



World Health  
Organization

European Region

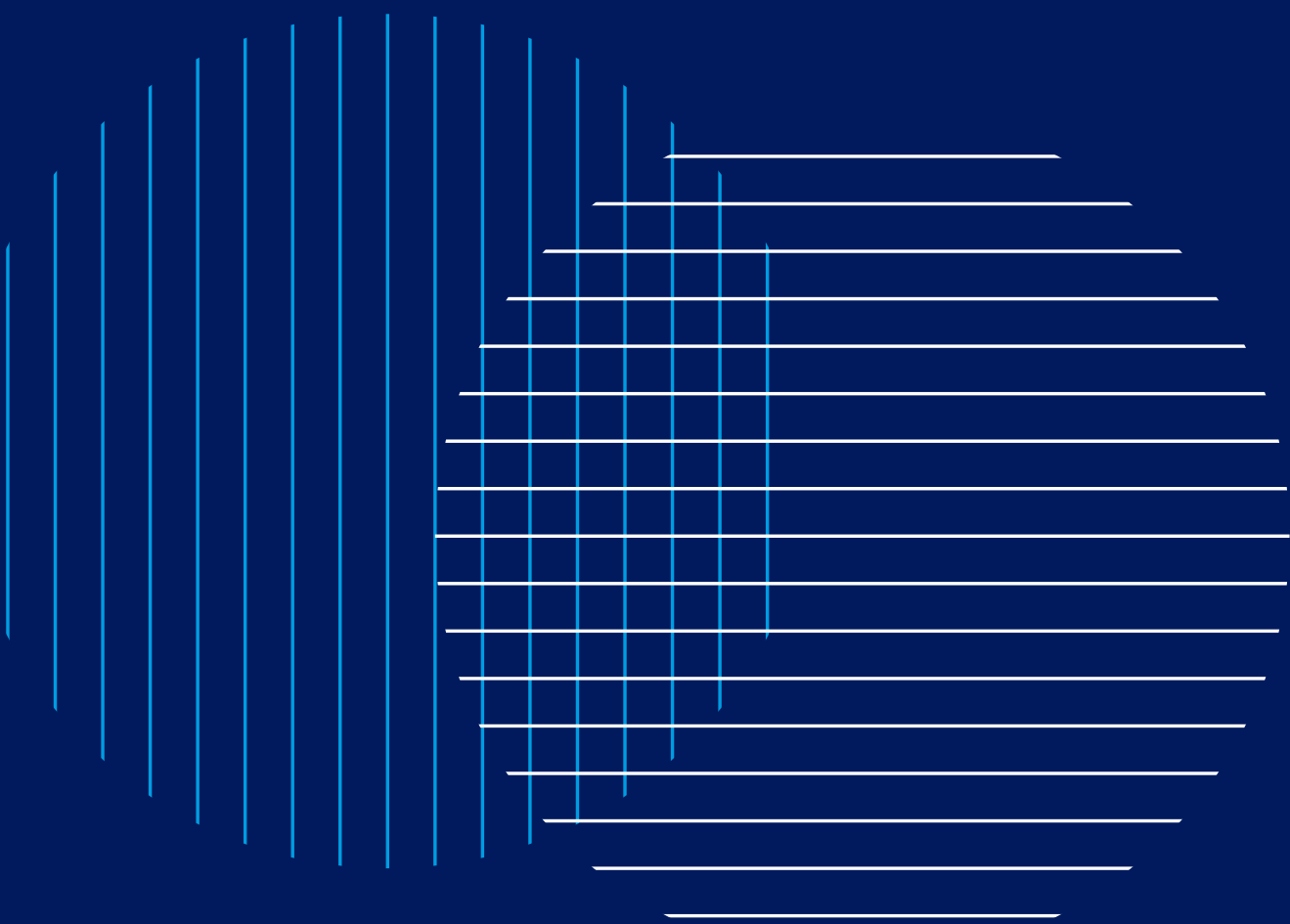


**hbosc**  
HEALTH BEHAVIOUR IN  
SCHOOL-AGED CHILDREN

# A focus on adolescent physical activity, eating behaviours, weight status and body image in Europe, central Asia and Canada

**Health Behaviour in School-aged Children international report from the 2021/2022 survey**

**Volume 4**



Jelena Gudelj Rakić, Zdenek Hamrik, Anna Dzielska,  
Rosemarie Felder-Puig, Leila Oja, Peter Bakalár,  
Paola Nardone, Silvia Ciardullo, Shynar Abdrakhmanova,  
Assel Adayeva, Colette Kelly, Anne-Siri Fismen,  
Mary Wilson, Judith Brown, Joanna Inchley and Kwok Ng



World Health  
Organization

European Region



**hbosc**  
HEALTH BEHAVIOUR IN  
SCHOOL-AGED CHILDREN

# A focus on adolescent physical activity, eating behaviours, weight status and body image in Europe, central Asia and Canada

**Health Behaviour in School-aged Children international report from the 2021/2022 survey**

**Volume 4**

Jelena Gudelj Rakić, Zdenek Hamrik, Anna Dzielska,  
Rosemarie Felder-Puig, Leila Oja, Peter Bakalár,  
Paola Nardone, Silvia Ciardullo, Shynar Abdrakhmanova,  
Assel Adayeva, Colette Kelly, Anne-Siri Fismen,  
Mary Wilson, Judith Brown, Joanna Inchley and Kwok Ng

## Abstract

The Health Behaviour in School-aged Children (HBSC) study is a large school-based survey carried out every four years in collaboration with the WHO Regional Office for Europe. HBSC data are used at national/regional and international levels to gain new insights into adolescent health and well-being, understand the social determinants of health and inform policy and practice to improve young people's lives. The 2021/2022 HBSC survey data are accompanied by a series of volumes that summarize the key findings around specific health topics. This report, Volume 4 in the series, focuses on adolescents' physical activity, eating behaviours, weight status and body image, using the unique HBSC evidence on adolescents aged 11, 13 and 15 years across 44 countries and regions in Europe, central Asia and Canada. It examines the status of moderate-to-vigorous and vigorous physical activity, physical inactivity, food and drink consumption, over- and underweight and body image among adolescents, explores the role of gender, age and social inequality and identifies how these adolescent behaviours have changed over time. Findings from the 2021/2022 HBSC survey provide an important evidence benchmark for current research, intervention and policy-planning.

## Keywords

HEALTH BEHAVIOR  
SOCIOECONOMIC FACTORS  
ADOLESCENT HEALTH  
EXERCISE  
EATING BEHAVIORS  
OBESITY  
BODY IMAGE

**ISBN: 978-92-890-6105-6 (PDF)**

## © World Health Organization 2024

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>).

Under the terms of this licence, you may copy, redistribute and adapt the work for noncommercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services. The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: "This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition: Rakić JG, Hamrik Z, Dzielska A, Felder-Puig R, Oja L, Bakalár P et al. A focus on adolescent physical activity, eating behaviours, weight status and body image in Europe, central Asia and Canada. Health Behaviour in School-aged Children (HBSC) international report from the 2021/2022 survey. Volume 4. Copenhagen: WHO Regional Office for Europe; 2024".

Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization.

**Suggested citation.** Rakić JG, Hamrik Z, Dzielska A, Felder-Puig R, Oja L, Bakalár P et al. A focus on adolescent physical activity, eating behaviours, weight status and body image in Europe, central Asia and Canada. Health Behaviour in School-aged Children international report from the 2021/2022 survey. Volume 4. Copenhagen: WHO Regional Office for Europe; 2024. Licence: CC BY-NC-SA 3.0 IGO.

**Cataloguing-in-Publication (CIP) data.** CIP data are available at <http://apps.who.int/iris>.

**Sales, rights and licensing.** To purchase WHO publications, see <http://apps.who.int/bookorders>. To submit requests for commercial use and queries on rights and licensing, see <http://www.who.int/about/licensing>.

**Third-party materials.** If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

**General disclaimers.** The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement. The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO be liable for damages arising from its use.

The named authors alone are responsible for the views expressed in this publication.

Design: Damian Mullan, So it begins ..., United Kingdom (Scotland).

# Contents

<i>Foreword</i>	iv
<i>Preface</i>	v
Acknowledgements	vi
Key findings and implications	viii
<b>Introduction</b>	<b>1</b>
<b>Insights into adolescent physical activity, eating behaviours, weight status and body image</b>	<b>4</b>
MVPA	4
VPA	5
Physical inactivity	7
Daily breakfast consumption on weekdays	9
Daily fruit consumption	10
Daily vegetable consumption	10
Daily sweets and chocolate consumption	11
Daily consumption of sugary soft drinks	11
Overweight and obesity	13
Underweight	14
Body image	16
<b>Key themes</b>	<b>17</b>
Energy imbalance in adolescents	17
Insufficient energy expenditure among adolescents: the role of age, gender and family affluence	17
Changes in energy intake among adolescents: the role of age, gender and family affluence	18
Weight status and perceptions among adolescents	18
<b>Policy implications</b>	<b>19</b>
<b>Conclusions</b>	<b>21</b>
<b>HBSC study</b>	<b>22</b>
<b>References</b>	<b>23</b>
<b>Annex. Key data</b>	<b>25</b>

## Foreword

Young people around the world face many challenges. Research shows that acceleration of climate change, migration, and economic and political instability – to name just three factors – are having profound effects on their health and well-being. The coronavirus disease 2019 (COVID-19) pandemic and, more specifically, the mitigation measures put in place by countries and regions around the world to stop the spread of the virus, changed the way children and young people live their lives. And now, for the first time in decades, war is being waged in Europe.

Colossal global events like these inevitably have huge effects on young people. But it is the narratives of young people's everyday lives – their relationships with family, friends and teachers, self-image, levels of physical activity, what they eat and drink and their experiences at school, for instance – that determine to a large extent their overall sense of mental and physical health and well-being.

It is vital that we understand the impacts of all these issues on young people and identify what countries and regions can do to further promote adolescent health and positive health behaviours.

In this regard, we are so fortunate in the WHO European Region to have the Health Behaviour in School-aged Children (HBSC) study. HBSC is a school-based survey carried out every four years in collaboration with the WHO Regional Office for Europe. It tracks, monitors and reports on self-reported health behaviours, health outcomes and social environments of boys and girls aged 11, 13 and 15 years. The most recent survey (2021/2022) was conducted across 44 countries and regions of Europe, central Asia and Canada, and included an optional set of questions that measures the perceived impacts of the COVID-19 pandemic.

This report, Volume 4 in the series, focuses on findings from the HBSC survey on adolescent physical activity, eating behaviours, weight status and body image. It shows that while nearly three fifths of adolescents met the WHO recommendation for vigorous physical activity at least three times a week, around a quarter were found to be highly inactive, with adolescents from low-affluence families less likely to participate in physical activity. In relation to eating behaviours, the numbers of adolescents eating breakfast every day, which is recognized as an indicator of healthy eating habits, has declined significantly since 2018 in more than half of the countries and regions in the study. Over half of the adolescents ate neither fruit nor vegetables daily. There are also causes for concern about the prevalence of overweight or obesity in adolescents (over 20%), representing an increase in prevalence among boys and/or girls in more than a third of the countries and regions since 2018.

Regular physical activity, healthy eating habits and the maintenance of a healthy weight are essential elements of a healthy lifestyle. The report's findings signal a need for targeted interventions to enable adolescents to adopt healthier behaviours and avoid habits that affect not only their current health and well-being, but also their future trajectories as adults.

I congratulate and thank those responsible for the HBSC/WHO Regional Office for Europe collaborative study for once again providing timely, reliable and clear evidence that countries and regions can use as a springboard to step-up existing initiatives and develop new policies to counter the ongoing challenges young people face.

**Hans Henri P. Kluge**  
**WHO Regional Director for Europe**

# Preface

The Health Behaviour in School-aged Children (HBSC) study provides unique insights into the health and well-being of adolescents across Europe, central Asia and Canada. In this, the study's 40th anniversary year, we are delighted to be launching the findings from the 11th consecutive international survey in a series of topic-based volumes.

Over the past four decades, the study has grown to include over 50 countries and regions. The scope of the study has broadened over this time to encompass emergent priorities for adolescent health, while also seeking to maintain the ability to monitor longer-term trends that provide invaluable insights into how the lives of adolescents have changed over recent decades. The 2021/2022 survey included a wide range of measures of adolescent health and health behaviours and the social context in which they grow up, including family and peer relationships, school experience and online communication. As the first HBSC survey since the coronavirus disease 2019 (COVID-19) pandemic, measures were included to understand the ongoing impact of the pandemic on adolescent health. A special focus was placed on mental health, with new measures of mental well-being, loneliness and self-efficacy.

For the first time, the HBSC international report is also presented online through a new data browser that allows users to view the data through a series of interactive charts and figures. The release of the new data is accompanied by a series of volumes that summarize the key findings around specific health topics. This report, Volume 4 in the series, focuses on adolescents' physical activity, eating behaviours, weight status and body image. It presents some challenging findings, with many young people still falling short of the recommended levels of physical activity and fruit and vegetable intake. Daily moderate-to-vigorous physical activity remains particularly low. Many adolescents are going to school without having eaten breakfast. Evidence of increasing overweight and obesity is also concerning, along with high levels of body dissatisfaction, particularly among girls.

HBSC involves a wide network of researchers from all participating countries and regions. The data collection in each country or region is funded at national/regional level. We are grateful for the financial support and guidance offered by government ministries, research foundations and other funding bodies for the 2021/2022 survey round. We would also like to thank our valued partners, particularly the WHO Regional Office for Europe, for their continuing support, the young people who took part in the survey and shared their experiences with us, including those who provided the quotations that feature throughout the report, schools and education authorities for making the survey possible, and all members of the national HBSC teams involved in the research.

High-quality, internationally comparable data continue to be essential to support international policy development and monitor progress towards global targets such as the United Nations Sustainable Development Goals. At national/regional level, HBSC data provide key scientific evidence to underpin health improvement initiatives and can be used to track progress on health priorities. With its long-term trends, the HBSC study enables us to monitor the impact of wider societal change and individual lifestyles on health outcomes for the adolescent age group. Importantly, it lets us hear from young people themselves about the issues that matter to them and the factors that affect their health and well-being. While there are many challenges to address, the data also highlight the importance of providing caring and supportive environments in which adolescents can thrive.

**Jo Inchley**  
**HBSC International Coordinator**

**Dorothy Currie**  
**HBSC Deputy International Coordinator**

# Acknowledgements

This report was written by: Jelena Gudelj Rakić, Institute of Public Health of Serbia, Belgrade, Serbia; Zdenek Hamrik, Palacký University Olomouc, Olomouc, Czechia; Anna Dzielska, Institute of Mother and Child, Warsaw, Poland; Rosemarie Felder-Puig, Austrian National Public Health Institute, Vienna, Austria; Leila Oja, National Institute for Health Development, Tallinn, Estonia; Peter Bakalár, University of Prešov, Prešov, Slovakia; Paola Nardone, Italian National Institute of Health, Rome, Italy; Silvia Ciardullo, Italian National Institute of Health, Rome, Italy; Shynar Abdrakhmanova, National Centre of Public Healthcare of the Ministry of Health, Astana, Kazakhstan; Assel Adayeva, National Centre of Public Healthcare of the Ministry of Health, Astana, Kazakhstan; Colette Kelly, University of Galway, Galway, Ireland; Anne-Siri Fismen, Western Norway University of Applied Sciences, Bergen, Norway; Mary Wilson, University of Glasgow, Glasgow, United Kingdom (Scotland); Judith Brown, University of Glasgow, Glasgow, United Kingdom (Scotland); Jo Inchley, University of Glasgow, Glasgow, United Kingdom (Scotland); and Kwok Ng, University of Turku, Turku, Finland, and University of Jyväskylä, Jyväskylä, Finland.

The WHO Regional Office for Europe would like to thank the Editorial Group that was responsible for oversight and review of this report: Vivian Barnekow, WHO Regional Office for Europe, Copenhagen, Denmark; João Breda, WHO Office on Quality of Care and Patient Safety, Athens, Greece; Judith Brown, University of Glasgow, Glasgow, United Kingdom (Scotland); Wendy Craig, Queen's University, Kingston, Canada; Dorothy Currie, University of St Andrews, St Andrews, United Kingdom (Scotland); Joseph Hancock, University of Glasgow, Glasgow, United Kingdom (Scotland); Mirjam Heinen, WHO Regional Office for Europe, Copenhagen, Denmark; Jo Inchley, University of Glasgow, Glasgow, United Kingdom (Scotland); Atle Jastad, University of Bergen, Bergen, Norway; Oddrun Samdal, University of Bergen, Bergen, Norway; Martin W. Weber, WHO Office on Quality of Care and Patient Safety, Athens, Greece; Stephen Whiting, WHO Regional Office for Europe, Copenhagen, Denmark; Kremlin Wickramasinghe, WHO Regional Office for Europe, Copenhagen, Denmark; Julianne Williams, WHO Regional Office for Europe, Copenhagen, Denmark; and Mary Wilson, University of Glasgow, Glasgow, United Kingdom (Scotland).

The 2021/2022 Health Behaviour in School-aged Children (HBSC) survey was managed by the HBSC International Coordinating Centre, University of Glasgow, Glasgow, United Kingdom (Scotland). The data were managed, compiled, cleaned and made available by the Databank Management Centre, Bergen University, Bergen, Norway.

The national/regional data for the 2021/2022 international report were provided by HBSC principal investigators in the 44 participating countries and regions: Gentiana Qirjako, Albania; Marina Melkumova and Sergey Sargsyan, Armenia; Rosemarie Felder-Puig, Austria; Katrijn Delaruelle and Maxim Dierckens, Belgium (Flemish); Katia Castetbon, Belgium (French); Anna Alexandrova-Karamanova and Elitsa Dimitrova, Bulgaria; Wendy Craig and Will Pickett, Canada; Ivana Pavic Simetin, Croatia; Yiasemina Karagiorgi, Cyprus; Petr Badura and Michal Kalman, Czechia; Katrine Rich Madsen, Denmark; Birget Niclasen, Denmark (Greenland); Leila Oja and Jaanika Piksööt, Estonia; Nelli Lyyra and Leena Paakkari, Finland; Emmanuelle Godeau and Mariane Sentenac, France; Matthias Richter, Germany; Anastasios Fotiou and Anna Kokkevi, Greece; Ágnes Németh,

Hungary; Ársaell Már Arnarsson, Iceland; Saoirse Nic Gabhainn, Ireland; Alessio Vieno, Italy; Shynar Abdrakhmanova, Kazakhstan; Gulzat Maimerova, Kyrgyzstan; Iveta Pudule, Latvia; Kastytis Šmigelskas, Lithuania; Carolina Catunda and Maud Moinard, Luxembourg; Charmaine Gauci, Malta; Gonneke Stevens and Saskia van Dorsselaer, Netherlands (Kingdom of the); Lina Kostarova Unkovska, North Macedonia; Oddrun Samdal, Norway; Anna Dzielska and Agnieszka Malkowska-Szkutnik, Poland; Tania Gaspar, Portugal; Galina Lesco, Republic of Moldova; Adriana Baban, Romania; Jelena Gudelj Rakic, Serbia; Andrea Madarasova Geckova, Slovakia; Helena Jeriček Klanšček, Slovenia; Carmen Moreno and Francisco Rivera, Spain; Petra Loftstedt, Sweden; Marina Delgrande-Jordan, Switzerland; Sabir Kurbanov and Zohir Nabiev, Tajikistan; Sabina Hulbert and Sally Kendall, United Kingdom (England); Jo Inchley, United Kingdom (Scotland); and Chris Roberts, United Kingdom (Wales).

Financial support for this publication was provided by the WHO Office on Quality of Care and Patient Safety, Athens, Greece and the governments of the Hellenic Republic and Germany.



# Key findings and implications

## Key findings

- Moderate-to-vigorous physical activity (MVPA) levels among the adolescents in the study were found to be insufficient; only 25% of boys and 15% of girls achieved 60 minutes of MVPA every day.
- Overall, nearly three fifths of adolescents met the WHO recommendation for vigorous physical activity (VPA) of at least three times a week.
- Both MVPA and VPA decreased with age, with the decline being more pronounced in girls than in boys.
- On average, around one in four adolescents were found to be highly inactive, and rates of 0–2 days of MVPA increased with age.
- Adolescents from low-affluence families were less likely to participate in MVPA and VPA.
- Overall, negligible changes were observed between 2018 and 2022 in MVPA and VPA but considerable intercountry/regional variations were evident.
- Half of adolescents reported eating breakfast daily on weekdays, but boys ate breakfast more often than girls.
- A significant decline between 2018 and 2022 in daily breakfast consumption was seen in more than half of the countries and regions.
- Only 38% of adolescents reported eating fruit and vegetables daily.
- Girls were more likely to eat sweets daily, and boys were more likely to drink sugary soft drinks every day.
- More than a fifth of adolescents were found to be overweight or obese and, since 2018, an increase in prevalence of overweight or obesity was observed among boys and/or girls in more than a third of countries and regions.
- Around a third of 13- and 15-year-olds felt they were too fat.
- The prevalence of overweight and obesity was higher among boys than girls, but girls were more likely to perceive themselves as being too fat.

## Implications

- A range of public health approaches are necessary to address the complex nature of the mechanisms of health behaviour change in eating habits and physical activity and their strong association with overweight, obesity and underweight.
- The report's findings show there is a need for targeted interventions to enable adolescents to adopt healthier behaviours and avoid habits that affect not only their current health and well-being, but also their future health trajectories as adults.
- Promoting physical activity and healthy eating behaviours should remain a focus of school-, family- and community-based interventions. These should include interventions before, during and after the school day and those that encourage active travel.
- There is a specific need for tailored interventions to improve physical activity among adolescents from low-affluence families and older age groups.
- Governments should take action to restrict the marketing of unhealthy foods and drinks, particularly where marketing is targeted at children and adolescents.
- Access to management of overweight and obesity should be provided as part of routine youth-friendly primary health-care services. These services should be sensitive to the mental health issues associated with poor body image and provide appropriate psychological support where needed.

# Introduction

Regular physical activity, healthy eating habits and the maintenance of a healthy weight are all essential for a healthy lifestyle. These behaviours help reduce the risk of developing chronic conditions and noncommunicable diseases later in life. Physical inactivity and poor dietary behaviours are important risk factors for ill health and premature mortality (1). Adolescence is an important stage in which health-related behaviours can be positively influenced as young people gain more autonomy over their lifestyle choices. Patterns of behaviour established during childhood and adolescence tend to track into adulthood (2–4).

Regular physical activity fosters healthy physical, social and emotional development in adolescents. Activities that engage the cardiovascular and respiratory systems can facilitate healthy growth and development, bolster bone and muscle strength, refine cognitive skills and promote emotional well-being (5–7).

WHO has revised its physical activity recommendations for children and adolescents. A significant change was made in the recommendations for moderate-to-vigorous physical activity (MVPA), from 60 minutes every day in 2010 to an average of 60 minutes per day in 2020 (8). Children and young people aged 5–17 years are also recommended to participate in vigorous physical activity (VPA) at least three days a week and limit time spent being sedentary (7). The data presented in this report estimate levels of the population meeting the current recommendation for VPA and the previous 2010 recommendation for MVPA.

Eating a healthy, balanced diet during childhood and adolescence also promotes healthy growth and development (9,10). Numerous factors influence adolescents' food choices, including individual, familial, school, environmental and commercial (11). Regular breakfast consumption is an indicator of healthy eating habits. It is associated with a healthier body mass index (BMI), better mental health, higher intakes of micronutrients, improved cognitive/school performance and overall better diet quality (12–14). WHO recommends eating at least five portions of fruit and vegetables per day and reducing the consumption of free sugars to less than 10% of daily energy uptake (15).

Adolescents with poor eating habits or whose weight is outside of the normal range (overweight, obesity or underweight) can experience various health problems, including a higher risk of infections (16), osteoporosis (17) and irregular menstruation or amenorrhea (18,19), as well as reduced cognitive ability and poorer school achievement. Increasing BMI and obesity are also associated with early puberty onset (19,20), cardiovascular disease (21), diabetes, hypertension (22) and increased risk of depression (23).

Evidence suggests that adolescents' perceptions of their own weight may be just as important as actual weight status for outcomes in areas such as mental health. Body image is a complex psychological construct that encompasses how individuals perceive, think, feel and act towards their bodies. Evaluation and investment in body image may be positive, negative or somewhere in between. In adolescents, positive body image is associated with various positive health and well-being outcomes (24), but prevalence of poor body image increases through adolescence and is associated with negative health-related implications such as increased substance use and risk of eating disorders (24,25).

The 2021/2022 Health Behaviour in School-aged Children (HBSC) survey provides important insights into the physical activity levels, eating behaviours, weight status and body image of adolescents aged 11, 13 and 15 years across 44 countries and regions in Europe, central Asia and Canada. This report describes:

- the status of adolescent physical activity levels, eating behaviours, weight status and body image across a range of measures (see [Table 1 and the Annex](#));
- how these health-related behaviours and body perceptions have changed in the last four years by comparing measures to the 2017/2018 HBSC survey; and
- the role of age, gender and social inequality on these health-related behaviours and body perception.

**Table 1. Physical activity, eating behaviours, weight status and body image measures included in the report**

Measures	Items
<b>MVPA</b>	Young people were asked: over the past seven days, on how many days were you physically active for a total of at least 60 minutes per day? Possible answers ranged from zero to seven days. Findings presented here show the proportions reporting daily (seven days') MVPA participation.
<b>VPA</b>	Young people were asked how often they usually exercise in their free time, outside of school hours, so much that they get out of breath or sweat. Findings presented here show the proportions reporting participating in VPA three or more times a week. To assess changes over time, a cut-off of four or more times a week was used to allow comparison with previous survey years.
<b>Physical inactivity</b>	Young people were asked: over the past seven days, on how many days were you physically active for a total of at least 60 minutes per day? Possible answers ranged from zero to seven days. Findings presented here show the proportions reporting participating 0–2 days a week in MVPA.
<b>Daily breakfast consumption on weekdays</b>	Young people were asked how often they usually had breakfast (more than a glass of milk or fruit juice) on weekdays, with the following response options: never, one day, two days, three days, four days or five days. Findings presented here show the proportion of adolescents who ate breakfast daily on weekdays.
<b>Daily fruit consumption</b>	Young people were asked how many times a week they usually ate fruit. Response options were: never, less than once a week, once a week, 2–4 days a week, 5–6 days a week, once a day (every day), and every day (more than once). Findings presented here show the proportions reporting daily consumption of fruit.

**Table 1** contd

Measures	Items
<b>Daily vegetable consumption</b>	Young people were asked how many times a week they usually ate vegetables. Response options were: never, less than once a week, once a week, 2–4 days a week, 5–6 days a week, once a day (every day), and every day (more than once). Findings presented here show the proportions reporting daily consumption of vegetables.
<b>Daily sweets and chocolate consumption</b>	Young people were asked how many times a week they usually ate sweets (candy or chocolate). Response options were: never, less than once a week, once a week, 2–4 days a week, 5–6 days a week, once a day (every day) and every day (more than once). Findings presented here show the proportions reporting daily consumption of sweets.
<b>Daily consumption of sugary soft drinks</b>	Young people were asked how many times a week they usually drank [cola] or other soft drinks that contain sugar. Response options were: never, less than once a week, once a week, 2–4 days a week, 5–6 days a week, once a day (every day) and every day (more than once). Findings presented here show the proportions reporting daily consumption of sugary soft drinks.
<b>Overweight and obesity</b>	Self-reported height and weight were collected to compute BMI (kg/m <sup>2</sup> ). BMI was classified under four categories according to the 2007 WHO growth reference for age and gender: underweight (thinness), normal weight, overweight and obesity. Findings presented here show the proportions of overweight and obese adolescents.
<b>Underweight</b>	Self-reported height and weight were collected to compute BMI (kg/m <sup>2</sup> ). BMI was classified under four categories according to the 2007 WHO growth reference for age and gender: underweight (thinness), normal weight, overweight and obesity. Findings presented here show the proportions of underweight adolescents.
<b>Body image</b>	The body image item measures the individual's perception of their own body in relation to self-assessment of body weight. Young people were asked: do you think your body is ...? Response categories were: much too thin, a bit too thin, about the right size, a bit too fat and much too fat. Findings presented here show the proportions of adolescents who considered themselves too fat (a bit too fat or much too fat).

# Insights into adolescent physical activity, eating behaviours, weight status and body image

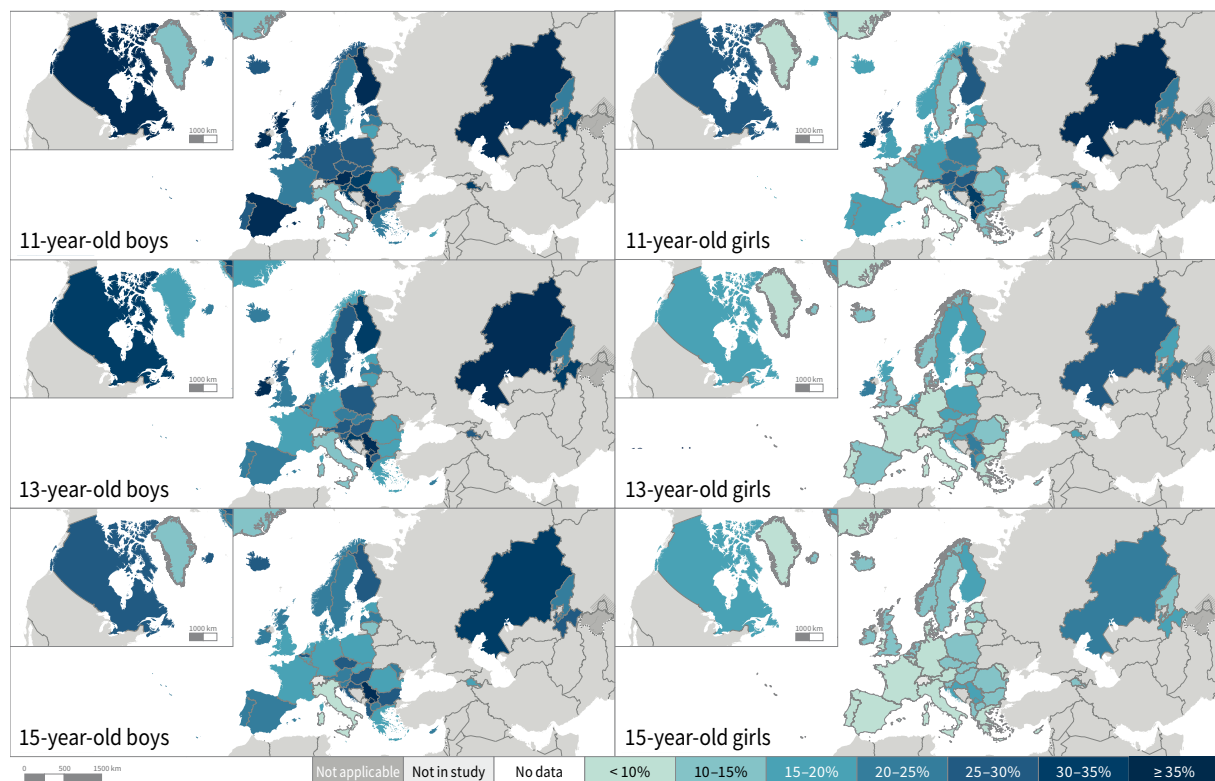
## MVPA

On average, the proportion of adolescents across countries and regions reporting daily 60 minutes of MVPA was relatively low (25% for boys and 15% for girls), but there was extensive cross-national/regional variation (Fig. 1). In the vast majority of countries and regions and across all age groups, the prevalence of MVPA was significantly lower for girls than boys. Ten per cent of girls (or fewer) reported daily 60 minutes of MVPA in Denmark (Greenland), France, Greece, Italy and Lithuania. The lowest levels (fewer than or equal to 15%) of daily MVPA among boys were observed in Denmark (Greenland), Italy and Lithuania. In general, daily MVPA decreased with age. The highest prevalence was among 11-year-old boys in Serbia (49%) and the lowest in 15-year-old girls in Italy (3%).

Daily MVPA was associated with socioeconomic status, measured using the Family Affluence Scale (FAS). Girls and boys from low-affluence families were less likely to achieve 60 minutes of MVPA per day. Comparing the high- and low-affluence groups, the prevalence among boys was 32% and 20% respectively. Among girls, prevalence was 19% and 13% respectively. This social gradient was not present in all countries and regions, however, with no significant differences for boys and girls seen in Belgium (French), Ireland and Kazakhstan.

Overall, no substantial change in the levels of MVPA was seen between 2018 and 2022, but differences were observed at country/region level. There was an increase of 10 percentage points or more among boys in Albania, Denmark and Portugal and an increase of five percentage points or more among girls in Albania and Denmark. In contrast, MVPA decreased by five percentage points or more in Armenia, Denmark (Greenland), Lithuania and North Macedonia (girls and boys) and in Bulgaria (girls only).

**Fig. 1. Prevalence of MVPA by country/region, age and gender**

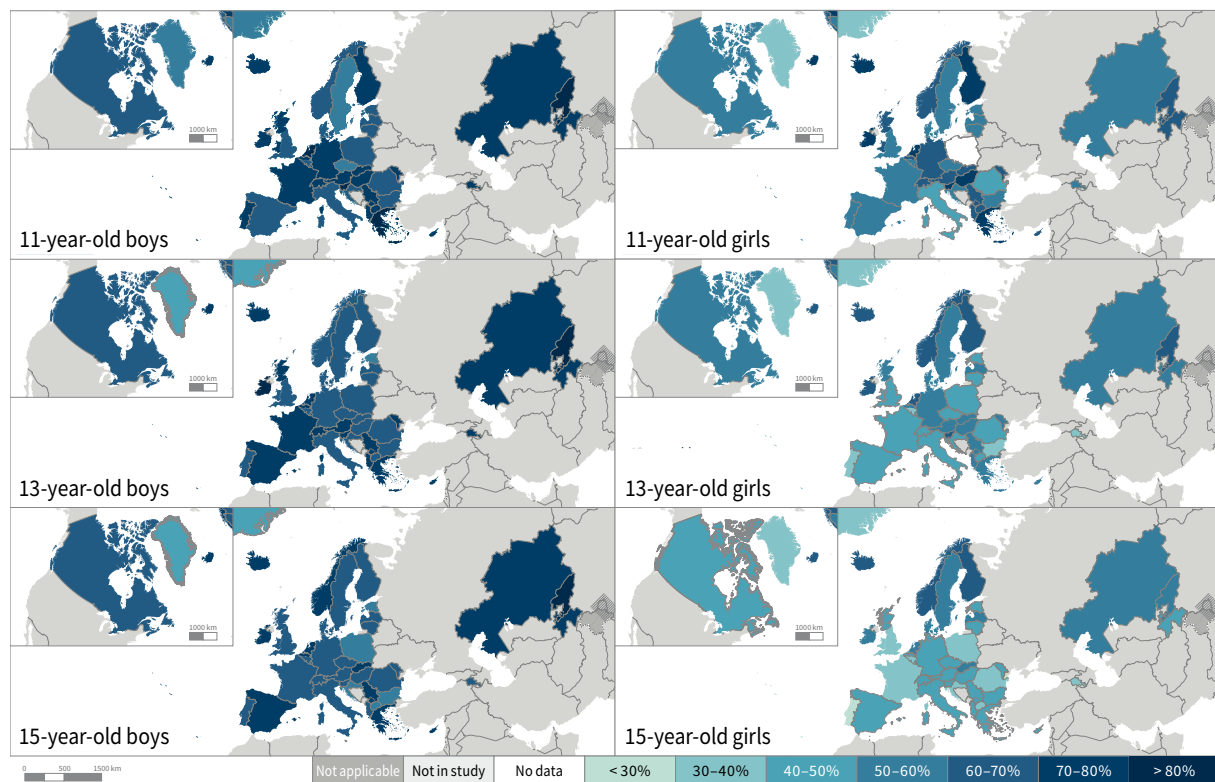


Note: no data were received from Switzerland.

## VPA

Sixty per cent of adolescents met the WHO recommendation for participating in VPA at least three times a week. Boys reported higher levels of VPA than girls across all age groups, although no significant gender differences were seen at age 11 in Finland, Ireland and Hungary, at age 13 in Denmark (Greenland) and Norway, and at age 15 in Finland and Norway (Fig. 2). VPA declined with age, particularly for girls (Fig. 3a). This decrease with age was significant in 37 countries and regions for girls and 21 for boys. Denmark (Greenland) and Malta showed relatively low levels of VPA across age and gender categories.

**Fig. 2. Prevalence of VPA by country/region, age and gender**



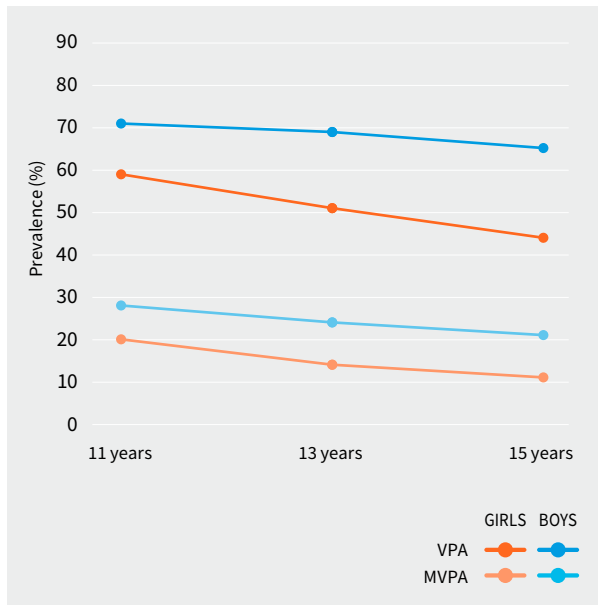
Note: no data were received from Poland (11-year-old girls).

VPA participation demonstrated a significant gradient based on family affluence (Fig. 3b). Girls and boys from high-affluence families engaged in VPA more often than adolescents from low-affluence families. Overall, there was a 19 percentage-point difference for girls (61% versus 42%) and a 16 percentage-point difference for boys (77% versus 61%) between the high- and low-affluence groups. These differences were significant across all countries and regions with the exception of boys in Denmark (Greenland) and Finland.

A cut-off of four or more times a week was used to compare levels of VPA with previous survey years. Based on this cut-off, no overall change in the level of VPA participation among boys was seen between 2018 and 2022, but there was a small decrease in VPA levels among girls. Intercountry/regional variations were evident, with a five percentage-point or more increase for boys in Belgium (Flemish),

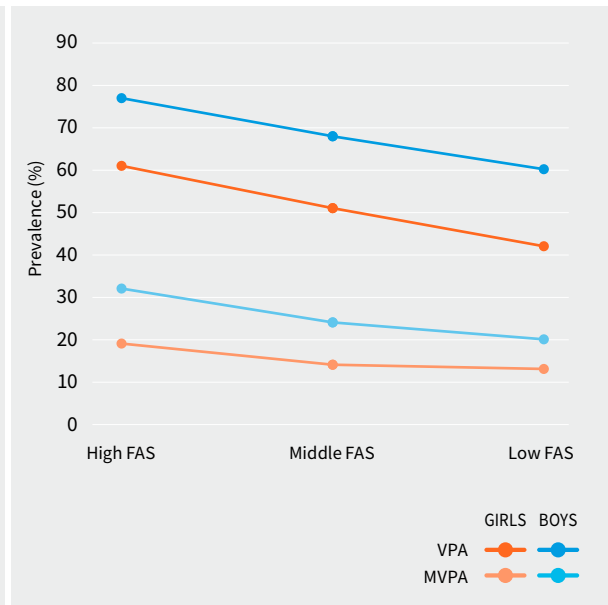
Denmark, Iceland, Poland, Portugal, Switzerland and United Kingdom (Scotland). A significant increase in VPA levels among girls was seen only in France. There was a decline of 10 percentage points or more in VPA participation among boys in Denmark (Greenland) and Malta, and among girls in Austria, Bulgaria, Denmark (Greenland) and Malta.

**Fig. 3a. Differences in physical activity (MVPA and VPA) by age**

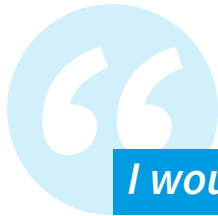


Note: no data for MVPA were received from Switzerland.

**Fig. 3b. Differences in physical activity (MVPA and VPA) by family affluence**



Note: low-, medium- and high-affluence groups represent the lowest 20%, middle 60% and highest 20% in each country/region. No data for MVPA were received from Switzerland.



*I would like for people to feel better about themselves. I think that schools could provide additional hours for sports or could provide access to a weights room for free so that people don't have to pay for memberships, because some people are not able to do so. (Boy, Belgium (French))*



*I believe that the lack of physical activity  
is one of the most significant health concerns  
facing today's youth. (Boy, Albania)*

## Physical inactivity

Physical inactivity in this report is classified as being highly inactive and is defined as participation in at least 60 minutes of MVPA on two or fewer days per week (26). On average, 24% of adolescents were highly inactive, but there was wide cross-national/regional variation (Fig. 4). More than a quarter of adolescents in 18 of the 44 countries and regions participated in 60 minutes of MVPA on one or two days a week. The highest levels of physical inactivity were found in Denmark (Greenland), where almost 60% of adolescents were classified as physically inactive. In contrast, fewer than 10% of 11-year-olds in Finland, Ireland and Slovenia were physically inactive. Levels of physical inactivity were higher among girls (29%) than boys (20%), with gender differences ranging from three percentage points in Norway to 20 in Italy.

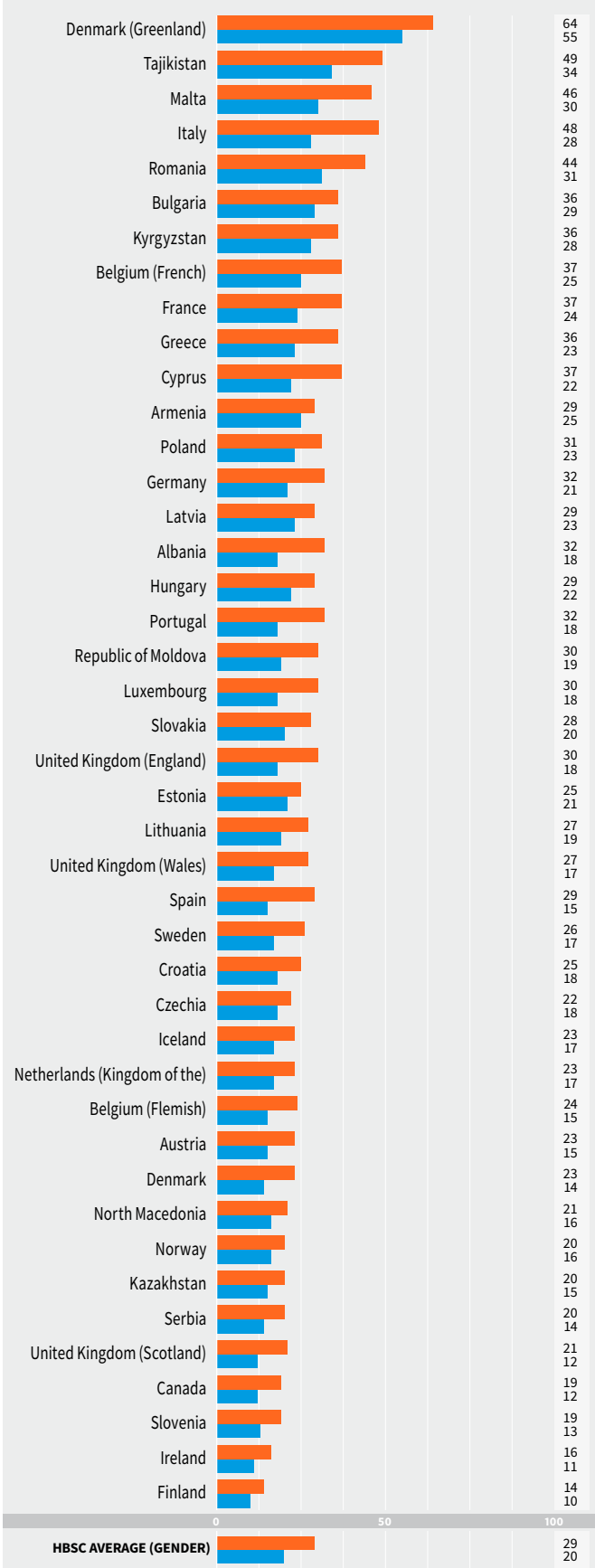
Rates of physical inactivity increased with age, with an average increase of nine percentage points between the ages of 11 and 15. The largest age difference was observed in Malta (18 percentage points). In contrast, there was no difference between age groups in Kazakhstan and Denmark (Greenland).

A significant association between physical inactivity and family affluence was found. Adolescents from high-affluence families were less likely to be physically inactive than their low-affluence peers. On average, 15% of adolescents from high-affluence families were physically inactive, compared to 32% of those from low-affluence families. The difference between high- and low-affluence adolescents was less than 10% in Bulgaria, Finland, Kazakhstan, North Macedonia and Serbia.

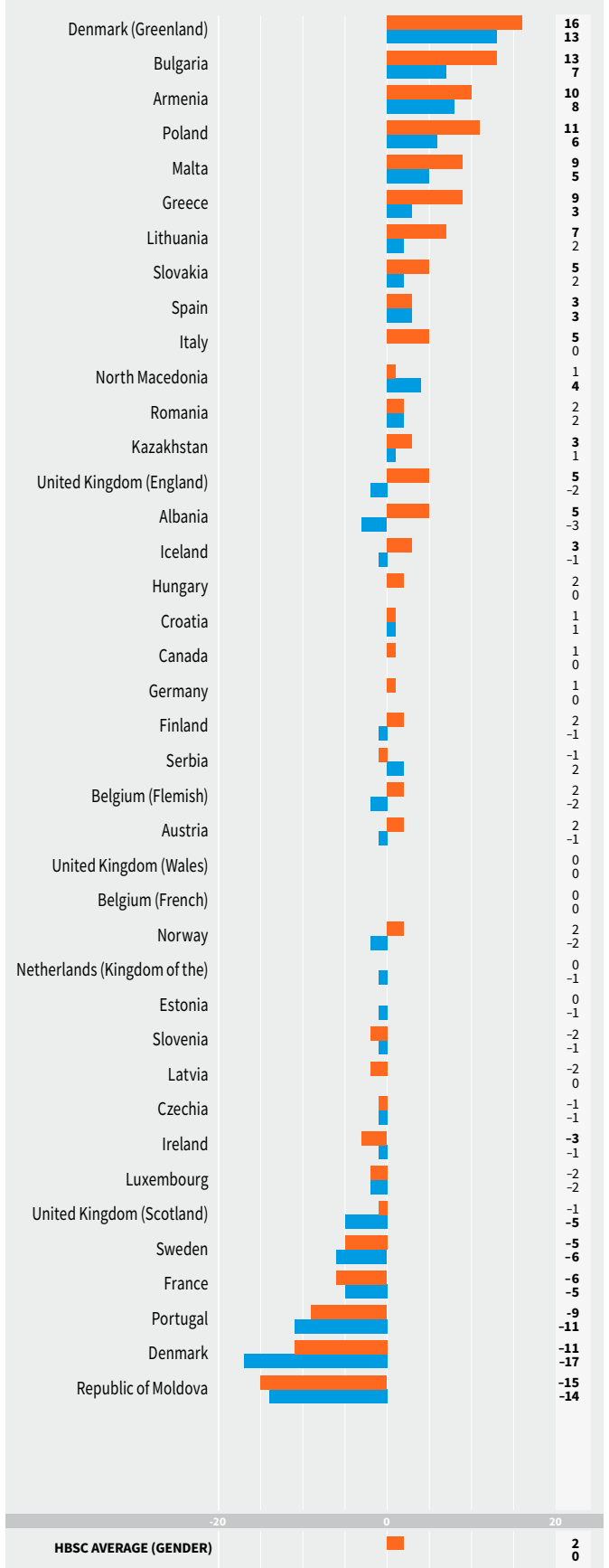
Overall changes in physical inactivity levels between 2018 and 2022 were small, possibly due to large variances within countries and regions (Fig. 5). Large increases in physical inactivity among both boys (13%) and girls (16%) were seen in Denmark (Greenland), but reductions in physical inactivity were recorded among boys (14%) and girls (15%) in the Republic of Moldova.



**Fig. 4. Physical inactivity<sup>a</sup> by gender (all age groups combined)**



**Fig. 5. Changes<sup>a</sup> in physical inactivity<sup>b</sup> between 2018 and 2022**



<sup>a</sup>Physical inactivity is defined as 60+ minutes of MVPA on 0–2 days a week. *Note:* no data for inactivity (MVPA) were received from Switzerland.

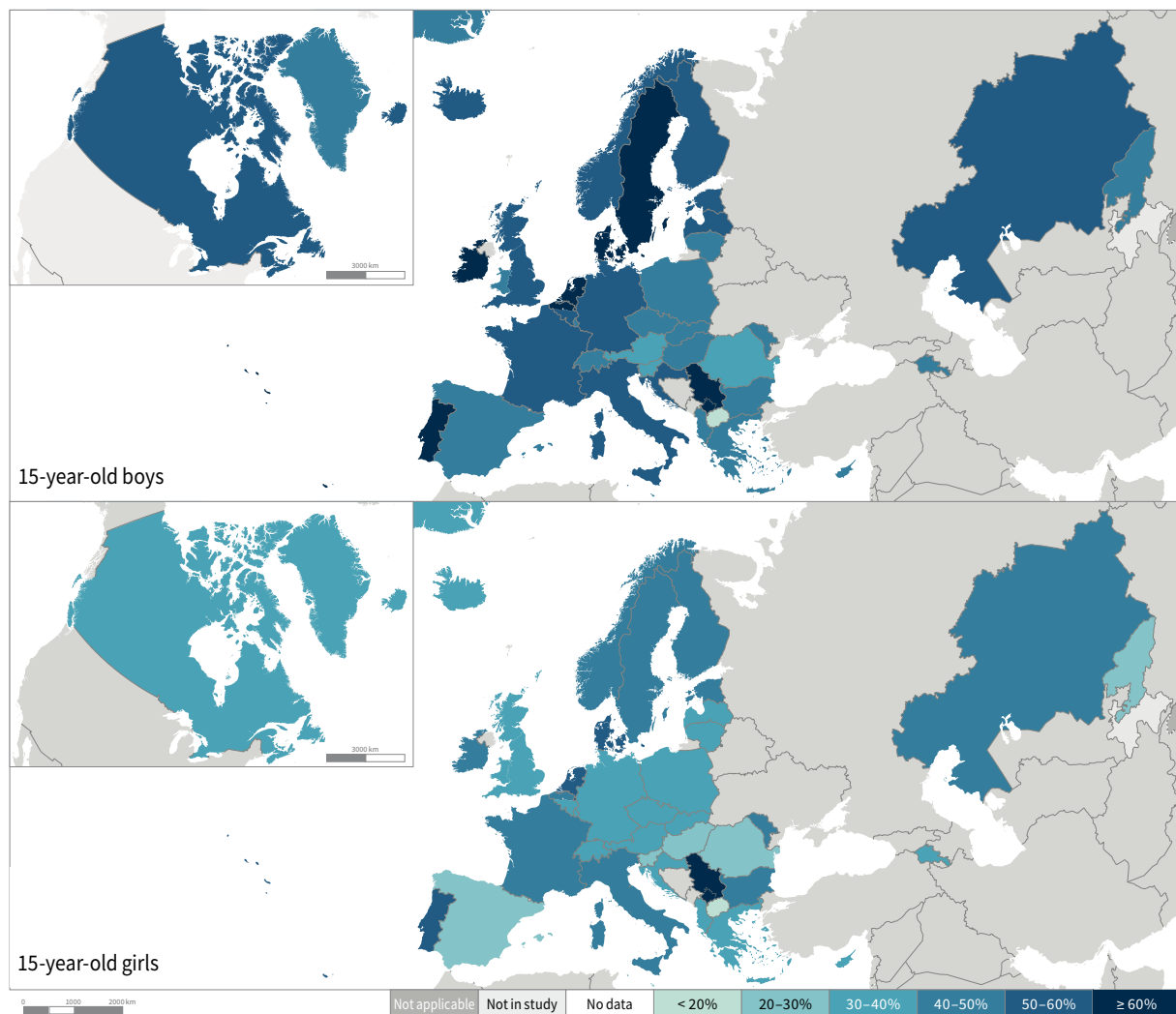
<sup>a</sup>Percentage-point change between 2018 and 2022. <sup>b</sup>Physical inactivity is defined as 60+ minutes of MVPA on 0–2 days a week. *Note:* no data for inactivity (MVPA) were received from Cyprus, Kyrgyzstan and Tajikistan for 2018 and from Switzerland for 2022.

## Daily breakfast consumption on weekdays

Overall, 51% of adolescents ate breakfast daily on weekdays. Gender differences were observed, with a higher proportion of boys (56%) than girls (46%) eating breakfast every day. Daily breakfast consumption ranged from 8% among 15-year-old girls in North Macedonia to 86% among 11-year-old boys in Netherlands (Kingdom of the). Fig. 6 shows the proportion of 15-year-old girls and boys who ate breakfast daily, by country/region. Boys and girls from more affluent families were more likely to eat breakfast daily.

A significant decline in daily breakfast consumption was seen between 2018 and 2022 in more than half of the countries and regions. The largest decrease in daily breakfast consumption was observed in North Macedonia (29 and 28 percentage-point decreases among boys and girls respectively). Serbia was the only country with an increase in daily breakfast consumption across all gender and age groups.

**Fig. 6. Daily breakfast consumption among 15-year-olds by country/region**



Note: no data were received from Tajikistan.

## Daily fruit consumption

Fewer than two in five adolescents ate fruit every day (38%). Fruit consumption declined with age in both boys and girls; the highest prevalence was among 11-year-old girls (47%) and lowest among 15-year-old boys (32%).

Gender differences were observed, with higher fruit consumption among girls. The largest gender difference was seen among 15-year-olds in Germany (15 percentage points). There was a social gradient in daily fruit consumption, with higher levels among adolescents from more affluent families. The greatest differences between high- and low-affluence groups were found in Kazakhstan for both boys and girls (23 and 21 percentage points respectively) and in United Kingdom (England) (25 percentage points for both boys and girls).

Daily consumption of fruit remained stable among boys and showed a small decrease among girls between 2018 and 2022. The largest increase was observed in 15-year-old boys from United Kingdom (Scotland) (14 percentage points) while the largest decrease was in 13-year-old girls in Kazakhstan (18 percentage points).

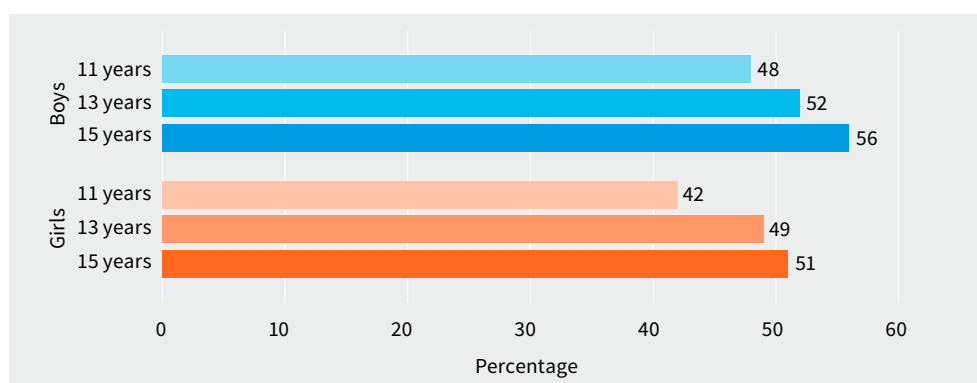
## Daily vegetable consumption

Overall, 38% of adolescents reported eating vegetables every day. Girls were more likely to eat vegetables daily than boys (40% versus 35%). The largest gender difference was found among 15-year-olds in Austria (14 percentage points). Boys and girls from more affluent families were more likely to eat vegetables daily. The largest differences between high- and low-affluence groups were observed among boys and girls in United Kingdom (England) (32 and 26 percentage points respectively).

The proportion of adolescents eating vegetables daily remained relatively stable between 2018 and 2022, but at country/region level, a notable decrease in daily vegetable consumption was found in Denmark (Greenland), Kazakhstan and North Macedonia. An increase in daily vegetable consumption was observed in Austria and Malta.

Despite the current recommendation for five portions of fruit and vegetables every day, half of adolescents ate neither fruit nor vegetables daily (Fig. 7).

**Fig. 7. Proportion of adolescents who ate neither fruit nor vegetables daily**



Note: no data were received from Belgium (French).

## Daily sweets and chocolate consumption

Overall, one in four adolescents (25%) consumed sweets or chocolate daily. A significant gender difference was seen in about half of the countries and regions, and this increased with age. Generally, girls reported eating sweets or chocolate more often than boys. The largest gender differences across all age groups were found in Romania.

Country/region variations were seen in the age-related proportion of adolescents eating sweets and chocolate daily. In almost a quarter of countries and regions, the proportion eating sweets and chocolate decreased with age among boys but increased with age among girls. Daily consumption of sweets and chocolate was generally higher among boys and girls from high-affluence families, but the opposite social gradient was seen among girls in France and boys in Denmark (Greenland) and Norway.

Between 2018 and 2022, prevalence of daily sweets and chocolate consumption increased for girls in 16 countries and regions and decreased in three. Prevalence among boys increased in seven countries and regions and decreased in nine (Fig. 8).

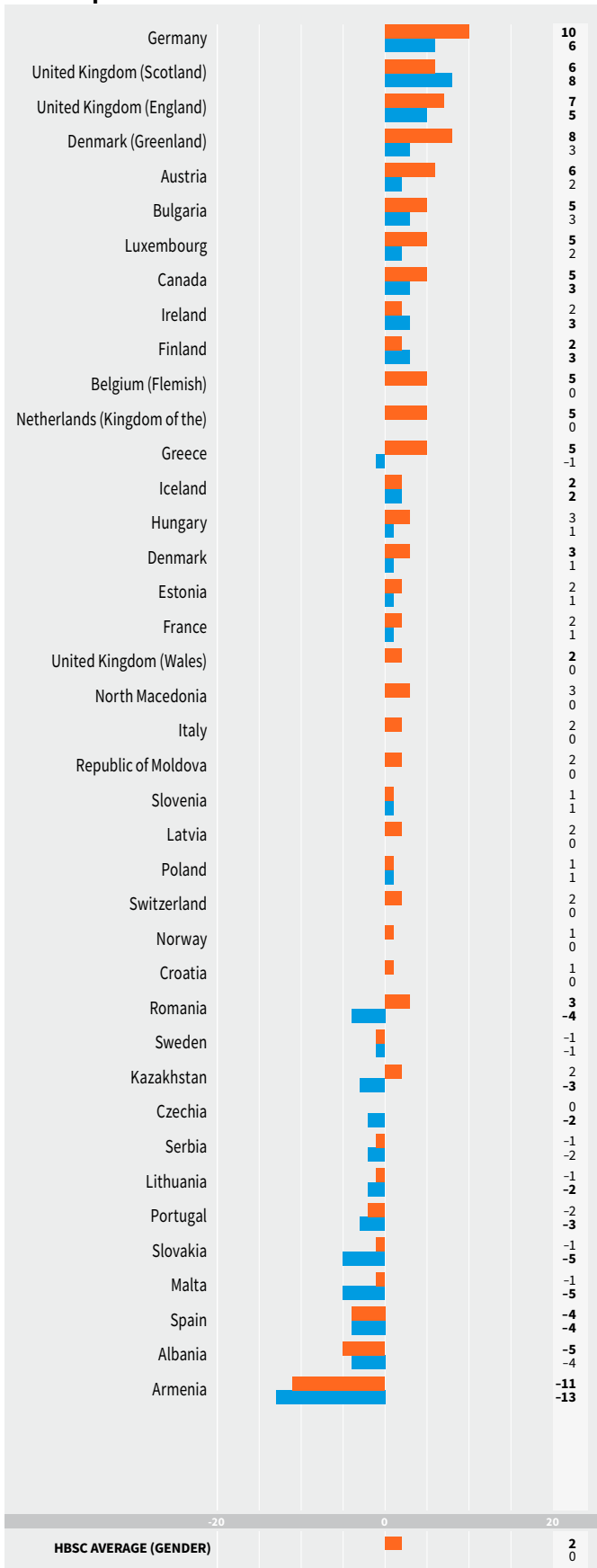
## Daily consumption of sugary soft drinks

Fifteen per cent of adolescents reported consuming sugary soft drinks daily. Generally, boys were more likely than girls to drink sugary soft drinks daily, with the exception of 13-year-olds in Romania. Prevalence was lowest among 11-year-old girls (13%) and highest among 15-year-old boys (18%). Daily sugary soft-drink consumption among boys increased with age in almost half of the countries and regions. An age difference was also observed among girls, but the highest proportions often were found among 13-year-olds. Only two countries (Estonia and Lithuania) showed a pattern of decreasing consumption with age.

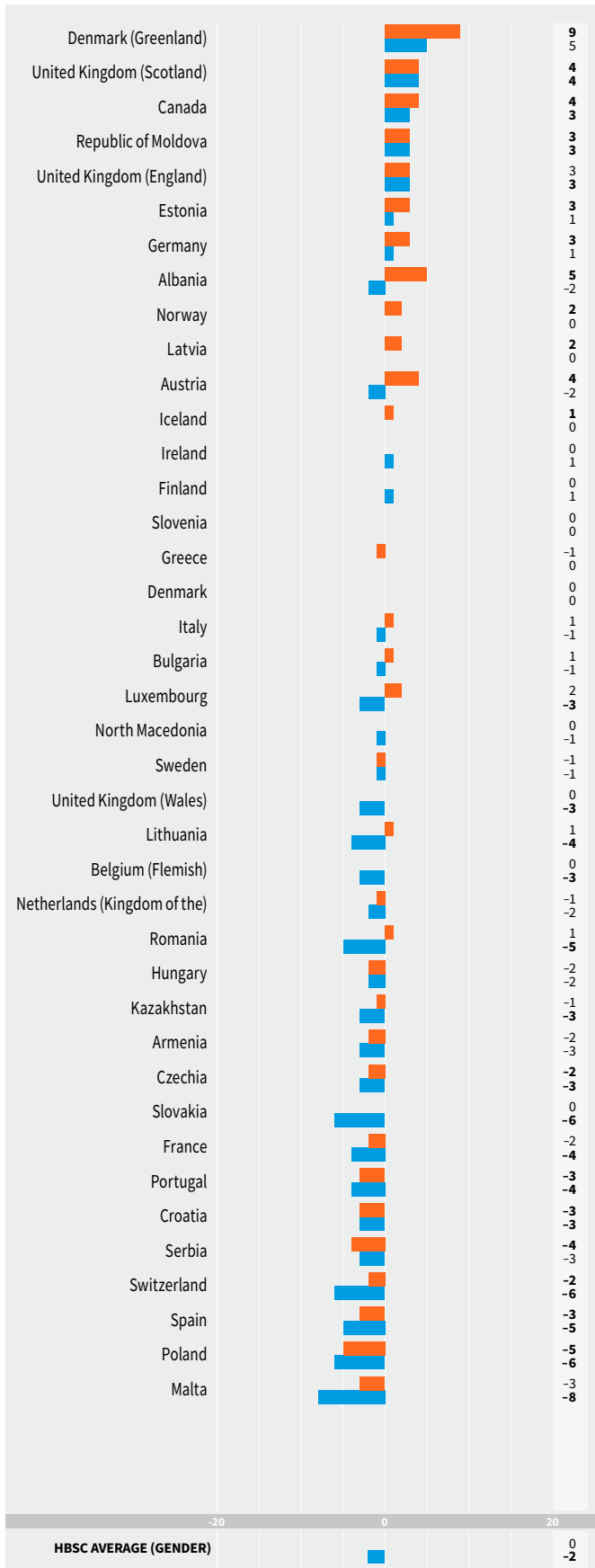
An association between family affluence and sugary soft-drink consumption was seen in 15 countries and regions across both genders, but the pattern was mixed. Most often, young people from medium-affluence families were least likely to consume these drinks daily and those from low-affluence families were most likely to do so. Adolescents from high-affluence families had the highest levels of sugary soft-drink consumption in Kazakhstan, Kyrgyzstan and Tajikistan for both genders and Poland and the Republic of Moldova for boys.

Daily sugary soft-drink consumption remained relatively stable between 2018 and 2022. Considering country and regional differences, however, a decrease was observed in 15 countries and regions among boys, with the most substantial difference of eight percentage points being seen in Malta. A decrease was noted in seven countries and regions among girls, with the most significant decline occurring in Poland (five percentage points). An increase in daily consumption of sugary soft drinks was more prevalent among girls (11 countries and regions) than boys (four). The most substantial increase in the proportion of daily sugary soft-drink consumption was observed in Denmark (Greenland) among girls (nine percentage points) (Fig. 9).

**Fig. 8. Changes<sup>a</sup> in sweets and chocolate consumption between 2018 and 2022**



**Fig. 9. Changes<sup>a</sup> in consumption of sugary soft drinks between 2018 and 2022**



<sup>a</sup>Percentage-point change between 2018 and 2022. Note: no data were received from Cyprus, Kyrgyzstan and Tajikistan for 2018 and from Belgium (French) for 2022.

<sup>a</sup>Percentage-point change between 2018 and 2022. Note: no data were received from Cyprus, Kyrgyzstan and Tajikistan for 2018 and from Belgium (French) for 2022.

## Overweight and obesity

Over a fifth (22%) of adolescents were found to be overweight or obese. The prevalence of overweight and obesity varied significantly across countries and regions (Fig. 10). The greatest difference in overweight prevalence was seen in 11-year-olds, where rates ranged from 16% in Netherlands (Kingdom of the) to 50% in North Macedonia for boys, and from 10% in Kyrgyzstan to 34% in Malta for girls. The highest prevalence of overweight (including obesity) across all age groups was observed in North Macedonia and the lowest rates for all age and gender groups in Kyrgyzstan and Tajikistan.

Overall prevalence of overweight (including obesity) was higher among boys (27%) than girls (17%). Gender differences were observed in all age groups in most countries and regions, with the exception of Netherlands (Kingdom of the) and Malta. The largest gender difference was observed among 15-year-olds in Bulgaria (24 percentage points) and the smallest among 15-year-olds in Kyrgyzstan (zero percentage points).

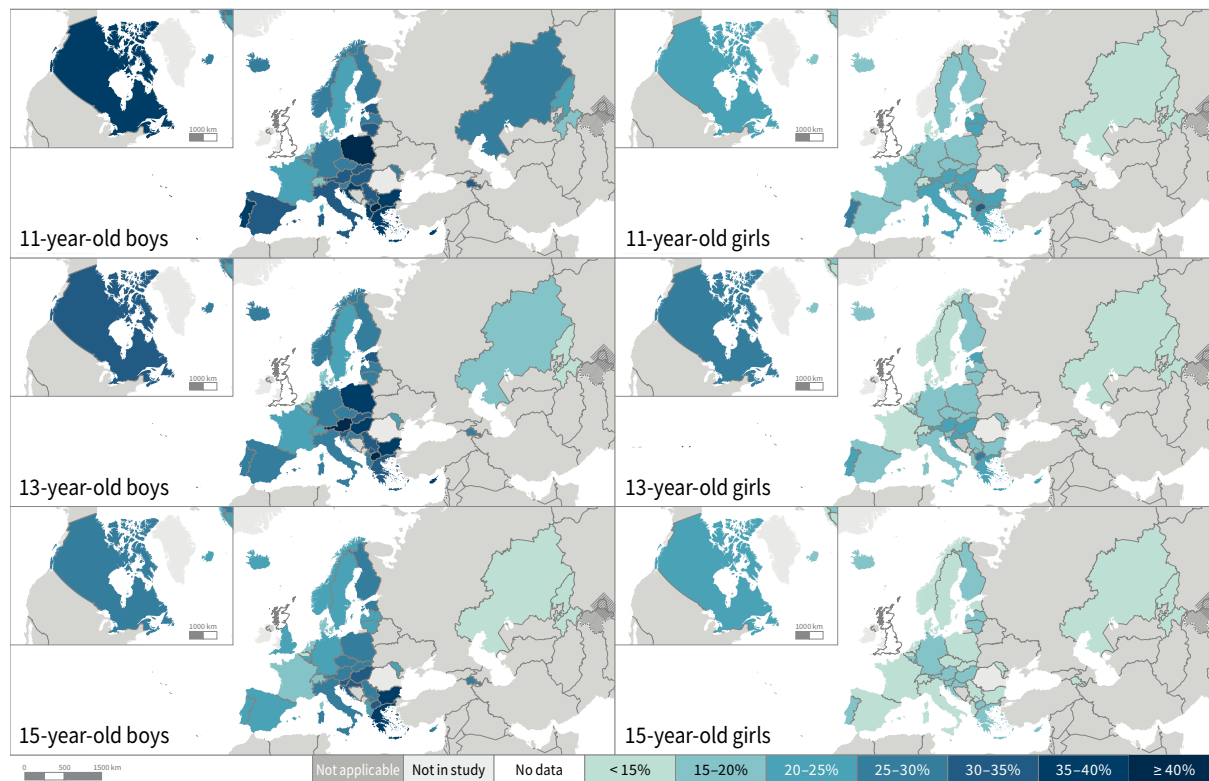
The prevalence of overweight (including obesity) decreased with age for both boys and girls. The greatest decreases between ages 11 and 15 were seen among girls in North Macedonia (15 percentage points).

Adolescents from more affluent families were less likely to be overweight or obese. This pattern was observed in more than half of the countries and regions among boys and in two thirds among girls.

Overall, there was a small but significant increase in the proportion of overweight and obese adolescents between 2018 and 2022. At country/region level, an increase was more commonly observed among boys than girls (Fig. 11). The largest increase was observed in boys in Kazakhstan (7%), followed by Austria (6%) and Bulgaria (6%), and in girls in the Republic of Moldova (7%), followed by Canada (4%) and Kazakhstan (4%). No countries or regions showed a significant decrease in the proportion of overweight and obese adolescents between 2018 and 2022.



*I think the government could help by making healthier food more affordable, by having healthy eating programmes in schools and colleges and also promoting exercise and investing in more cycle lanes for children to cycle to schools safely.  
(Girl, Ireland)*

**Fig. 10. Prevalence of overweight and obesity by country/region, age and gender**

Note: no data were received from United Kingdom (Scotland) (all age groups) and United Kingdom (England) (11- and 13-year-olds). Countries/regions and age-group samples missing more than 50% BMI data have been removed, including Denmark (Greenland), Ireland, Romania and United Kingdom (Wales) (boys and girls in all age groups), Norway (11-year-old girls) and United Kingdom (England) (15-year-old girls). Countries/regions and age-group samples missing more than 30% BMI data include, 11-year-olds: Canada, Iceland and Spain (boys and girls), Luxembourg and Sweden (girls), and Malta and Norway (boys); 13-year-olds: Bulgaria (boys and girls), and Canada and Norway (girls); 15-year-olds: United Kingdom (England) (boys).

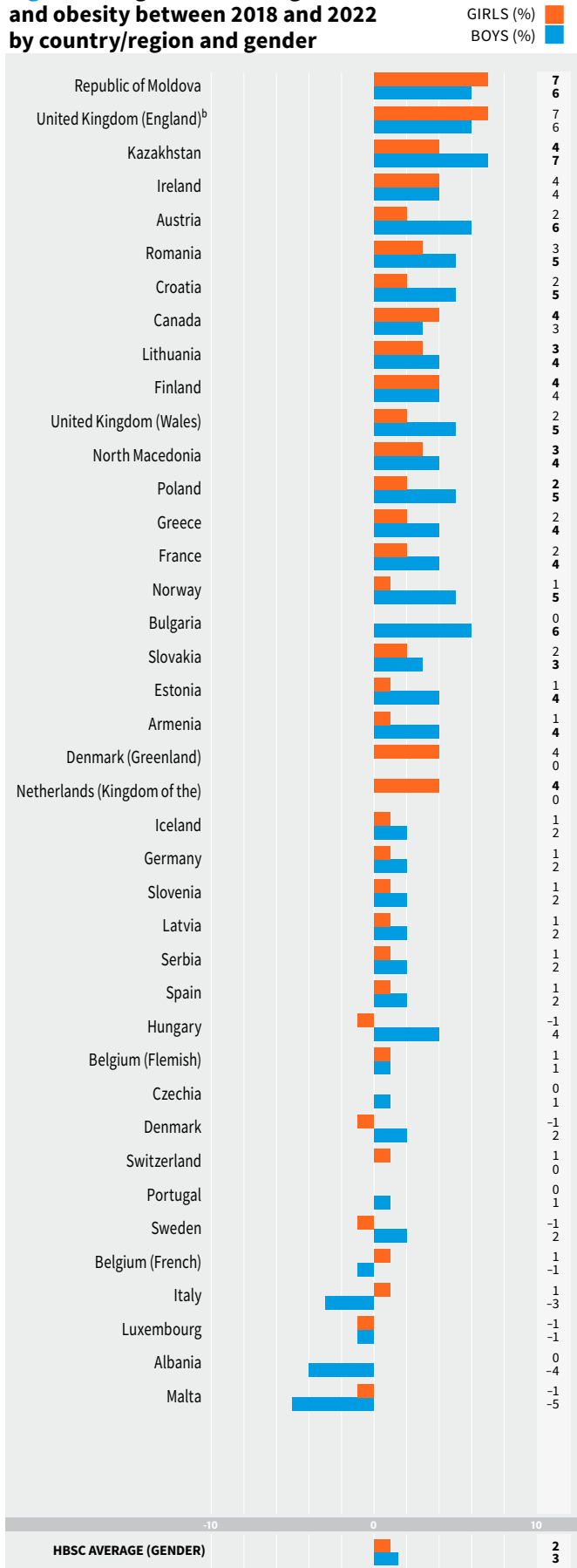
## Underweight

Five per cent of adolescents were classified as underweight, with rates for both boys and girls typically being highest at age 11. At country/region level, the highest rate was observed for 13-year-old boys (10%) and girls (13%) in Tajikistan and the lowest for 15-year-old girls in Malta (fewer than 1%).

Prevalence of underweight decreased with age. This was seen among girls in most of the countries and regions and among boys in around half. Socioeconomic differences were identified among girls in eight countries and regions, with higher prevalence among those from high-affluence families. The opposite pattern was seen among girls in Norway and Portugal. Socioeconomic inequalities were found for boys in seven countries and regions, with higher prevalence among boys from low-affluence families. The exception was Slovenia, where the proportion of underweight boys was slightly higher among adolescents from high-affluence families.

There were no significant changes in the prevalence of underweight between 2018 and 2022 overall. Changes occurred in only a small number of countries and regions, with some indicating a slight increase and others a decrease. A decrease in the proportion of underweight adolescents across all age and gender groups was seen only in the Republic of Moldova.

**Fig. 11. Changes<sup>a</sup> in overweight and obesity between 2018 and 2022 by country/region and gender**



*If you ask me what the biggest health problem is, I would say that children eat far too much unhealthy food and therefore become overweight.*

*There are advertisements everywhere that look attractive, but these are advertisements of unhealthy food and not of fruits and vegetables. (Girl, Netherlands (Kingdom of the))*

<sup>a</sup>Percentage-point change between 2018 and 2022. <sup>b</sup>Fifteen-year-olds only. *Note:* no data were received from Cyprus, Kyrgyzstan and Tajikistan for 2018 and from United Kingdom (Scotland) for 2022. Country/regions missing more than 50% of BMI data for any age-gender group in 2018 or 2022 include Denmark (Greenland), Ireland, Norway, Romania, United Kingdom (England) and United Kingdom (Wales); these data should be interpreted with caution.



## Body image

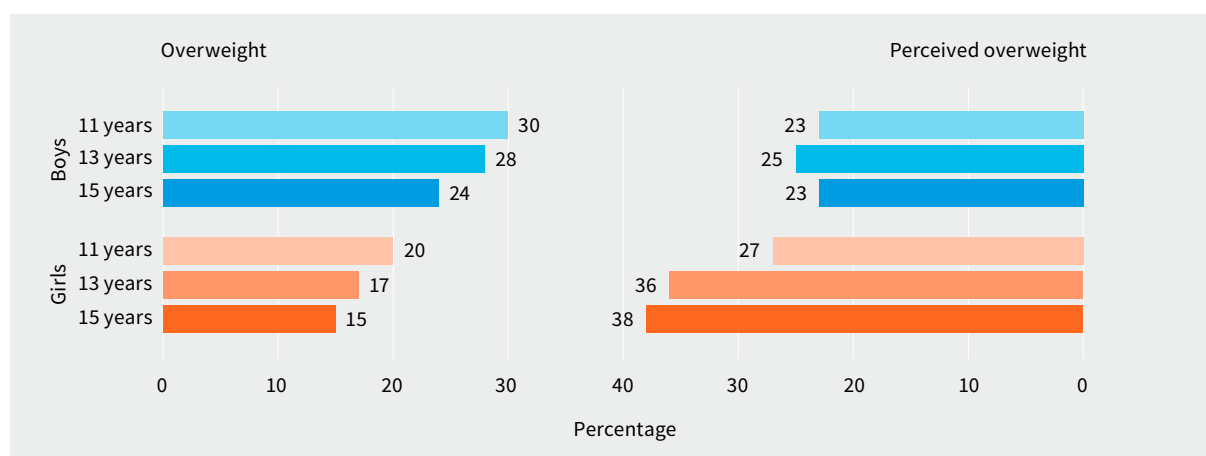
Overall, almost a third of adolescents (29%) considered themselves too fat. Girls were more likely than boys to perceive themselves as being too fat, and this gender gap increased with age (Fig. 12). The lowest prevalence was among 11- and 15-year-old boys (23%) and the highest among 15-year-old girls (38%). Gender differences in each age group were present in about half of the countries and regions. With the exception of 11-year-olds in Albania, Romania and Tajikistan, girls reported feeling too fat more often.

Older adolescents were more likely to perceive themselves as being too fat. Age differences were noted in almost all countries and regions among girls and in fewer than half among boys. Negative body image increased continuously with age among girls and was most prevalent among 15-year-olds. Among boys, the highest prevalence was in the 13-year-old group.

Socioeconomic differences were present in almost all of the countries and regions. Among boys from 23 countries and regions and girls from 19, the highest percentage of adolescents perceiving themselves as too fat were from low-affluence families. The exceptions were boys in Denmark (Greenland) and Tajikistan, and boys and girls in Kazakhstan, where those from high-affluence families were more likely to report feeling too fat. The highest proportion of those perceiving themselves as being too fat among girls in Malta and Romania was from medium-affluence families.

Between 2018 and 2022, an increase in the proportion of young people assessing themselves as being too fat was observed in all age and gender groups. The increase appeared in twice as many countries and regions among girls (16 for 11-year-olds and 14 each for 13- and 15-year-olds) than among boys (eight for each age group). Albania was the only exception, with a decrease in the proportion of adolescents perceiving themselves as being too fat among 13- and 15-year-old girls and 15-year-old boys.

**Fig. 12. Prevalence of overweight and obesity and perceived overweight by age and gender**



*Note:* no data were received for perceived overweight from Norway and United Kingdom (Scotland). No data were received for overweight (BMI) from United Kingdom (England) and United Kingdom (Scotland) (11- and 13-year-olds). Countries/regions and age-group samples missing more than 50% of BMI data were not included in the calculation of overweight for each age group, including Denmark (Greenland), Ireland, Romania, United Kingdom (England) and United Kingdom (Wales) (15-year-old girls), and Norway (11-year-old girls).

## Key themes

### Energy imbalance in adolescents

The findings from the 2021/2022 HBSC survey indicate that low intake of fruit and vegetables and relatively high consumption of sugary soft drinks is likely to contribute to energy imbalance. These findings echo those from the latest WHO European Childhood Obesity Surveillance Initiative related to the dietary habits of children, which also found low consumption of fruit and vegetables and high consumption of sugary soft drinks (27). WHO has updated its guidelines on intake of fats and carbohydrates to include new guidance on fruit, vegetables and fibre (15).

A balance in energy intake and expenditure over time is necessary to maintain a healthy weight. Energy requirements increase during adolescence to support rapid physical growth and changes in body composition (9). Changes in food preferences, eating behaviours and physical activity levels often contribute to energy imbalance, leading to weight gain (28,29).

Both physical and sedentary activities primarily affect energy balance through energy expenditure but also have an impact on food intake (30). Sedentary behaviours are often associated with higher intake of energy-dense foods, especially sweets and sugary soft drinks, and lower intakes of fruit and vegetables (31). Regular food intake and eating a variety of different food groups represent the foundation of healthy eating habits. Behaviours that maintain a healthy energy balance are also important in the prevention of noncommunicable diseases such as obesity and cardiovascular disease (32,33). The shift towards positive energy balance (such as having surplus energy) in the last decades reflects decreases in physical activity and increases in energy intake.

### Insufficient energy expenditure among adolescents: the role of age, gender and family affluence

The findings provide a compelling picture that is dominated by significant disparities in MVPA and VPA levels across gender, age and socioeconomic status. There is a consistent insufficiency in MVPA levels, particularly among girls, with only around one in seven achieving 60 minutes of MVPA daily in 2022. Boys are more active, but only a quarter were found to meet this criterion. Inequalities could also be seen in VPA, with boys significantly outnumbering girls across all age categories (except in Finland and Norway). Nearly 60% of adolescents are meeting the WHO VPA recommendation, but there is a notable decline in VPA with age and a steeper decline for girls.

An association between levels of physical activity and family affluence was evident. Both boys and girls from more affluent families participate in MVPA and VPA more often, which may reflect social disparities in access to opportunities to be physically active. On average, almost a quarter of adolescents are highly physically inactive, with higher levels of inactivity among girls. There is wide cross-national/regional variation in physical inactivity levels, indicating potential cultural, social or policy-driven influences on adolescent physical inactivity patterns. No significant changes in MVPA, VPA and physical inactivity levels were identified overall between 2018 and 2022, but variations at country/region level were substantial.

## Changes in energy intake among adolescents: the role of age, gender and family affluence

Most adolescents are failing to meet the nutritional recommendations needed for optimal health and development. Daily breakfast consumption on weekdays decreased in more than half the countries and regions between 2018 and 2022. Girls, especially those in older age groups, were less likely to eat breakfast daily on weekdays. Girls in all age groups nevertheless consumed fruit and vegetables more often than boys. Although fruit consumption has increased in about half of the countries and regions since 2018, only about a third of adolescents consume fruit daily, and social inequalities were observed. Daily consumption of sweets and chocolate has increased slightly among younger girls and intake is highest among those from more affluent families. Consumption of sugary soft drinks was higher among boys than girls, with the highest consumption among adolescents from the least affluent families.

## Weight status and perceptions among adolescents

One fifth of adolescents are overweight or obese, although variations across countries and regions and between age groups are significant. The overall prevalence of overweight and obesity, however, is significantly higher among boys in all age groups. The data suggest increasing prevalence of overweight and obesity in more than a third of countries and regions, which calls for urgent action through targeted interventions and policy improvements.

The prevalence of underweight remains low. A gender difference indicating higher prevalence among younger girls and lower rates among older boys was seen in some countries and regions. The picture is clearer regarding the age-related prevalence of underweight, as rates decrease with age among girls in most countries and regions and among boys in almost half. Socioeconomic differences exist only in some countries and regions, showing a different pattern in girls (higher prevalence from more affluent families) and boys (higher prevalence from less affluent families).

Almost one third of adolescents are not satisfied with their weight, considering themselves to be too fat. This is more common among girls than boys. Adolescents' body-image perceptions worsened with age. Given that high body dissatisfaction is a predictor of various adverse outcomes, including disordered eating, developing and strengthening activities to enable protection from negative body image is necessary.

## Policy implications

Considering the complex nature of the mechanisms of health behaviour change in eating habits and physical activity and their strong association with overweight, obesity and underweight, the drive to improve behaviour should be based on the implementation of a range of possible public health approaches, which may include:

- adolescent-targeted education and prevention activities with proven effectiveness, including improving health and media literacy;
- interventions to promote physical activity and healthy diets for adolescents before, during and after the school day;
- education of school staff on the importance to adolescents of physical activity and healthy diets;
- limiting physical access to unhealthy products in education establishments through enforcement of existing legislation (including control of the range of products available in school shops and vending machines, and quality standards for school meals);
- improving food environments in and around schools, including access to, and affordability of, healthy food items such as fruit, vegetables, whole grains, reduced-fat dairy products and lean meats, and limiting access to unhealthy foods such as those high in saturated fats, sugars and salts;
- improving public food procurement and service policies to enable healthy diets in schools;
- legislation to limit access to products that are harmful to health, including fiscal regulations (such as taxation of foods high in fat, sugar and salt and of low nutritional value);
- restrictions on marketing of unhealthy foods and drinks to children and adolescents, both on- and offline, and limiting the amount of time spent in front of a screen, mainly on social media, to reduce exposure to content that threatens adolescents' self-perception;
- encouraging active travel by providing safe footpaths and local cycle lanes;
- specifically tailored interventions for both boys and girls that aim to increase MVPA in adolescence, with a particular focus on adolescents from low-affluence families and older age groups;
- targeted sports policy directed to groups that either have not previously participated in VPA or are dropping out of VPA;
- policy programmes and interventions designed to maintain physical activity throughout the transition into adulthood; and
- providing access to management of overweight and obesity (brief interventions for physical activity and diet) as part of routine primary health-care services.

Examples from Finland and Ireland of successful implementation of policy measures to increase MVPA and VPA among adolescents are shown in [Boxes 1 and 2](#).

### **Box 1. Policy case study: Finland**

Levels of MVPA and VPA are notably high and social gradients notably low in Finland. Although overall physical activity levels seem to have declined between 2018 and 2022, inequalities have reduced. Most notably, the amount of VPA does not differ significantly between boys and girls. These results may be due to the launch of Government-supported programmes that promote physical activity in both boys and girls, such as the national "Schools on the Move" whole-school programme (34) and the Finnish Model for Leisure Activities (35).

**Box 1 contd**

There are also high rates of active travel across the country. Regular national monitoring of physical activity levels through the Finnish school-age physical activity study has been implemented since 2014, providing policy-makers an opportunity to see how physical activity-related levels rate against the benchmarks (36) and identify what effects the coronavirus disease 2019 (COVID-19) pandemic has had on overall physical activity levels across the country (37). A sports participation database from the Finnish Olympic Committee also provides a useful tool that sports federations can use to manage their members and identify possible social inequalities.

**Box 2. Policy case study: Ireland**

The Government of Ireland set out a 10-year cross-government plan called the National Physical Activity Plan in 2016 (38). The plan presents eight thematic action areas, the second of which is focused on children and adolescents. Its target is to increase daily physical activity by 1% and reduce inactivity by 0.5% annually.

Multiple Government departments and key stakeholders were tasked with responsibility for 13 actions related to children and adolescents. Stakeholders have been working together since 2019 on reaching the targets through the Irish Physical Activity Research Collaboration (39), which involves researchers, practitioners and policy-makers. Physical education has become an examinable subject at the leaving certificate/final state examination level in schools (40), and a Minister for Sport and Physical Education was appointed to the Government in 2023.

## Conclusions

Based on these most recent findings from the HBSC study, physical activity remains consistently low, with most adolescents not taking part in daily MVPA. About a quarter are highly inactive.

Age and gender strongly influence activity levels, with girls generally less active. Higher family affluence is linked to greater activity levels, revealing important social disparities. High physical inactivity rates persist, underscoring the need for interventions to promote adolescent health and reduce inequalities. Enabling inactive adolescents to become physically active has the potential for significant health gains.

Regarding food consumption, insufficient fruit and vegetable intake remains prevalent. Daily breakfast consumption has declined in over half of the HBSC countries and regions, especially among older age groups and with different gender-related patterns. Consumption of high-sugar products such as sweets, chocolate and sugary soft drinks shows mixed trends, with boys more likely to consume sugary soft drinks and girls more likely to eat sweets and chocolate regularly. Higher family affluence is linked with higher fruit and vegetable consumption, but also with higher consumption of sweets and chocolate in some countries and regions.

Overweight and obesity rates vary across countries and regions, with a notable increase in some, necessitating immediate action.

Body-image satisfaction has worsened across age groups and genders, with more young people perceiving themselves as being too fat.

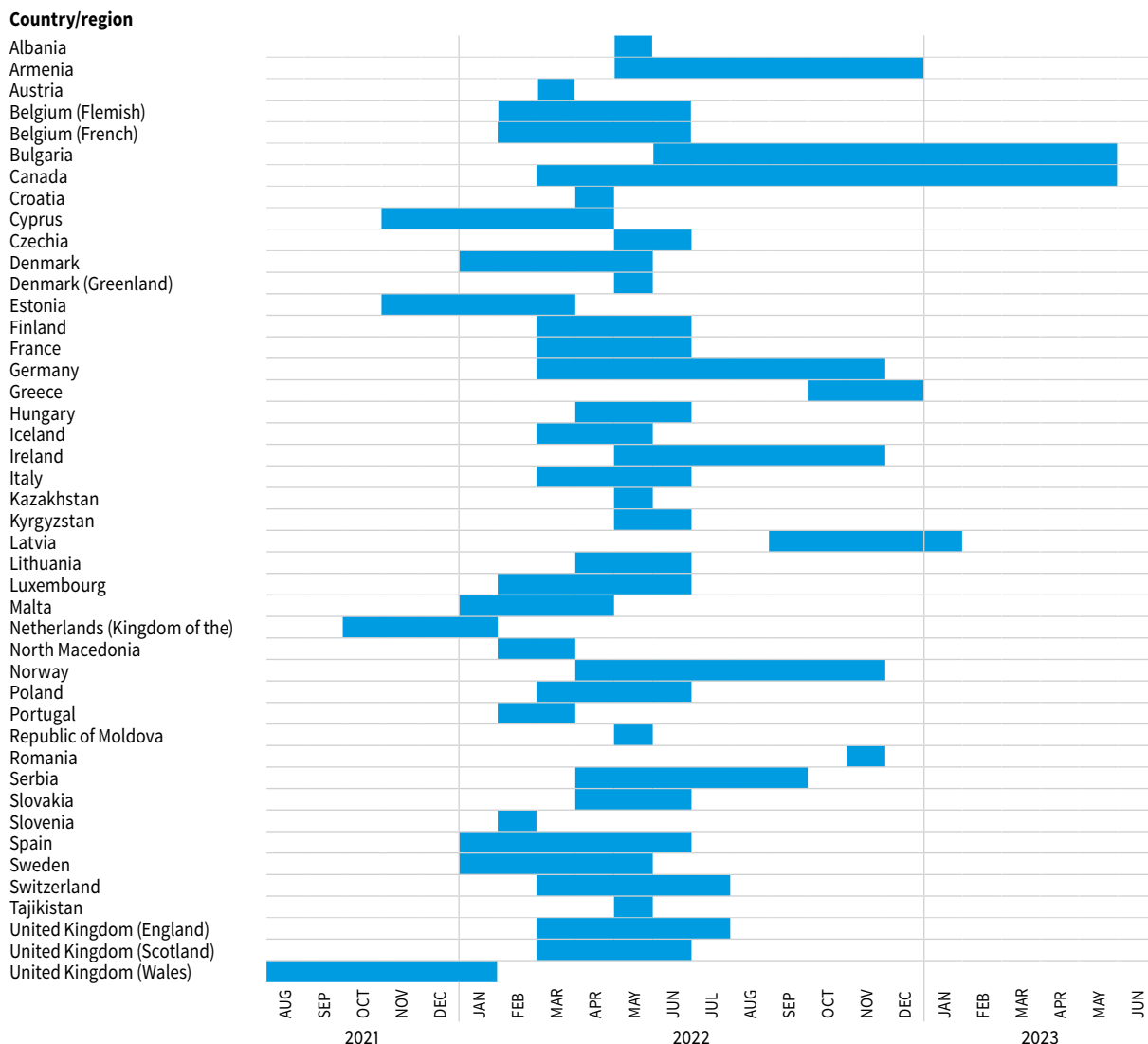
# HBSC study

The HBSC study is a large school-based survey carried out every four years in collaboration with the WHO Regional Office for Europe. The study collects data on the health behaviours, health outcomes and the social environments of adolescents aged 11, 13 and 15. Since the mid-1980s, HBSC data have been used to gain new insights into young people’s health and well-being, better understand the social determinants of adolescent health, and inform policy and practice to improve young people’s lives.

The most recent HBSC survey (2021/2022) was conducted across 44 countries and regions in Europe, central Asia and Canada and included an optional set of questions that measured perceived impacts of the COVID-19 pandemic.

This report presents key findings on physical activity, eating behaviours, weight status and body image among adolescents, including issues related to gender, age, socioeconomic factors and changes over time. It is the fourth volume in a series of reports that present findings from the latest international HBSC survey and discuss what they mean for young people’s health and well-being. Fig. 13 shows the dates on which the 44 countries and regions conducted the survey.

**Fig. 13. Dates on which the 44 countries and regions conducted the 2021/2022 HBSC survey**



*Note:* data from Israel were collected too late for inclusion in the report. No HBSC survey was undertaken in 2021/2022 in Azerbaijan, Georgia, Türkiye and Ukraine. HBSC membership of the Russian Federation was suspended in April 2022.

# References<sup>1</sup>

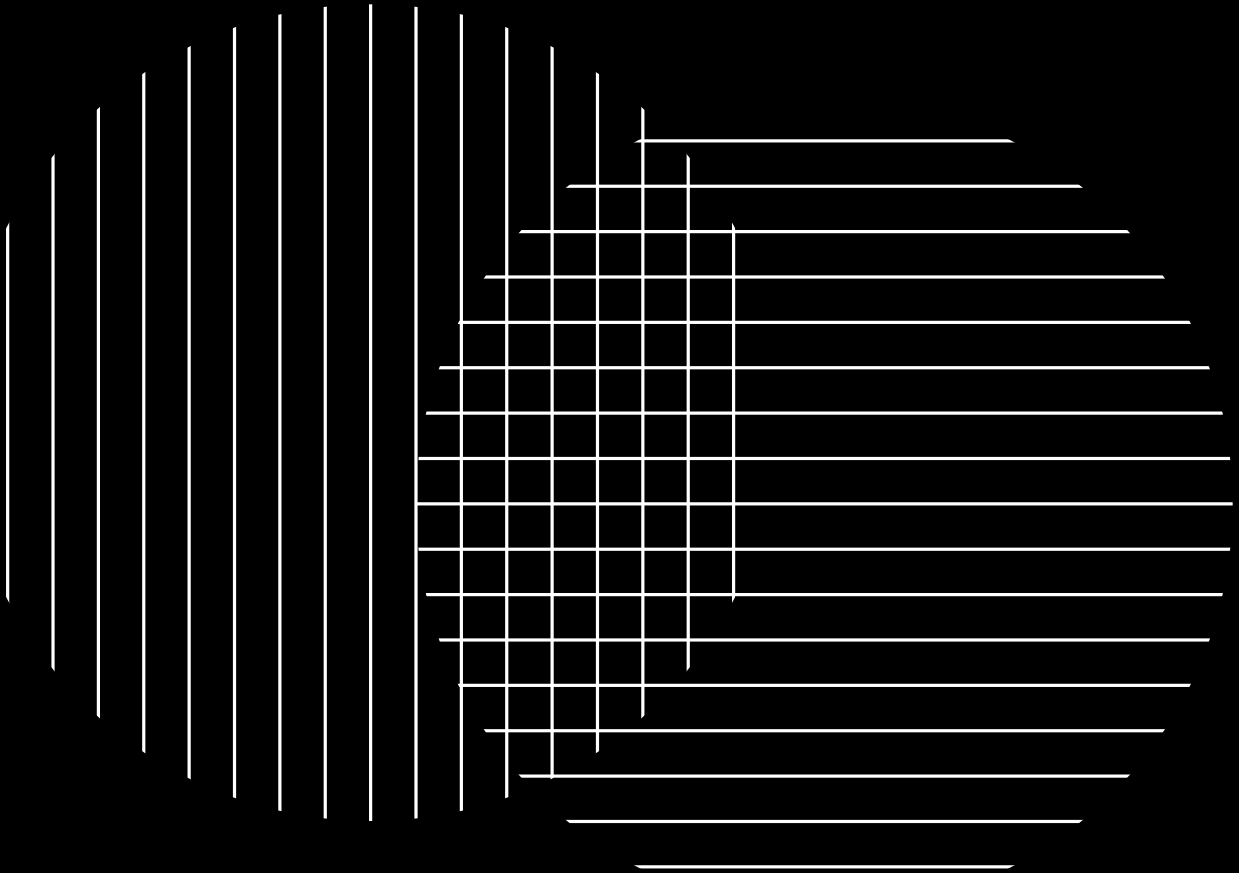
1. Saving lives, spending less: a strategic response to noncommunicable diseases. Geneva: World Health Organization; 2018 (<https://iris.who.int/handle/10665/272534>).
2. Carlin A, Perchoux C, Puggina A, Aleksovska K, Buck C, Burns C et al. A life course examination of the physical environmental determinants of physical activity behaviour: a “Determinants of Diet and Physical Activity” (DEDIPAC) umbrella systematic literature review. *PLoS ONE*. 2017;12(8):e0182083. doi:10.1371/journal.pone.0182083.
3. Hayes G, Dowd KP, MacDonncha C, Donnelly AE. Tracking of physical activity and sedentary behavior from adolescence to young adulthood: a systematic literature review. *J Adolesc Health*. 2019;65(4):446–54. doi:10.1016/j.jadohealth.2019.03.013.
4. Lioret S, Campbell KJ, McNaughton SA, Cameron AJ, Salmon J, Abbott G et al. Lifestyle patterns begin in early childhood, persist and are socioeconomically patterned, confirming the importance of early life interventions. *Nutrients*. 2020;12(3):724. doi:10.3390/nu12030724.
5. Biddle SJ, Asare M. Physical activity and mental health in children and adolescents: a review of reviews. *Br J Sports Med*. 2011;45(11):886–95. doi:10.1136/bjsports-2011-090185.
6. Janssen I, Leblanc AG. Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *Int J Behav Nutr Phys Act*. 2010;7:40. doi:10.1186/1479-5868-7-40.
7. Bull FC, Al-Ansari SS, Biddle S, Borodulin K, Buman MP, Cardon G et al. World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *Br J Sports Med*. 2020;54(24):1451–62. doi:10.1136/bjsports-2020-102955.
8. Chaput JP, Willumsen J, Bull F, Chou R, Ekelund U, Firth J et al. 2020 WHO guidelines on physical activity and sedentary behaviour for children and adolescents aged 5–17 years: summary of the evidence. *Int J Behav Nutr Phys Act*. 2020;17(1):141. doi:10.1186/s12966-020-01037-z.
9. Das JK, Salam RA, Thornburg KL, Prentice AM, Campisi S, Lassi ZS et al. Nutrition in adolescents: physiology, metabolism, and nutritional needs. *Ann N Y Acad Sci*. 2017;1393(1):21–33. doi:10.1111/nyas.13330.
10. de Magalhães Cunha C, Costa PRF, de Oliveira LPM, de O Queiroz VA, Pitangueira JCD, Oliveira AM. Dietary patterns and cardiometabolic risk factors among adolescents: systematic review and meta-analysis. *Br J Nutr*. 2018;119(8):859–79. doi:10.1017/S0007114518000533.
11. de Villiers A, Faber M. Changing young people's food-related behaviour: a socio-ecological perspective. *Public Health Nutr*. 2019;22(11):1917–19. doi:10.1017/S136898001900123X.
12. Lundqvist M, Vogel NE, Levin L-Å. Effects of eating breakfast on children and adolescents: a systematic review of potentially relevant outcomes in economic evaluations. *Food Nutr Res*. 2019;63. doi:10.29219/fnr.v63.1618.
13. Poorolajal J, Sahraei F, Mohamdadi Y, Doosti-Irani A, Moradi L. Behavioural factors influencing childhood obesity: a systematic review and meta-analysis. *Obesity Res Clin Pract*. 2020;14(2):109–18. doi:10.1016/j.orcp.2020.03.002.
14. Zahedi H, Djalalinia S, Sadeghi O, Zare Garizi F, Asayesh H, Payab M et al. Breakfast consumption and mental health: a systematic review and meta-analysis of observational studies. *Nutr Neurosci*. 2022;25(6):1250–64. doi:10.1080/1028415X.2020.1853411.
15. Increasing fruit and vegetable consumption to reduce the risk of noncommunicable diseases. In: e-Library of Evidence for Nutrition Actions (eLENA) [website]. Geneva: World Health Organization; 2023 (<https://www.who.int/tools/elena/interventions/fruit-vegetables-ncds>).
16. Dobner J, Kaser S. Body mass index and the risk of infection – from underweight to obesity. *Clin Microbiol Infect*. 2018;24(1):24–8. doi:10.1016/j.cmi.2017.02.013.
17. Bialo SR, Gordon CM. Underweight, overweight, and paediatric bone fragility: impact and management. *Curr Osteoporos Rep*. 2014;12(3):319–28. doi:10.1007/s11914-014-0226-z.
18. Peacock A, Alvi NS, Mushtaq T. Period problems: disorders of menstruation in adolescents. *Arch Dis Child*. 2012;97(6):554–60. doi:10.1136/adc.2009.160853.
19. Itriyeva K. The effects of obesity on the menstrual cycle. *Curr Probl Paediatr Adolesc Health Care*. 2022;52(8):101241. doi:10.1016/j.cppeds.2022.101241.
20. Biro FM, Greenspan LC, Galvez MP. Puberty in girls of the 21st century. *J Paediatr Adolesc Gynecol*. 2012;25(5):289–94. doi:10.1016/j.jpjag.2012.05.009.
21. Drozd D, Alvarez-Pitti J, Wójcik M, Borghi C, Gabbianelli R, Mazur A et al. Obesity and cardiometabolic risk factors: from childhood to adulthood. *Nutrients*. 2021;13(11):4176. doi:10.3390/nu13114176.

<sup>1</sup> All references accessed 28 February 2024.



22. Riley M, Hernandez AK, Kuznia AL. High blood pressure in children and adolescents. *Am Fam Physician*. 2018;98(8):486–94. PMID:30277729.
23. Rao W-W, Zong Q-Q, Zhang J-W, An F-R, Jackson T, Ungvari GS et al. Obesity increases the risk of depression in children and adolescents: results from a systematic review and meta-analysis. *J Affect Disord*. 2020;267:78–85. doi:10.1016/j.jad.2020.01.154.
24. Andrew R, Tiggemann M, Clark L. Predictors and health-related outcomes of positive body image in adolescent girls: a prospective study. *Dev Psychol*. 2016;52(3):463–74. doi:10.1037/dev0000095.
25. Rohde P, Stice E, Marti CN. Development and predictive effects of eating disorder risk factors during adolescence: implications for prevention efforts. *Int J Eat Disord*. 2015;48(2):187–98. doi:10.1002/eat.22270.
26. Woods CB, Crowley E, Powell C, O'Brien W, Murphy MH, Belton S et al. Socio-ecological correlates of physical activity in a nationally representative sample of adolescents across Ireland and Northern Ireland. *Prev Med Rep*. 2021;23:101472. doi:10.1016/j.pmedr.2021.101472.
27. Report on the fifth round of data collection, 2018–2020: WHO European Childhood Obesity Surveillance Initiative (COSI). Copenhagen: WHO Regional Office for Europe; 2022 (<https://iris.who.int/handle/10665/363950>).
28. Pearson N, Griffiths P, Biddle SJH, Johnston JP, Haycraft E. Individual, behavioural and home environmental factors associated with eating behaviours in young adolescents. *Appetite*. 2017;112:35–43. doi:10.1016/j.appet.2017.01.001.
29. Inchley J, Currie D, Budisavljevic S, Torsheim T, Jåstad A, Cosma A et al., editors. Spotlight on adolescent health and well-being. Findings from the 2017/2018 Health Behaviour in School-aged Children (HBSC) survey in Europe and Canada. International report. Volume 1. Key findings. Copenhagen: WHO Regional Office for Europe; 2020 (<https://iris.who.int/handle/10665/332091>).
30. Thivel D, Aucouturier J, Doucet É, Saunders TJ, Chaput JP. Daily energy balance in children and adolescents. Does energy expenditure predict subsequent energy intake? *Appetite*. 2013;60(1):58–64. doi:10.1016/j.appet.2012.09.022.
31. Rodenburg G, Oenema A, Kremers SPJ, van de Mheen D. Clustering of diet- and activity-related parenting practices: cross-sectional findings of the INPACT study. *Int J Behav Nutr Phys Act*. 2013;10:36. doi:10.1186/1479-5868-10-36.
32. Kavey R-EW, Daniels SR, Lauer RM, Atkins DL, Hayman LL, Taubert K et al. American Heart Association guidelines for primary prevention of atherosclerotic cardiovascular disease beginning in childhood. *Circulation*. 2003;107(11):1562–6. doi:10.1161/01.cir.0000061521.15730.6e.
33. Collese TS, De Moraes ACF, Fernández-Alvira JM, Michels N, De Henauw S, Manios Y et al. How do energy balance-related behaviours cluster in adolescents? *Int J Public Health*. 2019;64(2):195–208. doi:10.1007/s00038-018-1178-3.
34. Blom A, Tammelin T, Laine K, Tolonen H et al. Bright spots, physical activity investments that work: the Finnish Schools on the Move programme. *Br J Sports Med*. 2018;52(13):820–22. doi:10.1136/bjsports-2017-097711.
35. Finnish Model for Leisure Activities [website]. Helsinki: Government of Finland; 2024 (<https://harrastamisensuomenmalli.fi/en/>).
36. Kokko S, ja Leena Martin RH, editors. Nuorten liikuntakäyttäytymisen Suomessa: LIITU-tutkimuksen tuloksia 2020 [Physical activity behaviour of young people in Finland: results of the LIITU study 2020]. Helsinki: Statens idrottsråd [National Sports Council]; 2021 (<https://www.liikuntaneuvosto.fi/lausunnot-ja-julkaisut/liitu2020/>) (in Finnish).
37. Ng K, Koski P, Lyyra N, Palomaki S, Mononen K, Blomqvist M et al. Finnish late adolescents' physical activity during COVID-19 spring 2020 lockdown. *BMC Public Health*. 2021;21(1):2197. doi:10.1186/s12889-021-12263-w.
38. Healthy Ireland. National physical activity plan. Dublin: Department of Health; 2016 (<https://www.gov.ie/en/policy-information/b60202-national-physical-activity/>).
39. Irish Physical Activity Research Collaboration [website]. Dublin: Department of Health; 2024 (<https://i-parc.ie/>).
40. Scanlon D, MacPhail A, Calderón A. Original intentions and unintended consequences: the “contentious” role of assessment in the development of Leaving Certificate Physical Education in Ireland. *Curric Stud Health Phys Educ*. 2019;10(1):71–90. doi:10.1080/25742981.2018.1552500.

# Annex



# Key data

## Introduction

This Annex presents the key data from the 2021/2022 Health Behaviour in School-aged Children (HBSC) study that underpin the summary of scientific findings presented in the main report – in this volume, related to physical activity, eating behaviours, weight status and body image among adolescents.

A standard methodology for the study is used in each participating country and region. This is detailed in the HBSC 2021/2022 international study protocol (1).

Fieldwork took place mainly between October 2021 and June 2022. An extended fieldwork period was necessary in two countries to enable them to reach the required sample size.

Further information about the HBSC study is available online (2). Aggregate data from the 2021/2022 survey can be accessed as charts and tables via the HBSC data browser (3), alongside comparable data from the 2017/2018 and 2013/2014 surveys where available.

## Data presented

Key data on adolescent substance use are presented disaggregated by country and region, age group, gender and family affluence for the 279 117 young people aged 11, 13 and 15 years from 44 countries and regions who participated in the 2021/2022 HBSC survey. Data are presented for 10 of the 11 indicators presented in this volume.

## Data availability

Data are drawn from the mandatory component of the HBSC survey questionnaire, which was used in all countries and regions. Data for some indicators were not available from specific countries and regions; this is indicated in the footnotes to relevant charts.

## Family affluence

Family affluence is a robust determinant of adolescent health, but children are not able to give the sort of information traditionally collected about job roles and salary that would give an indication of how rich or poor families may be.

HBSC uses the Family Affluence Scale (FAS) (4–6), which asks young people about material assets in the household. The HBSC 2021/2022 survey used a six-item assessment of common material assets or activities, covering family vehicle ownership, house bedroom and bathroom/shower room capacity, holidaying abroad, and family computer and dishwasher ownership.

Responses are scored and summed to form an HBSC FAS summary score, which has been shown to provide a valid indicator of relative affluence (4). This summary score is used in the FAS charts to estimate relative socioeconomic position by comparing the individual's score for FAS with those of all other scores for the same gender and age group within their country or region. A relative affluence score (6) is then used to identify groups of young people in the lowest 20% (low affluence), middle 60% (medium affluence) (not shown in the charts in this Annex) and highest 20% (high affluence) in each country and region. This approach assesses relative, not absolute, health inequality.

## Interpreting differences in prevalence

Each chart indicates where differences are statistically significant. Statistical analyses are included to help readers avoid overinterpretation of small differences. Statistical significance does not always indicate a difference that is considered important in terms of public health.

Prevalence in the charts is presented as a percentage, rounded to the nearest whole number. Average scores are presented to one decimal place.

## Understanding the age-gender charts

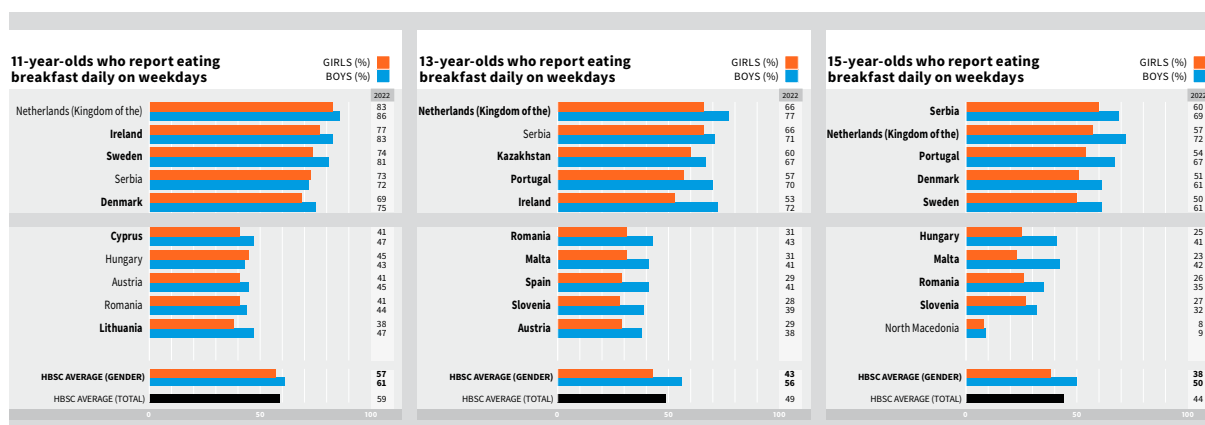
Bar charts present data for 2021/2022 for girls (orange bars) and boys (blue bars) in each age group separately for each country and region in descending order of prevalence (or average score) (for girls and boys combined). The percentage prevalence (or average score) in 2021/2022 (boys and girls separately) is also presented as a number down the right-hand edge of the charts. HBSC averages for each gender and combined are shown at the bottom of each chart.

Country/region names highlighted in bold in the age-gender charts are those in which there was a statistically significant gender difference in prevalence or average score in 2021/2022.

As an example, Fig. A1 shows that in an average HBSC country or region, 38% of 15-year-old girls and 50% of 15-year-old boys eat breakfast daily on weekdays. Overall prevalence of eating breakfast daily is highest at age 11 (59%) and is significantly higher among boys at all ages, although gender differences are not seen in all countries. Eleven-year-old boys in Netherlands (Kingdom of the) report the highest level of eating breakfast daily (86%). Among girls, 15-year-olds in North Macedonia report the lowest prevalence of eating breakfast daily (8%).

For design reasons, the measures used to elicit the data from participants are described on the second (right-hand) page of each indicator spread.

**Fig. A1. Example of age-gender bar chart**



## Understanding the family affluence charts

Charts of prevalence by family affluence (FAS) group illustrate the relationship between family affluence and each substance use indicator. The FAS charts show the prevalence (or average score) of the indicators in the most affluent 20% of adolescents in each country or region (a solid circle) and the least affluent 20% (an open circle). The data are presented for each country and region for boys (blue circle) and girls (orange circle) separately, combined across the three age groups.

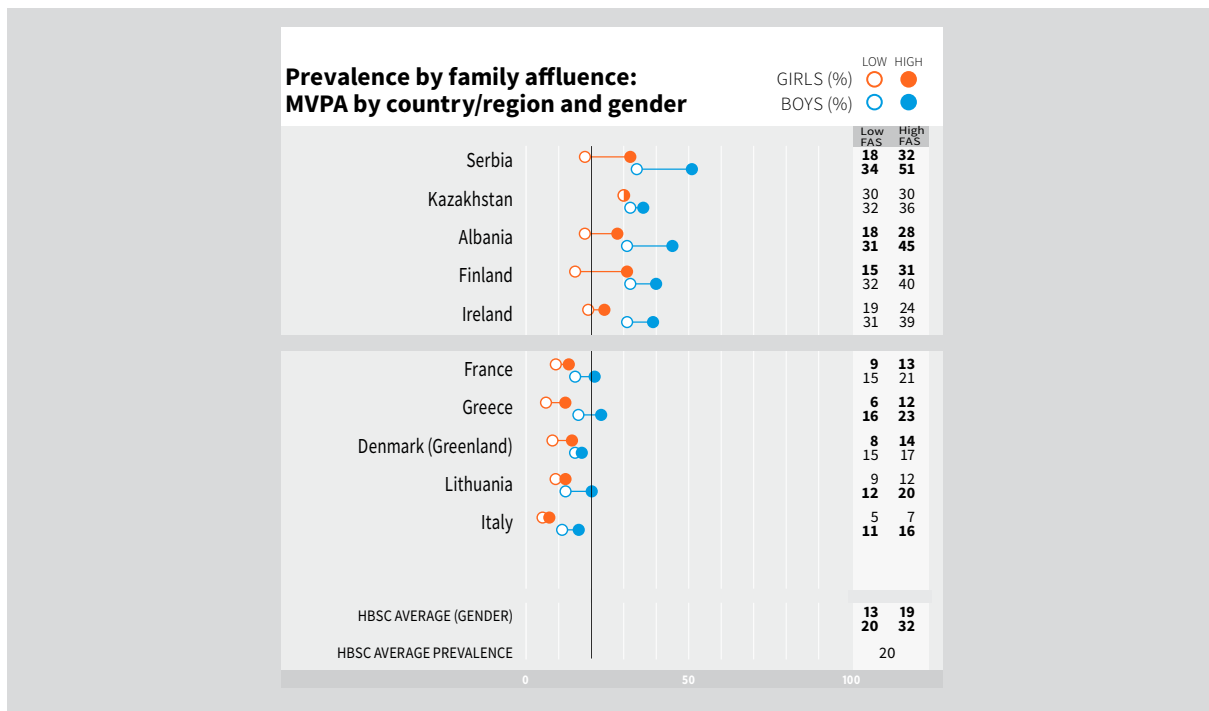
Prevalence (or average score) in the least and most affluent groups is linked by a line, the length of which indicates the difference in prevalence (or average score) between the two groups. HBSC averages for each affluence group are presented by gender at the bottom of the charts. The overall prevalence (or average score) for the indicator, combined over age groups and gender, is given as the final point at the bottom of the charts (black and white circle) and is shown as a line along the length of the charts.

Countries and regions are ordered on the FAS charts by prevalence (or average score) averaged across genders.

Significance of differences in prevalence (or average score) by family affluence are indicated by the figures for prevalence (or average score) being bolded. Prevalence of the medium-affluence group is not presented in the charts, but the data from all three FAS groups are used when carrying out statistical analysis.

Significance is only marked where there is a linear trend in prevalence across the three groups. This may mean that some differences in prevalence that look large between the low- and high-affluence groups may not be marked as significant if, for example, the prevalence in the medium-affluence 60% is lower or higher than both presented numbers.

**Fig. A2** presents an example family affluence chart. It shows that overall, girls and boys from low-affluence families are less likely to achieve 60 minutes of moderate-to-vigorous physical activity (MVPA) per day. In Serbia, for example, 51% of boys in the 20% most affluent households engage in at least 60 minutes of MVPA daily, while only 34% of boys in the 20% least affluent households do so. This social gradient is present in most countries and regions, but no significant differences for both boys and girls are seen in Ireland and Kazakhstan.

**Fig. A2. Example of family affluence chart**

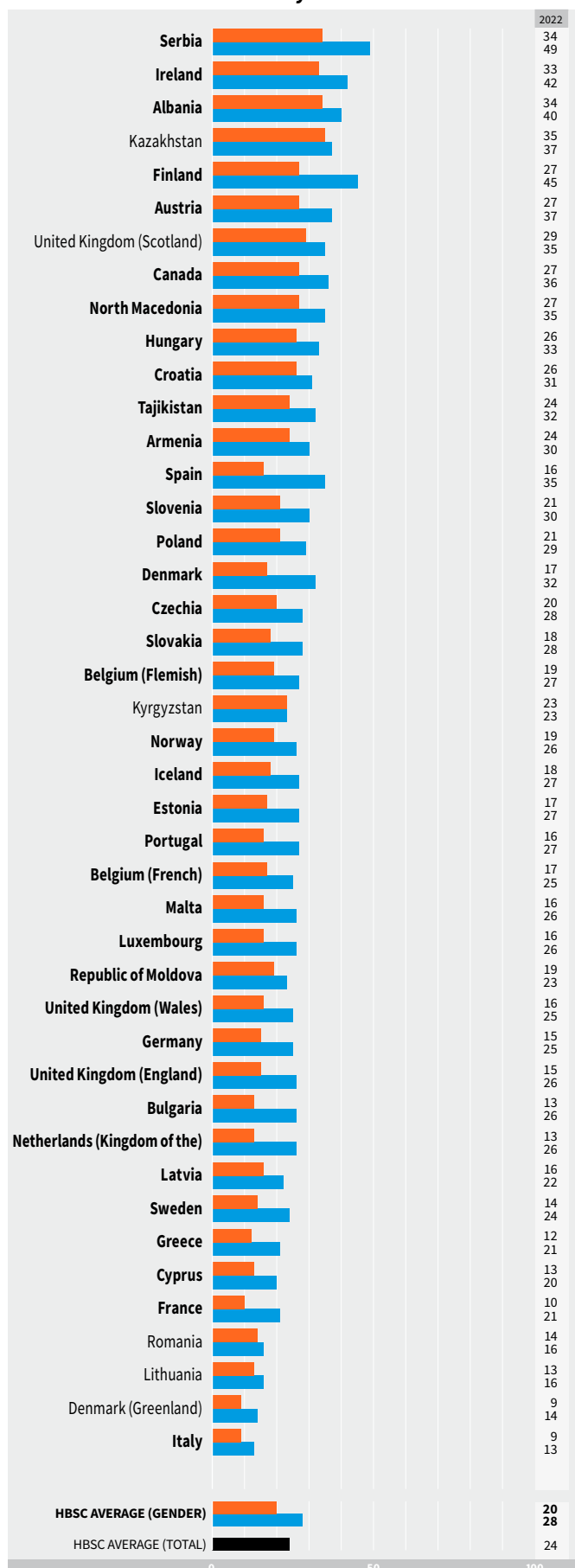
## References<sup>2</sup>

1. Inchley J, Currie D, Samdal O, Jastad A, Cosma A, Nic Gabhainn S, editors. Health Behaviour in School-aged Children (HBSC) study protocol: background, methodology and mandatory items for the 2021/22 survey. Glasgow: MRC/CSO Social and Public Health Sciences Unit, University of Glasgow; 2023 (<https://hbsc.org/publications/survey-protocols/>).
2. Health Behaviour in School-aged Children. World Health Organization collaborative cross-national study [website]. Glasgow: University of Glasgow; 2023 (<https://hbsc.org/>).
3. HBSC study data browser. In: Health Behaviour in School-aged Children. World Health Organization collaborative cross-national study [website]. Glasgow: University of Glasgow; 2023 (<https://data-browser.hbsc.org>).
4. Currie C, Molcho M, Boyce W, Holstein B, Torsheim T, Richter M. Researching health inequalities in adolescents: the development of the Health Behaviour in School-aged Children (HBSC) Family Affluence Scale. *Soc Sci Med.* 2008;66(6):1429–36. doi:10.1016/j.socscimed.2007.11.024.
5. Torsheim T, Cavallo F, Levin KA, Schnohr C, Mazur J, Niclasen B, FAS Development Study Group. Psychometric validation of the revised Family Affluence Scale: a latent variable approach. *Child Indic Res.* 2016;9:771–84. doi:10.1007/s12187-015-9339-x.
6. Elgar FJ, Xie A, Pfortner T-K, White J, Pickett KE. Assessing the view from bottom: how to measure socioeconomic position and relative deprivation in adolescents. *SAGE Research Methods Cases in Health.* 2017. doi:10.4135/9781526406347.

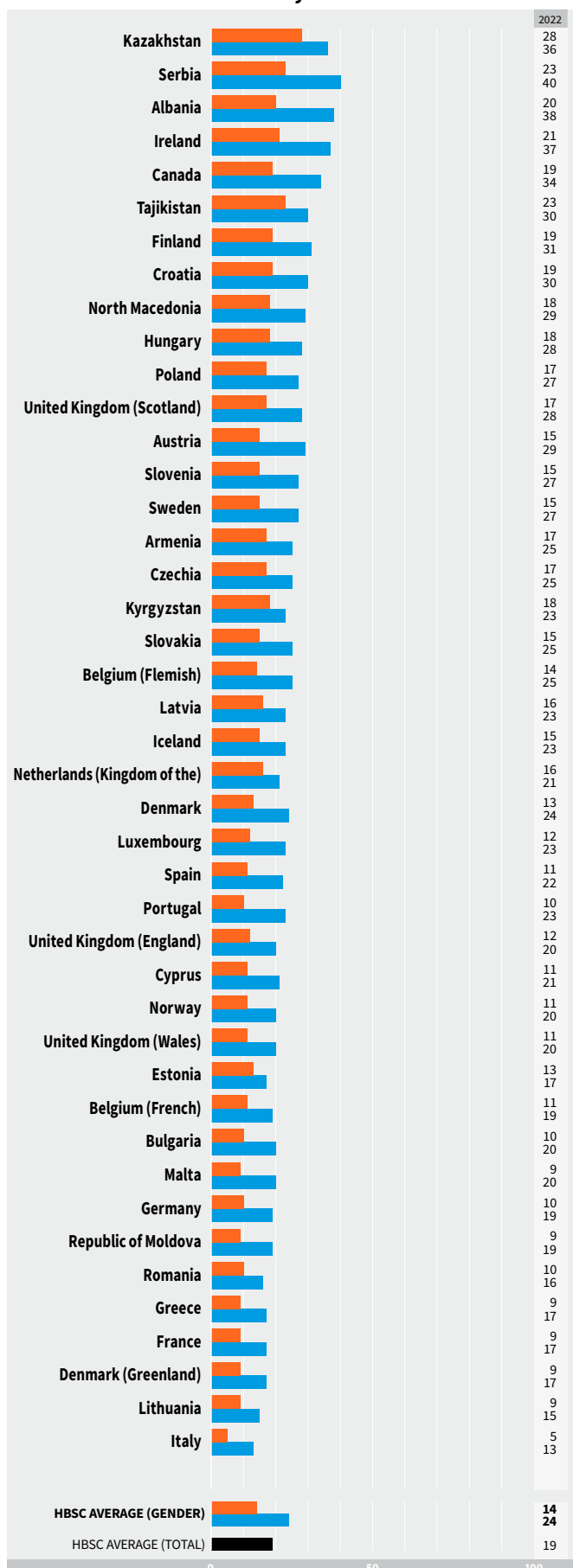
<sup>2</sup> All references accessed 22 January 2024.

## MVPA

### 11-year-olds who report at least 60 minutes of MVPA daily



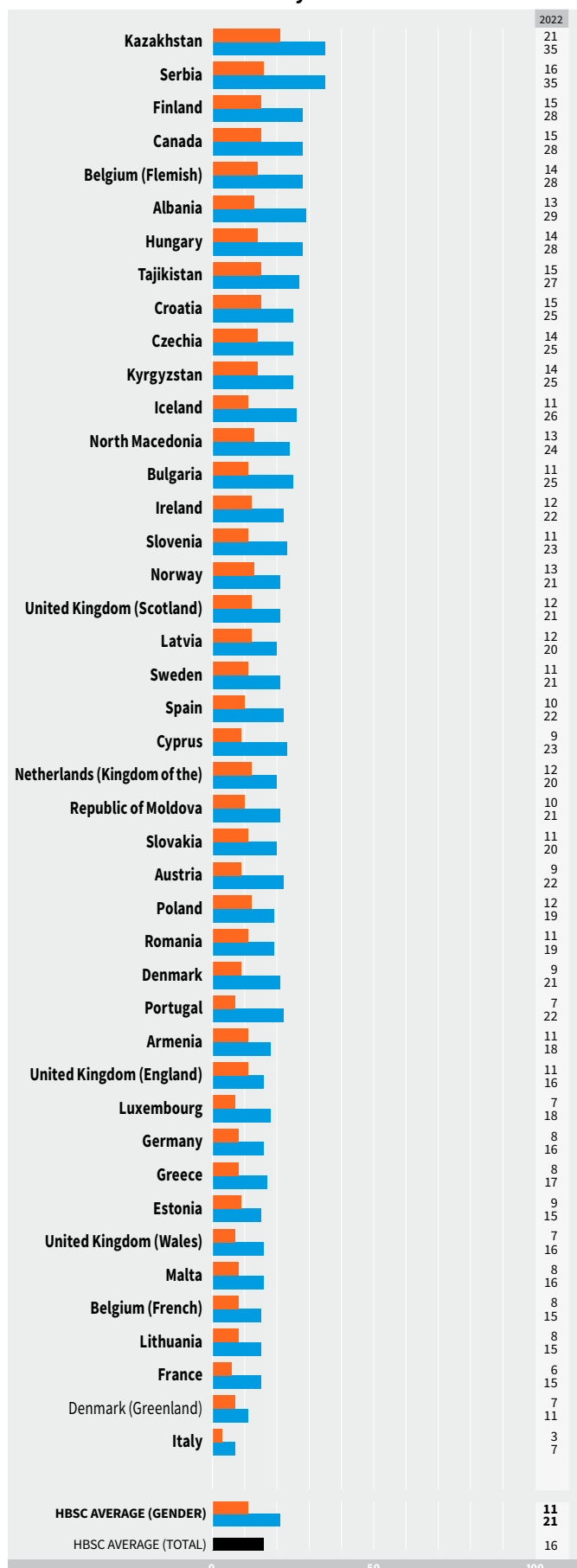
### 13-year-olds who report at least 60 minutes of MVPA daily



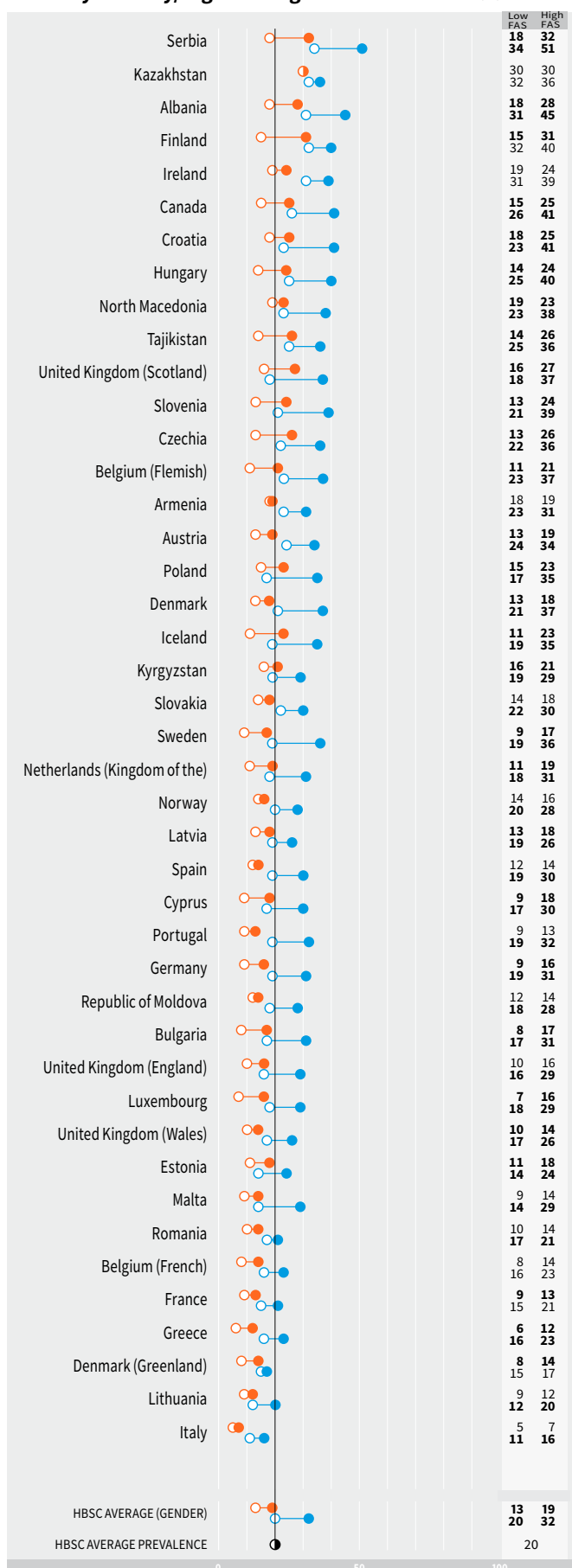
Note: country/region name in bold indicates a significant gender difference (at  $P < 0.05$ ). No data were received from Switzerland.

MEASURE: young people were asked to report the number of days over the past week during which they were physically active for a total of at least 60 minutes. The question was introduced by text defining moderate-to-vigorous physical activity (MVPA) as any activity that increases the heart rate and makes the person get out of breath some of the time, with examples provided. Findings presented here show the proportions who report at least 60 minutes of MVPA daily.

### 15-year-olds who report at least 60 minutes of MVPA daily



### Prevalence by family affluence: MVPA by country/region and gender



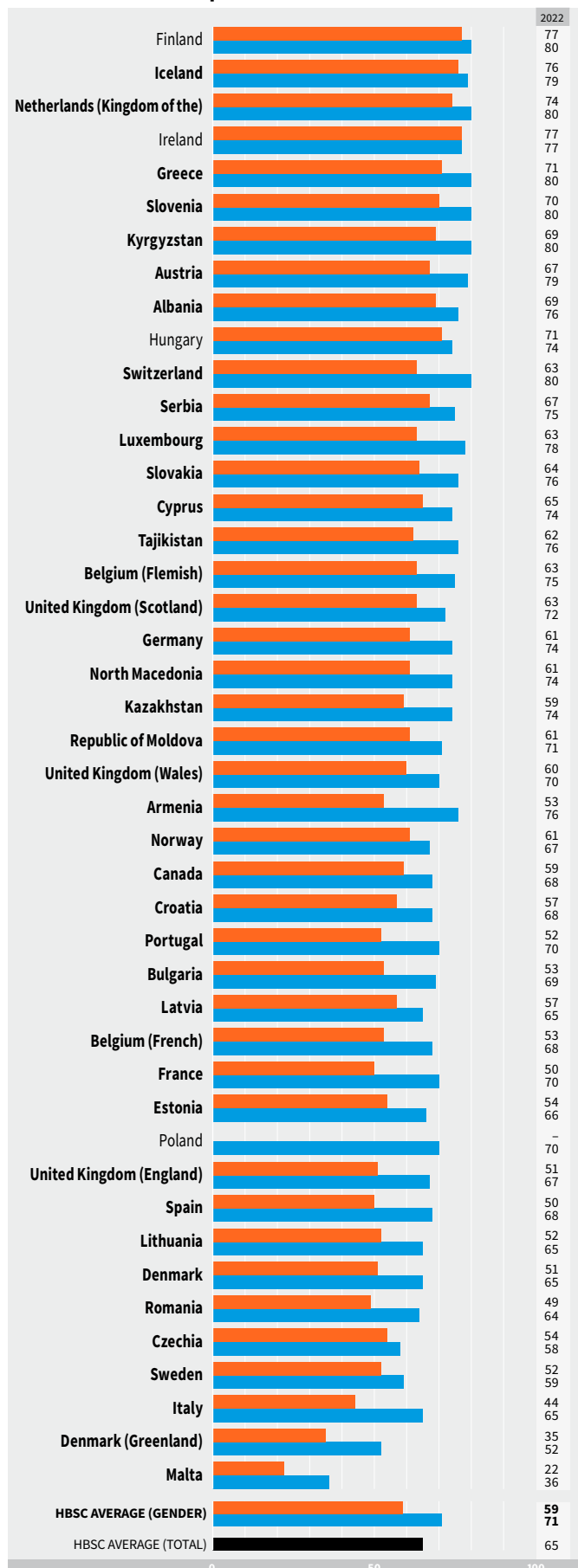
FAS: Family Affluence Scale. Note: **bold** indicates a significant difference in prevalence by family affluence group (at  $P < 0.05$ ). Low- and high-affluence groups represent the lowest 20% and highest 20% in each country/region. No data were received from Switzerland.



VPA

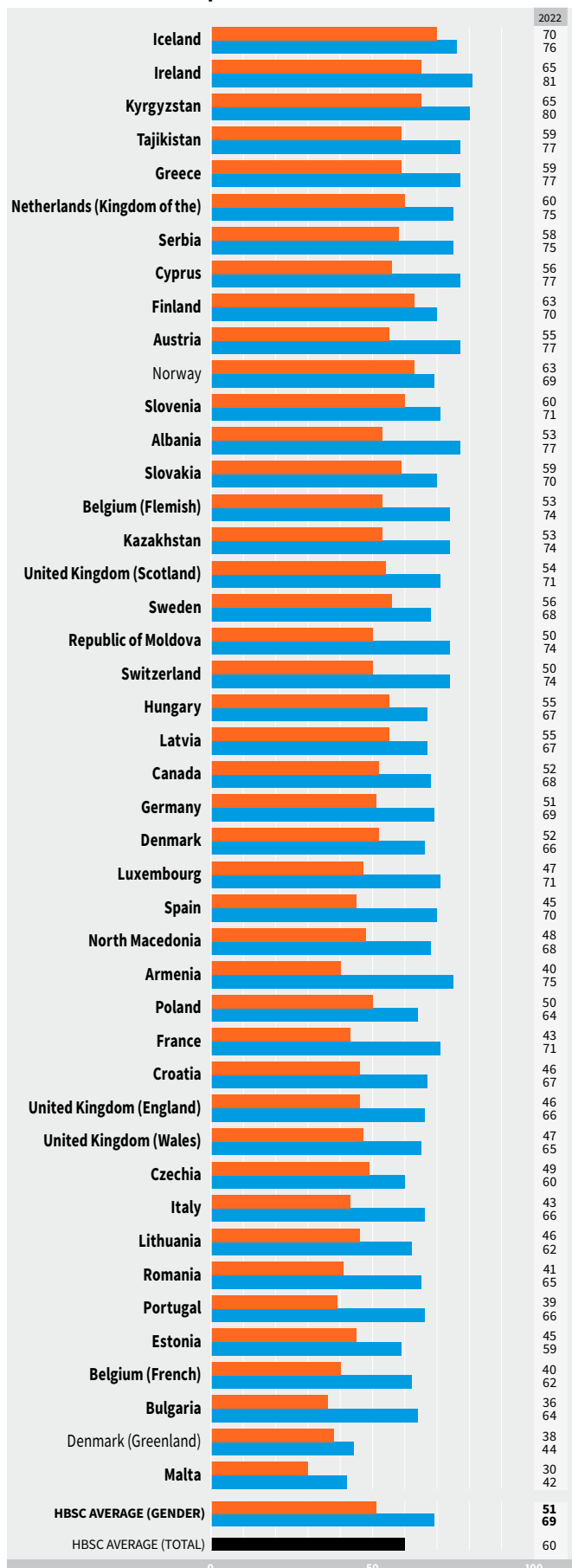
11-year-olds who report VPA three or more times per week

GIRLS (%) ■  
BOYS (%) ■



13-year-olds who report VPA three or more times per week

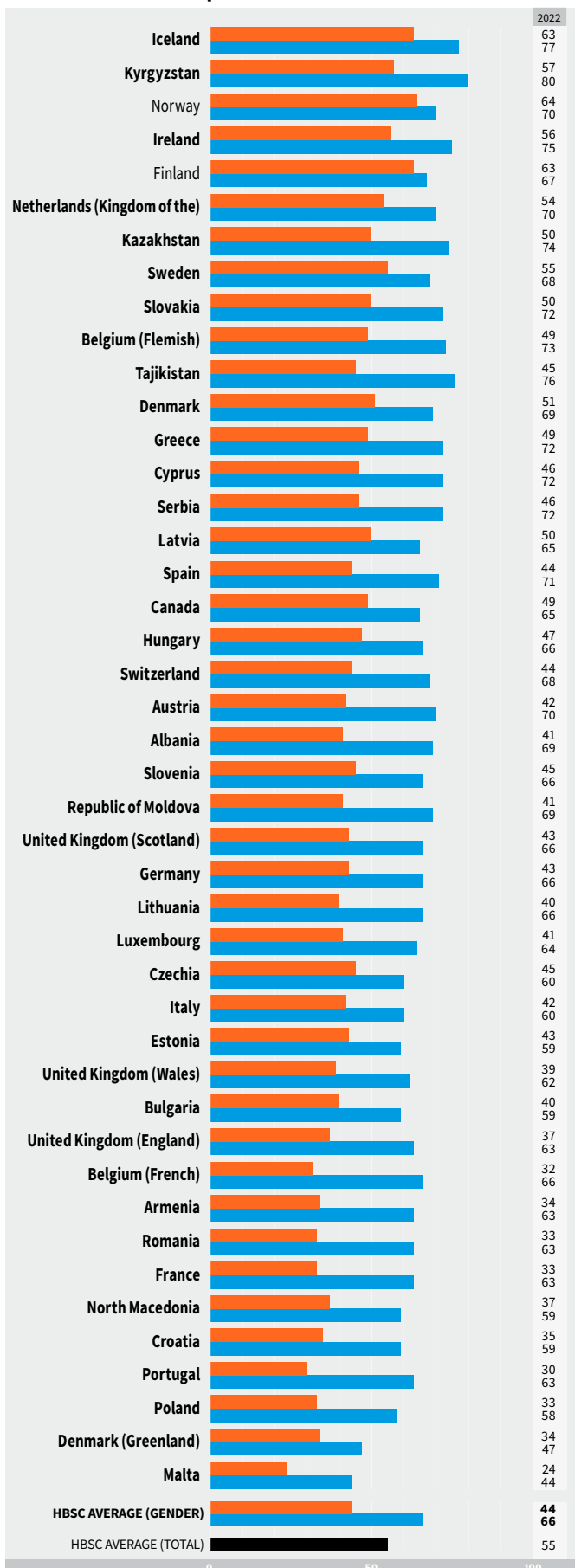
GIRLS (%) ■  
BOYS (%) ■



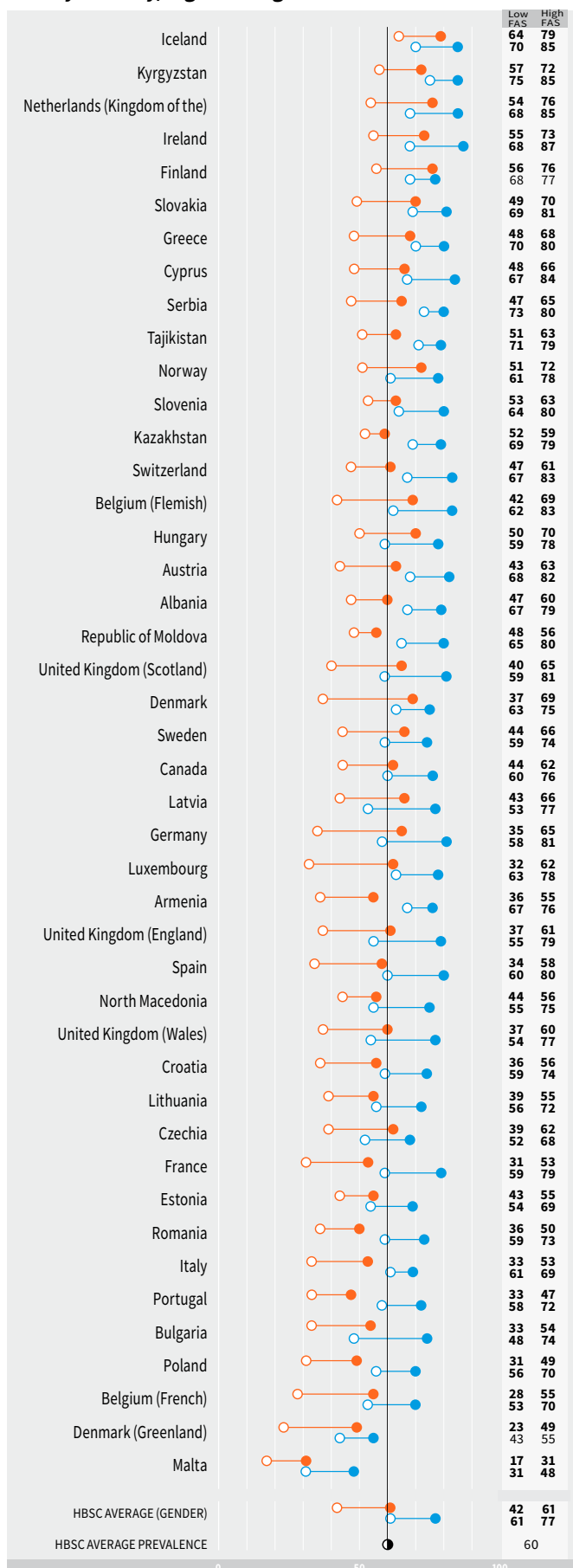
Note: country/region name in bold indicates a significant gender difference (at P<0.05). No data were received from Poland (11-year-old girls).

MEASURE: young people were asked to report the number of times per week they usually exercised in their free time (outside school hours), so much so that they got out of breath or sweated. Findings presented here show the proportions who participated in vigorous physical activity (VPA) three or more times per week.

### 15-year-olds who report VPA three or more times per week



### Prevalence by family affluence: VPA by country/region and gender

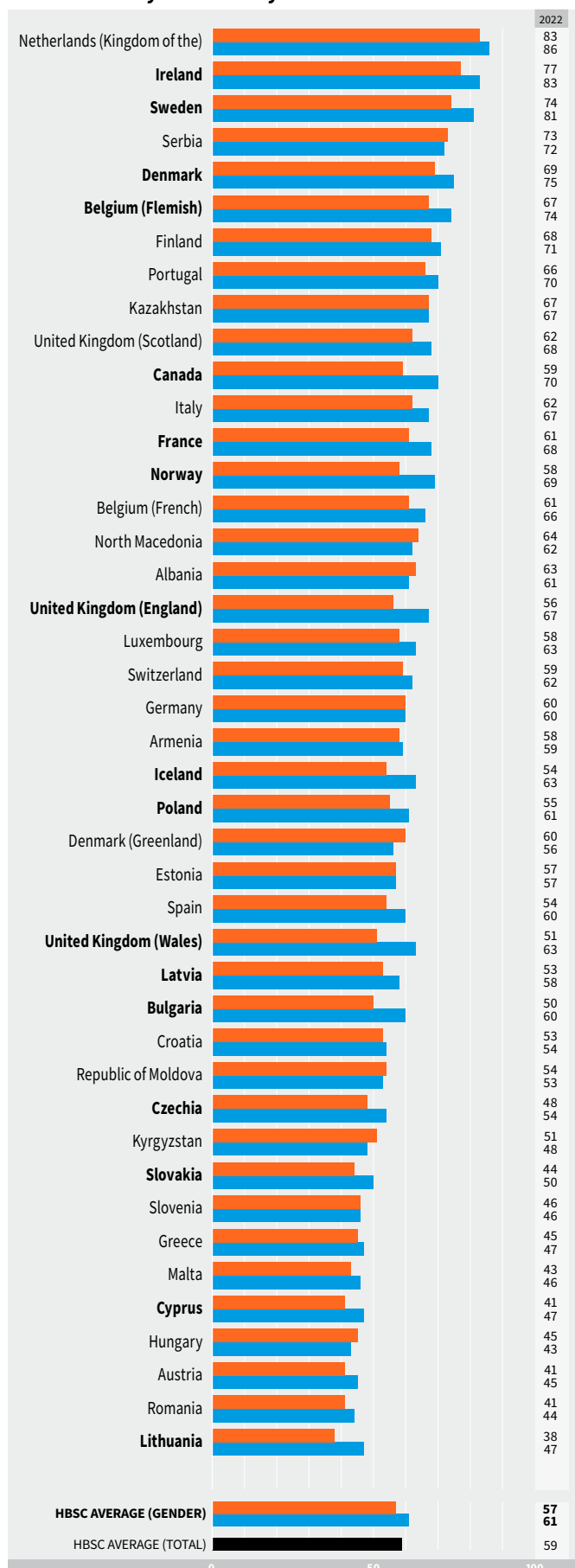


FAS: Family Affluence Scale. Note: **bold** indicates a significant difference in prevalence by family affluence group (at  $P < 0.05$ ). Low- and high-affluence groups represent the lowest 20% and highest 20% in each country/region.

## Daily breakfast consumption on weekdays

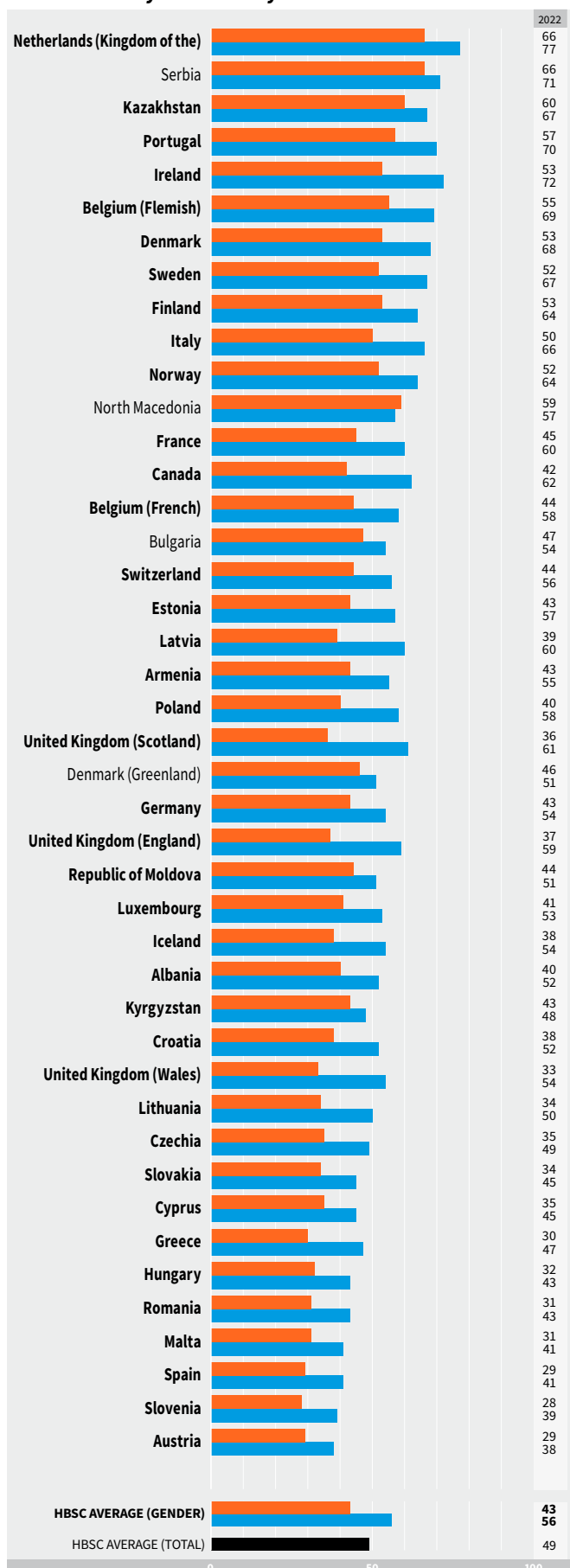
### 11-year-olds who report eating breakfast daily on weekdays

GIRLS (%) ■  
BOYS (%) ■



### 13-year-olds who report eating breakfast daily on weekdays

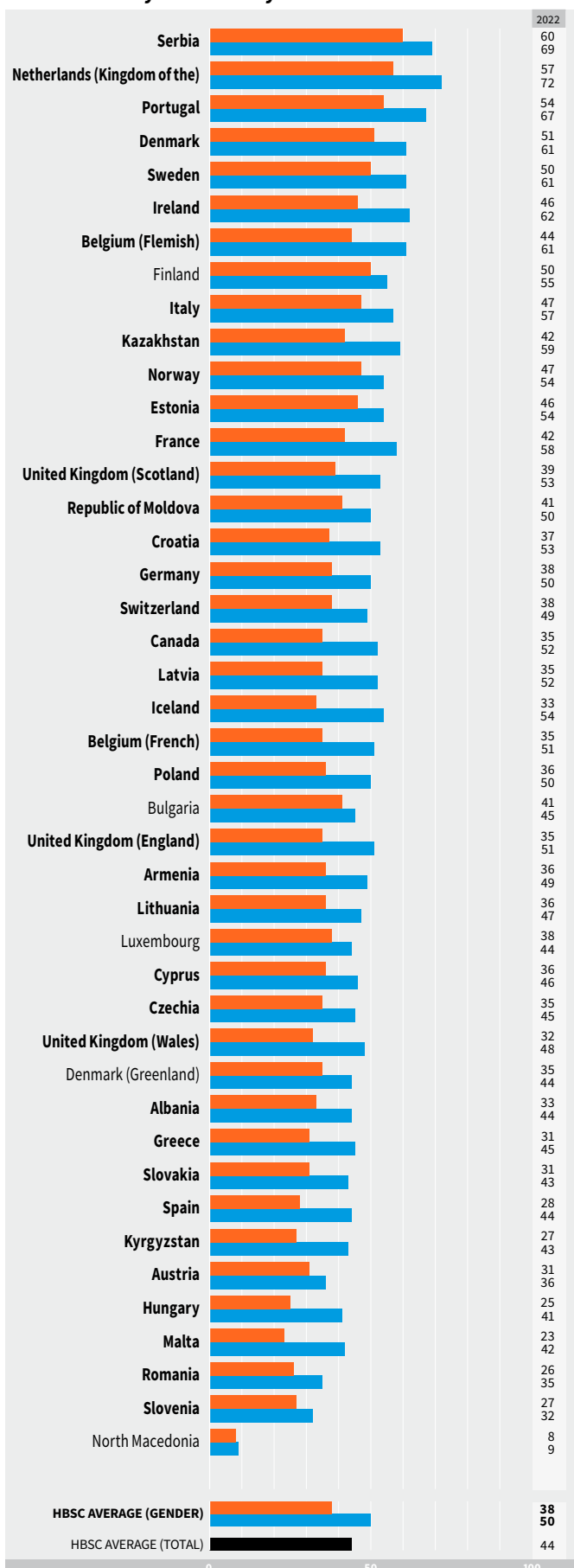
GIRLS (%) ■  
BOYS (%) ■



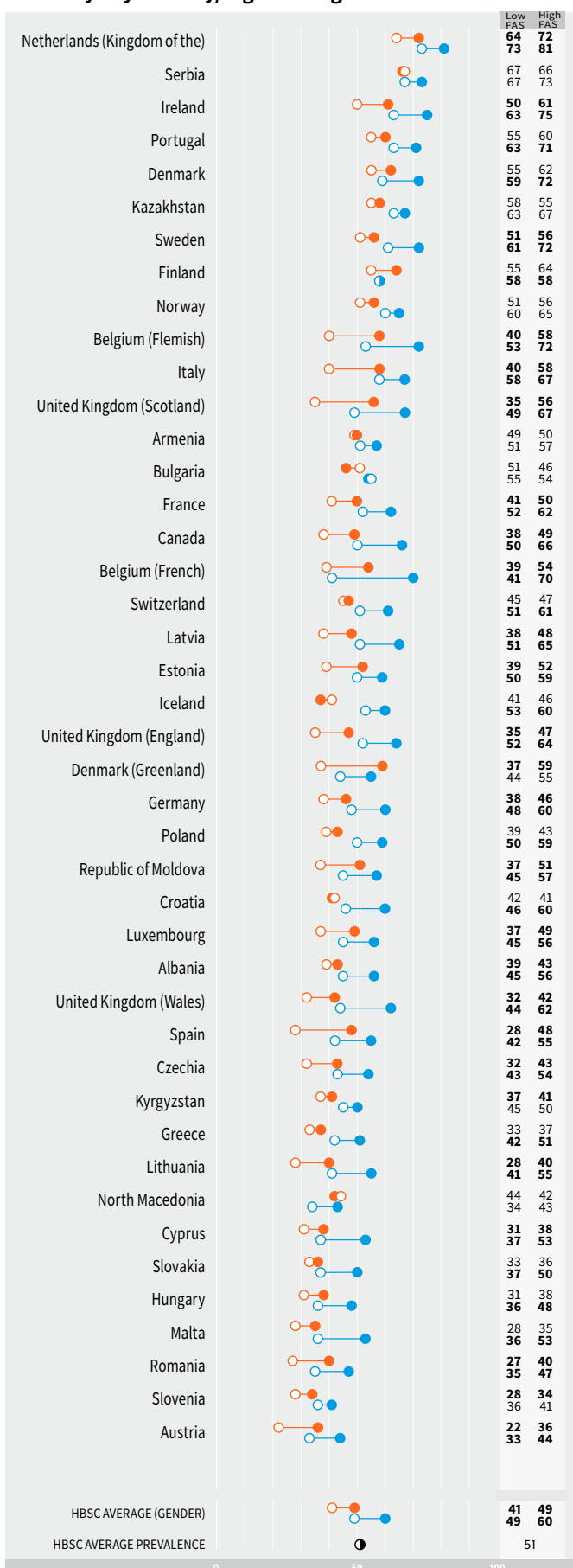
Note: country/region name in bold indicates a significant gender difference (at  $P < 0.05$ ). No data were received from Tajikistan.

MEASURE: young people were asked how often they eat breakfast, defined as more than a glass of milk or fruit juice, on weekdays and at weekends. Findings presented here show the proportions reporting eating breakfast daily on weekdays.

### 15-year-olds who report eating breakfast daily on weekdays

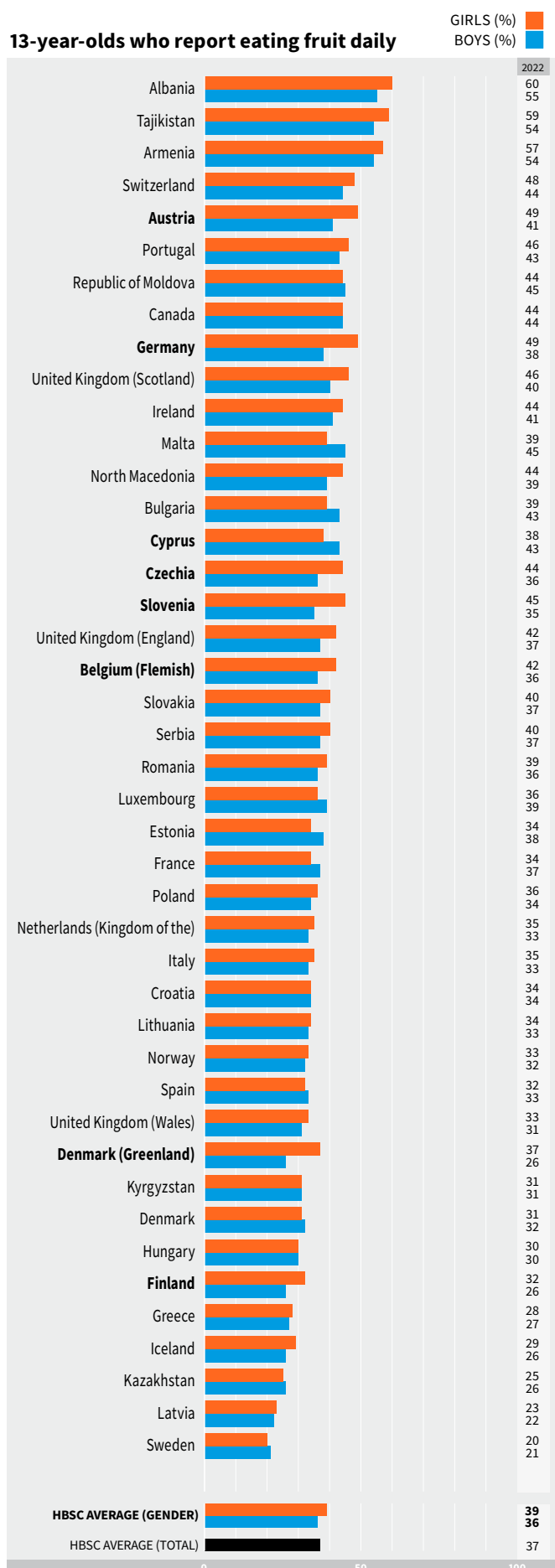
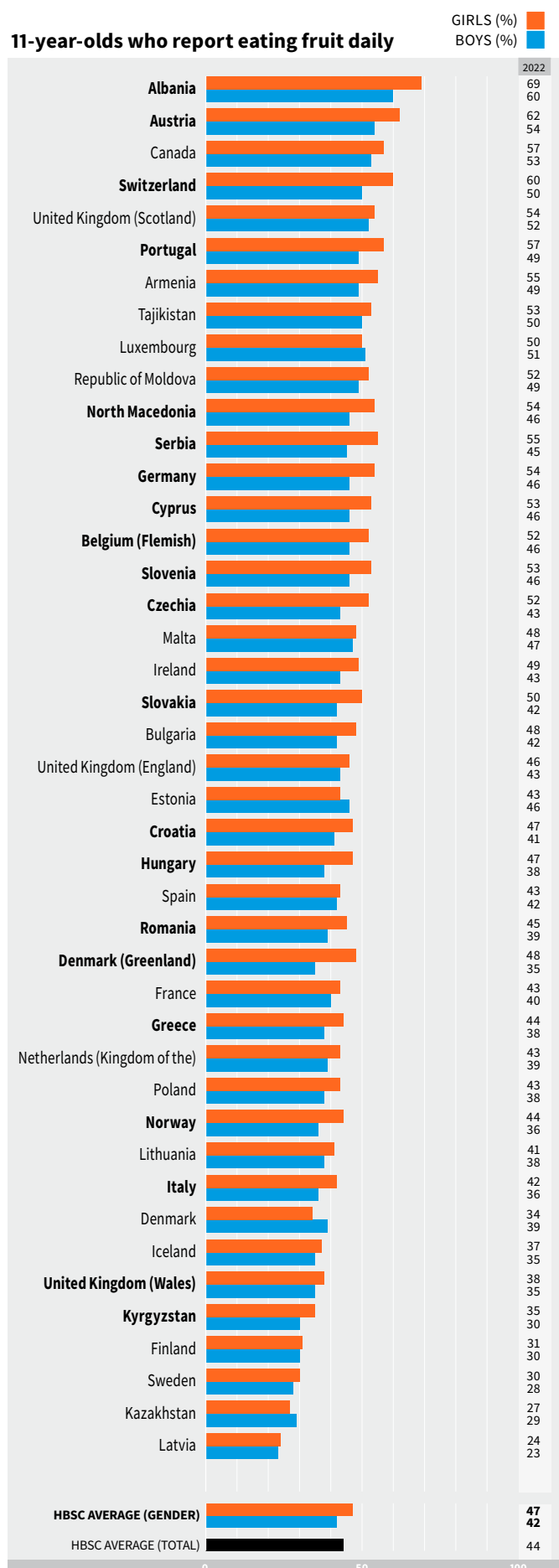


### Prevalence by family affluence: daily breakfast consumption on weekdays by country/region and gender



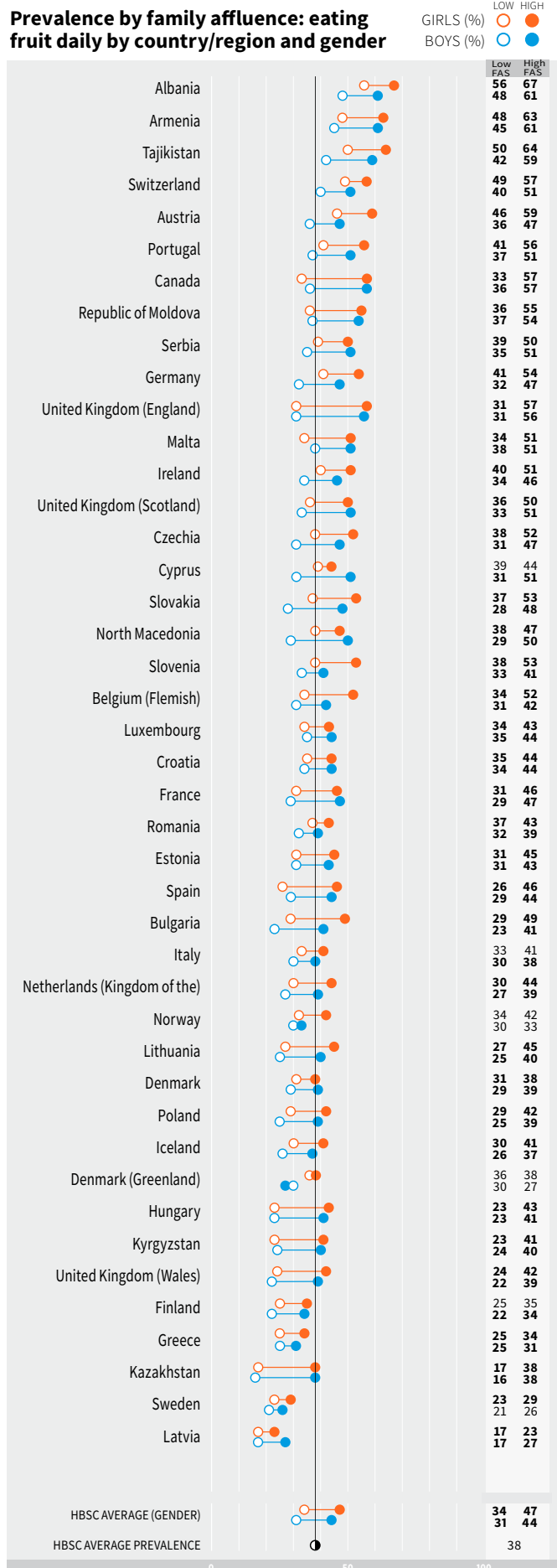
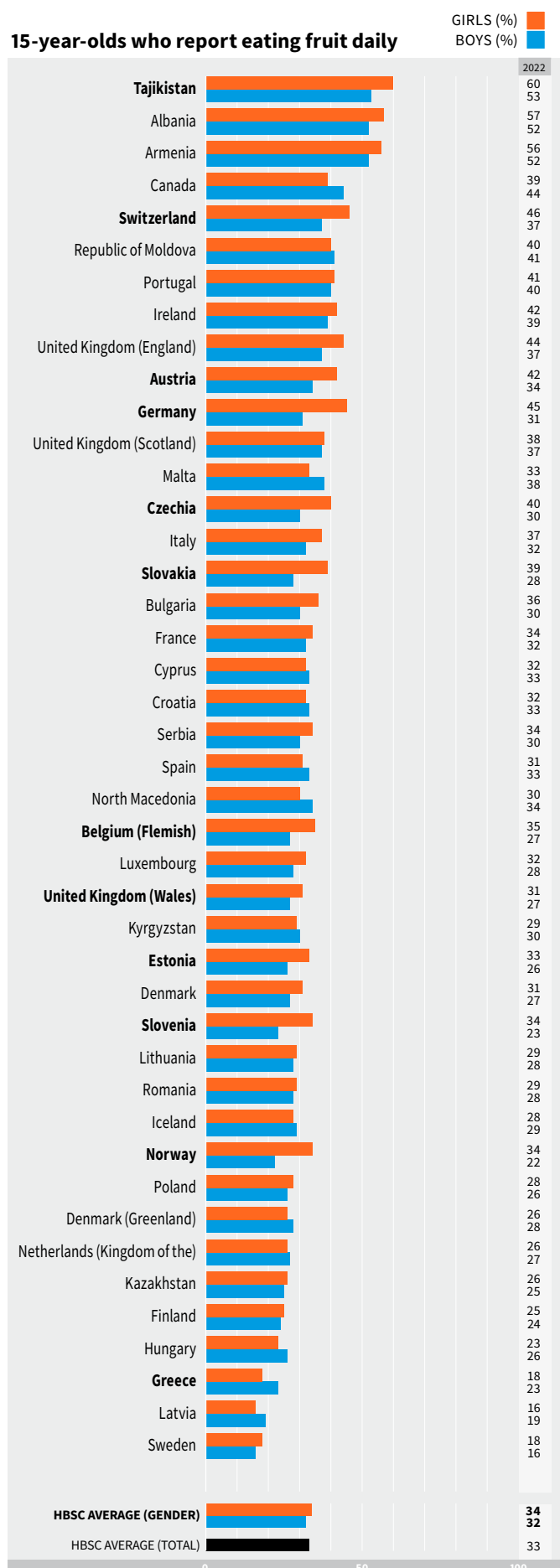
FAS: Family Affluence Scale. Note: **bold** indicates a significant difference in prevalence by family affluence group (at  $P < 0.05$ ). Low- and high-affluence groups represent the lowest 20% and highest 20% in each country/region. No data were received from Tajikistan.

## Daily fruit consumption



Note: country/region name in bold indicates a significant gender difference (at  $P < 0.05$ ). No data were received from Belgium (French).

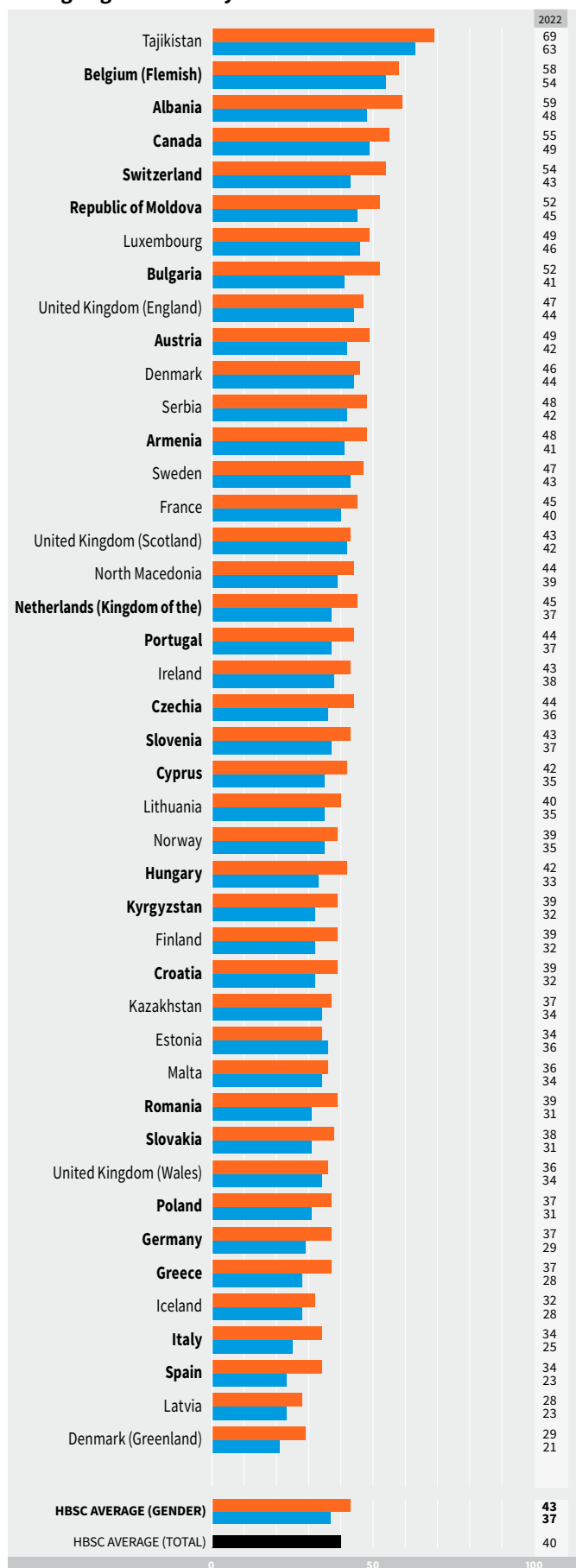
MEASURE: young people were asked how often they eat fruit. Response options ranged from never to every day, more than once. Findings presented here show the proportions who reported eating fruit daily (at least once).



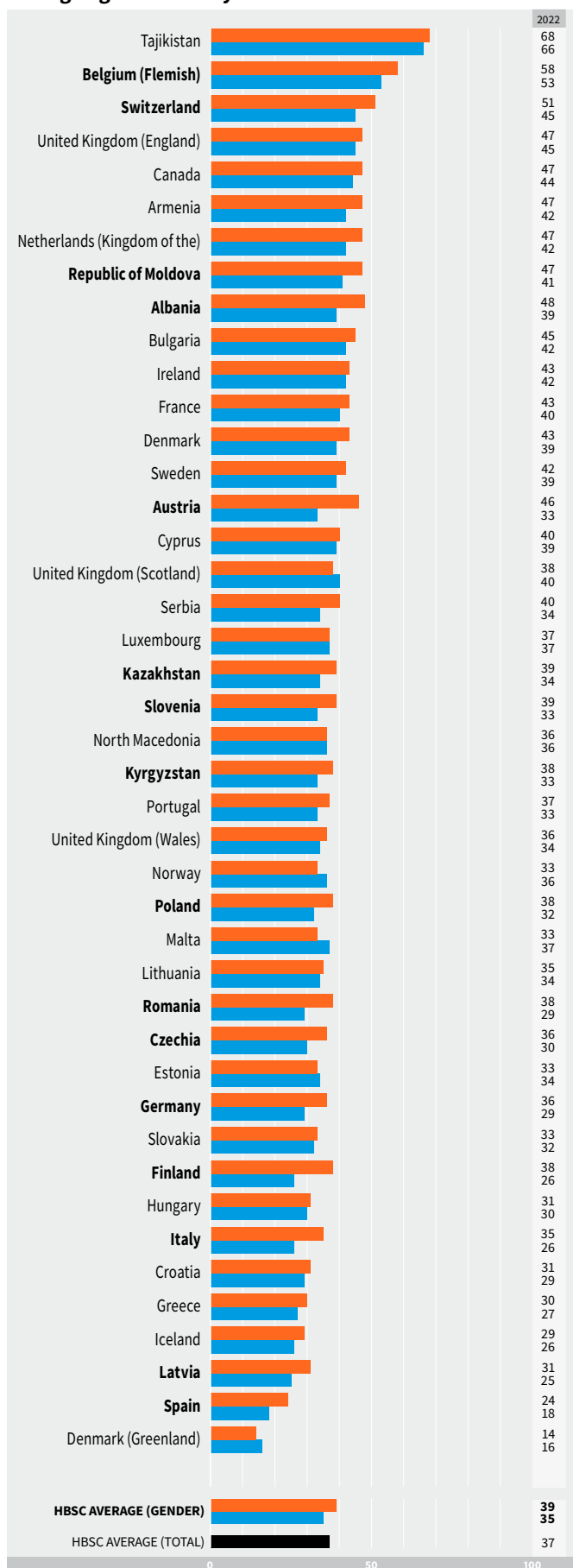
FAS: Family Affluence Scale. Note: **bold** indicates a significant difference in prevalence by family affluence group (at  $P < 0.05$ ). Low- and high-affluence groups represent the lowest 20% and highest 20% in each country/region. No data were received from Belgium (French).

## Daily vegetable consumption

### 11-year-olds who report eating vegetables daily



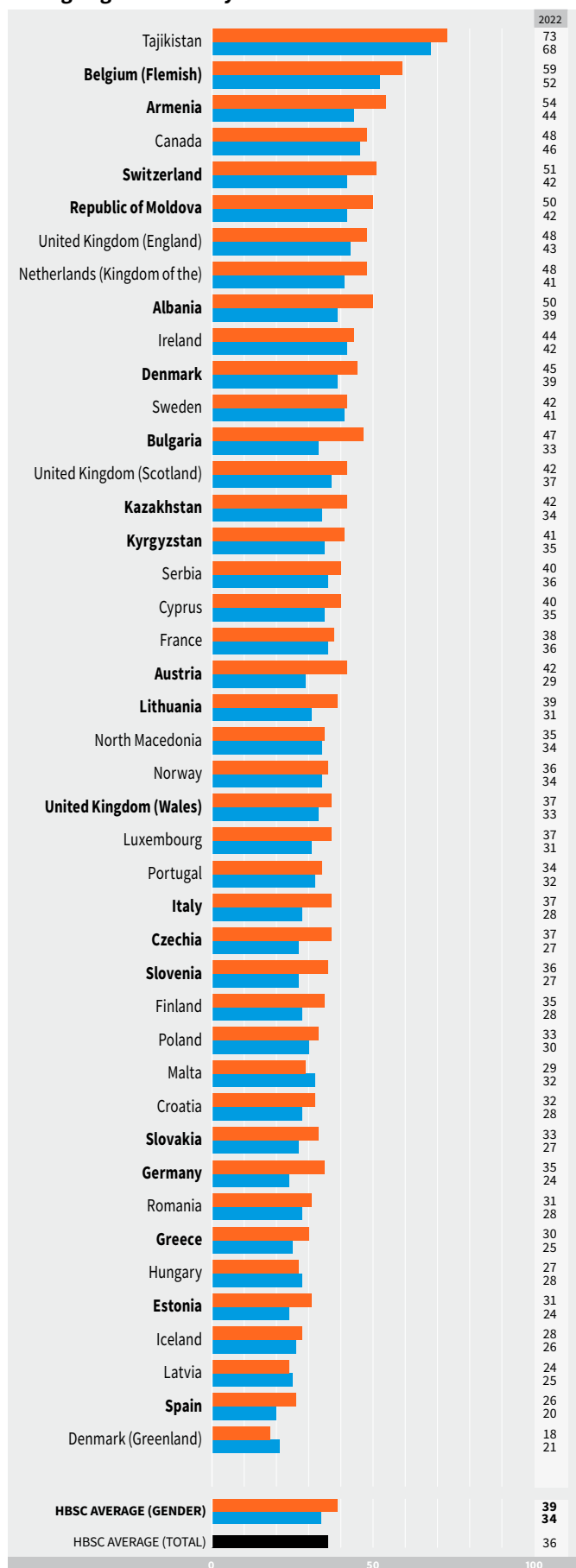
### 13-year-olds who report eating vegetables daily



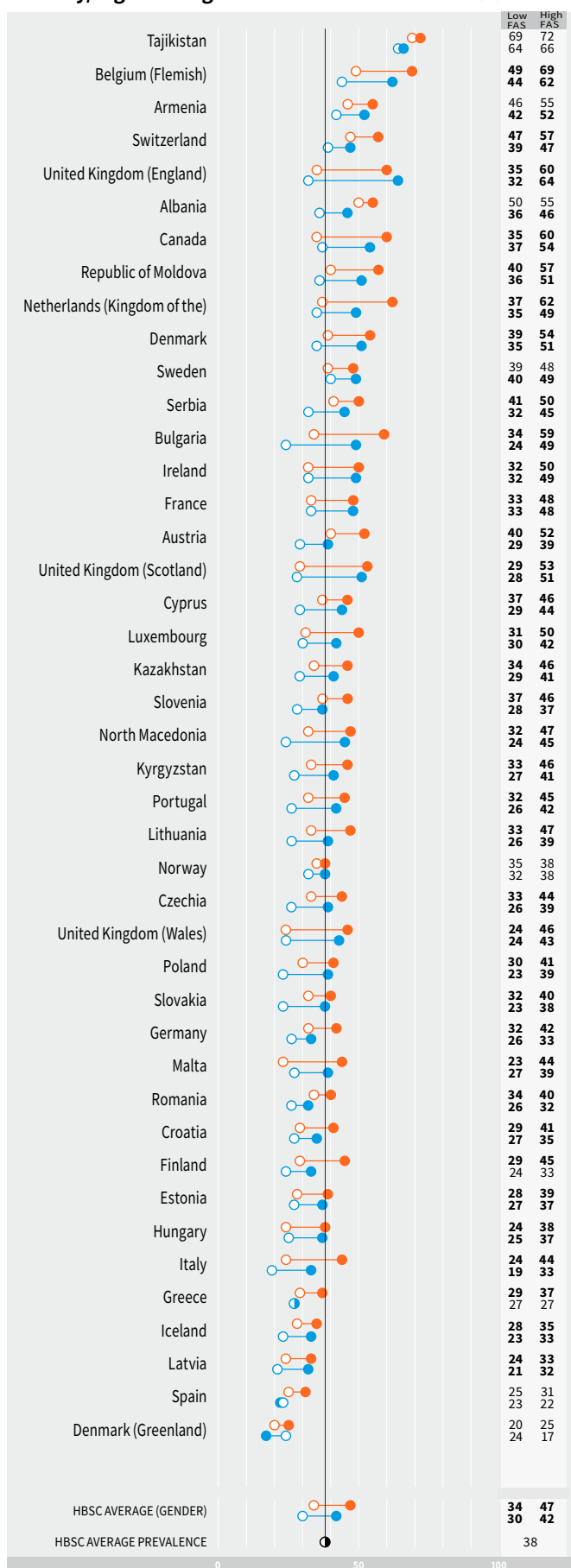
Note: country/region name in bold indicates a significant gender difference (at  $P < 0.05$ ). No data were received from Belgium (French).

MEASURE: young people were asked how often they eat vegetables. Response options ranged from never to every day, more than once. Findings presented here show the proportions who reported eating vegetables daily (at least once).

### 15-year-olds who report eating vegetables daily



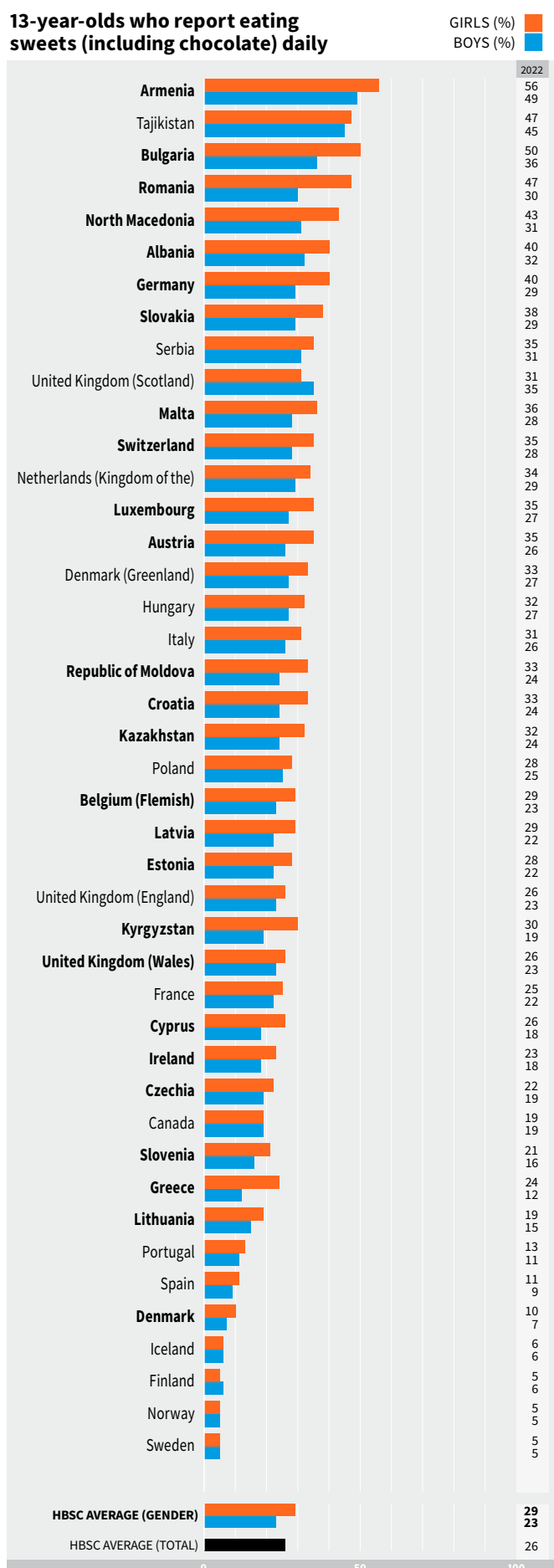
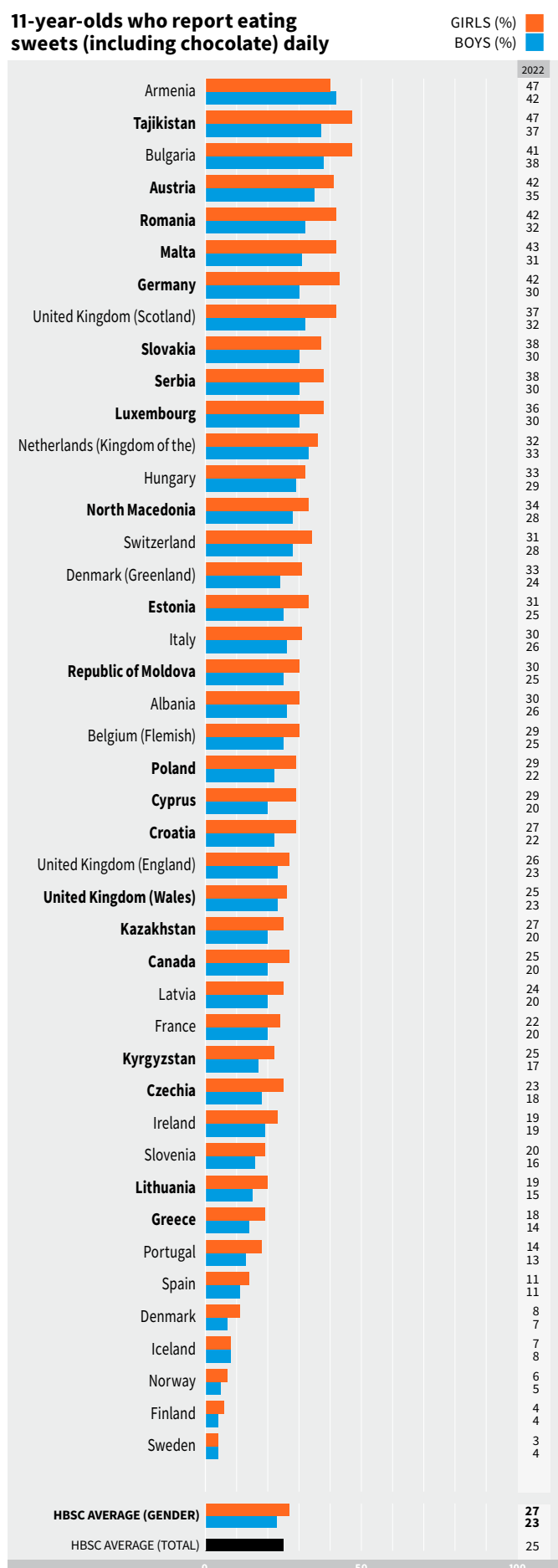
### Prevalence by family affluence: eating vegetables daily by country/region and gender



FAS: Family Affluence Scale. Note: **bold** indicates a significant difference in prevalence by family affluence group (at  $P < 0.05$ ). Low- and high-affluence groups represent the lowest 20% and highest 20% in each country/region. No data were received from Belgium (French).



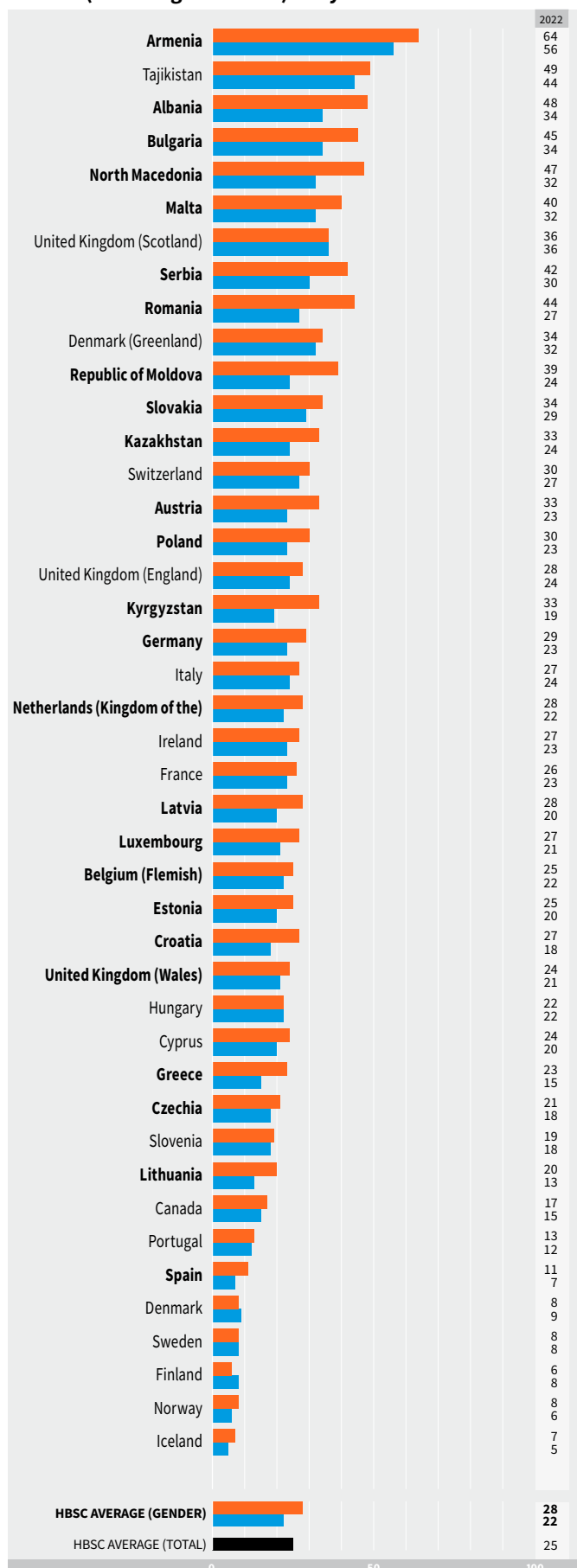
## Daily sweets and chocolate consumption



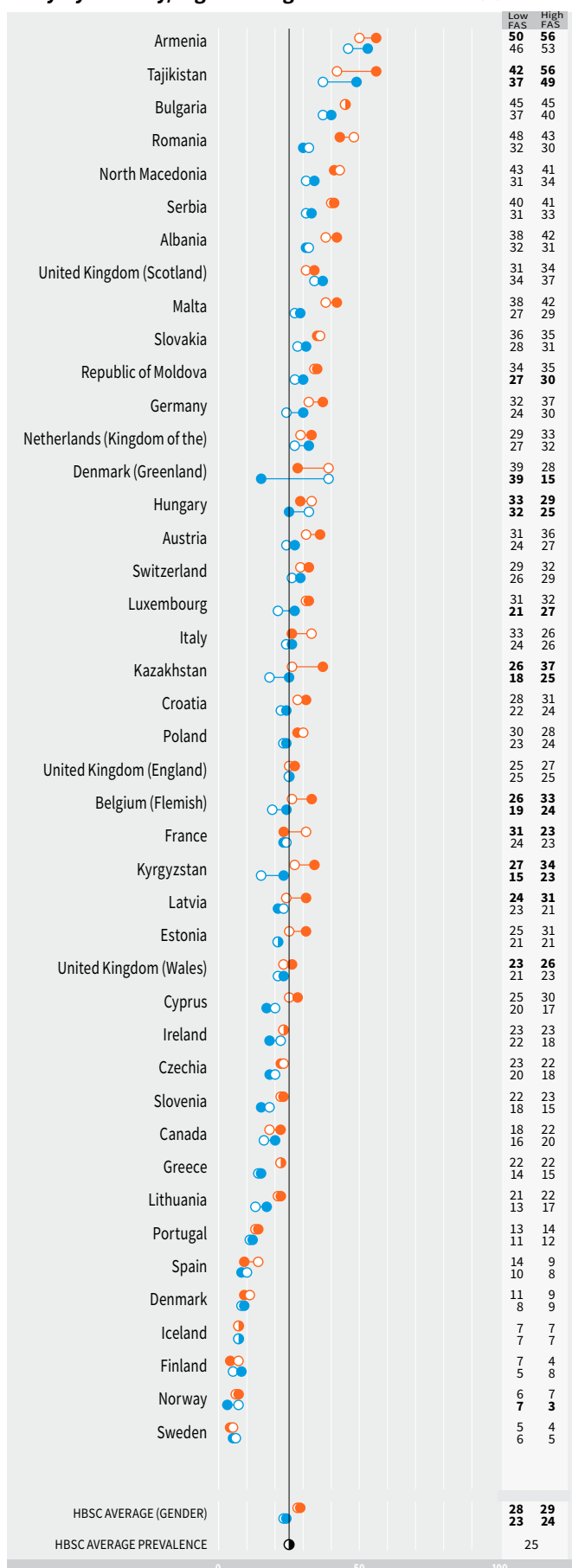
Note: country/region name in bold indicates a significant gender difference (at  $P < 0.05$ ). No data were received from Belgium (French).

MEASURE: young people were asked how often they eat sweets (including chocolate). Response options ranged from never to every day, more than once. Findings presented here show the proportions who reported eating sweets daily (at least once).

### 15-year-olds who report eating sweets (including chocolate) daily



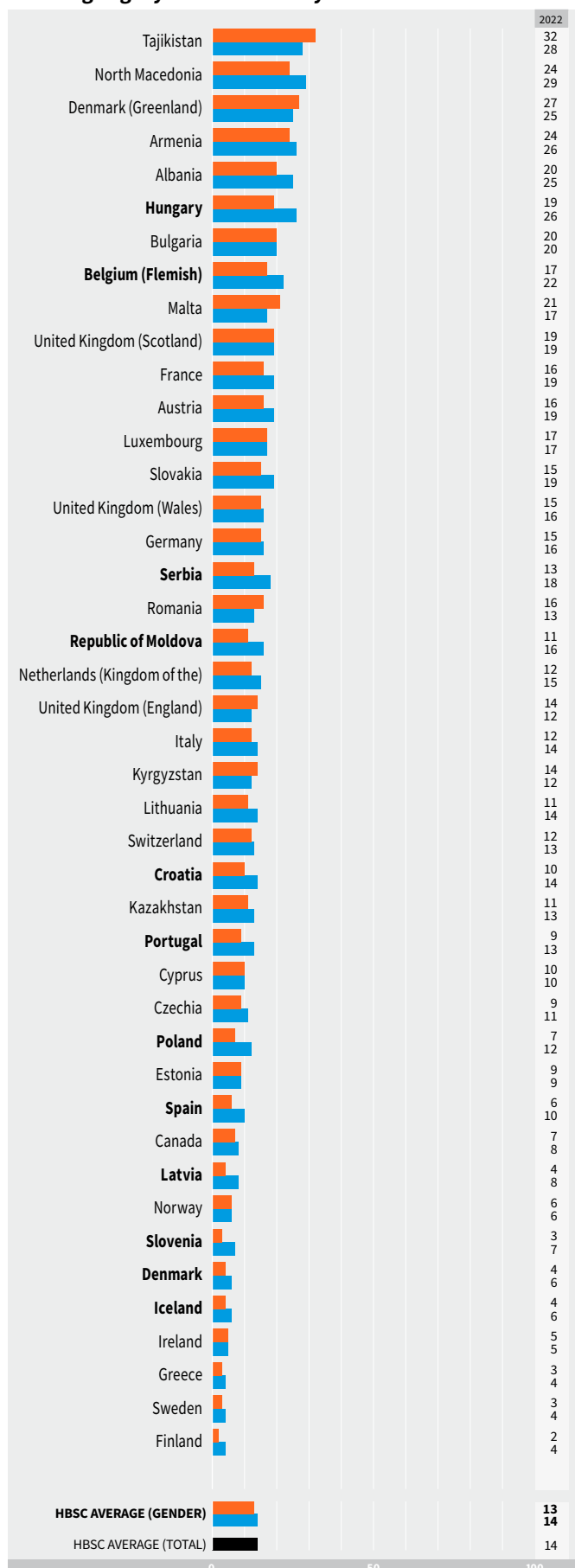
### Prevalence by family affluence: eating sweets (including chocolate) daily by country/region and gender



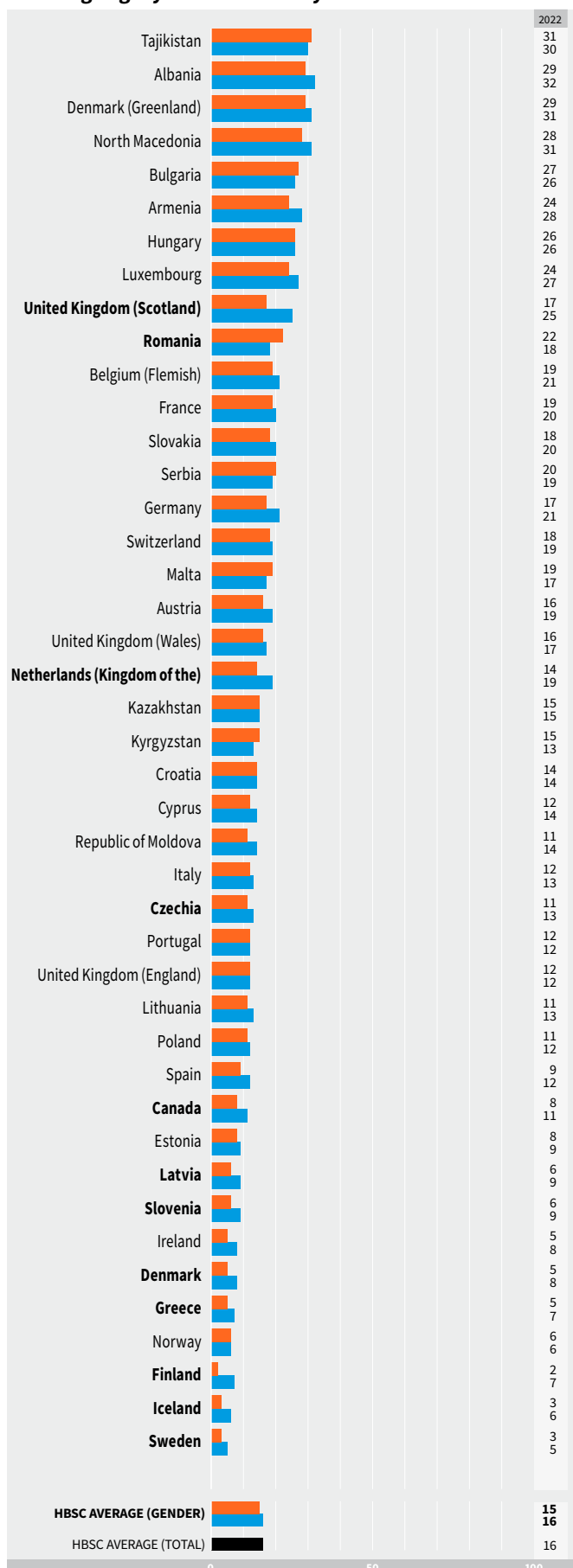
FAS: Family Affluence Scale. Note: **bold** indicates a significant difference in prevalence by family affluence group (at  $P < 0.05$ ). Low- and high-affluence groups represent the lowest 20% and highest 20% in each country/region. No data were received from Belgium (French).

## Daily consumption of sugary soft drinks

### 11-year-olds who report drinking sugary soft drinks daily



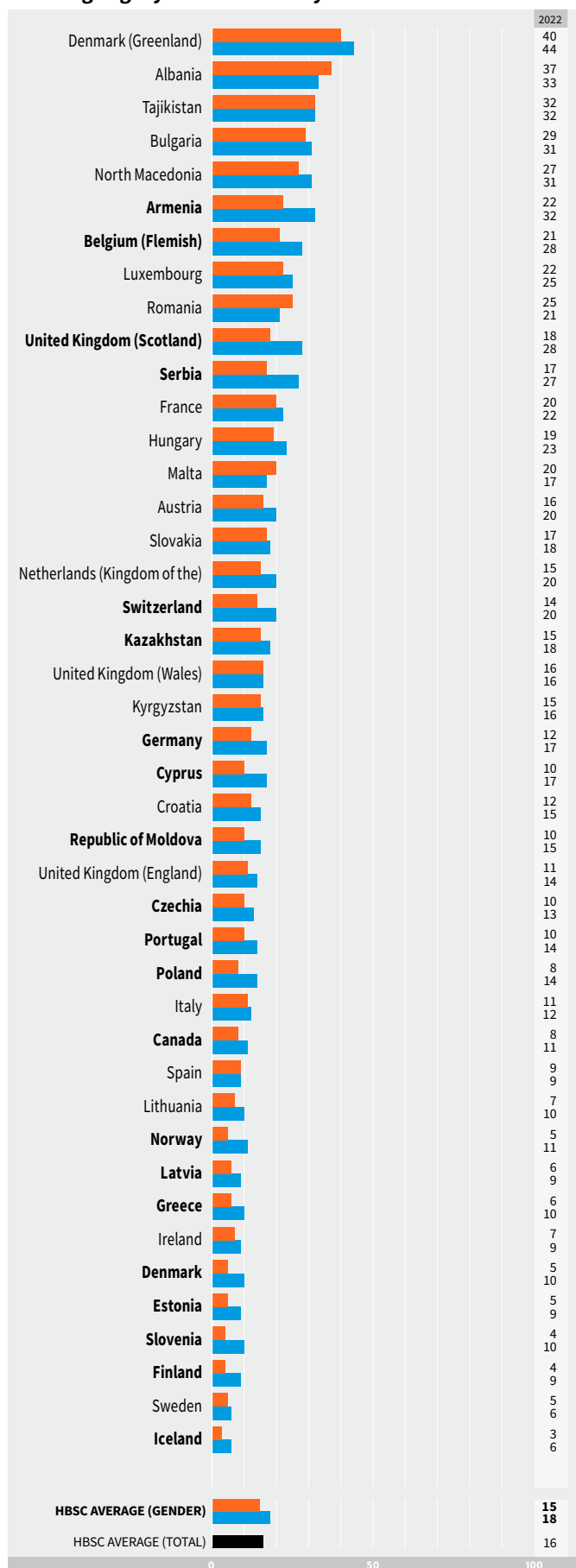
### 13-year-olds who report drinking sugary soft drinks daily



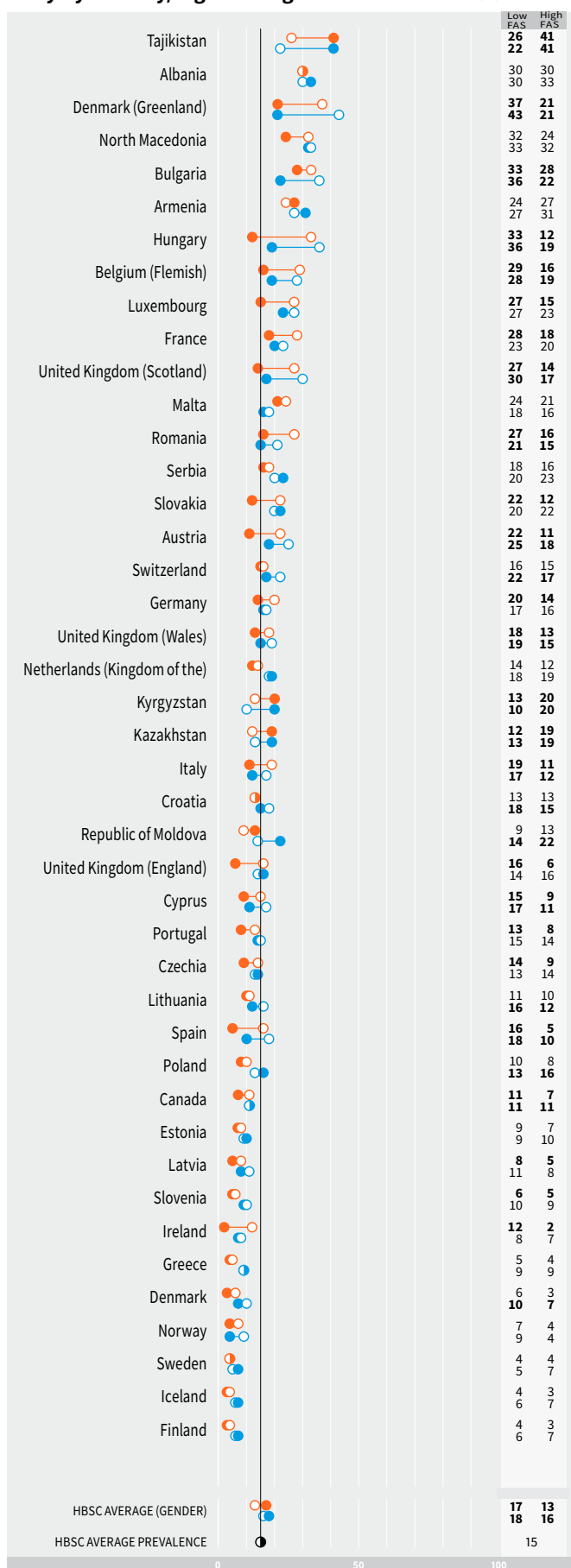
Note: country/region name in bold indicates a significant gender difference (at  $P < 0.05$ ). No data were received from Belgium (French).

MEASURE: young people were asked to report their usual frequency of sugary soft-drinks consumption, with response categories ranging from never to more than once a day. Findings presented here show the proportions who reported drinking sugary soft drinks daily (at least once).

### 15-year-olds who report drinking sugary soft drinks daily



### Prevalence by family affluence: drinking sugary soft drinks daily by country/region and gender

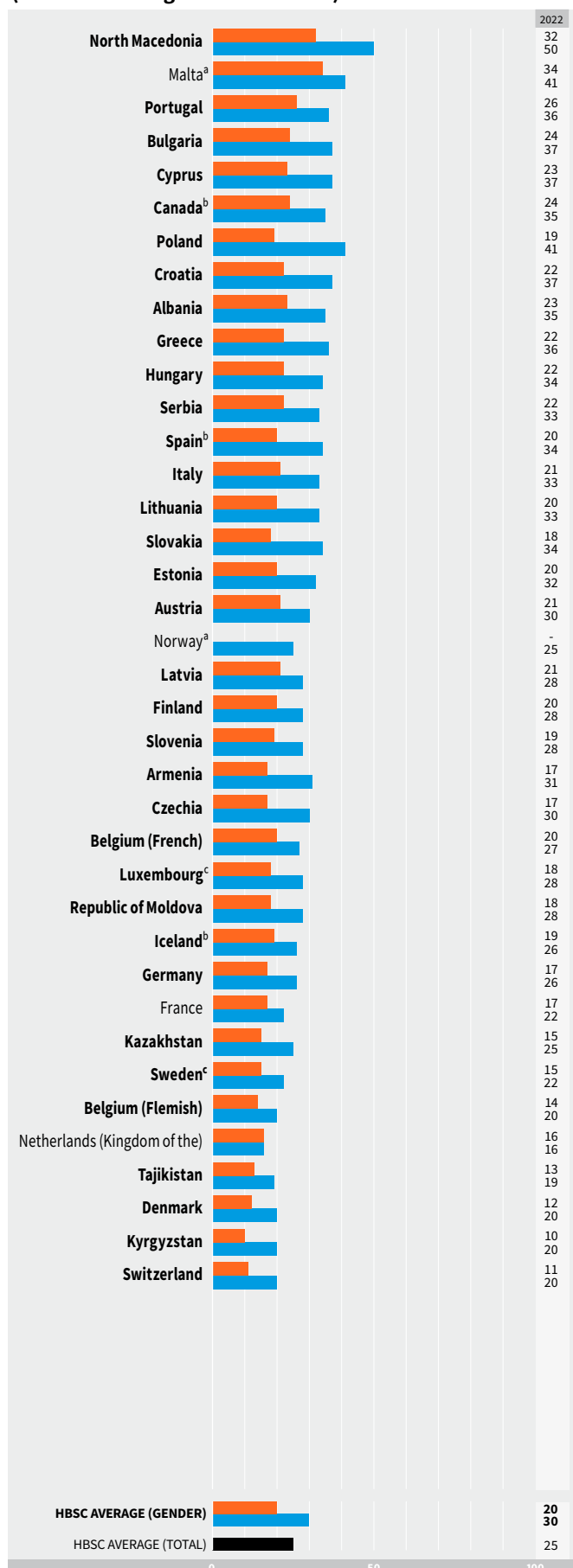


FAS: Family Affluence Scale. Note: **bold** indicates a significant difference in prevalence by family affluence group (at  $P < 0.05$ ). Low- and high-affluence groups represent the lowest 20% and highest 20% in each country/region. No data were received from Belgium (French).

## Overweight and obesity

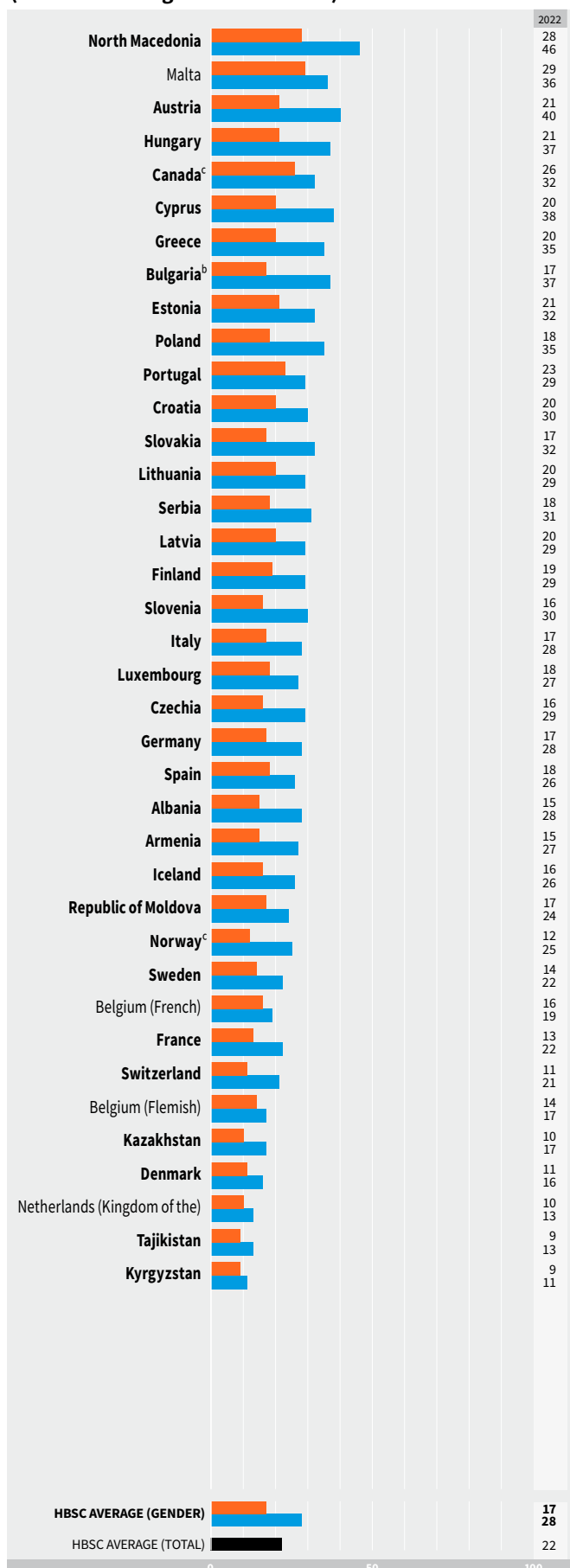
**11-year-olds who are overweight or obese  
(based on WHO growth reference)**

GIRLS (%) ■  
BOYS (%) ■



**13-year-olds who are overweight or obese  
(based on WHO growth reference)**

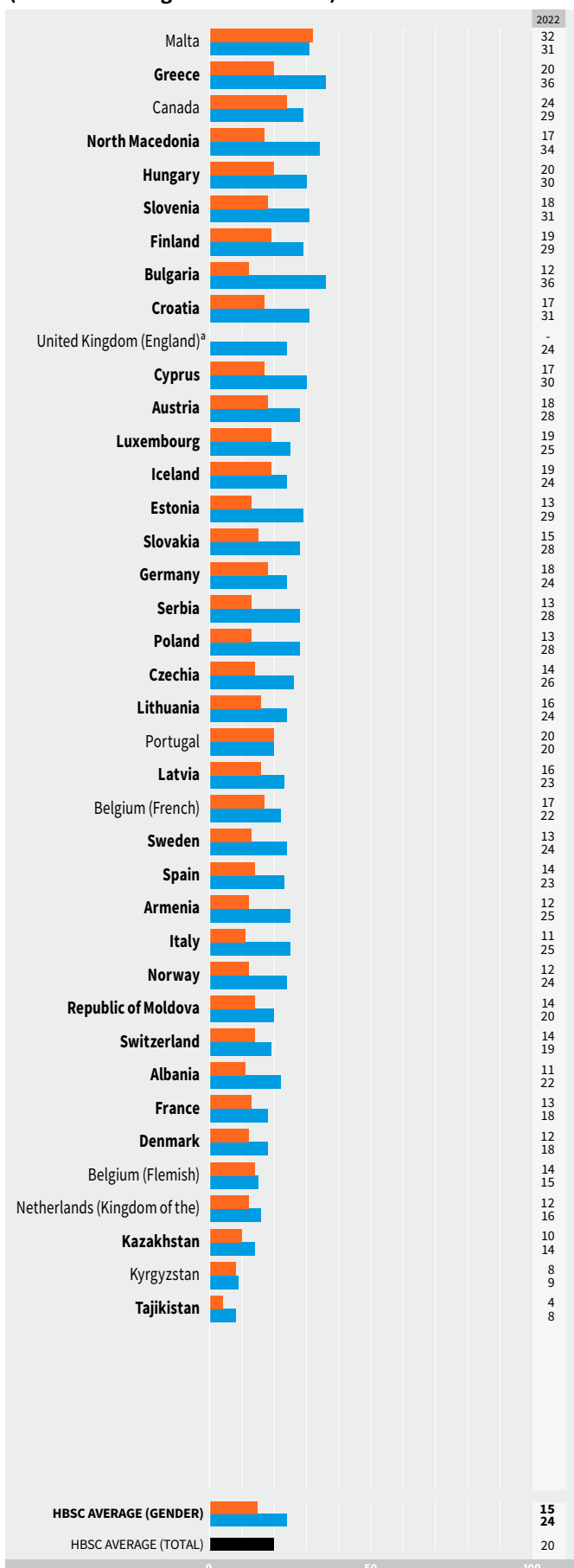
GIRLS (%) ■  
BOYS (%) ■



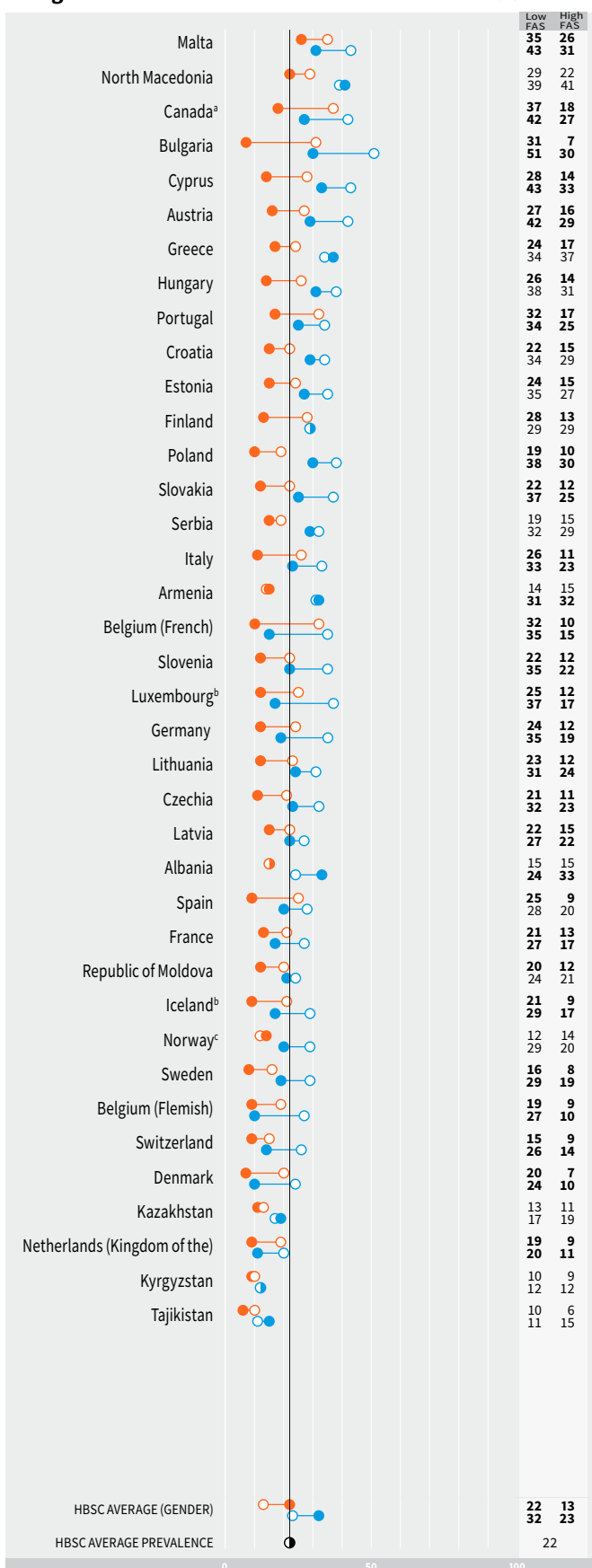
<sup>a</sup> BMI is missing for more than 30% of boys. <sup>b</sup> BMI is missing for more than 30% of girls and boys. <sup>c</sup> BMI is missing for more than 30% of girls. Note: country/region name in **bold** indicates a significant gender difference (at  $P < 0.05$ ). No data were received from United Kingdom (England) (11- and 13-year-olds) and United Kingdom (Scotland) (all ages). Country/region and age-group samples missing more than 50% of BMI data have been removed, including Denmark (Greenland), Ireland, Norway (11-year-old girls), Romania, United Kingdom (England) (15-year-old girls) and United Kingdom (Wales).

MEASURE: young people were asked to give their height (without shoes) and weight (without clothes). Body mass index (BMI) was calculated from this information and cut-offs for overweight and obesity allocated based on the WHO growth reference for age. Findings presented here show the proportions who were overweight or obese.

### 15-year-olds who are overweight or obese (based on WHO growth reference)



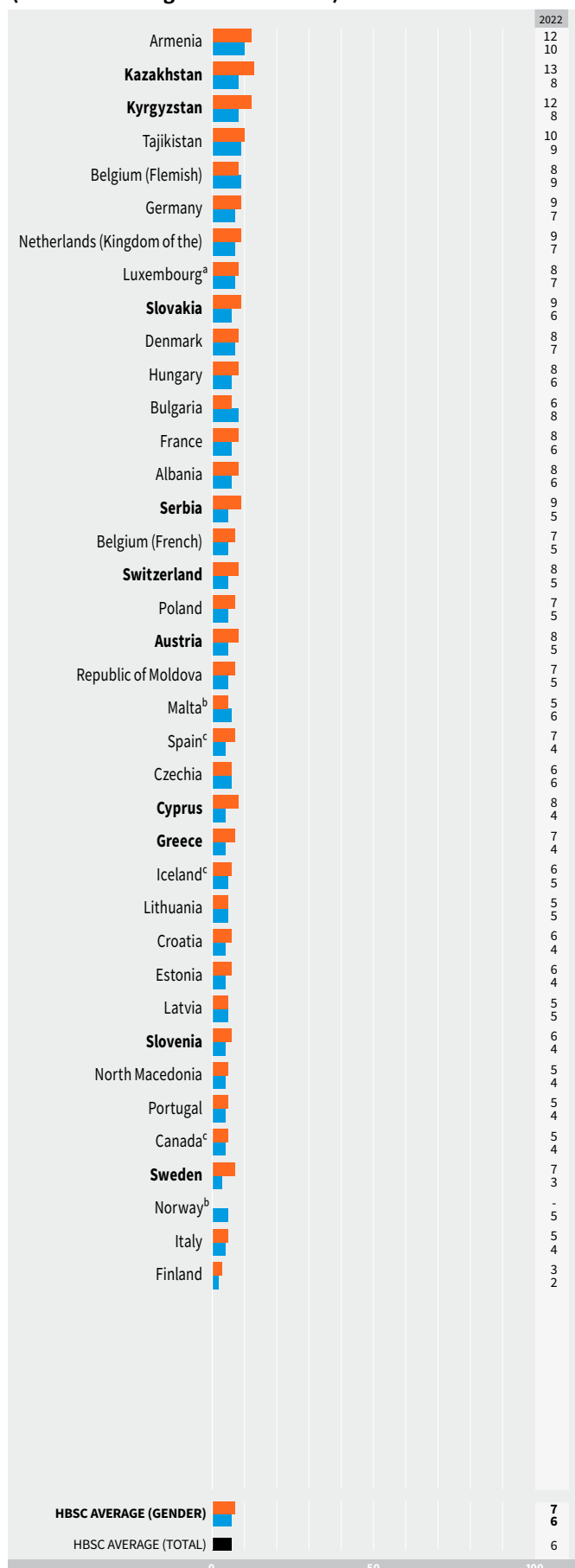
### Prevalence by family affluence: overweight and obesity by country/region and gender



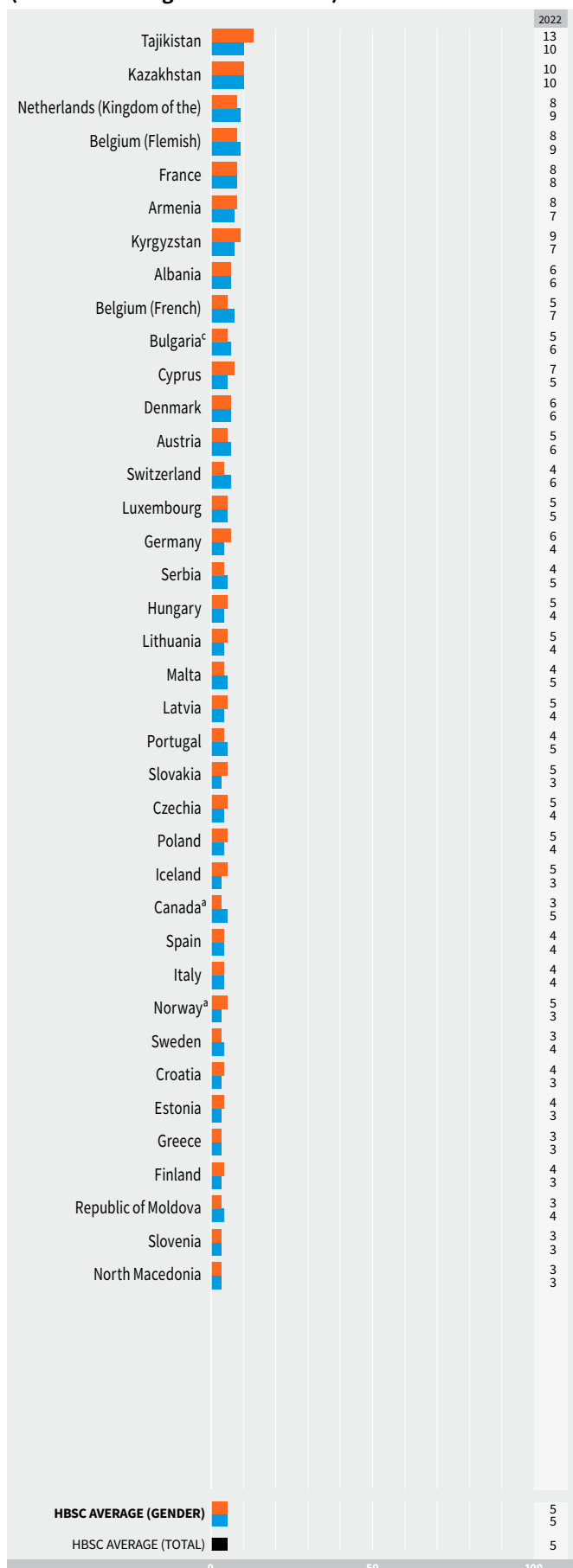
FAS: Family Affluence Scale. <sup>a</sup>BMI is missing for more than 30% of low-affluence boys and girls. <sup>b</sup>BMI is missing for more than 30% of low-affluence girls. <sup>c</sup>BMI is missing for more than 30% of low- and high-affluence girls. Note: **bold** indicates a significant difference in prevalence by family affluence group (at  $P < 0.05$ ). Low- and high-affluence groups represent the lowest 20% and highest 20% in each country/region. No data were received from United Kingdom (England) and United Kingdom (Scotland) (11- and 13-year-olds). Country/region and age-group samples missing more than 50% of BMI data have been removed, including Denmark (Greenland), Ireland, Norway (11-year-old girls), Romania, United Kingdom (England) (15-year-old girls) and United Kingdom (Wales).

## Underweight

**11-year-olds who are underweight (based on WHO growth reference)**



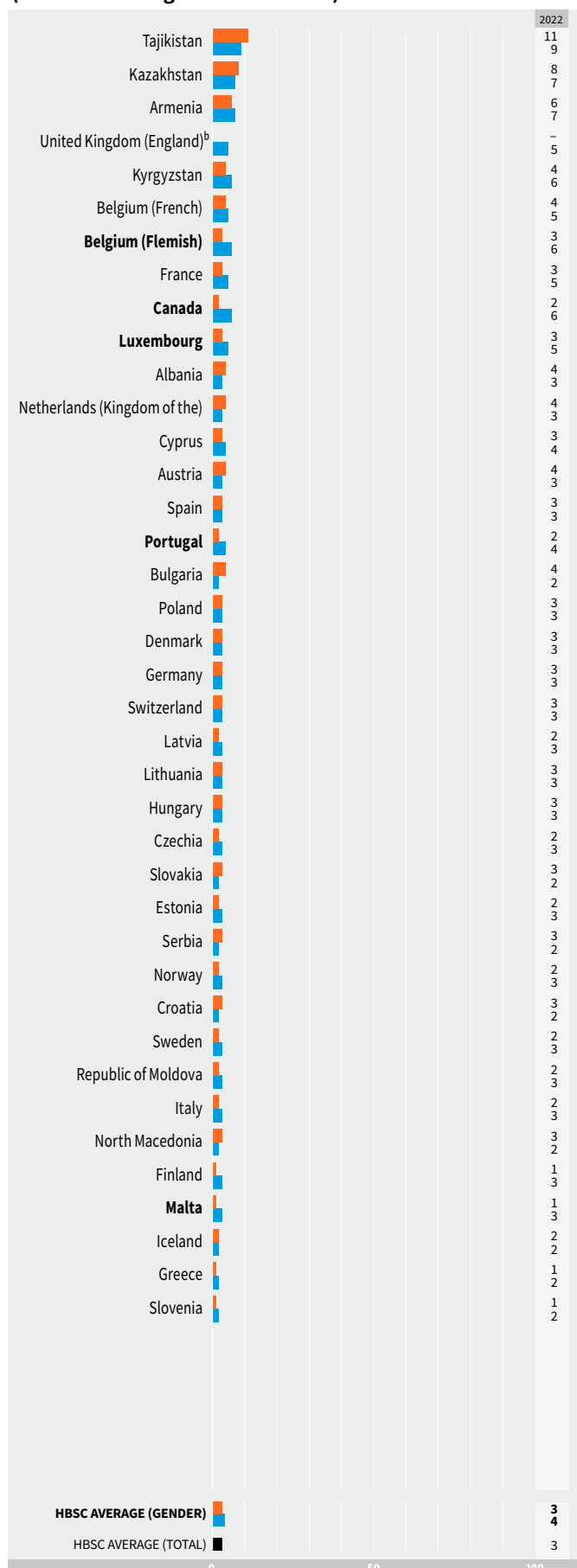
**13-year-olds who are underweight (based on WHO growth reference)**



<sup>a</sup> BMI is missing for more than 30% of girls. <sup>b</sup> BMI is missing for more than 30% of boys. <sup>c</sup> BMI is missing for more than 30% of girls and boys. Note: country/region name in bold indicates a significant gender difference (at P<0.05). No data were received from United Kingdom (England) and United Kingdom (Scotland) (11- and 13-year-olds). Country/region and age-group samples missing more than 50% of BMI data have been removed, including Denmark (Greenland), Ireland, Norway (11-year-old girls), Romania, United Kingdom (England) (15-year-old girls) and United Kingdom (Wales).

MEASURE: young people were asked to give their height (without shoes) and weight (without clothes). Body mass index (BMI) was calculated from this information and cut-offs for underweight applied based on the WHO growth reference for age. Findings presented here show the proportions who were underweight.

### 15-year-olds who are underweight (based on WHO growth reference)



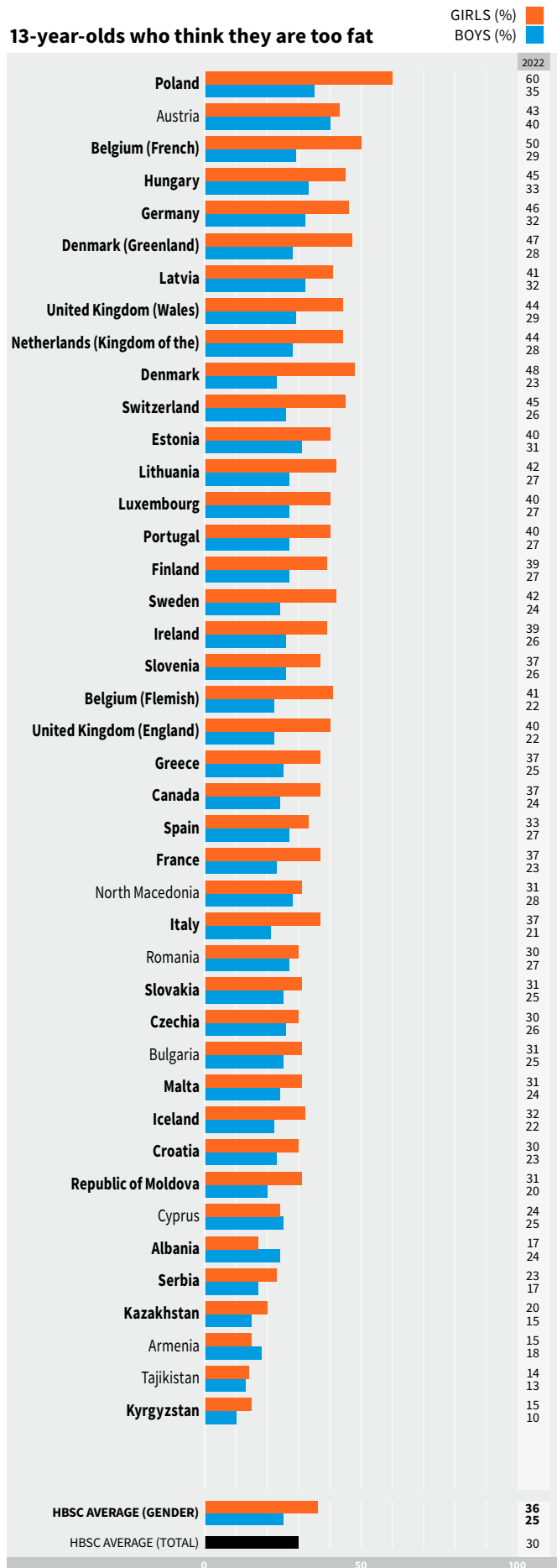
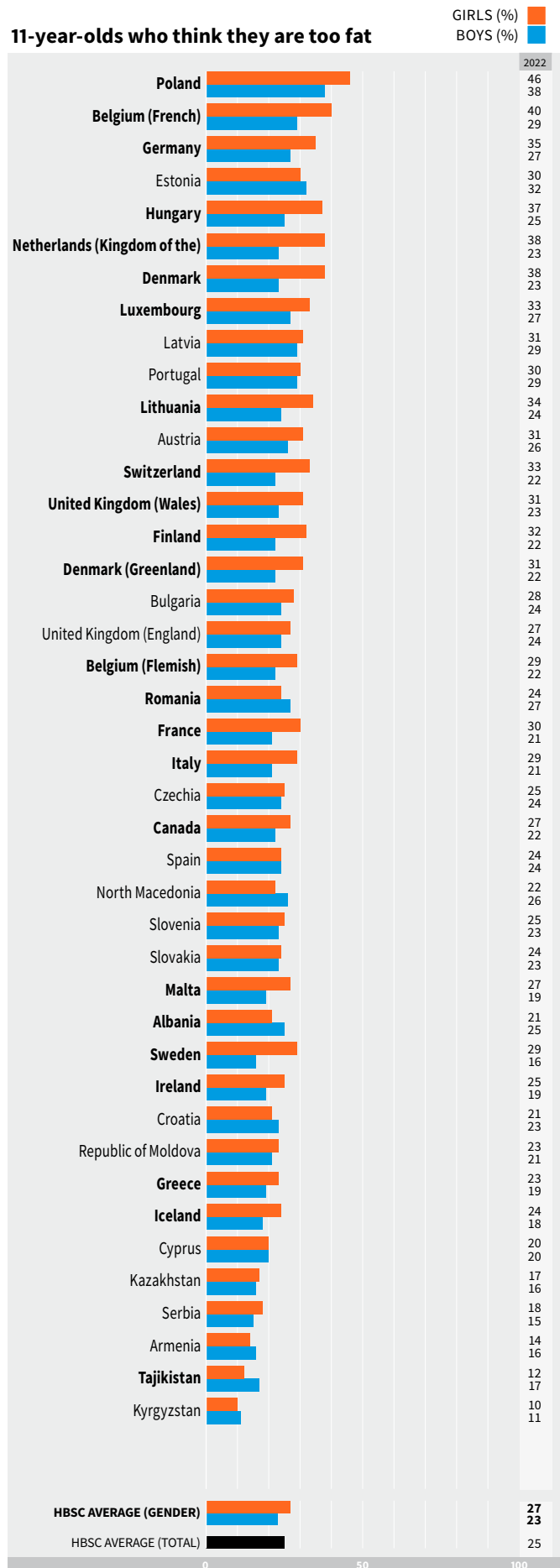
### Prevalence by family affluence: underweight by country/region and gender



FAS: Family Affluence Scale. <sup>a</sup> BMI is missing for more than 30% of low-affluence girls. <sup>b</sup> BMI is missing for more than 30% of low- and high-affluence girls. <sup>c</sup> BMI is missing for more than 30% of low-affluence boys and girls. Note: **bold** indicates a significant difference in prevalence by family affluence group (at  $P < 0.05$ ). Low- and high-affluence groups represent the lowest 20% and highest 20% in each country/region. No data were received from United Kingdom (England) and United Kingdom (Scotland) (11- and 13-year-olds). Country/region and age-group samples missing more than 50% of BMI data have been removed, including Denmark (Greenland), Ireland, Norway (11-year-old girls), Romania, United Kingdom (England) (15-year-old girls) and United Kingdom (Wales).



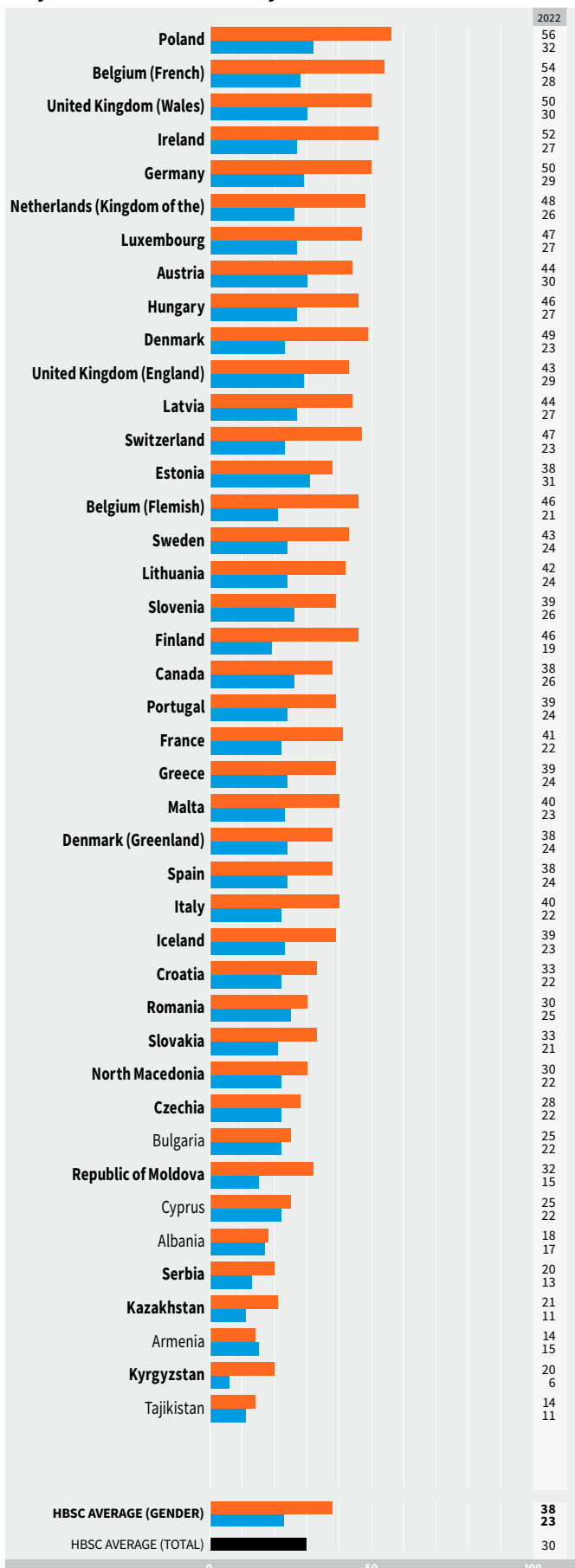
## Body image



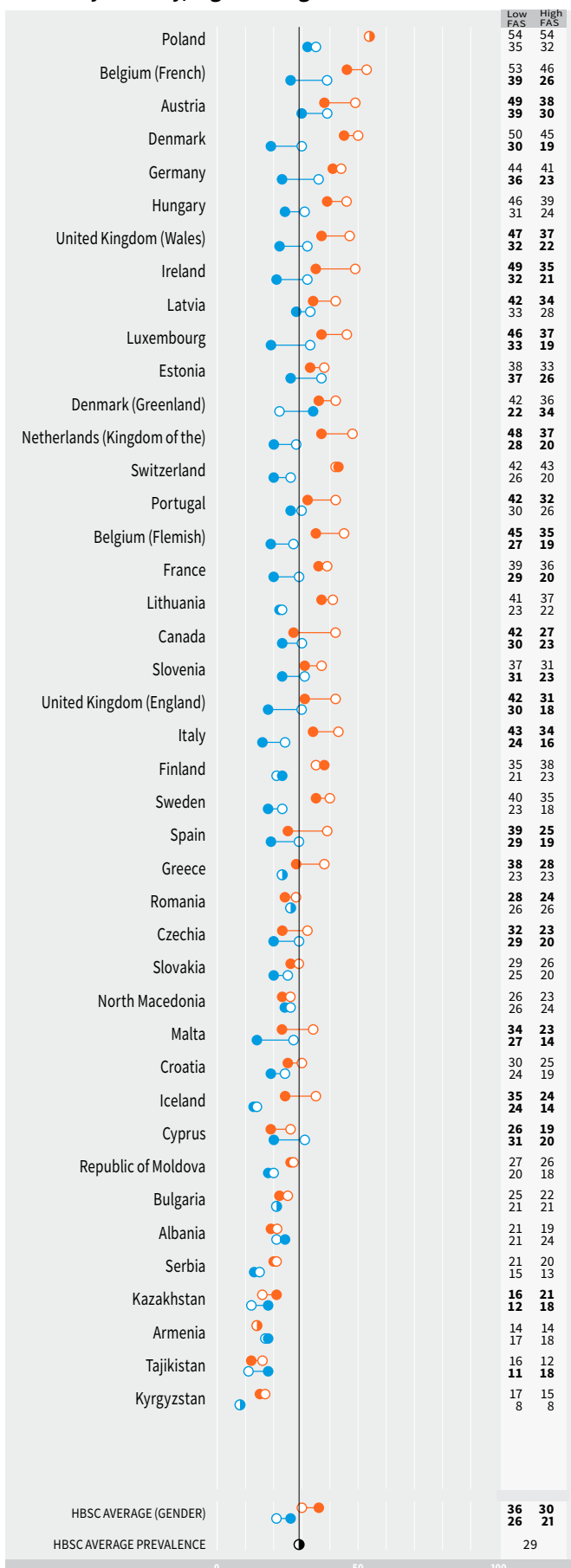
Note: country/region name in bold indicates a significant gender difference (at  $P < 0.05$ ). No data were received from Norway and United Kingdom (Scotland).

MEASURE: young people were asked about how they perceive their bodies. Response options ranged from being much too thin to much too fat. Findings presented here show the proportions who reported perceiving their body to be too fat, defined as being a bit or much too fat.

### 15-year-olds who think they are too fat



### Prevalence by family affluence: feeling too fat by country/region and gender



FAS: Family Affluence Scale. Note: **bold** indicates a significant difference in prevalence by family affluence group (at  $P < 0.05$ ). Low- and high-affluence groups represent the lowest 20% and highest 20% in each country/region. No data were received from Norway and United Kingdom (Scotland).

## The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

### Member States

Albania	Lithuania
Andorra	Luxembourg
Armenia	Malta
Austria	Monaco
Azerbaijan	Montenegro
Belarus	Netherlands (Kingdom of the)
Belgium	North Macedonia
Bosnia and Herzegovina	Norway
Bulgaria	Poland
Croatia	Portugal
Cyprus	Republic of Moldova
Czechia	Romania
Denmark	Russian Federation
Estonia	San Marino
Finland	Serbia
France	Slovakia
Georgia	Slovenia
Germany	Spain
Greece	Sweden
Hungary	Switzerland
Iceland	Tajikistan
Ireland	Türkiye
Israel	Turkmenistan
Italy	Ukraine
Kazakhstan	United Kingdom
Kyrgyzstan	Uzbekistan
Latvia	

### World Health Organization Regional Office for Europe

UN City, Marmorvej 51,  
DK-2100 Copenhagen Ø, Denmark  
Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01  
Email: [eurocontact@who.int](mailto:eurocontact@who.int)  
Website: [www.who.int/europe](http://www.who.int/europe)

