



Determinants of Eating Behaviour in European Children, Adolescents and their Parents

Overview & Key Findings

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Aim: contribute to reducing burden of nutrition-related diseases

- Understand interplay between **barriers and main drivers** of a healthy food choice
- Identify **predictors of unnecessary weight gain and cardio-metabolic risk** by linking them to diet, physical activity and interacting factors
 - **Focus on child and his / her family**
 - **Assess how different factors affect children as they grow up**
- Develop and convey **strategies to induce changes** towards a healthy behaviour



Partners

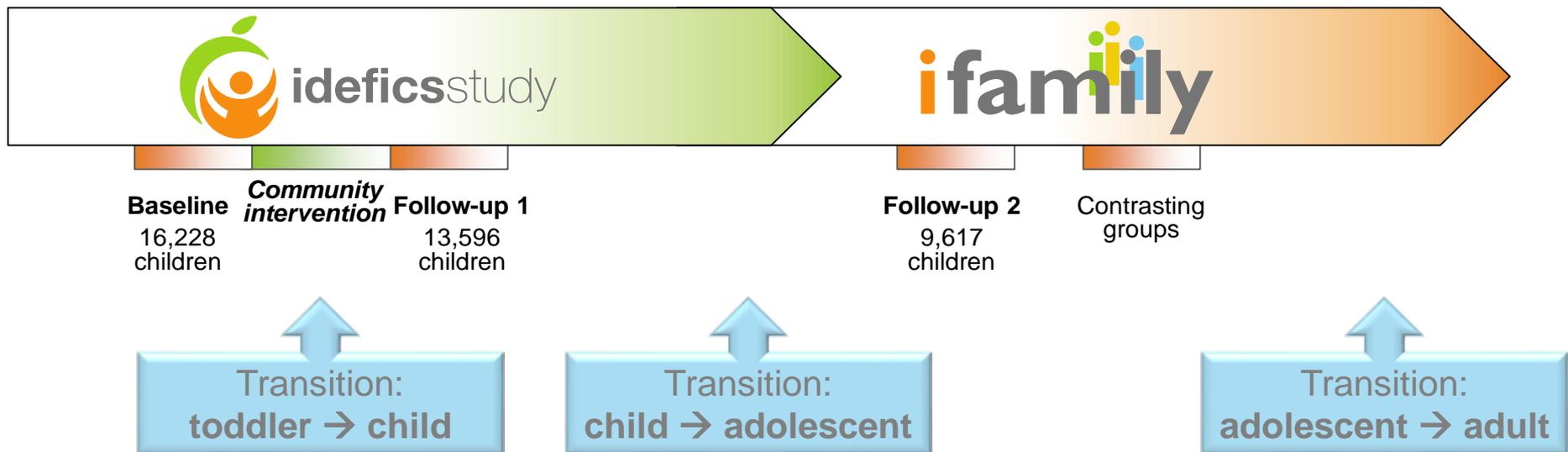


1. Strovolos, Cyprus
2. Ghent, Belgium
3. Copenhagen, Denmark
4. Tallin, Estonia
5. Helsinki, Finland
6. Bremen, Germany
7. Pécs, Hungary
8. Avellino, Italy
9. Milan, Italy
10. Utrecht, Netherlands
11. Palma de Mallorca, Spain
12. Zaragoza, Spain
13. Gothenburg, Sweden
14. Bristol, United Kingdom
15. Lancaster, United Kingdom
16. Andover, United Kingdom



Timeline of recruitment and follow-up IDEFICS – I.Family cohort, starting with 2-10 year olds

2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017



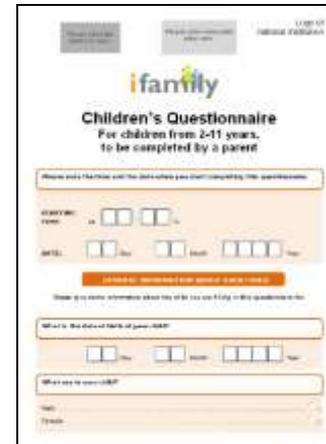


Questionnaires & examinations 1

- Questionnaires (parent + child)
 - **Social factors, lifestyle, peers + physical activity**
 - **Food frequency, preference, eating behaviour**
 - **Medical history**
 - **Family members + household**

- 24-hour dietary recall
 - Web-based **dietary recall**

- Physical activity
 - **Accelerometer:** 7 days
 - **Built environment:** GIS + GPS



The image shows a screenshot of a web-based questionnaire titled "ifamily Children's Questionnaire". It is intended for children aged 2-11 years and to be completed by a parent. The form includes fields for the child's name, date of birth, and a section for the parent to provide information about the child's diet and medical history. There are several input fields and a "SEND TO: download form about 400KB" button.



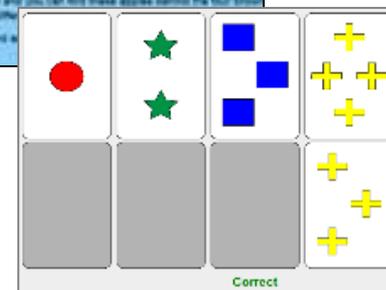
The image shows a dietary recall form with a grid layout. Each row contains a small image of a food item (e.g., a bowl of soup, a plate of food, a glass of juice) and a corresponding smiley face icon (happy, neutral, sad) to indicate the child's preference or frequency of consumption. The form is tilted slightly to the right.





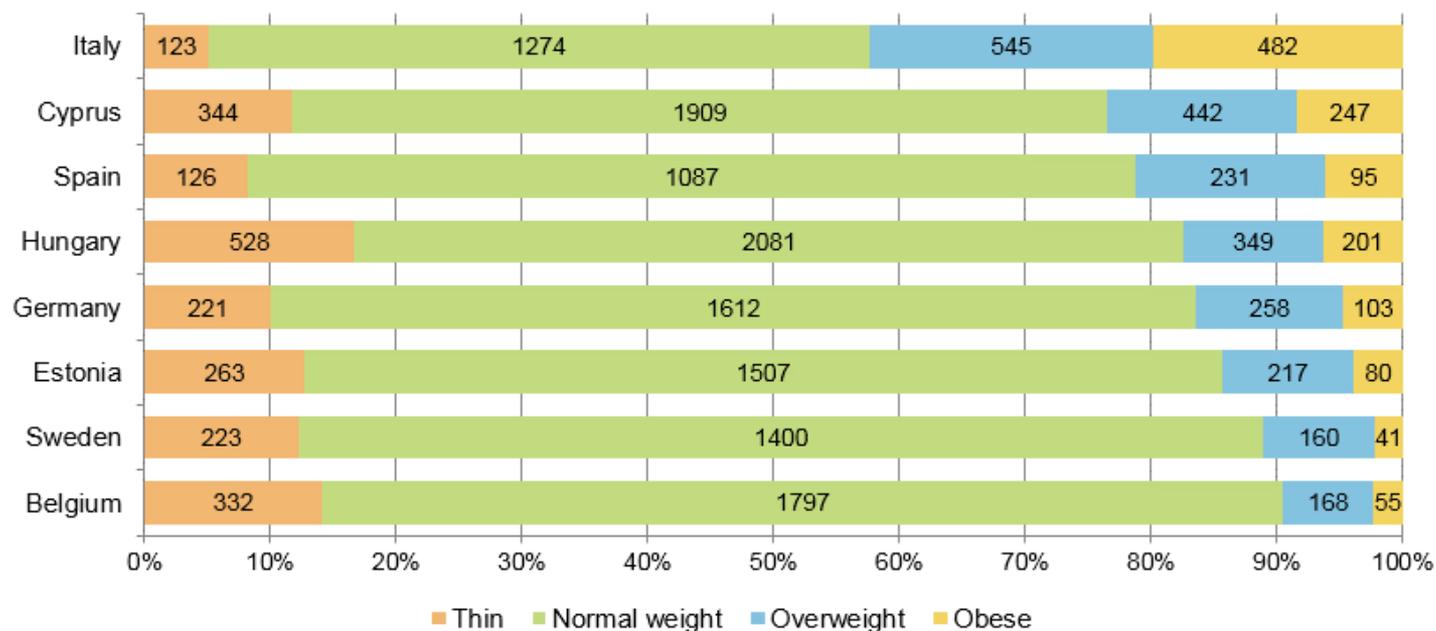
Questionnaires & examinations 2

- Physical examinations
 - **Anthropometry + blood pressure**
 - **Bone health:** ultrasound
- Biological markers
 - **Blood, saliva + urine**
- Specific tests in subgroups
 - **Sensory taste perception**
 - **Neuropsychological tests:** impulsivity
 - **Brain mechanisms of food choice:** fMRI





Prevalence of childhood overweight/obesity (2-10 yr)



A horizontal row of 20 small, colorful dots in various colors including orange, green, blue, and grey, arranged in a repeating pattern.

Dietary behaviour



- Children with **low socio-economic background**
 - Persistently **unhealthier dietary profiles** over a 2-year period
- Dietary patterns rich in fruits & vegetables, wholemeal cereals, and low in animal products
 - **Lower risk of overweight/obesity**
 - **Less 2-year weight gain**



Sleep and weight status

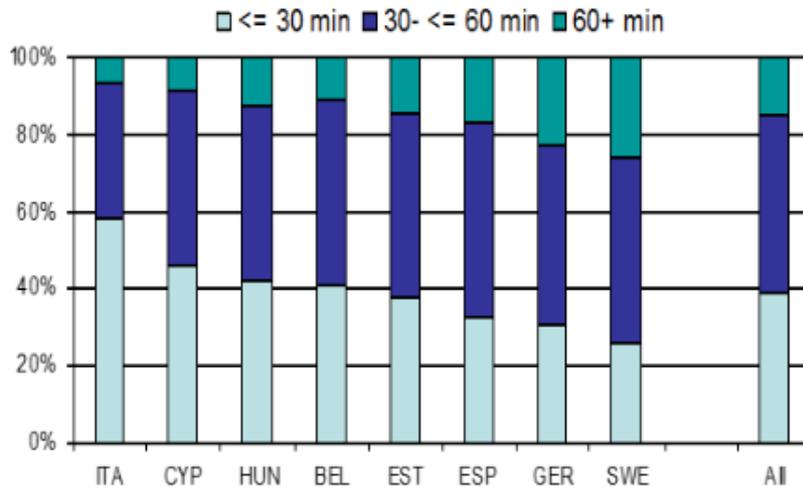


- **Short sleep duration**
 - **being overweight** – particularly in primary school children
- Inverse relationship between sleep duration and BMI
 - mainly explained by inverse association between sleep duration & fat mass
- Insulin may explain part of this association, in particular in heavier children



Physical activity (PA) and overweight (OW)

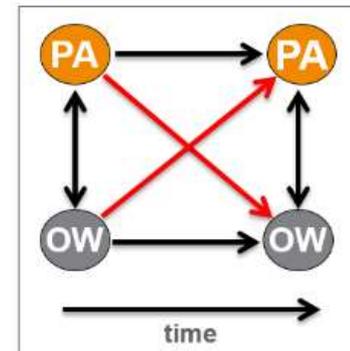
Few children meet physical activity guidelines (60min MVPA/day)



Causality goes both ways

Higher or increasing fat mass
→ decline in MVPA

Just 10 minutes more MVPA per day
→ prevent excess weight gain

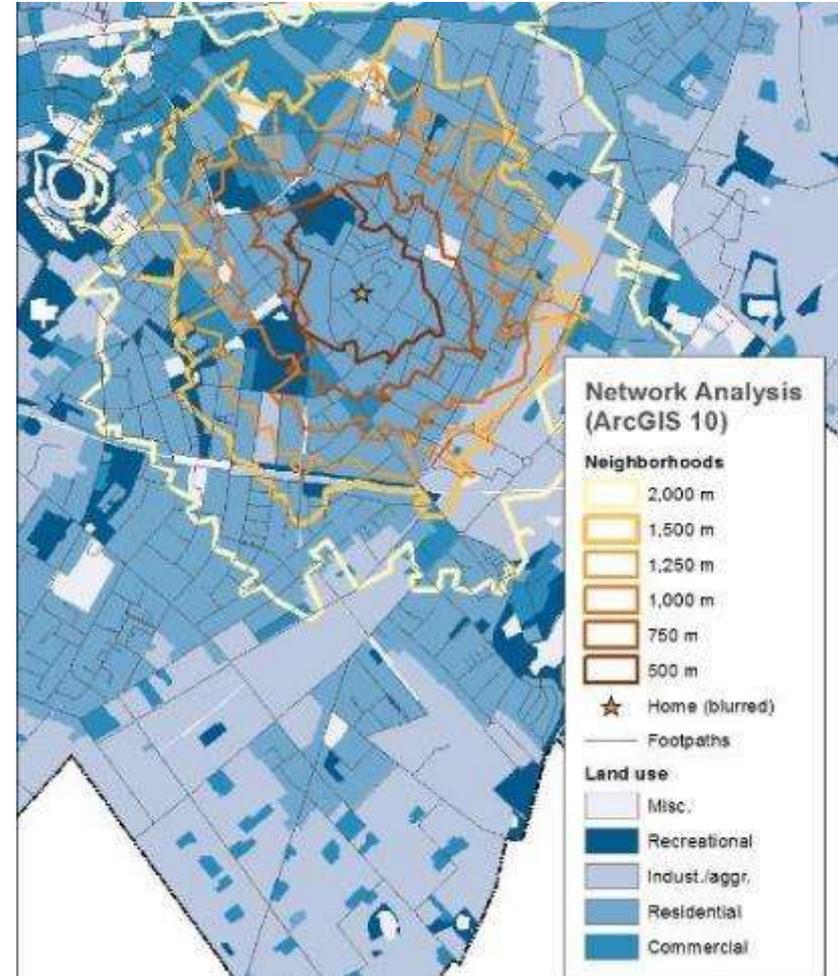


MVPA = Moderate to Vigorous Physical Activity



Built environment and physical activity

- **Physical activity-friendliness** of the built environment (“moveability”)
 - **more MVPA** of 596 primary school children in the German study region
- **Playground density** and density of playgrounds and parks combined
 - positive effects on MVPA



MVPA = Moderate to Vigorous Physical Activity



Media consumption

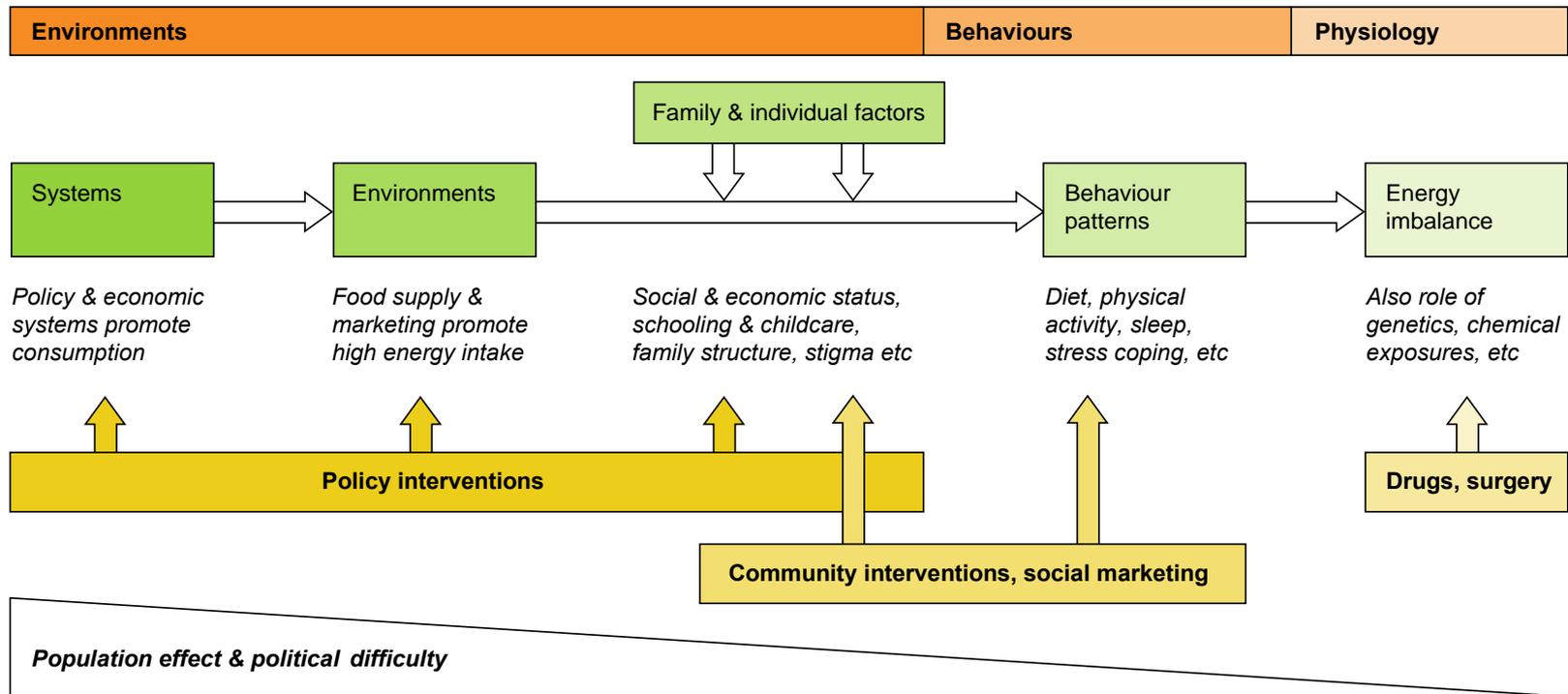


- **TV exposure**
 - preference for sugary/fatty foods
 - followed by higher consumption of sugar-sweetened beverages
 - increased risk of overweight/obesity
- One-third of children exceeded screen time recommendations (max. 2h/day)
- **Exceeding sedentary guidelines**
 - increased risk of high blood pressure
- Watching **TV during meals**, having a TV in the **child's bedroom** and watching TV **more than 1h/day**
 - being overweight/obese



Swimming upstream

The causes of obesity – and the causes of the causes



Adapted from: Swinburn et al. The global obesity pandemic: shaped by global drivers and local environments. *Lancet*. 2011; 378: 804-14



“Childhood obesity undermines the physical, social and psychological wellbeing of children and is a known risk factor for adult obesity and non-communicable diseases. There is an urgent need to act now to improve the health of this generation and the next.”

REPORT OF THE COMMISSION ON

ENDING CHILDHOOD OBESITY





ENDING CHILDHOOD OBESITY

– strategic objectives



No single intervention can halt the rise of the growing obesity epidemic. To successfully challenge childhood obesity requires

- addressing the obesogenic environment
- as well as critical elements in the life-course.



Thank you!

