

CHAPTER 4. HEALTH BEHAVIOURS

EATING BEHAVIOUR
ORAL HEALTH
ENERGY EXPENDITURE



EATING BEHAVIOUR: BREAKFAST CONSUMPTION

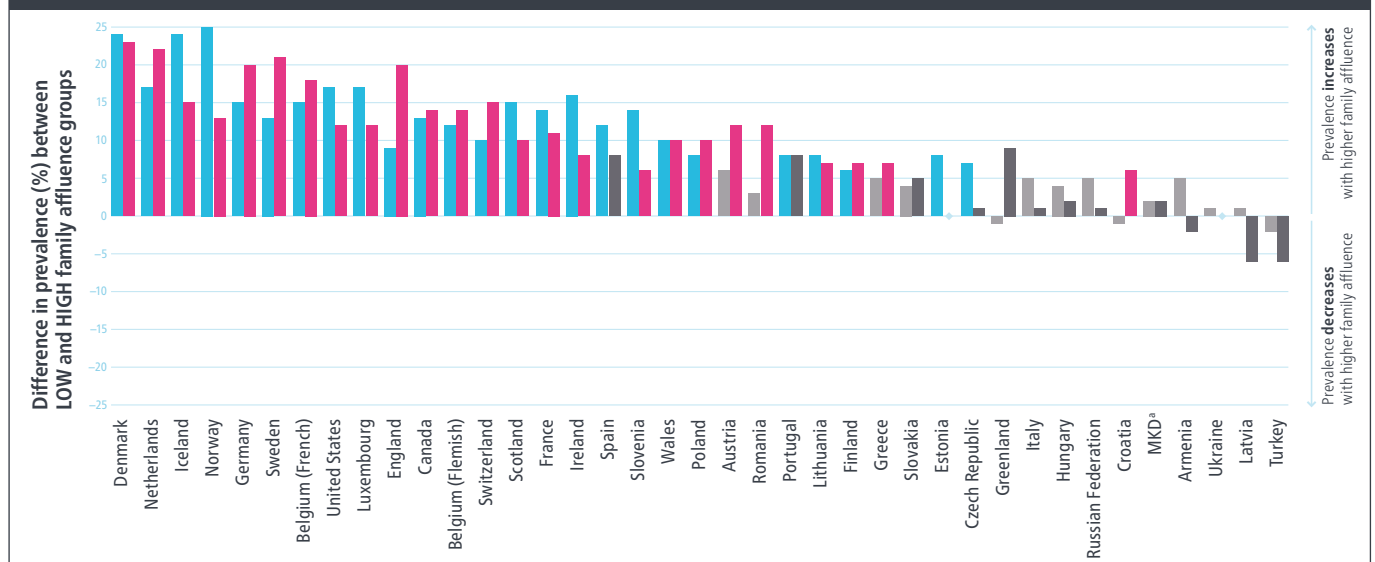
Regular breakfast consumption is associated with higher intakes of micronutrients, a better diet that includes fruit and vegetables and less frequent use of soft drinks (1–4). BMI and the prevalence of overweight are in general lower in young people who eat breakfast (2–5), which is also advocated as a means of improving cognitive function and academic performance (6).

Skipping breakfast is nevertheless very common among young people in Europe, Canada and the United States (4) and is associated with risk behaviours such as smoking, alcohol consumption and sedentary behaviours (2,3,7). Daily breakfast consumption is less common among girls and in families with lower SES, and decreases with age (2–4,7). Establishing the most effective programmes and policies to promote it across countries with different cultural practices and socioeconomic factors is a public health challenge.

HBSC survey 2009/2010

Associations between family affluence and indicators of health, by country/region and gender:
EATING BREAKFAST EVERY SCHOOL DAY

BOYS
GIRLS SIGNIFICANT
TRENDS



* The former Yugoslav Republic of Macedonia. ♦ Indicates less than +/-0.5%.

MEASURE

Young people were asked how often they eat breakfast, defined as “more than a glass of milk or fruit juice”, on school days and at weekends. The findings presented here are the proportions reporting eating breakfast every school day.

RESULTS

Age

Prevalence of daily breakfast consumption declined significantly among boys and girls in almost all countries and regions. The change exceeded 15% in around a third of countries and regions for boys and three quarters for girls.

Gender

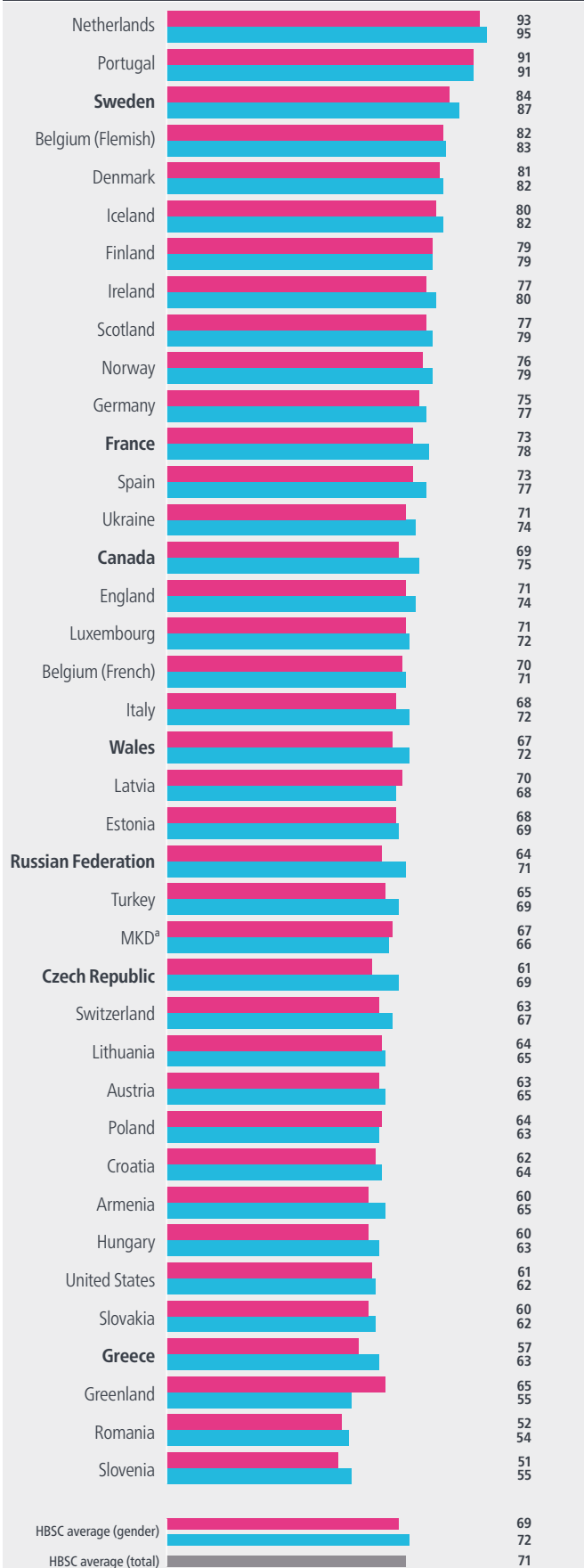
Boys were more likely to report it in almost all countries. The gender difference was greater among ages 13 and 15, for whom prevalence differed by more than 10% in some countries and regions.

Family affluence

Adolescents from high-affluence families in most countries and regions were significantly more likely to report eating breakfast, with the differences exceeding 15% in a few.

11-year-olds who eat breakfast every school day

GIRLS (%)
BOYS (%)

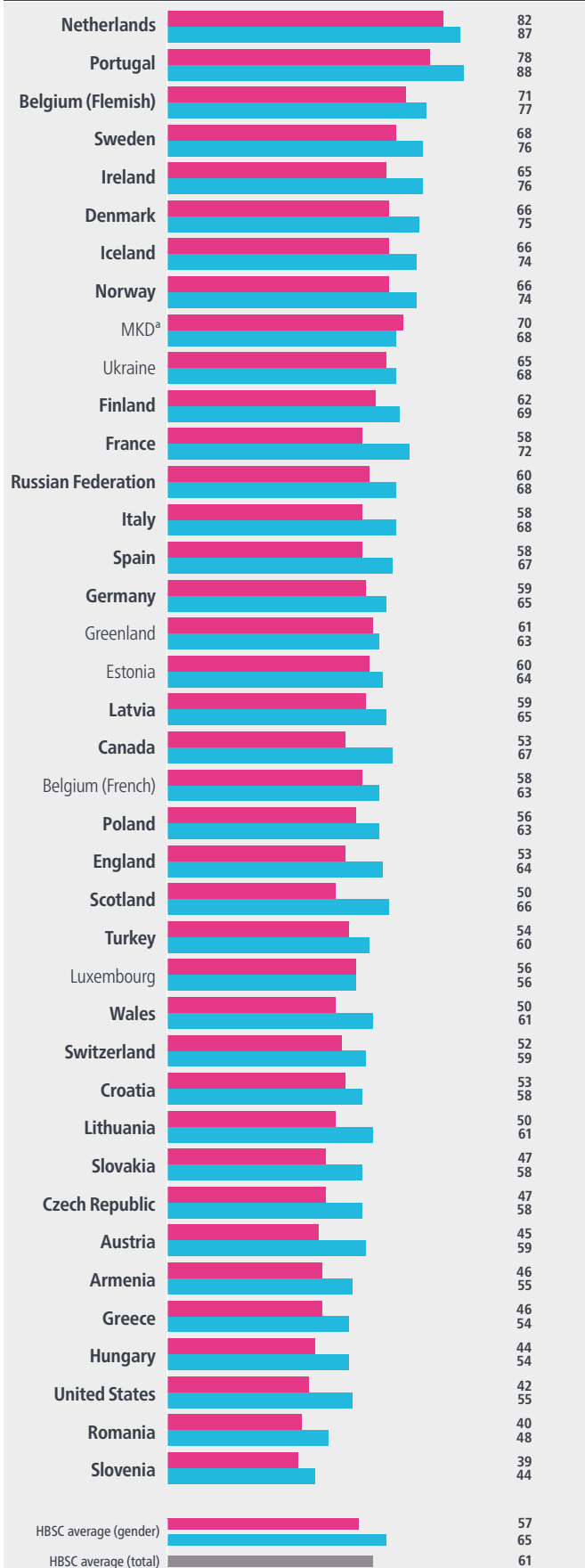


^a The former Yugoslav Republic of Macedonia.

HBSC survey 2009/2010

13-year-olds who eat breakfast every school day

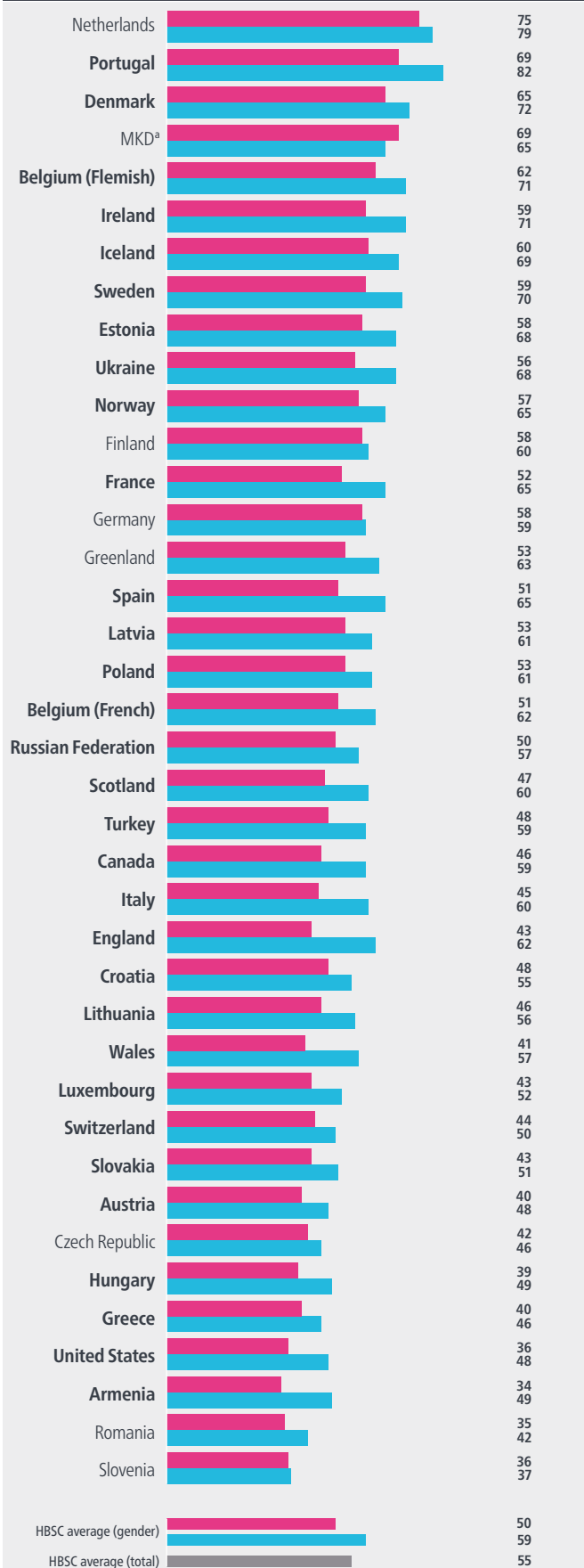
■ GIRLS (%)
■ BOYS (%)



HBSC survey 2009/2010

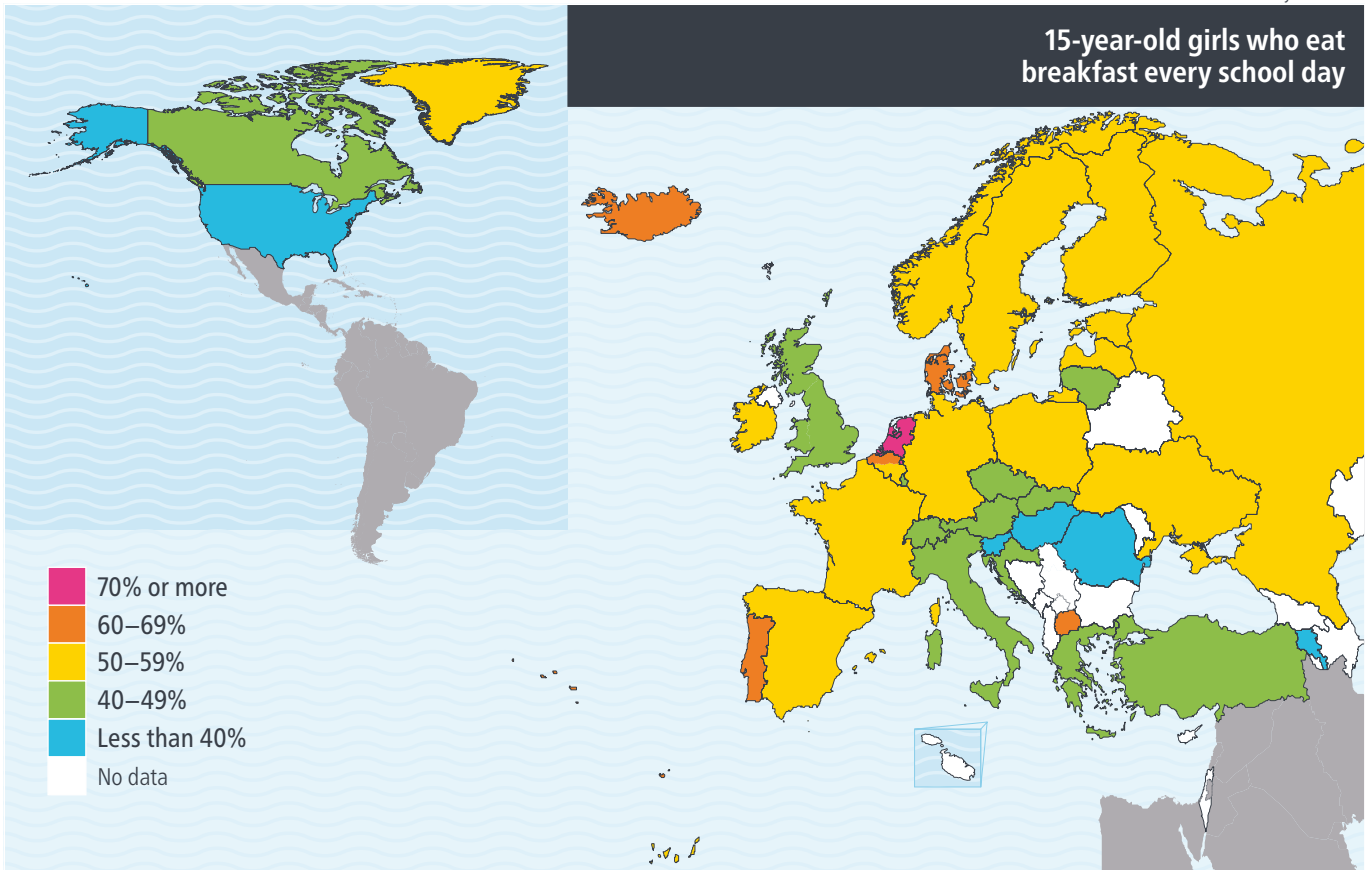
15-year-olds who eat breakfast every school day

■ GIRLS (%)
■ BOYS (%)



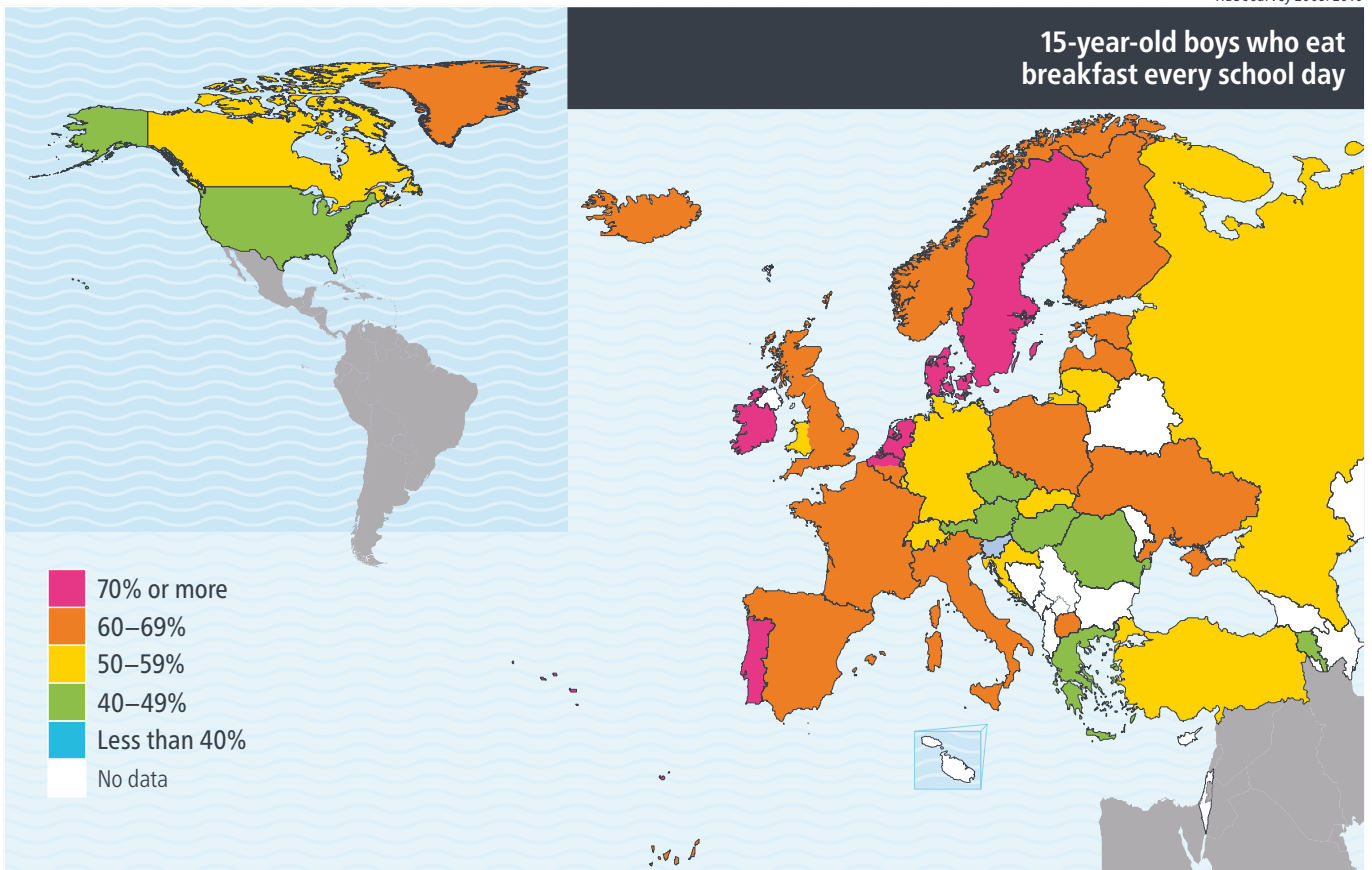
Note. ^aIndicates significant gender difference (at p<0.05).

HBSC survey 2009/2010



Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

HBSC survey 2009/2010

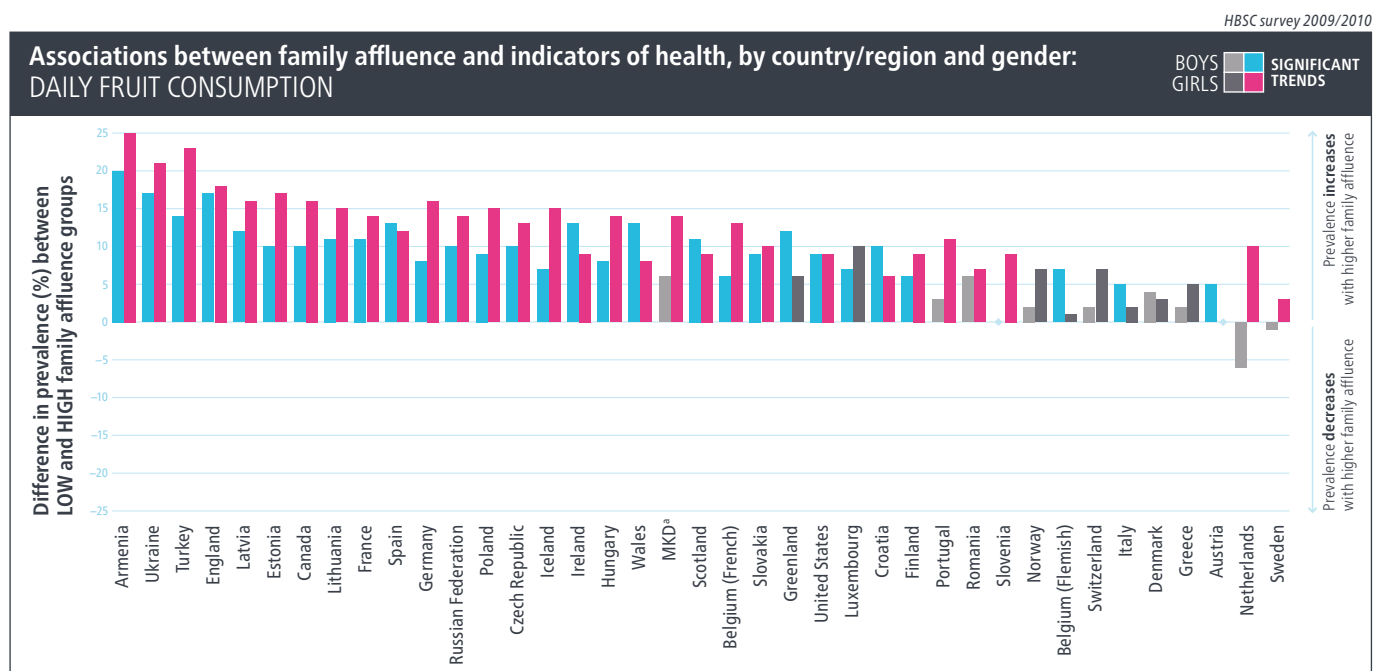


Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

EATING BEHAVIOUR: FRUIT CONSUMPTION

Fruit consumption when young is linked to many positive health outcomes. It promotes optimal health in childhood, growth and intellectual development, lower levels of body fat and, in combination with vegetables, better bone density for boys (8). Eating fruit at younger ages appears to translate to adult patterns (9), with adult outcomes including decreased risks for coronary heart disease (10), stroke (11) and cancer (12).

Factors that may motivate young people to consume more fruit include changing the environment by, for example, increasing availability of fruit at home and promoting parental consumption (13), providing fruit in schools (14) and implementing a schoolyard garden with appropriate educational activities (15). Teachers and health professionals can also help through targeted school interventions, which have consistently been shown to increase intake (13).



MEASURE

Young people were asked how often they eat fruit. Response options ranged from "never" to "more than once a day". The findings presented here are the proportions who reported eating fruit at least every day or more than once a day.

RESULTS

Age

Prevalence of fruit consumption decreased for boys and girls between ages 11 and 15. The difference was significant in almost all countries and regions among boys and in most for girls, being more than 15% in around a quarter.

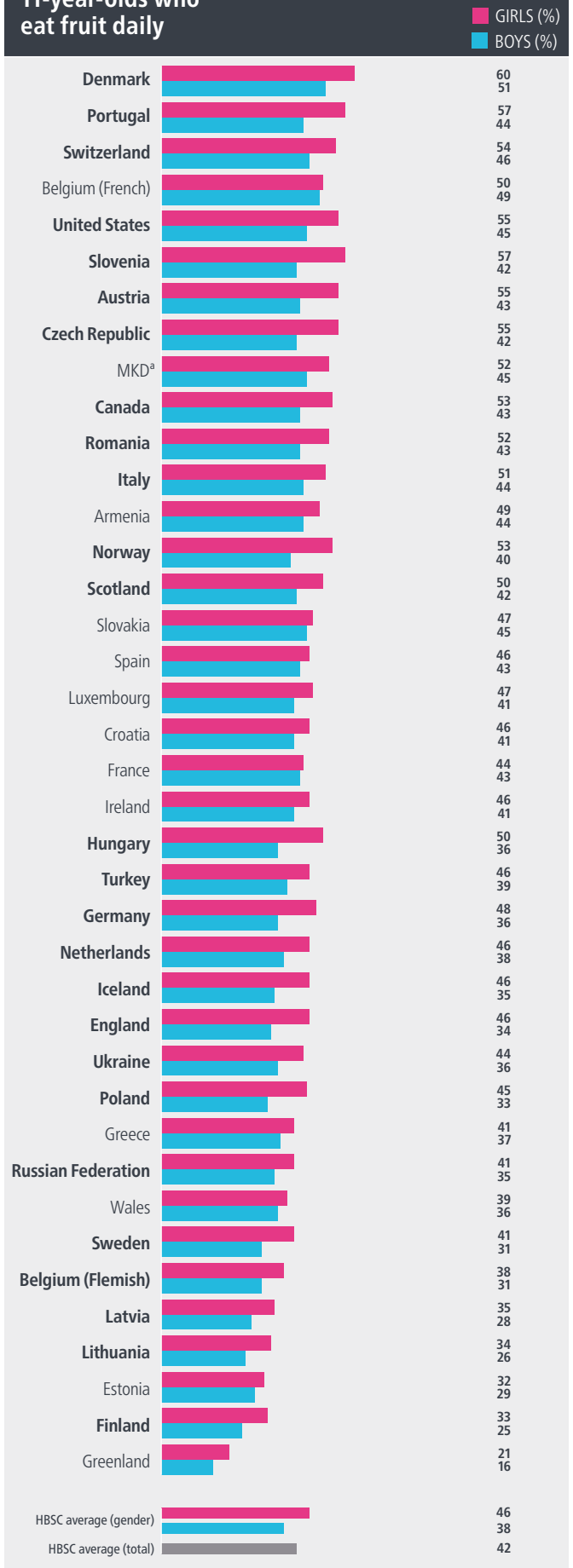
Gender

Girls had a significantly higher prevalence in around three quarters of countries and regions, with the gender difference being more than 10% in about a third.

Family affluence

Girls and boys from high-affluence families in most countries and regions were more likely to eat fruit daily. The differences were more than 10% in a minority of countries for boys and in most for girls, for whom the differences were more than 15% in around a quarter.

11-year-olds who eat fruit daily

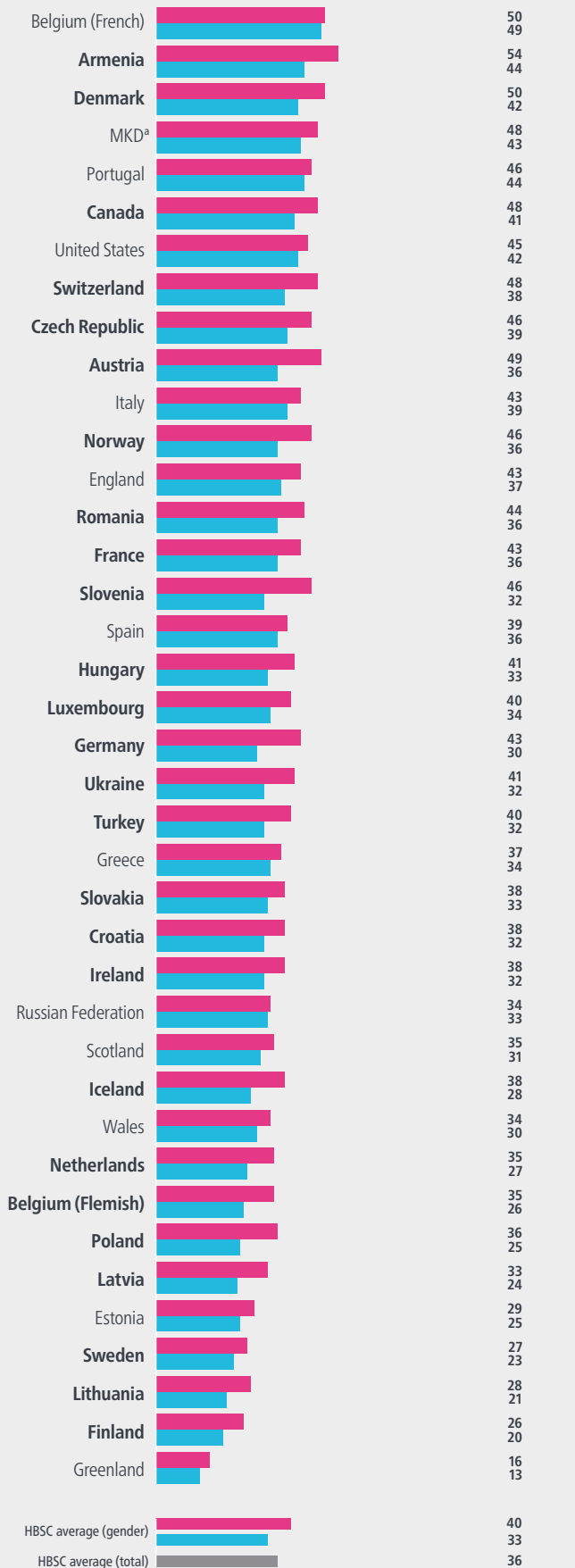


^a The former Yugoslav Republic of Macedonia.

HBSC survey 2009/2010

13-year-olds who eat fruit daily

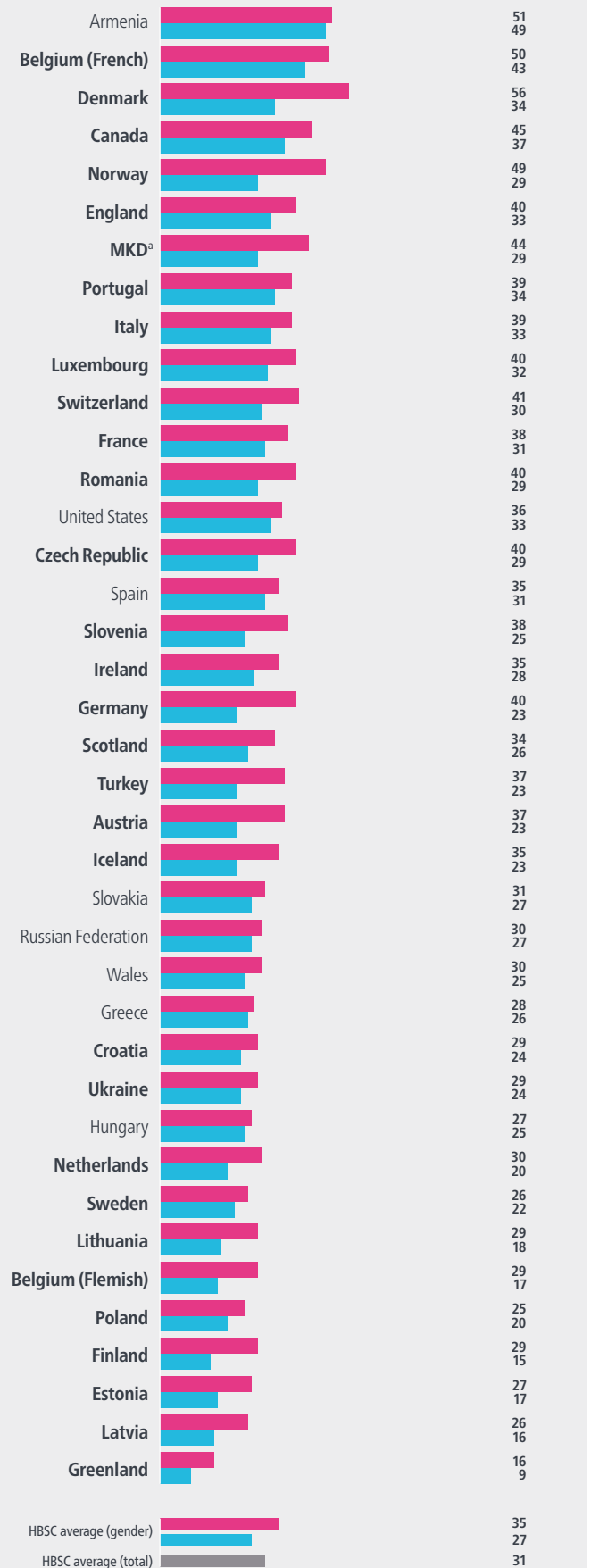
GIRLS (%)
BOYS (%)



HBSC survey 2009/2010

15-year-olds who eat fruit daily

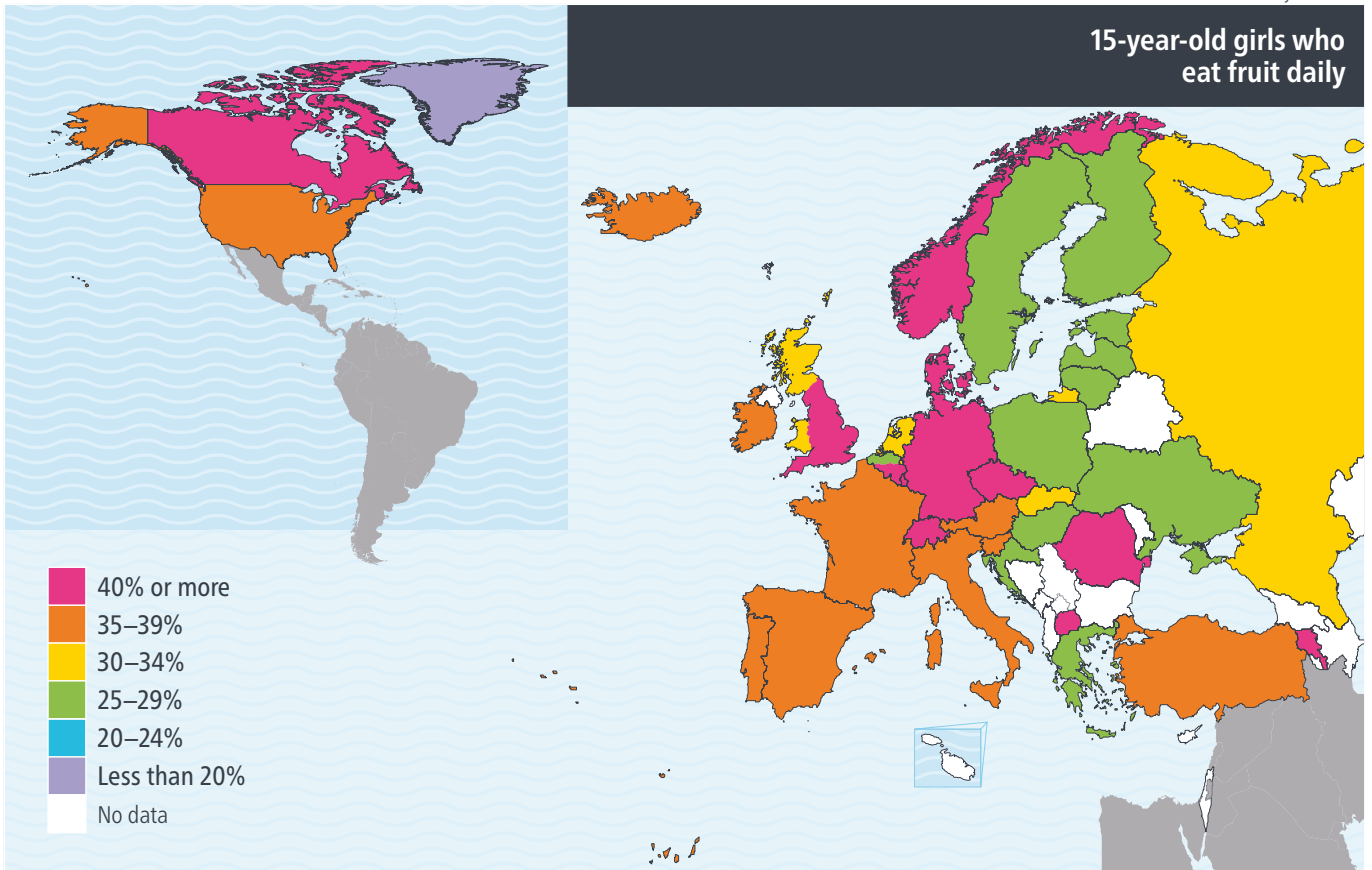
GIRLS (%)
BOYS (%)



Note. ^aIndicates significant gender difference (at p<0.05).

HBSC survey 2009/2010

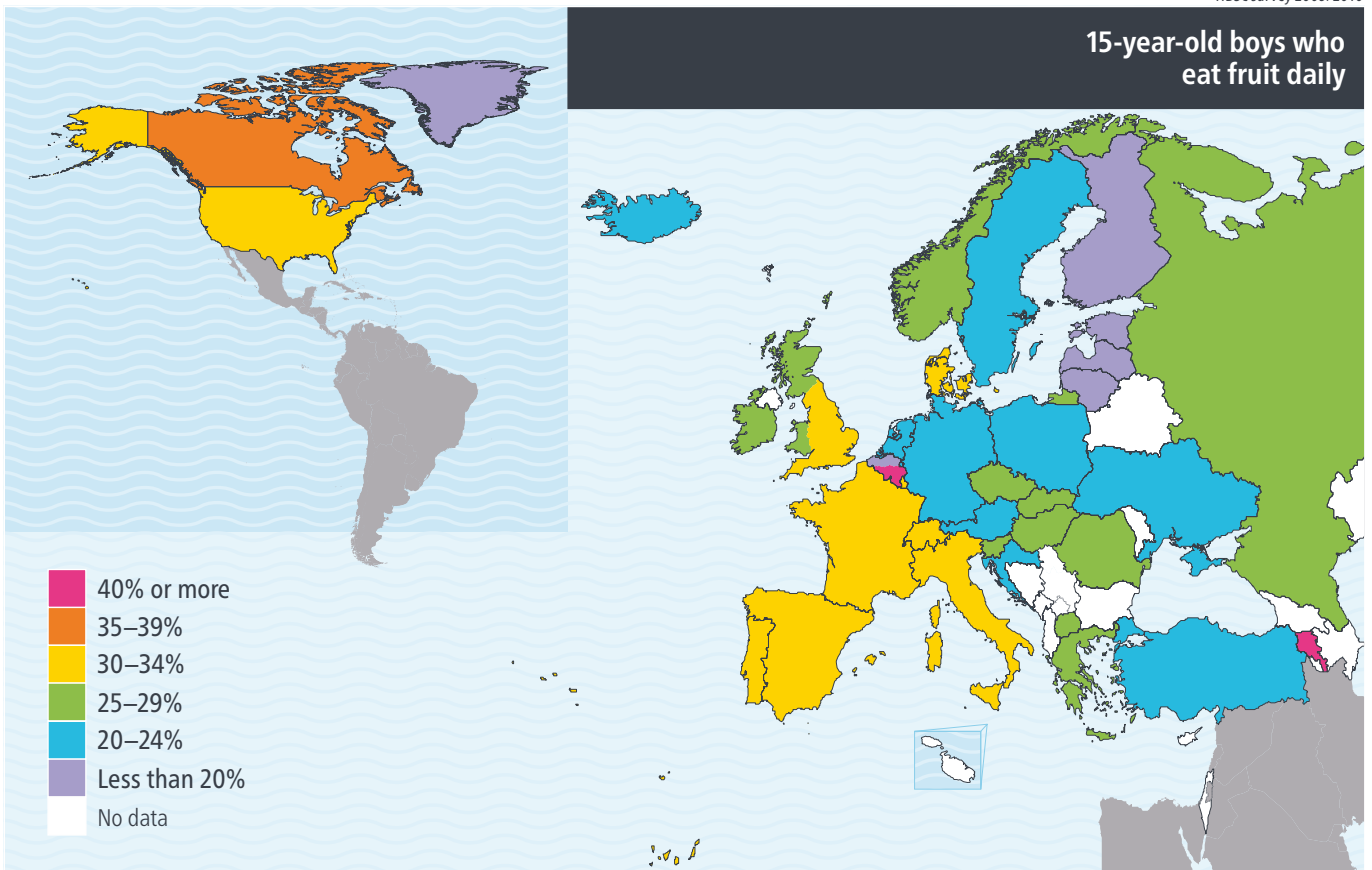
15-year-old girls who eat fruit daily



Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

HBSC survey 2009/2010

15-year-old boys who eat fruit daily



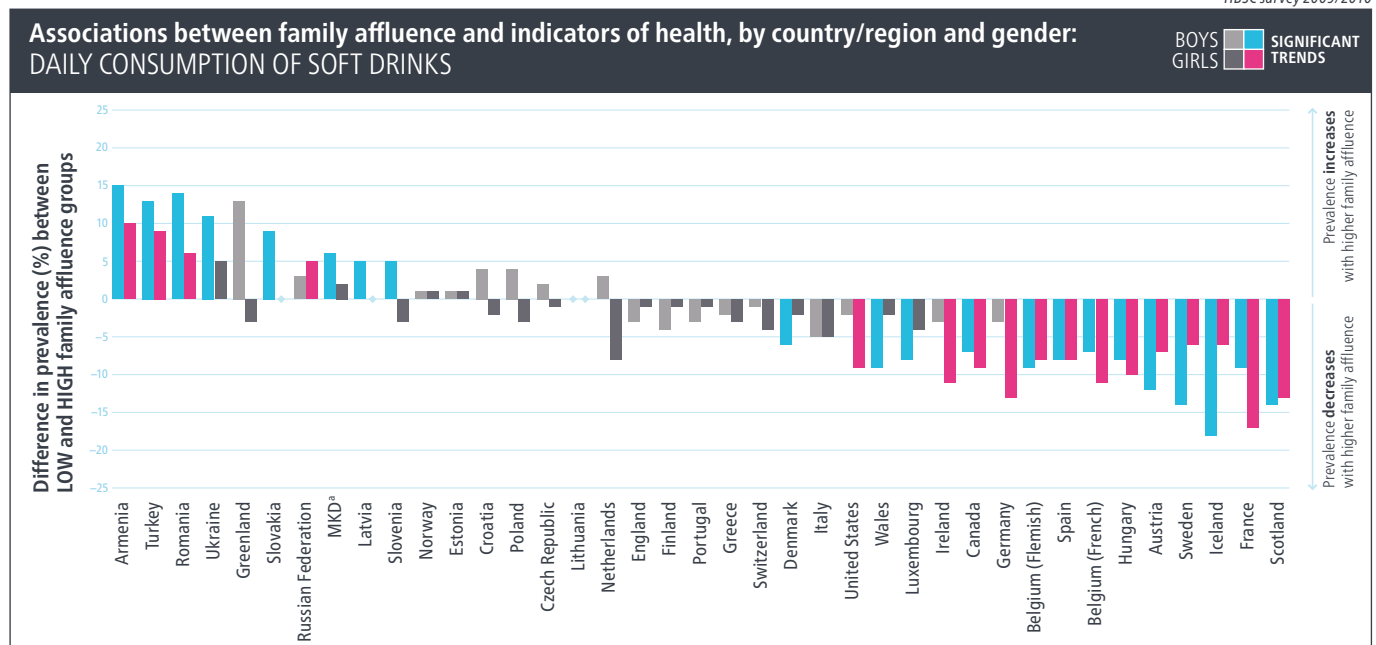
Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

EATING BEHAVIOUR: SOFT-DRINK CONSUMPTION

The consumption of sugar-sweetened beverages, including soft drinks, has risen across the globe, accompanied by an increase in the prevalence of overweight and obesity. Regular consumption has been associated with increased energy intake, weight gain, risk of overweight and obesity, and the development of obesity-related chronic metabolic diseases such as metabolic syndrome and type 2 diabetes (16,17). Not all studies, however, have shown an association between soft-drink consumption and raised BMI (4).

Consumption has been associated with lower intakes of milk, calcium and other nutrients (17). Previous HBSC findings have indicated negative associations with breakfast consumption (5) and family rules (18) and positive associations with frequent meal consumption in fast-food restaurants and high television viewing with associated snacking and meal consumption.

HBSC survey 2009/2010



* The former Yugoslav Republic of Macedonia. ♦ Indicates less than +/-0.5%.

MEASURE

Young people were asked how often they drink sugared soft drinks. Responses ranged from "never" to "more than once a day". The findings presented here are the proportions who reported that they drank soft drinks on at least a daily basis.

RESULTS

Age

Prevalence of daily soft-drink consumption tended to increase between ages 11 and 15, especially in boys, with a significant difference in most countries and regions. The difference in prevalence across age groups exceeded 10% in just under half of countries and regions for boys and in a few for girls.

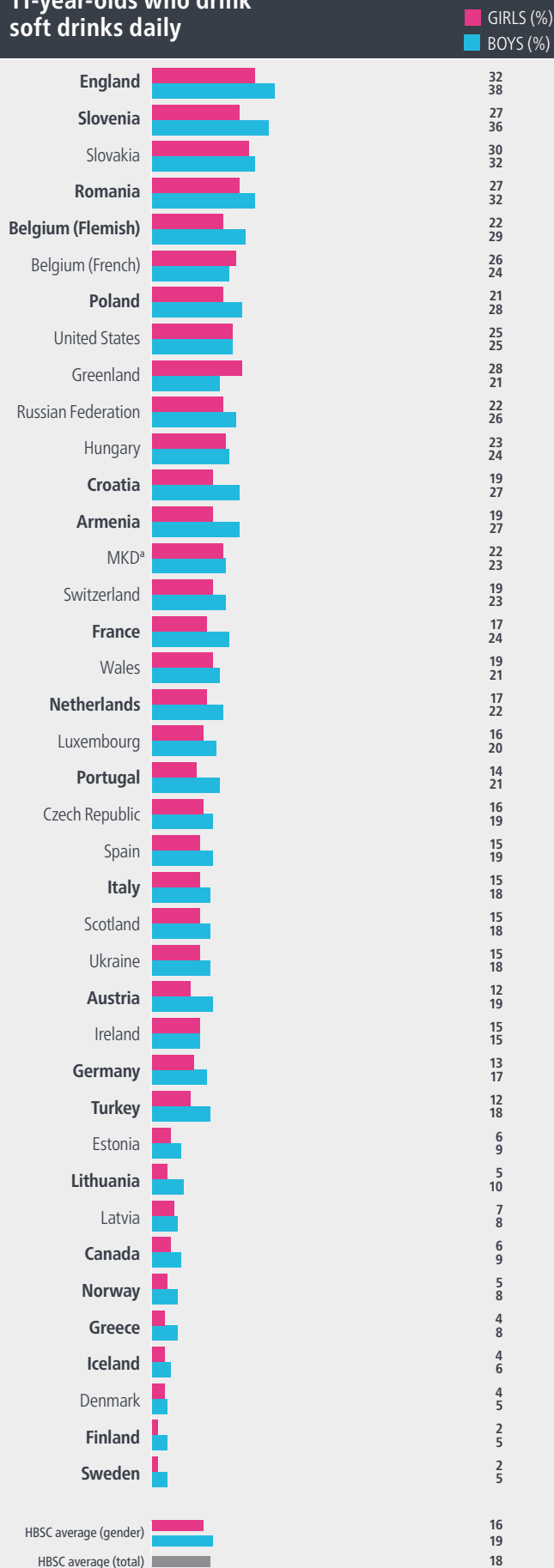
Gender

Prevalence was higher among boys in most countries and regions across all age groups. The difference was more than 10% among 15-year-olds in a few.

Family affluence

Young people from low-affluence families in around a third of countries and regions were significantly more likely to report daily soft drink consumption, but it was more prevalent among those from high-affluence families, particularly boys, in a few.

11-year-olds who drink soft drinks daily

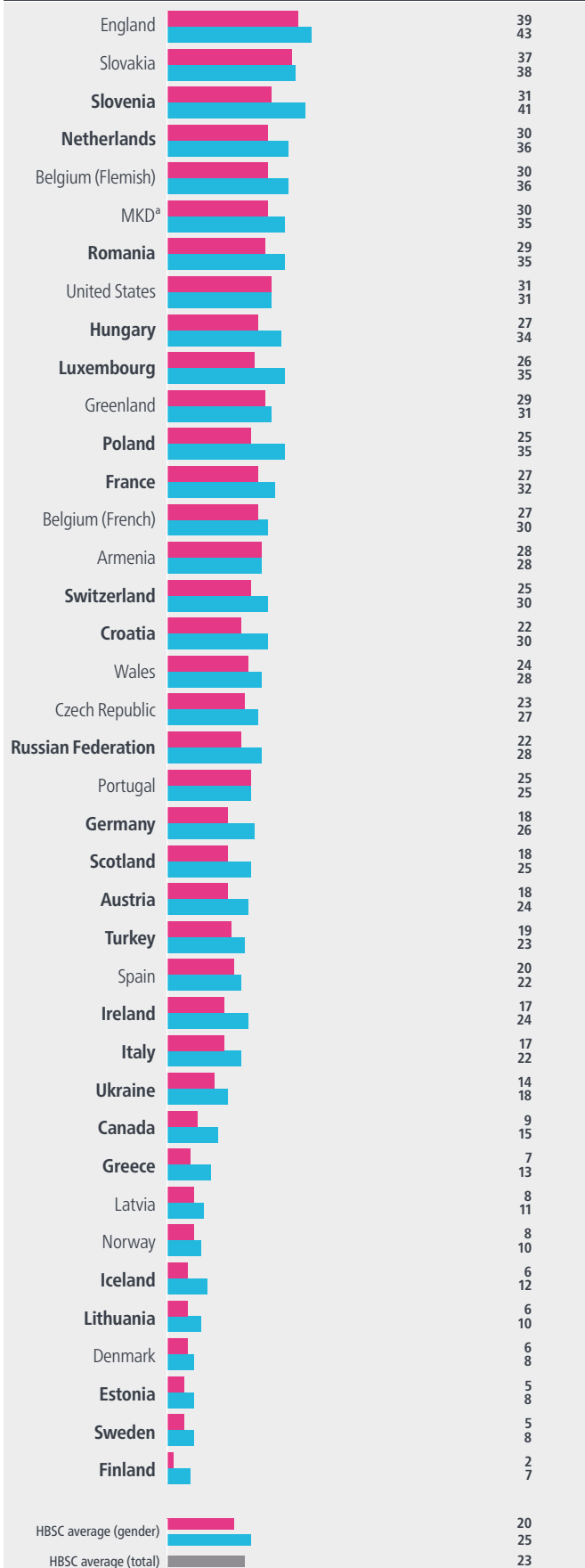


^a The former Yugoslav Republic of Macedonia.

HBSC survey 2009/2010

13-year-olds who drink soft drinks daily

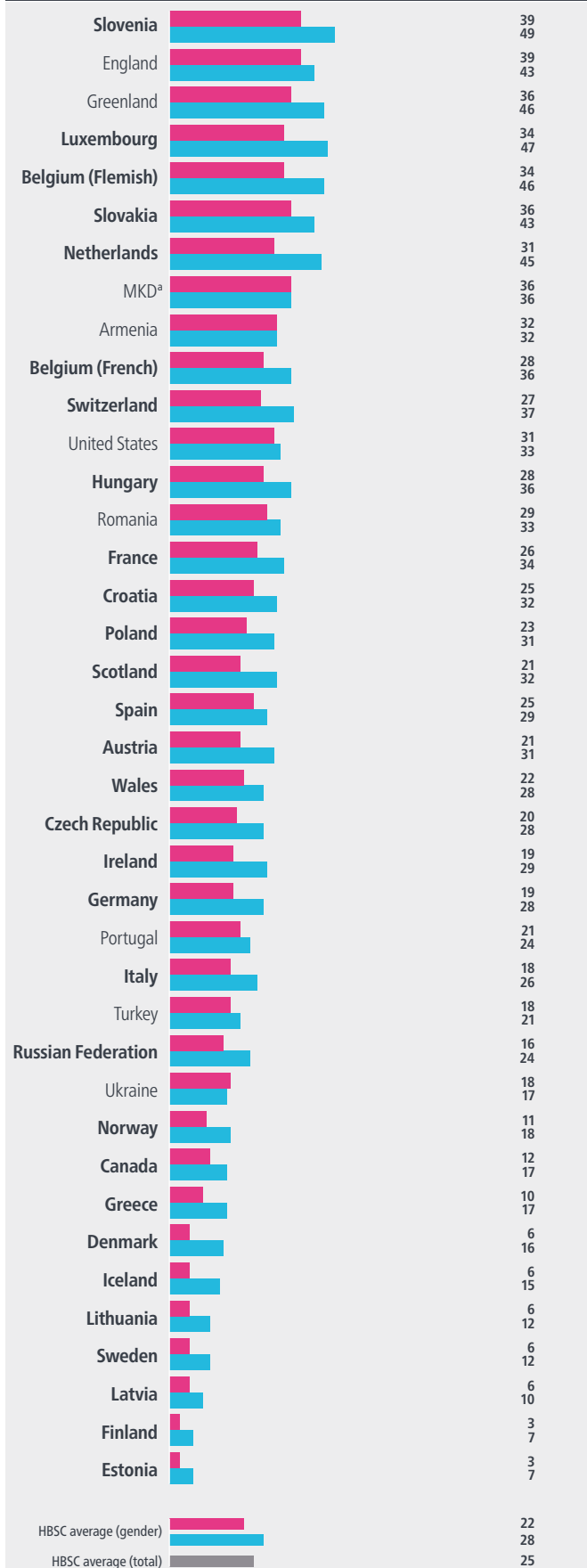
GIRLS (%)
BOYS (%)



HBSC survey 2009/2010

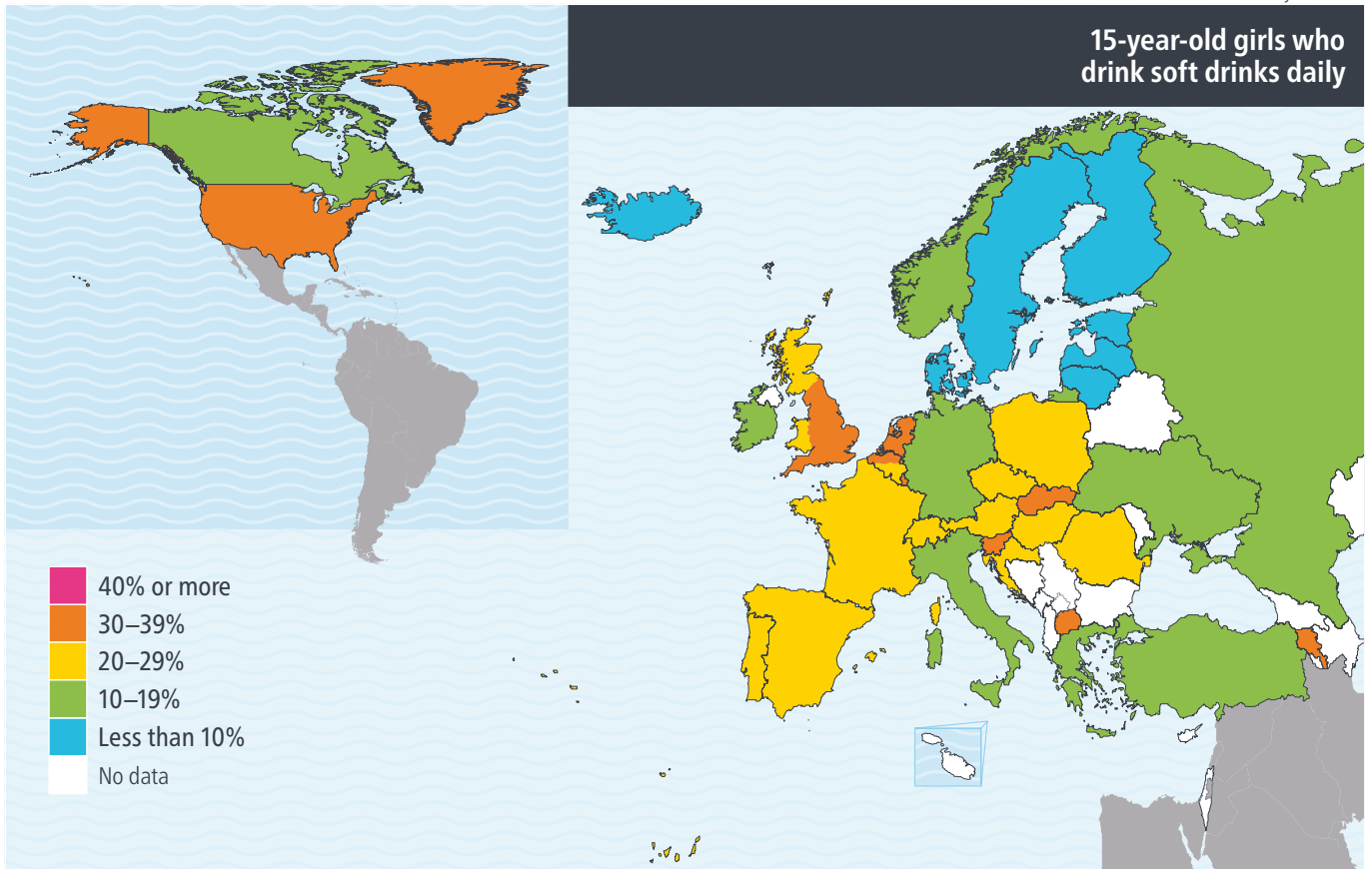
15-year-olds who drink soft drinks daily

GIRLS (%)
BOYS (%)

Note. ^aIndicates significant gender difference (at p<0.05).

HBSC survey 2009/2010

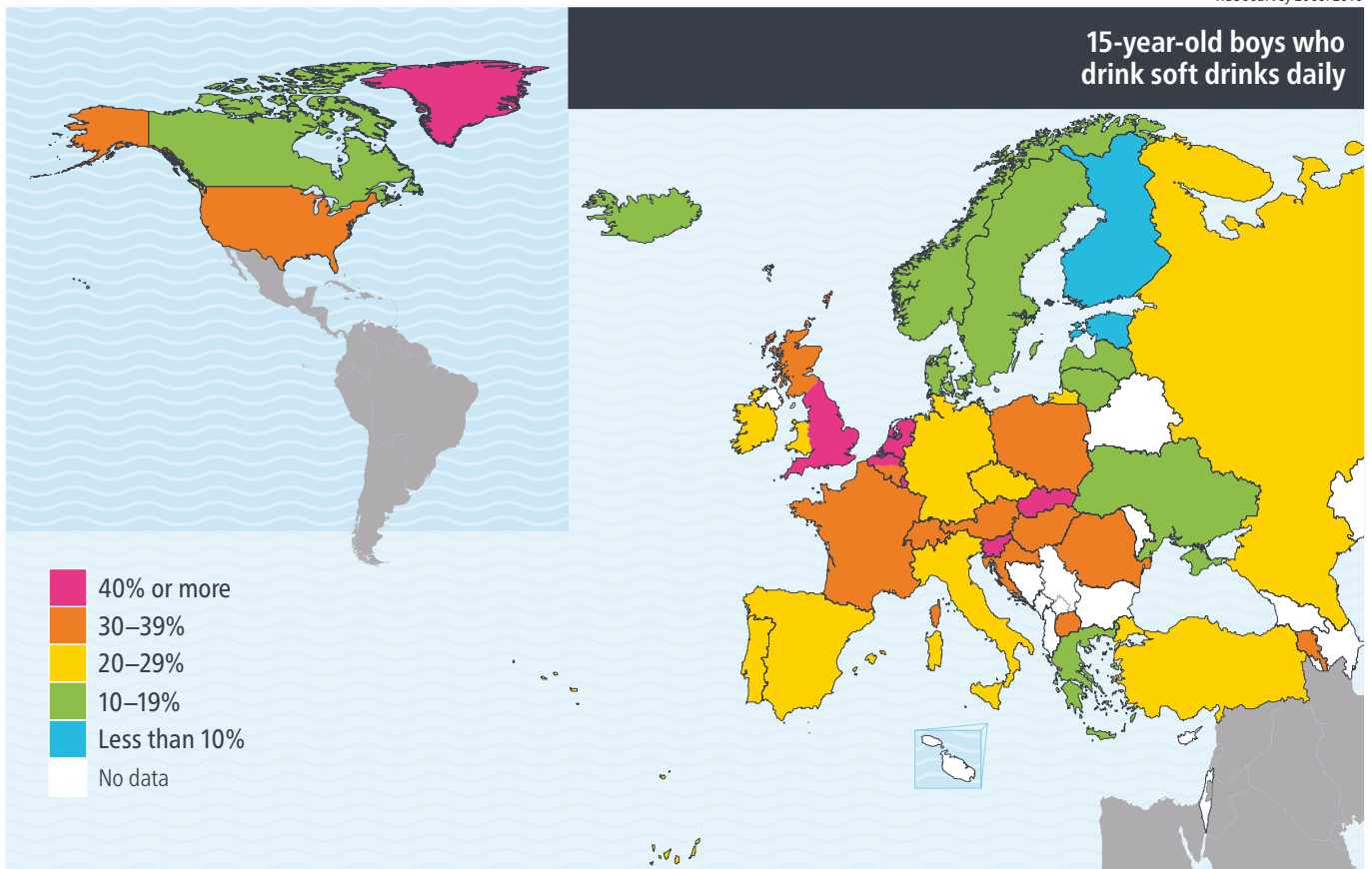
15-year-old girls who
drink soft drinks daily



Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

HBSC survey 2009/2010

15-year-old boys who
drink soft drinks daily



Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

EATING BEHAVIOUR: SCIENTIFIC DISCUSSION AND POLICY REFLECTIONS

SCIENTIFIC DISCUSSION

Breakfast consumption

Not eating breakfast is common among young people, particularly in the teenage years, which is consistent with previous findings (5). Contributing factors include increased autonomy over food choice among those in older age groups (19), reduced influence of the family environment (20) and increased prevalence of dieting among older girls.

Boys are more likely to eat breakfast, which may be attributed to gendered views of body weight (21). Girls tend to be more weight conscious, with skipping breakfast employed as a common weight-control strategy (22).

Family circumstances that allow the purchase of nutritious breakfast foods and provide a supportive home environment (20) may partially explain the positive association between breakfast consumption and family affluence. Variation across countries may be attributable to cultural practices around food and meal patterns that either encourage or discourage breakfast consumption and to socioeconomic factors (3).

Fruit consumption

Consistent with previous findings (6,23), age, gender and family affluence are related to fruit consumption. Age differences tend to be less consistently reported than those for gender or family affluence (6,23) and may reflect young people's assertion of independence from their parents, specifically around food choices (24). In relation to gender differences, it has been suggested that girls eat fruit more often because they are in general more health conscious (25).

The relationship with family affluence may partly result from the pricing structure of fruits in comparison with higher-energy, less healthy alternatives. Fruits provide less energy per monetary unit and may therefore not be considered affordable by families on lower incomes (26). In addition, health promotion initiatives tend to be more readily adopted by people with higher SES (27).

There is no clear geographic patterning, but different diets across regions could contribute to cross-national variation.

Soft-drink consumption

Soft-drink consumption is higher among boys. Gender differences may be attributable to girls' greater focus on weight control and commitment to healthy eating (25). Females are also more likely to be responsible for buying and preparing food, even at a young age, and may therefore use their knowledge to make healthier choices (25). Boys have a higher energy requirement, which may direct them towards more energy-dense foods (28).

The increasing prevalence of soft-drink consumption with age might be due to teenagers' greater opportunities to select and purchase their own food and drinks outside the home (29).

Lower family affluence tends to be associated with higher soft-drink consumption, but the pattern is reversed in eastern European countries and the Baltic states (30). Consumption in these countries may be considered an indicator of wealth.

The lowest levels of consumption are found in northern Europe and the Baltic states.

POLICY REFLECTIONS

Early and continued interventions are important, as eating habits developed in youth are likely to continue into adulthood (31). The findings highlight the need to recognize that positive health behaviours decline as young people grow older and that gender differences and low affluence are predictive of negative health behaviours (although this pattern is reversed in some countries). Policy-makers and practitioners should therefore consider the following.

- Young people's eating profiles change between ages 11 and 15, which suggests this is a key stage for interventions and that efforts need to be sustained.
- Gender differences highlight that boys and girls have different needs and tend to respond to interventions differently; for instance, boys are more likely to have daily breakfast when encouraged by parents while girls tend to do so if their peers eat healthily (32).
- Young people from low-affluence families typically have fewer opportunities to develop and maintain healthy eating habits.
- Notably, the family-affluence pattern is reversed in the Baltic states and eastern European countries. Strategies need to consider why unhealthy foods may be a symbol of wealth in these countries.

The family has a strong influence on young people's eating habits, suggesting that parents and caregivers need to be involved in interventions. Such interventions may consider how:

- parents who choose, prepare and present food for their children can be encouraged to consider healthy options (33); and
- public health policies can support family-friendly employment policies that facilitate family mealtimes as a means of developing positive eating behaviours (31).

In addition, school-based interventions are effective in promoting healthy eating habits by increasing fruit and vegetable intake through developing food preparation skills, introducing foods with taste-testing sessions and using peer education. Programmes actively involve students, teachers, parents, food-service staff, youth and service organizations, and local industry (fruit and vegetable producers and shops) in the design and development of school nutrition policies (34).

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ORAL HEALTH

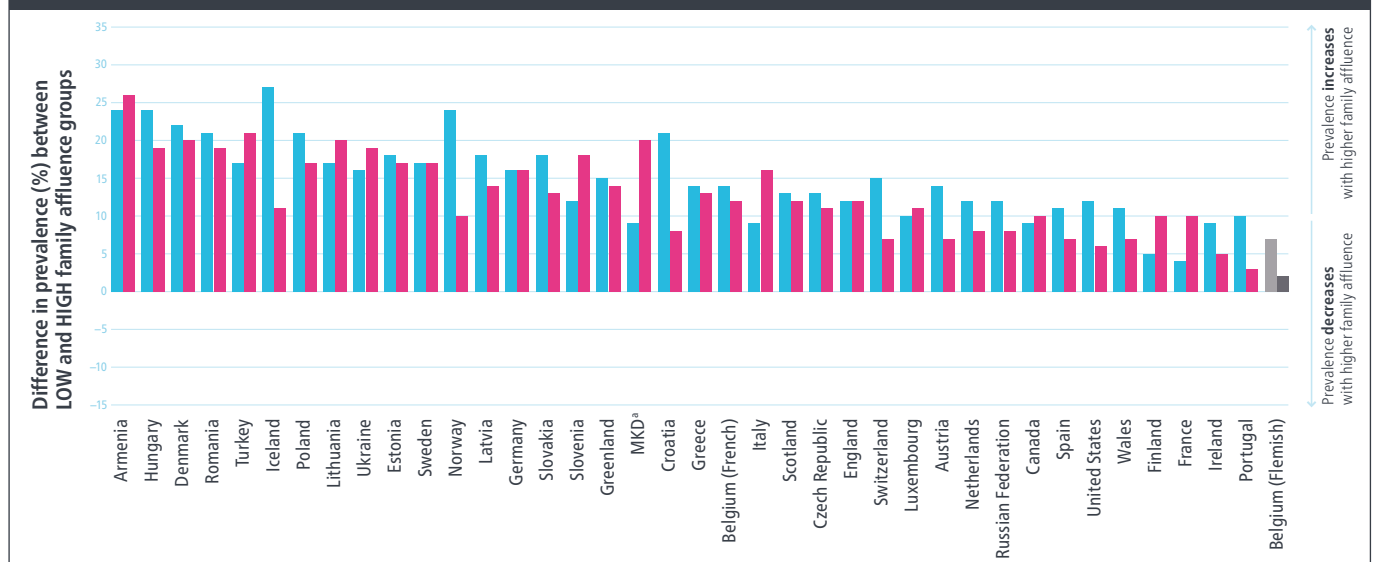
Oral health is essential to general health and well-being (1). Improvements in young people's oral health were observed in the latter half of the 20th century across most developed countries, although they have levelled off, leaving stable but low rates of dental caries (2). Social disparities in oral health have nevertheless widened across low-, middle- and high-income countries (3). Oral diseases, dental caries and periodontal diseases are the most common of all chronic infections, causing pain and discomfort, reducing quality of life and being expensive to treat (3–5).

Those who brush their teeth more than once a day by 12 years of age are more likely to continue to do so throughout their teenage years and into adulthood (6). Family factors such as parental modelling, routines and relationships have been associated with tooth-brushing frequency (7), as have school health-promotion initiatives (8).

HBSC survey 2009/2010

Associations between family affluence and indicators of health, by country/region and gender:
BRUSHING TEETH MORE THAN ONCE A DAY

BOYS
GIRLS SIGNIFICANT TRENDS



^a The former Yugoslav Republic of Macedonia.

MEASURE

Young people were asked how often they brushed their teeth. Response options ranged from "never" to "more than once a day". The findings presented here are the proportions who reported brushing their teeth more than once a day.

RESULTS

Age

Prevalence of tooth brushing more than once a day was significantly greater for 15-year-old girls than among those aged 11 in most countries and regions, and significantly lower among 15-year-old boys than 11-year-olds. Differences between these age groups were in the region of 5–15%.

Gender

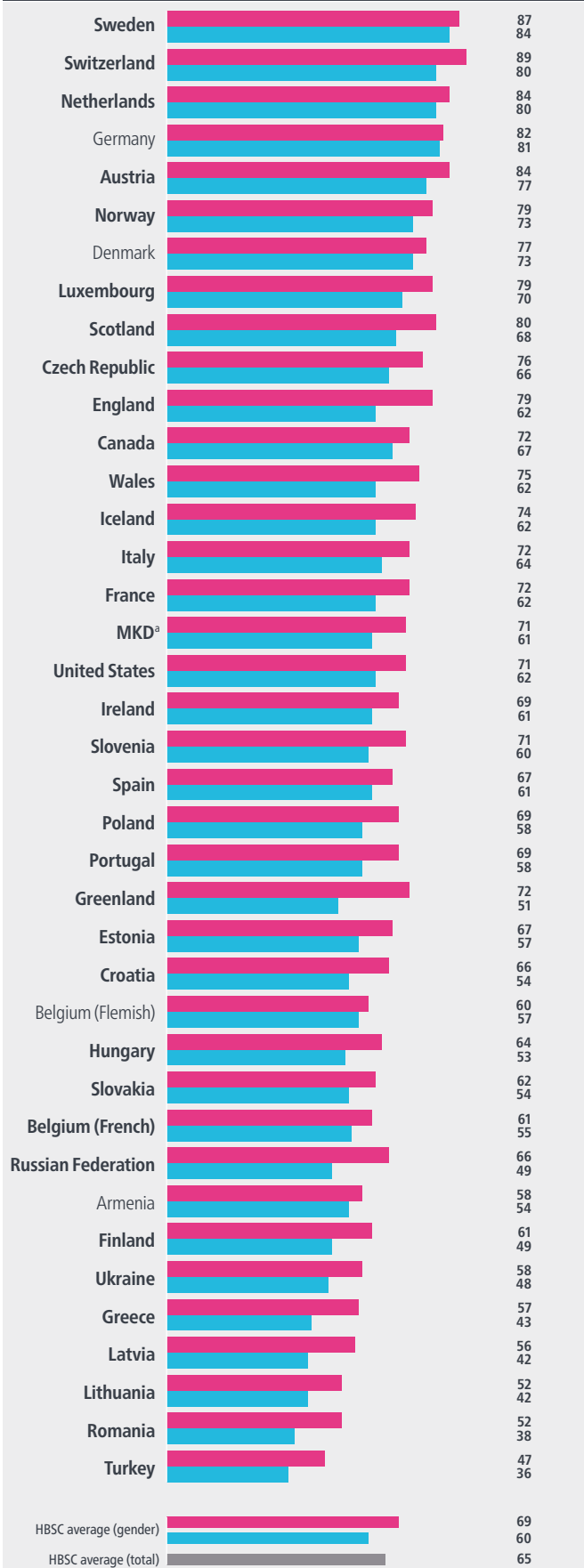
More girls brushed their teeth more than once a day across all three age groups. The gender difference was significant in almost all countries and regions across all age groups, and increased with age, being over 15% for 15-year-olds.

Family affluence

There was a significant and positive association with family affluence in almost all countries and regions. The difference in prevalence between high- and low-affluence families exceeded 10% in three quarters of countries and regions for boys and in most for girls.

11-year-olds who brush their teeth more than once a day

GIRLS (%)
BOYS (%)

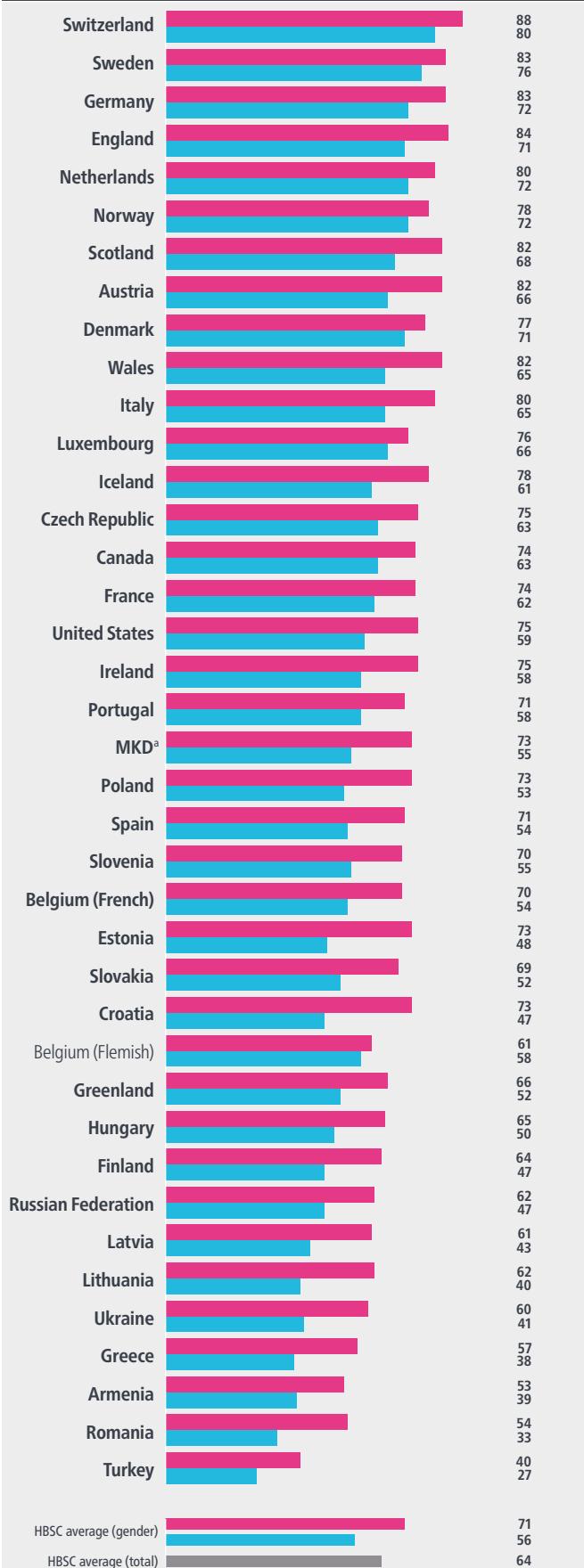


^a The former Yugoslav Republic of Macedonia.

HBSC survey 2009/2010

13-year-olds who brush their teeth more than once a day

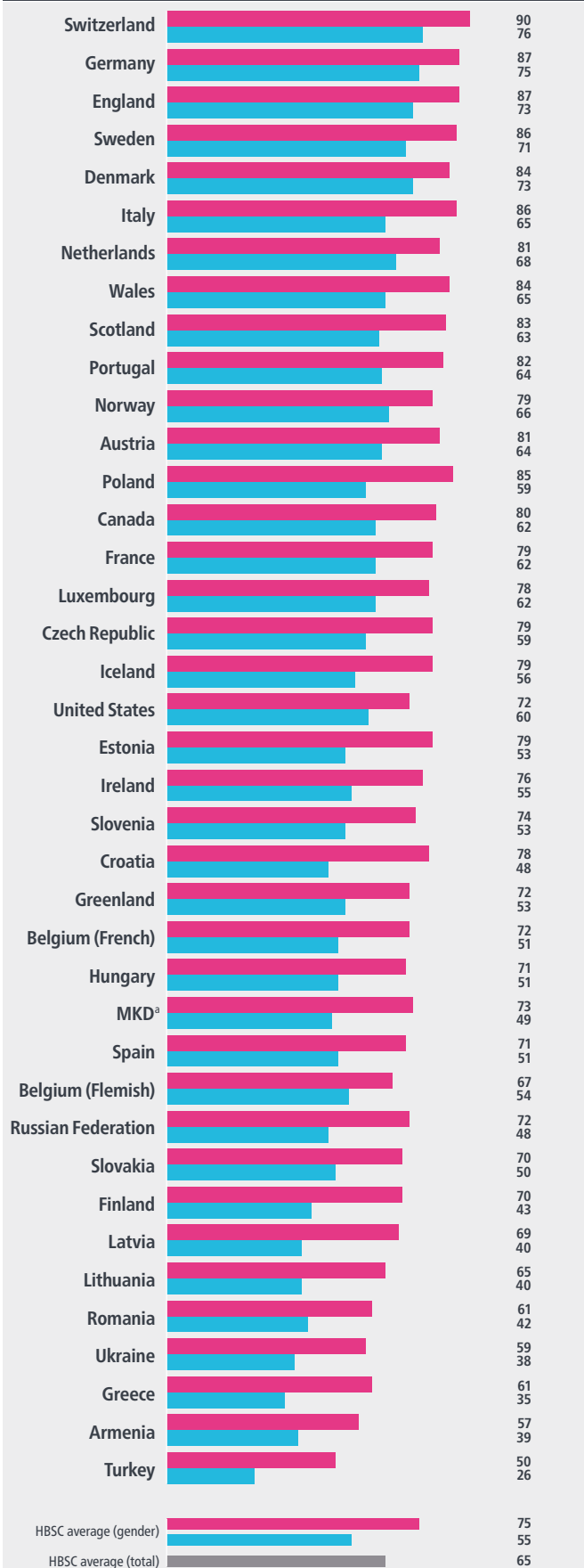
GIRLS (%)
BOYS (%)



HBSC survey 2009/2010

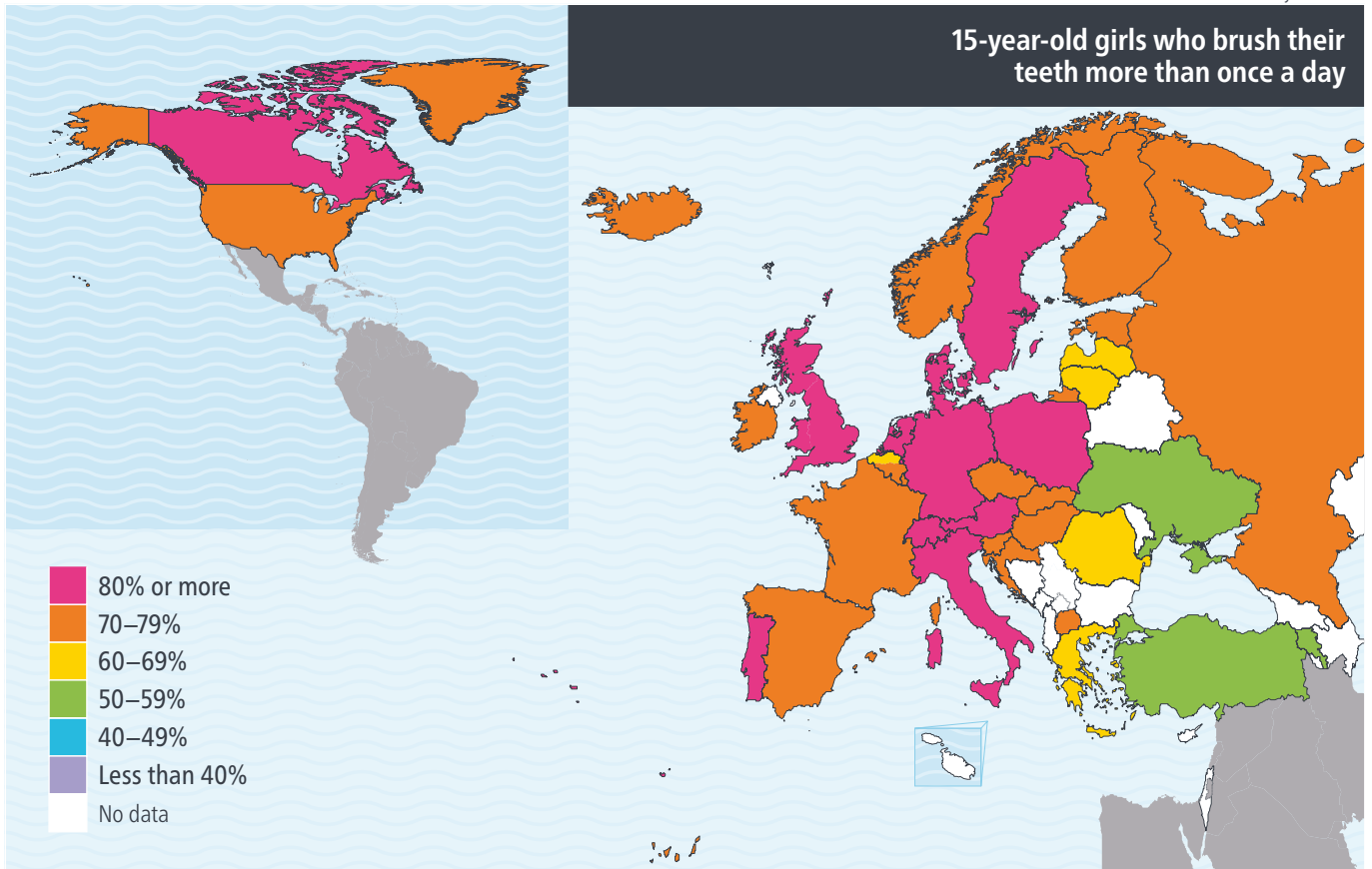
15-year-olds who brush their teeth more than once a day

GIRLS (%)
BOYS (%)



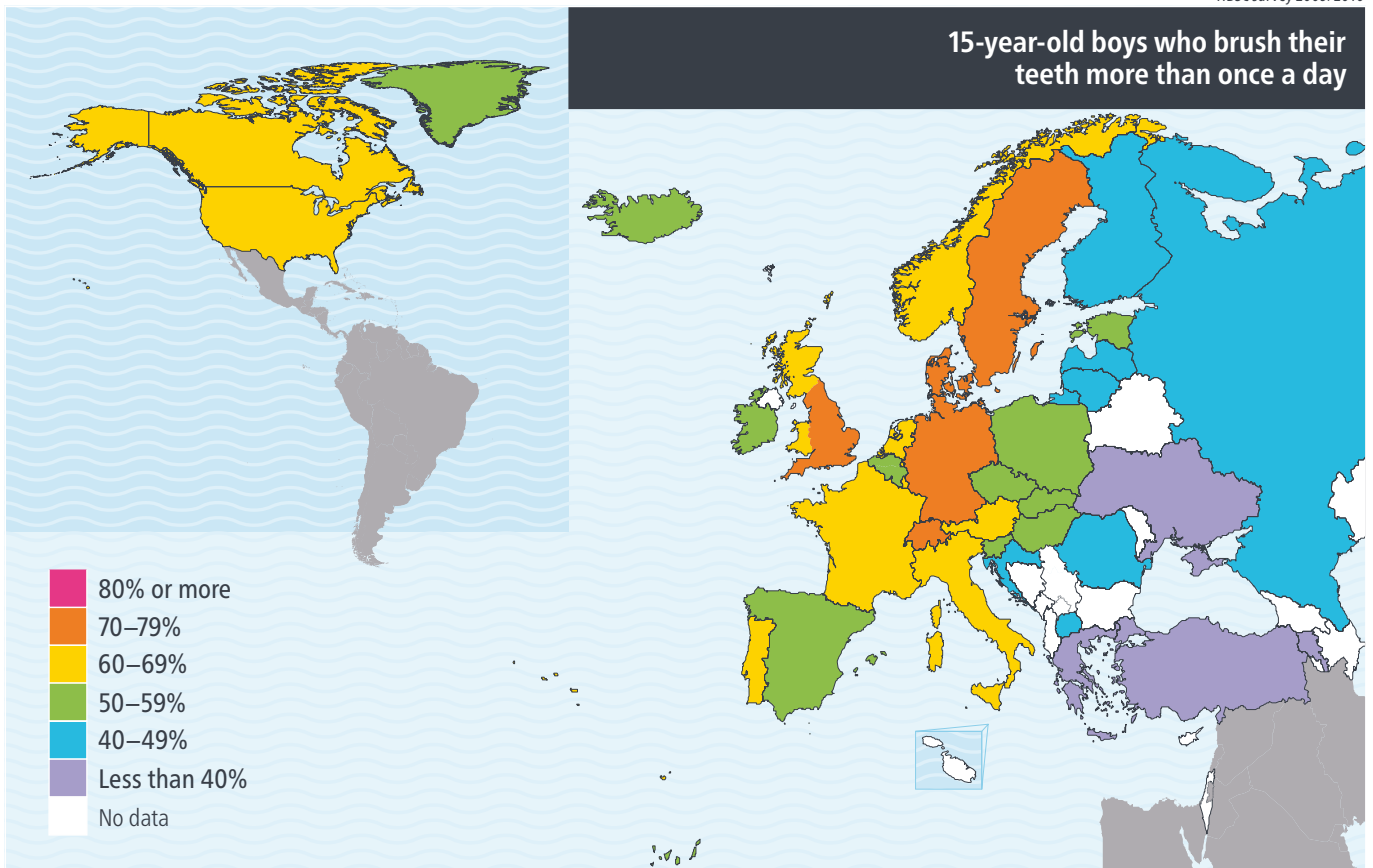
Note. ^aIndicates significant gender difference (at p<0.05).

HBSC survey 2009/2010



Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

HBSC survey 2009/2010



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ORAL HEALTH: SCIENTIFIC DISCUSSION AND POLICY REFLECTIONS

SCIENTIFIC DISCUSSION

The results confirm earlier findings that girls brush their teeth more frequently, perhaps due to higher concerns about their health and appearance. The gender difference in association with age, with greater prevalence among older girls and younger boys, is interesting and unexpected. The age difference in boys may reflect more recent implementation of school and community oral-health initiatives directed at the early years, but further research on this finding is required.

Brushing more regularly is associated with higher family affluence. This reflects previous research showing that caries experience is highest among children of low-income families (1,9) and those living in low-SES areas (8).

Recommended tooth brushing seems to be more common in higher-affluence north-western countries than in eastern and southern Europe. These effects could be linked to national health policies.

A recent study in Scotland showed that home routines and good parent–child communication are associated with more regular tooth brushing among adolescents, suggesting that familial factors may have a protective effect on oral health behaviours (7).

POLICY REFLECTIONS

Oral diseases can be prevented by brushing teeth twice a day with fluoride toothpaste (10) and by limiting the frequency of sugar consumption (11). HBSC findings highlight oral health inequalities, indicating that policy-making should focus on initiatives that target boys and low-affluence groups. Specific action on inequalities may include:

- using a gender perspective when promoting access to oral and dental health services (12);
- ensuring health promotion campaigns reflect how boys may respond differently to oral health care messages and aim to identify what motivates boys to brush their teeth (12); and
- recognizing how protective factors, such as the family, may help to offset socioeconomic inequalities.

Low-frequency tooth brushing tends to be accompanied by smoking, unhealthy eating patterns and low levels of physical activity (13), so it may be useful to integrate oral-disease prevention into general health-promotion programmes (3). The “common risk- factor approach” (14) is an effective basis for designing such programmes, with the health-promoting schools initiative (15) providing a useful platform for interventions.

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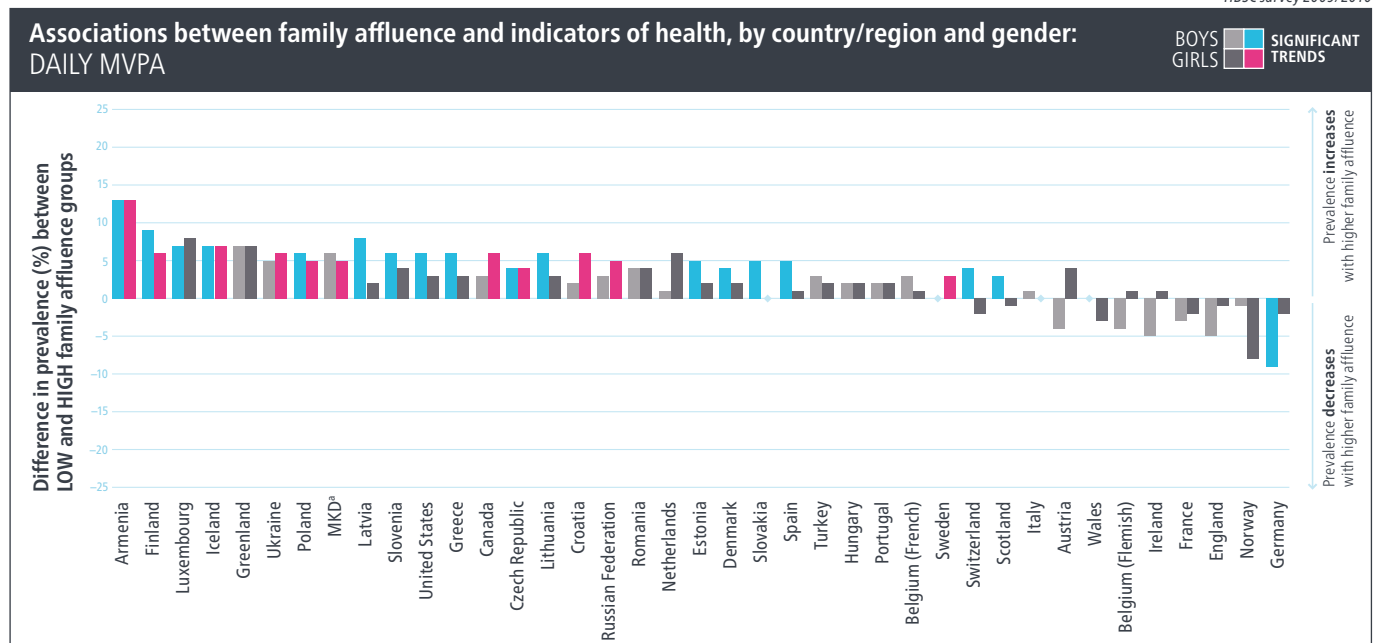
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ENERGY EXPENDITURE: MODERATE-TO-VIGOROUS PHYSICAL ACTIVITY

Physical activity is essential for long- and short-term physical and mental health outcomes (1–4) and may improve academic and cognitive performance (4–6). It is associated with increased musculoskeletal and cardiovascular health and reduced anxiety and depression among young people (5). Good physical-activity habits established in youth are likely to be carried through into adulthood (1,3), while lower physical-activity levels and excess sedentary behaviour are associated with obesity, a serious public health issue in North America and Europe (7).

Based on their extensive review of the literature, Strong et al. (5) recommended that children participate in at least 60 minutes of moderate-to-vigorous physical activity (MVPA) daily. This minimum standard has been included in guidelines issued by some government and professional organizations, but evidence suggests that a significant proportion of young people do not meet it (8).

HBSC survey 2009/2010



^a The former Yugoslav Republic of Macedonia. ♦ Indicates less than +/- 0.5%.

MEASURE

Young people were asked to report the number of days over the past week that they were physically active for a total of at least 60 minutes per day. The question was preceded by explanatory text that defined MVPA as “any activity that increases your heart rate and makes you get out of breath some of the time”, offering country-specific examples of such activities.

RESULTS

Age

A significantly higher frequency of daily MVPA was found among boys aged 11 than those aged 15 in most countries and regions. This was also the case in all but three for girls, with a more pronounced decline by age 15. Age differences in prevalence were greater than 10% in more than a quarter of countries and regions.

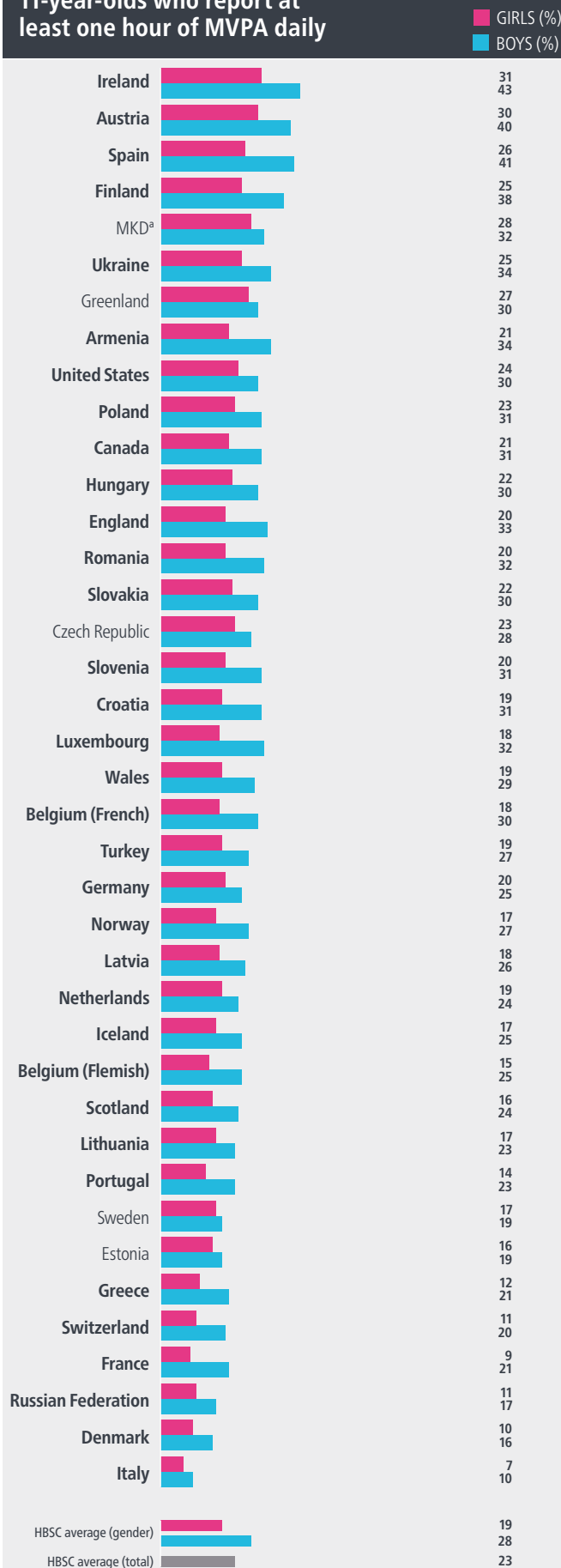
Gender

Boys were more likely to report getting at least 60 minutes of MVPA daily. Gender differences were significant in most countries and regions across all age groups.

Family affluence

Low affluence was significantly associated with lower prevalence in fewer than half of countries and regions, with the difference between those in low- and high-affluence households generally less than 10%.

11-year-olds who report at least one hour of MVPA daily

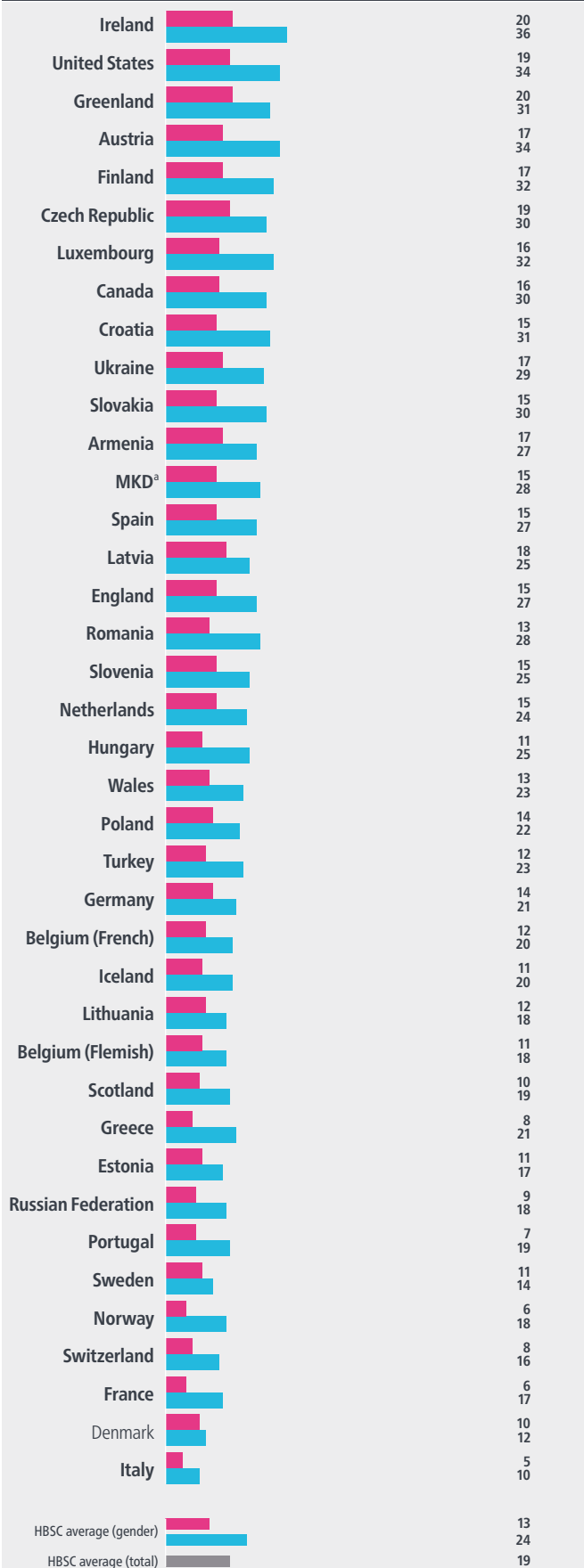


^a The former Yugoslav Republic of Macedonia.

HBSC survey 2009/2010

13-year-olds who report at least one hour of MVPA daily

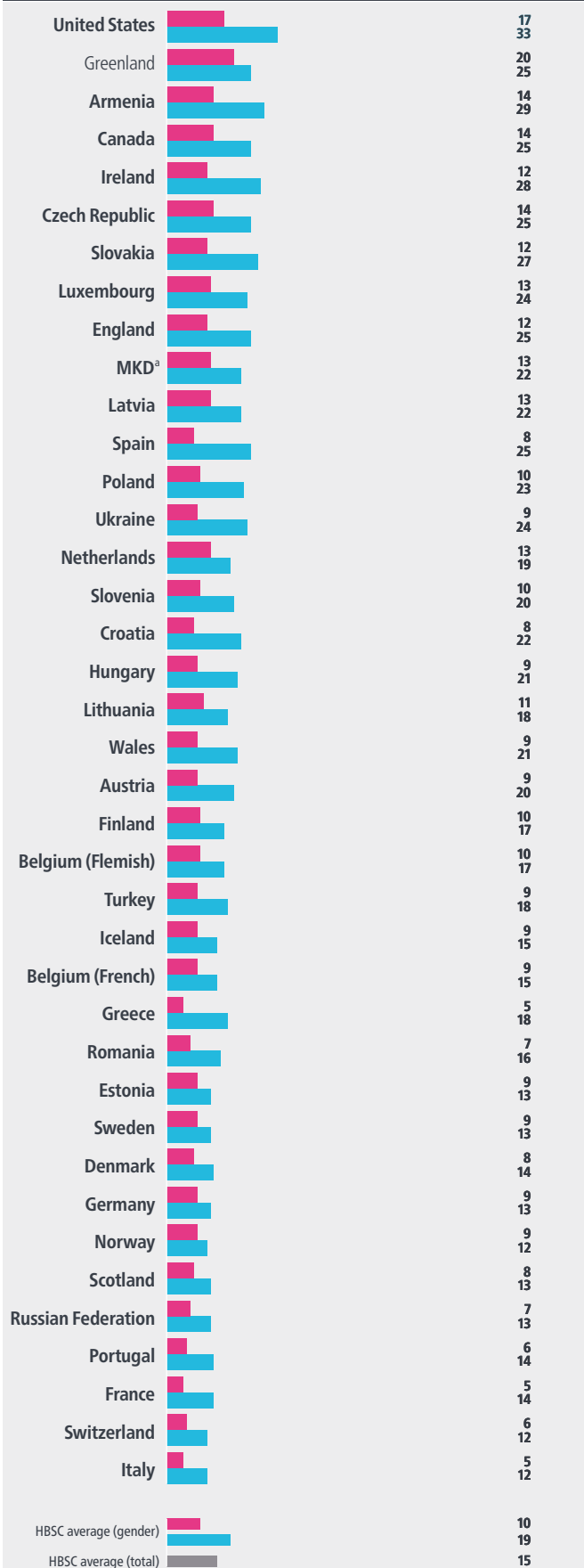
GIRLS (%)
BOYS (%)



HBSC survey 2009/2010

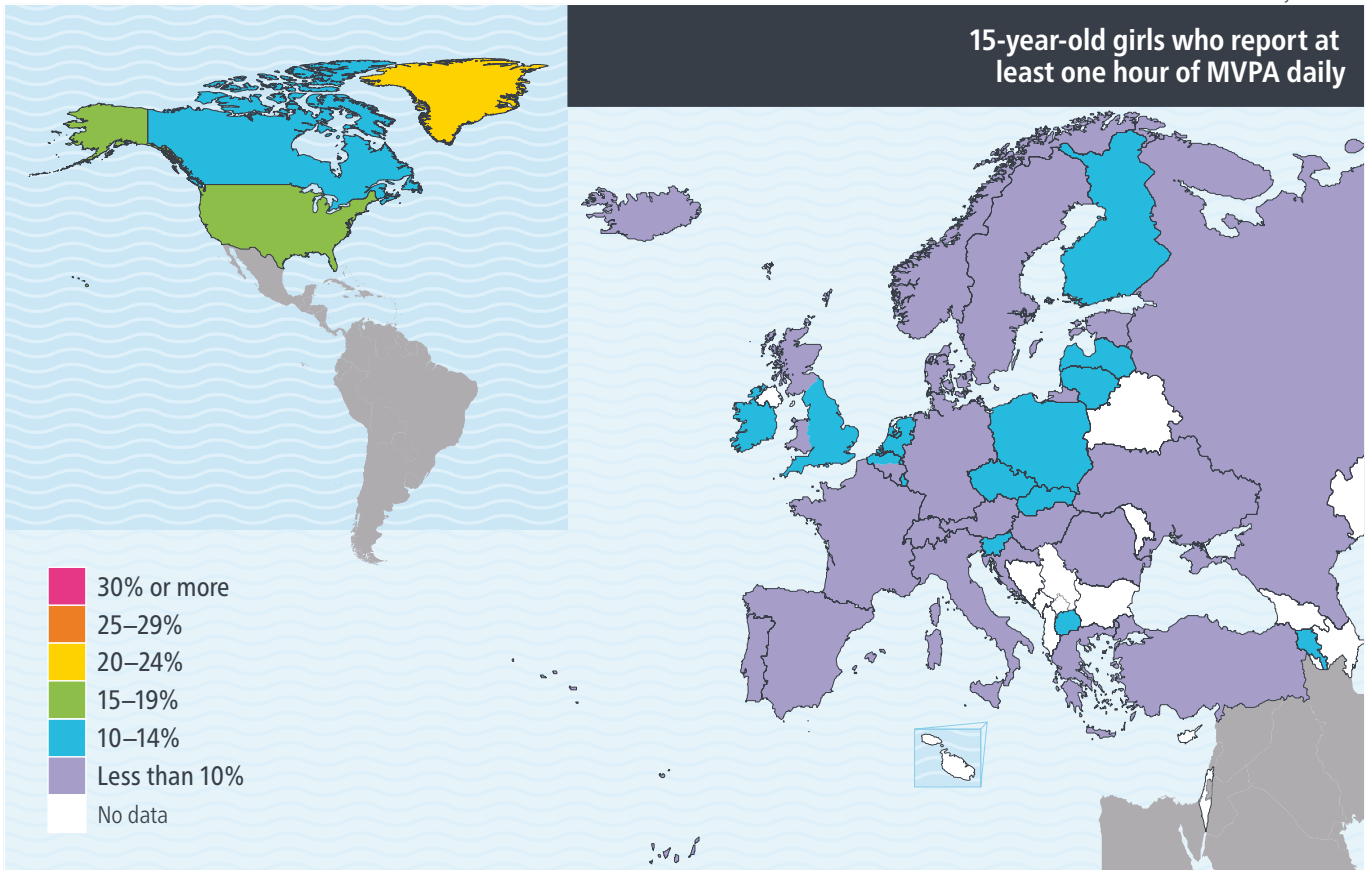
15-year-olds who report at least one hour of MVPA daily

GIRLS (%)
BOYS (%)

Note. ^aIndicates significant gender difference (at p<0.05).

HBSC survey 2009/2010

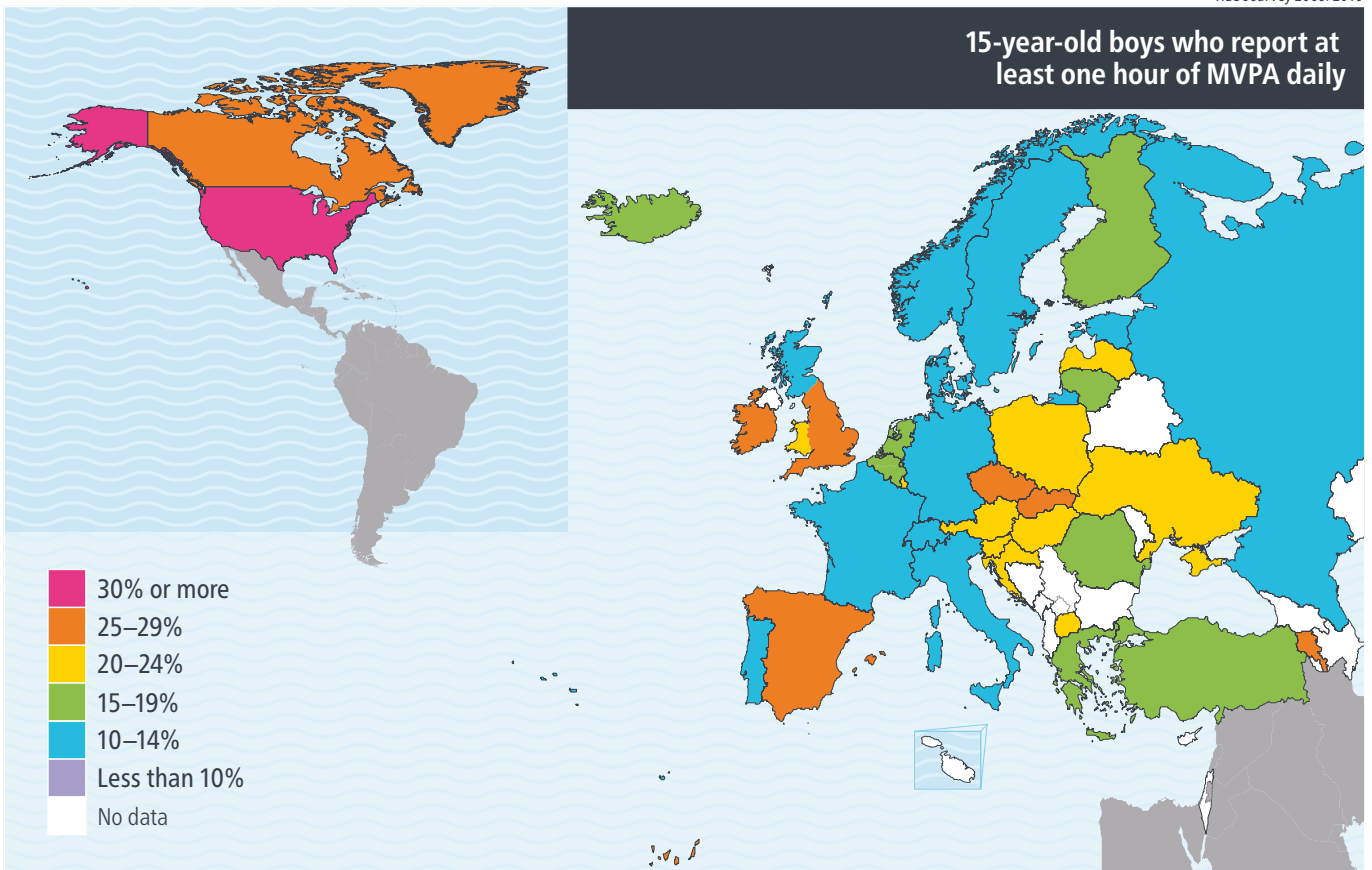
15-year-old girls who report at least one hour of MVPA daily



Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

HBSC survey 2009/2010

15-year-old boys who report at least one hour of MVPA daily



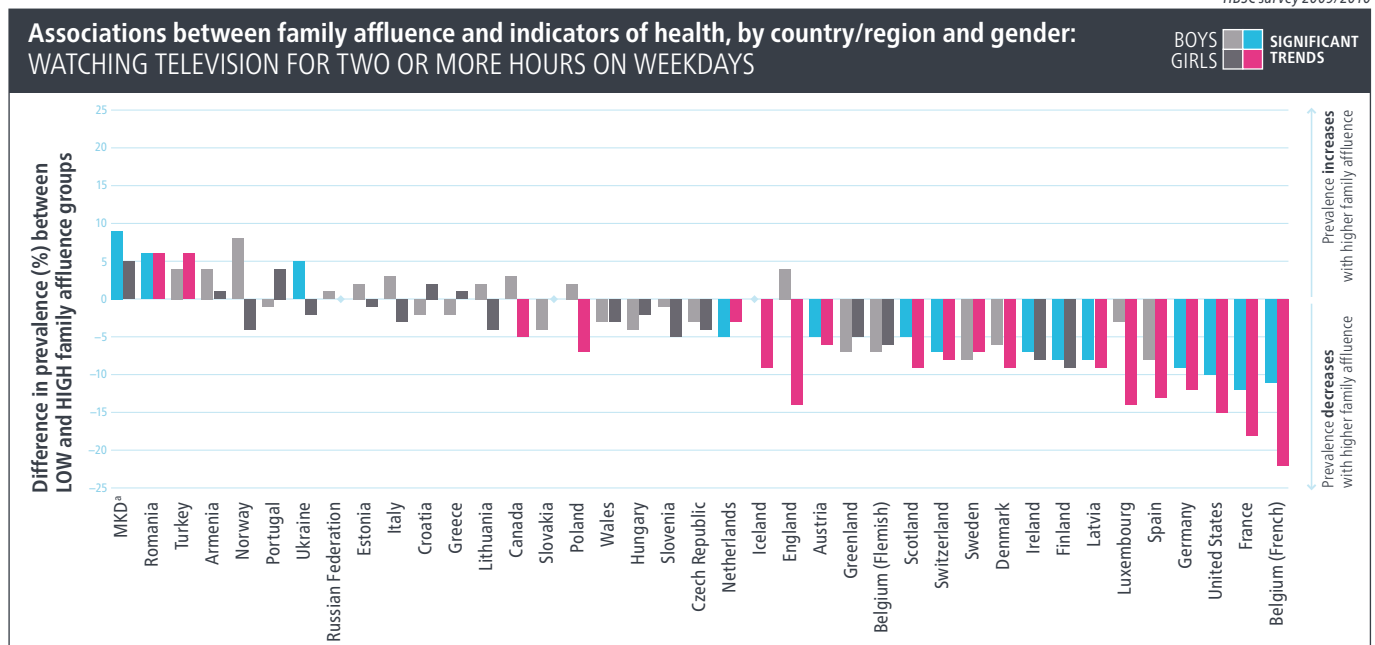
Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

ENERGY EXPENDITURE: SEDENTARY BEHAVIOUR, WATCHING TELEVISION

Sedentary behaviour refers to an absence of or minimal involvement in physical activity, and low energy expenditure (9). Although HBSC analyses show weak or no relationship with reduced physical activity (10,11), sedentary behaviour is a cardiovascular-disease risk factor independent of low physical-activity levels (12). In addition, screen-based sedentary behaviours have been related to other adverse health behaviours and negative health indices, such as substance use, health complaints and aggression (3,13).

Its effects are cumulative over the course of childhood, with television viewing during adolescence being associated with weight gain in adulthood (14). Interventions targeting sedentary behaviour in children result in weight reduction (15). Current recommendations suggest that children should have no more than 1–2 hours of high-quality television and/or screen time per day, but most exceed these limits (16).

HBSC survey 2009/2010



MEASURE

Young people were asked how many hours per day they watch television (including videos and DVDs) in their spare time on weekdays and at weekends. The findings presented here are the proportions who reported watching television for two or more hours every weekday.

RESULTS

Age

Prevalence of television viewing was significantly higher for 15-year-olds than 11-year-olds in just under half of countries and regions for boys and in most for girls. The difference was more than 10% in a few.

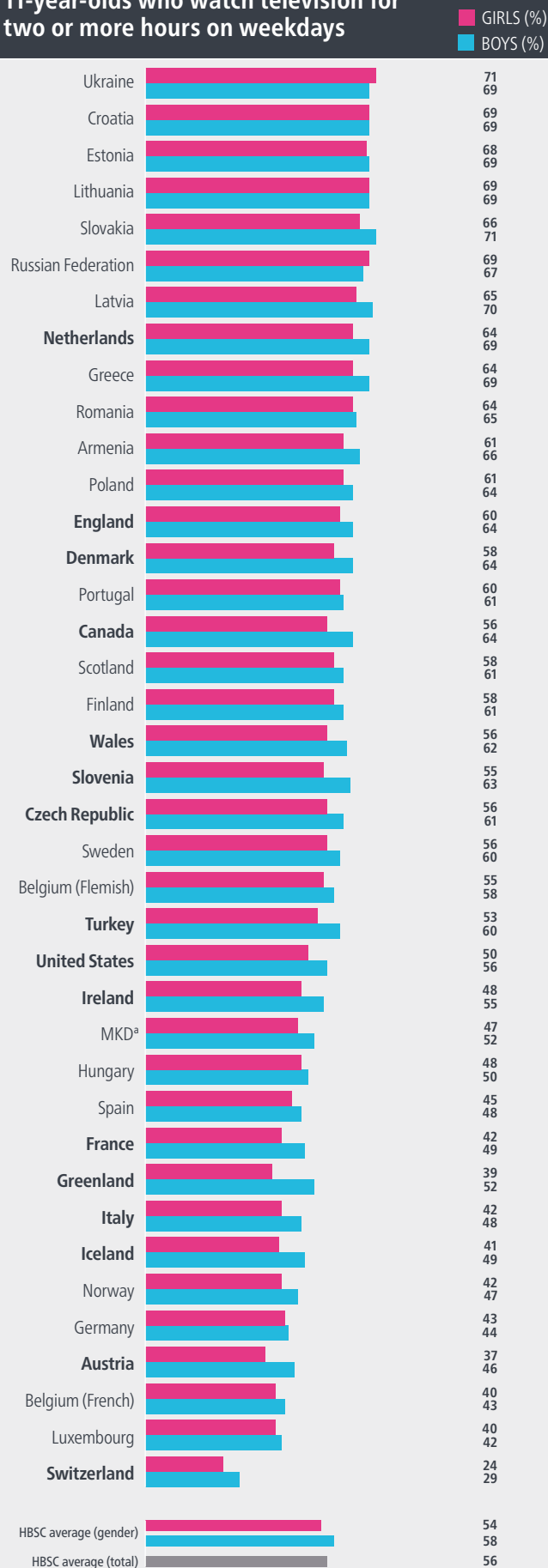
Gender

Boys were significantly more likely to report it in just under half of countries and regions at age 11, and in a few at ages 13 and 15. Gender differences were not large: usually less than 10%.

Family affluence

Differences associated with family affluence tended to be modest: less than 10%. Higher prevalence was associated with lower family affluence in just under half of countries and regions for girls and in around a third for boys.

11-year-olds who watch television for two or more hours on weekdays

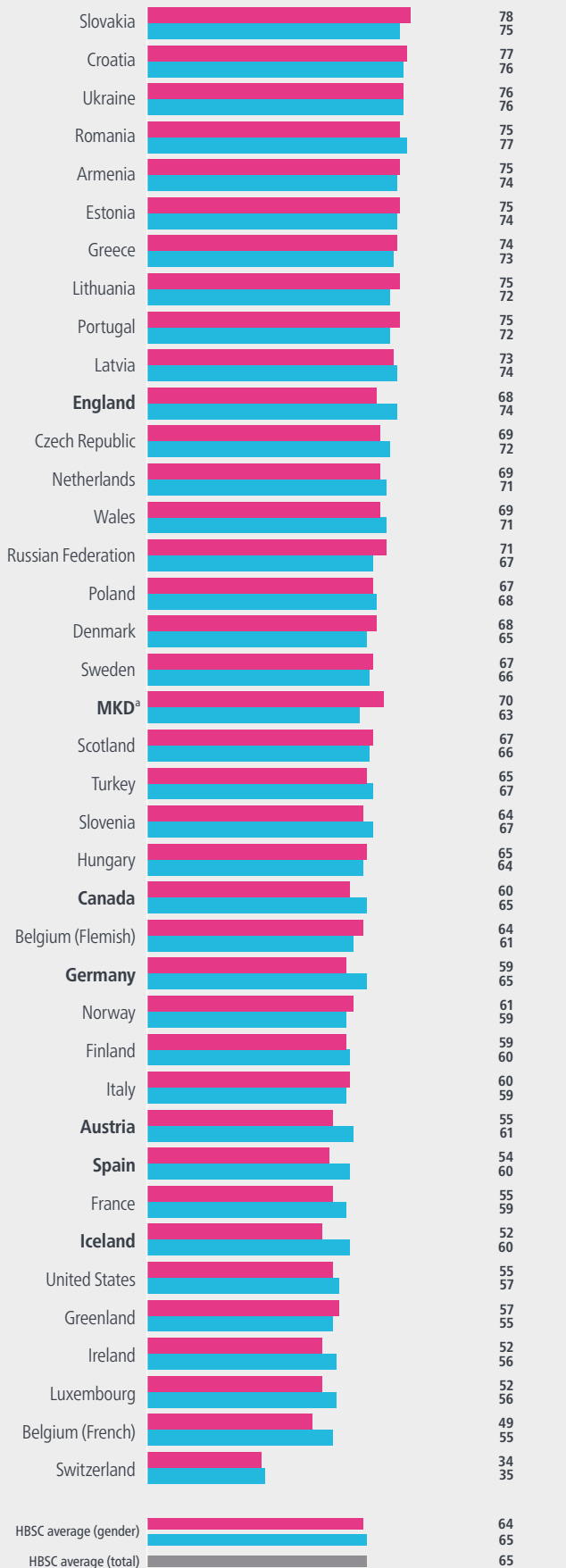


^a The former Yugoslav Republic of Macedonia.

HBSC survey 2009/2010

13-year-olds who watch television for two or more hours on weekdays

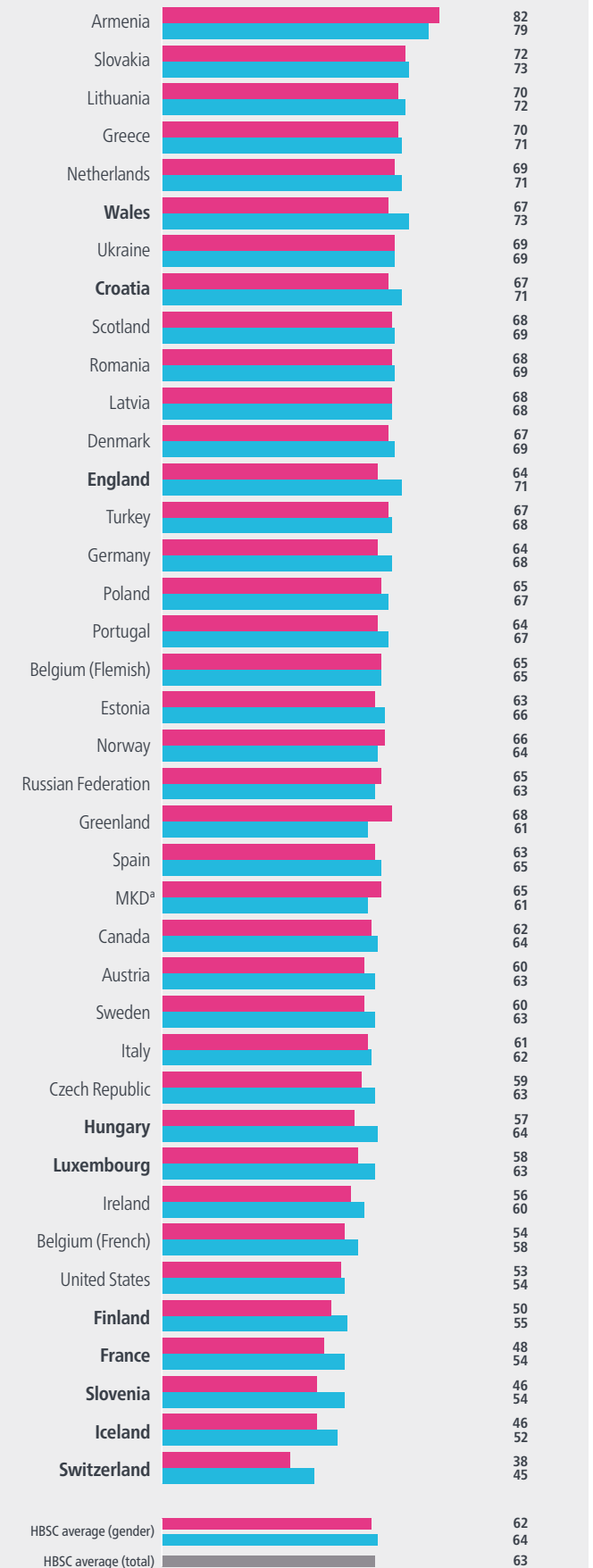
■ GIRLS (%)
■ BOYS (%)



HBSC survey 2009/2010

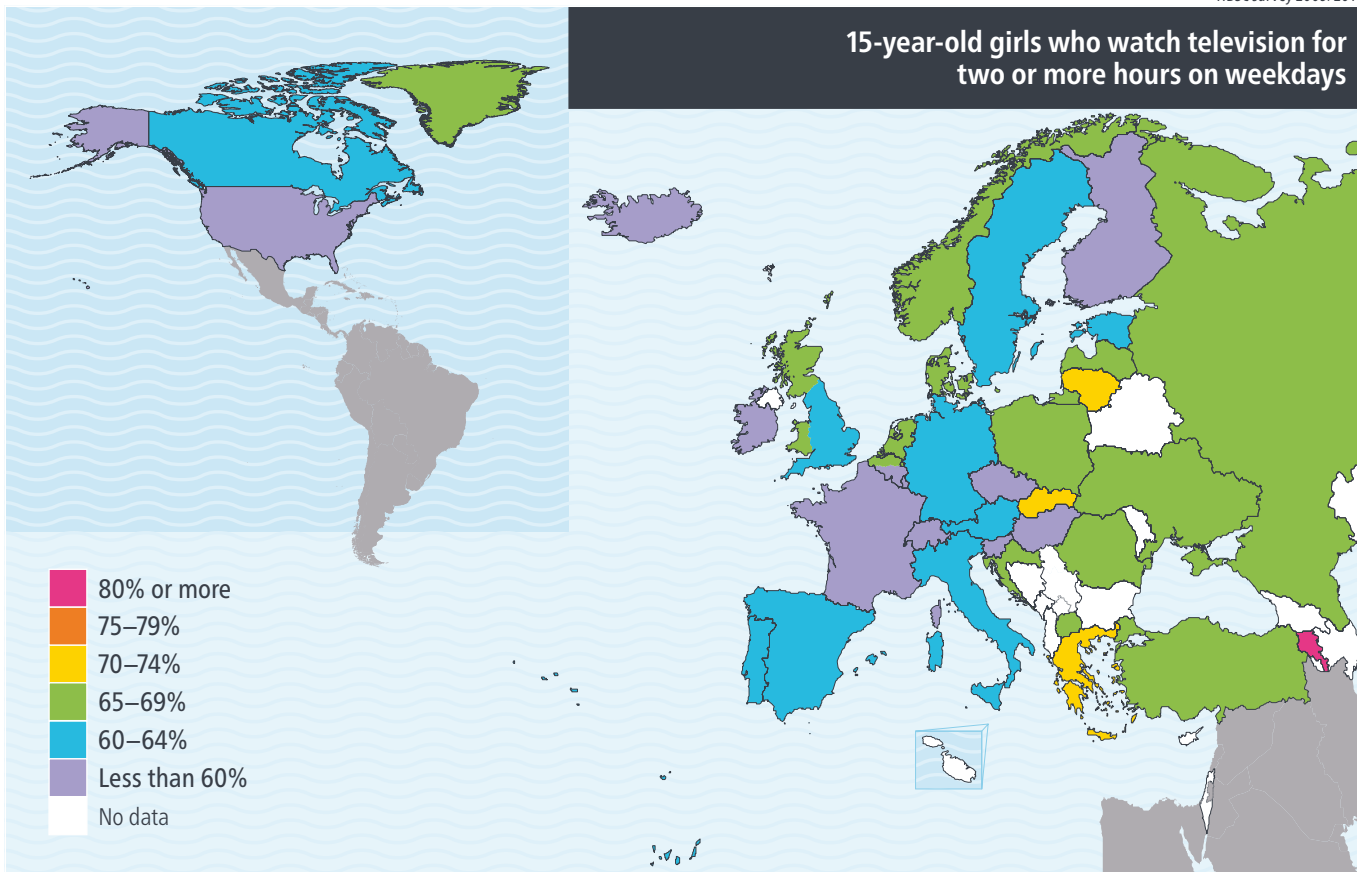
15-year-olds who watch television for two or more hours on weekdays

■ GIRLS (%)
■ BOYS (%)



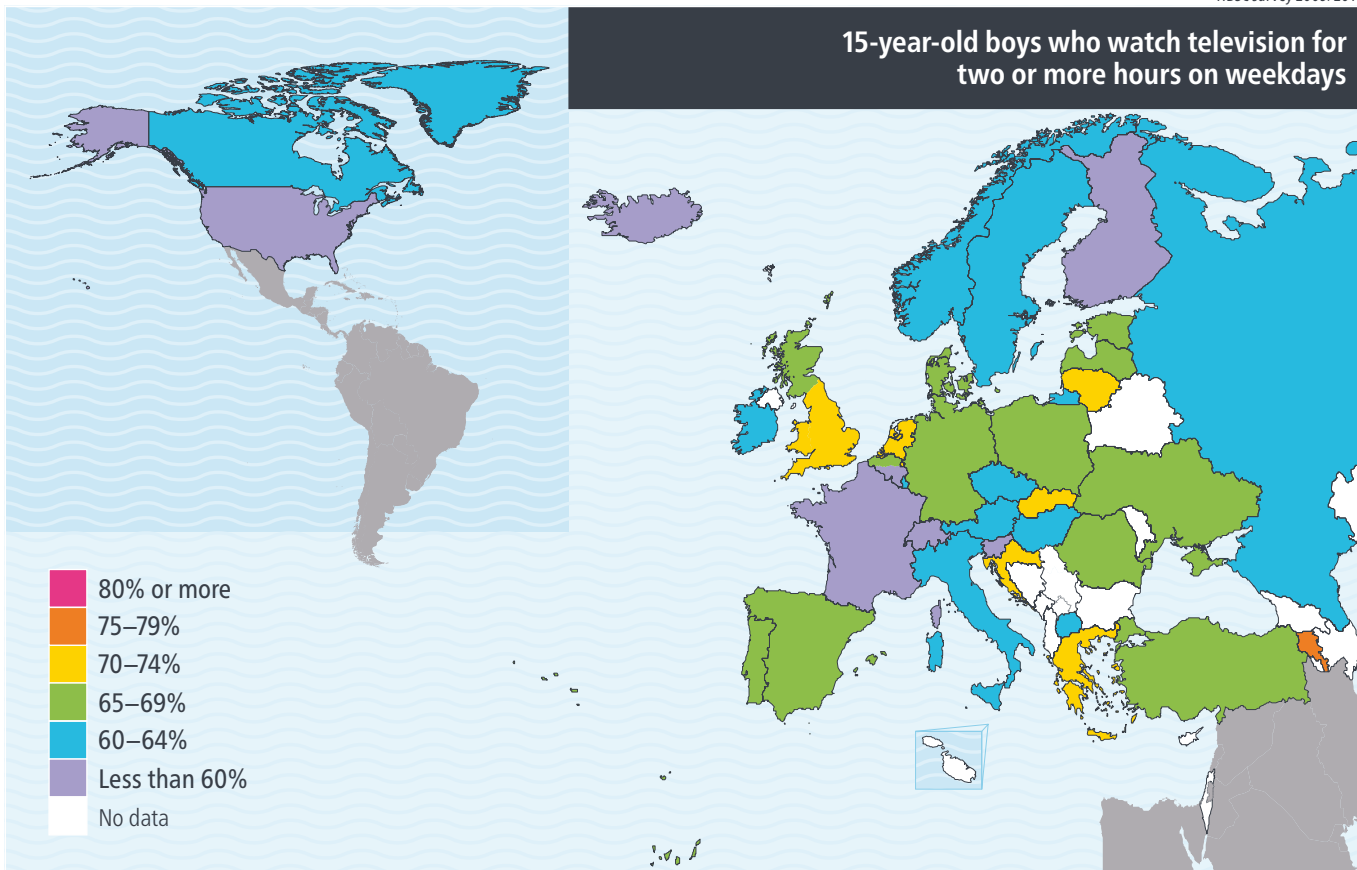
Note. **Indicates** significant gender difference (at $p < 0.05$).

HBSC survey 2009/2010



Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

HBSC survey 2009/2010



Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

ENERGY EXPENDITURE: SCIENTIFIC DISCUSSION AND POLICY REFLECTIONS

SCIENTIFIC DISCUSSION

Physical activity levels significantly decrease between ages 11 and 15. This may reflect change in the types of physical activity undertaken by each age group: free play is more common in younger children, while older groups tend to participate in more structured activities in sports clubs or through school-based physical education (1).

Boys continue to be significantly more active than girls in most countries, suggesting that opportunities to participate in MVPA may be gender biased in favour of boys. Activities that centre on competition and capability capture boys' interests, while girls focus more on health and fitness. Girls are also more likely to have low perceptions of neighbourhood safety, which presents another barrier to participation (17).

No clear geographic patterns are apparent, but policies and guidelines may explain some country differences. For example, in Italy, a country with relatively low levels of daily MVPA, physical-education reform has resulted in fewer physical-education teachers; higher levels are found in Finland, where recommendations for MVPA exceed WHO guidelines (18). Policy context could also partly explain why family affluence predicts MVPA in countries where fee structures may prohibit access to facilities for those from less-affluent households.

Relationships between social determinants and sedentary behaviour are less clear. Family affluence and gender do not seem to be strong predictors, but rates appear to increase across the age groups in around half of countries and regions. Lack of variation is probably to be expected, given that most young people have access to television and report regular viewing.

POLICY REFLECTIONS

The findings underline the need for policy interventions to increase physical activity, especially among older age groups, girls and low-affluence groups. Policy-makers and practitioners should seek to identify what prevents and what motivates participation. Factors that ensure equitable access include:

- providing a range of activities that appeal specifically to girls;
- ensuring activities are free or affordable, with provision of free or low-cost transportation to the venue;
- involving young people in programme design to identify barriers to participation;
- ensuring a safe local environment in which children can actively travel and play (9); and
- educating the public through the mass media to raise awareness and change social norms around physical activity (9).

It is important to encourage and embed physical activity in the younger years so that participation can continue across the lifespan. Useful interventions include:

- engaging parents in supporting and encouraging their children's physical activity (19,20);
- providing multisite interventions using a combination of school-based physical education and home-based activities (19,20);
- developing school policies that promote highly active physical education classes, suitable physical environments with resources to support structured and unstructured physical activity throughout the day and active travel programmes (9);
- promoting interventions that recognize the positive influence of peers (20);
- promoting interventions that are specifically designed to increase physical activity rather than a range of health behaviours (20); and
- monitoring television or video-game use (19).

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