healthyw8

EMPOWERING HEALTHY LIFESTYLE BEHAVIOUR THROUGH PERSONALISED INTERVENTION PORTFOLIOS TO PREVENT AND CONTROL OBESITY DURING VULNERABLE STAGES OF LIFE.

Budget: 10.000.000€
Start/End: 1 May 2023 - 30 April 2028
Coordinator: Luxembourg Institute of Health
Funding Agency: HaDEA

About the project

Over 30% of EU citizens at vulnerable stages and situations in life are at increased risk of transitioning from a healthy weight to excess weight, and further to obesity. The innovative HealthyW8 project aims to advance the efficacy of current and future efforts in obesity prevention across Europe.

HealthyW8 is a **5-year** Research and Innovation Action embodied by a multi-disciplinary consortium of **24 partners** from **9 EU countries**, including 15 research and Higher Education institutions, 5 NGOs, and 4 SMEs.

In this project, 40 pan-EU multicentre **pilots** and **long-term randomized control trials (RCT)** are planned, taking place in 8 different countries with participants of 3 different age groups: 5-12, 18-25 and 65+ y/o.

Objectives

1. To expand the understanding of the biological causes underlying obesogenic trends and interactions with cross-cutting environmental, behavioural, and policy factors to propose evidence-based effective obesity prevention strategies.
2. To develop user-centered portfolio interventions to enhance the impact of lifestyle changes in an efficient, synergistic, long-lasting, and sustainable way.
3. To continuously improve, through iterations, the intervention strategies involving vulnerable populations and/or those undergoing transitions to maximise impact.
4. To leverage findings to EU stakeholders and to foster the multilevel uptake of solutions and strategies.

Focus on a user-centred mHealth solution

A central pillar of the proposed interventions will be a digital-based tool. Even though many mHealth tools exist, they fail to engage and sustainably motivate the user by not adapting to personal contexts, focusing only on diet or physical activity alone and, in particular, by overlooking emotional aspects. HealthyW8 will address these shortcomings by building on a dietary app developed from a previous project (LIFANA AAL project) to design a **Healthy Lifestyle Recommender Solution (HLRS)**, which will empower and continuously motivate the user to make informed decisions about relevant lifestyle aspects, taking into account personal contexts and preferences. Integrating personal mood and psychological aspects, as well as nudging/ gamification features, the HLRS will be further based on an emotions-aware **Human Digital Twin (HDT)** for better behaviour forecasting, thus adapting recommendations to individual drivers and constraints.

A participatory design approach: The Open Stakeholder Platform (OSP)

HealthyW8's OSP will be a **central information resources hub**, primarily a website designed for stakeholder engagement purposes, allowing to:

1. Enabling **contextual information** about obesity prevention and healthy lifestyle behaviours, including state-of-the-art scientific resources, current legislation features, policies, market and technological insights.
2. Link to an international community of researchers & stakeholders and an **interactive knowledge system** on obesity prevention.
3. Participation in questionnaires and surveys with **feedback** that could influence the project and contribute to shaping further work.
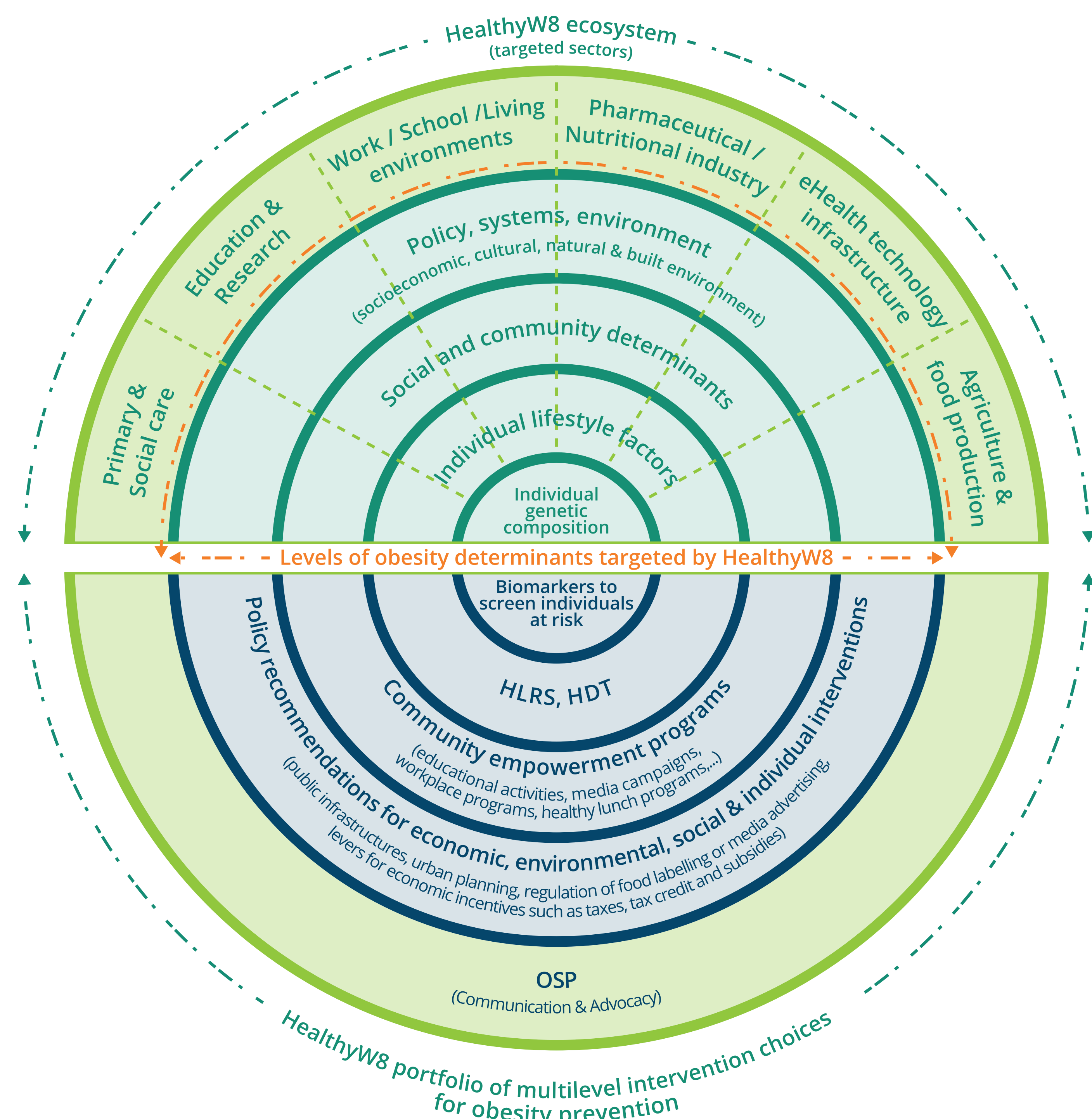4. Access curated and targeted information on **project results**.

Fig.1. Multilevel portfolio approach to obesity prevention

Expected impact

1. **Impact on obesity:** approximately 5% of individuals with excess weight become obese within one year[1]. We foresee that this can be prevented in HLRS users, based on studies showing that Apps can reduce weight by 2.5 kg in 1–12-month interventions[2]. With 200,000 HealthyW8 anticipated users, our goal is to prevent 10,000 obesity cases/year.
2. **Impact on NCDs:** previous studies using dietary apps in adults have reported changes of 0.5% glycated haemoglobin[2] over 1-12 months. This is medically significant, e.g. regarding the prevention of metabolic syndrome (MetS). We predict comparable changes in users of the HealthyW8 solution.
3. **Life-expectancy:** excess weight/obesity can reduce life-expectancy by 4-7y[3]. Studies have also shown that dietary interventions can improve life-expectancy by approximately the same duration, even when starting in mid-adulthood. With the HealthyW8 Solution, we predict that life-expectancy gains in the region of 4-7y can be reached.
4. **Deaths avoided:** based on our estimated 200,000 users, we project avoiding ca. 70 premature deaths due to excess weight- and obesity-related health problems in persons using the HealthyW8 HLRS.
5. **Healthcare costs:** in Europe, costs for treating people with obesity are approx. 81Bn/y for 150M persons or 540€/year/person[4]. If HealthyW8 can prevent obesity in 5% of its 200,000 users that would otherwise transition to obesity, this represents 5.4M€/y savings in healthcare costs.

[1]Lartey ST, Si L, et al., Annual transition probabilities of overweight and obesity in older adults: Evidence from World Health Organization Study on global AGEing and adult health. Soc Sci Med 2020; 247: 112821.
[2]Fakih El Khoury C, Karavetian M, et al., The Effects of Dietary Mobile Apps on Nutritional Outcomes in Adults with Chronic Diseases: A Systematic Review and Meta-Analysis. J Acad Nutr Diet 2019; 119: 626-651.
[3]Peeters A, Barendregt JJ, et al., Obesity in adulthood and its consequences for life expectancy: a life-table analysis. Ann Intern Med 2003; 138: 24-32.
[4]Cuschieri S, Mamo J, Getting to grips with the obesity epidemic in Europe. SAGE open medicine 2016; 4: 2050312116670406.

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