

CHAPTER 3. HEALTH OUTCOMES

POSITIVE HEALTH
MEDICALLY ATTENDED INJURIES
BODY WEIGHT



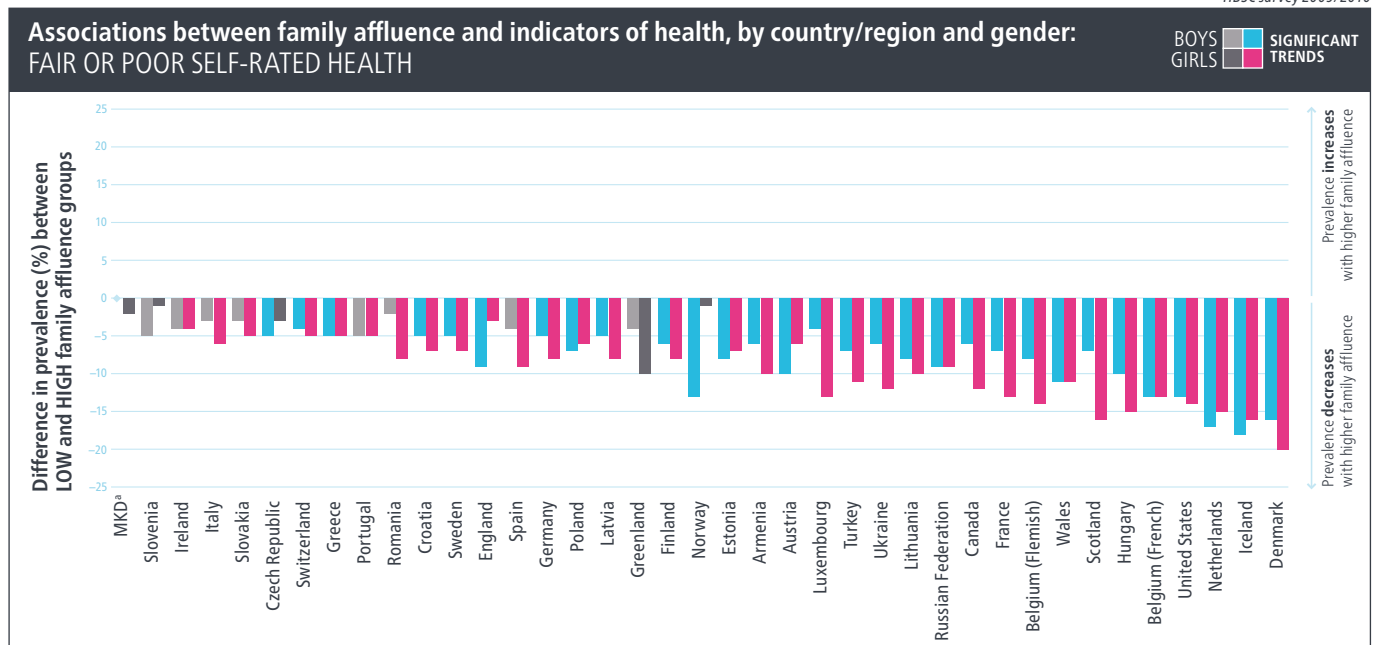
POSITIVE HEALTH: SELF-RATED HEALTH

Being in good physical and emotional health enables young people to deal with the challenges of growing and eases their transition to adulthood (1).

Self-rated health is a subjective indicator of general health. Young people's appraisal of their health is thought to be shaped by their overall sense of functioning, including physical and non-physical health dimensions (2), and is associated with a broad range of health indicators: medical, psychological, social and health behaviours (3). Subjective health indicators within adult populations are strongly related to use of health-care services, mortality and morbidity (4).

Background characteristics that predict poor self-rated health include a non-intact family structure, poor communication with parents (5–7) and low family affluence. Cultural status is also significant: migrant status, level of education and access to education, health and social services (8).

HBSC survey 2009/2010



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

MEASURE

Young people were asked to describe their health ("would you say your health is ...?"), with response options of "excellent", "good", "fair" and "poor". The findings presented here show the proportions who reported their health as either "fair" or "poor."

RESULTS

Age

Older children were more likely to report fair or poor health, with the increase in prevalence being significant in most countries and regions for girls and around half for boys. The change for girls across all age groups was more than 10% in most countries and regions, with smaller changes for boys.

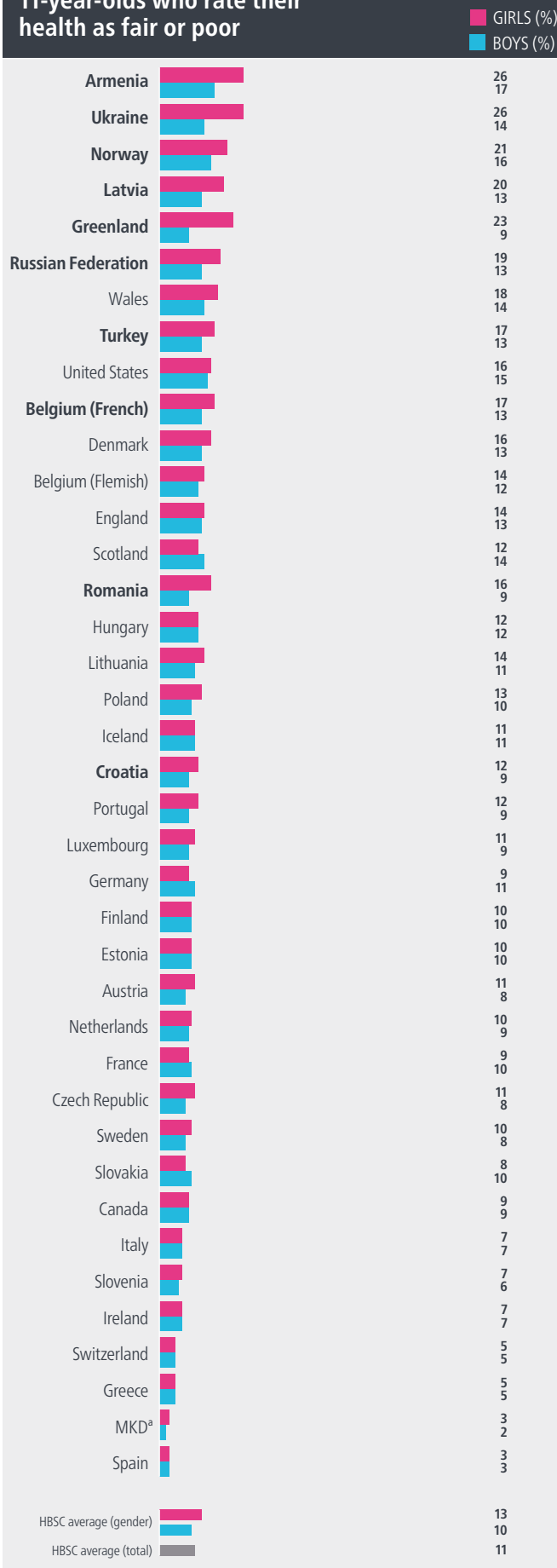
Gender

Girls reported it more frequently. Gender differences at age 11 were significant only in a minority of countries and regions, but in most for 13-year-olds and in almost all for 15-year-olds. The size of gender differences increased with age and was greater than 10% in around half of countries and regions at age 15.

Family affluence

Low family affluence was significantly associated with poorer health in most countries and regions for both genders. The difference between low- and high-affluence families was more than 5% for girls in almost all countries and regions, and more than 10% in just under half. Differences were present in fewer countries and regions for boys.

11-year-olds who rate their health as fair or poor



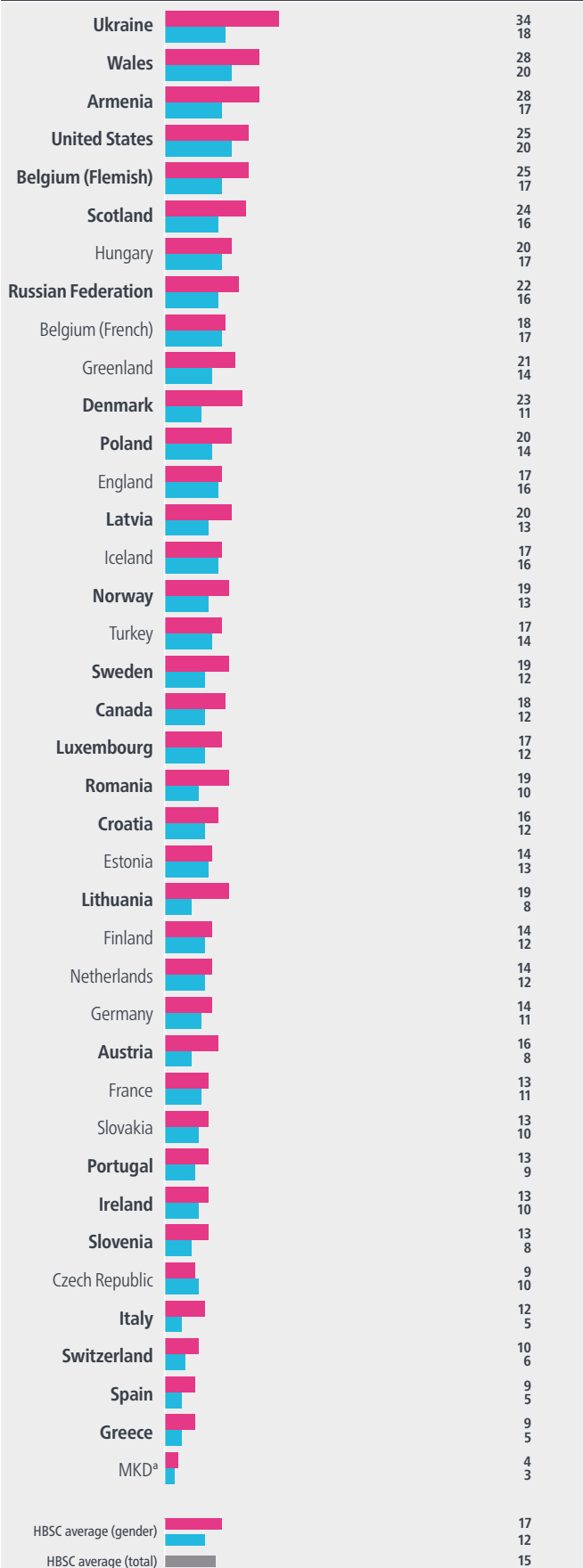
^a The former Yugoslav Republic of Macedonia.

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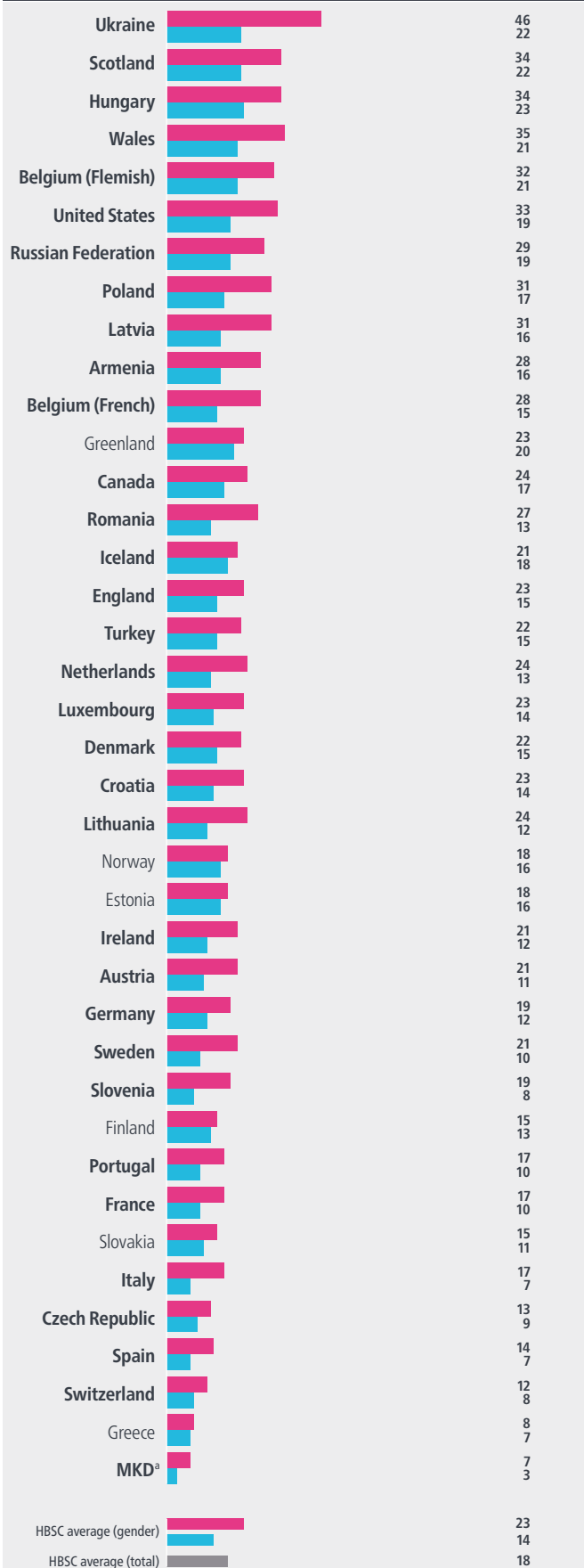
13-year-olds who rate their health as fair or poor

■ GIRLS (%)
■ BOYS (%)



15-year-olds who rate their health as fair or poor

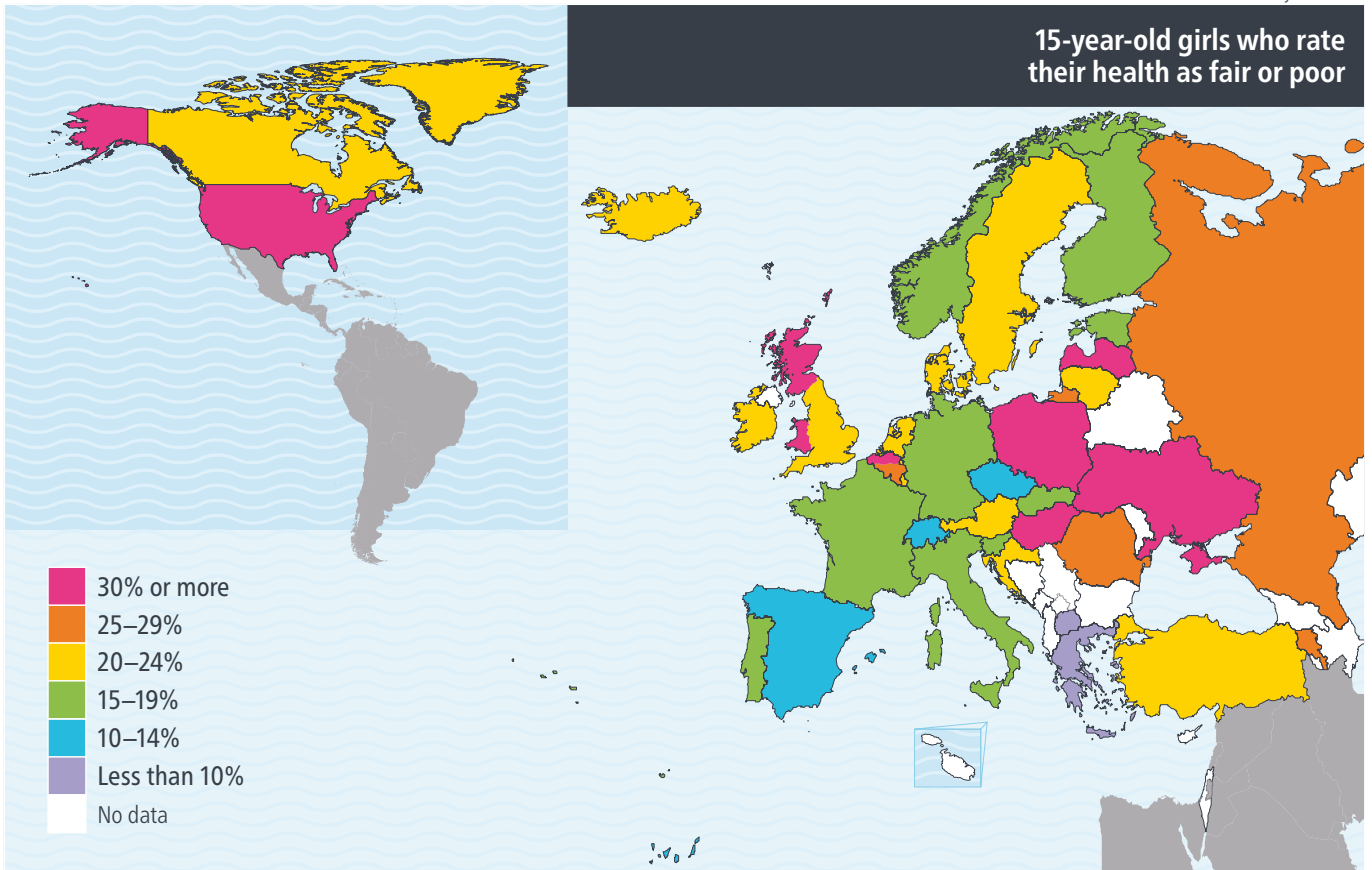
■ GIRLS (%)
■ BOYS (%)



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

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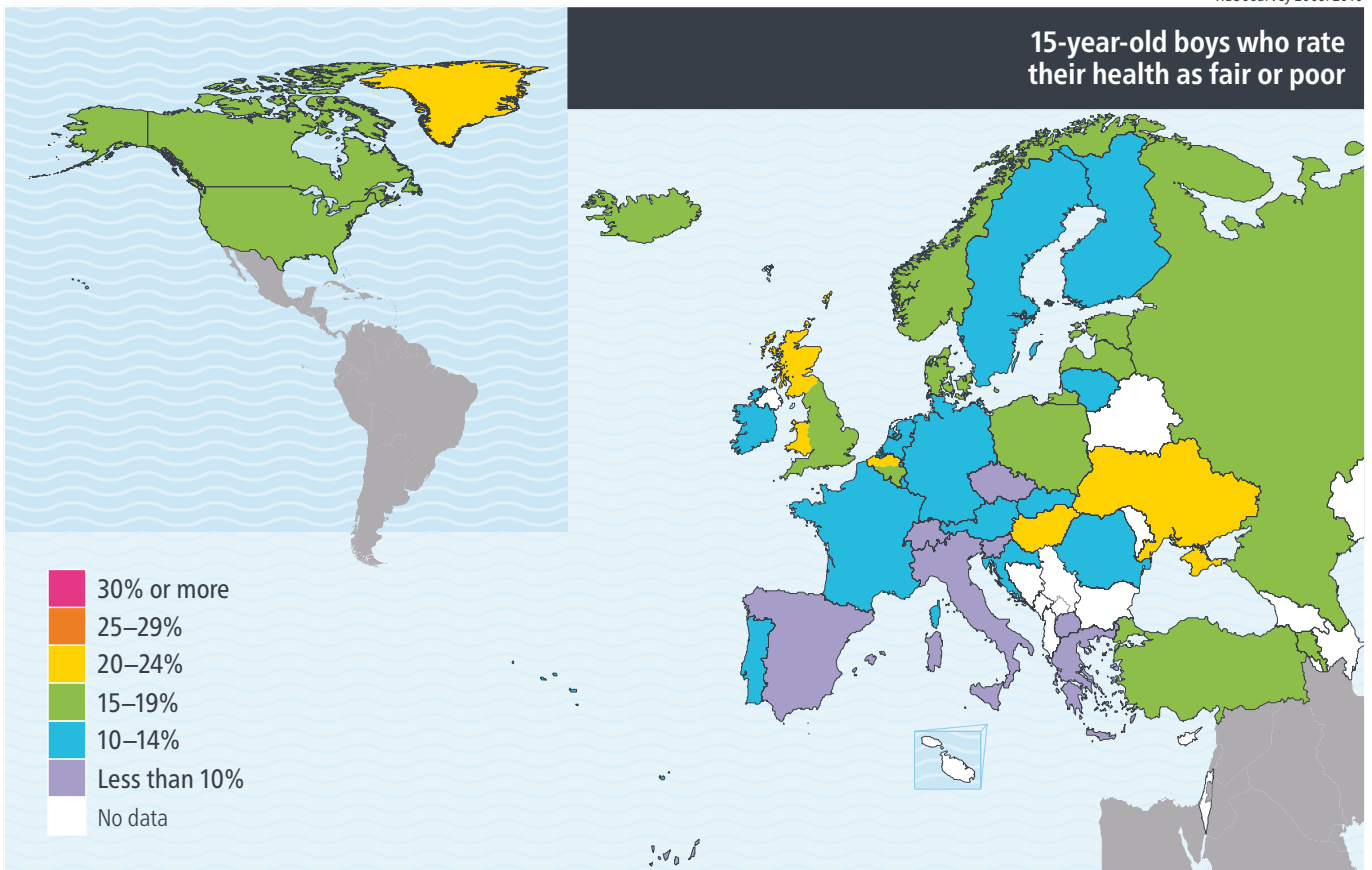
15-year-old girls who rate their health as fair or poor



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

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15-year-old boys who rate their health as fair or poor



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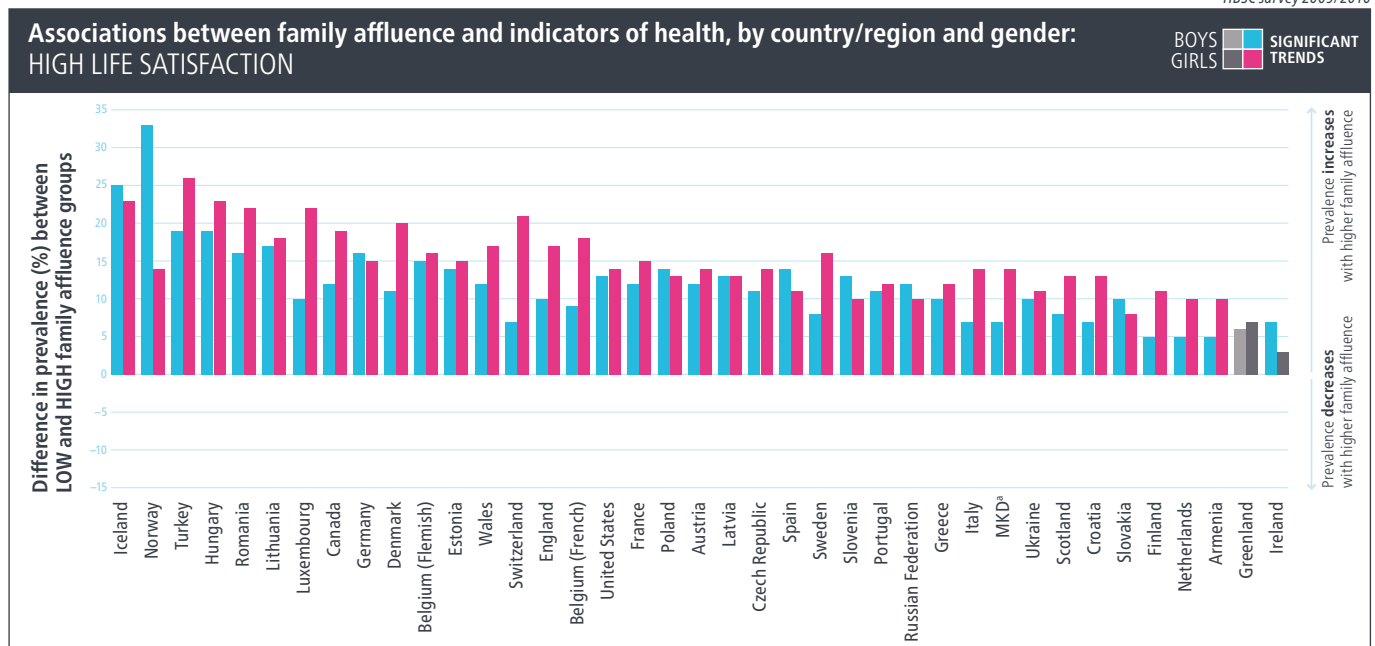
POSITIVE HEALTH: LIFE SATISFACTION

Life satisfaction, an evaluation of an individual's quality of life, is an important aspect of well-being (9) that is closely linked to subjective health (10). Happiness in childhood is associated with social competence and good coping skills that lead to more positive outcomes in adulthood (11).

Life satisfaction in young people is strongly influenced by experiences and relationships. Key protective factors include a sense of parent/family connectedness, with social support being supplied by at least one caring adult; good family communication (12); and supportive peers who can help them to adjust to new situations and face stressful life events (13). It is also linked with family structure: children and young people who live with both parents express higher life satisfaction than those living with other relatives, non-relatives and/or guardians (14).

The school environment plays an important role. Acquiring academic competence is a developmental goal (15), with academic success having a strong positive effect on life satisfaction (16). Factors associated with low life satisfaction and low subjective health include bullying (17) and psychosocial issues (18).

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MEASURE

Young people were asked to rate their life satisfaction using a visual analogue scale. The "Cantril ladder" has 11 steps: the top of the ladder indicates the best possible life and the bottom, the worst. Respondents were asked to indicate the step of the ladder at which they would place their lives at present (from "0" to "10"). High life satisfaction was defined as reporting a score of "6" or more.

RESULTS

Age

Prevalence of positive life satisfaction significantly declined between ages 11 and 15 in almost all countries and regions for girls and in some for boys. Prevalence in girls decreased with age by more than 10% in almost half of countries and regions, with a smaller decrease for boys.

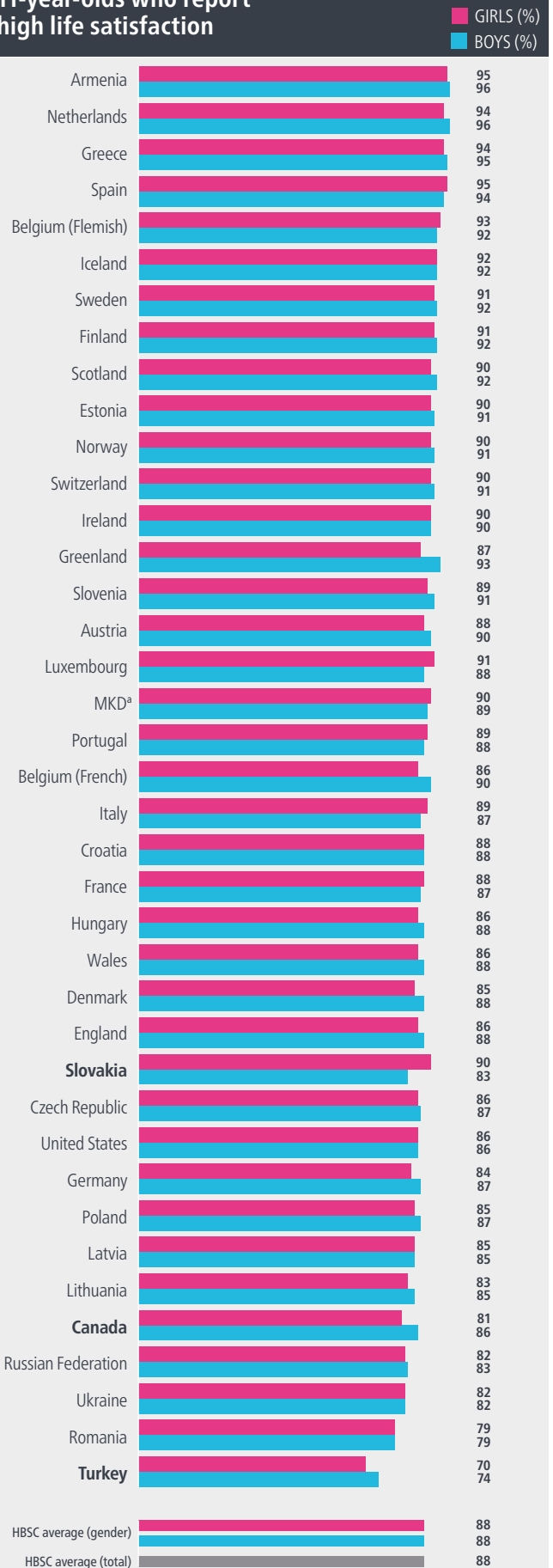
Gender

Boys reported a significantly higher prevalence in most countries and regions at age 15 but in fewer than half at 13. There was less evidence of a significant gender difference at age 11. Gender differences were not large at any age and only exceeded 10% in a few countries and regions at age 15.

Family affluence

Affluence was significantly positively associated with high life satisfaction in nearly all countries and regions for boys and girls. Difference in prevalence between low- and high-affluence groups tended to be greater among girls, exceeding 15% in just under half of countries and regions.

11-year-olds who report high life satisfaction

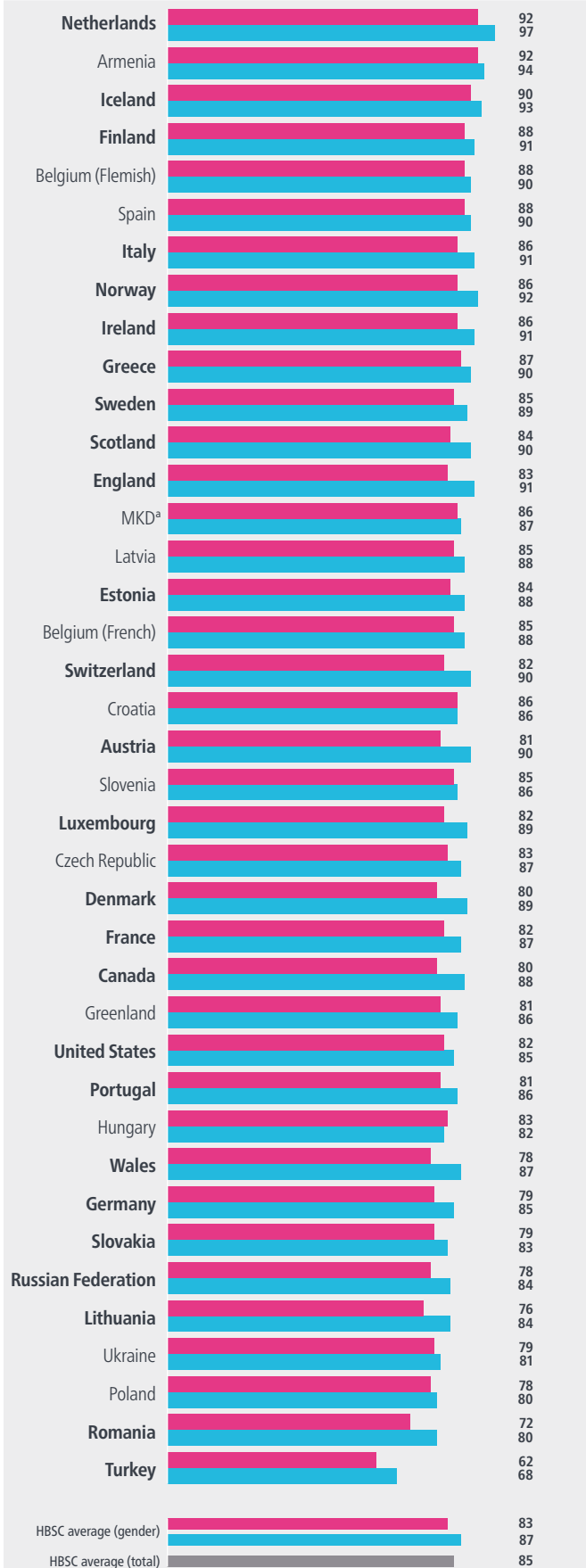


^a The former Yugoslav Republic of Macedonia.

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13-year-olds who report high life satisfaction

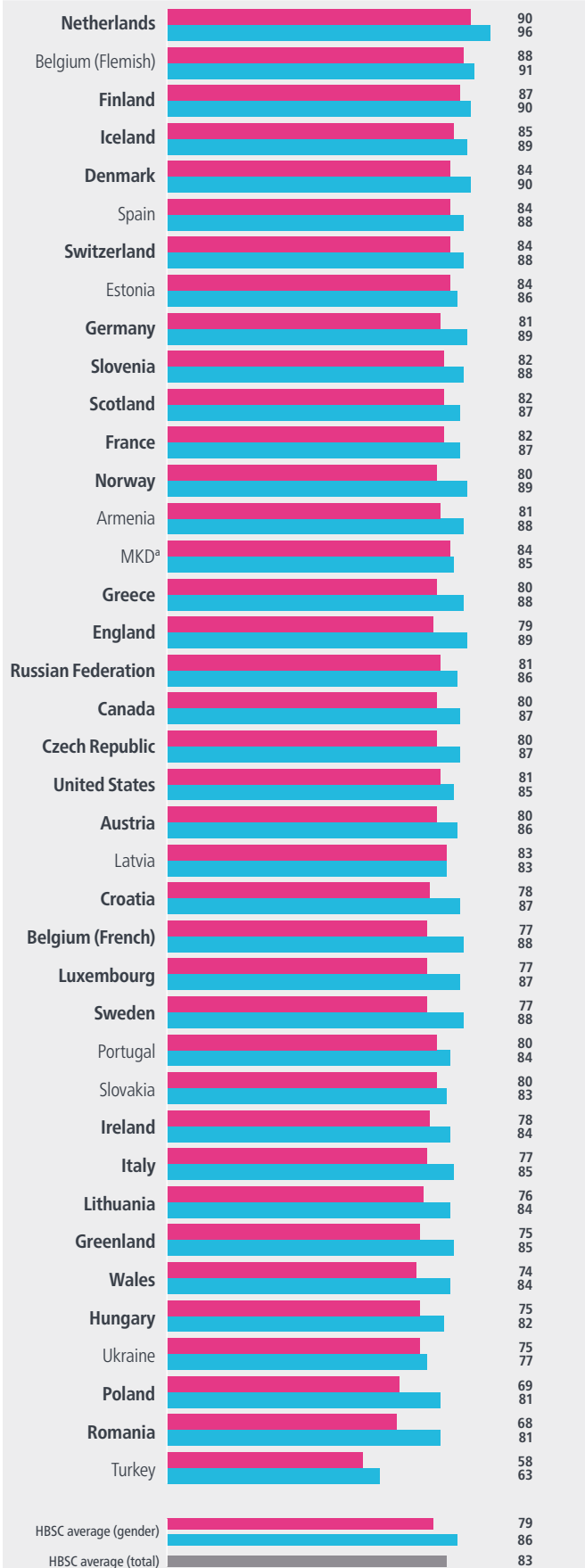
GIRLS (%)
BOYS (%)



HBSC survey 2009/2010

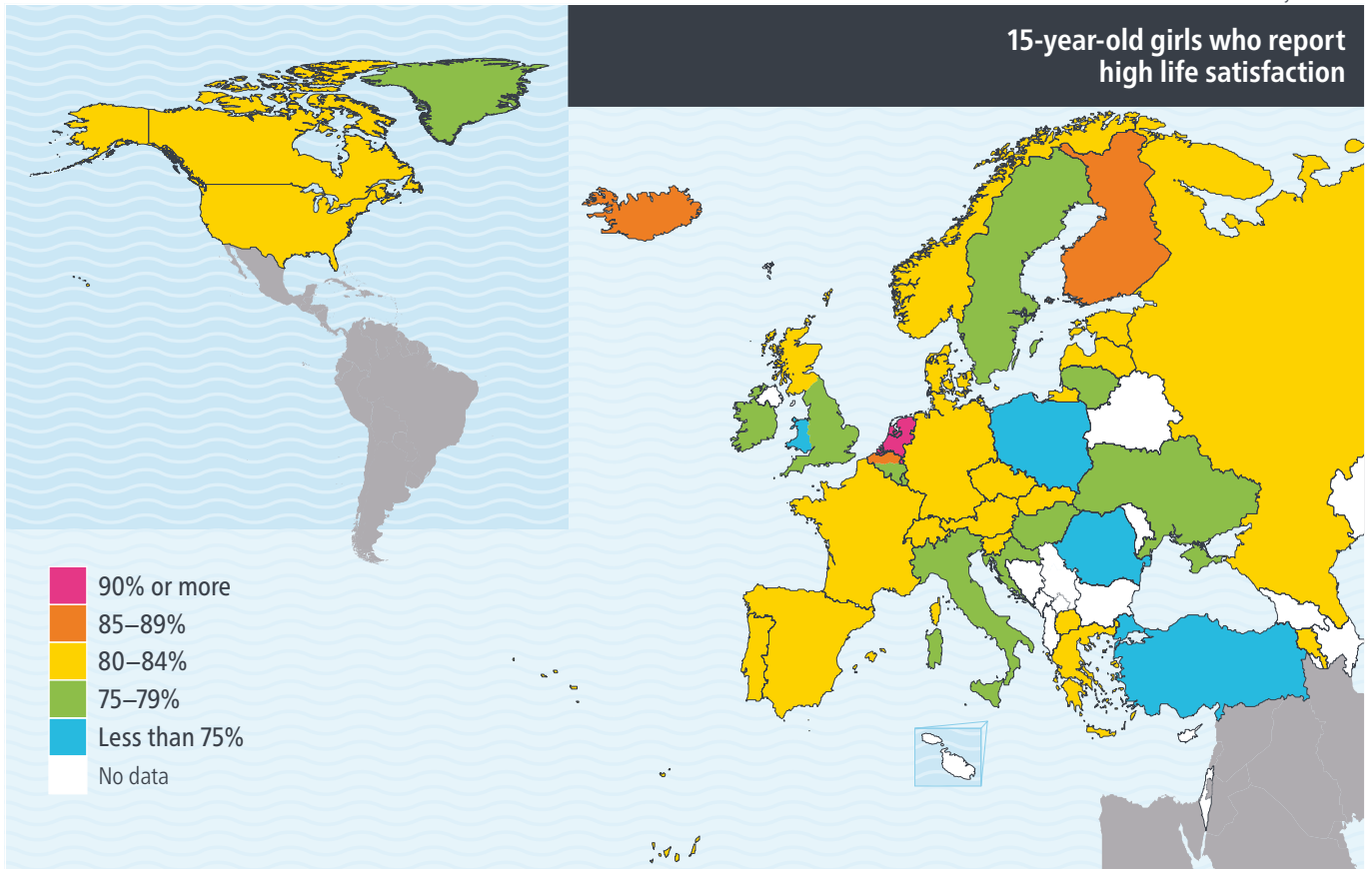
15-year-olds who report high life satisfaction

GIRLS (%)
BOYS (%)



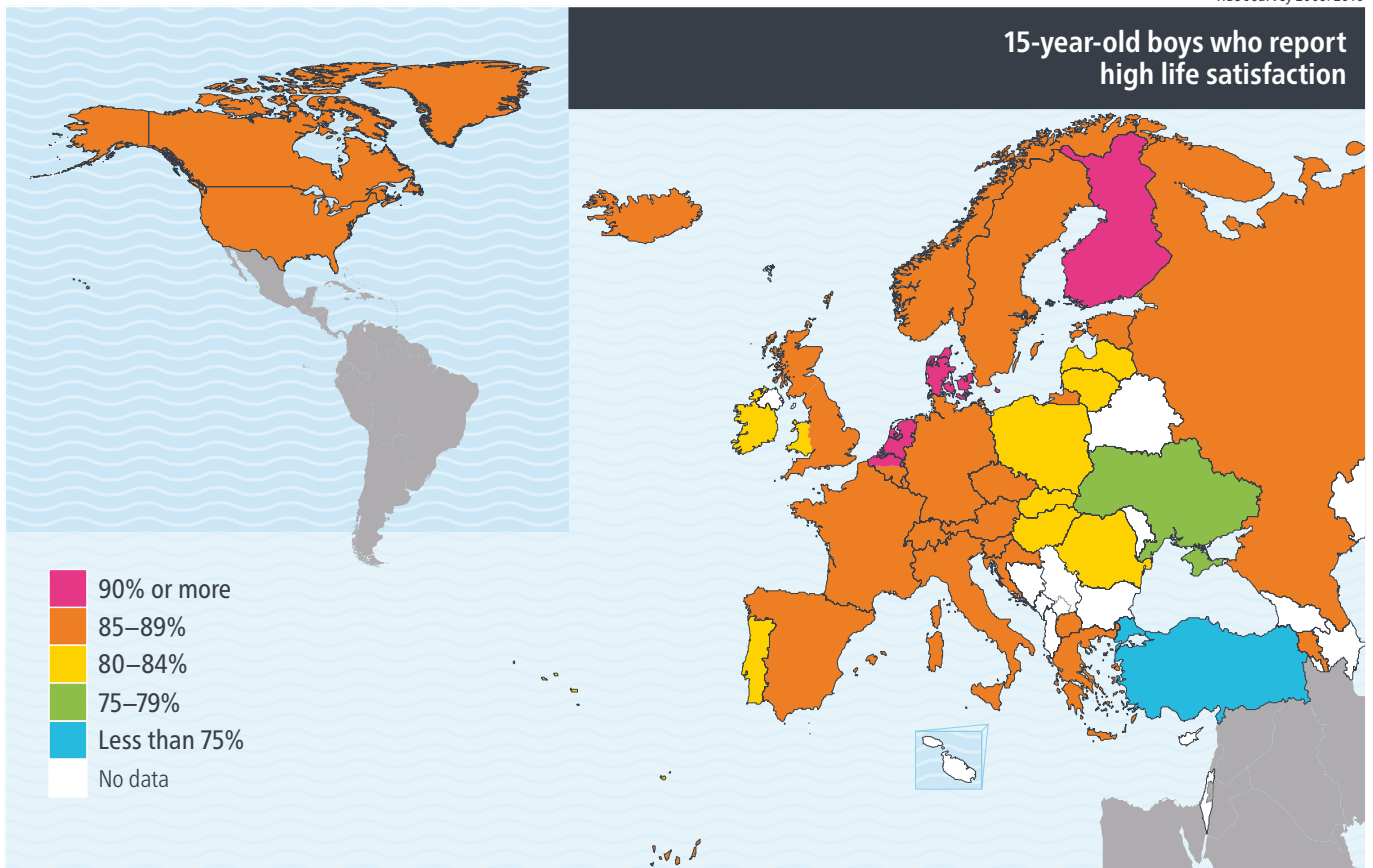
Note. ^aIndicates significant gender difference (at p<0.05).

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



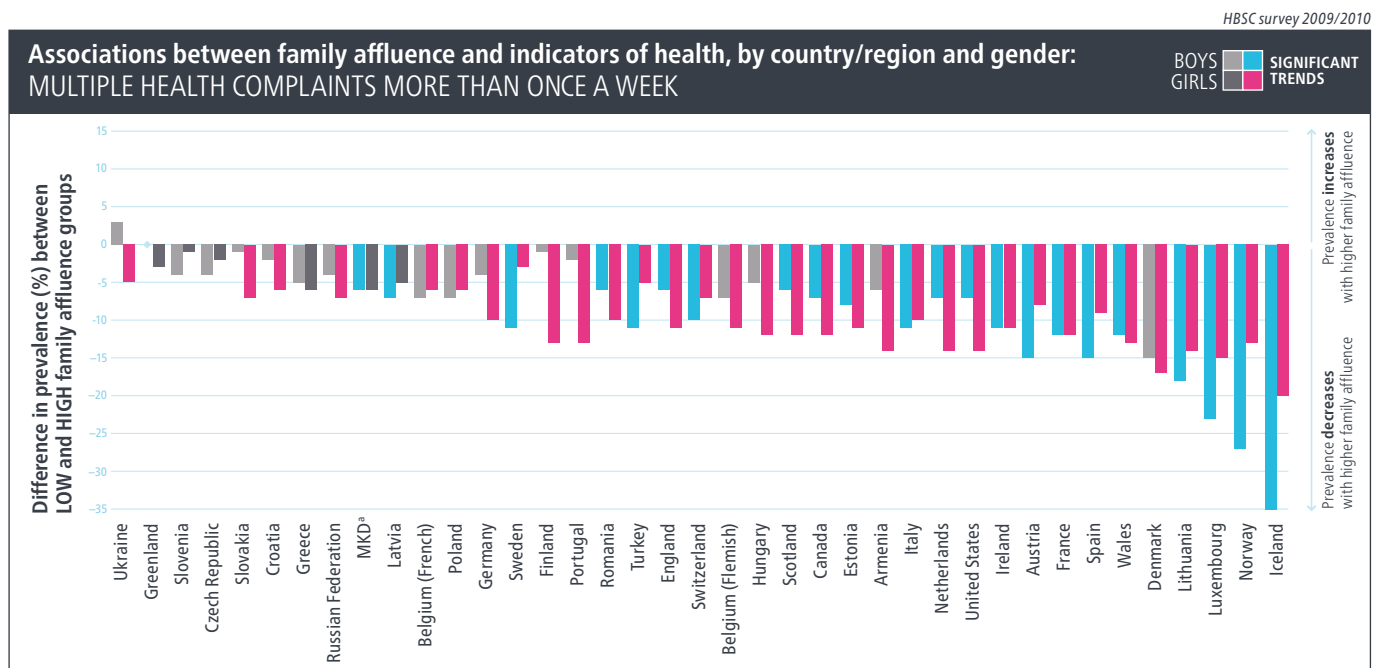
Note. HBSC teams provided disaggregated data for Belgium and the United Kingdom; these data appear in the map above.

POSITIVE HEALTH: MULTIPLE HEALTH COMPLAINTS

Health complaints, which include somatic (headaches, backaches) and psychological (nervousness or irritability) symptoms, are important indicators of well-being. They tend to occur together (1,19,20), so can place an immense burden on not only the individual but also the health-care system.

Frequent or sustained stress leads to emotional and physiological stress, which in turn affects the development of frequent complaints (20). Psychosomatic complaints are associated with family conflicts, bullying, lack of acceptance by peers and lack of support from parents and teachers (21).

Positive family relationships are strongly associated with better health for young people (22) and family stress is related to greater health problems (23,24). School has been identified as a protective factor against multiple health complaints (25).



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

MEASURE

Young people were asked how often they had experienced the following symptoms in the last six months: headache; stomach ache; feeling low, irritable or bad tempered; feeling nervous; difficulties in getting to sleep; and feeling dizzy. Response options for each symptom ranged from "about every day" to "rarely or never". The findings presented show the proportions who reported multiple (two or more) health complaints more than once a week in the past six months.

The HBSC symptom checklist presents a non-clinical measure of mental health reflecting two facets of health, one psychological and one somatic (1,2,26,27). All items on the checklist can be used together to measure psychosomatic complaints (28).

RESULTS

Age

Prevalence of multiple health complaints increased with age among girls, with the difference exceeding 10% in most countries and regions. Only a few had a significant increase in prevalence for boys between ages 11 and 15.

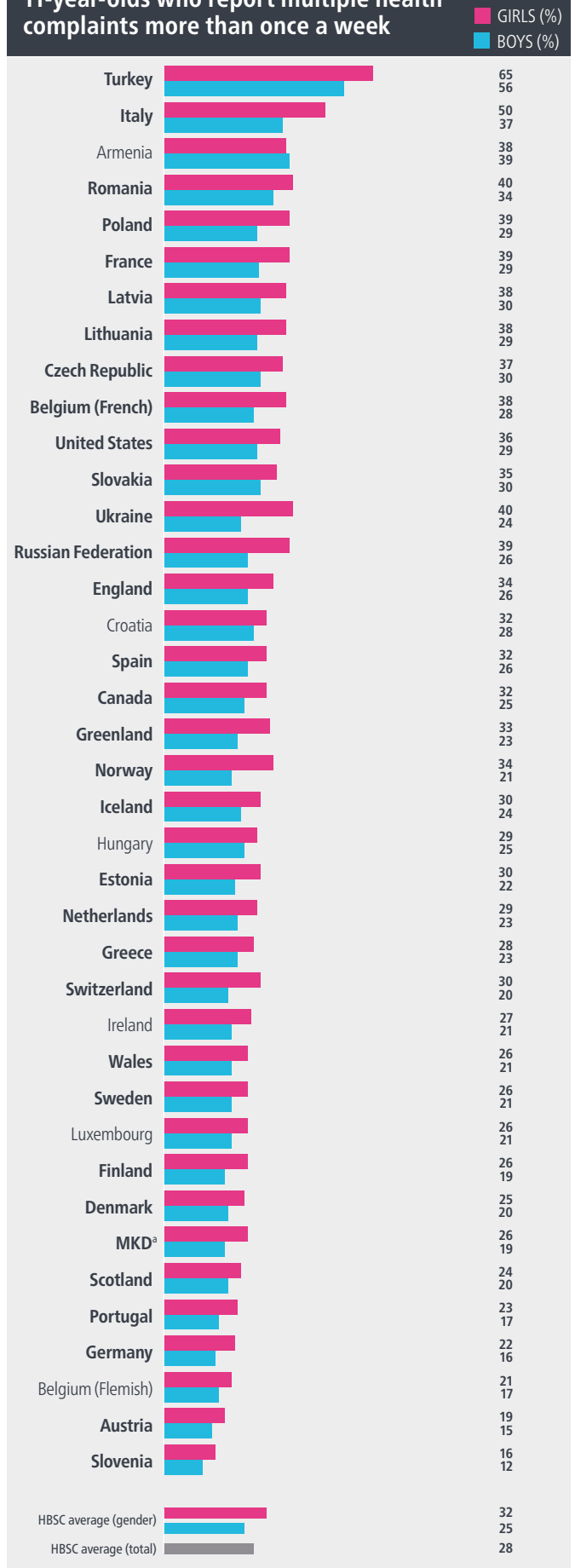
Gender

Girls in almost all countries and regions were significantly more likely to report multiple health complaints. Gender differences in prevalence increased with age: a minority of countries and regions showed more than 10% difference at age 11, but most did so at 15.

Family affluence

Higher prevalence was significantly associated with lower family affluence in almost all countries and regions for girls and in most for boys. The difference between low- and high-affluence groups was more than 10% for girls in half of countries and regions, with smaller differences for boys.

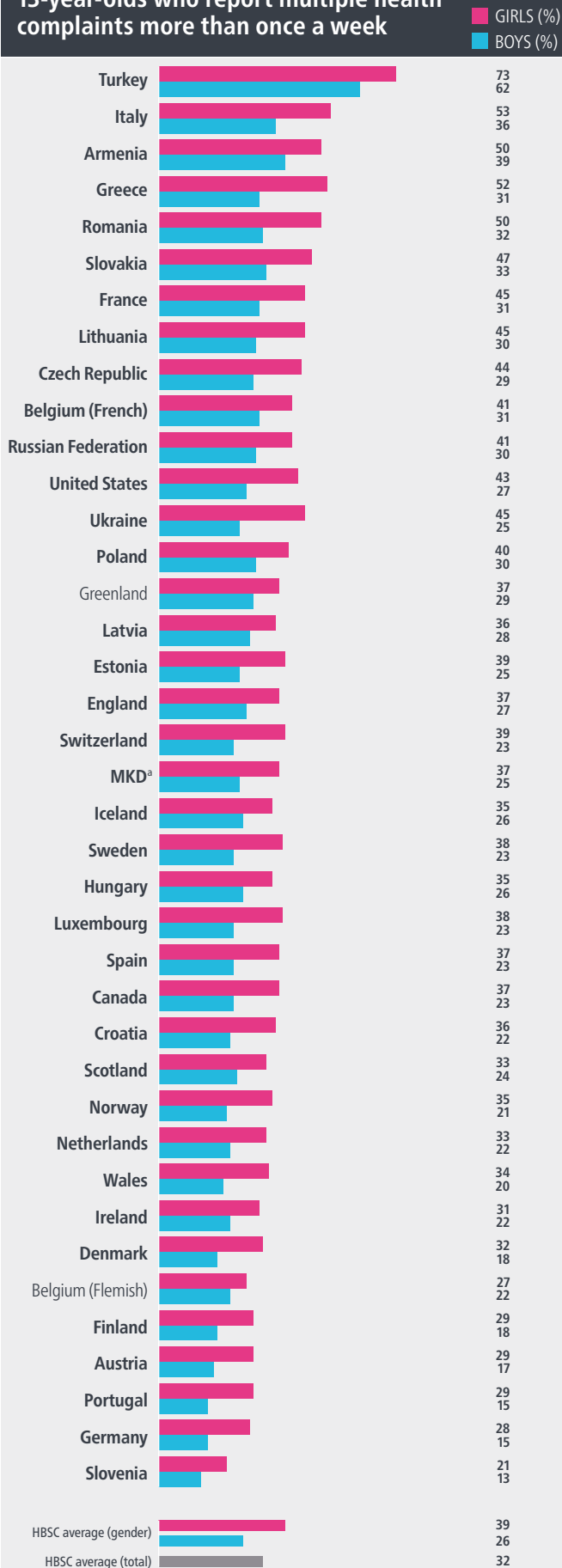
11-year-olds who report multiple health complaints more than once a week



^a The former Yugoslav Republic of Macedonia.

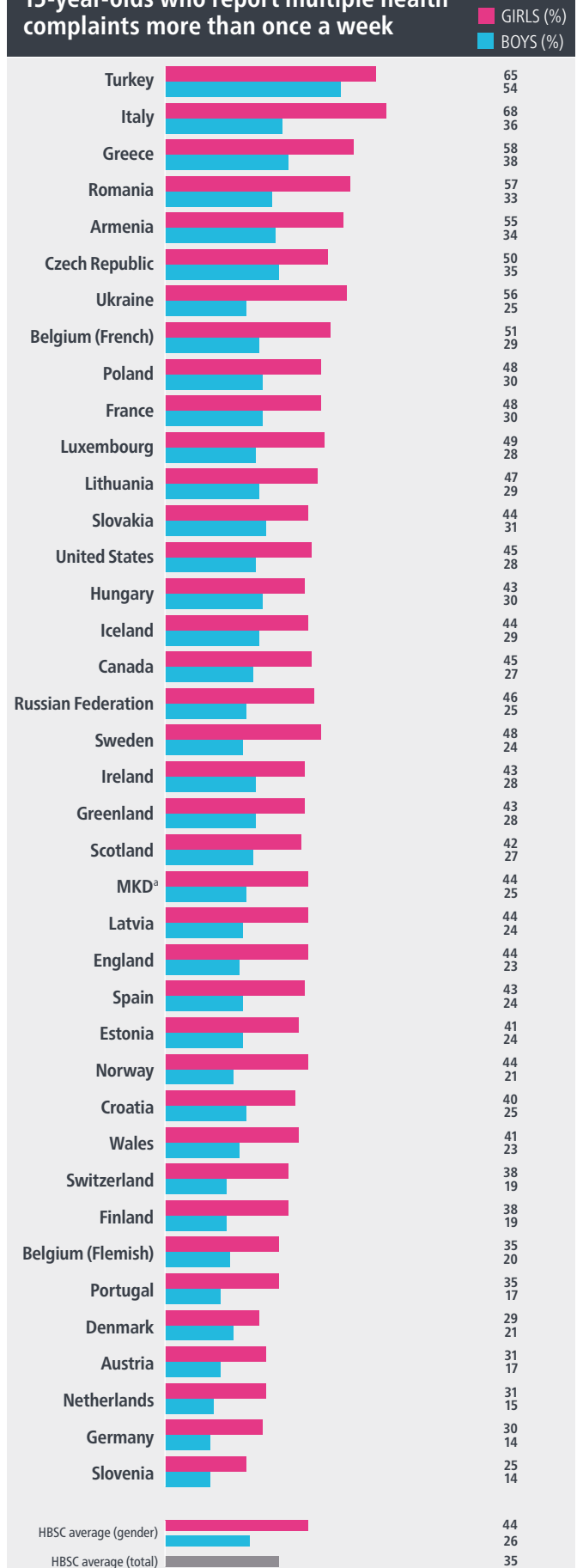
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13-year-olds who report multiple health complaints more than once a week



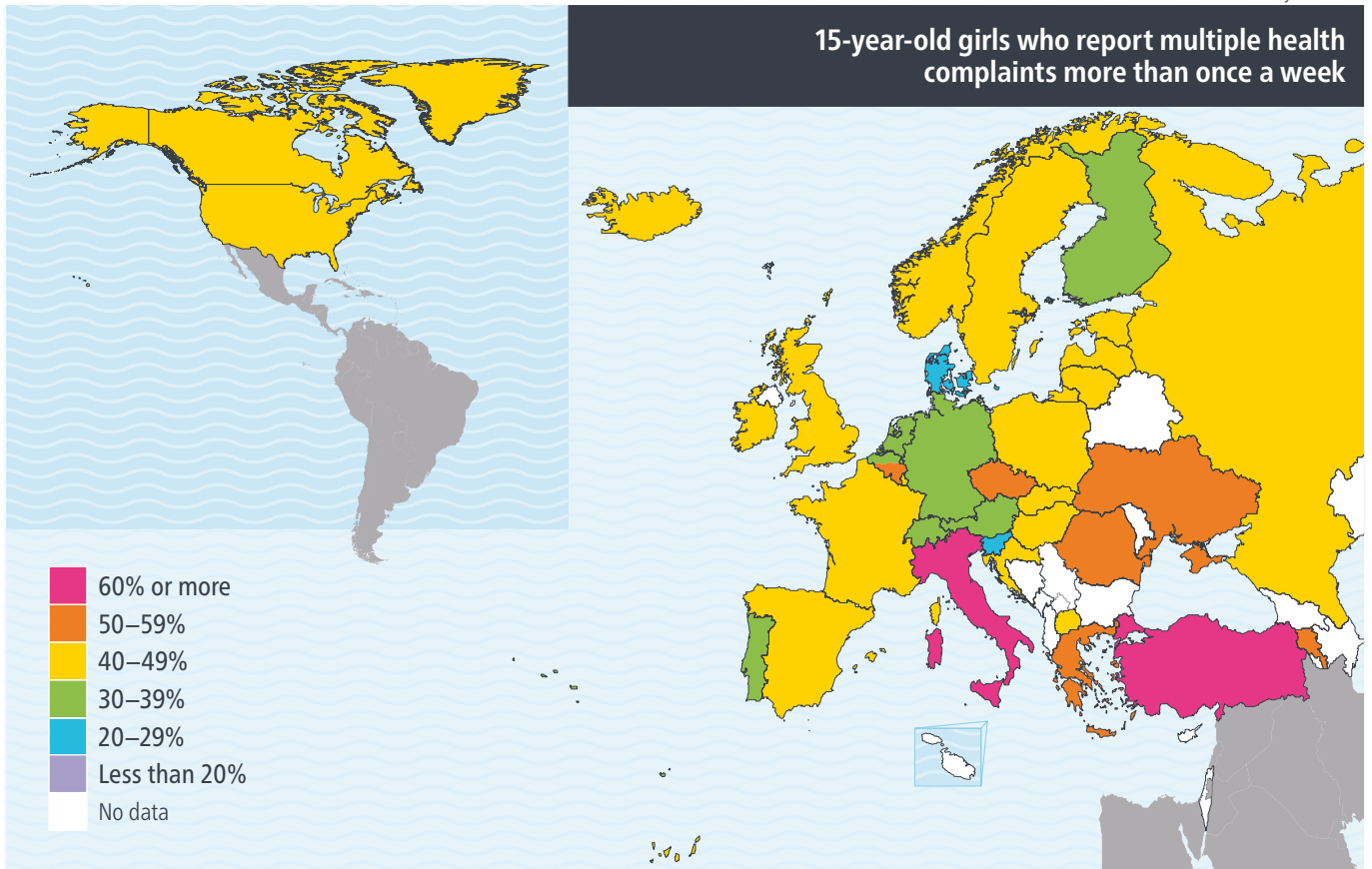
HBSC survey 2009/2010

15-year-olds who report multiple health complaints more than once a week



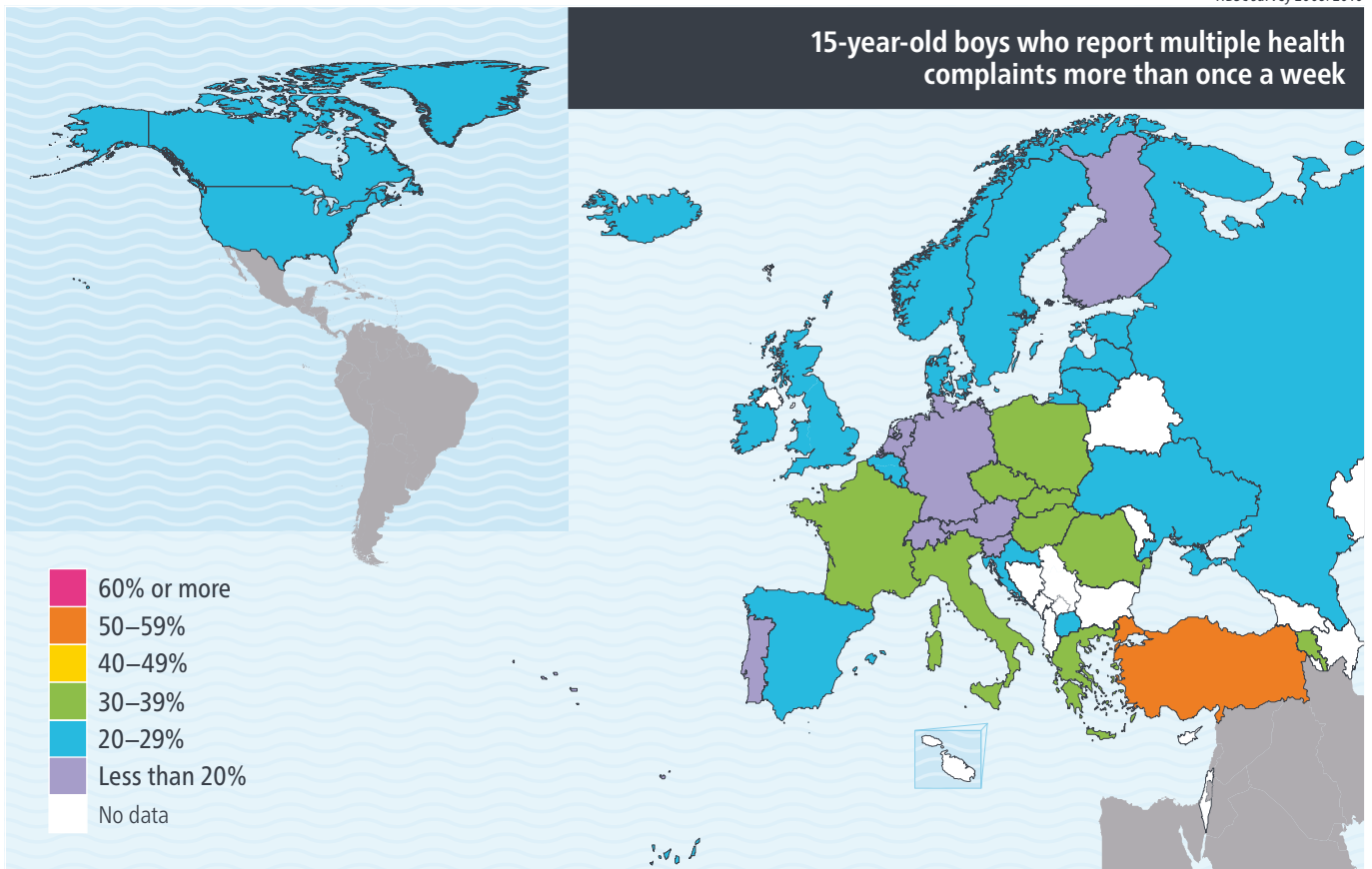
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HBSC survey 2009/2010



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HBSC survey 2009/2010



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

POSITIVE HEALTH: SCIENTIFIC DISCUSSION AND POLICY REFLECTIONS

SCIENTIFIC DISCUSSION

Young people in general experience good health, but large differences exist (29). Consistent with previous research (30,31), girls report poorer health outcomes and are at greater risk of poor self-rated health, low life satisfaction and multiple health complaints. This may be explained by different internalization and externalization patterns, but gender-specific experiences of puberty may also play a role (31).

Girls face more hormonal changes between ages 11 and 15 (32), tend to be more willing to express their feelings and emotions (33) and are more prone to worry about their health (34). Gender differences in almost all countries and regions become more pronounced with age, with older girls systematically being worst off (18). Increased reporting of symptoms with age may be related to stress at school (23), a negative home environment (35) and poor social relationships (29,36).

Friendships and the quality of relationships are important factors affecting subjective health outcomes such as life satisfaction (37). Lower life satisfaction in girls may reflect changing interpersonal relationships as they grow older, which may be mainly related to family relationships rather than those with friends (18). The greater effect on girls may be due to their ability to understand and internalize the dynamics of interpersonal relationships (38). Girls also show greater dissatisfaction with their body image, which specifically affects their self-esteem, life satisfaction and mental health (39).

Cross-cultural data suggest that life satisfaction is associated with financial satisfaction (40). High family affluence is associated with better health, higher life satisfaction and fewer health complaints in most countries. Research on family affluence suggests that children from families with lower SES rate their health lower (6,41) and countries with lower SES tend to have a higher prevalence of subjective health problems. Individuals' SES may influence their health status and self-perceived health directly through material conditions and indirectly through psychosocial factors mediated by socioeconomic position in society (42).

The three aspects of health and well-being show no common geographic patterns.

POLICY REFLECTIONS

The findings suggest that the balance between programmes aiming to improve young people's physical and psychosocial health needs to be redressed (43). The coexistence of physical and psychological symptoms suggests that implementing general programmes in school that aim to build young people's skills and competencies in coping during this difficult life stage are likely to be more effective. Further work is required to ensure that policies are supported by implementation plans informed by detailed knowledge of maturation processes.

Resilience theory emphasizes the significance of personal assets in protecting against adverse living conditions (44). HBSC data highlight important differences in inequalities in self-rated health, life satisfaction and multiple health complaints among boys and girls, countries and regions, and social groups within them (45). Given what is already known about the effect of health inequalities in childhood on future health, it is important to ensure that programmes aimed at young people are evaluated to understand their relative effectiveness across all dimensions of inequalities.

Education is a fundamental determinant of health from a life-course perspective, so it would be appropriate to merge programmes promoting mental health with those providing equal education opportunities to students from different social backgrounds (46).

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MEDICALLY ATTENDED INJURIES

Injury is the greatest single cause of death and serious illness in young people in most developed countries, accounting for 36% of deaths in those under 15 years (1). Injury risk increases across childhood (1). Non-fatal injuries carry medical, psychological and social consequences that impose a significant health, social and economic burden on societies.

Injuries during adolescence can be seen as a marker for a high-risk lifestyle that includes multiple risk-taking behaviours and associated health-related consequences (2). Studies have reported how injury is linked with other risk behaviours such as substance use (3,4) and truancy (5) and is related to frequent engagement in physical activity (4,6). Understanding the factors that contribute to the occurrence of injury among young people is fundamental to developing interventions to control and prevent serious injuries and death (7,8).

HBSC survey 2009/2010

Associations between family affluence and indicators of health, by country/region and gender:
MEDICALLY ATTENDED INJURY IN THE LAST 12 MONTHS

BOYS
GIRLS SIGNIFICANT
TRENDS



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

MEASURE

Young people were asked how many times during the last 12 months they had been injured and had to be treated by a doctor or nurse. Response options ranged from "I was not injured in the past 12 months" to "four times or more". The findings presented here depict the proportions who reported having a medically attended injury at least once.

RESULTS

Age

No significant difference in prevalence of injury was found between ages 11 and 15 in most countries and regions for boys and girls. An increase was observed between ages 11 and 13 in some countries, with a subsequent decrease at age 15.

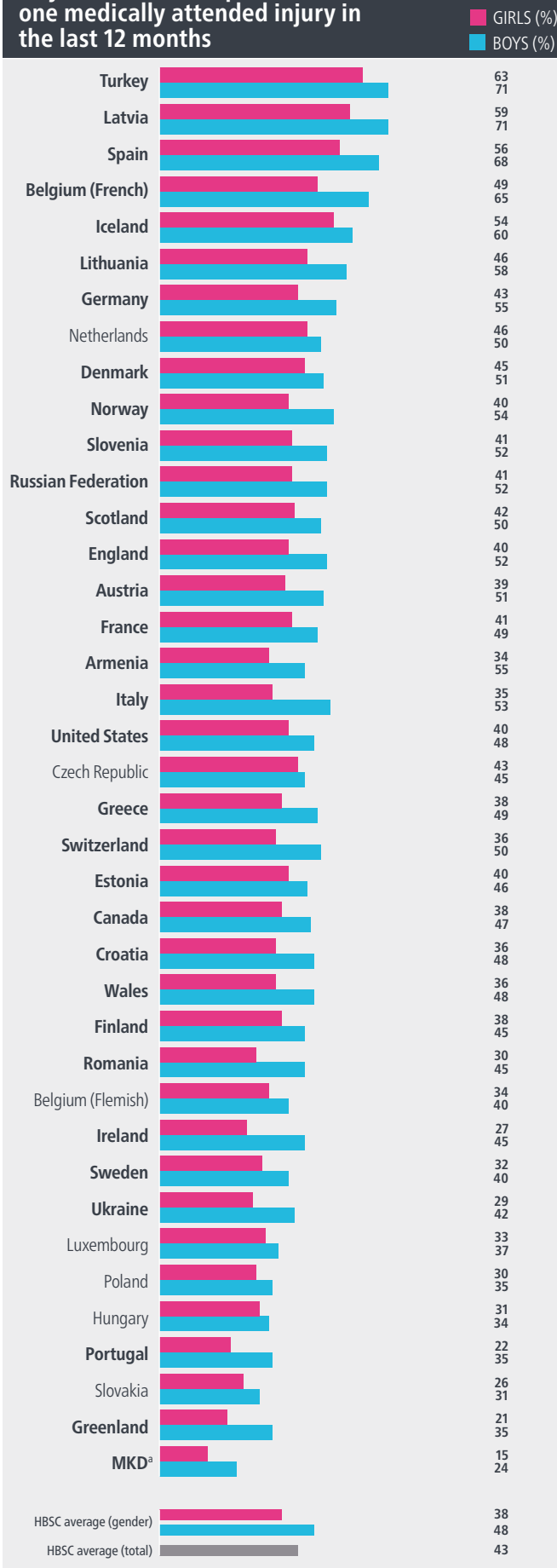
Gender

Boys were significantly more likely to report injury in almost all countries and regions, and across all age groups, with gender differences in prevalence of more than 10% in around half of countries and regions.

Family affluence

Prevalence was significantly higher among young people from more affluent families in most countries and regions, but the difference between low- and high-affluence groups was more than 10% in only a few.

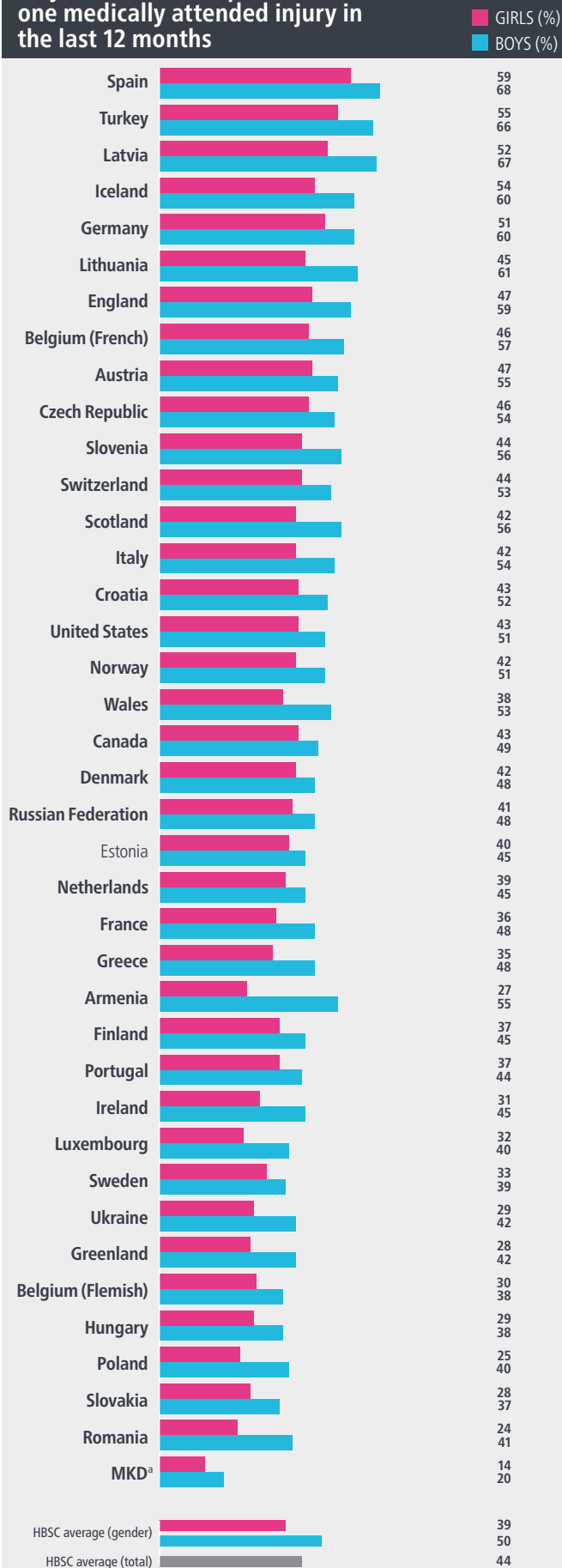
11-year-olds who report at least one medically attended injury in the last 12 months



^a The former Yugoslav Republic of Macedonia.

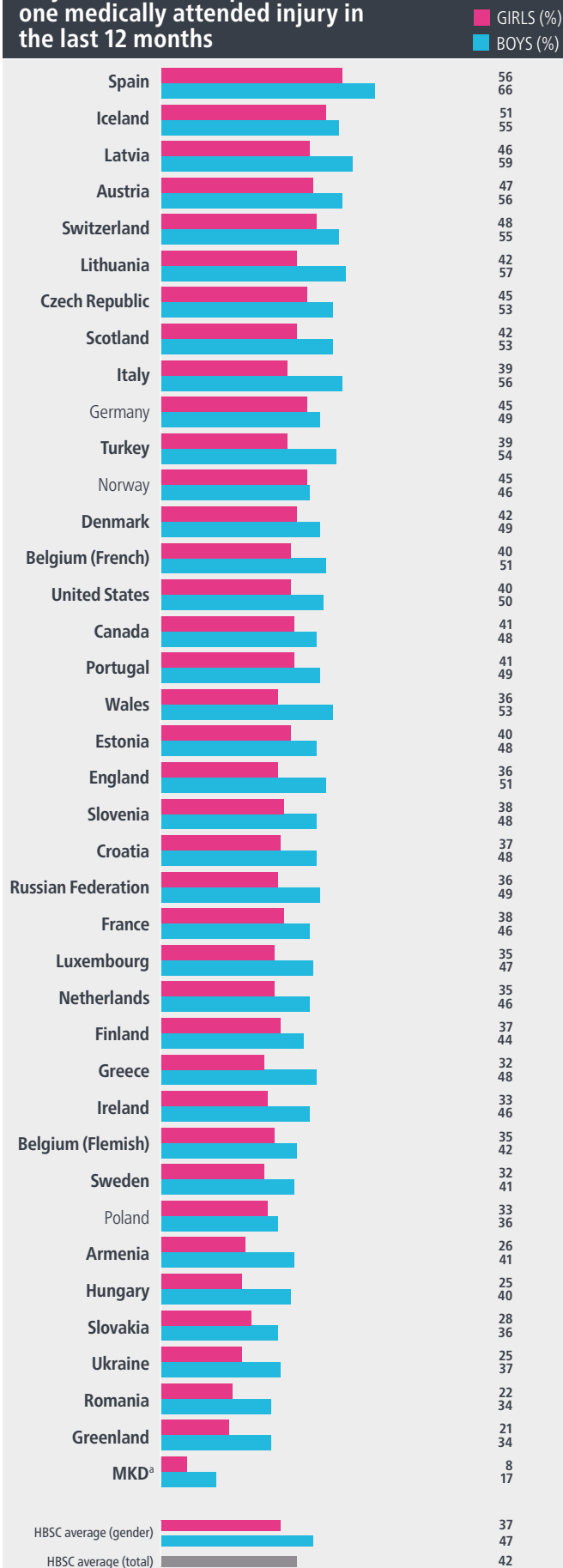
HBSC survey 2009/2010

13-year-olds who report at least one medically attended injury in the last 12 months



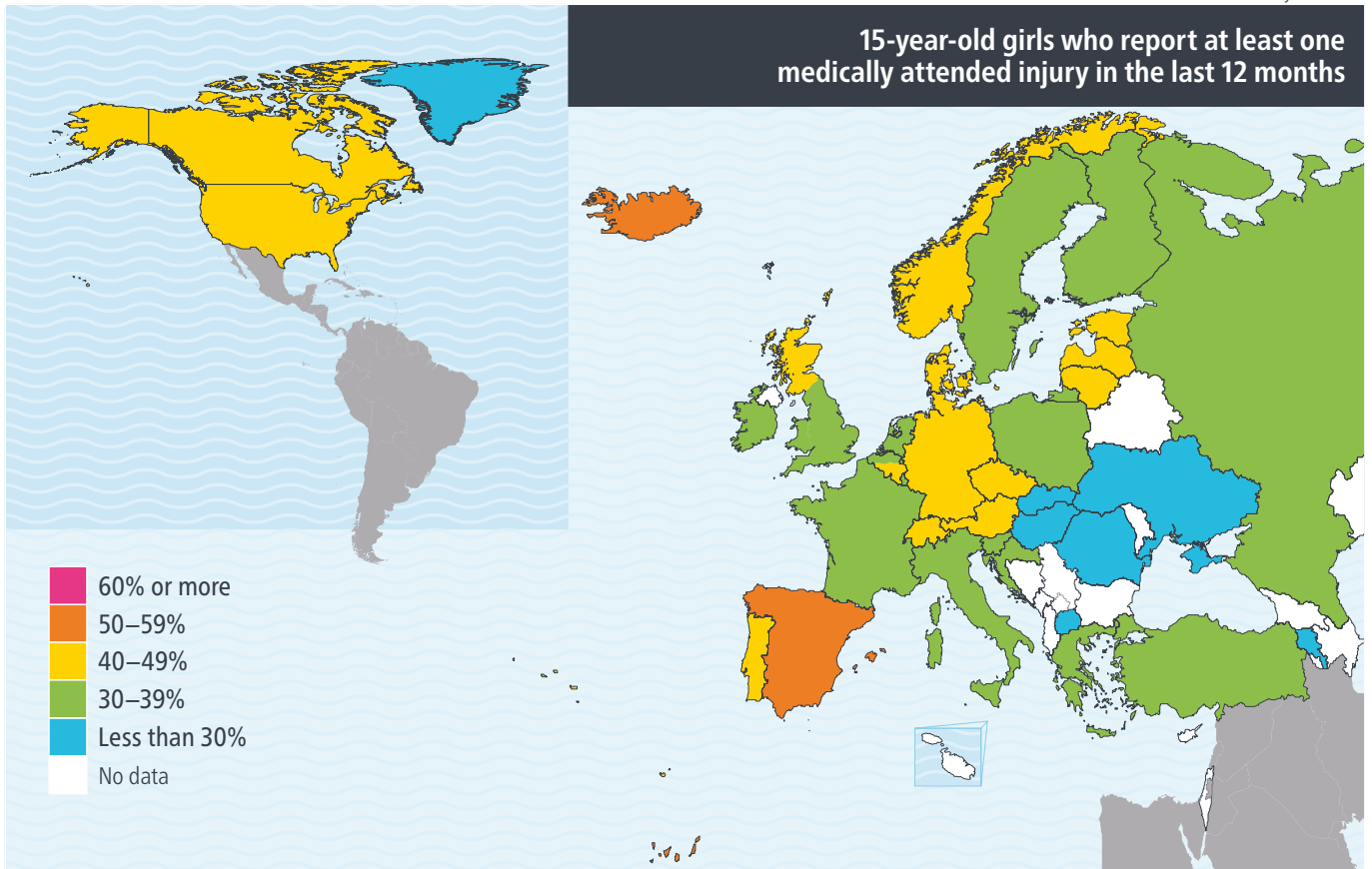
HBSC survey 2009/2010

15-year-olds who report at least one medically attended injury in the last 12 months

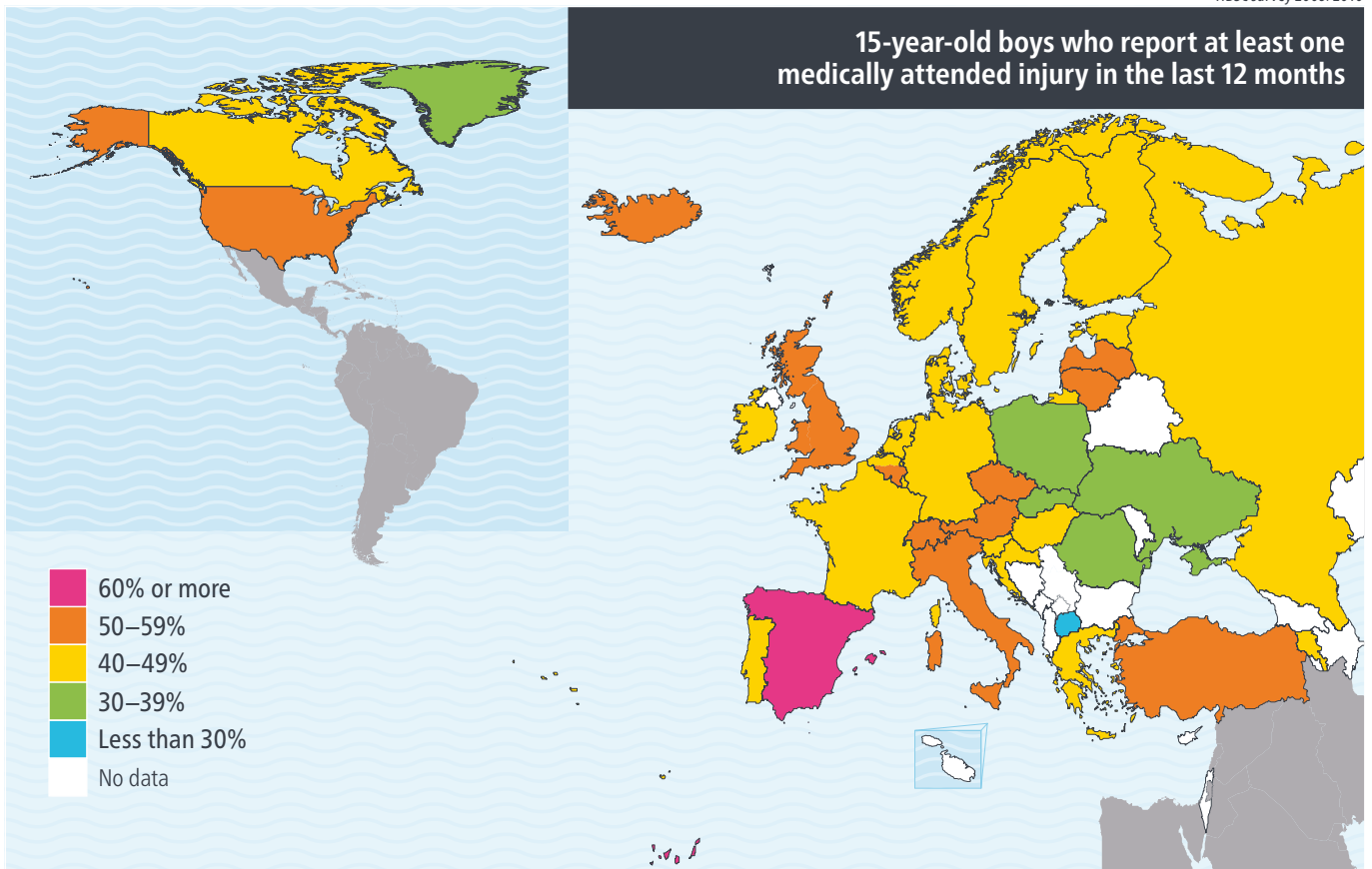


Note. ^aIndicates significant gender difference (at p<0.05).

HBSC survey 2009/2010



HBSC survey 2009/2010



MEDICALLY ATTENDED INJURIES: SCIENTIFIC DISCUSSION AND POLICY REFLECTIONS

SCIENTIFIC DISCUSSION

Around half of boys in all age groups and a third of girls report at least 1 medically attended injury in the last 12 months, suggesting that injuries are a common element in the lives of young people.

Prevalence varies substantially across countries and regions. This may reflect differing societal responses to ensuring adequate safety levels, promoting prevention initiatives and providing access to and ensuring the quality of medical care.

Boys across all countries and regions and age groups are more likely to experience injury. The same trend can be observed for injury mortality, especially among young populations (9), perhaps due to boys' increased involvement in risk behaviours (10,11), sport and physical activity (12).

The finding that those from higher-affluence families are more likely to report injuries may be explained by their greater engagement in physical activity and easier access to medical care (4).

POLICY REFLECTIONS

Unintentional injury is an important health priority in almost all countries. A clear link can be made between identification of risk factors, remediation of environmental conditions and settings, and improvement of health outcomes.

Most identified socioenvironmental risk factors are modifiable. Effective action is necessary to reduce injury incidence, particularly among boys and young people with low family affluence (13).

HBSC findings do not provide information on the severity and type of injuries adolescents experience, but previous research suggests most reported injuries involve accidents on the road, at home and in a sports facility (12). Intervention strategies to reduce injuries among young people include: using car seat-belts and bicycle and motorcycle helmets, reducing misuse of alcohol, installing smoke alarms in the home, and promoting pre-season conditioning, functional training, education, balance and sport-specific skills with those at high risk of sports-related injuries (14).

The frequency, severity, potential for death and disability, and costs of injuries make injury prevention a key public health goal for improving young people's health. Researchers in this field, however, stress that it is important to find a balance between intervening and acknowledging that some injuries may be natural consequences of growth and development; if the cost of preventing these injuries is reduced physical activity, the deficits may outweigh the benefits (15).

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BODY WEIGHT: OVERWEIGHT AND OBESITY

Overweight and obesity remain public health problems among young people (1–3). Associated health-related problems include sleep apnoea and orthopaedic problems (1,4), psychosocial repercussions, such as poor self-image, stigmatization and depression (5,6), and impaired quality of life (7). Overweight and obesity carry serious health consequences that can last into adulthood (8), including metabolic disturbances that increase the risk of cardiovascular diseases and diabetes (1,4,9).

The causes are complex, involving the interplay of genetics and environmental factors that contribute to excess energy intake and/or inadequate energy expenditure. HBSC findings indicate that young people who are overweight are more likely to skip breakfast, are less physically active (2,10) and watch television more (2).

HBSC survey 2009/2010

Associations between family affluence and indicators of health, by country/region and gender:
OVERWEIGHT AND OBESITY

BOYS
GIRLS SIGNIFICANT TRENDS



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

MEASURE

Young people were asked how much they weigh without clothes and how tall they are without shoes, and to record these in country appropriate units (centimetres versus inches, pounds versus kilograms). These data were (re)coded in centimetres and kilograms, respectively, to compute the body mass index (BMI) as weight (kg) divided by height (m)².

The analysis presented here uses the international BMI standards for young people (11) adopted by the International Obesity Taskforce (IOTF), called the IOTF BMI cut-off points. Data using the WHO child growth curve standards are presented in the Annex.

RESULTS

Age

Girls aged 15 in a minority of countries and regions were significantly more likely than 11-year-olds to report being overweight. No clear patterns between age and overweight prevalence were seen among boys.

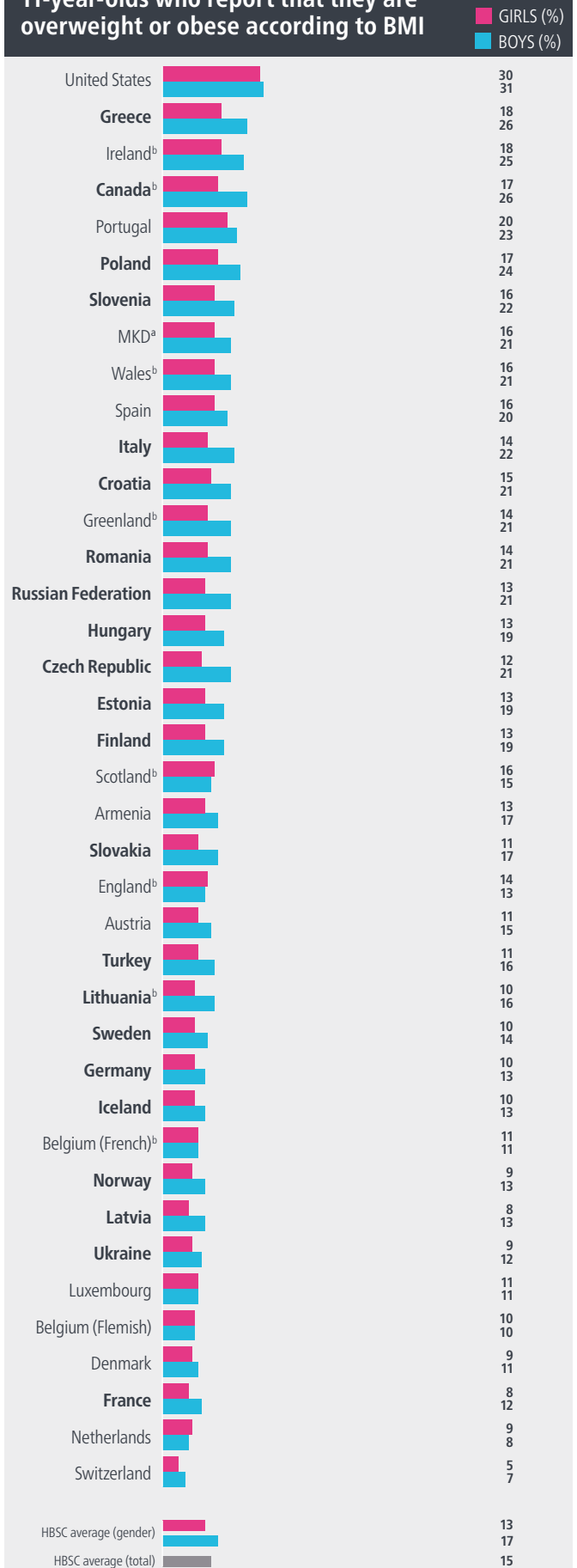
Gender

Boys tended to have significantly higher prevalence in almost all countries and regions at ages 13 and 15 and in over half at 11. The gender difference, however, exceeded 10% in only a few.

Family affluence

Increased prevalence was significantly associated with low family affluence for girls and boys in around half of countries and regions, but with higher family affluence (among boys only) in Armenia, Slovakia and Turkey.

11-year-olds who report that they are overweight or obese according to BMI



^a The former Yugoslav Republic of Macedonia.

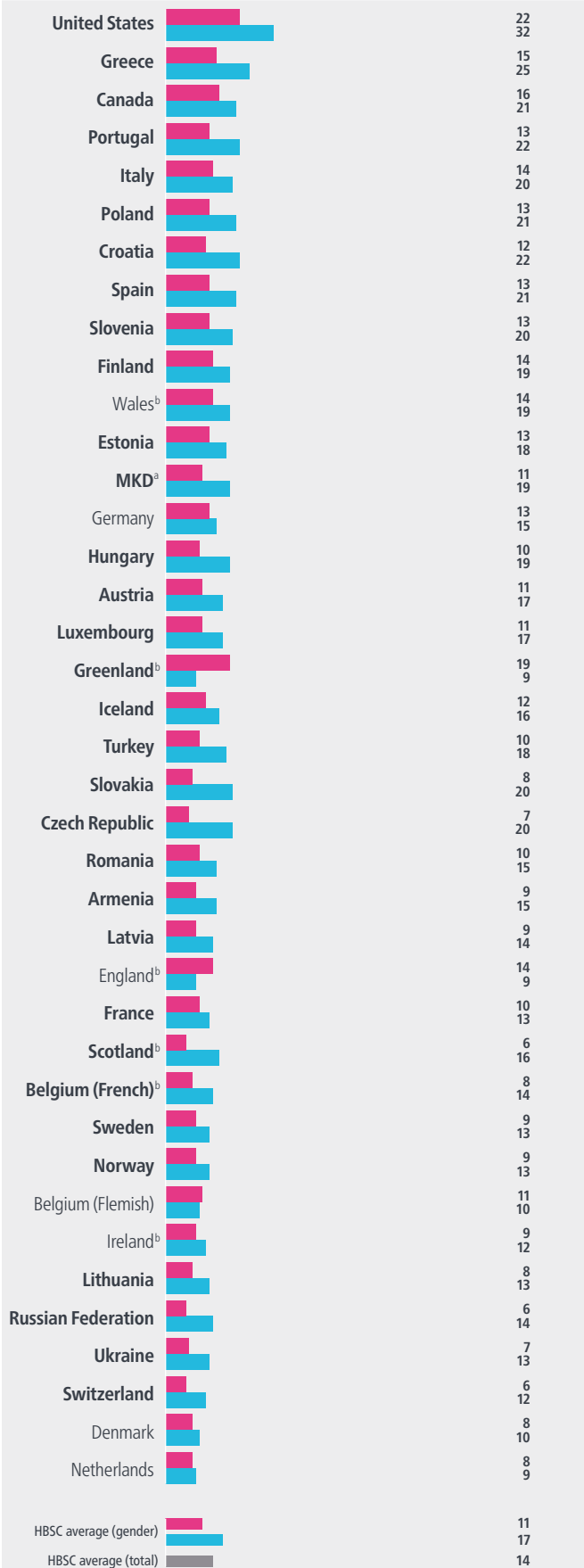
^b Indicates 30% or more missing data.

HBSC survey 2009/2010

HBSC survey 2009/2010

13-year-olds who report that they are overweight or obese according to BMI

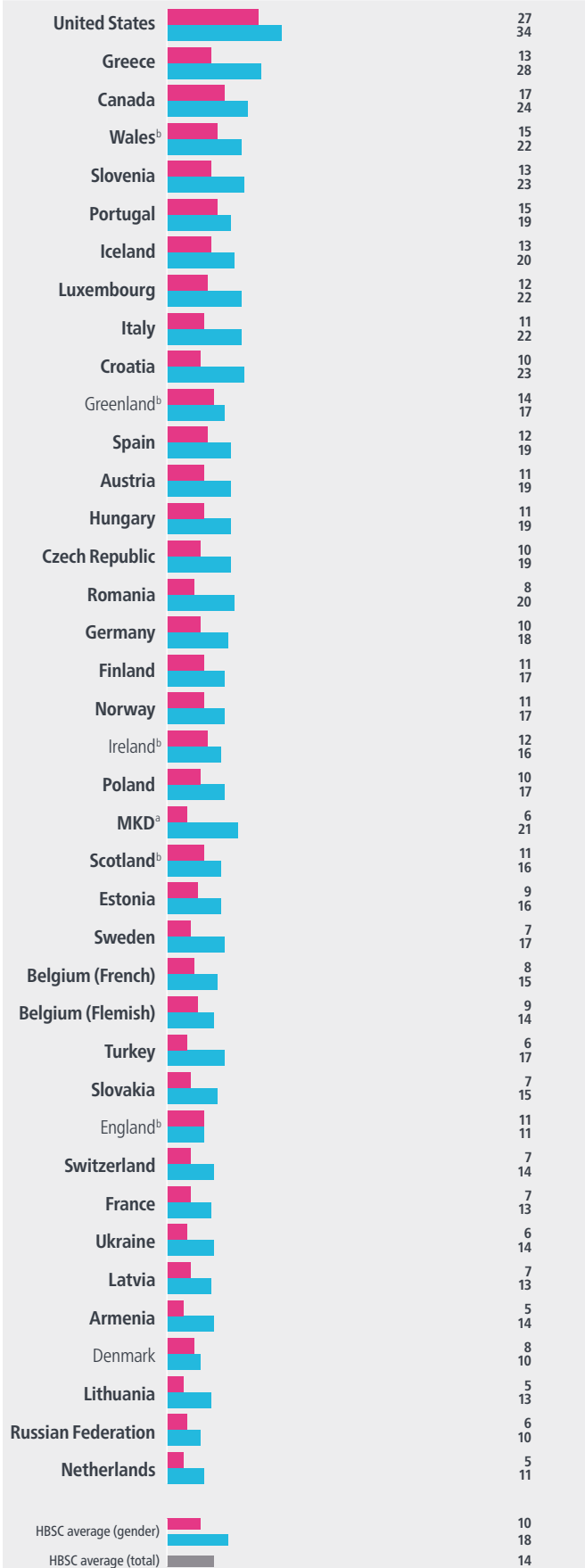
GIRLS (%)
BOYS (%)



^bIndicates 30% or more missing data.

15-year-olds who report that they are overweight or obese according to BMI

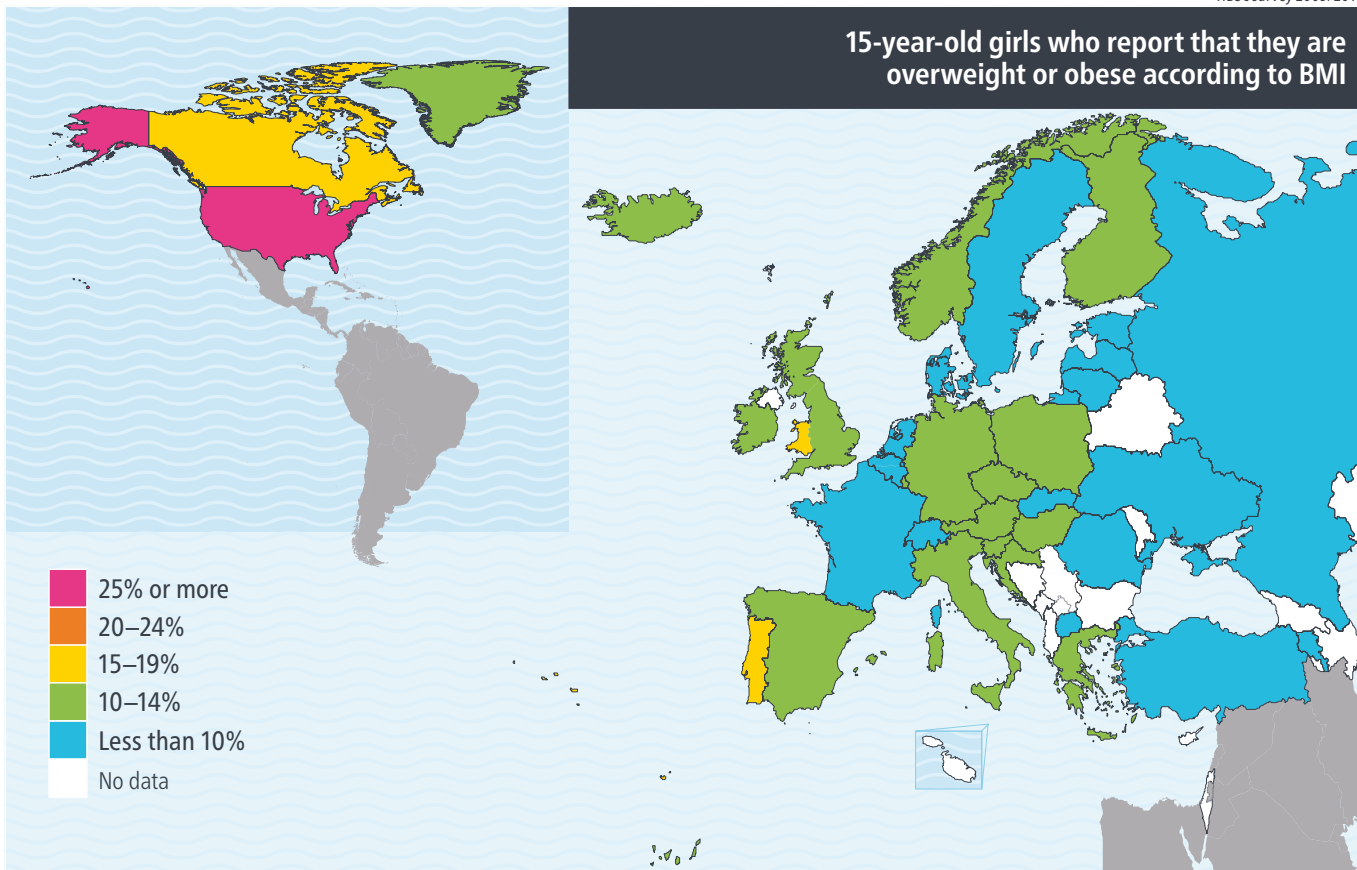
GIRLS (%)
BOYS (%)



^bIndicates 30% or more missing data.

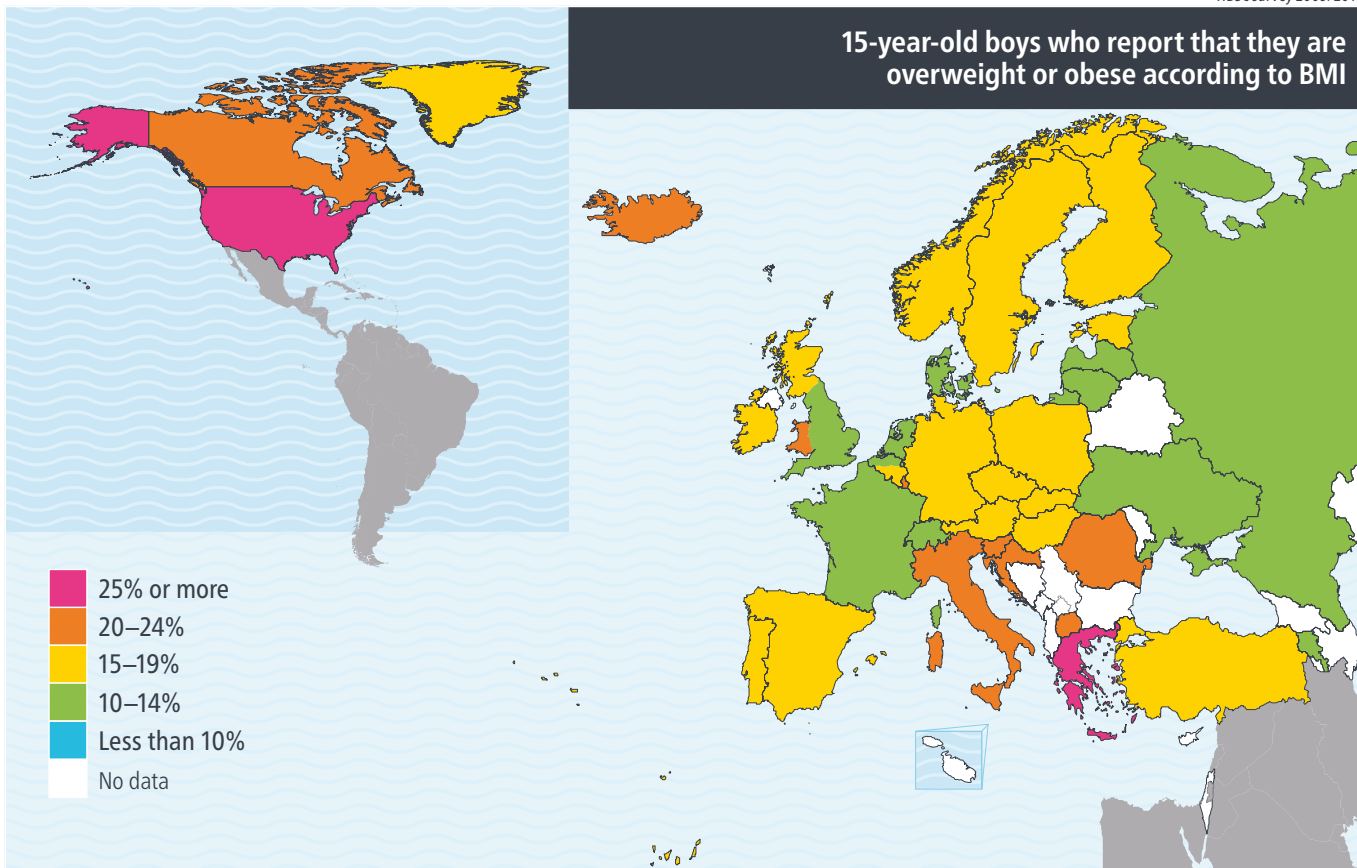
Note. **Indicates** significant gender difference (at p<0.05).

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.

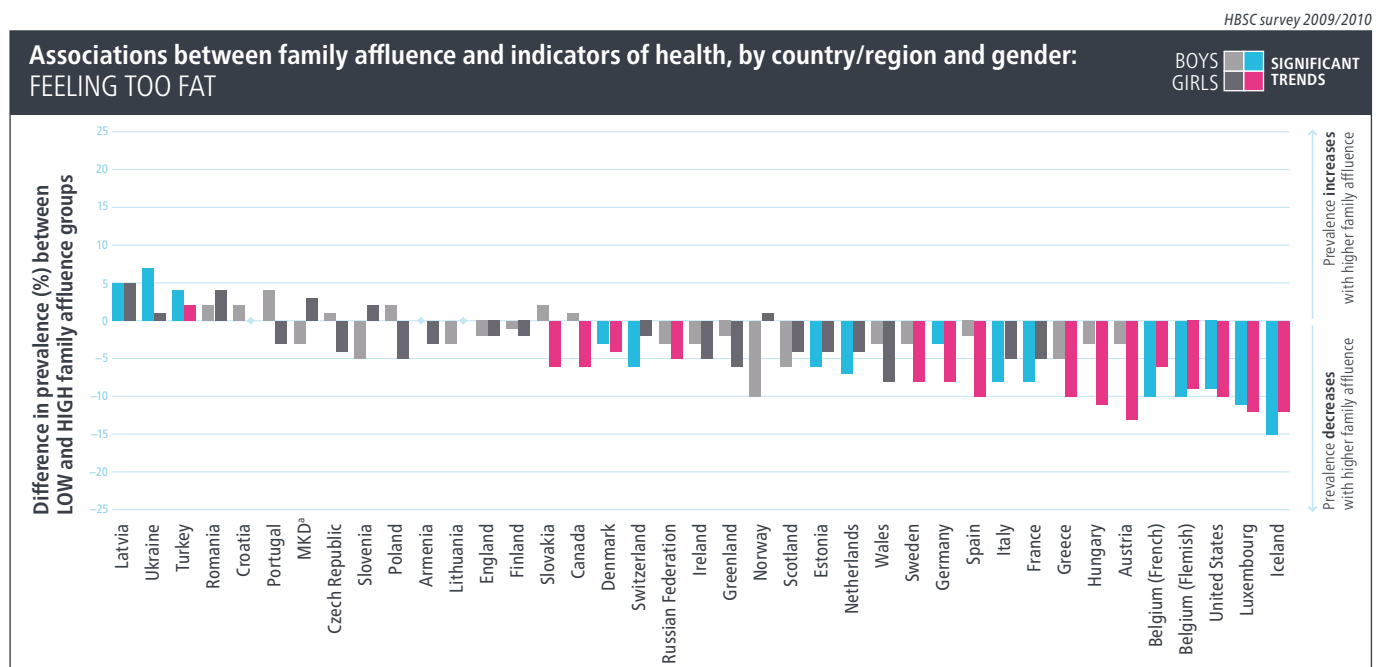
BODY WEIGHT: BODY IMAGE

Body image is a psychological construct that is part of self-image. Its importance increases as young people become more body-conscious with the physical changes associated with puberty. Body satisfaction generally decreases with increasing age (12).

Overweight and obesity have become more prevalent in industrialized countries (13), and body-weight concerns and dissatisfaction have increased (14). Girls are particularly conscious of their bodies.

Weight-control behaviours resulting from body-image dissatisfaction include unhealthy practices (15), such as skipping breakfast and an overemphasis on caloric reduction. Body-weight dissatisfaction is related to increased substance use (16), risky sexual behaviour (17) and poor mental health (18).

Protective factors against excessive body-image concerns are regular physical activity (19), acceptance by peers and the family, and good social relationships (20).



MEASURE

Young people were asked about how they perceive their bodies. Response options ranged from "much too thin" to "much too fat". The findings presented here are the proportions who reported perceiving their body to be "too fat", defined as being "a bit too fat" or "much too fat".

RESULTS

Age

Girls aged 15 were significantly more likely than 11-year-olds in almost all countries to report that they were too fat. The difference in prevalence between ages 11 and 15 was more than 10% in most countries and regions, and 15% in a few. There was no significant prevalence difference among boys in most countries and regions, but increases and decreases in the percentages reporting themselves as "too fat" with increasing age were seen in a small number.

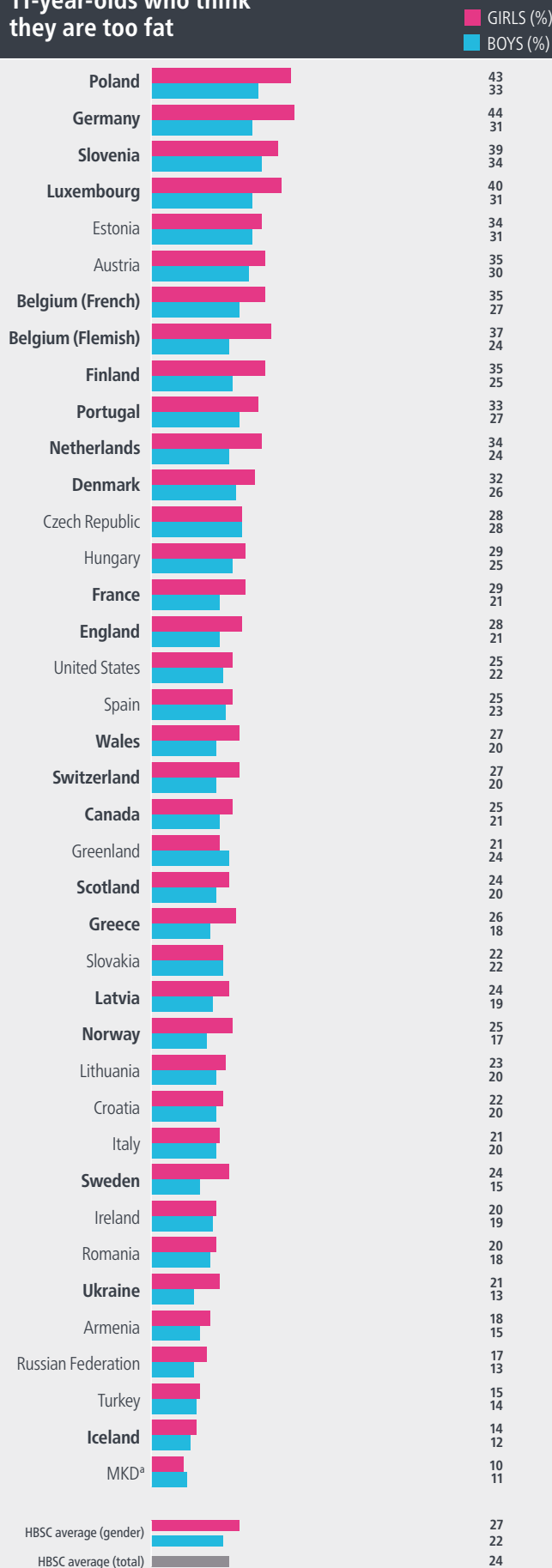
Gender

Girls aged 15 had significantly higher prevalence in all countries and regions: this was also seen in almost all for 13-year-olds and in most for 11-year-olds. The size of gender difference tended to increase with age, exceeding 15% in over half of countries and regions for 15-year-olds.

Family affluence

Most countries showed and regions no significant relationship with family affluence, but perception of being too fat was significantly associated with low family affluence in a few countries and regions, particularly in western Europe and North America.

11-year-olds who think they are too fat

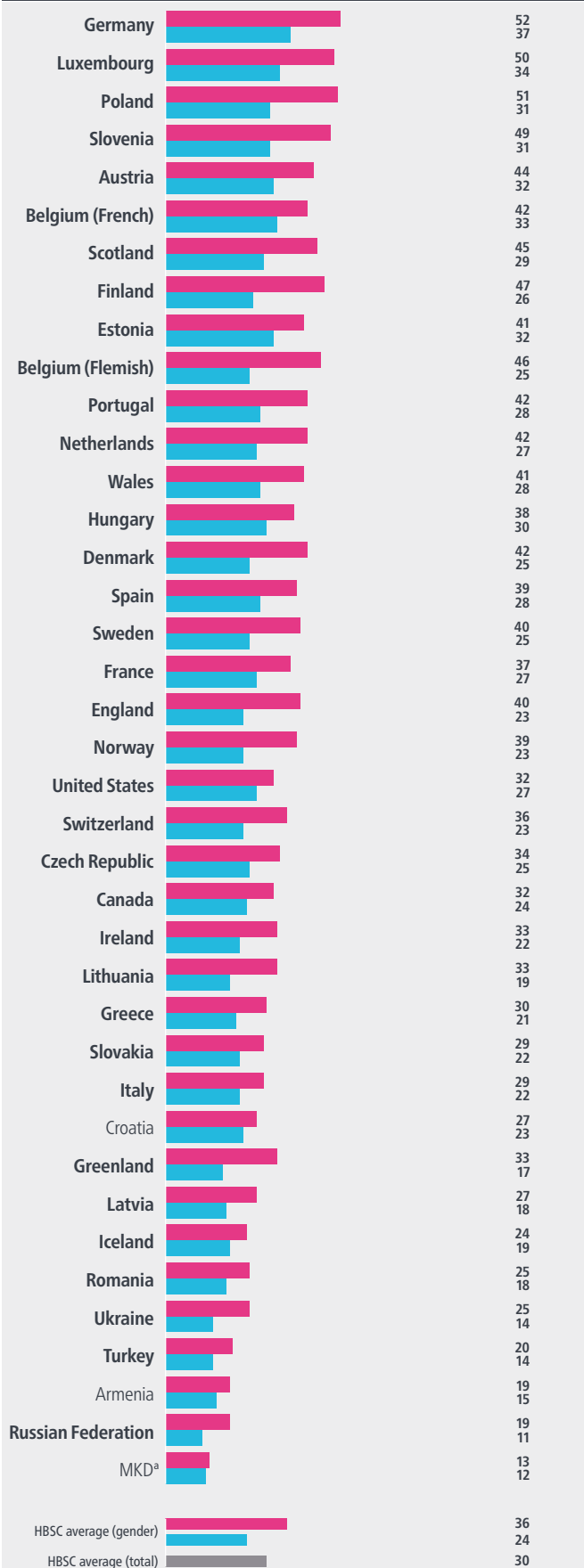


^a The former Yugoslav Republic of Macedonia.

HBSC survey 2009/2010

13-year-olds who think they are too fat

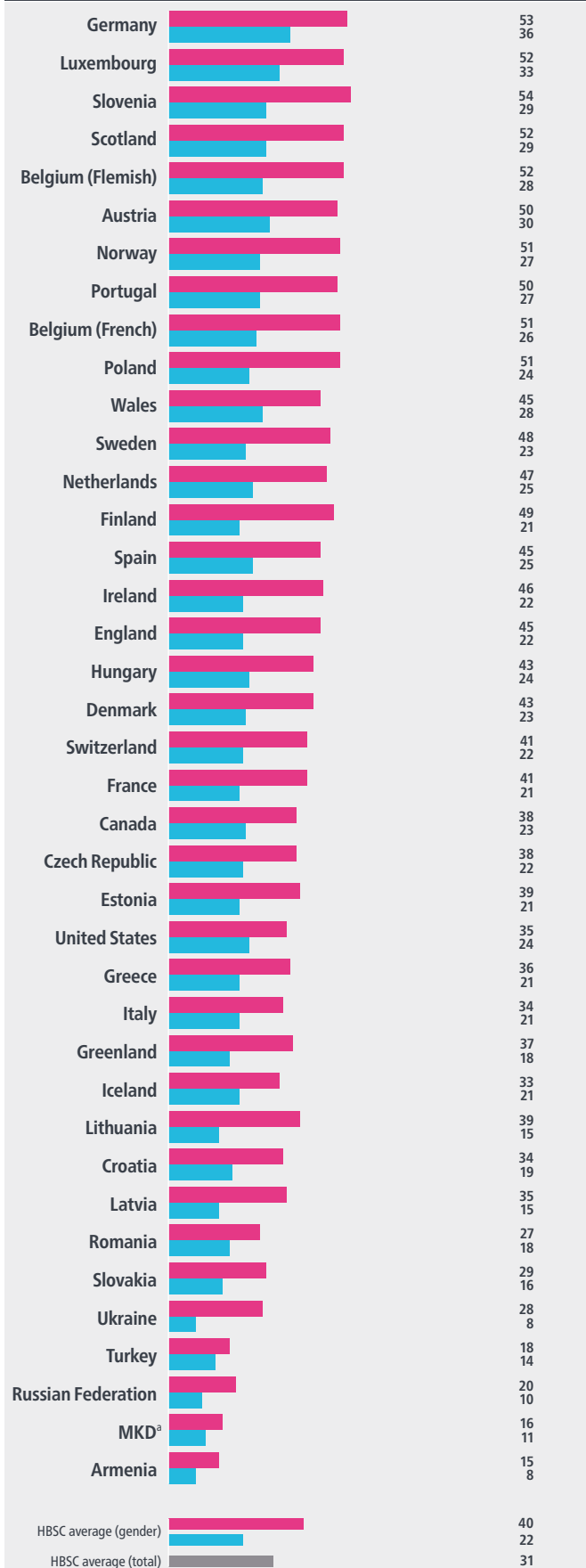
GIRLS (%)
BOYS (%)



HBSC survey 2009/2010

15-year-olds who think they are too fat

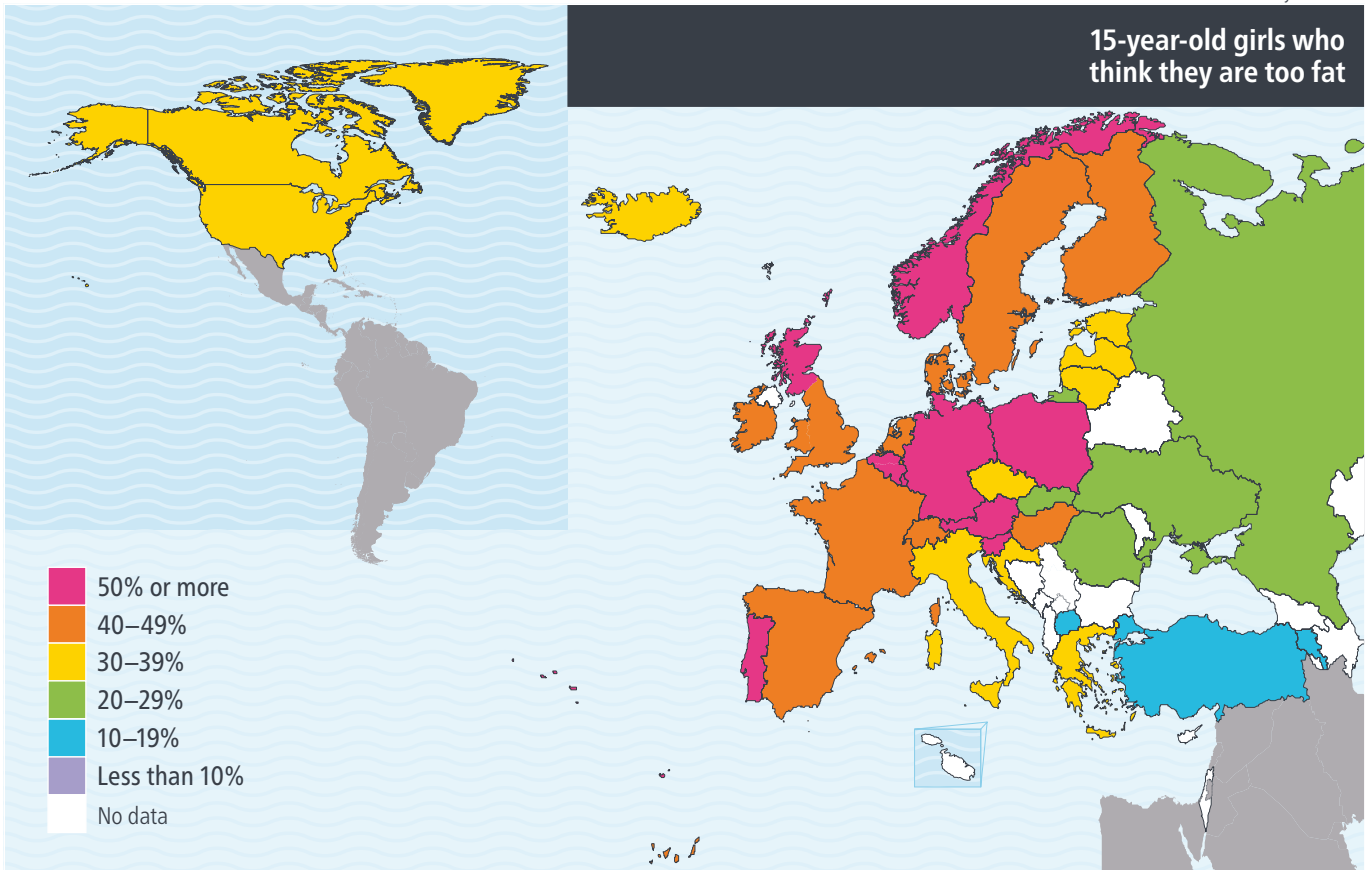
GIRLS (%)
BOYS (%)



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

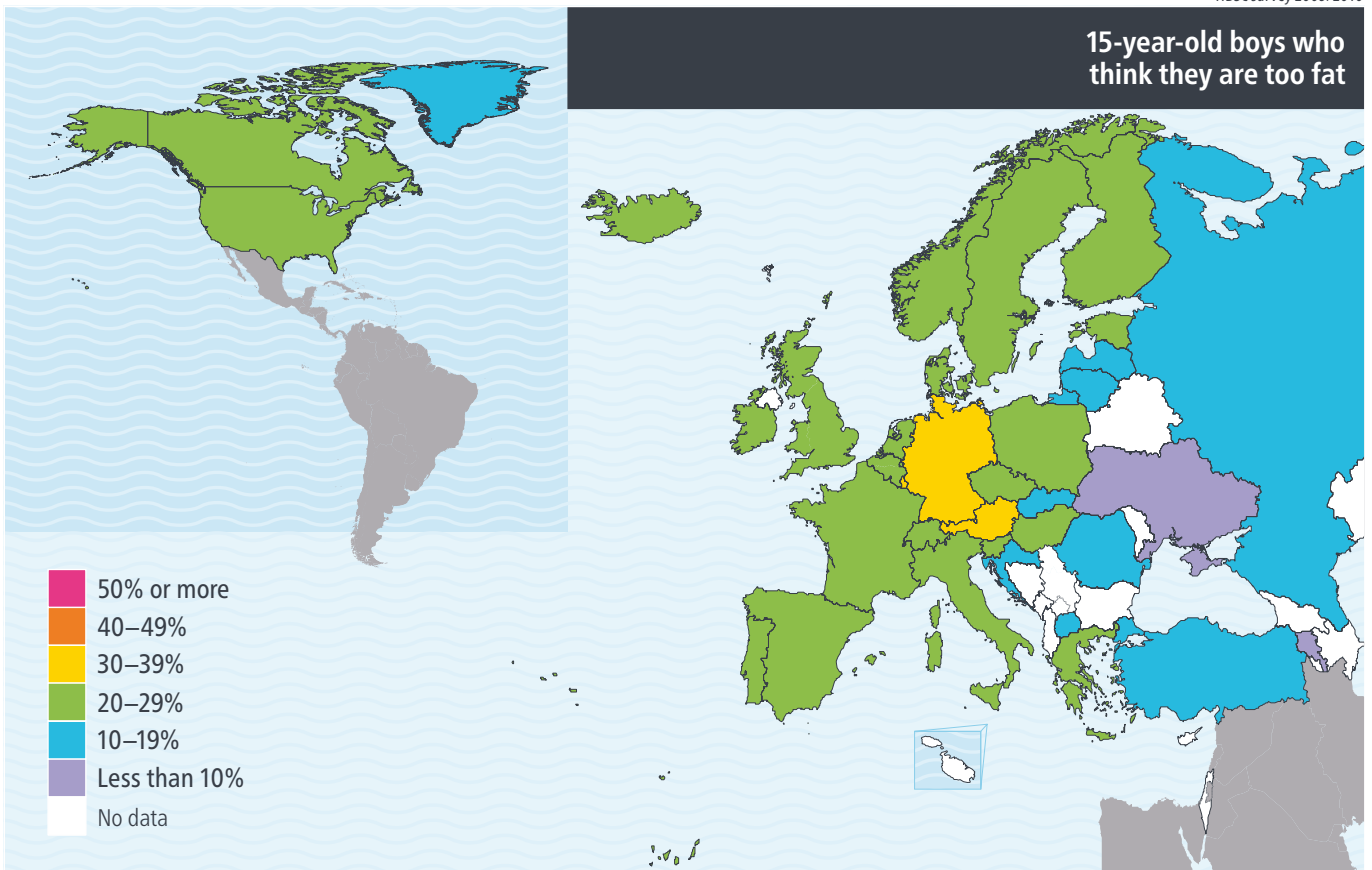
HBSC survey 2009/2010

15-year-old girls who think they are too fat



HBSC survey 2009/2010

15-year-old boys who think they are too fat

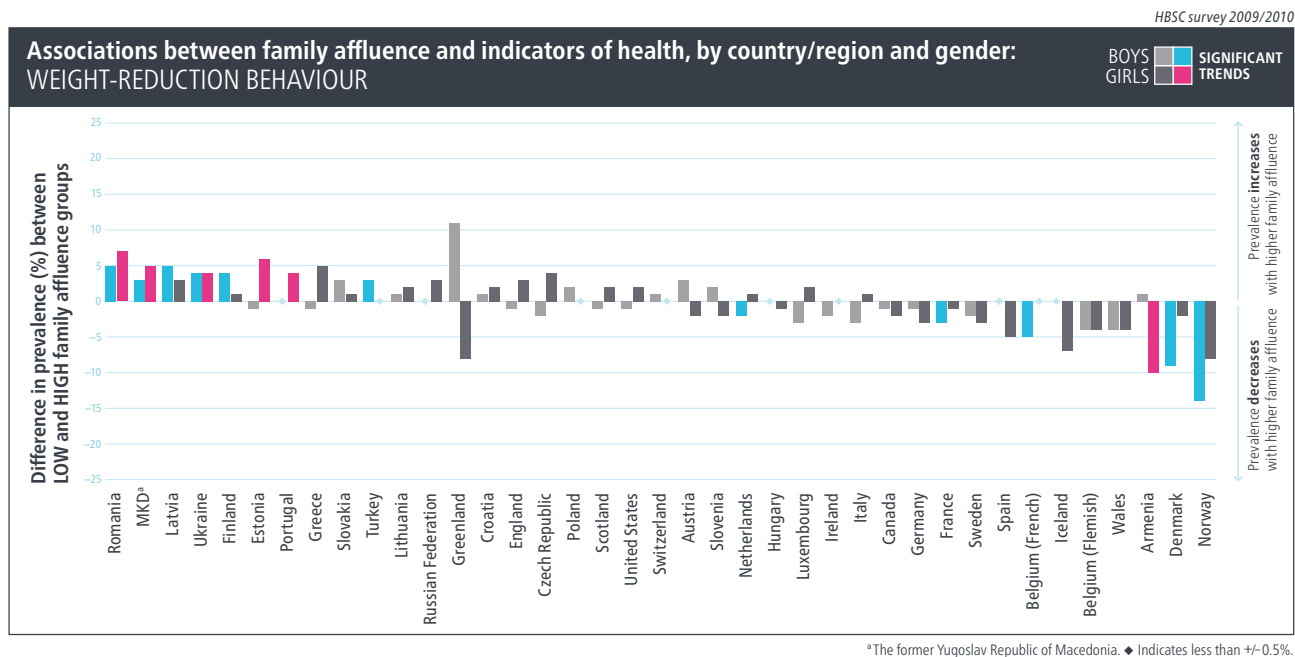


BODY WEIGHT: WEIGHT-REDUCTION BEHAVIOUR

Weight management, when pursued in a healthy way, is an important element of maintaining health. Many adolescents adopt healthy eating and physical activity behaviours to control their weight, but unhealthy methods are also reported (21). Paradoxically, repeated dieting may lead to weight gain through the long-term adoption of binge eating and fasting, followed by overeating or decreased breakfast consumption (22). Extreme dieting is associated with eating disorders (22) and other negative psychological outcomes, such as lower self-esteem (23).

Young people commonly use weight-reduction behaviour as a means to obtain a so-called perfect body (24). The high number of girls perceiving themselves as too fat may be a consequence of intense cultural pressure to be thin, leading to relatively high percentages of girls who are not overweight engaging in weight-reduction behaviour (21).

Factors that protect susceptible young people include positive body image and healthy attitudes and behaviours towards food and physical activity (23). Parental encouragement and positive role modelling are essential for positive weight-related behaviours (25).



MEASURE

Young people were asked whether they were currently “on a diet or doing something else to lose weight”. Response options were: “No, my weight is fine”; “No, but I should lose some weight”; “No, I need to put on weight”; and “Yes”. The findings presented here are the proportions who were currently engaged in weight-reduction behaviour: that is, they were on a diet or doing something else to lose weight.

RESULTS

Age

Girls aged 15 in almost all countries and regions were significantly more likely than those aged 11 to report weight-reduction behaviour. This prevalence increase was mostly 5% to 15%. Although there was no significant association between prevalence and age for boys in most countries and regions, prevalence significantly declined between ages 11 and 15 among boys in a few. This was the opposite of the pattern seen in girls.

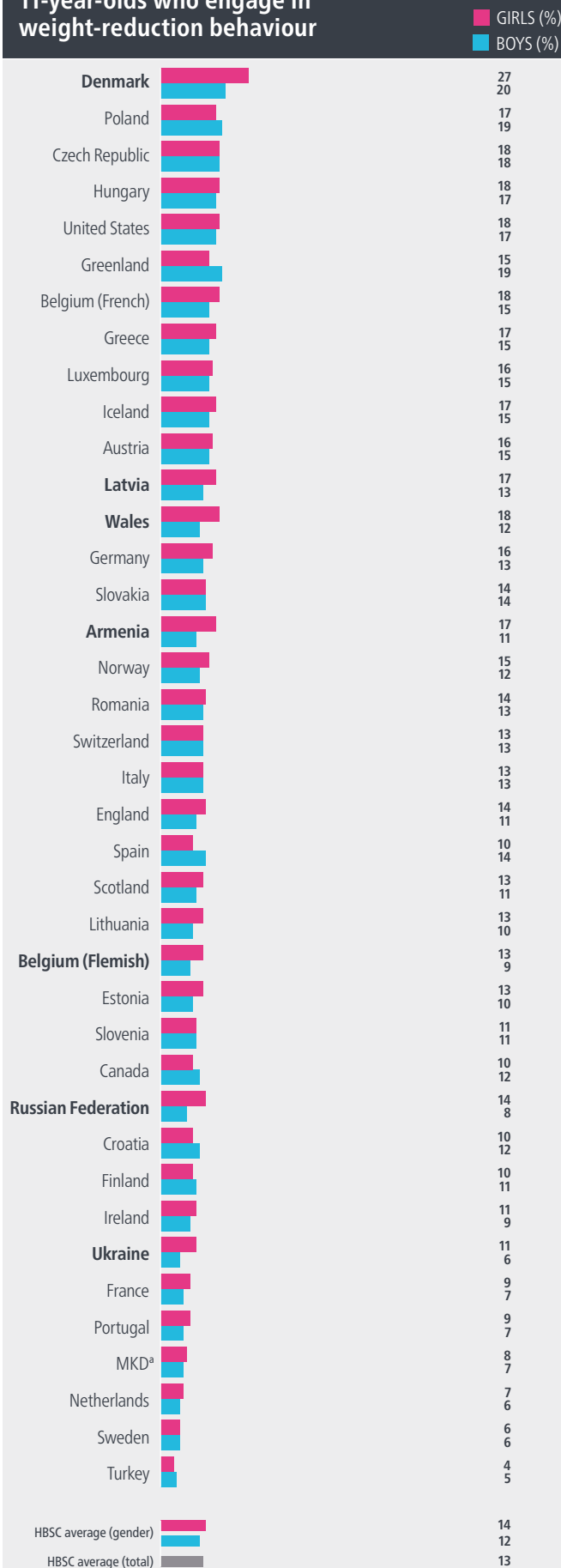
Gender

Girls aged 13 and 15 were more likely to report it in almost all countries and regions. The size of the gender difference tended to increase with age.

Family affluence

There was no clear association between prevalence and family affluence in most countries.

11-year-olds who engage in weight-reduction behaviour

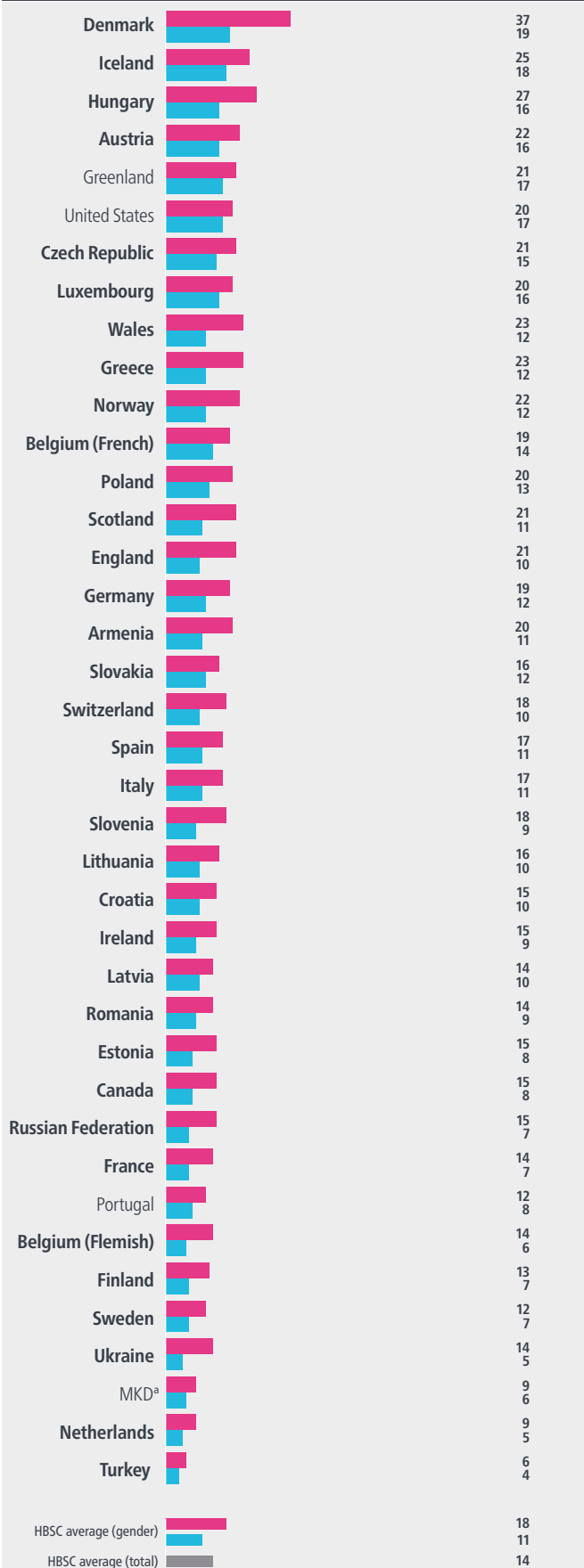


^a The former Yugoslav Republic of Macedonia.

HBSC survey 2009/2010

13-year-olds who engage in weight-reduction behaviour

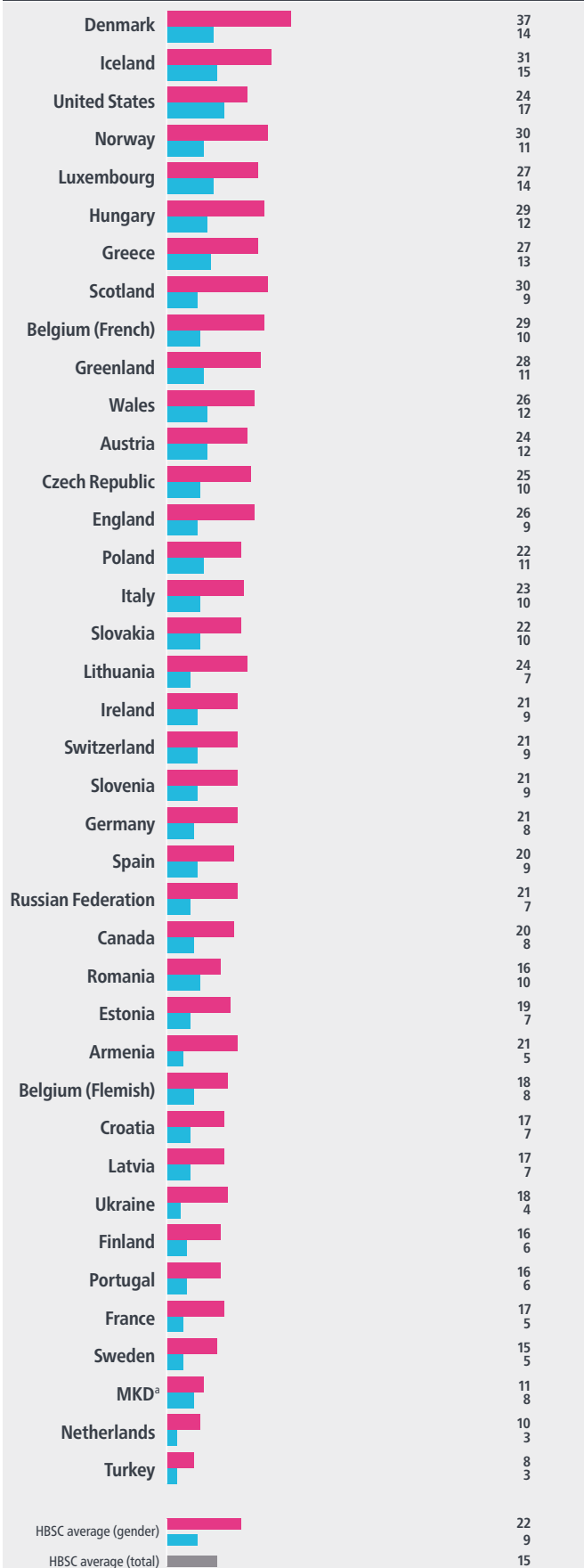
GIRLS (%)
BOYS (%)



HBSC survey 2009/2010

15-year-olds who engage in weight-reduction behaviour

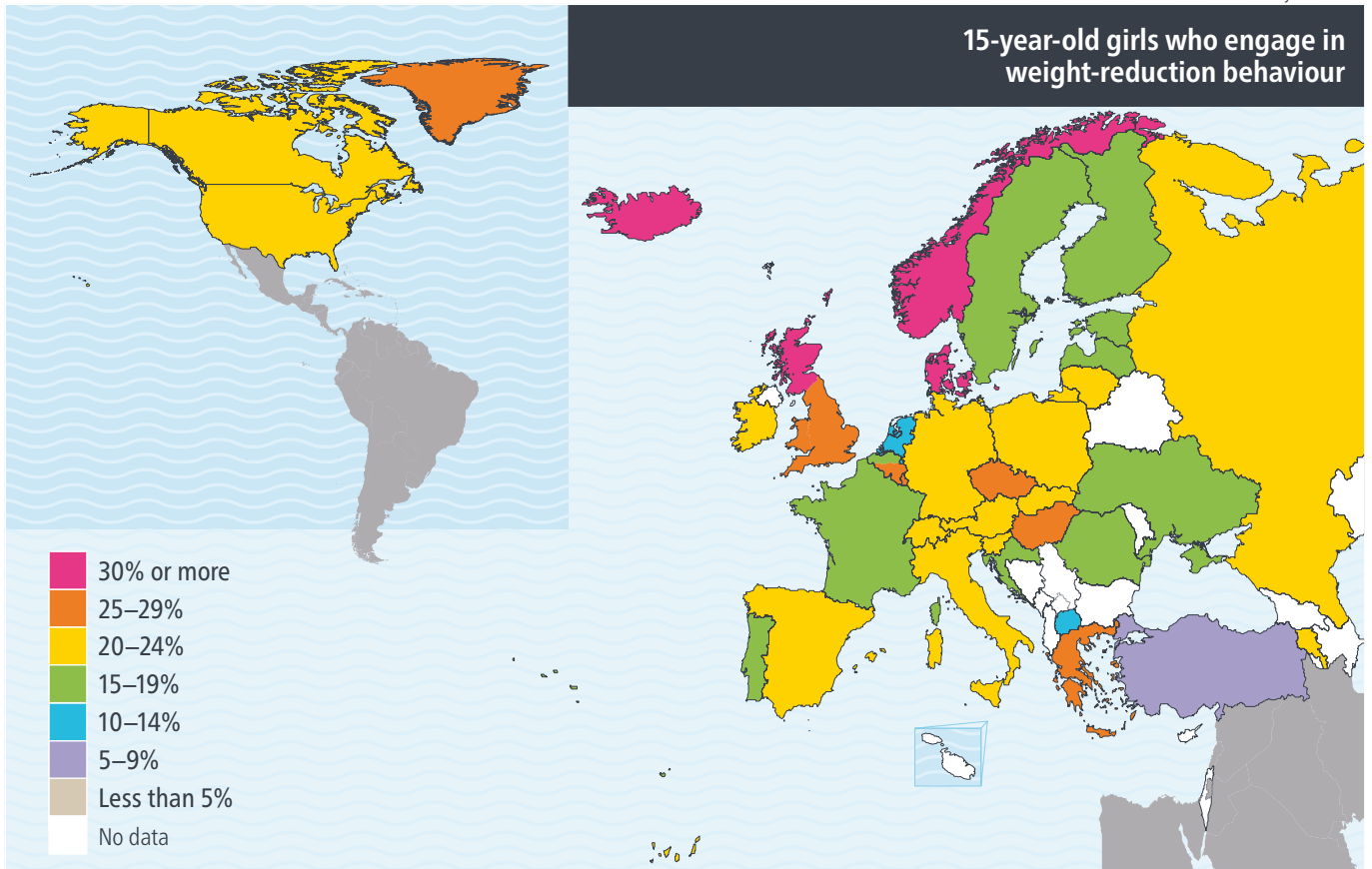
GIRLS (%)
BOYS (%)



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

HBSC survey 2009/2010

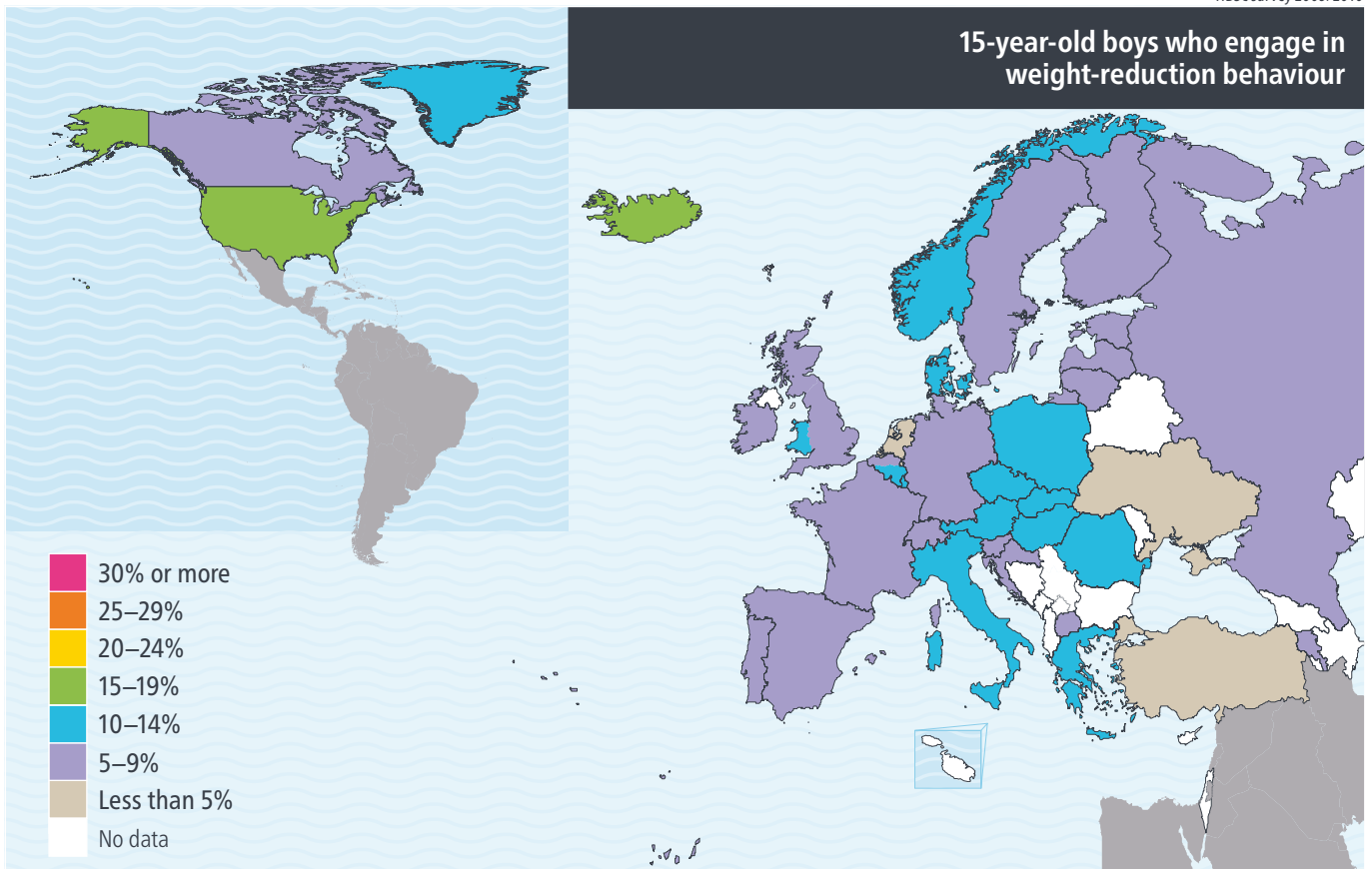
15-year-old girls who engage in weight-reduction behaviour



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 engage in weight-reduction behaviour



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

BODY WEIGHT: SCIENTIFIC DISCUSSION AND POLICY REFLECTIONS

SCIENTIFIC DISCUSSION

Overweight and obesity

Consistent with previous findings, the prevalence of overweight and obesity varies across regions. No clear age pattern is identified, but gender differences are apparent.

Boys tend to be more overweight than girls in most countries. Reasons for this may include girls eating more healthily, boys eating more fast foods (26) and parents being less likely to encourage boys to control their weight. Gender patterns may indicate that environmental influences are more detrimental for boys or that preventative interventions are less effective (2). Girls tend to gain body fat during puberty, which may initiate dieting practices.

Higher overweight prevalence is associated with lower SES in some countries (27), which may be related to a more obesogenic environment (with limited access to healthy foods and fewer opportunities to engage in physical activity) in lower-affluence settings (28). Low-affluence families may also put less emphasis on healthy eating and physical activity as important factors for current and future health.

The highest rates of overweight for boys and girls are seen in North America, but prevalence is also high in southern and some eastern European countries.

These findings must be interpreted with caution owing to the self-report nature of height and weight data used to categorize BMI status. Reporting bias may be larger in girls, as they may be more appearance conscious, particularly at older ages (29).

Body image

Gender and age patterns in relation to body image seem to be common across Europe and North America, consistent with previous HBSC and other findings (30–33).

The increased body fat for girls that comes with puberty contrasts with media stereotypes of the ideal female body shape. Girls may consequently develop a negative body image (34). Boys going through puberty, however, become more muscular and develop broader shoulders, which correspond positively to notions of an ideal male body shape. Boys may therefore develop a more positive self-concept (35).

Higher overweight prevalence is associated with lower SES in developed countries (28). Social differences may stem partly from overweight prevalence, as it is one of the strongest predictors for body dissatisfaction (36).

Boys and girls in eastern Europe are less likely to report being “too fat”; the opposite pattern is found in western and central Europe.

Weight-reduction behaviour

Attempting to lose weight is a common feature of girls’ lifestyles by age 13, with consistently higher rates of weight-reduction behaviours being seen regardless of country or region. Frequency increases with age among girls, but not boys. Gender differences can partly be explained by pubertal changes, with girls seeing increases in weight and body fat as an obstacle to attaining their ideal body shape (37).

Being female is a much stronger predictor for weight-reduction behaviour than the level of family affluence, for which there is no clear association. Family background, however, does play a role, with higher parental and grandparental education being linked to higher demands around appearance and weight among females (25).

There are no evident geographic patterns in the prevalence of weight-reduction behaviour.

POLICY REFLECTIONS

Identification and awareness of shared risk and protective factors for negative body image, obesity, unhealthy weight-reduction behaviours and disordered eating can support the development of relevant interventions for a broad spectrum of weight-related problems (22,28). Necessary prevention components include sound nutrition, an active lifestyle, reduction of teasing and stigmatization around weight and shape, media literacy and effective stress management (38).

Successful prevention programmes may need to integrate biological, psychological and sociocultural approaches that consider individuals and their environments (17,39–41). Gender-specific strategies may also be useful (42), as body image and weight-related problems are strongly gender dependent because of pubertal development patterns in boys and girls and different sociocultural expectations.

Young people often find it difficult to make appropriate judgements and draw the right conclusions about their own weight. Perception of overweight – rather than actual overweight – has emerged as a potent force behind weight-reduction behaviour. The fact that self-perceived fatness is the most important factor leading to weight-reduction activities highlights the importance of promoting positive body image for young people across the weight spectrum (21). The reactions of significant others – such as parents, teachers, health care professionals and peers – to appearance and weight are important: young people who receive affirming reactions to their bodies tend to develop body satisfaction, but parents' critical comments and encouragement to lose weight are associated with increased dieting behaviours (43).

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