydatabase.wcrf.org/level_one?page=nourishing-level-one#step2=2#step3=315 (access: 11 August 2022).

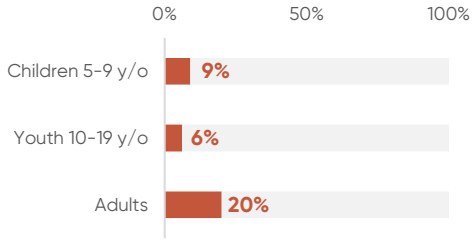
[133] https://boe.es/buscar/doc.php?id=BOE-A-2019-6994 (access: 10 August 2022).

5.11. Denmark

5.11.1. Health problem – obesity

The WHO does not provide data on obesity rates for children under five years old, but the percentage of children aged 5 to 9 diagnosed with obesity is 9.3%. Obesity affects 6.2% of youth aged 10-19 and 19.7% of adults[134]. See: Chart 15.

CHART 15. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN DENMARK



Source: Author's elaboration based on the WHO report.

5.11.2. Health policy

The national strategy for the prevention and treatment of obesity (the National Obesity Plan), including a list of recommendations, was adopted in 2003 and has been periodically updated and amended. The current plan, issued in 2020, is overseen by the National Board of Health and the Danish Centre for Health Promotion and Prevention. The strategy promotes inter-sectoral cooperation, focusing on healthy nutrition, improved food quality, increased physical activity, enhanced healthcare worker qualifications in obesity management, and the development of targeted interventions for high-risk groups[135].

As part of the national strategy, the Danish National Centre for Obesity (Nationalt Center for Overgaegt, NCFO) was established by the Ministry of Health in 2020. Its core activities include collecting and disseminating evidence-based knowledge on obesity prevention and treatment, as well as implementing training and educational projects[136].

The Danish government included strategic actions for obesity prevention through nutrition in the 2018 'Strategy for Food, Meals, and Health,' a nationwide initiative jointly implemented by the Ministries of Environment and Food, Health, Children and Social Affairs, Seniors, and Education. The strategy outlines guidelines and actions for kindergartens, schools, youth educational institutions, workplaces, day-care facilities, and care homes, at both national and local levels. The document includes references to food production, encouraging manufacturers to reformulate products. It also establishes a knowledge bank on municipal health initiatives, identifies priority research areas, promotes international knowledge exchange, and strengthens health-promoting communication strategies. The strategy introduces a voluntary program for labelling healthy nurseries, primary and secondary schools, as well as youth educational insti-

[134] https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf (access: 20 August 2022).

[135] https://sundhedsstyrelsen.dk/en/publications/2003/national-action-plan-against-obesity (access: 20 August 2022).

[136] https://www.ncfo.dk (access: 20 August 2022).

tutions. It also emphasises increased education in schools about food, including its history, Denmark's role as a food producer, the cultural significance of meals, and their importance for health and community[137].

The current dietary guidelines, showing Danes how to eat healthily and in a climate-friendly way, were published in 2021. A wide range of stakeholders were consulted, including the Ministry of Food, Agriculture and Fisheries, the Ministry of Climate, Energy and Communities, the Health Authority, the National Food Institute at the Technical University of Denmark, consumer and non-governmental organisations as well as the food and retail industry[138].

Denmark runs many campaigns promoting healthier eating, targeted at adults and children. One of the most recognisable campaigns is the EU "Fruit, vegetables, and milk at school" (distribution of products and educational activities)139 programme, launched in 2017. Other notable campaigns include the Whole Grain Partnership (Fuldkornskampagnen)[140] conducted in cooperation with the National Veterinary and Food Administration, the WHO-led Food Friendly Schools Initiative (NFSI)[141] since 2006, and the "Healthy Senior Life" series of local information and motivational meetings for seniors, initiated in 2008[142].

The Ministry of Health published the development directions and programmes of the Danish physical activity policy in 2016, emphasising the need for broader involvement from children, young people, disabled individuals and socially excluded groups143. In 2018, the National Board of Health (Sundhedsstyrelsen) published a more comprehensive and detailed set of guidelines titled "Physical Activity: A Handbook for Prevention and Treatment" (*I Fysisk aktivitethåndbog om forebyggelse og behandling fremlægger*).

The material includes recommendations for physical activity as a method of prevention and treatment of numerous diseases, especially obesity and type 2 diabetes[144]. The Ministries of Children and Education published recommendations in 2016 for schools to incorporate various forms of activity and sports to ensure sufficient student movement[145]

---

137 https://fvm.dk/publikationer/publikation/pub/hent-fil/publication/strategy-for-food-meals-and-health/ (access: 21 August 2022).

138 https://www.fao.org/nutrition/education/food-dietary-guidelines/regions/countries/Denmark/en.

139 https://agriculture.ec.europa.eu/common-agricultural-policy/market-measures/school-fruit-vegetables-and-milk-scheme/school-scheme-explained_en (access: 17 August 2022).

140 https://fuldkorn.dk/english/ (access: 21 August 2022).

141 https://www.who.int/publications/i/item/9789241516969 (access: 21 August 2022).

142 https://data.worldobesity.org/country/denmark-55/#data_policies.

143 https://sport.ec.europa.eu/sites/default/files/physical-activity-factsheets-2018/physical-activity-factsheets-2018/denmark-physical-activity-factsheet-2018_en.pdf (access: 21 August 2022).

144 https://extranet.who.int/ncdccs/Data/DNK_B13_Fysisk%20aktivitet%20%c3%a2%e2%82%ac%e2%80%9c%20h%c3%83%c2%a5ndbog%20om%20forebyggelse%20og%20behandling.pdf (access: 21 August 2022).

145 https://www.uvm.dk/folkeskolen/laering-og-laeringsmiljoe/bevaegelse (access: 21 August 2022).

The most widespread campaigns promoting **movement and sports** among children are currently "ABC – All children ride a bike" (Alle Boern Cykler), launched by the National Health Board and the National Cycling Federation in 2015[146] and "School Play Patrol" (Legepatruljen), aimed at pupils aged 6-10 and run by the Danish School Sports Association and the Danish Gymnastics Federation since 2007[147].

Among the activities addressed to adults, the national campaign "Cycling to work" (*Cykler til Arbeide*), implemented by the Ministry of Health and encouraging the use of bicycles for everyday transport since 2018, stands out in terms of its scope and duration.

Many activities promoting a healthy lifestyle in the work environment are undertaken by the Danish Labour Inspection Authority[148].

In 2003, Denmark introduced a law limiting trans fat to 2 grams per 100 grams of fat or oil. Oils labelled "trans fat free" could not contain more than 1 gram of trans fat per 100 grams of fat[149].

As part of its efforts to combat obesity, Denmark is implementing numerous initiatives to curb so-called obesogenic marketing. In 2008, a voluntary Children's Food Advertising Code was introduced to regulate marketing aimed at children under 13. The code is periodically updated by the Food Advertising Forum[150]. Food advertising aimed at children has been regulated in Denmark since 2013 (decree BEK 801/2013). It is prohibited to encourage or allow excessive consumption of foods and beverages high in fats, trans fatty acids, salt or sodium, and sugars[151].

Labelling of packaged food products is regulated by EU Regulation No. 1169/2011 and EU Regulation No. 1924/2006 on nutrition and health claims made on foods[152]. Since 2009, Denmark has adopted the "Norwegian Keyhole" (Keyhole to Healthier Eating) label, a voluntary food labelling system used in Sweden, Norway, and Denmark. This label identifies products containing less fat, sugar, and salt, as well as more dietary fibre, compared to similar products[153].

146 https://www.alleboerncykler.dk/ (access: 21 August 2022).

147 https://skoleidraet.dk/aktivefrikvarterer/forside/ (access: 21 August 2022).

148 https://www.vcta.dk (access: 21 August 2022).

149 https://www.who.int/news-room/feature-stories/detail/denmark-trans-fat-ban-pioneer-lessons-for-other-countries (access: 21 August 2022).

150 https://www.danskindustri.dk/globalassets/kodeks-redesign_2022.pdf?v=220822 (access: 21 August 2022).

151 https://www.retsinformation.dk/eli/lta/2013/801 (access: 21 August 2022).

152 https://data.worldobesity.org/country/portugal-174/#data_policies (access: 17 August 2022).

153 https://www.helsenorge.no/en/kosthold-og-ernaring/keyhole-healthy-food/ (access: 21 August 2022).

Since 2011, food products have been able to voluntarily display the "Whole Grains" logo[154], if they meet the nutritional criteria established by the Whole Grains Partnership and the Norwegian Keyhole scheme.

5.11.3. Diagnosis and treatment

Statistics Denmark collects data on BMI and waist circumference measurements from the Danish Health Authority and the Norwegian Institute of Public Health (SIF)[155].

In Denmark, pharmacological treatment for obesity is available, including amfepramone and bupropion / naltrexone. These medications are typically prescribed for individuals with a BMI above 30 or a BMI between 27 and 30 accompanied by conditions such as type 2 diabetes, high cholesterol, or high blood pressure. Orlistat and liraglutide treatments are also available[156].

Bariatric surgery in Denmark is performed in cases of extreme or severe obesity, when it may cause health problems and all other available obesity treatments have not brought satisfactory results. Patients undergo a rigorous treatment programme before being offered bariatric surgery.

Bariatric surgery is performed on patients with a BMI >35 and co-morbidities caused by obesity, such as severe sleep apnea, type 2 diabetes, arterial hypertension, osteoarthritis, polycystic ovary syndrome (severe cystic ovarian disease with hormonal disorders), difficulties conceiving and symptoms related to arthritis of the knees and hips, as evidenced by imaging tests. Patients over 25 years of age with a BMI >40 without co-morbidities have the opportunity to undergo evaluation for bariatric surgery. For patients >60 years of age, surgery may be indicated after a specific risk-benefit assessment.

Dietary advice for people with obesity is reimbursed. No information was found about the reimbursement of psychological counselling for people with obesity.

There is no specialisation in obesitology in Denmark, nor is it possible to obtain a certificate as an obesitologist.

Recommendations for lifestyle interventions for severe obesity were introduced. It is a holistic approach aimed at helping adults to achieve lasting weight loss or maintenance and a better quality of life and well-being[157]. No information was found regarding integrated, comprehensive care for patients with obesity.

---

[154] https://fuldkorn.dk/english/ (access: 21 August 2022).

[155] https://www.dst.dk/da/informationsservice/oss/vaegt (access: 27 November 2022).

[156] https://min.medicin.dk/sygdomme/sygdom/39 (access: 27 November 2022).

[157] Lifestyle intervention for severe obesity. Recommendations for offerings targeting children and adults. Denmark 2021. Source: https://www.sst.dk/-/media/Udgivelser/2021/Overvaegt/Livsstilsintervention-ved-svaer-overvaegt.ashx (access: 27 November 2022).

5.11.4. Financing mechanisms

In Denmark, there is no fund with resources to finance diagnostic and treatment activities related to obesity. In 2011, Denmark was the first country in the world to introduce a so-called "fat tax" on foods high in saturated fat as part of its fiscal policy. It was repealed by the Danish Parliament after one year in force, following objections from farmers, food companies and consumer groups[158]. The introduction of a sugar tax, announced as the next step in fiscal support for the state's health policy, was also withdrawn.

In Denmark, private insurance companies and clinical centres offer obesity treatment.

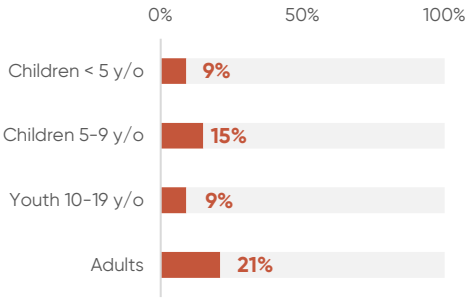
[158] https://www.researchgate.net/publication/267741946_The_Danish_Tax_on_Saturated_Fat_Why_It_Did_Not_Survive (access: 21 August 2022).

5.12. Portugal

5.12.1. Health problem – obesity

According to data prepared by WHO, the percentage of children under 5 years of age with obesity is 8.5%, while the percentage of children between 5 and 9 years of age with diagnosed obesity is 14.7%. Obesity affects 8.5% of youth aged 10 to 19 years and 20.8% of adults[159]. See: Chart 16.

CHART 16. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN PORTUGAL



Source: Author's elaboration based on the WHO report.

5.12.2. Health policy

Portugal's current strategic document in the field of nutrition policy and combating obesity is the National Program for the Promotion of Healthy Eating (*Programa Nacional para a Promoção da Alimentação Saudável* – PNPAS), issued by the General Directorate of Health (*Direção Geral de Saúde* – DGS) in 2015. The National Programme sets out the goals and directions of national activities in the area of availability, quality and modification of food, health information and promotion, as well as standards of prevention and specialist treatment of obesity. The document emphasises the importance of inter-sectoral activities (health, agriculture, sports, environment, education), as well as the cooperation of regional and local administration and healthcare structures[160].

The adoption of the National Program for the Promotion of Healthy Eating (PNPAS) paved the way for the development and, in 2017, adoption of the Integrated Strategy for the Promotion of Healthy Eating (EIPAS) (*Estratégia Integrada para a Promoção da Alimentação Saudável*, EIPAS), an inter-sectoral strategy covering a set of 51 interventions agreed by 7 different ministries (Finance, Internal Administration, Education, Health, Economy, Agriculture, Forestry and Rural Development, and the Sea)[161].

The dietary guidelines for the Portuguese population called the Food Wheel (*Roda dos Alimentos*) were published by the Ministry of Health in 2003. These recommendations are intended for the general healthy Portuguese population and include the number of portions necessary to meet individual energy requirements[162].

[159] https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf (access: 16 August 2022).

[160] https://extranet.who.int/ncdccs/Data/PRT_B10_Healthy_Eating_Portugal.pdf (access: 16 August 2022).

[161] https://eipas.pt (access: 16 August 2022).

[162] https://www.dgs.pt/promocao-da-saude/educacao-para-a-saude/areas-de-intervencao/alimentacao.aspx (access: 16 August 2022).

In response to the growing problem of overweight and obesity due to insufficient physical activity (with particular emphasis on the post-pandemic health deficit), in 2021, Portugal adopted another (previous was adopted in 2017) National Programme for Promotion of Physical Activity (*Programa Nacional para a Promoção da Atividade Física* – PNPAF), the implementation of which is supervised by the General Directorate of Health (DGS) and the National Health Service (SNS). The National Programme introduces, among others, a pilot programme of consultations on physical activity within the National Health Service, activation and improvement of competences of healthcare workers, development of population research works and national and regional educational campaigns[163].

Part of the government's strategy to improve the health of the Portuguese through sports activity is the National Sports for All Programme "Get Moving!" (Programa Nacional de Desporto para Todos – Mexa-se), which has been ongoing since 2016. This programme supervised by the Portuguese Institute of Sports (Instituto Português do Desporto – IPD) focuses mainly on activating the least physically and sports-intensive social groups and promoting physical activity in everyday activities[164].

Among the significant national and regional programmes aimed at children and promoting a healthy lifestyle in order to prevent obesity currently implemented, we should mention: the Healthy Eating Program in School Health (*Programa Alimentação Saudável em Saúde Escolar* – PASSE)[165], "Fight for Yourself" programme (*Luta por Ti – implementation of the European Youth Tackling Obesity* – EYTO)[166], "Zero Obesity" Programme (*Programa "Obesidade Zero"* – POZ)[167], "5 times a day and grow with energy" (*5 ao dia, faz crescer com energia*)[168], "Eat slowly and well and move well" (Come devagar e bem, e mexe-te também!)[169] and the largest animation project in the country, aimed at children aged 5-10, implemented regionally in collaboration with the Ministry of Health, the Ministry of Education and the Portuguese Association of Dietitians (APN)[170].

Since August 2017, "the EU School Fruit, Vegetables and Milk Programme" has also been in force, combining two previous programmes (namely: "the School Fruit and

[163] https://www.dgs.pt/programa-nacional-para-a-promocao-da-atvidade-fisica.aspx (access: 15 August 2022).

[164] https://www.dgs.pt/ficheiros-de-upload-2013/pnpaf-ipdj-plano-nacional-desporto-todos-2016-pdf.aspx (access: 16 August 2022).

[165] https://passe.com.pt/home (access: 17 August 2022).

[166] http://www.eyto.org.uk/about/the-campaigns/luta-por-ti/ (access: 17 August 2022).

[167] https://www.researchgate.net/publication/317470204_Efeito_do_projecto_obesidade_zero_na_pratica_desportiva_e_actividades_sedentarias_em_criancas_de_idade_escolar (access: 17 August 2022).

[168] http://www.arsalentejo.min-saude.pt/utentes/saudepublica/AreasSaude/Alimentacao/ProjetosRegionais/Paginas/5-ao-dia,-faz-crescer-com-energia.aspx (access: 17 August 2022).

[169] https://www.asae.gov.pt/?cn=739975347538AAAAAAAAAAAA&ur=1&newsletter=5131 (access: 17 August 2022).

[170] https://alimentacaosaudavel.dgs.pt/projects-and-partnerships/national-projects-nutri-ventures/ (access: 17 August 2022).

Vegetables Programme" and "the School Milk Programme"). The programme supports the distribution of health products to children from kindergarten to high school and also promotes educational and information campaigns on healthy eating habits[171].

No information was found on systemic obesity prevention programmes in the Portuguese professional environment.

In order to optimise nutritional policy and consumer education, Law No. 75/2009 was amended in 2009 to introduce a new maximum salt content level in bread products of 1.4 g salt/100 g[172]. The tax on drinks containing sugar or other sweeteners has been in force in Portugal since 2017 and currently amounts to 16 euro cents per litre[173].

Labelling of packaged food products is regulated by EU Regulation No. 1169/2011 and EU Regulation No. 1924/2006 on nutrition and health claims made on foods[174]. In Portugal, there is no voluntary system for labelling nutritional values on the front of food packaging, except for a few global food companies, which have introduced such labelling[175].

The most important document regulating the rules of advertising and promotion of unhealthy food and sweet carbonated drinks aimed at children under 16 years of age is Law 30/2019, an amendment to the Portuguese 14th Advertising Code. The Act sets out restrictions for the listed products, as well as their advertising in all means and spaces of communication[176].

Since 2015, a code of conduct for the food manufacturers associated with the Federation of Portuguese Agri-Food Industries has been in force in Portugal regarding diet, physical activity and health, as well as marketing targeted to children. One of the main commitments of the industry (Compromissos da indústria alimentar sobre Alimentação, Atividade Física e Saúde) is the introduction and popularisation of foods, which aim to reduce overweight and obesity and the progressive reformulation of products rich in sugar, salt and fat[177].

5.12.3. Diagnosis and treatment

In Portugal, BMI and waist circumference are regularly measured in patients at risk of obesity and those diagnosed with obesi-

[171] https://data.worldobesity.org/country/portugal-174/#data_policies; https://agriculture.ec.europa.eu/common-agricultural-policy/market-measures/school-fruit-vegetables-and-milk-scheme/school-scheme-explained_en (access: 17 August 2022).

[172] https://data.worldobesity.org/country/portugal-174/#data_policies (access: 17 August 2022).

[173] https://ind.millenniumbcp.pt/pt/geral/fiscalidade/Pages/2017/Novo-imposto-sobre-bebidas-com-acucar.aspx (access: 17 August 2022).

[174] https://data.worldobesity.org/country/portugal-174/#data_policies (access: 17 August 2022).

[175] https://www.researchgate.net/publication/332085972_Nutri-Score_A_Public_Health_Tool_to_Improve_Eating_Habits_in_Portugal (access: 17 August 2022).

[176] https://abreuadvogados.com/en/knowledge/publications/articles-en/restrictions-on-advertising-aimed-at-minors-of-determined-foodstuffs-and-beverages/ (access: 17 August 2022).

[177] https://alimentacaosaudavel.dgs.pt/activeapp2020/wp-content/uploads/2015/04/Compromissos-da-industria-alimentar-sobre-Alimentacao-Atividade-Fisica-e-Saude.pdf (access: 17 August 2022).

ty. Both dietary advice and psychological advice are reimbursed by insurance.

In Portugal, the National Pharmaceutical and Therapeutic Commission Infarmed has approved the reimbursement of the following drugs for the treatment of obesity: orlistat and saxenda. They are indicated for use in adults with a BMI ≥30 or a BMI ≥27 (overweight), if at least one other weight-related risk factor is present.

There is no educational area in the field of obesitology, and there is no possibility of obtaining an additional obesitologist certificate. The Obesity Surgical Treatment Programme (PTCO) is available. Access to the programme and the principles of financing are regulated by Regulation No. 245/2018[178].

In Portugal, a **comprehensive care model** for people at risk of obesity has been introduced as part of preventive measures[179]. It includes comprehensive obesity diagnosis, identification of key needs and adaptation of actions aimed at preventing the development of obesity. These tasks are carried out subsequently by a multidisciplinary team of specialists.

Patients with a body mass index (BMI) between 25.0 and 29.9, calculated as weight in kilograms divided by height in meters squared, and a waist-to-height ratio greater than 0.5, as determined by anthropometric assessment, qualify for the comprehensive care program to prevent obesity development. A person at risk of developing obesity has access to nutritional advice and psychological advice and is educated about obesity and the risks associated with it. A total of six types of consultation are being implemented. Progress in treatment is monitored and regularly evaluated. The aim of the programme is to reduce the consequences associated with advanced obesity and reduce potential health care costs.

There is also a model of integrated care for patients with obesity. It has been optimised to include, among other things, the promotion of behavioural changes in overweight individuals, the importance of a patient-centred therapeutic environment, nutritional counselling taking into account the satisfaction of nutritional needs, therapeutic goals (weight loss, metabolic control, etc.) and adaptation to individual activities and constraints (work, religious values, economic constraints, etc.). As part of the optimisation of the integrated care model, several anti-obesity strategies have also

[178] Regulation No. 245/2018 – a regulation specifying the conditions of access for patients and entities as well as prices and health services to be implemented under the Obesity Surgical Treatment Programme (PTCO). Source: https://files.dre.pt/1s/2018/09/16900/0441804422.pdf (access: 27 November 2022).

[179] The integrated process of helping adults at risk of developing obesity. Department of Health Quality 2017. Source: https://alimentacaosaudavel.dgs.pt/activeapp2020/wp-content/uploads/2020/01/Processo-assistencial-integrado-da-pre%CC%81-obesidade-no-adulto.pdf (access: 27 November 2022).

been developed, individually tailored to the needs of patients[180].

Qualification for surgical treatment is the fulfilment of the following conditions: BMI ≥40 or BMI >35 with co-morbidity, which is a complication of obesity, age from 18 to 65 years, two years of stable obesity, failure of non-surgical treatment to reduce body weight for at least one year, confirmed obesity, which is not secondary to classic endocrine disease, no psychiatric pathology, alcohol or drug addiction[181].

A set of criteria has also been developed to define clinical units as specialised obesity treatment centres (*Centros de Tratamento Cirúrgico de Obesidade* – CTCO). As of 2018, there was one High Differentiation Centre for Surgical Treatment of Obesity (*Centro Hospitalar de São João*) and 13 public centres for surgical treatment of obesity.

5.12.4. Financing mechanisms

The direct cost of treating obesity in Portugal has been estimated at around €1.2 billion, which represents 0.6% of GDP and 6% of overall health expenditure, according to data from the Centre for Evidence Based Medicine (CEMBE).

It has been shown that **obesity causes a loss of 200,000 disability-adjusted life years**, which equates to nine days less of life for every Portuguese citizen

However, there is no additional fund to cover expenses for the diagnosis and treatment of obesity.

There are various private insurance offers relating to the treatment of obesity.

[180] Obesity: optimising therapeutic approaches in the public healthcare service. National Healthy Eating Promotion Programme. Department of Health Quality 2017 (access: 27 November 2022). Source: https://nutrimento.pt/activeapp/wp-content/uploads/2017/10/Obe-sidade_otimizacao-da-abordagem-terapeutica-no-servi%C3%A7o-nacional-de-saude.pdf.

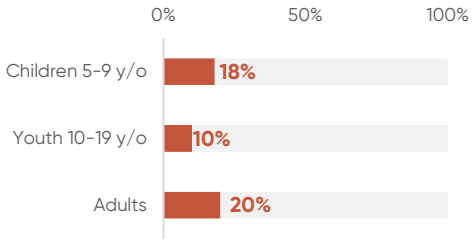
[181] Healthcare services provided within the framework of public health to address obesity. National Health Service in Portugal 2019 (access: 27 November 2022). Source: https://www.ers.pt/uploads/writer_file/document/2448/ERS_-_Cuidados_obesidade_SNS.pdf.

5.13. Italy

5.13.1. Health problem – obesity

WHO estimates do not show data defining obesity in the population of children under 5 years of age. Obesity affects 17.8% of children aged 5-9, 9.8% of adolescents and 19.9% of adults[182]. See: Chart 17.

CHART 17. PERCENTAGE OF PEOPLE WITH OBESITY BY AGE GROUP IN ITALY



Source: Author's elaboration based on the WHO report.

5.13.2. Health policy

The current national anti-obesity strategy for Italy is contained in the National Prevention Plan (*Piano nazionale della prevenzione* – PNP) and covers the years 2020-2025. The inter-sectoral document particularly emphasises the need to prevent and treat childhood obesity. Objectives are implemented at both central and regional levels in all regions, following a common model such as the 'Active Communities,' 'Health-Promoting Schools,' or 'Health-Promoting Workplaces' programmes, or through other regional initiatives.

The main areas of the strategy's activities are healthier nutrition (limiting the consumption of fats and sugars, increasing the consumption of vegetables, whole grains and unprocessed food, **promoting smaller portions, eliminating eating under the influence of emotional factors**, educating children and adolescents) and regular physical activity in every age group[183].

One of the most recognizable and effective nutritional education programmes for children implemented as part of the PNP national strategy is the "Fruit at School" (*Fruta nelle Scuole*) project, aimed at children aged 6-11, which also includes training initiatives for teachers, the involvement of children and parents in edutainment workshops (learning through play), and messages about ecology, cooking, nutrition and food production[184]. The project is carried out in cooperation between the Ministry of Agriculture, Food and Forestry and the administrations of the regions and autonomous provinces of Italy.

Since 2017, "the EU School Fruit, Vegetables and Milk Programme" has been in force, combining two previous programmes (namely: "the School Fruit and Vegetables

[182] https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf (dostęp 18.08.2022 r.)

[183] https://www.salute.gov.it/portale/temi/p2_6.jsp?lingua=italiano&id=5521&area=stiliVita&menu=alimentazione (dostęp 18.08.2022 r.).

[184] http://www.fruttanellescuole.gov.it/il-programma/chi-e-rivolto (dostęp 19.08.2022 r.).

Programme" and "the School Milk Programme"). The programme supports the distribution of these products to children (from kindergarten to high school) and also promotes educational and information campaigns on healthy eating habits[185].

The latest guidelines on healthy eating for the Italian population (*Linee Guida per una sana alimentazione*) were published in 2018 by the Food and Nutrition Research Centre (CREA), an agency of the Ministry of Health. It is the Italian reference document on healthy eating, aimed at consumers, which collects and periodically updates recommendations and nutritional indications developed by a special scientific commission[186].

In 2019, the Ministry of Health published a strategic document entitled "Guidelines on Physical Activity for Different Age Groups and with Regard to Physiological and Pathophysiological Situations and Specific Subgroups of the Population" (*Linee di Indirizzo sull'Attività Fisica per le Differenti Fasce d'Età e con Riferimento a Situazioni Fisiologiche e Fisiopatologiche e a Sottogruppi Specifici di Popolazione*). The document includes an action plan to increase the level of physical activity in order to stop the increase in diabetes and obesity and reduce premature mortality from lifestyle diseases. The adopted strategy assumes inter-sectoral cooperation (health, education, economy, sport, culture), involvement of experts from many industries, national, regional and local initiatives, with particular emphasis on people with disabilities, social and economic integration policy and equal opportunities for access to health and education[187].

The most popular nationwide physical activity promotion programmes include: the Sports Class (*Sport di Classe*) programme, in force since 2014, carried out under the supervision of the Ministry of Education, Higher Education and Research and the Italian Olympic Committee[188], as well as the European Healthy Stadia Programme, in force since 2008[189].

Among regional programmes promoting healthy eating and physical activity among children, the most popular are: Giocampus multi-area and multi-partner educational programme[190], the Crescer Felix – educational trail project[191] and "Walking Bus" (*Piedibus*) – a programme promoting physical activity by walking to school[192].

---

185 https://agriculture.ec.europa.eu/common-agricultural-policy/market-measures/school-fruit-vegetables-and-milk-scheme/school-scheme-explained_en (access: 17 August 2022).

186 https://www.crea.gov.it/documents/59764/0/LINEE-GUIDA+DEFINITIVO.pdf/28670db4-154c-0ecc-d187-1ee9db3b1c65?t=1576850671654 (access: 17 August 2022).

187 https://extranet.who.int/ncdccs/Data/ITA_B13_LINEE_INDIRIZZO_AF.pdf (access: 17 August 2022).

188 https://www.progettosportdiclasse.it/ (access: 17 August 2022).

189 https://healthystadia.eu (access: 17 August 2022).

190 https://www.giocampus.it/it/giocampus-project/ (access: 19 August 2022).

191 https://www.secondocircolopomigliano.eu/scuola/wp-content/uploads/2013/03/Crescer-Felix.pdf (access: 18 August 2022).

192 www.piedibus.it (access: 17 August 2022).

Labelling of packaged food products is regulated by EU Regulation No. 1169/2011 and EU Regulation No. 1924/2006 on nutrition and health claims made on foods 1924/2006[193]. Italy did not recognise the voluntary Nutri-Score system, a health labelling system for food packaging, submitting an alternative proposal in 2020, approved by the European Union and announced for introduction by the end of 2022[194].

The reference document in the field of reducing the caloric value and improving the nutritional properties of food products (with particular emphasis on the population of children aged 3-12) is the report of the Ministry of Health, which promotes voluntary reductions in the content of sugar, saturated fats, trans fats and salt, increasing the content of fibre and reducing the size of portions of certain products (for example breakfast cereals, sweets, drinks, dairy products) aimed at children among food manufacturers and retail chains[195].

5.13.3. Diagnosis and treatment

The Higher Institute of Health – EpiCentro (Epidemiology for Public Health) conducts annual measurements of BMI and waist circumference[196].

Currently, three drugs are approved in Italy for the treatment of obesity and overweight in adults: orlistat, liraglutide, bupropion / naltrexone, which are indicated in patients with a body mass index (BMI) greater than or equal to 30 kg/m² or in overweight patients (BMI ≥27 kg/m²) with associated risk factors. Drug treatment should be discontinued, if, after a period of 4 to 12 weeks, depending on the drug taken, a weight loss of at least 5% has not been achieved.

All bariatric surgery procedures are reimbursed provided that the patient has a BMI equal to or greater than 26 (in the age group under 40 years), equal to or greater than 30 kg/m² (in the age group over 40 years), and stability of body weight and BMI for at least 3 months.

No information was found regarding the reimbursement of dietary or psychological advice in the treatment of obesity.

There is no specialisation in obesitology or obesitologist certification in Italy.

On 27 July 2022, guidelines were adopted for the prevention and fight against overweight and obesity, developed by the Working Group established in the General Directorate for Health Prevention, which coordinated the work with the General Directorate for Food and Nutrition, with the participation of many professionals from the industry. The document emphasis-

[193] https://eur-lex.europa.eu/legal-content/IT/ALL/?uri=CELEX:32006R1924 (access: 18 August 2022).

[194] https://food.ec.europa.eu/system/files/2018-06/comm_ahac_20180622_pres06a.pdf (access: 19 September 2022).

[195] www.salute.gov.it (access: 18 August 2022).

[196] Istituto Superiore di Sanità, EpiCentro - L'epidemiologia per la sanità pubblica 2021. Source: https://www.epicentro.iss.it/passi/dati/sovrappeso (access: 27 November 2022).

es the importance of ensuring integrated treatment for people with obesity, including prevention, nutrition and treatment. It also describes the components of an integrated preventive-diagnostic-therapeutic pathway (PPDTA), including early diagnosis of overweight and obese people, coordinated care and treatment. The document also defines the etiological and phenotypic classification of obesity and diagnostic criteria, using biochemical tests and reference methods, and provides indications for when bariatric surgery should be used. In addition to outlining the actions at the national level to be implemented in each region to prevent and combat obesity, the document also specifies monitoring indicators to assess the effectiveness of these actions[197].

The integrated obesity treatment pathway includes three tiers of care. The first tier of care is provided by paediatricians or general practitioners, while the second tier involves local Department of Prevention services and clinical and nutritional network centres, including specialised facilities. The third tier encompasses highly specialised hospital centres dealing with the treatment of severe obesity or obesity with complications in old age.

Care pathways for obesity patients involve multidisciplinary, synergistic, and integrated care. This includes coordinated clinical activities by paediatricians or general practitioners (depending on patient's age), preventive measures and clinical and nutritional rehabilitation led by a specialist in nutritional sciences.

5.13.4. Financing mechanisms

In Italy, overweight and obesity account for up to 9% of healthcare spending and reduce GDP by 2.8%.

To cover these costs, each citizen pays additional EUR 289 per year.

In Italy, however, there is no special national fund with resources for the diagnosis and treatment of obesity.

The sugar tax came into force in Italy on 1 January 2023 and is provisionally defined in the Italian budget law[198].

In Italy, there are private centres offering non-reimbursable obesity treatment services.

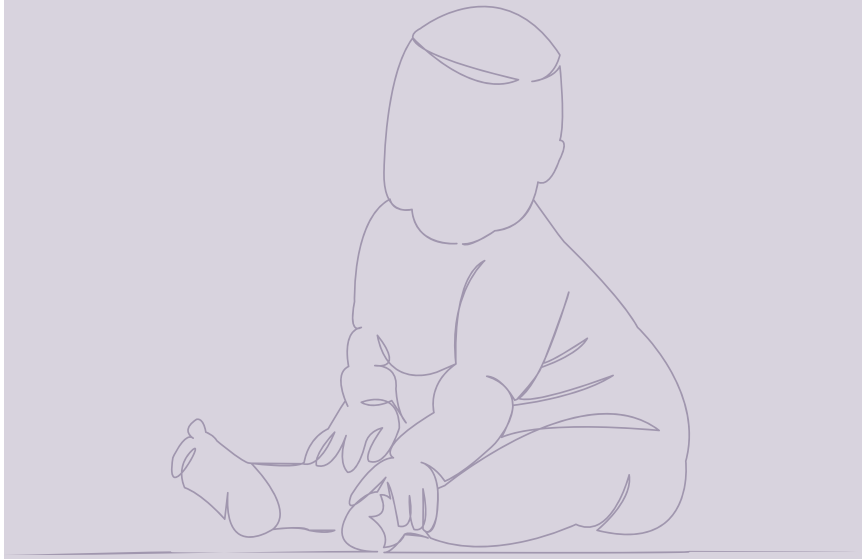
[197] Guidelines for the prevention and fight against overweight and obesity. Italy 2022. Source: https://www.salute.gov.it/imgs/C_17_pubblicazio-ni_3256_allegato.pdf (access: 27 November 2022).

[198] https://www.fiscal-requirements.com/news/1574 (access: 18 August 2022).

TABLE 10. COUNTRIES LISTED BY OBESITY-RELATED ACTIVITIES

	Poland	Czechia	Hungary	Portugal	Spain	Great Britain	Irleland	France	Italy	Denmark	Germany	Canada	Romania
I. Health problem – obesity (WHO 2022)													
1. Percentage of children < 5 years of age with obesity	7%	6%	-	8.5%	-	-	-	-	-	-	4%	-	7%
2. Percentage of children aged 5-9 with obesity	13%	12%	14%	14.7%	14.9%	12%	13%	10.4%	17.8%	9.3%	12%	19%	11%
3. Percentage of youth aged 10-19 with obesity	7%	7%	9%	8.5%	8.5%	9%	8%	6.9%	9.8%	6.2%	7%	15%	7%
4. Percentage of adults with obesity	23%	26%	27%	20.8%	23%	28%	26%	21.6%	19.9%	19.7%	23%	39%	23%
II. Health policy													
1. National plan	No	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No
2. Regional plans	No	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No
3. Inter-sectoral activities	No	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No
4. Indicator evaluation system	No	**Yes**	No	No	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No
5. Education at school	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No
6. Education at work	No	**Yes**	No	No	No	**Yes**	No	**Yes**	**Yes**	**Yes**	No	No	No
7. Consumer education (calorie labelling, food labelling)	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	No	No	**Yes**
III. Diagnosis and treatment													
1. Is BMI routinely measured and analysed?	No	No	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No
2. Is waist circumference routinely measured and analysed?	No	No	No	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	No	No	No
3. Drug reimbursement	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
4. Bariatric surgery reimbursement	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No
5. Reimbursement for dietetic advice	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**
6. Reimbursement for psychological advice	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No
7. Is there a specialisation / certification for an obesitologist?	No	No	No	No	No	No	No	No	No	No	No	**Yes**	No
8. Are there models of comprehensive care?	**Yes**	No	No	**Yes**	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No

	Poland	Czechia	Hungary	Portugal	Spain	Great Britain	Ireland	France	Italy	Denmark	Germany	Canada	Romania
IV. Financing mechanisms													
1. Is there a specific public fund for the diagnosis and treatment of obesity?	**Yes**	No	**Yes**	No	No	**Yes**	No	No	No	No	No	No	No
2. Is there a sugar tax?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No
3. Is there a private insurance product?	No	No	No	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**



06

Reducing childhood obesity – good international practice

Marta Pawłowska, MBA

6.1 National and regional interventions in Europe, the USA and Australia, inspirations for Poland

Reducing childhood obesity is a public health issue, which has been addressed since the 1990s by economically developed countries in many local, regional and national initiatives. However, most of them were designed without evidence to support the proposed strategies and without specifics regarding monitoring and evaluation, which makes it difficult to identify best practices.

Below is a selection of the largest initiatives to reduce childhood obesity undertaken at the governmental, regional or local level, the effectiveness of which has been confirmed by scientific evidence. The common denominator of the presented solutions from France, the Netherlands, Great Britain, Finland, Australia and the USA is the strategic multi-sectoral nature of activities, strong roots in local communities and the promotion of a „civilisational transition" in lifestyle from what is harmful to health to what builds health and well-being.

These are examples of a diversely implemented model for reducing childhood obesity based on local communities, the so-called Community-Based-Childhood Obesity Intervention (CBCOI)[199], and, for EPODE or JOGG solutions, these are successfully implemented variants of the Whole System Approach to Obesity (WSA)[200].

The programmes presented did not include the Spanish government's interdisciplinary strategy for reducing childhood obesity entitled „National Strategic Plan to Reduce Childhood Obesity in Spain (2022-2030)". The first measurements of their effectiveness will be available in 2025[201]. The list does not include programmes aimed strictly at the population of children and adolescents with obesity.

6.2 The United States

Among OECD countries, the United States has the highest obesity rates, and childhood obesity in this country has tripled since 1976[202].

[199] Slot-Heijs J. J., Collard D.C.M., et al., The training and support needs of 22 directors of community-based-chaildhood obesity interventions based on the EPODE approach: an online survey across programmes in 18 countries, "BMC Health Services Research" 2020.

[200] Sawyer A., den Hertog K., Verhoeff A.P., Busch W., Stronks K., Developing the logic framework underpinning a whole systems approach to childhood overweight and obesity prevention: Amsterdam Healthy Weight Approach, "Obesity Science and Practice" 2021, 7:591-605; https://onlinelibrary.wiley.com/doi/full/10.1002/osp4.505 (access: 10 March 3023).

[201] La Moncloa "Plan estrategico nacional para la reduccion de la obesidad infantil (2022-2030) – EN PLAN BIEN"; https://www.lamoncloa.gob.es/presidente/actividades/Documents/2022/100622-plan-estrategico-nacional-reduccion-obesidad-infantil_en-plan-bien.pdf.

[202] Musuwo N., International policies to reduce childhood obesity – a health action campaign review, 2019; https://www.healthactionresearch.org.uk/assets/documents/international-childhood-obesit (access: 10 February 2023).

The results of the 2017-2018 National Health and Nutrition Examination Survey (NHANES), using height and weight measurements, show that approximately 19.3% of U.S. children and adolescents aged 2-19 are obese, including 6.1% who are severely obese and another 16.1% who are overweight[203].

6.2.1 WIC – Women, Infants and Children Programme

A programme launched in 2010 focused on improving the nutrition of pre-conception, pregnant and lactating women, infants and children up to 5 years of age, targeting low-income populations, taking into account ethnic diversity[204]. Within the programme, participants received specially designed sets of food packages and coupons with a specific monetary value, and they were also subject to regular medical check-ups[205].

National obesity trends from 2010 to 2020 among children aged 2 to 4 in families enrolled in the WIC programme showed that:

- In 2020, 14.4% of WIC participants aged 2 to 4 were obese (down from 15.9% in 2010);
- the prevalence of overweight and obesity among WIC participants decreased from 32.5% in 2010 to 29.8% in 2020;
- the study confirmed that the consumption of SSBs (sugar sweetened beverages) was positively correlated with the consumption of 100% fruit juice and milk and negatively correlated with the consumption of water; it reinforced the need to discourage the consumption of SSBs in order to reduce the risk of overweight and obesity in pre-school children, including limiting 100% juice and high-fat milk[206].

6.2.2 New York City Initiative

In 2006-2010, New York City conducted a pilot programme to prevent overweight and obesity among school-age children through activities aimed at changing eating habits: school meal nutrition standards were tightened, weight loss nutrition principles were promoted, and $2 coupons (so-called *Health Bucks*, up to $10 per day) for the purchase of fresh vegetables and fruit at city markets were widely distributed[207]. The programme was continued as part of New York State's preventive health strategy from 2012 to 2018, and today it is still implemented by New York City in the form of 130 marketplaces.

---

[203] Fryer C.D., Carroll M.D., Afful J., Prevalence of overweight, obesity and sever obesity among children and adolescents aged 2-19 years: United States, 1963-65 through 2017-2018, National Centre for Health Statistics 2020; https://www.cdc.gov/nchs/data/hestat/obesity-child-17-18/overweight-obesity-child-H.pdf (access: 12 February 2023).

[204] Centers for Disease Control and Prevention "Obesity among young children enrolled in WIC" 2022; https://www.cdc.gov/obesity/data/obesity-among-WIC-enrolled-young-children.html access: 15 February 2023).

[205] Daepp M.I., Gortmaker S.L., Wang Y.C., Long M.W., Kenney L.E., WIC food package changes: trends in childhood obesity prevalence, "Pediatrics" 143(5) 2019; https://pubmed.ncbi.nlm.nih.gov/30936251/ access: 13 February 2023).

[206] Centers for Disease Control and Prevention "Obesity among young children enrolled in WIC" 2022; https://www.cdc.gov/obesity/data/obesity-among-WIC-enrolled-young-children.html (dostęp 15.02.2023).

[207] https://www.nyc.gov/site/doh/health/health-topics/health-bucks.page access: 10 February 2023).

There was a statistically significant reduction in obesity among primary school children (20.7% reduction between 2010 and 2012), across all age and socioeconomic groups; the reduction was smaller among black and Latino children than among Asian and white children[208].

6.2.3 Strong4Life Program

According to statistics, Georgia has one of the highest childhood obesity rates in the United States[209], yet **75% of parents of overweight or obese children do not consider it a problem**[210].

In 2010, one of the leading paediatric healthcare facilities, Children's Healthcare of Atlanta (CHA), launched a programme to reduce childhood obesity in the form of educational activities and a clinical programme. Within educational activities, an online platform was created with comprehensive materials on healthy eating and physical activity for parents of overweight and obese children, encouraging families to consult a primary care physician. A long-term training programme for schools was developed (for teachers, trainers, school nutrition managers, school nurses and administration), an information and image campaign was carried out in the media and summer educational and training camps for children aged 8-12 were introduced[211]. Although the Strong4Life integrated care clinical programme was aimed at children with a BMI above the 85th percentile, the majority of programme participants had a BMI above the 97th percentile[212].

The Strong4Life programme's media campaign generated a lot of interest and controversy. Due to the way it presented obese children and considering its overtly charged messages (showing how devastating obesity can be for a child), some public health experts deemed that the campaign carries a high risk of stigmatisation and endangers the mental health of obese children. There was a media debate about the campaign's bold images and slogans, and some of the show's spots were removed from the web[213].

Despite media controversy, the Strong4Life programme is recognised as a noteworthy reference intervention for reducing child-

---

[208] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

[209] d'Arcy J., Strong4Life campaign: shocking us into caring about childhood obesity, "Washington Post" 2012; https://www.washingtonpost.com/blogs/on-parenting/post/strong4life-campaign-shocks-us-into-caring-about-childhood-obesity/2012/01/02/gIQAwCdY-YP_blog.html (access: 10 February 2023).

[210] Drake C., Strong4Life childhood obesity campaign stirs up controversy, "HCP Live" 2012; https://www.hcplive.com/view/strong4life-childhood-obesity-campaign-stirs-up-controversy (access: 11 February 2023).

[211] Portal internetowy www.strong4life.com.

[212] Hawes A., An examination on demographic associations predicting success in the children's healthcare od Atlanta's Strong4Life Program, Georgia State University, School of Public Health 2015, https://scholarworks.gsu.edu/iph_theses/395/ (access: 11 February 2023).

[213] d'Arcy J., Strong4Life campaign: shocking us into caring about childhood obesity...op.cit.

hood obesity and the articles about the programme's effects emphasise:

- Improving the medical results of summer camp participants[214];
- Creating a standardised physical fitness assessment in public schools as part of the Student Health and Physical Education (SHAPE) initiative[215];
- The impact of the Strong4Life School Nutrition Program on the functioning of school canteens and on the knowledge and practice of canteen managers and employees[216].

6.2.4 LET'S MOVE! Pogram

LET'S MOVE! is a national campaign to reduce childhood obesity and encourage healthy lifestyles in school-age children and youth, led by First Lady Michelle Obama. The main elements of the program, implemented between 2010 and 2016, included strengthening the position of parents and consumers through changes to nutritional labelling, improving the nutritional standards of the National School Lunch Program and Breakfast Program, and expanding opportunities for children's physical activity and access to high-quality food[217].

Within promoting the principles of healthy eating, the substantive reference for the program was the **MyPlate platform**, developed by the US Department of Agriculture (USDA) with information and advice for different age groups, menu templates and tools for nutritionists, family gamification, social motivators also in the form of a modern application with content adapted to different age groups[218].

Schools were provided with training programmes for teachers, nutritional education schemes in the curriculum and the School Breakfast Program. The programme also included inter-school challenges, the opportunity to create school gardens, practical classes with farmers and catering workers and educational projects with local food production and distribution companies[219].

Physical activity as a daily health habit was promoted in the LET'S MOVE! programme. In many ways: through active families (60 minutes a day for a child and 30 minutes for

---

[214] Abuznada S., Measuring the impact of participation in the Strong4Life CampProgram on the quality of life (QL) of overweight and obese CampersUsing the Peds QLtest, "Emory University" 2016; https://etd.library.emory.edu/concern/etds/jd472w66k?locale=it (access: 10 February 2023).

[215] https://www.givepulse.com/group/650997-Camp-Strong4Life access: 10 February 2023).

[216] Rajbhandari-Thapa J., Bennett A., Keong F., Palmer W., Hardy T., Welsh J., Effect of the Strong4Life school nutrition program on cafeterias and on manager and staff member knowledge and practice, JSTORE Collection – Public Health Reports 2015; https://www.jstor.org/stable/26374223 (access: 11 February 2023).

[217] www.letsmove.gov. (access: 10 February 2023).

[218] https://www.myplate.gov (access: 12 February 2023).

[219] www.letsmove.gov (access: 10 February 2023).

adults), active schools (additional PE lessons and after-school programmes, opening school facilities for family recreation) and active communities (revitalisation of parks and playgrounds, increasing the safety of routes to school, popularisation of sports and fitness programmes)[220].

A comprehensive health education programme was also created for schools entitled "*Healthier US Schools Challenge* – HUSC" with rigorous criteria for the quality of school nutrition, physical activity and nutrition education[221].

Key Achievements of the LET'S MOVE Program[222]:

- With participation from 20,000 schools across all 50 states, the programme reached a total of 12 million students.
- Access to fruits and vegetables was expanded, and salad bars were introduced to over 3 million students.
- The nutritional labelling of products has been modernised.
- Campaigns were conducted to promote the consumption of fruits, vegetables and water.
- 225 commitments and corporate partnerships were made to promote health.

Despite its innovative multifactorial approach, the programme did not produce significant changes in obesity and overweight rates among schoolchildren: the prevalence of obesity among 2-5 year-olds decreased to 8.4% in 2011-2012 (compared to 10.1% in 2007-2008), then increased to 13.9% in 2015-2016, and the adjusted trends for obesity among children and adolescents aged 2-19 were not statistically significant[223].

In the opinion of the researchers, the target group of the programme was too narrowly defined, as systematic reviews indicate that behavioural and nutritional interventions in schools or at home have limited success in preventing weight gain in children[224]. Children with obesity can exhibit elevated levels of inflammatory markers as early as age of three, which may contribute to health issues later in life[225].

To be comprehensive and effective, the "LET'S MOVE!" campaign should have stimulated preventive activities aimed at the youngest Americans, those under 2 years of age and preschoolers, and should also include interventions aimed at reducing excessive weight gain and smoking among

[220] www.letsmove.gov (access: 10 February 2023).

[221] https://letsmove.obamawhitehouse.archives.gov/healthierus-school-challenge (access: 10 February 2023).

[222] https://onlinedegrees.unr.edu/blog/childhood-obesity-as-an-epidemic/ (access: 12 February 2023).

[223] Hales C.M., Fryer C.D., Carroll M.D., Trends in obesity and severe obesity prevalence in US youth and adults by sex and age, 2007-2008 to 2015-2016, "American Medical Association by JAMA Network" 2018 (319)16; https://jamanetwork.com/journals/jama/fullarticle/2676543 (access: 15 February 2023).

[224] Summerbell C.D., Waters E., Edmunds L.D., Kelly S., Brown T., Campbell K.J., Interventions for preventing obesity in children, "Cochrane Database Syst Rev" 2005,3:CD001871; https://pubmed.ncbi.nlm.nih.gov/16034868/ (access: 11 February 2023).

[225] Skinner A.C., Steiner M.J., Henderson F.W., Perrin E.M., Multiple markers of inflammation and weight status: cross-sectional analyses throughout childhood, "Pediatrics" 2010 Apr, 125(4), s. 801-809; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2909480/ (access: 12 February 2023).

pregnant women, extending breastfeeding duration and increasing sleep duration during infancy[226].

6.2.5 Oklahoma – the city, which went on a diet

In 2007, Oklahoma was the eighth most obese city in the United States227. **Diabetes rates have doubled in a decade**, more than 1 in 5 children aged 10-17 were obese, and almost a third of pre-school children were overweight[228].

The city's infrastructure was not conducive to a healthy lifestyle: there was not a single bike path and the city supposedly had the highest density of fast food restaurants in the United States[229].

The city's newly elected mayor in 2007, Mick Cornett (who is clinically obese), analysed the city's culture of living and infrastructure and launched an obesity reduction campaign. With the slogan "The City is Going on a Diet" he announced a million-pound weight loss plan for Oklahoma City and encouraged a general public debate to serve this purpose[230]. Local involvement was widespread: schools, employers, parishes, restaurants, and urban architects proposed and launched their own initiatives. New school gyms, senior wellness centres as well as 50 miles of new jogging and walking trails were built[231]. Special support was provided to groups at greatest risk, including neighbourhoods with the worst health outcomes.

An important element was cooperation with the food industry: for example, the soft drinks sector sponsored health programmes, and fast food chains introduced low-fat menus[232].

According to estimates, $3 billion of public funds were spent, while the private sector spent nearly five times more[233].

Between 2008 and 2010, Oklahoma "fell" from 8th to 17th place among the most obese cities in the United States[234]. In 2013,

---

[226] Wojcicki J.M., Heyman M.B., Let's move – childhood obesity prevention from pregnancy and infancy onward, "N Engl J Med." 2010 April 22, 362(16), s. 1457-1459; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3250598/pdf/nihms339301.pdf (access: 11 February 2023)

[227] James M., Parkhurst A., Paxman J., Tackling Obesity – what the UK can learn from other countries, 2020health – making health personal; London 2018; https://2020health.org/?s=tackling+obesity (access: 12 February 2023).

[228] Ibidem.

[229] Ibidem.

[230] Ibidem.

[231] Allan N., The Major of Oklahoma City Talks Obesity, "The Atlantic" 2010; https://www.theatlantic.com/politics/archive/2010/06/the-mayor-of-oklahoma-city-talks-obesity/58624/.

[232] James M., Parkhurst A., Paxman J., Tackling Obesity – what the UK can learn from other countries...op.cit.

[233] Ibidem.

[234] Allan N., The Major of Oklahoma City Talks Obesity...op.cit.

47,116 residents were confirmed to have participated in the campaign, and they lost a total of one million pounds[235]. In terms of lasting impact, the results were considered promising: between 2012 and 2015, obesity rates in Oklahoma City dropped further from 31.8% to 29.5%, according to data from the Centers for Disease Control and Prevention[236]. According to commentators, the campaign is a good example of changing the health habits of an urban agglomeration through strong leadership, social involvement of residents in local infrastructure and public-private partnership[237].

6.3 Australia

6.3.1 The OPAL Program

According to the Australian Institute of Health and Welfare (AIHW), the rate of overweight and obesity among Australian children aged 5-14 reached a concerning 25% in 2017-18, with 17% overweight and 7.7% obese[238]. This represents a particularly sharp increase from the 1995 to 2007-2008 period[239].

In response to the high prevalence of childhood overweight and obesity, the South Australian Government launched the Obesity Prevention and Lifestyle (OPAL) program from 2009 to 2017, based on the French community-based obesity prevention program (EPODE). The aim of the OPAL program was to increase the percentage of people aged 0-18 with a healthy body weight by improving eating habits and increasing physical activity in 20 metropolitan and regional communities over 5 years[240]. The change in lifestyle habits was influenced by marketing campaigns (diet, physical activity, screen-free time and sleep) and activities in local communities (better availability of healthy food in stores, promotion of home cooking, education in schools, expansion of bike paths and installation of drinking fountains, amenities in sports clubs, health education in workplaces)[241].

Evaluation of the program's impact yielded mixed results: studies by the Australian Institute of Health and Welfare showed a 12.2% reduction in excess body weight among children aged 4-5 years, with the greatest reduction observed 2 years after

---

[235] James M., Parkhurst A., Paxman J., Tackling Obesity – what the UK can learn from other countries...op.cit.

[236] B. Galvin „Oklahoma City's Renaissance", US News 2017; https://www.usnews.com/news/healthiest-communities/articles/2017-11-01/oklahoma-citys-road-from-fat-to-fit (access: 15 February 2023).

[237] Ibidem.

[238] Australian Institute of Health and Welfare "Australia's children – overweight and obesity" 2018; https://www.aihw.gov.au/reports/children-youth/australias-children/contents/health/overweight-obesity (access: 20 February 2023).

[239] Musuwo N., International policies to reduce childhood obesity – a health action campaign review, 2019; https://www.healthactionresearch.org.uk/assets/documents/international-childhood-obesit (access: 20 February 2023).

[240] Government of South Australia https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/healthy+living/healthy+communities/local+community/opal/opal (access: 20 February 2023).

[241] Bell L., Ullah S., Leslie E., Magarey A., Olds T., Changes in weight status, quality of life and behaviours of South Australian primary school children: results from the Obesity Prevention and Lifestyle (OPAL) community intervention program, "BMC Public Health" 2019 (19:1338); https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-019-7710-4 (access: 20 February 2023).

the end of the programme, while a greater impact of the program was observed in areas with a higher socio-economic status[242]. The authors of the 2016 OPAL project evaluation report from Flinders University (measuring changes in weight and quality of life, nutritional and health-promoting practices of children aged 9-11) showed no significant impact of the OPAL programme on body weight and behavioural outcomes. Thus, the results of the AIWH and Flinders University studies are divergent, and the authors declare numerous limitations related to them, including measurement after 2-3 years of intervention (the programme was shortened from the assumed 5 years)[243].

6.4 Finland

6.4.1 Healthy Kids of Seinäjoki Programme (HKS)

In Finland in 2016-2017, 26% of boys and 16% of girls aged 2-16 were overweight, and 7% of boys and 3% of girls were obese. Among preschool children, 15% of girls and 10% of boys were overweight[244].

The nationwide approach of "Health and Well-being in All Policies" (HWiAP) was set out in the Finnish National Health Act of 2010, and the National Obesity Programme implemented in 2012 emphasised the importance of multi-sectoral action and the organisation of public-private partnerships at the local level and promoted increased equity in access to health[245]. An important element in the context of obesity prevention activities in Finland is also the introduced tax on sweets (2011) and soft drinks (2014).

The tax on sweets did not reduce their consumption, while the tax on soft drinks effectively reduced beverage consumption by 4.2%.

It's important to note that Finland mandated health education, nutrition, and cooking lessons in all schools prior to the 2012 national obesity strategy. Additionally, sports facility use (excluding ice rinks and swimming pools) has always been free for under-18s[246,247].

The "Healthy Kids of Seinäjoki (HKS)" programme has become a model project in reducing childhood overweight and obesity, with significant quantitative (reduction in childhood obesity) and qualitative results, focusing on infrastructure and behavioural changes in the community[248].

---

[242] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

[243] Bell L., Ullah S., Leslie E., Magarey A., Olds T., Changes in weight status, quality of life and behaviours of South Australian primary school children...op.cit.

[244] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

[245] Ibidem.

[246] Ibidem.

[247] https://www.healthykidsofseinajoki.fi/en/ (access: 15 February 2023).

[248] World Health Organization „Finland curbs childhood obesity by integrating health in all policies" 2015; https://www.who.int/newsroom/feature-stories/detail/finland-curbs-childhood-obesity-by-integrating-health-in-all-policies (access: 20 February 2023).

The programme, aligned with the national obesity strategy, was implemented in Seinäjoki (population 60,000) from 2013 to 2020. During this period, childhood obesity prevention became a cornerstone of the city's strategy, with dedicated high-level coordination. The programme prioritised multi-disciplinary collaboration among childcare, education, nutrition, recreation, and urban planning sectors. It was also integrated into a broader population health strategy. Key actions included: educating expectant mothers in maternity clinics, upgrading school and municipal sports facilities, promoting health education in community organisations including churches, increasing physical activity in early childhood and school programmes, enhancing nutritional education in schools, eliminating unhealthy snacks and providing nutritious meals in day-care centres (declared dessert and energy drink-free zones)[249], and conducting health checks in schools involving parents[250]. Additionally, the programme promoted a positive pedagogy model emphasizing multitasking skills, student involvement, and home-school collaboration. Youth services focused on responsible partying, creating a substance-free urban environment, preventing psychoactive substance abuse, and addressing alcohol, tobacco, and gambling harms. The city also invested in health-oriented cultural services family sports clubs, frisbee golf and skateboarding facilities and improved cycling infrastructure in the city centre[251].

As a result of the "Healthy Kids of Seinäjoki" programme, overweight and obesity among 5-year-old children decreased from 17% in 2009 to 10% in 2015, and a similar decrease was recorded among primary school pupils (5.3% among first-graders and 7.9% among fifth-graders).

Not all results were positive: between 2012 and 2015, there was an increase in weight in the 1-5 year old group: from 4.3% to 5.5%. The most consistent weight loss was observed among first- and fifth-grade students[252,253].

The childhood obesity prevention programme in Seinäjoki was based on research results and previous experience. It was regularly audited. Annual surveys were conducted among school-age children, interactions between different levels of the city's socio-ecological model were stimulated and different approaches to public health were integrated.

---

[249] Koivusilta L., Alanne S., Kamila M., Stahl T., A qualitative study on multisector activities to prevent childhood obesity in the municipality od Seinajoki, Finland, "BMC Public Health" 2022 (22:1298); https://pubmed.ncbi.nlm.nih.gov/35794541/ (access: 16 February 2023).

[250] James M., Parkhurst A., Paxman J., Tackling Obesity – what the UK can learn from other countries...op.cit.

[251] https://www.healthykidsofseinajoki.fi/en/ (access: 15 February 2023).

[252] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

[253] James M., Parkhurst A., Paxman J., Tackling Obesity – what the UK can learn from other countries...op.cit.

This created a network of highly motivated professionals from diverse sectors for obesity prevention, highlighting the impact of these sectors on the public health of the community[254].

6.5 The Netherlands

6.5.1 National JOGG programme

The years 1980–2005 were a period of significant increase in childhood overweight and obesity in the Netherlands, with overweight rates rising from 4% to 14% (including obesity) among boys and from 7% to 17% (including obesity) among girls[255]. To stop this increase and promote obesity prevention, the Dutch government introduced the Healthy Youth, Healthy Future (JOGG – Jongeren Op Gezond Gewicht) programme in 2010, coordinated at the national level and aimed at preventing obesity among children and adolescents aged 0-19. The programme encouraged healthy eating[256] and physical activity in agglomerations of all sizes, and the local approach was aimed at healthcare workers, pre-school and school education facilities, shops, catering, uniformed services, cultural services, religious organisations, businesses and local authorities

The message of the JOGG program was and is a long-term "civilisational transition" in lifestyle from what is unhealthy to what builds health and well-being[257].

In 2023, more than 200 Dutch cities implemented local projects based on the national JOGG (reaching 30% of the population aged 0-19)[258], involving 38 national and several hundred local partners, and reaching a total of more than 1.6 million children and adolescents[259]. Importantly, in the 10 years since JOGG's implementation, participating communities have tailored the programme to local needs, integrated it with other community initiatives, expanded its reach to new districts and prioritised health equity[260].

---

[254] Koivusilta L., Alanne S., Kamila M., Stahl T., A qualitative study on multisector activities to prevent childhood obesity in the municipality od Seinajoki...op.cit.

[255] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

[256] The JOGG policy is aligned with the WHO Nutrition-Friendly School Initiative (NFSI), which involves continuous training of school staff on nutrition and health-related issues. The evidence behind the NFSI has shown that investing in ongoing teacher training, support and communication has a positive impact on health outcomes such as BMI and physical activity levels (WHO: https://www.who.int/news/item/28-01-2021-issuing-of-nutrition-action-in-schools-a-review-of-evidence-related-to-the-nutrition-friendly-schools-initiative, access: 20 March 2023).

[257] https://jogg.nl/about-jogg (access: 01 March 2023).

[258] OECD „Young people at a Healthy Weight (JOGG): case study overview"; https://www.oecd-ilibrary.org/sites/de158cb6-en/index.html?itemId=/content/component/de158cb6-en (access: 05 March 2023)

[259] https://jogg.nl/about-jogg (access: 01 March 2023).

[260] Huiberts I., Singh A., Collard D., Hendriks M., Implementation of the JOGG approach: unpacking the complex implementation process of community-based healthy promotion using the Critical Event Card, "European Journal of Public Health" 2023 (vol.33) ckad 133.141; https://academic.oup.com/eurpub/article/33/Supplement_1/ckad133.141/7265796 (access: 15 March 2023).

The JOGG programme is based on the French EPODE strategy mechanism and its five main pillars are: political and governmental support, public-private partnership, social marketing, combining prevention and healthcare and evaluation and modification in the coaching process[261].

Already in the first stage of the JOGG programme (2010-2014), progress was monitored in 5 communes, each of which achieved a decrease in overweight and obesity among primary school children[262].

Results of the JOGG approach (according to OECD)[263]:

- JOGG has been shown to reduce the prevalence of overweight and obesity in children aged 0-19 years, with the intervention having its greatest impact in low socio-economic status (SES) communities;
- By extending it to the whole territory of the Netherlands, JOGG would lead to a gain of 112,838 disability-adjusted life years (DALYs) by 2050;
- Across OECD and EU27 countries, JOGG would have the greatest impact on musculoskeletal diseases, cardiovascular diseases, diabetes, dementia and, ultimately, obesity-related cancers;
- It is estimated that, if the JOGG programme were extended to the whole territory of the Netherlands, the savings on health expenditure would amount to EUR 51.94 per person by 2050, and after implementation in all OECD and EU-27 countries, savings equivalent to 0.06% of total health expenditure per year are expected.

6.5.2 Amsterdam – Healthy Urban Childhood (AAGG)

Childhood overweight and obesity rates in Amsterdam were higher than the national averages between 2005 and 2020 (21% of the population under 18 years of age were overweight or obese compared to 15% nationally)[264], which contributed to the launch of the *Amsterdam Healthy Weight Approach* (AAGG / AHWA), based on the nationwide JOGG programme and focused on combating inequalities in access to health for groups with the lowest socio-economic status (significantly higher rates of overweight compared to children from high-status families).

The AAGG programme, designed as a whole system approach to obesity (WSA)[265],

[261] CHRODIS "Young people at a healthy weight. JOGG, Netherlands"; http://chrodis.eu/wp-content/uploads/2017/03/young-people-at-a-healthy-weight-jogg.pdf (access: 02 March 2023).

[262] Ibidem.

[263] Ibidem.

[264] Hawkes C., Russell S., Isaacs A., Rutter H., Viner R., What can be learned from Amsterdam Healthy Weight programme to informe the policy response to obesity in England?, "Obesity Policy Research Unit (OPRU)", University College London 2017; https://www.ucl.ac.uk/obesity-policy-research-unit/sites/obesity-policy-research-unit/files/what-learned-from-amsterdam-healthy-weight-programme-inform-policy-response-obesity-england.pdf (access: 02 March 2023).

[265] Sawyer A., den Hertog K., Verhoeff A. P., Busch W., Stronks K., Developing the logic framework underpinning a whole systems approach to childhood overweight and obesity prevention: Amsterdam Healthy Weight Approach, "Obesity Science and Practice" 2021, 7:591-605; https://onlinelibrary.wiley.com/doi/full/10.1002/osp4.505 (access: 10 March 2023).

has been integrated into the city's long-term strategy, with the message "Health in all policies")[266] and the target indicator "a healthy weight for all young people in Amsterdam" for 2033[267].

The AAGG program developed the so-called rainbow model of reducing childhood obesity, based on Dahlgren's and Whitehead's framework of socio-ecological determinants of health, taking into account the diverse factors influencing the healthy development of children, which justifies the need to engage all sectors of society in order to achieve success[268].

The 20-year AAGG programme (also known as the "20-year marathon", as an approach based on the human life cycle, emphasising prevention from an early age and the need for a long-term strategy for lasting change) was intended to provide children with a healthy growing environment, in which "**the healthy choice is the easy choice**".

The key elements of the AAGG strategy are: an approach based on the right of every child to healthy development, investing in urban innovation programmes, improving partnership models in resource allocation and supporting specialists and priority groups in the process of co-creating and monitoring solutions[269].

The AAGG adaptive program divided activities into clusters based on target groups and desired behavioural changes. Within the clusters, AAGG activities were combined with existing city projects for given target groups. **The main clusters with cumulative health-promoting activities include:**

- the first 1000 days of a newborn's life (screening of infants for obesity risk, a child development monitoring application, advice on diet and healthy lifestyle for mothers, breastfeeding support)[270],
- school-age children (promoting a healthy diet, physical activity and healthy sleep in the child's living environment, monitoring school meals),
- youth (health promotion aimed at teenagers, digital interventions, gamification),

[266] UNICEF "Amsterdam healthy weight approach. Investing in healthy urban childhoods: a case study on heathy diets for children", 2020; https://www.unicef.org/documents/amsterdam-healthy-weight-approach-investing-healthy-urban-childhoods-case-study-healthy (access: 02 March 2023).

[266] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

[267] https://www.amsterdam.nl/sociaaldomein/aanpak-gezond-gewicht/amsterdam-healthy-weight-programme/ (access: 01 March 2023).

[268] UNICEF "Amsterdam healthy weight approach. Investing in healthy urban childhoods: a case study on heathy diets for children", 2020; https://www.unicef.org/documents/amsterdam-healthy-weight-approach-investing-healthy-urban-childhoods-case-study-healthy (access: 02 March 2023).

[269] UNICEF "Amsterdam healthy weight approach. Investing in healthy urban childhoods: a case study on heathy diets for children", 2020; https://www.unicef.org/documents/amsterdam-healthy-weight-approach-investing-healthy-urban-childhoods-case-study-healthy (access: 02 March 2023).

[270] Hawkes C., Russell S., Isaacs A., Rutter H., Viner R., What can be learned from Amsterdam Healthy Weight programme to informe the policy response to obesity in England...op.cit.

- overweight children and adolescents (monitoring of individual care plans).

The city implemented and promoted stricter rules on limiting the advertising of unhealthy food to children (based on the *Alliantie Stop Kindermarketing / Marketing to Kids Alliance initiative*). Bolder city purchasing practices and restrictions on sponsorship aimed at children were developed, with an additional supply of healthy food in the immediate surroundings of children during city-subsidized activities and in public spaces. Cooperation programmes with local shop and restaurant owners were developed (healthier menus and more appropriate portions), urban planning policies were modified (encouragement for walking and cycling, easier access to sports areas and playgrounds), care was provided for families with overweight children (cooperation with a network of specialists, psychological and logistical support for parents) and the educational approach was integrated (collecting scientific evidence, creating a network of specialists and supporting their development – a cooperation strategy with the scientific and research institute Sarphati Amsterdam, which mainly deals with public health). A strong advantage of the AAGG program was integrated communication activities, adapted to target groups using behavioural knowledge and modern social marketing techniques[271].

In addition, in order to reduce excess body weight among children from the poorest districts, a support project was implemented for 5 districts – in each of them a "district manager" was appointed, coordinating interventions with local partners[272].

The programme implemented in Amsterdam clearly referred to the Convention on the Rights of the Child, including guaranteeing all children the right to development with access to the best healthcare systems and a clean environment, the right to protection and rest and the responsibility of adults for protecting children's rights[273].

There are no direct estimates of the impact of the programme on the incidence of obesity in Amsterdam, but according to the Amsterdam Public Health Service, which monitors obesity, by 2015, there had been a reduction in obesity from 8% to 6% among all children aged 0-18 years (overweight and obesity by 12%)[274,275], including 11% in the low and 9% in the very low soci-

[271] Ibidem.

[272] UNICEF "Amsterdam healthy weight approach. Investing in healthy urban childhoods: a case study on heathy diets for children", 2020; https://www.unicef.org/documents/amsterdam-healthy-weight-approach-investing-healthy-urban-childhoods-case-study-healthy (access: 02 March 2023).

[273] Ibidem.

[274] Ibidem.

[275] Hawkes C., Russell S., Isaacs A., Rutter H., Viner R., What can be learned from Amsterdam Healthy Weight programme to informe the policy response to obesity in England...op.cit.

oeconomic status group. The consumption of sugar-sweetened beverages by children has also decreased and the percentage of children exercising regularly has increased. Breastfeeding rates also increased – by 4% at 3 months and by 5% at 6 months[276].

The most frequently mentioned key success factors of the AAGG urban innovation programme encompass: a holistic approach, based on evidence and exchange of experience, clear goals and expectations, a culture of monitoring and reflection, a multi-sectoral platform for cooperation and participation, a creative approach to overcoming barriers and strengthening the accountability of city authorities[277]. The Amsterdam City Program has emerged as a leading example of the Whole System Approach to Obesity (WSA), building upon earlier models like EPODE. Its emphasis on responsive adaptation (a learning-based approach) is a cornerstone, equally important to multi-level and inter-sectoral collaboration[278].

6.6 France

Childhood overweight and obesity rates in France rose particularly rapidly between 1994 and 2016, reaching 18.7% in girls and 14.4% in boys aged 7-9 years (overweight or obese)[279]. In 2001, the French Ministry of Health launched the National Nutrition and Health Programme (*Programme National Nutrition Santé* – PNNS) as a multi-sectoral attempt to reduce obesity and increase physical activity. The programme was planned until 2006, but was extended until 2010, and its key effects included the publication of standards for school meals, the installation of fresh water fountains, a ban on vending machines with unhealthy snacks in educational institutions and the introduction of a 1.5% tax on the advertising budgets of companies producing food that contributes to obesity[280] (TV and radio advertisements for sweetened products with added salt or sweeteners contained a mandatory health message about the recommended reduction of highly processed food)[281,282].

Despite some improvements in dietary habits, the PNNS strategy failed to reach all population groups, contributing to increased health disparities[283].

[276] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

[277] Hawkes C., Russell S., Isaacs A., Rutter H., Viner R., What can be learned from Amsterdam Healthy Weight programme to informe the policy response to obesity in England...op.cit.

[278] Sawyer A., den Hertog K., Verhoeff A. P., Busch W., Stronks K., Developing the logic framework underpinning a whole systems approach to childhood overweight and obesity prevention...op.cit.

[279] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

[280] Chauliac M., Hercberg S., Changing the food environment: the French experience, "Am. Society for Nutrition" 2012 (3) 605-610; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3649733/pdf/605S.pdf (access: 25 March 2023).

[281] French Ministry of Health and Prevention https://sante.gouv.fr/prevention-en-sante/preserver-sa-sante/le-programme-national-nutri-tion-sante/article/programme-national-nutrition-sante-pnns-professionnels (access: 25 March 2023).

[282] World Health Organization https://extranet.who.int/nutrition/gina/en/node/8427 (access: 23 March 2023).

[283] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

6.6.1 The EPODE Programme – Community Based Approach (CBCOI)[284]

In 2004, ten French municipalities implemented a strategy for the prevention of childhood obesity and a healthy lifestyle called "Together Let's Prevent Childhood Obesity" (*Ensemble Prévenons l'Obésité des Enfants* – EPODE), aimed at children aged 0-12, with an approach based on the involvement of families, the local environment and the community of child development. The strategy was formulated based on the results of the Fleurbaix and Laventie Study (FLVS) in 1992, which showed that school-based interventions alone were not significantly effective in reducing childhood weight and obesity and that improvements in weight outcomes were achieved with a subsequent community-based intervention within the study[285]. Based on FLVS research, the EPODE programme engaged multiple stakeholders at two levels: bottom-up (local adaptation of actions, mobilisation of support) and top-down (central resources and support, leadership)[286].

The EPODE philosophy is based on a positive approach (without stigmatisation), and on the gradual learning of healthy living habits as part of a long-term programme, enabling stakeholders to implement effective and sustainable actions.

The characteristics of the EPODE strategy as a model are: a long-term perspective, a positive approach to healthy eating (no single culture), tailoring messages to the population and a sustainable, community-based approach.

EPODE involves developing a programme together with members of a given community, taking into account the needs of its members and available resources.

The overarching "pillars" of the success of the EPODE method, according to researchers, are: political commitment, public-private partnerships, targeted communication, coaching and a strong evidence base[287]. The EPODE methodology is illustrated by the so-called 10 implementation principles, which build top-down leadership and bottom-up mobilisation of support. The most important principles are: a central coordination team and a local project manager, a multi-actor approach at local and national level, involvement and decision-making of local stakeholders

[284] CBCOI – Community-Based Childhood Obesity Intervention

[285] Romon M., Lommez A., Tafflet M., Basdevant A., Oppert J. M., Bresson J. L. et al., Downwards trends in the prevalence od childhood overweight in the setting of 12-year school- and community-based programmes, "Public Health Nutr." 2009, Oct. 12(10), 1735-42; https://pubmed.ncbi.nlm.nih.gov/19102807/ (access: 27 March 2023).

[286] Borys J. M., Le Bodo Y., Jebb S.A., Seidell J.C., Summerbell C. et al., EPODE approach for childhood obesity prevention: methods, progress and international development, "Obesity Review" 2012. 13 (4) 299-315; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3492853/ (access: 26 March 2023).

[287] James M., Parkhurst A., Paxman J., Tackling Obesity – what the UK can learn from other countries...op.cit.

in adapting the programme to the local context, avoidance of stigma or shaming of culture or behaviour as well as evaluation and monitoring implemented at different levels[288].

The programme's Central Coordinating Team (CCT) includes specialists in physics, nutrition, psychology, physical activity, marketing, sociology, health communication and educational methods. The CCT provides primarily scientific support for the programme, in particular in defining priority areas for action, monitoring and evaluation. Evaluation and monitoring of EPODE is carried out at different levels by collecting information on process indicators (for example local steering committee meetings, central partnerships), product indicators (for example number of local activities, number of families and children) and outcome indicators (for example change in eating habits, prevalence of overweight among children – regular anthropometric measurements)[289].

The EPODE program has successfully reduced rates of overweight and obesity, by as much as 25% in some communities.

As a result, in 2012, the EPODE for the Promotion of Health Equity (EPHE) programme was launched with the main objective of assessing the impact and ensuring the sustainability of EPODE community programmes in several countries in reducing inequalities in terms of diet (fruit and vegetable consumption and water consumption) and physical activity[290]. In a 2-year evaluation study conducted in 7 European communities (children aged 6-8 years and their families), it was shown that after the EPODE intervention, children from communities with a lower socio-economic status (SES) ate more vegetables and fruits and less sugar-sweetened beverages (SSB). The programme has been proven to have the ability to reduce childhood obesity and reduce health inequalities[291].

However, no common pattern was found for the determinants of all behaviours in the 7 countries participating in the programme. Family environment related to socio-economic inequalities seems to play an important role in childhood obesity and, what is more, country-specific inequalities appear, which is why the EPHE programme adopted a recommendation to implement interventions tailored to the specific needs of children from low socio-economic families in individual countries[292].

Criticism of the programme concerns the partial financing by the industry, which, according to others, is an important fac-

[288] Borys J. M., Le Bodo Y., Jebb S.A., Seidell J.C., Summerbell C. et al., EPODE approach for childhood obesity prevention...op.cit.

[289] Ibidem.

[290] European Commission – CHAFEA Health Programmes Database; https://webgate.ec.europa.eu/chafea_pdb/health/projects/20111209/summary (access: 21 March 2023).

[291] Borys J. M., Le Bodo Y., Jebb S.A., Seidell J.C., Summerbell C. et al., EPODE approach for childhood obesity prevention...op.cit.

[292] ames M., Parkhurst A., Paxman J., Tackling Obesity – what the UK can learn from other countries...op.cit.

tor in the success of EPODE[293]. It should be added that the commitment of private partners in the programme varied in percentage terms in individual countries and their involvement was subject to many top-down conditions relating to the communication of EPODE and commercial brands, as well as the distribution of promotional materials in educational institutions[294].

From an initial group of 10 EPODE communities, the programme has expanded nationally and internationally, being piloted in 17 countries[295]. In 2008, the EPODE European Network (EEN) was established, supported by the European Commission from 2008 to 2011[296], followed by the EPODE International Network (EIN) established in Brussels in 2011, recognising that there is no one-size-fits-all approach to EPODE. Each implementation must be adapted to local cultural, social and political contexts[297].

The results of implementing the EPODE model on an international scale are not clear. Pilot results from two cities in Belgium, which implemented the VIASANO programme based on EPODE, showed a 22% reduction in overweight and obesity over 3 years in the 3-4 and 5-6 year groups. The Belgian results are considered extremely promising: a community-based programme can be an effective strategy for reducing excess body weight in children, even in a relatively short time[298]. Not all national EPODE pilots have been successful. Over a 4-year period, the THAO programme in Spain recorded a 1% increase in the prevalence of overweight and obesity among children aged 3-12 in 10 municipalities (which some researchers considered encouraging given trends in other countries)[299].

6.7 Great Britain

The UK Government recognised obesity as a population health challenge in 1991 and since then the four governments have published a total of 14 national strategies, wholly or partly dedicated to tackling obesity. Only a quarter of them included any specifics about a monitoring or evaluation plan, and only a fifth cited evidence to support the proposed strategies. As a con-

[293] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

[294] Borys J. M., Le Bodo Y., Jebb S.A., Seidell J.C., Summerbell C. et al., EPODE approach for childhood obesity prevention...op.cit.

[295] James M., Parkhurst A., Paxman J., Tackling Obesity – what the UK can learn from other countries...op.cit.

[296] European Commission, Directorate-General for Health & Consumers "EPODE European Network (EEN). Context, objectives and operational description", 2008; https://webgate.ec.europa.eu/chafea_pdb/assets/files/pdb/2007327/EEN_memo.pdf (access: 20 March 2023).

[297] Pettigrew S., Borys J.M., Ruault du Plessis H. at al., Process evaluation outcomes from a global child obesity prevention intervention, "BMC Public Health" 14, Article number 757 (2014); https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-14-757 (access: 20 March 2023).

[298] Vinck J., Brohet C., Roillet M., Dramaix M. at al., Downwards trends in the prevalence of childhood overweight in two pilot towns taking part in the VIASANO community-based programme in Belgium: data from a national school health monitoring system, "Pediatric Obesity" 2016 Feb, 11(1): 61-67; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6680259/ (access: 24 March 2023).

[299] Gomez Santos S.F., Estevez Santiago R., Palacios N. at al., THAO-child health programme: community-based intervention for healthy lifestyles promotion to children and families: results of a cohort study, "Nutricion Hospitalaria" 2015, 32(6): 2584-2587; https://pubmed.ncbi.nlm.nih.gov/26667707/ (access: 20 March 2023).

sequence, the incidence of excess body weight has not been effectively reduced[300].

Among UK boys and girls aged 2-15, the percentage of obese children increased between 1995 and 2004, rising from 11% to 19% for boys and from 12% to 18% for girls[301]. According to WHO data, the percentage of overweight and obese children aged 5-9 years has exceeded 30%, and in the age group of 10-19 years – 28%[302].

As a result, many initiatives have been implemented across the UK to reduce excess body weight among children and young people, including tightening the statutory restrictions on advertising high-fat, high-salt and high-sugar foods in media aimed at children under 16 (*UK Code of Broadcast Advertising* – BCAD Code) in 2004 and 2015[303], tightening nutritional standards for school meals in 2015 and introducing a tax on soft drinks in 2018 (to reduce added sugar)[304]. The Healthy Start programme, aimed at pregnant women and mothers of children up to 4 years of age with a low economic status[305] and the *School Fruit and Vegetable Scheme* (SFVS) project for children aged 4-6 in public schools, were also introduced[306].

6.7.1 The HENRY Program

The comprehensive childhood obesity reduction programme HENRY (*Health, Exercise, Nutrition for the Really Young*) is an evidence-based intervention designed to support children aged 0-5 years in developing healthy eating and lifestyle habits, which prevents the development of excess body weight. The HENRY intervention addresses the scientific evidence on risk and protective factors for a healthy start and the prevention of childhood obesity. The evidence was collected by scientists at the University of Leeds, on behalf of the NHS[307].

The HENRY programme, launched in 2008, is aimed at families, early childhood educators, communities and local authorities, providing substantive support on breastfeeding, healthy eating and physical activity, as well as on emotional well-being and related parenting skills.

---

[300] Theis D.R.Z., White M., Is obesity policy in England fit for purpose? Analysis of government strategies and policies, 1992-2020, "The Milbank Quarterly" 2021 Mar.99(1): 126-170; https://pubmed.ncbi.nlm.nih.gov/33464689/ (access: 30 March 2023).

[301] NHS Digital 2004 https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/health-survey-for-england-2004-updating-of-trend-tables-to-include-childhood-obesity-data (dostęp 28.03.3023).

[302] WHO European Regional Obesity Report 2022 https://iris.who.int/bitstream/handle/10665/353747/9789289057738-eng.pdf?sequence=1 (access: 30 March 2023).

[303] Advertising Standards Authority (ASA) https://www.asa.org.uk/codes-and-rulings/advertising-codes/broadcast-code.html (dostęp 29.03.2023).

[304] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

[305] NHS Healthy Start https://www.healthystart.nhs.uk (access: 30 March 2023).

[306] NHS School Fruit and Vegetable Scheme https://www.nhs.uk/Livewell/5ADAY/Documents/SFVS%20Factfile%20Newsletter%20May%202015.pdf (access: 30 March 2023).

[307] Rudolf M., Tackling obesity through the healthy child programme: a framework for action, "University of Leeds" 2010; https://www.henry.org.uk/sites/default/files/2017-11/Framework-for-Action-tackling-child-obesity-through-the-Healthy-Child-Programme.pdf (access: 30 March 2023).

The programme consists of: education and support for medical workers, family programmes for parents of children at risk of obesity, workshops for children and parents and peer support programmes in local communities.

An important element of HENRY practice is evidence-based **models of behaviour change** (family partnership model, strengths-based and solution-based support, motivational interviewing for change)[308].

In the Early Intervention Foundation (EIF) guide, the HENRY programme received the maximum possible effectiveness rating for an intervention without a published randomised controlled trial and was also considered a low-cost programme compared to similar interventions[309]. Peer-reviewed and published evidence shows the effectiveness of the programme: families participating in the programme achieved statistically significant and sustained improvements in healthy lifestyles (increased fruit and vegetable consumption, reduced consumption of high-energy foods, reduced frequency of meals in front of the TV, improved emotional well-being and increased sense of parenting efficacy)[310]. HENRY training leads to improved nutrition policy and practice in childcare facilities[311].

Since 2008, the programme has been conducted in childcare facilities throughout the country, and about 25 thousand families have already participated in it[312]. The city, which has consistently and effectively implemented HENRY, embedding the programme in a long-term obesity and family support strategy, was Leeds, where the percentage of children with obesity fell from 9.4% in 2009/2010 to 8.8% in 2016/2017 (the fall was mainly among children from lower socio-economic backgrounds)[313].

6.7.2 Healthy Weight – Healthy Life Programme

In 2008, the English Government published a document on long-term support for society in maintaining a healthy body weight – *Healthy Weight, healthy lives*: a cross-government strategy for England. The ambition of the strategy was, in the first stage, to reduce the percentage of overweight and obese children to the 2002 level by 2020.

[308] https://www.henry.org.uk/evidence-base (access: 30 March 2023).

[309] Early Intervention Foundation https://guidebook.eif.org.uk/programmes/henry (access: 30 March 2023).

[310] Willis T.A., George J., Hunt C., at al., Combating child obesity: impact of HENRY on parenting and family lifestyle, "Pediatric Obesity" 2013; https://www.henry.org.uk/sites/default/files/2017-12/5.Combating_child_obesity-impact_of_HENRY_on_parenting_and_family_lifestyle_(2014).pdf (access: 30 March 2023).

[311] Ibidem.

[312] National Institute for Health and Care Research " Evaluation of the sustainable obesity prevention programme at scale HENRY: effectiveness, cost-effectiveness and its role in obesity prevention within the wider complex system", 2023; https://fundingawards.nihr.ac.uk/award/NIHR135081 (access: 30 March 2023)

[313] Musuwo N., International policies to reduce childhood obesity – a health action campaign review...op.cit.

The plan focused on promoting breastfeeding and child health, working with schools and the food industry, local government, employers and health services[314].

The planned quantitative decrease in excess body weight in the child population was not achieved, but the strategy did lay the groundwork for multi-sectoral obesity reduction projects through the Whole System Approach to Obesity (WSA)[315,316]. The programme is still being implemented in many boroughs across England, with the implementation in North Yorkshire being cited as a reference example[317]. The Change4Life social movement, initially planned as a 3-year social marketing campaign, emerged from the "*Healthy weight, healthy lives*" programme.

Between 2015 and 2019, Public Health England (PHE) in England, in partnership with the Local Government Association (LGA), delivered a programme to produce a practical guide for councils on how to implement the Whole System Approach to Obesity (WSA) into local communities in England, drawing on national and international knowledge and practice. This guide, developed and tested in selected parishes in England, takes the form of a "road map", with implementation toolkits and materials for all target groups (with a particular focus on children and young people) The programme was published and recommended for implementation in England in July 2019[318], several months before the COVID-19 pandemic developed.

The WSA programme developed for implementation was positively received by local communities and highly assessed, which is confirmed by the PHE study and report from 2020: The WSA has proven to be helpful in bringing together both professional stakeholders and communities to map their local systems and develop and prioritise actions to combat obesity at various levels. This study took place in the early stages of the COVID-19 pandemic. As the pandemic progresses, the stark health inequalities, which exist across society, have become even more exposed and amplified. Evidence suggests that COVID-19 is having a disproportionate impact on many groups, including those with obesity, and there is a risk that the longer-term impacts of the pandemic will further exacerbate existing inequalities.

---

[314] WHO " Policy – Healthy Weight, Healthy Lives: a cross-govermnent strategy for England" 2008; https://extranet.who.int/nutrition/gina/en/node/8322 (access: 30 March 2023).

[315] The Health Foundation https://navigator.health.org.uk/theme/healthy-weight-healthy-lives-cross-government-strategy-england-document (access: 29 March 2023)

[316] UK Parliament http://data.parliament.uk/DepositedPapers/Files/DEP2008-2168/DEP2008-2168.pdf (access: 30 March 2023).

[317] https://www.nypartnerships.org.uk/healthyweight (access: 30 March 2023).

[318] Public Health England „Whole systems approach to obesity. A guide to support local approaches to promoting a healthy weight", 2019; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820783/Whole_systems_approach_to_obesity_guide.pdf (access: 30 March 2023).

According to the authors of the study, the pandemic has confirmed beyond any doubt the need to create local multi-system plans to combat obesity and related health inequalities, adapting local strategies to the umbrella approach of "Health in All Policies" (HiAP)[319].

6.8 Conclusions

The presented childhood obesity reduction programmes with proven effectiveness (some of them are addressed to various age groups, but with particular emphasis on the 0-19 population) are mostly comprehensive solutions operating based on local communities and engaging stakeholders at the bottom-up level (local adaptation of the model and local mobilisation of support) and top-down level (leadership, resources and central support).

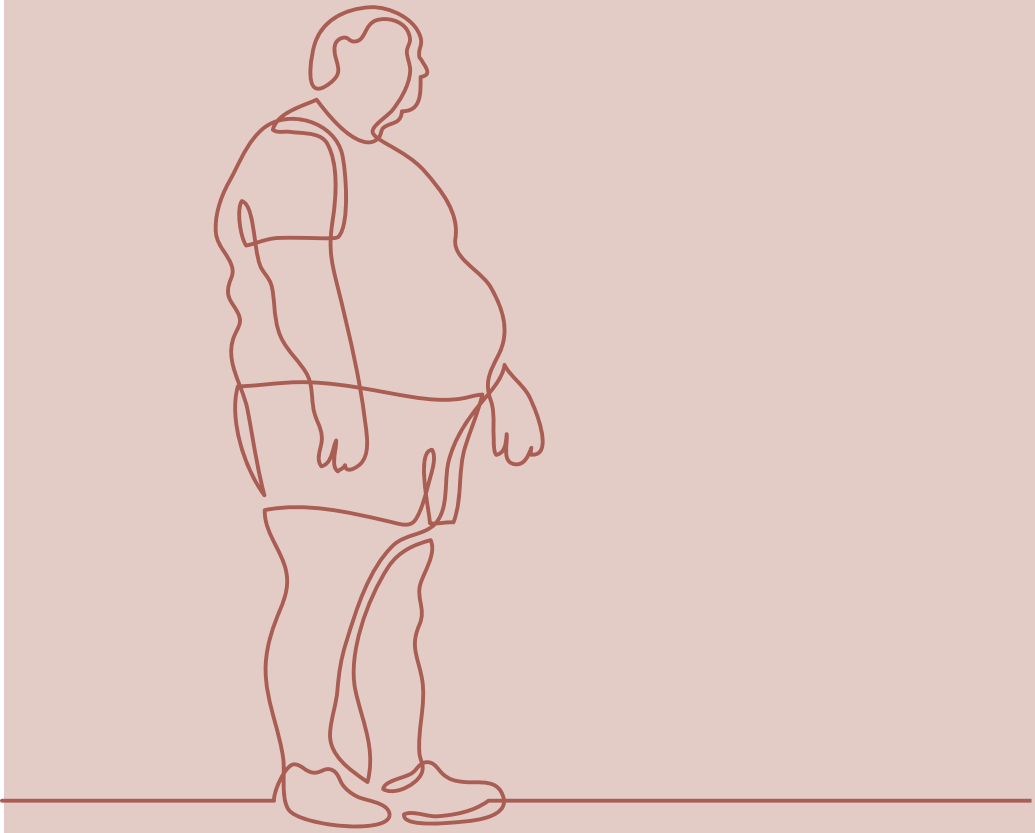
These are examples of interdisciplinary overweight prevention programmes, which have changed the perspective of obesity as a strictly public health problem, incorporating the issue of obesity reduction into broader health strategies and economic and social development, both at the local and national level. These are implemented interventions illustrating the Community-Based-Childhood Obesity Intervention (CBCOI) model.

The most developed formula is the so-called **Whole System Approach to Obesity (WSA)**, successfully implemented in the EPODE and JOGG frameworks.

More and more countries are following its example. The designed and developed WSA model has proven effective in childhood obesity reduction programmes, among other things, by combining by bringing together both professional stakeholders and communities to map their local systems for actions aimed at effectively combating obesity and building health-promoting ecosystems.

The success of the presented programmes can be seen as one common denominator, which includes the following elements present with varying intensity: a multi-sectoral approach and long-term perspective, creating a network of highly motivated specialists in many professions, strong leadership and responsible political commitment, developed public-private partnership, adapting the strategy to local needs and specifics, social involvement of residents in local infrastructure, investing in urban innovation programmes, a strong evidence base, a creative approach to overcoming barriers, integrated modern social communication, a culture of monitoring and reflection and a system of permanent education and exchange of experiences.

[319] Ibidem.



07

Patient pathway in the Polish system

Michał Brzeziński, MD, PhD
Mariusz Wyleżoł, MD, PhD

7.1. The pathway of a paediatric patient with obesity in the Polish public system

The treatment of a paediatric patient differs significantly from treatment of an adult. Even the diagnosis of obesity is more difficult in this population. It is not enough to use a simple BMI index, which is the basic indicator for screening in the adult population. In the paediatric population, the index values should be referenced against the appropriate body weight and height percentile norm as well as against the BMI percentile charts. This causes a difference even in the diagnosis of the disease, depending on the percentile norms used. According to WHO recommendations, local and current percentile norms describing the study population should be used. Due to the secular trend (higher height and body weight of children from generation to generation), however, a child, who 20-30 years ago could have been considered obese, may now fall into the category of overweight children. Moreover, the cut-off values do not directly refer to the risk of developing obesity-related complications or the risk of death due to obesity, as for adults. The 95th or 97th percentile values are statistical metrics derived from the shift of the BMI 30 threshold in adults. This means that, as a rule, in the reference population, 3% or 5% of children will always be obese. Due to the above-mentioned diagnostic and interpretation difficulties as well as cultural and social conditions, many people, including medical professionals, for a long time did not consider obesity to be an important topic in the paediatric population.

Additionally, in the paediatric population, the range of interventions, which could be undertaken, was until recently significantly limited, and the effectiveness of the methods used was low.

Moreover, in the intervention methods used, the dominant role is played by behavioural interventions requiring the participation of **many specialists** (including a dietician, psychologist, physician, rehabilitator, social worker) as well as coordination of the treatment process.

Difficulty in diagnosis, complexity of the therapeutic process and the current organisational structure of the Polish healthcare system have resulted in the lack of an effective treatment system for paediatric patients suffering from obesity. However, this does not change the fact that there are scattered elements, which may be a good start to shaping the treatment system for children suffering from obesity.

Primary Healthcare

Primary healthcare is the main pillar and place for assessing the nutritional status of children. During visits to the primary healthcare facility (balance visits) strictly defined by law, each paediatric patient should be weighed and measured, and the obtained values should be marked on the appropriate percentile charts. This makes it possible to identify cases of excess body weight in children. Unfortunately, very often this is where the scope of actions undertaken by primary healthcare doctors and nurses ends. Despite their theoretical competences and scope of responsibilities, doctors hardly ever recognise and address the issue of treating obesity in primary healthcare settings.

If complications of obesity are detected, paediatric patients are referred to the appropriate clinics: nephrology, endocrinology, gastroenterology, mental health or others.

Specialist Outpatient Care

Specialist clinics focus primarily on the diagnosis and possible treatment of complications of obesity. The current system does not provide for the implementation of comprehensive support systems within the framework of specialist counselling. In selected specialist clinics (mainly endocrinology), selected doctors provide counselling on weight loss or lifestyle changes.

Nonetheless, such actions are not a systemic solution; what is more, the frequency and duration of potential contacts between the doctor and the patient during the visit do not allow for achieving even minimal effects.

Drugs used to treat complications of obesity, which may occur in children, such as glucose metabolism disorders, lipid disorders, hypertension, fatty liver disease, **may give parents and patients the false belief that obesity is being treate.**

Only recently have drugs appeared on the pharmaceutical market, which can effectively support the process of weight loss. **Their use may be limited by age (over 12 years of age), price and the need for subcutaneous injections** – daily or weekly, depending on the preparation. Nonetheless, these drugs are not widely used (September 2023) due to lack of availability, lack of experience of doctors in their use, parental concerns or general reluctance to use pharmacotherapy for the treatment of obesity. Unfortunately, specialist clinics do not provide access to dietary or psychological counselling focused on lifestyle changes and obesity treatment. This type of advice is not financed from public benefit package. In the event of severe or major complications or extreme forms of obesity disease, patients may require hospitalisation.

Hospital treatment

A patient with obesity typically requires hospitalisation, when the condition is severe or complications arise necessitating further diagnosis or treatment. At this stage, it is possible to conduct diagnostics, pharmacological therapy as well as dietary and psychological consultations. However, the form of hospital treatment in most cases is very cost- and time-ineffective.

Access to specialist departments (diabetes, endocrinology, gastroenterology, nephrology), which can provide consultations or monitor treatment progress **is significantly limited. It is also the most expensive form of obesity treatment.**

A separate element of hospital treatment is **surgical treatment**. In this case, there are no significant regulatory restrictions in Poland. Bariatric surgery procedures are possible within the current benefit package. Unlike many European countries, **very few bariatric procedures are performed on children in Poland**. This is primarily due to the lack of experience of surgical teams, the lack of an effective system for preparing, qualifying and managing patients after surgical procedures and, partly, to the belief of the medical community that such procedures are radical and even harmful in the population of adolescents with obesity.

Rehabilitation and spa treatment

Rehabilitation or spa treatment is generally not clinically or socially justified for patients with obesity, except in severe cases (grade 3 obesity). The effectiveness of "camps – sessions" for treating obesity has not been substantiated by scientific evidence. Removing children from their homes, schools, and social environments for several days or a few weeks is insufficient to induce lasting behavioural changes and intensive nutritional and physical activities conducted during these temporary settings often fail to translate into sustained habits in everyday life.

As shown above, the public healthcare system encompasses many components, which could contribute to an effective obesity treatment pathway, spanning from the stage of diagnosis in primary care or school medicine up to the stage of surgical or pharmacological treatment of the disease and its complications. **The main limitations in the effective treatment of paediatric patients with obesity are currently the lack of coordination of activities, the lack of trained medical staff and the lack of access to extensive dietary and psychological consultations focused on obesity.**

Actions by local government units

Local government units have effectively narrowed the gap in obesity detection, counselling and treatment systems over many years.

Local governments conduct many activities related to health education aimed at children and youth. The efficacy of the educational methods employed is questionable regarding knowledge retention and behavioural change.

Nevertheless, there is evidence that long-term health education focused on, among other things, a proper eating pattern and increasing physical activity may have a positive impact on reducing the risk of developing obesity in the population.

Additionally, **for about 15 years in Poland, an increasing number of local government units have been conducting health programmes** aimed at detecting obesity in the population of children and adolescents and conducting behavioural interventions targeted at children and/or their parents.

These programmes mainly focus on nutritional counselling provided by dieticians, along with providing psychological support in making lifestyle changes. Some of these programmes also provide an element of exercise or education in physical activity. Some programmes also include workshops and seminars aimed at parents or children. **The programmes implemented by local governments are reviewed by the Agency for Health Technology Assessment and Tariff System (AOTMiT), which confirms the use of methods with proven effectiveness.**

A separate issue is a reliable assessment of their effectiveness, which is often related to the lack of collecting long-term data and the duration of the intervention or the size of the population covered by the programme.

From both systemic and individual perspectives, this exacerbates existing health inequalities. Current data reveal that **small towns and villages exhibit the highest prevalence of childhood and adolescent obesity.**

Recommendations

Based on the presented description of the system for diagnosing and treating obesity in the paediatric population, **the following recommendations can be proposed**:

- **Introducing the obligation to keep electronic documentation of screening tests** and the need for intervention by a primary care physician in the event of a patient being diagnosed with obesity**;**
- **Introducing nutritional / dietary counselling and psychological counselling to the basic services package,** with particular focus on lifestyle/diet-related diseases, at the primary healthcare and outpatient care tiers;
- **Developing a specialised, coordinated care pathway for paediatric obesity patients;**
- **Developing and implementing a pathway for pediatric patients with grade 3 obesity, including bariatric surgery;**
- **Integrating local government activities with the public payer system,** focusing on educational programmes targeting overweight children and their parents;
- **Developing a comprehensive system for monitoring the nutritional status of children,** which takes into account environmental factors, including the introduction of regulations reducing children's exposure to an obesitogenic environment.

7.2. The pathway of an adult patient with obesity in the Polish public system – available treatment methods, key challenges

According to modern medical knowledge, the treatment of obese patients should be comprehensive. This means, first of all, making a diagnosis, which takes into account obesity itself, but also determining its nature (primary or secondary) as well as assessing the impact of obesity on the general health condition by assessing the development of obesity complications, their degree of advancement and the presence of co-morbidities.

In the Polish public healthcare system, but also in the non-public system, the diagnosis of obesity is usually **secondary to the diagnosis** and treatment of obesity complications.

Although no such studies have been conducted in our country, clinical practice clearly indicates that in patients with obesity, obesity complications are distinguished in the diagnostic and therapeutic process. This applies to type 2 diabetes, arterial hypertension, cardiovascular and respirato-

ry diseases as well as degenerative changes in the musculoskeletal system. Typical diagnoses made in most patients with obesity are therefore primarily complications of obesity, while the diagnosis of obesity itself is marginal. A similar situation applies to statistics on the causes of death, where for many patients with obesity-related complications leading to death, obesity itself is never given as the initial cause of death.

This approach contradicts a fundamental principle of medicine: prioritising causal treatment over palliative care. Unlike most obesity patients, who **receive primarily palliative care, a causal treatment approach should be central.** Abundant scientific evidence regarding the treatment of obesity comes from bariatric surgery; it shows that obesity-related complications subside or are alleviated with weight loss initiated by surgery. The results of the above studies also show that surgical treatment of obesity contributes to reducing the risk of death in this group of patients. A similarly beneficial effect can also be expected from pharmacological treatment of obesity, as we learn from recent scientific and press reports.

The above practice, that is distinguishing obesity complications in the diagnostic and therapeutic process, also distorts the statistics on healthcare expenditure for individual diseases. Billions of zlotys are allocated to treating these complications, while obesity itself receives minimal funding. Meanwhile, epidemiological studies clearly indicate that obesity is one of the most common diseases affecting our society, and the number of its cases is estimated at 6 to 8 million, depending on the methodology of the studies and the period, in which they were conducted.

The complex factors described above have led to the situation, where comprehensive treatment of obesity patients is not currently included in the healthcare model in our country nor in other countries, where healthcare is financed from public funds. This situation effectively denies many patients access to effective care, measured by improved health and reduced complication risks, and in fact discriminates against this group of patients. It unfairly places the onus of disease management and recovery solely on patients.

It should be noted, however, that in recent years changes have been introduced that are a manifestation that the healthcare providers in our country start to recognise the key role of obesity treatment for the health safety of Poles. These include the separation of the JGP F13 group dedicated to the surgical treatment of obesity in 2017 and the introduction of a pilot programme for comprehensive specialist care for beneficiaries treated for morbid obesity, KOS-BAR, in 2021. Intensive work is also underway to introduce a pilot programme for comprehensive specialist care for beneficiaries treated for obesity, KOS-BMI 30 PLUS, which will be focused on conservative treatment of obesity. It is to be hoped that the above pilot programmes will evolve into permanent healthcare ser-

vices, considering, for example, the fact that the last operations under the KOS-BAR programme, in accordance with the current legal regulations, were performed in December 2023.

If the above-mentioned pilot programmes come into effect (KOS-BMI 30 PLUS) and over time also become health benefits (KOS-BAR), they will undoubtedly constitute a starting point for covering obese people in our country with a comprehensive obesity treatment model.

So far, the lack of such an approach to the diagnosis and treatment of obesity in the public healthcare system in Poland forced – and in most cases still forces – patients to seek medical help in the private system, which, in turn, exacerbates health inequalities, condemning low-income patients to health exclusion and, in many cases, to the use potentially ineffective and unsafe treatment methods, which have not been scientifically documented.

The current organisational and financial solutions in the public system force patients to travel to many facilities and consult many specialists dealing with the treatment of obesity complications, whose work is additionally disintegrated and not coordinated by a specific person. In conclusion, **this model is highly ineffective clinically and economically.**

The initial step in reforming obesity treatment management within the Polish system is to acknowledge obesity's multifaceted impact on:

- development of other diseases – complications of obesity,
- the course of other diseases, the so-called concomitant diseases,
- possibilities and principles of treatment of all diseases,
- the prevalence of obesity in our society,

any doctor and other medical professional involved in the care of a patient, regardless of the reason for this care, should assess the correctness of the patient's body weight based on the body mass index (BMI). The organisation of public healthcare should incorporate mechanisms to compel doctors and other medical professionals to assess body weight and address obesity, countering its current marginalization and the discrimination faced by affected individuals. One such tool may be the need to make a diagnosis of obesity in order to be able to issue referrals for further treatment or prescriptions.

If a BMI exceeds 30, medical professionals, including doctors, nurses, physiotherapists, paramedics and speech therapists, would be obliged to formally diagnose obesity (E66) and document it in medical records. The next step is to assess the severity of obesity, where patients with a BMI between 30 and 35 will be diagnosed with grade 1 obesity, patients with a BMI between 35 and 40 will be diagnosed with grade 2

obesity and those with a BMI above 40 will be diagnosed with grade 3 obesity, the so-called morbid obesity.

If multiple diseases are found to be interconnected by a chain of cause and effect, these relationships should be taken into account in the diagnosis. For example, in a patient diagnosed with obesity, type 2 diabetes, arterial hypertension, fatty liver disease, or degenerative changes in the musculoskeletal system, the only appropriate way to present this relationship would be the following diagnosis: "Obesity disease complicated by type 2 diabetes, arterial hypertension, fatty liver disease, degenerative changes in the musculoskeletal system."

Once obesity is diagnosed, a public healthcare physician should be able to refer the patient to an appropriate centre for conservative or surgical treatment of obesity, depending on the stage of the disease.

The above cause-and-effect relationship between obesity and its complications should also be reflected in case of death of a patient as a result of obesity complications. Point 18.3 "Death certificate" should list "obesity" as the underlying cause, along with additional information, such as disease duration since diagnosis. Any complications of obesity should be included in section 18.2 of the death certificate as secondary causes of death. To achieve this, the death certificate should be extended with information regarding the highest body weight reached by the patient and the period, in which it occurred. This information is very important, because untreated obesity in its extreme forms often leads to devastating diseases and will not be detected at the time of the patient's death.

The above actions, **namely: diagnosis of the disease, determination of its stage of advancement, proper assessment of the initial cause of death, would initiate a comprehensive specialist care approach for obesity patients**.

Comprehensive care should be initiated by specialised centres, which – following in-depth diagnosis of the causes of obesity development, in particular its secondary nature, the type of obesity complications and the degree of its advancement and the presence of co-morbidities – will implement an individual treatment plan based on interdisciplinary treatment, in order to eventually transfer further care of the patient to a primary care physician, who plays an important role in this model and should ultimately be the first specialist to diagnose obesity, to refer the patient for specialised treatment and to continue care after its implementation in a specialist centre.

The **persistence of treatment effects** is determined by the support provided to the patient in the long term, which should be the responsibility of the primary health care team.

Therefore, for obesity, it is very important to define the role of individual healthcare providers, including the family doctor, other members of the primary care team and professionals involved in complex secondary care.

The results of obesity treatment should be continuously assessed and modified, as needed. This applies in particular to patients in whom we observe progression of obesity despite the treatment applied.

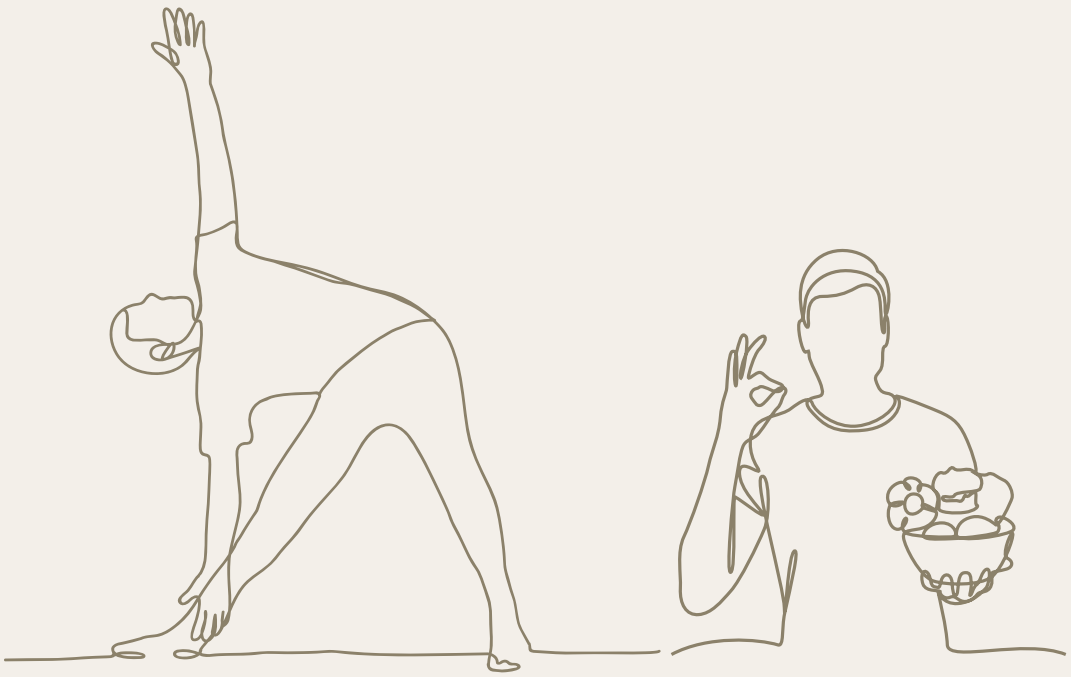
An important issue is the financing of anti-obesity drugs, the role of which in the treatment of this group of patients, based on the results of scientific research, is becoming increasingly significant. From a public health perspective, we must recognise the scale of the problem: millions of individuals, who require treatment. On the other hand, we must also be aware that non-pharmacological and non-surgical treatments for obesity are often ineffective, unsustainable or even counterproductive. The situation outlined above, that is, on the one hand, growing number of obese patients with obesity and, on the other hand, the progression of the disease, often without the implementation of pharmacological treatment, necessitates urgent development of public funding criteria for anti-obesity medications. The above criteria should take into account groups of patients at risk of disease progression and development of obesity-related complications, as well as patients with relative indications for surgical treatment

Conclusions

Currently in Poland there is no model of comprehensive care for people with obesity. Early indicators of a comprehensive care model include: the establishment of JGP F13 group, the KOS-BAR pilot programme focused on the surgical treatment of obesity and advanced development of the KOS-BMI 30 PLUS pilot programme for conservative treatment of obese patients.

It is necessary to introduce mandatory diagnosis of obesity, especially when obesity complications are seen, as well as to enable diagnosis and treatment of obesity in cooperation between specialist centres and family doctors.

It is essential to develop criteria for public funding of anti-obesity drugs in order to ensure access to this treatment method for the group of patients, who can derive the greatest benefit from it, while ensuring the cost-effectiveness of such a procedure.



08

Effective interventions in the treatment of obesity

Michał Brzeziński, MD, PhD

Obesity is associated with numerous significant health consequences, both early (reduced physical capacity, bone and joint pain) and late (metabolic, cardiovascular and mental diseases, cancer).

Obesity is a major risk factor for, among others, type 2 diabetes and arterial hypertension. It significantly increases the risk of stroke, heart attack, depression and many cancers. All these diseases, which are partly **a complication of obesity**, additionally increase **the risk of death** and reduce the quality and length of life.

Therapeutic interventions can significantly reduce the risk of obesity-related diseases.

When undertaking treatment for obesity, it is also worth taking into account the presence of additional factors and complications, which may affect the patient's readiness and ability to undergo effective treatment. Treatment of obesity is a long-term process, aimed at reducing the risk of death and improving the quality of life. Due to the complexity of factors influencing the incidence of obesity, the treatment undertaken should also be multifaceted.

Due to the recurrent nature of the disease itself, it should also be borne in mind that treatment may be long-term, with stages of intensification, depending on the rate of weight gain or complications resulting from the disease.

The main goal of obesity treatment is to reduce the risk of obesity-related complications or to alleviate their course by stabilising and/or reducing body weight as well as by changing the composition of body weight composition, reducing the fat tissue and increasing lean body weight, including muscle tissue.

All these elements should be taken into account, when preparing a treatment programme / regimen / elements for a given patient, in his or her clinical and social situation.

The last 30 years have seen a drastic increase in the prevalence of obesity in the world's population, as well as an increase in awareness and knowledge about the mechanisms and causes of obesity and, consequently, evidence of effective methods of preventing and treating obesity.

Apart from prevention, which is fundamental in reducing the incidence of obesity, effective treatment should be easily accessible to patients. Due to the multifactorial etiology of obesity (mainly related to psycho-social factors, but also genetic or metabolic conditions), treatment should be tailored to each patient, but each time it should include several components and stages. The hard endpoint, when assessing the effectiveness of obesity treatment, should be the reduction in mortality due to obesity and relat-

ed diseases. Currently, however, there are mainly population-based, cohort studies that retrospectively assess the influence of selected factors on the risk of death among people with obesity, including the influence of selected treatment methods. Prospective comparative studies usually focus on the evaluation of surrogate endpoints because of the available time for patient follow-up and the possibility of collecting a sufficiently large population of observed individuals. The main surrogate endpoints include: reduction of body weight, reduction of the percentage of body fat/increase of the percentage of lean body mass, reduction of the number of cardiovascular events, improvement of laboratory parameters, improvement of cardiovascular fitness.

It is worth noting that not all of the parameters mentioned above have the same impact on the length and quality of life of patients suffering from obesity. These parameters are often selected due to the availability of research methods or the simplicity and repeatability of measurements.

More in-depth analyses, for example those regarding changes in health behaviours, dietary habits or knowledge, require more complex research tools and are often not as objective as anthropometric and laboratory measurements. This does not mean, however, that we should not strive to introduce comprehensive, multi-faceted methods of assessing the effectiveness of obesity treatment.

Among the currently available methods of treating obesity, there are several therapeutic groups with proven effectiveness:

- nutritional interventions,
- physical activity interventions,
- psychological support interventions,
- social support interventions,
- bariatric surgery,
- pharmacotherapy.

Nutritional interventions

Nutritional interventions for people suffering from obesity focus on the composition of meals, the content of macro- and micro-elements, meal frequency patterns and the principles of their consumption. There is no single nutritional method (intervention, regimen) effective for all people suffering from obesity. A choice accepted by the patient allows for a higher level of commitment and implementation of changes.

However, there are recommended methods with proven effectiveness.

- **It is recommended to conduct a dietary consultation as an independent intervention,** during which the patient receives both basic knowledge about nutrition and professional support in implementing changes in the preparation and consumption of meals. It has not been proven that any one dietary pattern or intervention is superior to another. Nevertheless, there is extensive literature indicating that regular visits to a dietician help achieve better ther-

apeutic effects, both in terms of changing eating habits („healthy eating") and weight loss.

It has also been proven that nutritional therapy conducted by a dietician contributes significantly to changing the eating habits and behaviours of people suffering from obesity. The training scheme for dieticians depends on the country, but as a rule they are people with higher education in the field.

- **There is no single recommended dietary regimen for obese patients** The key elements are the introduction of basic principles of healthy eating, meals based on low-processed products, products with a predominance of complex carbohydrates, limiting simple carbohydrates, regular consumption of vegetables and fruit and limiting fast food products. The recommended dietary patterns with the best-proven benefits include the Mediterranean diet, the DASH diet (Dietary Approaches to Stop Hypertension) and the Nordic diet. All these dietary patterns are based on a large amount of minimally processed vegetables, whole grain or legume products as well as on limiting animal fats in favour of vegetable oils. Additionally, fish is recommended as a source of high-quality protein and fat.
- **Short-term, significant reduction of the caloric content of meals (800-1200 kcal diets) in the long term (6-12 months) produces a similar therapeutic effect to changing eating habits and permanently introducing a slight caloric reduction.** They are much more difficult to maintain (due to a significant calorie deficit) and, if poorly managed, they can lead to micronutrient deficiencies. However, they can find their place in the therapy of patients with obesity as an introduction to long-term nutritional treatment, allowing an initial therapeutic effect to be achieved in a short time, and, consequently, increasing the patient's mobilisation and the possibility of undertaking physical activity.
- The most effective action in conducting therapy for changing eating behaviours is long-term cooperation with a qualified dietician. The aim of such cooperation should not be solely focused on achieving weight loss, but above all on understanding the mistakes made and developing new patterns of eating behaviour.
- Being aware of the fact that people suffering from obesity view food not as a source of macro- and micro-nutrients but as a form of reward, satisfaction or compensation, nutritional therapy may require cooperation with a psychologist / psychotherapist in order to restore the correct attitude to food.

8.1 Physical activity interventions

Physical activity is a very important complement to changing eating behaviour. By implementing regular, long-term physical exercise, people suffering from obesity increase energy expenditure, but above all they change their body composition. This increases the content of lean tissue (including muscle), improves the efficiency of the circulatory system, respiratory system, and significantly reduces the risk of death.

Physical activity interventions should focus on the frequency and type of activity.

For all adults, including those suffering from obesity, **physical activity** (moderate to vigorous intensity) is recommended for 30 minutes a day for at least 4-5 days a week.

Such an activity should include both aerobic exercises aimed at oxygen exertion (walking, running, swimming, cycling) and strength and resistance exercises (weight-bearing exercises, exercises with bands, with weights). The use of a variety of exercises can reduce the risk of ceasing physical activity (boredom) and improve the patient's functioning both personally (fitness) and socially. Many studies show that in the initial period of initiating a physical activity intervention, one should start with strength training, which may require a smaller range of motion and aerobic effort, but will improve muscle strength and prepare for further efforts. It also makes it easier for patients to undertake such an effort. It often does not require leaving home (which may be uncomfortable for some patients) or special or custom-made equipment.

In the subsequent stages, the patient should strive to increase physical activity, both in duration and load (aerobic / strength / resistance).

Available publications and research have shown that the factors that increase the effectiveness and involvement of people with obesity in daily physical activity are:

- peer group support, participation in organised activities,
- support of a trainer, instructor with classes adapted to patients suffering from obesity,
- preparing individual training plans based on long-term cooperation with a trainer.

It has also been proven that the effectiveness of physical activity can be improved if it is combined with changes in nutrition.

8.2 Psychological support

Among the methods of supporting patients suffering from obesity, maintaining or improving mental well-being is of great importance, which allows for improving the effects of therapy. Among the methods/schools of psychology and psychological interventions used, only a few have evidence of a positive impact on improving health or reducing body weight. The best quality scientific evidence is available for various forms of cognitive behavioural therapy or behavioural interventions. The timing of the intervention and its duration are also important. Available research has shown that behavioural intervention should be initiated before or in conjunction with nutritional and/or physical activity interventions.

Psychological support should not be less than 12 weeks. Additionally, due to the recurrent nature of the disease, psychological support should be available at every stage of therapy, especially in case of repeated weight gain or events, which make it difficult to maintain the previous treatment plan.

Among the methods of psychological support in treating obesity, motivational interviewing is also gaining popularity as a relatively simple tool of psychological support, which can also be used by a doctor/nurse or dietician. Nonetheless, there are currently no studies available on a large population of patients, which clearly confirm the positive impact of this psychological method on the weight loss or changing habits, or as an element of comprehensive behavioural interventions.

In addition to psychological support focused on the process of weight loss/obesity treatment, it should also be borne in mind that patients suffering from this disease are significantly more prone to depression or eating disorders, which require separate therapeutic support, than the general population. These diseases may significantly influence the effectiveness of the treatment process.

8.3 Bariatric surgery

Bariatric surgery is currently considered the most effective method of long-term weight loss in obese patients. The therapeutic effects associated with this method are not limited to achieving weight loss, but also cause a significant change in the secretion and action of enterohormones. It has been proven that the use of this treatment method changes many metabolic pathways already within the first days after its application. Importantly, according to current knowledge, the use of bariatric surgery should not be a stand-alone method

of intervention and patients undergoing surgery should be under the constant care of a multidisciplinary team both before and after the procedure.

This significantly reduces the risk of incorrect qualification for the procedure and long-term complications after the procedure as well as the risk of re-gaining body weight. Currently, there are two main surgical treatment methods with a similar degree of effectiveness (sleeve gastrectomy and Roux-en-Y gastric bypass). Long-term observations show maintenance of weight reduction at approximately 20% of the original body weight. It has also been shown that patients after surgery have significant clinical improvement in glucose metabolism (including resolution of clinical symptoms of type 2 diabetes) and, among other things, a reduced risk of death from cardiovascular causes. In long-term follow-up, the quality of life of patients undergoing bariatric therapy also significantly improves.

It should be noted that although bariatric therapy has very good therapeutic effects, it also has certain limitations. Not every patient may qualify for it. According to current recommendations, approximately 10% body weight loss is required prior to surgery to demonstrate the patient's determination and readiness to make changes. Additionally, due to the limited number of centres and surgeons performing these procedures, they are available to a small percentage of patients.

As mentioned earlier, the **effectiveness of surgical procedures increases significantly**, if they are part of a comprehensive programme, in which the patient remains under the care of, among others, a bariatric surgeon, psychologist and dietician for about 3 months before and for several years after the procedure.

8.4 Pharmacotherapy in the treatment of obesity

Over the last 30-40 years, pharmacotherapy has undergone significant modifications in the treatment of obesity. Drugs commonly used in the 1980s were based on amphetamine derivatives, which, apart from relatively good clinical effects, caused significant short- and long-term side effects. Chronic use of psycho-stimulants significantly increased the risk of mental disorders or addictions. The next group of drugs were preparations reducing the absorption of fat from the digestive tract. These medications induced weight loss by disrupting food absorption but often led to nutritional deficiencies and adverse side effects like severe abdominal pain and oily stools.

The last 15 years have seen the introduction of incretin drugs to the market, which resemble incretin hormones naturally

occurring in our bodies, increasing insulin secretion by pancreatic ß cells, blocking glucagon secretion, inhibiting gastric emptying and reducing appetite. These drugs, initially used in the treatment of patients with type 2 diabetes, have shown a positive effect on weight loss in both diabetic and non-diabetic patients

In recent years, new analogues of incretin hormones (GLP-1, GIP) have appeared, which act much longer, which allows them to be dosed once a day or once a week. These drugs allow for a **body weight reduction of about 10-15%**, and the newest drug (dual GLP-1 and GIP agonist) may achieve a therapeutic effect similar to bariatric surgery.

What is more, these drugs cause a relatively small number of side effects, the most important of which include nausea, abdominal pain and possibly diarrhoea. Additionally, it is worth noting that chronic **use of these drugs has a positive effect on reducing cardiovascular risk factors,** regardless of the degree of body weight reduction.

It is currently unknown how long these medications should be taken to minimise the risk of weight regain. Some patients, after achieving weight loss, reduce the drug dose to a level, which allows maintaining the achieved therapeutic effect.

8.5 Combining treatment methods

There is ample evidence to support the effectiveness of combined interventions. Multidisciplinary teams and simultaneous psychological, dietary and medical interventions bring the best results in the field of behavioural methods. Previous publications on modern methods of pharmacotherapy also indicate the need to educate patients about changing their eating habits and physical activity style.

Bariatric surgery should be integrated into a comprehensive patient care plan. There are also publications showing the use of pharmacotherapy in combination with lifestyle changes before surgical procedures (which reduces the risk and number of complications) as well as after surgical procedures (which allows for long-term maintenance of the therapeutic effect in a larger percentage of patients).

Comprehensive forms of treatment for a patient suffering from obesity require cooperation between the patient and many specialists, especially if complications of obesity disease are already present. Still, treating the disease is the best way to prevent and treat most complications.

09

National strategic plan for reducing obesity – assumptions for Poland

Marta Pawłowska, MBA
Małgorzata Gałązka-Sobotka, PhD

9.1 Initial assumptions and conditions for success

The overarching intention of the strategic plan for the prevention and treatment of obesity in Poland is to set a road map of actions for the coming decades and to engage key stakeholders in this area. **The main goal of the recommended national strategy is to build a national inter-sectoral partnership. This partnership will work to create paths and mechanisms for multi-level cooperation between various sectors of public administration, the science sector, enterprises, and the social sector.** The main goal defined in this way is to reduce the incidence of obesity as a health, social and economic problem.

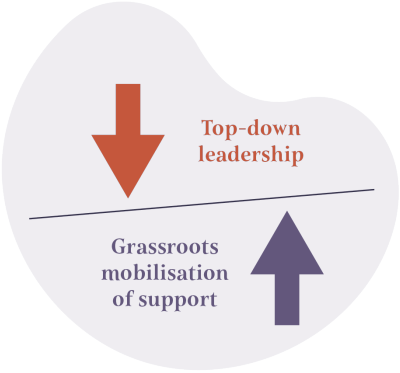
The strategy aims to redefine the roles and tasks of central administration bodies responsible for obesity reduction. These roles and tasks will be based on experiences from other countries that have implemented similar national-level plans, incorporating regional implementation strategies.

The national strategic plan for the prevention and treatment of obesity should cover all social and age groups. Given the critical importance of the problem of excess body weight among children and adolescents, the study recommends prioritizing primary prevention efforts **for individuals up to 18 years old during the first decade of implementation.**

This perspective aims to foster a healthy upbringing for all children and adolescents by creating optimal conditions for preventing and treating obesity, irrespective of their socioeconomic background or geographic location. **Interventions designed to improve the effectiveness of diagnosis, treatment of obesity and secondary prevention should cover all age groups.**

The authors of this study adopted **a systemic approach to obesity - the Whole System Approach to Obesity (WSA), integrating actions at the national level with adapted implementation at the local level.** Thus, they indicate two key conditions for the adoption and cascading implementation of obesity reduction strategies on a nationwide scale:

- **Top-down leadership,** that is giving the strategy priority in the state's socio-economic policy (the rank of a national plan, coordinated intersectorally by the Chancellery of the Prime Minister);
- **Grassroots mobilisation** of support, that is broad involvement and decision-making of local stakeholders and strengthening the responsibility of local government authorities.



9.2 The STOP OBESITY social ecosystem

The National Strategy for the Prevention and Treatment of Obesity outlines a long-term multi-sectoral plan **to create a comprehensive social ecosystem serving a healthy lifestyle and obesity reduction (in short the STOP OBESITY ecosystem), in which everyday healthy choices will be easier.**

The concept of the "social ecosystem of obesity reduction" introduced here means a structure of interdependent links that influence:

- **reducing the obesity-promoting environment,**
- **development of obesity prevention competencies** (nutrition, movement and physical activity, emotional well-being with rest and sleep),
- **ensuring common access** to diagnosis and comprehensive treatment of obesity disease.

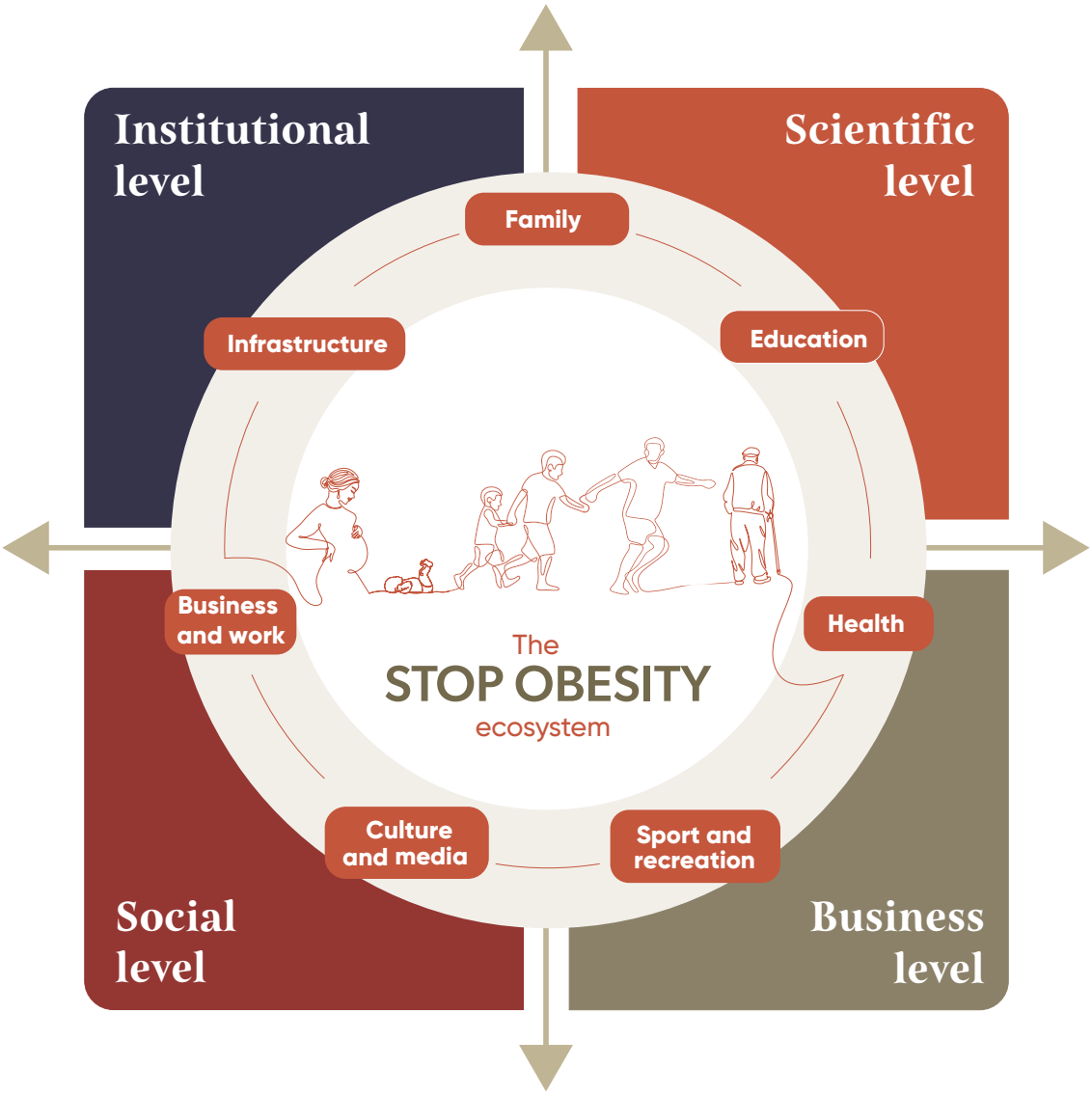
The STOP OBESITY ecosystem aims to protecting human health through broad access to specific resources and public services, which stimulate health-promoting cultural changes. Taken as a whole, the social ecosystem of obesity reduction constitutes a "map" of a person's lifestyle, taking into account all the environments of his or her development.

The STOP OBESITY ecosystem model includes the following links: family, education, health, sport and recreation, culture and media, business and work, and infrastructure.

9.3 The STOP OBESITY ecosystem – inter-sectoral participation model

Given the complexity of risk factors and the development of excess body weight, the authors of the assumptions for the strategic plan to **reduce obesity recommend adopting an inter-sectoral participation scheme at four levels: institutional, scientific, social and economic,** ideally with additional support from major international organisations (such as WHO and UNICEF).

Within each level, it is recommended to establish inter-sectoral programme teams, composed of institutions involved in the implementation of the strategy at the national level. Overarching and guiding values should be established to underpin interventions at all levels of inter-sectoral cooperation, ensuring a shared vision and purpose.

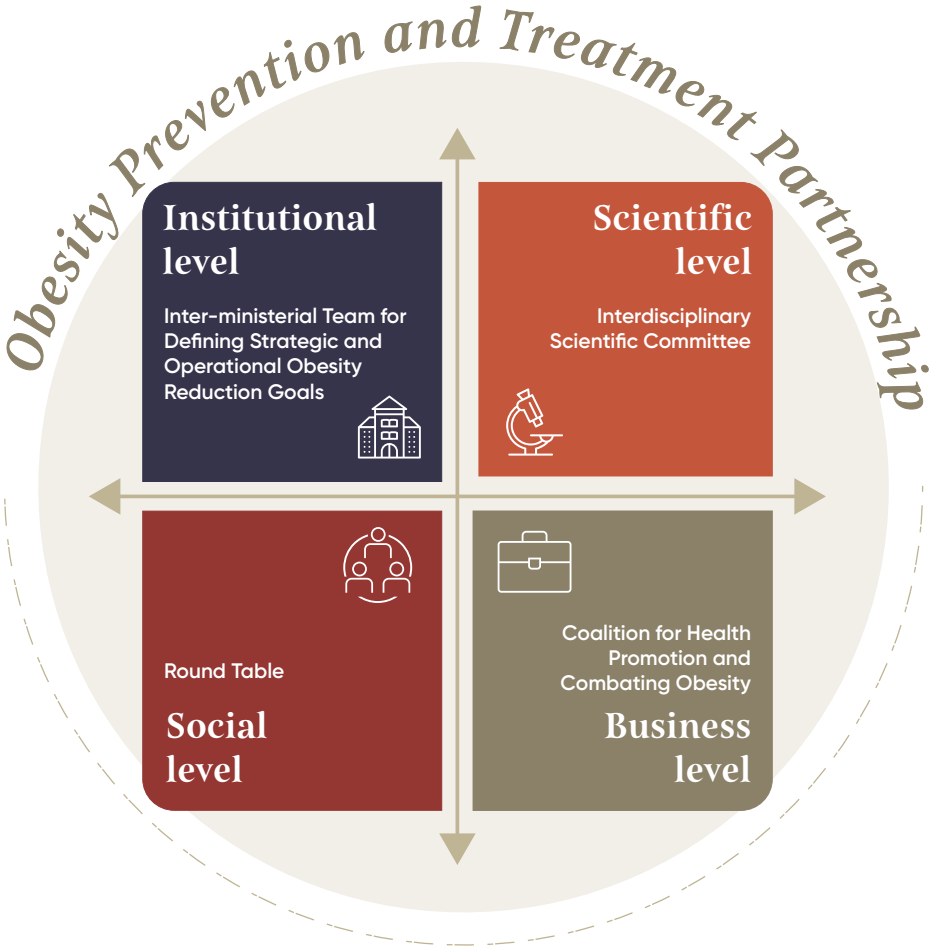



The
STOP OBESITY
ecosystem
Institutional level
Ministry of Finance
Ministry of National Education
Ministry of Culture and National Heritage
Ministry of Development Funds and Regional Policy
Ministry of Climate and Environment
Ministry of Sport and Tourism
Ministry of Science and Higher Education
Ministry of Digital Affairs
Ministerstwo Zdrowia
Ministry of Infrastructure
Supreme Audit Office (NIK)
Ministry of Agriculture and Rural Developmenti
Ministry of Social Policy
Ministry of Health
Scientific level
Medical Research Agency (ABM)
National Institute of Public Heath – National Institute of Hygiene (NIPH-NIH)
Agency for Health Technology Assessment and Tariff System (AOTMiT)
Polish Society for the Treatment of Obesity (PTLO)
Mother and Child Institute (IMID)
Polish Society of Family Medicine (PTMR)
Polish Dental Association (PTS)
Polish Diabetological Association (PTD)
Supreme Chamber of Nurses and Midwives (NIPiP)
Polish Oncological Society (PTO)
Polish Pediatric Association (PTP)
Polish Cardiac Society (PTK)
Polish Society of Endocrinology (PTE)
Polish Psychological Association (PTP)
Central Statistical Office (GUS)
Conference of Rectors of Universities in Polandh
Conference of Rectors of Physical Education Academies
Conference of Rectors of Universities of Medical Science
Chief Sanitary Inspectorate
Social level
Foundation for the Treatment of Obesity (FLO)
Patients Ombudsman
Civic Education Center
Ombudsman For Children (RPD)
National Federation of Non-Governmental Organizations
Association of Polish Counties (ZPP)
Association of Polish Cities (ZMP)
Institute for Patients' Rights and Health Education (IPPiEZ)
Business level
National Federation of Entrepreneurs and Employers
Polish Association of Self Medication Industry (PASMI)
PPolish Organization of Trade and Distribution
Employers' Union of Innovative Pharmaceutical Companies INFARMA
Employers of Poland
Polish Association of Employers in Electronic Media and Telecommunications (Mediakom
Polish Federation of Food Industry (PFPZ)
National Broadcasting Council (KRRiT)
Employers' organisation
Union of Advertising Council Associations
International Advertising Association (IAA)
Business Centre Club
Polish Confederation of Private Employers Lewiatan

The scheme of inter-sectoral participation in the STOP OBESITY model consists of:

- **INSTITUTIONAL Level** - Inter-ministerial Team for Defining Strategic and Operational Obesity Reduction Goals (involvement of selected ministries);
- **SCIENTIFIC level** – Interdisciplinary Scientific Committee tasked with developing recommendations and guidelines for education, research, and monitoring related to obesity prevention and treatment. The Committee will ensure that the national strategy is based on scientific evidence and best practices. Membership will include representatives from key scientific societies and institutions relevant to obesity reduction;
- **SOCIAL Level** - A Round Table composed of representatives of social organisations, patient organisations and civil society with the most experience in the area of health, children's rights, patient and family rights;
- **BUSINESS Level** – Coalition for health promotion and combating obesity, composed of representatives of associations and federations of economic sectors involved in the implementation of the plan, including in particular the food sector, physical activity and sports, the digital and audiovisual sector, the pharmaceutical sector and the employers' sector.

Stakeholders at all levels operate in the Obesity Prevention and Treatment Partnership.



9.4 The STOP OBESITY ecosystem – 12 key principles and values

1. **Health as a reference for all activities** (integrating activities within sectors, which influence a healthy lifestyle, especially in the population of children and adolescents);
2. **Obesity prevention from conception and universally** (promoting health throughout the entire human life cycle, long-term and multi-dimensional, among all target groups);
3. **Education and activation of families and communities** (encouraging and supporting families and local communities to adopt a healthy lifestyle by providing public resources and supporting grassroots forms of activity);
4. **Eliminating inequalities in access to prevention and treatment** (reducing social and gender differences in access to a healthy lifestyle, prevention, diagnosis and treatment of obesity);
5. **Distinguishing prevention from treatment** (responsible education in the area of obesity prevention, diagnosis and treatment, both for the public and professionals from various sectors);
6. **No weight stigma** (promote a non-stigmatising perspective on the phenomenon of excess body weight, positive body image and a health-promoting approach to self-acceptance);
7. **Protection of children's rights to healthy development** (defending the rights of children and adolescents to develop and grow in health, in conditions conducive to a healthy lifestyle and prevention of excess body weight and to ensure diagnosis and treatment of obesity);
8. **Basing on scientific evidence** (promoting development based on the best available knowledge and recommendations of international and national reference organisations);
9. **Responsible and effective dialogue** (creating and promoting shared responsibility of sectors and entities involved in health, with particular emphasis on the health of children and adolescents);
10. **Continuous monitoring** (permanent improvement of instruments for monitoring obesity and its specific determinants);
11. **Training of inter-sectoral professionals** (training of staff from individual sectors and exchange of best practices);
12. **Evaluation and adjustment of implementation forms** (definition of key indicators along with goals for 2030 and 2035, annual monitoring of their implementation and flexibility in adapting the strategy to changing conditions).

9.5 The STOP OBESITY ecosystem – strategic development directions

Based on the STOP OBESITY model, the authors of the report indicate the following main strategic directions, which determine the development of individual links in the ecosystem:

- **Fostering cultural changes and social attitudes,** focused on a healthy lifestyle by improving public systems in this area;
- **Enhancing the public healthcare system's** capacity for diagnosing and treating obesity.

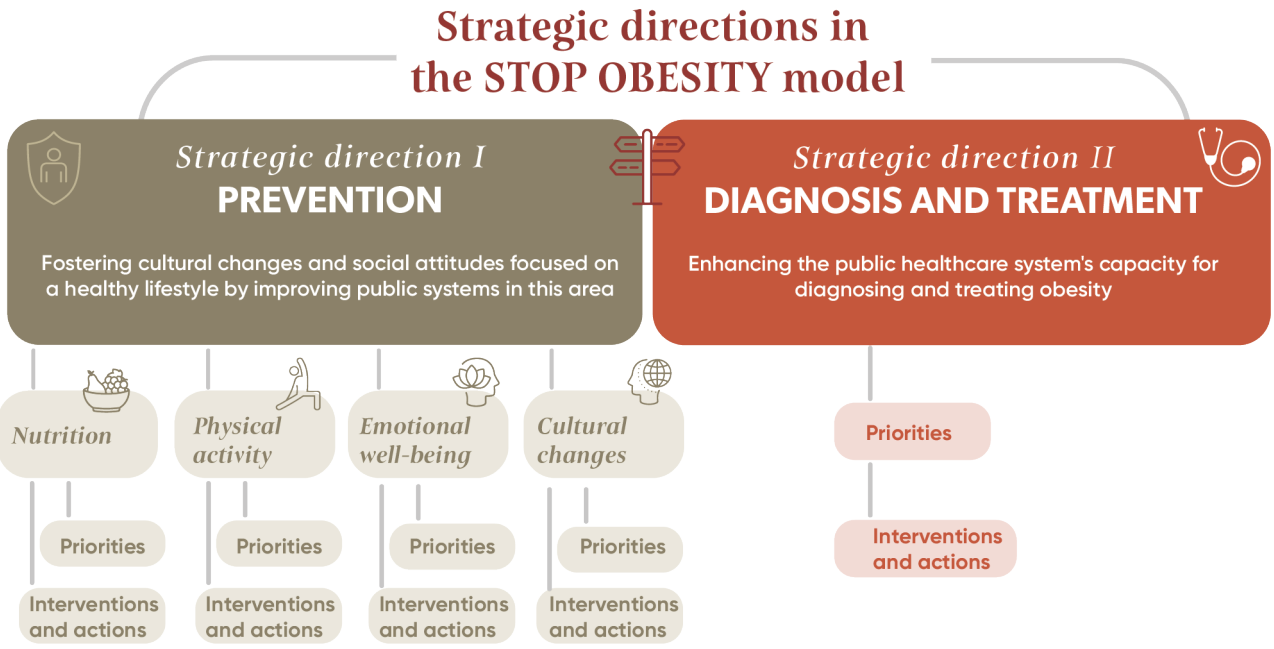
The indicated strategic directions are aimed at integrating the social ecosystem at the individual level (knowledge and tools for managing a healthy lifestyle, serving the prevention of obesity) and the public level (sectoral and inter-sectoral interventions and activities developing the prevention, diagnosis and treatment of obesity).

The strategic directions outlined in the STOP OBESITY model are consistent with the approach to health promotion based on the social determinants of health promoted by the World Health Organisation.

The proposed strategic directions for the obesity reduction ecosystem were developed in the form of priorities and proposals for interventions and actions in each of the key areas.

The criteria for selecting recommended interventions and activities were:

- **scientific research and recommendations** of academic societies, international organizations and expert panels
- **positive impact on as many links in the ecosystem as possible,** with particular emphasis on children and young people.



Strategic Direction 1

Fostering cultural changes and social attitudes focused on a healthy lifestyle by improving public systems in this area

Reference model: Whole System Approach (WSA) to Obesity

***Whole System Approach to Obesity* (WSA)** – a model of a systemic holistic approach to reducing overweight and obesity as a complex adaptive systemic issue encompassing national leadership and regional implementation, taking into account local political, social, educational and health factors. The prototype of the WSA systemic approach to reducing overweight and obesity based on local communities is the ***Community-Based-Childhood Obesity Interventions* (CBCOI)** model.

The WSA model for obesity prevention

Strategic multi-sectoral approach

- Multi-sector approach and long-term perspective
- Network of highly motivated professionals from many industries
- Strong leadership and responsible political commitment
- Developed public-private partnership
- Strong evidence base and monitoring culture
- Creative approach to overcoming barriers
- Integrated modern social communication
- System of continuous education and exchange of inter-sectoral experiences

Strongly rooted in local communities

- Adapting the strategy to local needs and specifics
- Social involvement of inhabitants
- Investing in local innovation programmes
- Modern communication based on local resources
- Involvement and decisiveness of local stakeholders
- Enhancing the responsibility of local government authorities

Civilisational "transition" in lifestyle

- Civilisational, evolutionary transition from what is harmful to health to what builds health and well-being
- Positive approach to healthy eating (no single eating culture)
- Gradual learning of healthy living habits as part of a long-term programme (responsive adaptation)
- Avoidance of stigma or shaming of food culture and behaviours

Promoting a balanced diet, especially among families with preschool and school-age children

Standardisation, modernisation and implementation of nutritional recommendations in educational institutions

Improving access to healthy products in kindergartens and schools and developing education in this area

Improving the affordability of healthy food, especially for families with low financial status

Promoting a balanced diet for pregnant and breastfeeding women and young children, popularising breastfeeding

Development of the healthy food and beverage sector, especially for children and adolescents, and strengthening the position of consumers in the face of the market offer of food contributing to obesity

Proposals for promoting balanced nutrition through targeted interventions and activities:

- Incorporating education on healthy eating and gastronomy into pre-school and school curricula (including school and inter-school initiatives adapted to age groups, popularising cooperation with local food manufacturers and suppliers) and encouraging home-cooked balanced meals;
- Establishment of new quality standards and guidelines for food services in educational institutions, encompassing:
  - optimising breaks times between lessons, ensuring access to school canteens at all stages of education, improving nutritional standards and controlling the assortment provided, preventing quantitative and qualitative malnutrition;
- Launching a comprehensive online platform for education in the field of balanced nutrition, especially for children and adolescents (including training programmes for parents and guardians, employees of educational institutions: teachers, trainers, nutrition managers, nurses, administration employees)

along with long-term communication strategies;

- Ensuring the availability of free drinking water in educational and care facilities, public institutions, workplaces and public spaces (parks, stadiums, squares and walking alleys, etc.);
- Introducing subsidies for healthy food for low-income families with children up to 18 years of age (fiscal policy supporting the purchase of fresh products);
- Strengthening consumer rights and knowledge regarding products linked to obesity, including: improving the food labelling system, intensifying reformulation processes to improve the nutritional composition of products, using fiscal measures to reduce unhealthy food advertising, expanding educational campaigns, etc.;
- Development of educational programmes in the area of nutrition for pregnant and breastfeeding women, infants and children up to 5 years of age;
- Promoting breastfeeding in hospitals, health centres, workplaces and public spaces.

Civilisational "transition" in nutrition and lifestyle

he concept of civilisational *„nutritional transition"* encompasses changes in dietary behaviours and lifestyle due to the improvement of socio-economic and health conditions (demographic and epidemiological transformation), which influences the increase in overweight and obesity and in prevalence of some chronic diseases, such as cardiovascular diseases and type II diabetes.

Historically, this concept refers to a phenomenon characteristic of highly developed societies, in which, due to globalisation of markets, advertising and socio-cultural factors, a tendency to follow a universal model of nutrition and lifestyle was established in the 1950s and 1960s.

The features of this phenomenon were: a decline in interest in traditional food in favour of processed food, a decline in the consumption of products rich in complex carbohydrates and fibre, an increase in the consumption of products rich in refined sugars, dairy products and animal products as well as a sedentary lifestyle.

Intensification of spontaneous movement, physical activity and sports in preschool and school facilities and in public spaces, aimed at reducing social inequalities in this area

Improving the competences of teachers and medical staff in promoting physical activity

Promoting active family recreation by local government units

Promoting physical activity and sports in employer and employee environments

Modernising of spatial policy towards increasing access to physical and sports activity areas

Proposals for increasing physical activity and sports participation through targeted interventions:

- Development of a national strategic plan for the promotion of physical activity and sport throughout the life cycle, with particular emphasis on children and adolescents;
- Increasing the share of physical activity in the core curriculum of pre-school and school classes and promoting spontaneous movement and sports (without limiting it to the number of hours of physical education);
- Intensification of after-school physical activity and sports for children and youth, including, for example, motivation and positive psychology tools, multi-environment activation: active family / active school / active community;
- Supporting changes in spatial policy aimed at the development of physical activity and sports. This may include, for example, constructing sidewalks and bicycle paths, developing walking and running spaces, expanding green spaces in densely built-up suburbs and housing estates, revitalising parks and playgrounds, increasing the safety of routes to school, making changes in bicycle traffic in urban centres, especially in under-served areas;

- Locally increasing access to spaces, which integrate different age groups and enable physical activity and sport (schools, sports and recreational facilities, workplaces);
- Implementation and dissemination of medically prescribed physical activity;
- Providing free access to public sports facilities for people up to 18 years of age;
- Fostering responsible spontaneous movement, physical activity and sport for overweight and obese people and training of professional staff in this area (healthcare, education, sports and tourism, social welfare sectors and local government units);
- Promoting physical activity among people with disabilities, especially children and youth (educational institutions, health facilities, cultural, sports and tourism facilities);
- Encouraging spontaneous movement, physical activity and sport in the media (including through sections aimed at seniors and people with reduced mobility);
- Developing and broadly promoting diverse physical activities and sports, including spontaneous movement for people of all ages, in public facilities and workplaces and through media campaigns (for example bands involving seniors in joint physical activity);
- Supporting the development of digital tools, which intensify physical activity, in particular those aimed at children, young people and families.

Priorities for emotional well-being and healthy rest

Promoting emotional well-being as a core value at all ages and fostering education and initiatives in this area

Promoting positive relationships in the family, school, work and local communities

Development of mental health prevention, especially among children and adolescents

Proposals for enhancing emotional well-being and promote healthy sleep habits through targeted interventions.

- Development of social initiatives to strengthen family relationships and support families in crisis;
- Increasing awareness of the safe use of information and communication technologies, especially among children and adolescents and their caregivers;
- Promoting work-life balance
- Promotion of healthy sleep and activity in the natural environment as foundations of emotional well-being;
- Intensification of activities aimed at preventing mental disorders in the programmes of educational institutions.

Priorities in fostering a culture of life for reducing obesity

- Raising public awareness about the factors, which determine a healthy lifestyle
- Promoting knowledge about the need for a civilisational "transition" in terms of nutrition and lifestyle
- Raising public awareness of obesity, its causes and effects, proper prevention and treatment
- Raising competences among professionals in the education, healthcare, labour and social care systems and in the culture
- Fostering public-private partnerships at national and local levels to promote healthy lifestyles, especially obesity prevention
- Development of health-promoting services for local communities, especially for children, adolescents and families

Proposals for interventions and actions fostering a culture of life for reducing obesity:

- Multi-level promotion of a civilisational "transition" in lifestyle from what is harmful to what is good for human health;
- Promoting real health patterns and incentives in school education, culture and the mass media;
- Defining and implementing standards for a healthy educational facility;
- Disseminating recommendations on a healthy lifestyle, adapted to age, living and working environment;
- Protecting children and young people from advertising products and services that threaten pro-health attitudes and, consequently, health (limiting advertising of foods high in sugar, salt and fat in the media targeted at children under 16 and families);
- Developing communication strategies on obesity and its prevention, adapted to target groups, using modern social marketing techniques, at national and local level;

- Promoting culture without stigmatisation and discrimination of overweight and obese people;
- Building and developing national partnerships for the prevention and treatment of obesity with stakeholders and experts from various sectors, opinion leaders, the media and the employer community;
- Incentives and share best practices among local health services, focusing on children and adolescents (promotions aimed at children/teenagers, digital interventions, gamification, responsible partying, etc. – creation of a guide for local government units)
- Focusing on the goal of reducing obesity in the horizontal development policy of local government at all levels;
- Expanding environmental protection activities (counteracting air pollution as a factor increasing the tendency towards obesity among children);
- Incorporating obesity disease prevention, diagnosis and treatment in professional training for healthcare, education, sports and tourism staff, work organisation, social welfare, urban planning, culture and mass media;
- Promoting the safe use of information technologies and supporting a non-violent digital environment.

Strategic Direction 2

Strengthening the public healthcare system in the area of obesity diagnosis and treatment

Priorities in the diagnosis and treatment of obesity disease

- Improving the effectiveness of obesity diagnosis and monitoring
- Increasing the availability and effectiveness of diagnosis and comprehensive treatment of obesity
- Development of competences of medical professionals, in particular of primary care teams, in the field of obesity
- Improving the infrastructure of medical services for patients with obesity

Proposals for interventions and actions in the diagnosis and treatment of obesity::

- Improving the effectiveness of monitoring and evaluating obesity in the public statistics system (for example BMI reporting, digitalization of children's health balances)
- Increasing access to dietary advice in primary healthcare;
- Developing a comprehensive care model for obese patients in primary healthcare;
- Developing financial models to support comprehensive care for obese patients with a focus on health outcomes;
- Reimbursement of expenses for medical technologies with proven effectiveness and cost-effectiveness and actual increase in access to them;
- Increased investment in the development of comprehensive care centres for patients with obesity;
- Increasing availability of both drug and non-drug medical treatments technologies;
- Introducing obesitology skills and formal recognition of the competences of these specialists as the foundation of the public system for the diagnosis and treatment of obesity;
- Developing and disseminating access to comprehensive obesity treatment programmes KOS-BMI 30+ and KOS-BMI for children;
- Intensifying training for medical professionals in the diagnosis and treatment of obesity

9.6 The STOP OBESITY ecosystem – key mechanisms for implementing the strategy

Based on international experience, the authors of the assumptions for the national strategic plan for reducing obesity identified the following key mechanisms enabling the implementation of such a long-term and multidisciplinary strategy:

- research and innovation,
- communication and awareness raising,
- funding,
- coordination with other national strategies,
- coordination within local policies.

The research and innovation mechanism aims to ensure real progress in understanding obesity and its determinants and in planning effective preventive, diagnostic and treatment interventions for individuals and populations. This mechanism should establish a multidisciplinary network of experts in the field of obesity and its determinants, which will include regional and national scientific and social organisations and will cooperate with international organisations.

The communication and awareness-raising mechanism should raise social awareness of the causes and consequences of obesity and obesity prevention from the moment a child is conceived. Within this mechanism, a communication strategy should be implemented, focused on pro-

moting a healthy lifestyle directly to all age groups and indirectly in any environment of everyday life and human development, with particular emphasis on the juvenile population. A long-term strategy should integrate state and local government administration to implement coherent multi-channel campaigns.

In order to strengthen reach and effectiveness, the communication strategy should promote cooperation with the business sector in the framework of public-private partnerships.

The financing mechanism aims to ensure optimal measures and levels throughout the implementation period of the strategic plan. It is assumed that European funds will be used and a public-private partnership model will be developed on a scale previously unseen in Poland. Individual budget decisions should be detailed in the operational plans defined by the Inter-ministerial Committee for the Obesity Reduction Strategy, which supervises its implementation.

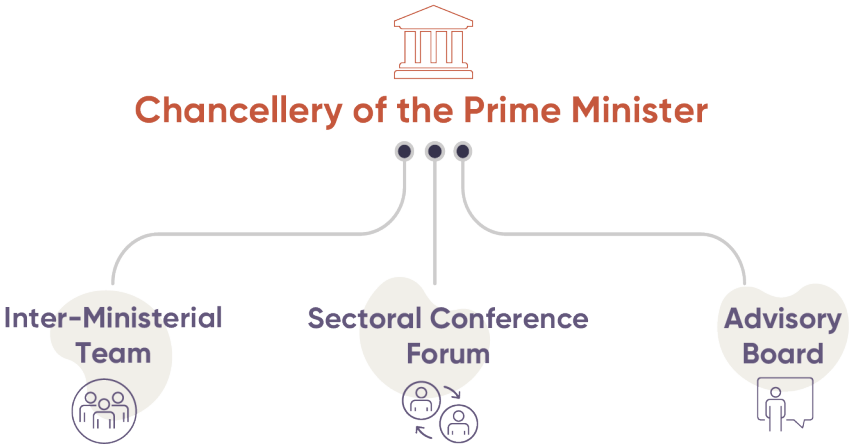
Coordination with other national strategies is a mechanism designed to ensure synergy of actions to reduce obesity undertaken by individual ministries and contained in plans, strategies and legal acts.

Coordination within local policies is a mechanism to achieve synergy of obesity reduction activities at the local government level by including obesity prevention into the priorities of the comprehensive development of the region

9.7 The STOP OBESITY ecosystem – strategy management diagram

Considering the multi-sectoral scope and long-term perspective of the national obesity reduction strategy, the authors of the document propose the adoption of the following management scheme based on three key entities responsible for the coordination, monitoring and evaluation of the implementation::

- **Inter-ministerial Committee for the Obesity Reduction Strategy,** leading the implementation of the strategy**:**
  - It is chaired institutionally by the Chancellery of the Prime Minister,
  - The Committee is composed of the ministries involved in the strategy and the team administering activities on behalf of the Committee;
- **Sector Conference Forum** – constituting the main "bridge" of cooperation between the national administration and local government units:
  - Sectoral Conferences are held periodically and enable the implementation of the national strategy at the regional level, and also strengthen the voice of local government units (LGUs) in public health management,
  - Each Sectoral Conference is devoted to one of the key issues of the national strategy at the interface of the national administration and local government units,
  - The work of the Sectoral Conferences Agency is managed by a coordinating team;
- **The Advisory Board** is made up of the Parliamentary Group on Combating Obesity, the Parliamentary Group on Healthcare Research and Innovation and the Partnership for the Prevention and Treatment of Obesity.



9.8 The STOP OBESITY ecosystem – indicators for monitoring the effectiveness of the strategic plan

The performance monitoring indicators in the STOP OBESITY model were developed based on Donabedian's concept of quality in healthcare.

Within the two strategic directions of development of the obesity reduction ecosystem, the authors proposed structural, process as well as outcome indicators consistent with the directions determined by structure and process development indicators. In accordance with the VBHC concept, the final list of indicators and their changes over time should be subject to agreement by the decision-making bodies of the national strategic plan for reducing obesity.

STRATEGIC DIRECTION 1	STRATEGIC DIRECTION 2
Fostering cultural changes and social attitudes focused on a healthy lifestyle by improving public systems in this area	**Enhancing the public healthcare system's capacity for diagnosing and treating obesity**
Structural indicators	**Structural indicators**
Number of institutions providing free drinking water in specific types of facilities	Number of doctors with obesitology skills
Number of educational institutions covered by healthy school standards	Number of comprehensive care centres for patients with obesity KOS-BMI 30 Plus per 100 thousand children
Number of public sports facilities with free access for people under 18	Number of comprehensive care centres for patients with obesity KOS-BMI Dzieci per 100 thousand children
Number of digital tools to intensify physical activity implemented at national level	Number of comprehensive care centres for patients with obesity KOS-BAR Dzieci per 100 thousand children
Number of school psychologists per 10 thousand pupils	Number of reimbursed anti-obesity drug technologies with proven efficacy and cost-effectiveness
Number of school nurses per 10 thousand pupils	Number of primary healthcare facilities providing dietician advice
Percentage of schools and kindergartens with their own catering facilities	
Access to sports and recreational facilities within a radius of 2 km from the place of residence of school-age children and youth	
Availability of sports halls and gyms per 10 thousand inhabitants	
Availability of indoor swimming pools per 10 thousand inhabitants	
Length of bicycle paths	

STRATEGIC DIRECTION 1	STRATEGIC DIRECTION 2
Process indicators	**Process indicators**
Number of hours completed in the field of nutritional and culinary education in individual age groups of pupils	Number of primary care facilities reporting BMI
Number of low-income families covered by subsidies for healthy food	Number of patients covered by the KOS BMI 30 Plus programme per 10 thousand inhabitants
Number of individuals with medically prescribed physical activity	Number of patients covered by the KOS BMI Dzieci programme per 100 thousand children
Number of obesity prevention programmes assessed and implemented	Number of patients covered by the KOS BMI 30 programme per 10 thousand inhabitants
Number of educational campaigns on healthy lifestyle implemented at the national level and their real reach (quantitative and qualitative measurement)	Number of patients covered by dietary advice within primary healthcare
Number of hours of physical activity in the core curriculum and outside the core curriculum in schools	Number of patients receiving pharmacotherapy for obesity
Number of people up to 18 years of age using free access to sports facilities	Median BMI of adults undergoing knee replacement surgery with primary diagnosis M17
Number of hours devoted to programmes on physical activation for specific age groups in the media	Number of patients, who purchased drugs for the treatment of obesity, and the number of purchased packages of drugs for the treatment of obesity, broken down by year
Number of national healthy sleep promotion programmes for specific age groups	Number of adult patients with a main diagnosis of diabetes who were provided with services
The reach and gain of the individual phases of the healthy lifestyle communication strategy	Percentage of adult patients undergoing knee replacement surgery for knee osteoarthritis, who were overweight or obese
Reducing the frequency and reach of advertising of unhealthy food products in the media	Number of services provided to adults due to fatty liver disease
	Number of adult patients with a primary diagnosis of arterial hypertension who were provided with services
	Number of adult patients with the main diagnosis of dyslipidemia who were provided with services
Outcome indicators	
Percentage of people with excess body weight (overweight and obesity) in age groups: up to 5 years, 6-9 years, 11-15 years and adults	
Social differences (by family income per person and by education level) among overweight people in the age groups: 6-9 years, 11-15 years and adults	
Gender differences among overweight individuals in age groups: 6-9 years, 11-15 years and adults	
Sedentary lifestyle in age groups: 6-9 years, 11-15 years and adults	
Consumption of selected food categories in specific age groups	
Number of hours devoted to physical activity, according to WHO recommendations, for age groups: 6-9 years, 11-15 years and adults	

STRATEGIC DIRECTION 1	STRATEGIC DIRECTION 2
Number of hours of sleep in age groups: 6-9 years, 11-15 years and adults	
The period of breastfeeding by young mothers	
Reduction in initial body weight and achievement of the primary outcome within the KOS-BMI Dzieci programme	
Reduction in body weight and achievement of the primary outcome within the KOS-BMI 30 Plus programme	
Reduction in body weight and achievement of the primary outcome within the KOS-BAR programme	
Number of days of sickness absence due to obesity	
Number of days of sickness absence due to employee illness due to knee degeneration	

List of tables

Charts index

References

Books, articles, reports

1. 2021 National Reform Programme of Hungary. Government of Hungary 2021. Source: https://ec.europa.eu/info/sites/default/files/nrp_2021_hungary_en.pdf.
2. A Healthy Weight For Ireland – Obesity Policy and Action Plan. 2016-2025. Link: Source: https://assets.gov.ie/10073/ccbd6325268b48da80b8a9e5421a9eae.pdf.
3. Abuznada S., Measuring the impact of participation in the Strong4Life CampProgram on the quality of life (QL) of overweight and obese CampersUsing the Peds QL-test, "Emory University" 2016; https://etd.library.emory.edu/concern/etds/jd472w66k?locale=it.
4. Action on obesity: Comprehensive care for all. Royal College of Physicians 2013. Source: https://www.rcplondon.ac.uk/file/1283/download.
5. Advertising Standards Authority (ASA) https://www.asa.org.uk/codes-and-rulings/advertising-codes/broadcast-code.html.
6. Aktionsplan „Weiterentwicklung IN FORM – Schwerpunkte des Nationalen Aktionsplans zur Prävention von Fehlernährung, Bewegungsmangel, Übergewicht und damit zusammenhängenden Krankheiten ab 2021. Source: https://www.bmel.de/SharedDocs/Downloads/DE/_Ernaehrung/GesundeErnaehrung/weiterentwicklung-inform.pdf?__blob=publicationFile&v=3.
7. Allan N., The Major of Oklahoma City Talks Obesity, "The Atlantic" 2010; https://www.theatlantic.com/politics/archive/2010/06/the-mayor-of-oklahoma-city-talks-obesity/58624/.
8. Atlas on childhood obesity. 2019 https://s3-eu-west-1.amazonaws.com/wof-files/11996_Childhood_Obesity_Atlas_Report_ART_V2.pdf.
9. Australian Institute of Health and Welfare "Australia's children – overweight and obesity" 2018; https://www.aihw.gov.au/reports/children-youth/australias-children/contents/health/overweight-obesity.
10. Bell L., Ullah S., Leslie E., Magarey A., Olds T., Changes in weight status, quality of life and behaviours of South Australian primary school children: results from the Obesity Prevention and Lifestyle (OPAL) community intervention program, "BMC Public Health" 2019 (19:1338); https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-019-7710-4.
11. Bertakis K., Azari R., Obesity and the Use of Health Care Services, "Obesity Research" 2005, Vol. 13/2, pp. 372-379, https://doi.org/10.1038/oby.2005.49.
12. Biro A., Did the junk food tax make the Hungarians eat healthier? Food Policy, Volume 54,2015.
13. Borys J. M., Le Bodo Y., Jebb S.A., Seidell J.C., Summerbell C. et al., EPODE approach for childhood obesity prevention: methods, progress and international development, "Obesity Review" 2012. 13 (4) 299-315; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3492853/.
14. Bray G.SA. (2004), Medical consequences of obesity. The Journal of clinical endocrinology and metabolism 89, 2583-2589.
15. Canada Health System Review. The North American Observatory on Health Systems and Policies (NAO), 2020. Source: https://apps.who.int/iris/bitstream/handle/10665/336311/HiT-22-3-2020-eng.pdf?sequence=1&isAllowed=y.
16. CBCOI – Community-Based Childhood Obesity Intervention (społecznościowa interwencja w zakresie otyłości dzieci).
17. Cecchini M., Use of healthcare services and expenditure in the US in 2025: The effect of obesity and morbid obesity, "PLOS ONE" 2018, Vol. 13/11, p. e0206703, https://doi.org/10.1371/journal.pone.0206703.
18. Centers for Disease Control and Prevention "Obesity among young children enrolled in WIC" 2022; https://www.cdc.gov/obesity/data/obesity-among-WIC-enrolled-young-children.html.
19. Chauliac M., Hercberg S., Changing the food environment: the French experience, "Am. Society for Nutrition" 2012 (3) 605-610; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3649733/pdf/605S.pdf.
20. Childhood obesity: a plan for action, UK 2016. Source: https://www.gov.uk/government/publications/childhood-obesity-a-plan-for-action.
21. CHRODIS "Young people at a healthy weight. JOGG, Netherlands"; http://chrodis.eu/wp-content/uploads/2017/03/young-people-at-a-healthy-weight--jogg.pdf.
22. Csige, I., Ujvárosy, D., Szabó, Z., Lőrincz, I., Paragh, G., Harangi, M., Somodi, S., et al., 2018. The impact of obesity on the cardiovascular system. Journal of diabetes research 2018.
23. Cukier, otyłość – konsekwencje. NFZ 2019 https://www.gov.pl/web/zdrowie/cukier-otylosc-konsekwencje-prezentacja-raportu.
24. d'Arcy J., Strong4Life campaign: shocking us into caring about childhood obesity, "Washington Post" 2012; https://www.washingtonpost.com/blogs/on-parenting/post/strong4life-campaign-shocks-us-into-caring-about-childhood-obesity/2012/01/02/gIQAwCdYYP_blog.html.
25. Daepp M.I., Gortmaker S.L., Wang Y.C., Long M.W., Kenney L.E., WIC food package changes: trends in childhood obesity prevalence, "Pediatrics" 143(5) 2019; https://pubmed.ncbi.nlm.nih.gov/30936251/.
26. Dekret nr 152 z 2009 r. (XI. 12.) FVM Ministerstwa Rolnictwa i Rozwoju Wsi w sprawie obowiązujących przepisów Codex Alimentarius Hungaricus. Source: https://leap.unep.org/countries/hu/national-legislation/decree-no-152-2009-xi-12-fvm-ministry-agriculture-and-rural.
27. Dekret w sprawie działalności pracowników służby zdrowia i innych specjalistów z 2011 roku (Dekret nr

55/2011 Dz.). Source: https://www.zakonyprolidi.cz/cs/2011-55.

28. Dozsa, Csaba & Illes, Lilla & Lazar, Gy & Mohos, E & Higgins, A & Helter, Timea. Cost-utility analysis of different bariatric surgeries in Hungary. 17/2018, p. 63-68.
29. Drake C., Strong4Life childhood obesity campaign stirs up controversy, "HCP Live" 2012; https://www.hcplive.com/view/strong4life-childhood-obesity-campaign-stirs-up-controversy.
30. Early Intervention Foundation https://guidebook.eif.org.uk/programmes/henry.
31. Effertz T. et al., The costs and consequences of obesity in Germany: a new approach from a prevalence and life-cycle perspective, "The European Journal of Health Economics" 2016, Vol. 17/9, pp. 1141-1158, https://doi.org/10.1007/s10198-015-0751-4.
32. Enhanced service specification. Weight management 2021/22, NHS. Source: https://www.england.nhs.uk/wp-content/uploads/2021/06/B0699-ess-weight-management-21-22.pdf.
33. European Commission, Directorate-General for Health & Consumers "EPODE European Network (EEN). Context, objectives and operational description", 2008; https://webgate.ec.europa.eu/chafea_pdb/assets/files/pdb/2007327/EEN_memo.pdf.
34. Förderschwerpunkt Prävention von Übergewicht bei Kindern und Jugendlichen. Bundesministerium für Gesundheit 2021. Source: https://www.bundesgesundheitsministerium.de/themen/praevention/kindergesundheit/praevention-von-kinder-uebergewicht.html.
35. Fryer C.D., Carroll M.D., Afful J., Prevalence of overweight, obesity and sever obesity among children and adolescents aged 2-19 years: United States, 1963-65 through 2017-2018, National Centre for Health Statistics 2020; https://www.cdc.gov/nchs/data/hestat/obesity-child-17-18/overweight-obesity-child-H.pdf.
36. Galvin B., „Oklahoma City's Renaissance", US News 2017; https://www.usnews.com/news/healthiest-communities/articles/2017-11-01/oklahoma-citys-road-from-fat-to-fit.
37. Gomez Santos S.F., Estevez Santiago R., Palacios N. at al., THAO-child health programme: community-based intervention for healthy lifestyles promotion to children and families: results of a cohort study, "Nutricion Hospitalaria" 2015, 32(6): 2584-2587; https://pubmed.ncbi.nlm.nih.gov/26667707/.
38. Hales C.M., Fryer C.D., Carroll M.D., Trends in obesity and severe obesity prevalence in US youth and adults by sex and age, 2007-2008 to 2015-2016, "American Medical Association by JAMA Network" 2018 (319)16; https://jamanetwork.com/journals/jama/fullarticle/2676543.
39. Harmonogram do Narodowej Strategii Zdrowia 2020. Source: https://www.mzcr.cz/wp-content/uploads/wepub-upload/files/5/ak%C4%8Dn%C3%AD%20pl%C3%A1ny%20-%20p%C5%99%C3%ADlohy/AP%2002b%20prevence%20obezity_harmonogram.pdf.
40. Hawes A., An examination on demographic associations predicting success in the children's healthcare od Atlanta's Strong4Life Program, Georgia State University, School of Public Health 2015, https://scholarworks.gsu.edu/iph_theses/395/.
41. Hawkes C., Russell S., Isaacs A., Rutter H., Viner R., What can be learned from Amsterdam Healthy Weight programme to informe the policy response to obesity in England?, "Obesity Policy Research Unit (OPRU)", University College London 2017; https://www.ucl.ac.uk/obesity-policy-research-unit/sites/obesity-policy-research-unit/files/what-learned-from-amsterdam-healthy-weight-programme-inform-policy-response-obesity-england.pdf.
42. Huiberts I., Singh A., Collard D., Hendriks M., Implementation of the JOGG approach: unpacking the complex implementation process of community-based healthy promotion using the Critical Event Card, "European Journal of Public Health" 2023 (vol.33) ckad 133.141; https://academic.oup.com/eurpub/article/33/Supplement_1/ckad133.141/7265796.
43. IN FORM – Deutschlands Initiative für gesunde Ernährung und mehr Bewegung. Bundesministerium für Ernährung und Landwirtschaft 2021. Source: https://www.bmel.de/DE/themen/ernaehrung/gesunde-ernaehrung/aktionsprogramm-in-form/aktionsprogramm-in-form_node.html.
44. Informacja o wynikach kontroli realizacji zadań w zakresie zapobiegania nadwadze i otyłości u dzieci i młodzieży szkolnej. Najwyższa Izba Kontroli 2011. Source: https://www.nik.gov.pl/plik/id,3276,vp,4137.pdf.
45. Informacja o wynikach kontroli w zakresie dostępności profilaktyki i leczenia dla dzieci i młodzieży z zaburzeniami metabolicznymi wynikającymi z otyłości i chorób cywilizacyjnych. Najwyższa Izba Kontroli 2021. Source: https://www.nik.gov.pl/plik/id,25237,vp,27987.pdf.
46. Interwencja stylu życia w przypadku ciężkiej otyłości Rekomendacje ofert dla dzieci i dorosłych. Dania 2021. Source: https://www.sst.dk/-/media/Udgivelser/2021/Overvaegt/Livsstilsintervention-ved-svaer-overvaegt.ashx.
47. Istituto Superiore di Sanità, EpiCentro – L'epidemiologia per la sanità pubblica 2021. Source: https://www.epicentro.iss.it/passi/dati/sovrappeso.
48. James M., Parkhurst A., Paxman J., Tackling Obesity – what the UK can learn from other countries, 2020health – making health personal; London 2018; https://2020health.org/?s=tackling+obesity.
49. Koivusilta L., Alanne S., Kamila M., Stahl T., A qualitative study on multisector activities to prevent childhood obesity in the municipality od Seinajoki, Finland, "BMC Public Health" 2022 (22:1298); https://pubmed.ncbi.nlm.nih.gov/35794541/.
50. Kremers H., et al., Obesity Increases Length of Stay and Direct Medical Costs in Total Hip Arthroplasty, "Clinical Orthopaedics and Related Research®" 2014, Vol. 472/4, pp. 1232-1239, https://doi.org/10.1007/s11999-013-3316-9.
51. Kremers H., et al., The Effect of Obesity on Direct Medical Costs in Total Knee Arthroplasty, "The Journal of Bone and Joint Surgery-American Volume" 2014, Vol. 96/9, pp. 718-724, https://doi.org/10.2106/JBJS.M.00819.
52. La Moncloa "Plan estrategico nacional para la reduccion de la obesidad infantil (2022-2030) – EN PLAN BIEN"; https://www.lamoncloa.gob.es/presidente/actividades/Documents/2022/100622-plan-estrategico-nacional-reduccion-obesidad-infantil_en-plan-bien.pdf.
53. Lobstein et al., 2023, https://www.worldobesityday.org.
54. Mahase E., Global cost of overweight and obesity will hit $4.32tn a year by 2035, report warns BMJ 2023;

380 :p523 doi:10.1136/bmj.p523 https://www.bmj.com/content/380/bmj.p523

55. Ministerstwo Zdrowia i Prewencji Francji https://sante.gouv.fr/prevention-en-sante/preserver-sa--sante/le-programme-national-nutrition-sante/article/programme-national-nutrition-sante-pnns-professionnels.
56. Model of Care for the Management of Overweight and Obesity. Source: https://www.hse.ie/eng/about/who/cspd/ncps/obesity/model-of-care/obesity-model-of--care.pdf.
57. Morgan K., et al., Obesity in pregnancy: a retrospective prevalence-based study on health service utilisation and costs on the NHS, "BMJ open" 2014, Vol. 4/2, p. e003983, https://doi.org/10.1136/bmjopen-2013-003983.
58. Musuwo N., International policies to reduce childhood obesity – a health action campaign review, 2019; https://www.healthactionresearch.org.uk/assets/documents/international-childhood-obesit.
59. Musuwo N., International policies to reduce childhood obesity – a health action campaign review, 2019; https://www.healthactionresearch.org.uk/assets/documents/international-childhood-obesit.
60. Nagi M. A., Ahmed H., Rezq M. A. A., Sangroongruangsri S., Chaikledkaew U., Almalki Z., Thavorncharoensap M., Economic costs of obesity: a systematic review, "Int J Obes (Lond)" 2023 Oct 26. doi: 10.1038/s41366-023-01398-y. Epub ahead of print. PMID: 37884664.
61. Narodowy Program Zapobiegania Nadwadze i Otyłości oraz Przewlekłym Chorobom Niezakaźnym, poprzez Poprawę Żywienia i Aktywności Fizycznej -„POL-HE-ALTH" 2007-2011. Source: http://www.archiwum.mz.gov.pl/zdrowie-i-profilaktyka/promocja-zdrowia/dzialania-w-ramach-programow-zdrowotnych/narodowy-program-przeciwdzialania-chorobom-cywilizacyjnym/modul-i-program-zapobiegania-nadwadze-i-otylosci-oraz-przewleklym-chorobom-niezakaznym-poprzez-poprawe-zywienia-i-aktywnosci-fizycznej-pol-health/.
62. National Child Measurement Programme UK. Source: https://digital.nhs.uk/services/national-child-measurement-programme/.
63. National Institute for Health and Care Research "Evaluation of the sustainable obesity prevention programme at scale HENRY: effectiveness, cost-effectiveness and its role in obesity prevention within the wider complex system", 2023; https://fundingawards.nihr.ac.uk/award/NIHR135081.
64. NCD Risk Factor Collaboration (2017) and World Obesity Federation projections.
65. New calorie labelling rules come into force to improve nation's health. Department of Health and Social Care 2022. Source: https://www.gov.uk/government/news/new-calorie-labelling-rules-come-into-force-to-improve-nations-health.
66. New services launched to help people achieve a healthier weight and improve wellbeing, UK Government 2021. Source: https://www.gov.uk/government/news/new-services-launched-to-help-people-achieve-a-healthier-weight-and-improve-wellbeing.
67. NFZ o zdrowiu. Otyłość i jej konsekwencje, Warszawa 2024, www.nfz.gov.pl
68. NHS Digital 2004, https://digital.nhs.uk/data-and-information/publications/statistical/health--survey-for-england/health-survey-for-england-2-004-updating-of-trend-tables-to-include-childhood-obesity-data.
69. NHS School Fruit and Vegetable Scheme https://www.nhs.uk/Livewell/5ADAY/Documents/SFVS%20Factfile%20Newsletter%20May%202015.pdf.
70. Obesity and Work Challenging stigma and discrimination, Institute for Employment Studies 2019. Source: https://www.employment-studies.co.uk/system/files/resources/files/526.pdf.
71. Obesity Canada. Source: https://obesitycanada.ca/oc-news/a-national-obesity-strategy-are-we-there-yet/.
72. Obesity: identification, assessment and management, NICE 2014. Source: https://www.nice.org.uk/guidance/cg189/chapter/1-Recommendations#pharmacological-interventions.
73. Obwieszczenie Ministra Zdrowia z dnia 18 marca 2024 r. w sprawie wykazu refundowanych leków, środków spożywczych specjalnego przeznaczenia żywieniowego oraz wyrobów medycznych na 1 kwietnia 2024 r. (DZ. URZ. Min. Zdr. 2024.19 Ogłoszony: 18.03.2024).
74. Odpowiedź Ministra Zdrowia w sprawie objęcia refundacją produktów leczniczych wspierających leczenie otyłości. Ministerstwo Zdrowia, Warszawa 2021. Source: https://www.gov.pl/attachment/e2f9d84d-24cb-4223-9529-caa363ddbbfb.
75. OECD „Young people at a Healthy Weight (JOGG): case study overview"; https://www.oecd-ilibrary.org/sites/de158cb6-en/index.html?itemId=/content/component/de158cb6-en.
76. Opieka zdrowotna świadczona w ramach publicznej ochrony zdrowia w obszarze otyłości. Narodowa Służba Zdrowiaw Portugalii 2019 (dostęp dn. 27.11.2022r.). Source: https://www.ers.pt/uploads/writer_file/document/2448/ERS_-_Cuidados_obesidade_SNS.pdf.
77. Otyłość epidemią XXI wieku. Fundacja Republikańska 2021 https://fundacjarepublikanska.org/otylosc-epidemia-xxi-wieku/.
78. Otyłość: ocena kliniczna i postępowanie. NICE 2016. Source: https://www.nice.org.uk/guidance/qs127/chapter/Introduction#coordinated-services.
79. Otyłość: optymalizacja podejścia terapeutycznego w państwowej służbie zdrowia. Ogólnopolski Program Promocji Zdrowego Odżywiania. Departament Jakości Zdrowia 2017 (dostęp dn. 27.11.2022r.). Source: https://nutrimento.pt/activeapp/wp-content/uploads/2017/10/Obesidade_otimizacao-da-abordagem-terapeutica-no-servi%C3%A7o-nacional-de-saude.pdf.
80. Padula W., Allen R., Nair K., Determining the cost of obesity and its common comorbidities from a commercial claims database, "Clinical Obesity" 2014, Vol. 4/1, pp. 53-58, https://doi.org/10.1111/cob.12041.
81. Pe cine îngrașă taxa pe zahăr. Ce alte țări o mai folosesc. Europa Libera Romania. Source: https://romania.europalibera.org/a/pe-cine-ingrasa-taxa-pe-zahar-ce-alte-tari-o-mai-folosesc-/30095557.html.
82. Pettigrew S., Borys J.M., Ruault du Plessis H. at al., Process evaluation outcomes from a global child obesity prevention intervention, "BMC Public Health" 14, Article number 757 (2014); https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-14-757.

83. Pharmacotherapy in Obesity Management. Guidelines. Obesity Canada. Source: https://obesitycanada.ca/wp-content/uploads/2021/05/Pharmacotherapy-v6--with-links.pdf.

84. Polityka - 71/2013. (XI. 20.) Dekret EMMI: w sprawie maksymalnej ilości kwasów tłuszczowych trans dopuszczonych do żywności. Source: https://extranet.who.int/nutrition/gina/en/node/25332 [access: 10.06.2022r.].

85. Polityka JOGG zgodna z inicjatywą WHO „Szkoły przyjazne żywieniu" (Nutrition- Friendly School Initiative, NFSI), zakładającą ciągłe szkolenie personelu szkolnego w zakresie żywienia i kwestii związanych ze zdrowiem. Dowody stojące za NFSI wykazały, że inwestowanie w permanentne szkolenia, wsparcie i komunikację nauczycieli ma pozytywny wpływ na wyniki zdrowotne takie jak BMI i poziom aktywności fizycznej (WHO: https://www.who.int/news/item/28-01-2021-issuing-of-nutrition-action-in-schools-a-review-of-evidence-related-to-the-nutrition-friendly-schools-initiative).

86. Poziomy kompleksowej opieki w otyłości we Francji. Source: https://www.sante.fr/la-gradation-des-soins-dans-le-plan-obesite.

87. Pre-budget Submission to the House of Commons Standing Committee on Finance, August 2020. Obesity Canada. Source: https://obesitycanada.ca/wp-content/uploads/2020/09/Obesity-Canada-Pre-Budget--Submission-2021-FINAL.pdf.

88. Program DIATROFI. EuroHealthNet 2019. Source: https://eurohealthnet-magazine.eu/ga/food-aid-and-healthy-nutrition-programmes-in-schools-what-works/.

89. Program kompleksowej opieki medycznej dla chorych na otyłość olbrzymią leczoną chirurgicznie, Ministerstwo Zdrowia, Warszawa 2021. Source: https://www.gov.pl/web/zdrowie/program-kompleksowej-opieki-medycznej-dla-chorych-na-otylosc-olbrzymia-leczona-chirurgicznie.

90. Programul educațional „Traista cu sănătate" a ajuns la peste 50.000 de copii din județul Iași. Source: https://www.bursa.ro/programul-educational-traista-cu-sanatate-a-ajuns-la-peste-50000-de-copii-din-judetul-iasi-42208642.

91. Public Health England „Whole systems approach to obesity. A guide to support local approaches to promoting a healthy weight", 2019; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820783/Whole_systems_approach_to_obesity_guide.pdf.

92. Public health profiles: obesity. Office for Health Improvement & Disparities. Source: https://fingertips.phe.org.uk/search/obesity.

93. Rajbhandari-Thapa J., Bennett A., Keong F., Palmer W., Hardy T., Welsh J., Effect of the Strong4Life school nutrition program on cafeterias and on manager and staff member knowledge and practice, JSTORE Collection – Public Health Reports 2015; https://www.jstor.org/stable/26374223.

94. Recomandări Pentru Îngrijirea Persoanelor Cu Obezitate in România. Federația Română de Diabet, Nutriție și Boli Metabolice Societatea Română de Endocrinologie, 2022. Source: https://www.sre.ro/wp-content/uploads/Recomandari-POB-full-text-2022.pdf.

95. Romania's Sustainable Development Strategy 2030. Source: http://extwprlegs1.fao.org/docs/pdf/rom195029.pdf.

96. Romon M., Lommez A., Tafflet M., Basdevant A., Oppert J. M., Bresson J. L. et al., Downwards trends in the prevalence od childhood overweight in the setting of 12-year school- and community-based programmes, "Public Health Nutr." 2009, Oct. 12(10), 1735-42; https://pubmed.ncbi.nlm.nih.gov/19102807/.

97. Rozporządzenie (WE) nr 1924/2006 Parlamentu Europejskiego i Rady z dnia 20 grudnia 2006 r. w sprawie oświadczeń żywieniowych i zdrowotnych dotyczących żywności. Source: https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=CELEX%3A32006R1924.

98. Rozporządzenie Ministra Rolnictwa i Rozwoju Wsi z dnia 10 lipca 2007 r. w sprawie znakowania środków spożywczych (Dz.U. 2007 nr 137 poz. 966).

99. Rozporządzenie Ministra Rolnictwa i Rozwoju Wsi z dnia 23 grudnia 2014 r. w sprawie znakowania poszczególnych rodzajów środków spożywczych (Dz.U. 2015 poz. 29).

100. Rozporządzenie Ministra Zdrowia z dnia 12 sierpnia 2021 r. w sprawie programu pilotażowego w zakresie kompleksowej opieki specjalistycznej nad świadczeniobiorcami leczonymi z powodu otyłości olbrzymiej KOS-BAR (Dz.U. 2021 poz. 1622).

101. Rozporządzenie nr 245/2018 rozporządzenie określające warunki dostępu pacjentów i podmiotów oraz ceny i świadczenia zdrowotne do realizacji w ramach Programu Chirurgicznego Leczenia Otyłości (PTCO). Source: https://files.dre.pt/1s/2018/09/16900/0441804422.pdf.

102. Rozporządzenie Rady Ministrów z dnia 30 marca 2021 r. w sprawie Narodowego Programu Zdrowia na lata 2021–2025 (Dz.U. 2021 poz. 642).

103. Rudolf M., Tackling obesity through the healthy child programme: a framework for action, "University of Leeds" 2010; https://www.henry.org.uk/sites/default/files/2017-11/Framework-for-Action-tackling-child-obesity-through-the-Healthy-Child-Programme.pdf.

104. Sawyer A., den Hertog K., Verhoeff A. P., Busch W., Stronks K., Developing the logic framework underpinning a whole systems approach to childhood overweight and obesity prevention: Amsterdam Healthy Weight Approach, "Obesity Science and Practice" 2021, 7:591-605; https://onlinelibrary.wiley.com/doi/full/10.1002/osp4.505.

105. School nutrition: Support for providing healthy food and beverage choices in schools. Canadian Peadiatric Society, 2020. Source: https://cps.ca/en/documents/position/school-nutrition-support.

106. SEEN – kompleksowe podejście kliniczne do otyłości w wieku dorosłym, 2022. Source: https://www.seen.es/portal/areas-conocimiento/obesidad/documentos/consensos-guias/abordaje-clinico-integral-seen-obesidad-edad-adulta.

107. SELECT: Semaglutide Reduces Risk of MACE in Adults With Overweight or Obesity – American College of Cardiology (acc.org).

108. Sistemul clasificării alimentelor pe culori se va aplica și în România. Culoarea de pe ambalaj, în funcție de cât de sănătoase sunt. Source: https://www.digi24.ro/stiri/actualitate/sistemul-clasificarii-alimentelor-pe-culori-se-va-aplica-si-in-romania-culoarea-de-pe-ambalaj-in-functie-de-cat-de-sanatoase-sunt-1923567.

109. Skinner A.C., Steiner M.J., Henderson F.W., Perrin E.M., Multiple markers of inflammation and weight status: cross-sectional analyses throughout childhood, "Pediatrics" 2010 Apr, 125(4), s. 801-809; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2909480/.

110. Slot-Heijs J. J., Collard D.C.M., et al., The training and support needs of 22 directors of community-based--childhood obesity interventions based on the EPODE approach: an online survey across programmes in 18 countries, "BMC Health Services Research" 2020.

111. Social care and obesity at UK. Local Government Association 2020. Source: https://www.local.gov.uk/sites/default/files/documents/1.112%20Social%20care%20and%20obesity_06.pdf.

112. Sugar Sweetened Drinks Tax (SSDT). Urząd Komisarzy Skarbowych w Irlandii. Source: https://www.revenue.ie/en/companies-and-charities/excise-and-licences/sugar-sweetened-drinks-tax/rate-of-tax.aspx.

113. Summerbell C.D., Waters E., Edmunds L.D., Kelly S., Brown T., Campbell K.J., Interventions for preventing obesity in children, "Cochrane Database Syst Rev" 2005,3:CD001871; https://pubmed.ncbi.nlm.nih.gov/16034868/ (access: 11 February 2023).

114. Światowa Organizacja Zdrowia „Finland curbs childhood obesity by integrating health in all policies" 2015; https://www.who.int/news-room/feature-stories/detail/finland-curbs-childhood-obesity-by-integrating-health-in-all-policies.

115. Światowa Organizacja Zdrowia https://extranet.who.int/nutrition/gina/en/node/8427.

116. Tackling obesity: empowering adults and children to live healthier lives 2020. Department of Health and Social Care. Source: https://www.gov.uk/government/publications/tackling-obesity-government-strategy/tackling-obesity-empowering-adults-and-children-to-live-healthier-lives.

117. The Health Foundation https://navigator.health.org.uk/theme/healthy-weight-healthy-lives-cross-government-strategy-england-document.

118. The Heavy Burden of Obesity: The Economics of Prevention, OECD Health Policy Studies, OECD Publishing, Paris 2019, https://doi.org/10.1787/67450d67-enhttps://www.oecd.org/health/the-heavy-burden-of-obesity-67450d67-en.htm.

119. Theis D.R.Z., White M., Is obesity policy in England fit for purpose? Analysis of government strategies and policies, 1992-2020, "The Milbank Quarterly" 2021 Mar.99(1): 126-170; https://pubmed.ncbi.nlm.nih.gov/33464689/.

120. UK Parliament http://data.parliament.uk/DepositedPapers/Files/DEP2008-2168/DEP2008-2168.pdf.

121. UNICEF "Amsterdam healthy weight approach. Investing in healthy urban childhoods: a case study on heathy diets for children", 2020; https://www.unicef.org/documents/amsterdam-healthy-weight-approach-investing-healthy-urban-childhoods-case-study-healthy.

122. Ustawa o warunkach nabywania i uznawania kompetencji w wykonywaniu niemedycznych zawodów medycznych oraz o wykonywaniu czynności związanych ze świadczeniem opieki zdrowotnej oraz o zmianie niektórych ustaw pokrewnych (ustawa o pozamedycznych zawodach zdrowotnych) (Ustawa nr 96/2004 Dz.). Source: https://www.zakonyprolidi.cz/cs/2004-96.

123. Ustawa w zakresie podatków pośrednich i państwowych monopoli finansowych (Ustawa nr. 30/1946 Dz.). Source: https://www.epi.sk/zz/1946-30.

124. Vinck J., Brohet C., Roillet M., Dramaix M. at al., Downwards trends in the prevalence of childhood overweight in two pilot towns taking part in the VIASANO community-based programme in Belgium: data from a national school health monitoring system, "Pediatric Obesity" 2016 Feb, 11(1): 61-67; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6680259/.

125. Węgry – Narodowy Instytut Rozwoju Zdrowia (OEFI) – Biura Promocji Zdrowia. EuroHealthNet Magazine. Source: https://eurohealthnet-magazine.eu/health-promoting-offices/.

126. What can the pharmacist do for his adult patients with eating disorders or obesity?MEDICHUB MEDIA 2019. Source: https://www.medichub.ro/reviste/farmacist--ro/ce-poate-face-farmacistul-pentru-pacientii-sai-adulti-cu-tulburari-de-alimentatie-sau-obezitate-id-2333-cmsid-62.

127. WHO "Policy – Healthy Weight, Healthy Lives: a cross--govermnent strategy for England" 2008; https://extranet.who.int/nutrition/gina/en/node/8322 (access: 30 March 2023).

128. WHO European Regional Obesity Report 2022 https://iris.who.int/bitstream/handle/10665/353747/9789289057738-eng.pdf?sequence=1.

129. Whole systems approach to obesity. A guide to support local approaches to promoting a healthy weight. Public England Health 2021. Source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820783/Whole_systems_approach_to_obesity_guide.pdf.

130. Willis T.A., George J., Hunt C., at al., Combating child obesity: impact of HENRY on parenting and family lifestyle, "Pediatric Obesity" 2013; https://www.henry.org.uk/sites/default/files/2017-12/5.Combating_child_obesity-impact_of_HENRY_on_parenting_and_family_lifestyle_(2014).pdf.

131. Wojcicki J.M., Heyman M.B., Let's move – childhood obesity prevention from pregnancy and infancy onward, "N Engl J Med." 2010 April 22, 362(16), s. 1457-1459; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3250598/pdf/nihms339301.pdf.

132. World Obesity Atlas 2022 https://www.worldobesity.org/resources/resource-library/world-obesity-atlas-2022.

133. World Obesity Atlas 2022. World Obesity Federation 2022. Source: https://s3-eu-west-1.amazonaws.com/wof-files/World_Obesity_Atlas_2022.pdf.

134. Wytyczne dotyczące profilaktyki i walki z nadwagą i otyłością. Włochy 2022. Source: https://www.salute.gov.it/imgs/C_17_pubblicazioni_3256_allegato.pdf.

135. Zdraví 2020 Národní strategie ochrany a podpory zdraví a prevence nemocí. Ministerstvo zdravotnictví 2015.

136. Zintegrowany proces pomocy dla osób dorosłych z ryzykiem rozwoju otyłości. Departament Jakości Zdrowia 2017. Source: https://alimentacaosaudavel.dgs.pt/activeapp2020/wp-content/uploads/2020/01/Processo-assistencial-integrado-da-pre%CC%81-obesidade-no-adulto.pdf.

Websites:

1. Become A Certified Bariatric Educator. Obesity Canada. Source: https://obesitycanada.ca/resources/cbe/
2. Certyfikacja i akredytacja w zakresie standardów postepowania z otyłością. Polskie Towarzystwo Badań nad Otyłością. Source: https://ptbo.org.pl/certyfikacja-i-akredytacja/
3. European Commission – CHAFEA Health Programmes Database; https://webgate.ec.europa.eu/chafea_pdb/health/projects/20111209/summary
4. Government of South Australia https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/healthy+living/healthy+communities/local+community/opal/opal
5. http://www.arsalentejo.min-saude.pt/utentes/saudepublica/AreasSaude/Alimentacao/ProjetosRegionais/Paginas/5-ao-dia,-faz-crescer-com-energia.aspx
6. http://www.eyto.org.uk/about/the-campaigns/luta-por-ti/
7. http://www.fruttanellescuole.gov.it/il-programma/chi-e-rivolto
8. https://abreuadvogados.com/en/knowledge/publications/articles-en/restrictions-on-advertising-aimed-at-minors-of-determined-foodstuffs-and-beverages/
9. https://agriculture.ec.europa.eu/common--agricultural-policy/market-measures/school-fruit-vegetables-and-milk-scheme/school-scheme-explained_en
10. https://alimentacaosaudavel.dgs.pt/activeapp2020/wp-content/uploads/2015/04/Compromissos-da-industria-alimentar-sobre-Alimentacao-Atividade-Fisica-e-Saude.pdf
11. https://alimentacaosaudavel.dgs.pt/projects-and-partnerships/national-projects-nutri-ventures/
12. https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf
13. https://boe.es/buscar/doc.php?id=BOE-A-2019-6994
14. https://data.worldobesity.org/country/denmark-55/#data_policies
15. https://data.worldobesity.org/country/france-71/#data_policies
16. https://data.worldobesity.org/country/portugal-174/#data_policies
17. https://data.worldobesity.org/country/portugal--174/#data_policies; https://agriculture.ec.europa.eu/common-agricultural-policy/market-measures/school-fruit-vegetables-and-milk-scheme/school-scheme-explained_en
18. https://data.worldobesity.org/country/spain-199/#data_policies
19. https://eipas.pt
20. https://elpais.com/sociedad/2022-06-10/el-gobierno-quiere-garantizar-comedores-escolares-en-escuelas-e-institutos-en-2030-para-luchar-contra-la-obesidad-infantil.html
21. https://eur-lex.europa.eu/legal-content/IT/ALL/?uri=CELEX:32006R1924
22. https://extranet.who.int/ncdccs/Data/DNK_B13_Fysisk%20aktivitet%20%c3%a2%e2%82%ac%e2%80%9c%20h%c3%83%c2%a5ndbog%20om%20forebyggelse%20og%20behandling.pdf
23. https://extranet.who.int/ncdccs/Data/ITA_B13_LINEE_INDIRIZZO_AF.pdf
24. https://extranet.who.int/ncdccs/Data/PRT_B10_Healthy_Eating_Portugal.pdf
25. https://extranet.who.int/nutrition/gina/en/node/27123
26. https://food.ec.europa.eu/system/files/2018-06/comm_ahac_20180622_pres06a.pdf
27. https://fuldkorn.dk/english/
28. https://fvm.dk/publikationer/publikation/pub/hent-fil/publication/strategy-for-food-meals-and-health/
29. https://healthystadia.eu
30. https://ind.millenniumbcp.pt/pt/geral/fiscalidade/Pages/2017/Novo-imposto-sobre-bebidas-com-acucar.aspx
31. https://invs.santepubliquefrance.fr/Publications-et-outils/Rapports-et-syntheses/Maladies-chroniques-et-traumatismes/2019/Recommandations-relatives-a-l-alimentation-a-l-activite-physique-et-a-la-sedentarite-pour-les-adultes
32. https://jogg.nl/about-jogg
33. https://letsmove.obamawhitehouse.archives.gov/healthierus-school-challenge
34. https://min.medicin.dk/sygdomme/sygdom/39
35. https://onlinedegrees.unr.edu/blog/childhood-obesity-as-an-epidemic/
36. https://passe.com.pt/home
37. https://policydatabase.wcrf.org/level_one?page=nourishing-level-one#step2=2#step3=315
38. https://pubmed.ncbi.nlm.nih.gov/23114947/
39. https://pubmed.ncbi.nlm.nih.gov/29320810/
40. https://skoleidraet.dk/aktivefrikvarterer/forside/
41. https://solidarites-sante.gouv.fr/prevention-en-sante/preserver-sa-sante/le-programme-national-nutrition--sante/article/programme-national-nutrition-sante-pnns-professionnels
42. https://solidarites-sante.gouv.fr/soins-et-maladies/prises-en-charge-specialisees/obesite/article/feuille--de-route-2019- 2022?TSPD_101_R0=087dc22938ab2000076765062848 81d7e591d3b7cbd54feff1614eb0cec624d4a0aa0d2ebd4ee007087946f88c143000fce7effafe0b6fa89153a93f8a6b211cf92aa39fdc71b7ca0a39e875c-fbe693da076aba83c4688f0901019c0aec6ec8a
43. https://sport.ec.europa.eu/sites/default/files/physical-activity-factsheets-2018/physical-activity-factsheets-2018/denmark-physical-activity-factsheet-2018_en.pdf
44. https://sundhedsstyrelsen.dk/en/publications/2003/national-action-plan-against-obesity
45. https://www.aesan.gob.es/AECOSAN/web/nutricion/seccion/estrategia_naos.htm
46. https://www.aesan.gob.es/AECOSAN/web/nutricion/seccion/estrategia_naos.htm.

47. https://www.alleboerncykler.dk/
48. https://www.amsterdam.nl/sociaal-domein/aanpak-gezond-gewicht/amsterdam-healthy-weight-programme/
49. https://www.asae.gov.pt/?cn=739975347538A-AAAAAAAAAAA&ur=1&newsletter=5131
50. https://www.crea.gov.it/documents/59764/0/LINEE--GUIDA+DEFINITIVO.pdf/28670db4-154c-0ecc-d187--1ee9db3b1c65?t=1576850671654
51. https://www.cun.es/enfermedades-tratamientos/tratamientos/cirugia-bariatrica
52. https://www.danskindustri.dk/globalassets/kodeks--redesign_2022.pdf?v=220822
53. https://www.dgs.pt/ficheiros-de-upload-2013/pnpaf--ipdj-plano-nacional-desporto-todos-2016-pdf.aspx
54. https://www.dgs.pt/programa-nacional-para-a-promocao-da-atvidade-fisica.aspx
55. https://www.dgs.pt/promocao-da-saude/educacao--para-a-saude/areas-de-intervencao/alimentacao.aspx
56. https://www.dst.dk/da/informationsservice/oss/vaegt
57. https://www.education.gouv.fr/education-l-alimentation-et-au-gout-7616
58. https://www.education.gouv.fr/plus-de-sport-l-ecole-une-grande-priorite-pour-le-sport-306483
59. https://www.ema.europa.eu/pl/documents/product-information/mounjaro-epar-product-information_pl.pdf
60. https://www.ema.europa.eu/pl/documents/product-information/mysimba-epar-product-information_pl.pdf
61. https://www.ema.europa.eu/pl/documents/product-information/ozempic-epar-product-information_pl.pdf
62. https://www.ema.europa.eu/pl/documents/product-information/saxenda-epar-product-information_pl.pdf
63. https://www.ema.europa.eu/pl/documents/product-information/xenical-epar-product-information_pl.pdf
64. https://www.euro.who.int/__data/assets/pdf_file/0006/155436/e96047.pdf
65. https://www.fao.org/nutrition/education/food--dietary-guidelines/regions/countries/Denmark/en.
66. https://www.fao.org/nutrition/education/food--dietary-guidelines/regions/countries/spain/en/
67. https://www.fiscal-requirements.com/news/1574
68. https://www.foodnavigator.com/Article/2017/10/31/Nutri-Score-labelling-comes-into-force-in-France
69. https://www.gasolfoundation.org/es/coach/
70. https://www.gasolfoundation.org/wp-content/uploads/2022/06/Plan-Estrate%CC%81gico-Nacional-para-la-Reduccio%CC%81n-de-la-Obesidad-Infantil-Gasol-Foundation.pdf
71. https://www.giocampus.it/it/giocampus-project/
72. https://www.givepulse.com/group/650997-Camp-Strong4Life
73. https://www.gouvernement.fr/sites/default/files/document/document/2019/03/dossier_de_presse_-_comite_interministeriel_pour_la_sante_-_25.03.2019.pdf
74. https://www.healthykidsofseinajoki.fi/en/
75. https://www.helsenorge.no/en/kosthold-og-ernaring/keyhole-healthy-food/
76. https://www.henry.org.uk/evidence-base
77. https://www.lamoncloa.gob.es/lang/en/gobierno/news/Paginas/2020/20200626food-labelling.aspx
78. https://www.myplate.gov
79. https://www.mzcr.cz/wp-content/uploads/wepub--upload/files/5/ak%C4%8Dn%C3%AD%20pl%C3%A-1ny%20-%20p%C5%99%C3%ADlohy/AP%2002b%20prevence%20obezity.pdf
80. https://www.ncfo.dk
81. https://www.nyc.gov/site/doh/health/health-topics/health-bucks.page
82. https://www.nypartnerships.org.uk/healthyweight
83. https://www.obesite.com/que-faire/medicaments/
84. https://www.oecd.org/fr/els/systemes-sante/obesity-andtheeconomicsofpreventionfitnotfat-spainkeyfacts.htm
85. https://www.progettosportdiclasse.it/
86. https://www.researchgate.net/publication/267741946_The_Danish_Tax_on_Saturated_Fat_Why_It_Did_Not_Survive
87. https://www.researchgate.net/publication/317470204_Efeito_do_projecto_obesidade_zero_na_pratica_desportiva_e_actividades_sedentarias_em_criancas_de_idade_escolar
88. https://www.researchgate.net/publication/332085972_Nutri-Score_A_Public_Health_Tool_to_Improve_Eating_Habits_in_Portugal
89. https://www.retsinformation.dk/eli/lta/2013/801
90. https://www.salute.gov.it/portale/temi/p2_6.jsp?lingua=italiano&id=5521&area=stiliVita&menu=alimentazione
91. https://www.secondocircolopomigliano.eu/scuola/wp-content/uploads/2013/03/Crescer-Felix.pdf
92. https://www.senat.fr/rap/r19-476/r19-476.html
93. https://www.uvm.dk/folkeskolen/laering-og-laeringsmiljoe/bevaegelse
94. https://www.vcta.dk
95. https://www.who.int/news-room/feature-stories/detail/denmark-trans-fat-ban-pioneer-lessons-for-other-countries
96. https://www.who.int/publications/i/item/9789241516969
97. https://www3.gobiernodecanarias.org/sanidad/scs/content/14b2cfe0-9169-11de-8d13-3319494d7e1b/ProyectoDelta.pdf
98. Instituto Nacional de Estadistica – obesidad. Source: https://www.ine.es/ss/Satellite?L=es_ES&c=INESeccion_C&cid=1259926457058&p=%5C&pagename=ProductosYServicios%2FPYSLayout&param1=PYSDetalle&param3=1259924822888
99. NHS Healthy Start https://www.healthystart.nhs.uk

100. Ośrodki kompleksowego leczenia otyłości we Francji. Źródło https://solidarites-sante.gouv.fr/soins-et-maladies/prises-en-charge-specialisees/obesite/article/les-centres-specialises-d-obesite.

101. Overweight and obesity - BMI statistics. Eurostat https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Overweight_and_obesity_-_BMI_statistics.

102. Prescription Medications. Obesity Canada. Source: https://obesitycanada.ca/managing-obesity/prescription-medications/.

103. Projekt „Szczęśliwy tydzień" w węgierskich szkołach. Source: https://ogyei.gov.hu/happy.

104. Serwis dot. refundacji produktów leczniczych na Węgrzech -www.egeszsegkalauz.hu . Source: https://www.egeszsegkalauz.hu/gyogyszerkereso/kereses/elhizas-elleni-szerek-a-dietas-keszitmenyek-kivetelevel?atc=A08.

105. Soft Drinks Industry Levy comes into effect. UK Government 2018. Source: https://www.gov.uk/government/news/soft-drinks-industry-levy-comes-into-effect

106. Węgierski serwis informacyjny, artykuł z dn. 07.08.2019r. Source: http://szabadsag.ro/-/nem-mondanak-le-a-cukorado-bevezeteserol.

107. www.inpes.sante.fr

108. www.letsmove.gov

109. www.piedibus.it

110. www.salute.gov.it

111. www.strong4life.com

ISBN 978-83-60694-58-9

Wydawnictwo Uczelni Łazarskiego
ul. Świeradowska 43, 02-662 Warszawa, Polska