

Health and Health Behaviour

among Young People

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Health and Health Behaviour

among Young People

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Health Behaviour in School-aged Children: a WHO Cross-National Study (HBSC) International Report

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EUROPEAN HEALTH21 TARGET 4

HEALTH OF YOUNG PEOPLE

By the year 2020, young people in the Region should be healthier and better able to fulfil their roles in society

(Adopted by the WHO Regional Committee for Europe at its forty-eighth session, Copenhagen, September 1998)

EUROPEAN HEALTH21 TARGET 13

SETTINGS FOR HEALTH

By the year 2015, people in the Region should have greater opportunities to live in healthy physical and social environments at home, at school, at the workplace and in the local community

(Adopted by the WHO Regional Committee for Europe at its forty-eighth session, Copenhagen, September 1998)

ABSTRACT

The series Health Policy for Children and Adolescents (HEPCA) is a WHO document series mainly based on results of the international survey "Health Behaviour in School-aged Children" (HBSC) and on other relevant international studies. It focuses on the implications of scientific results for health policy in developed countries. The target groups are politicians and experts, especially those concerned with the health of young people. The HEPCA series consists of reports on particular topics of high political relevance, including survey data on child and adolescent health, reports on specific health situations and suggestions for future investment in health policies for the young generation.

Keywords

ADOLESCENT BEHAVIOR
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Health Policy for Children and Adolescents (HEPCA) Series No. 1

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Preface

School-aged children, as a defined population group, have until recently been neglected by national and international public health researchers. This can partly be explained by the guidance provided by morbidity and mortality data, which consistently placed school-aged children at the low end of the risk cycle, and the lack of strong global political constituency advocating their health needs. A dramatically broadened definition of morbidity and the rapid growth of youth advocacy groups and programmes such as the health promoting schools project of the WHO Regional Office for Europe have combined to create a more friendly environment for youth research, health promotion processes programmes and ultimately policies sensitive to young people. Over the years the Health Behaviour in School-aged Children Study has played an increasing key role in moving the youth health agenda in a direction that provides evidence needed for both credible and effective governmental decisions affecting young people and informed social choices.

There has been a lot of talk about evidence-based public health. The HBSC Study is a prime example of its potential to redefine international goals, methods and outcome measures. Further, its continuous nature ensures the timeliness of its findings. Its cross-national nature provides the added opportunity to account for differences affected by broader realities of macroeconomic, cultural, and political variants. The HBSC Study offers what may be a unique example of how psychosocial observations interact with structural variables to produce a more reasoned, more balanced approach to health development. After all, as far as improving the health of school-aged children, intervention options can now begin to be seen as interactive, rather than competitive. With the results of the HBSC Study, “stakeholders” in young people’s health, particularly young people themselves, can now map out where and how behaviour change meshes with policy development; where the psychosocial domain connects with the economic and policy domains.

How can the HBSC Study be most useful at the ground level? What should communities make of the data immediately and in the medium term? We predict that the HBSC Study will become a centrepiece for discussion and, yes, controversy. The data raise alternatives for action with differences in costs as well as benefits. It will be refreshing to debate options where heretofore there were few or none to consider.

Finally, the special contribution of the HBSC Study is its reliance on young people as a resource, full partners in the definition of issues, the consideration of strategy, and the judgement of programme and policy benefits. This is radical departure from the tradition of top-down planning and professional dominance of the public health process, and the end of the hegemony of single disciplinary approaches to research and evaluation. So far, each wave of data collection has incorporated fresh insights into factors and forces affecting the health of the school-aged child and, indeed, the new emphasis on youth as a health promoting resource beyond disease or injury prevention. We have every expectation that this kind of responsiveness to changes in concept, perspectives, and research technology will continue.

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Acknowledgements

The Health Behaviour in School-Aged Children (HBSC) Study involves the collaboration of researchers from several countries, under the auspices of the World Health Organization Regional Office for Europe (WHO) and the team from Canada and the United States. Comprehensive surveys of 11, 13, and 15 year olds are carried out every four years in a growing number of countries and are used to investigate health issues within and across participating countries. Erio Ziglio and Vivian Barnekow Rasmussen represented the WHO Regional Office during the planning and administration of the 1997-98 survey and ensured WHO standards would be met in the preparation of this report.

Professor Klaus Hurrelmann and Dr Wolfgang Settertobulte of Bielefeld University were responsible for preparing and co-ordinating this international report. Editing was carried out by Wolfgang Settertobulte, Mary Stewart Burgher (WHO), Rebecca Smith, Joanna Todd and Candace Currie (University of Edinburgh). Publication procedures were efficiently dealt with by Bente Drachmann, Tina Kiær and Rainer Verhoeven (WHO).

For the 1997-98 survey Candace Currie, University of Edinburgh, served as International Coordinator and Bente Wold, University of Bergen, served as Data Bank Manager. Oddrun Samdal, University of Bergen, subsequently served as Data Bank Manager during the preparation of this report.

The enthusiastic and committed efforts of 30 teams of researchers from 29 countries in the planning and administration of the surveys made this report possible. The data collection in each country was funded at a national level. We are grateful for the financial support offered by the various governments ministries, research foundations and other funding bodies in the participating countries.

The following, listed by country, are the national team members who participated in the 1997/98 survey. Full contact details can be found on the HBSC web site:

<http://www.ruhbc.ed.ac.uk/hbsc>

Last, but not least, we are very grateful for the cooperation of all the students who were willing to share their experiences with us, and to their schools for making this survey possible.

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1. The international HBSC Study: rationale, history and description

– Candace Currie

Research into children's health and health behaviour and the factors that influence them is essential for the development of effective health education and health promotion policy, programmes and practice targeted at young people. It is important that young people's health is considered in its broadest sense, as encompassing physical, social and emotional wellbeing; and that, in accordance with the WHO perspective, health is viewed as a resource for everyday living, not just the absence of disease. Thus, research into children's health needs to consider the positive aspects of health, as well as risk factors for future ill health and disease. Many behaviours that comprise young people's lifestyles may directly or indirectly impinge on their health in the short or long term; consequently, a wide range of behavioural variables should be measured. Positive or health promoting behaviour needs to be studied, as well as health-damaging or risk behaviour. Certain behaviour is initiated in the adolescent years, while some patterns of behaviour, such as eating patterns, become established in earlier childhood. Taking a social as opposed to a purely biomedical research perspective means studying the social, environmental and psychological influences or determinants of child and adolescent health and health behaviour. Thus family, school and peer settings and relationships need to be explored, as does the socioeconomic environment in which young people grow up, if we are to understand fully the patterns of health and health behaviour found in the adolescent population.

The Health Behaviour in School-Aged Children (HBSC) Study is a unique cross-national research study conducted in collaboration with the WHO Regional Office for Europe. It is a research project that aims to gain new insight into and increase understanding of health behaviour, lifestyles and their context in young people. The Study also aims to inform and influence health promotion and health education policy, programmes and practice aimed at school-aged children at the national and international levels (1).

HBSC was initiated by researchers from Finland, Norway and England (United Kingdom) in 1982; shortly afterwards, it was adopted by WHO as a WHO collaborative study. The first survey was carried out in the founder countries and Austria in 1983/1984; since 1985, surveys have been conducted at four-year intervals in a growing number of countries. The research findings presented in this report are derived from the 1997/1998 survey, in which 26 European countries or regions¹, Canada and the United States of America participated. The International Coordinator of this survey was Dr Candace Currie, University of Edinburgh and the Data Bank Manager was Dr Bente Wold, University of Bergen. The international HBSC research group is currently preparing for the next cross-national survey, which is due to take place in 2001/2002.

The surveys are conducted in the school setting and involve children completing a questionnaire that was designed by the international HBSC members and is described in detail in section 2 and in the HBSC international research protocol (2). The HBSC teams from each country, led by their principal investigators, collaborated on the production of this protocol. Surveys collect data on a wide range of health behaviours and health indicators, and factors that may influence them. These so-called predictors are primarily characteristics of the children themselves, such as their psychological attributes and personal circumstances, and of their perceived social environment, including their family relationships, peer-group associations, school climate and perceived socioeconomic circumstances. The data can be used in two main ways: to study trends over time both within and between countries; and to enable the analysis of inter-relationships between health behaviour and health, and the factors that may affect them. Both

uses of data are of crucial importance to the development of timely and relevant health promotion actions and health education initiatives at the national and international levels.

This report provides a preliminary overview of comparative data on the countries and regions that participated in the 1997/1998 survey. The last round of data collection involved over 120 000 students in 28 countries. These comparative data are derived from core questionnaire items included in all of the four international surveys (1985/1986, 1989/1990, 1993/1994 and 1997/1998), and focus or special topic questions that were unique to the 1997/1998 survey. The core items are of particular use for monitoring, and the focus questions provide the opportunity to explore certain issues in greater depth. Macro-level influences on adolescent health can only be inferred in this research through the use of descriptive information on the characteristics of school systems in countries and the demographic characteristics of country populations (*see chapter 11*).

The core questions in the survey gathered information on the following topics (however, not all of them are covered in this report):

- demographic characteristics such as age, gender, household composition and parental occupation;
- health-related behaviour such as tobacco use, alcohol consumption, medication use, exercise patterns, leisure-time activities, eating patterns and dental hygiene;
- general perceptions of personal health and wellbeing, and physical ailments;
- psychosocial adjustment, including mental health, self-concept, body image, and family relations and support;
- peer relations and support, including bullying; and
- perceptions of the school and its influence.

The focus areas in the 1997/1998 survey included:

- school experiences
- relationships with parents
- socioeconomic status
- body image.

The number and geographic range of countries participating in HBSC have grown since the early years of the study. The 1997/1998 survey included countries in all parts of Europe, Canada and, for the first time, the United States of America. The European participants include: Austria, Flemish- and French-speaking Belgium, the Czech Republic, Denmark, England, Estonia, Finland, France, Germany, Greece, Greenland, Hungary, Ireland, Israel, Latvia, Lithuania, Northern Ireland, Norway, Poland, Portugal, the Russian Federation, Scotland, Slovakia, Sweden, Switzerland and Wales. The French-speaking part of Belgium carried out the survey but at later stage, which precluded the inclusion of the data in this report. The survey was not carried out in Spain owing to a lack of resources.

The Study has a wider goal than simple data collection. With the collaboration of WHO, HBSC aims to initiate and sustain national and international research on child and adolescent health. In doing so, it aims to promote and support the establishment of relevant national research ex-

pertise and to establish and strengthen an international network of experts in this field. The HBSC Study is also committed to disseminating its findings to the relevant audiences, including researchers, health and education policy-makers, health promotion practitioners, teachers, parents and young people; and, through such activities, to supporting the development of health promotion with school-aged children.

This report is the second international report on the HBSC Study; the first, *The Health of Youth* (3), reported findings from the 1993/1994 survey. The current report is part of a new WHO document series, Health Policy for Children and Adolescents. The target audiences for the series are experts all over the world who are concerned with health-related issues, or whose area of work directly or indirectly affects the health of young people.

2. Methods –

Chris Roberts, Yves François, Joan Batista-Foguet & Alan King

This section focuses on the sampling procedure used in the HBSC Study, data collection and the interpretation of findings presented in the various sections in the report. Its aims are to describe the methodology for the 1997/1998 study and to provide sufficient practical advice to assist in interpreting the findings throughout the sections that follow. References are provided for those who wish to develop these issues in more detail.

Sampling

On the national level, it is of critical importance that each country draws its sample in a way that meets its needs for valid comparisons over time and within and across regions. In an international research project investigating comparisons across countries, however, the sample should be drawn in a similar fashion by each participant. Valid cross-country comparisons are particularly important in emphasizing commonalities across countries, as well as differences between them. It is also important that health researchers in each country see the sample as representative, so they have confidence in the usefulness of findings for health promotion initiatives. For many of the participants in the study, changes over time within the country are more important than comparisons across countries, because this enables them to estimate the impact of health promotion interventions at a national level. A summary of the sampling procedures used in the HBSC Study is presented below. Full details can be found in the protocol for the 1997/1998 survey (4).

The target population

The specific populations selected for sampling in the 1997/1998 survey were young people attending school who were aged 11, 13 and 15; that is, in their twelfth, fourteenth and sixteenth years. In some countries, each age group is in the same grade, because children are promoted each year (assuming the age range is January 1 to December 31 as the determining age for entry to school). In other countries, some students are held back and others accelerated, and these students need to be sampled, as well as those who move from grade to grade at the normal rate. Ninety percent of respondents should be within 6 months of the mean age for each age group and the remaining ten percent no more than 12 months from the mean age. The desired mean age for the three age groups was 11.5, 13.5 and 15.5.

Ideally, all students in the relevant age group, whether in private, public or special schools, should be surveyed. In reality, however, a small number find it difficult to complete the questionnaire and others are in hard-to-reach special institutions. It is assumed that about 95% of the eligible target population is available for sampling. Most countries stratify their samples to ensure reasonable geographical coverage.

In 1997/1998, a regional sample was selected in three countries: France (Nancy-Lorraine and Toulouse-midi-Pyrénées), Germany (North Rhine-Westphalia), and the Russian Federation (St Petersburg and district, Krasnodar *kraj* and Chelyabinsk *oblast*). In addition, responses from one region in Estonia could not be obtained, and the Arab population in Israel was intentionally oversampled. While a weighting scheme was developed to accommodate this, analyses for all other countries presented in this report are based on unweighted data.

Separate studies covered the Flemish- and French-speaking populations in Belgium. It was impossible to include information from French-speaking Belgium in this report, owing to the late arrival of the data, although they will be available for future analysis.

Sample selection

Cluster sampling was used, in which the cluster, or primary sampling unit, was the class (or school in the absence of a sampling frame of classes), rather than the individual student, as in a simple random sample. While cluster sampling is in general not as precise as simple random sampling, it is administratively efficient and can be as precise as simple random sampling if the sample size is increased accordingly.

When cluster sampling is employed, students' responses cannot be assumed to be independent, because students within the same class or school are more likely to be similar to each other than to students in general. Cluster sampling therefore produces standard errors that tend to be higher than would be the case if the same size of sample were obtained using simple random sampling (see, for example, Levy & Lemeshow (5)). If the standard errors increase, the sample size should also be increased if the level of precision of estimates is to be maintained. The design factor is the amount by which the sample size computed for a simple random sample should be multiplied to account for complex sampling, and is defined as the ratio between the standard error derived from a complex survey and that obtained assuming a simple random sample (6).

The recommended minimum sample size for each of the three age groups was set at 1536 students. This calculation assumed a 95% confidence interval of $\pm 3\%$ around a proportion of 50% and a design factor of 1.2, based on analyses of the 1993/1994 survey (7). Confidence intervals are commonly presented to indicate the level of precision associated with survey estimates, illustrating the extent to which a sample represents the population from which it is drawn (8). The suggested sample size for the three age groups in each country was calculated such that, 95 times out of 100, the true response could be expected to lie within plus or minus three percentage points of the responses obtained had the entire target population been surveyed.

Drawing the sample

Given the differences in school systems, age of admission to school and levels of retardation and/or advancement of students across countries, it is very difficult to propose a uniform approach to sampling that will be universally applicable. To overcome this complexity, age was the priority for the sampling procedures used in the survey; therefore each of the three age-group samples was drawn from all those in the appropriate age group. Where all students of the appropriate age were in the same grade, the sample could be drawn from within that grade only. Where age groups were spread across grades, however, all grades were sampled. The position is further complicated when the target population is split across two different levels of schooling (such as primary and secondary).

Where the number of classes eligible for sampling was unknown, the number was estimated using the population of each school. If a school had four classes eligible for sampling, then each of those classes should have the same likelihood of being drawn in the sample as a school with only one eligible class. Each school was therefore weighted in accordance with the number of eligible classes. When a school with two or more classes was selected, the one chosen for the sample was randomly selected. In this way, all classes in the target population had an equal probability of being selected. Assuming an average of 25 students per class, it was suggested that 62 classes would be required to achieve the recommended sample size of 1536 students per age group in each country.

In some countries, to minimize the number of schools required, classes for one age group were randomly sampled in schools, and then classes were sampled from the other two age groups in the same schools. Countries were instructed to take account of expected class size, attendance rates and consent rates when considering how many schools would be required to achieve the target sample size.

In the countries where there was little retardation or advancement of students, or field work was not possible shortly following the date of entry to school, undertaking field work close to the first month of the period of time used to determine the admission of pupils ensured that the vast majority of students in each age group fell within a particular grade. For example, in Norway, admission to school is based on the time frame January to December. To produce mean ages of 11.5, 13.5 and 15.5, the survey was administered in December 1997. Elsewhere, students of a particular age group could be found across grades, requiring all the grades to be sampled. In these circumstances, countries created a so-called class equivalent based on the distribution of students across the grades. In view of the questions relating to school experiences, the timing of field work also recognized the need to gain access to the students when they had been in school for a minimum of one month.

It should be noted that, as the population of Greenland is relatively small, a census of the school population was taken, with the exception of students absent on the day of field work.

Data collection and file preparation

The importance of adhering to the research protocol (2) was stressed to all countries and regions. Questionnaires were administered in schools between October 1997 and May 1998. Table 2.1 indicates the data collection period for each country.

In most countries, questionnaires were delivered to schools, administered by teachers and returned to the research institution on completion. In some countries, however, researchers were used to administer the survey in an attempt to reduce the burden on schools' time. All personnel involved in the field work were fully trained and followed agreed guidelines.

National files from the 28 participants were prepared and exported to the HBSC international databank at the University of Bergen. The data were checked and cleaned according to strict criteria. Students outside the targeted age ranges were removed and all deviations from the international standard were documented. The research protocol provides a complete set of data-cleaning instructions (2).

Tables 2.2 and 2.3 present information on the respondents from the international data set, showing that the 1997/1998 survey collected data from more than 120 000 young people. These respondents were distributed fairly evenly by gender and age group. The mean age for the three age groups, pooled across the entire sample, was 11.7, 13.6 and 15.6, for 11-, 13- and 15-year-olds respectively. There were deviations, however, ranging from 11.2 in Austria to 12.3 in Greenland for the youngest age group, with a similar pattern for 13- and 15-year-olds.

Table 2.1. HBSC survey, 1997/1998: dates of field work by country

Country	Dates
Austria	March–April 1998
Belgium (Flemish-speaking)	March–April 1998
Canada	October 1997
Czech Republic	May 1998
Denmark	March 1998
Greenland	February 1998
Estonia	February–March 1998
Finland	March–May 1998
France	March–April 1998
Germany	February–March 1998
Greece	March–May 1998
Hungary	November 1997
Ireland	February–April 1998
Israel	May 1998
Latvia	November–December 1997
Lithuania	March 1998
Norway	December 1997
Poland	February 1998
Portugal	March 1998
Russian Federation	February 1998
Slovakia	January–February 1998
Sweden	November–December 1997
Switzerland	March 1998
United Kingdom:	
England	October–November 1997
Northern Ireland	February 1998
Scotland	March–April 1998
Wales	February–March 1998
United States	April 1998

Table 2.2. HBSC survey, 1997/1998: number of respondents, by country, gender and age group

Country	Gender		Age group			Total
	Boys	Girls	11-year-olds	13-year-olds	15-year-olds	
Austria	2 086	2 230	1 422	1 518	1 376	4 316
Belgium (Flemish-speaking)	2 406	2 418	1 730	1 535	1 559	4 824
Canada	3 143	3 424	1 856	2 308	2 403	6 567
Czech Republic	1 839	1 864	1 184	1 290	1 229	3 703
Denmark	2 505	2 561	1 713	1 807	1 536	5 066
Greenland	826	822	480	569	599	1 648
Estonia	853	1 044	478	832	587	1 897
Finland	2 397	2 467	1 691	1 628	1 545	4 864
France	1 970	2 163	1 467	1 421	1 245	4 133
Germany	2 443	2 349	1 580	1 613	1 599	4 792
Greece	2 094	2 205	1 662	1 315	1 322	4 299
Hungary	1 755	1 854	1 435	1 356	818	3 609
Ireland	2 157	2 237	1 495	1 442	1 457	4 394
Israel	2 423	2 631	2 299	1 370	1 385	5 054
Latvia	1 705	2 070	1 311	1 199	1 265	3 775
Lithuania	2 150	2 363	1 566	1 512	1 435	4 513
Norway	2 547	2 479	1 733	1 623	1 670	5 026
Poland	2 405	2 456	1 627	1 598	1 636	4 861
Portugal	1 649	2 072	1 217	1 259	1 245	3 721
Russian Federation	1 985	2 012	1 308	1 367	1 322	3 997
Slovakia	1 876	1 913	1 403	1 543	843	3 789
Sweden	1 986	1 816	1 294	1 357	1 151	3 802
Switzerland	2 744	2 776	1 668	2 020	1 832	5 520
United Kingdom:						
England	3 125	3 248	2 279	2 222	1 872	6 373
Northern Ireland	1 796	1 550	1 068	1 197	1 081	3 346
Scotland	2 774	2 858	2 092	1 813	1 727	5 632
Wales	2 257	2 280	1 539	1 571	1 427	4 537
United States	2 395	2 774	1 558	1 803	1 808	5 168
TOTAL	60 291	62 936	42 155	42 088	38 984	123 227

Table 2.3. HBSC survey, 1997/1998: mean ages of respondents, by country and age group

Country	Mean age (years)		
	11-year-olds	13-year-olds	15-year-olds
Austria	11.2	13.2	15.2
Belgium (Flemish-speaking)	11.5	13.5	15.5
Canada	11.5	13.5	15.5
Czech Republic	11.5	13.4	15.3
Denmark	11.8	13.8	15.8
Greenland	12.3	14.1	16.2
Estonia	11.6	13.5	15.4
Finland	11.8	13.7	15.7
France	11.6	13.6	15.6
Germany	11.3	13.3	15.3
Greece	11.6	13.6	15.6
Hungary	12.1	14.0	16.1
Ireland	11.6	13.5	15.5
Israel	12.1	14.1	16.1
Latvia	11.5	13.9	15.8
Lithuania	11.6	13.5	15.3
Norway	11.5	13.5	15.5
Poland	11.7	13.7	15.7
Portugal	12.2	14.2	16.1
Russian Federation	11.6	13.6	15.6
Slovakia	11.4	13.4	15.2
Sweden	11.5	13.5	15.5
Switzerland	11.6	13.5	15.5
United Kingdom:			
England	11.7	13.7	15.7
Northern Ireland	11.5	13.5	15.5
Scotland	11.6	13.6	15.6
Wales	11.9	13.9	15.9
United States	11.9	13.8	15.8
TOTAL	11.7	13.6	15.6

Data analysis and interpretation

A number of important issues need to be addressed in interpreting the results presented in this report. This section deals with the most important of these: impact of sample design, appropriate data analysis and presentation, and assessing international comparisons and trends over time.

Impact of sample design on interpreting findings

Sources of potential error in HBSC data, with particular reference to sampling error, have been comprehensively dealt with elsewhere (7). To assist with interpreting the data presented in this report, however, some guidance on the key issues that should be taken into account is valuable.

Like most social surveys, the HBSC Study is based on a sample of respondents, rather than a census of the total population (with the exception of Greenland). Sampling error and other sources of random error (such as errors in the interpretation of questions) can be estimated by calculating the variance (or its square root, the standard error) of a survey estimate. Many of the most popular statistical packages assume that simple random sampling is used when producing the variance of a survey estimate. Were this the case, the sample would be selected by choosing individuals at random from a sample frame that listed all school-aged children in each country. Under such a design, the standard error (se) of a proportion can be calculated using the sample proportion of interest (p) and the sample size (n), and inserting these figures into the following equation:

$$se(p) = \sqrt{\frac{pq}{n}} \quad \text{where } q = 1 - p$$

For example, there are 1408 15-year-olds in the Welsh sample (n=1408), of whom 25% report smoking weekly (p = 0.25). Therefore:

$$se(p) = \sqrt{\frac{(0.25 \times 0.75)}{1408}} = 0.0115 \text{ or } 1.15\%$$

The 95% confidence interval of the survey estimate is given by:

$$p \pm 1.96 \times se(p)$$

In the current example, this gives confidence intervals of 25% \pm 2.3% (or 22.7–27.3%). In simple terms, these results indicate that there is a 95% chance that the true population value lies somewhere between the calculated intervals, although, strictly speaking, if a number of identical surveys were undertaken on different samples from the same population, the confidence intervals would contain the true population value 95% of the time.

As noted above, however, the HBSC Study employs a clustered sampling design, where the primary sampling unit is the class (or school), rather than the individual student, as in a simple random sample. Given such a design, the students' responses cannot be assumed to be independent, as students within the same class or school are more likely to be similar to each other

than to students in general. Cluster sampling therefore results in standard errors that tend to be higher than would be the case if the same size of sample was obtained using a simple random sample. Consequently, standard errors must be calculated using an appropriate method that takes account of the correlation of children within schools or classes.

In addition, a number of countries stratify their samples, classifying the sample frame into smaller units, often geographical areas, to ensure coverage of all regions in the country. This stratification is likely to reduce standard errors and should be taken into account when they are being calculated.

Various statistical software packages that take account of complex sampling designs (such as SUDAAN and Stata) are now available to calculate standard errors. As an alternative to presenting true standard errors (that is, taking account of the complex sampling design) for all items of interest in a report such as this, a selection of design factors are given. As noted earlier, the design factor in this instance is the ratio between the standard error derived from clustered sampling with stratification and that obtained assuming a simple random sample (see, for example, Kish (6)). Using the example of weekly smoking among 15-year-old Welsh students, the true complex standard error obtained for this estimate is 1.53%, resulting in 95% confidence intervals around the estimate of 22.0% to 28.0%. This compares with a confidence interval of 22.7% to 27.3% under the assumption of simple random sampling. The value of the design factor for this estimate is therefore $1.53 \div 1.15$ or 1.33.

Design-factor values for selected variables have been calculated for a small number of countries and are presented for reference in Tables 2.4–2.6 for 11-, 13- and 15-year-olds. Values are not presented for smoking weekly and being drunk on four or more occasions for 11-year-olds, given the extremely small prevalence of these variables (less than 1% in many countries). True standard errors have been calculated using the Stata software package (StataCorp., 1999). Inspection of these tables reveals great variation in design-factor values between the selected variables for each country and age group, although some patterns emerge. For example, values tend to be higher for variables focusing on the school as a setting, which is not surprising, as students within schools or classes are likely to hold similar views on the aspects of the school measured. Conversely, lower values are recorded for some variables (such as ease of making friends and feeling confident), suggesting that students within the same school or class are no more likely to resemble their colleagues in views or behaviour than they would other students selected on a purely random basis.

Using appropriate design-factor values, presented in Tables 2.4–2.6, the true standard error (and confidence interval) of a variable accounting for the complex survey design can be estimated by multiplying the standard error (assuming simple random sampling) by the corresponding value.

Data analysis and presentation of findings

Most findings in this report are presented as proportions in a simple bar-chart format, broken down by country, age and gender. Typically, data are presented from one response category (or a combination of response categories). For example, the proportions of respondents reporting exercising on two or more occasions a week are presented in section 7. Ideally, confidence intervals should be provided for each of the survey estimates presented throughout the report, providing the likely range of values to be found in the population being considered.

Table 2.4. HBSC survey, 1997/1998: design-factor values for selected variables, 11-year-olds

Variable	Czech Republic	Finland	Latvia	Norway	Portugal	Scotlard	Switzerland	Wales
Academic achievement ¹	1.26	1.34	1.46	1.21	1.18	1.52	1.22	1.44
Like school	1.44	1.80	1.16	1.27	1.04	1.36	1.37	1.25
Exercise \geq 4 times a week	1.20	1.23	1.12	1.18	1.09	1.50	1.11	1.25
Eat burgers daily	1.39	1.04	1.38	1.22	1.24	1.43	1.00	1.22
Good health ²	1.16	.99	0.93	1.29	1.15	1.24	1.13	0.88
I belong at school ³	1.25	1.45	1.81	1.42	1.31	1.38	1.31	1.54
Teachers treat us fairly ³	1.43	1.61	1.63	1.44	1.03	1.75	1.38	1.35
Students enjoy being together ⁴	1.40	1.31	1.35	1.28	1.30	1.34	1.24	1.27
Bullied \geq 1 times in last term	1.14	1.31	1.47	1.29	1.25	1.23	1.17	1.17
One or more evenings with friends	1.41	1.02	1.47	1.17	1.16	1.23	1.41	1.28
Easy to make friends	0.97	1.10	1.27	1.10	1.24	1.24	1.18	1.06
Feel confident	1.10	1.15	1.55	1.18	1.05	1.25	1.15	1.07
Happy with looks	1.21	1.14	1.38	1.18	1.31	1.38	1.18	1.31

¹ Those who think they are good or very good at school.

² Those who think they are very healthy.

³ Those who agree or strongly agree with these statements.

⁴ Those answering "always".

Table 2.5. HBSC survey, 1997/1998: design-factor values for selected variables, 13-year-olds

Variable	Czech Republic	Finland	Latvia	Norway	Portugal	Scotlard	Switzerland	Wales
Academic achievement ¹	1.37	1.17	1.22	1.35	1.13	1.37	1.14	1.41
Like school	1.49	1.51	1.19	1.49	1.25	1.36	1.24	1.12
Smoke weekly	1.33	1.43	1.20	1.71	1.20	1.21	1.23	1.20
Drunk ≥ 4 times	1.01	1.30	1.11	1.19	1.28	1.07	1.06	1.47
Exercise ≥ 4 times a week	1.10	1.13	1.25	1.09	1.11	1.50	1.13	1.12
Eat burgers daily	1.22	1.01	1.23	1.13	1.14	1.43	1.08	1.04
Good health ²	1.13	1.00	1.17	1.10	1.08	0.98	1.05	1.01
I belong at school ³	1.21	1.32	1.75	1.25	1.23	1.38	1.40	1.27
Teachers treat us fairly ³	1.53	1.57	1.46	1.53	1.08	1.74	1.24	1.53
Students enjoy being together ⁴	1.22	1.59	1.38	1.30	1.31	1.23	1.25	1.22
Bullied ≥ 1 times in last term	1.15	1.40	1.39	1.36	1.07	1.23	1.13	0.97
One or more evenings with friends	1.06	1.12	1.19	1.14	1.41	1.23	1.25	1.14
Easy to make friends	1.15	1.10	1.08	1.09	1.01	1.25	1.09	0.92
Feel confident	1.10	0.94	1.55	1.19	1.03	1.25	1.19	1.10
Happy with looks	1.16	1.08	1.26	1.19	1.11	1.19	1.02	1.24

¹ Those who think they are good or very good at school.

² Those who think they are very healthy.

³ Those who agree or strongly agree with these statements.

⁴ Those answering "always".

Table 2.6. HBSC survey, 1997/1998: design-factor values for selected variables, 15-year-olds

Variable	Czech Republic	Finland	Latvia	Norway	Portugal	Scotland	Switzerland	Wales
Academic achievement ¹	1.24	1.07	1.25	1.01	1.22	1.10	1.07	1.20
Like school	1.49	1.08	1.19	1.22	1.21	1.57	1.25	1.38
Smoke weekly	1.32	1.30	1.68	1.51	1.28	1.36	1.23	1.32
Drunk ≥ 4 times	1.27	1.29	1.45	1.39	1.17	1.42	1.17	1.39
Exercise ≥ 4 times a week	1.32	1.20	1.12	1.06	0.97	1.03	1.07	1.41
Eat burgers daily	1.06	1.07	1.25	1.05	1.07	1.27	1.08	1.08
Good health ²	1.09	1.11	1.00	1.07	1.19	1.07	1.09	1.01
I belong at school ³	1.34	1.21	1.78	1.31	1.32	1.35	1.31	1.30
Teachers treat us fairly ³	1.61	1.37	1.37	1.51	1.14	1.29	1.38	1.39
Students enjoy being together ⁴	1.34	1.35	1.44	1.39	1.53	1.04	1.22	1.22
Bullied ≥ 4 times in last term	1.16	1.20	1.37	1.45	1.20	1.24	1.26	1.18
One or more evenings with friends	1.22	1.11	1.06	1.06	1.27	1.04	1.01	1.19
Easy to make friends	1.07	1.11	0.99	1.12	1.06	0.94	1.03	1.19
Feel confident	0.99	0.99	1.55	1.17	1.04	1.07	1.23	1.03
Happy with looks	1.02	1.08	1.13	0.94	1.07	1.10	1.06	1.27

¹ Those who think they are good or very good at school.

² Those who think they are very healthy.

³ Those who agree or strongly agree with these statements.

⁴ Those answering "always".

This is not practical for a report of this size, but Table 2.7 provides approximate confidence intervals for a range of proportions. In calculating these intervals, a sample size of 750 is assumed, given that the data are broken down by age and gender within each country. In addition, a design-factor value of 1.2 has been assumed to take account of the complex nature of the sampling procedure. The confidence intervals are symmetrical around 50% (such as the confidence interval for both 40% and 60% is $\pm 4.2\%$, for both 70% and 30% is $\pm 3.9\%$ and so on). For example, if the estimated proportion of 11-year-old boys exercising twice or more a week in Wales is 87%, the 95% confidence interval is $\pm 3.1\%$ and the true population figure would be somewhere between 84% and 90%.

Table 2.7. HBSC survey, 1997/1998: approximate 95% confidence intervals

Proportion of interest (%)	Confidence interval (%)
5	± 1.9
10	± 2.6
15	± 3.1
20	± 3.4
25	± 3.7
30	± 3.9
35	± 4.1
40	± 4.2
45	± 4.3
50	± 4.3

In addition, authors have shown the associations between variables of interest and factors related to them, such as truancy, relations with parents, disliking school and alcohol consumption. With ratio or interval-level variables (or even dichotomous variables), Pearson correlation coefficients are used to measure the degree of linear association. As most of the HBSC data are ordinal-level variables, however, the researcher should use other appropriate measures of association, such as in section 4, where Pearson correlation coefficients, Student's *t* or χ^2 are used to assess factors associated with family and peer relations. Similarly, in section 9, Phi-coefficients and Spearman's ρ coefficients are used to assess the association between a range of variables and tobacco and alcohol consumption (9).

With the exception of section 6, where analyses are undertaken at the country level, the associations have been calculated by aggregating data for all countries, the primary purpose being to provide general patterns. Clearly, associations between particular variables differ from country to country. Further work, beyond the scope of this report, will be needed to examine the relative influence of particular factors.

Two basic principles have guided the presentation of these associations in the sections that follow. First, researchers need to interpret the findings based on their knowledge and experience, rather than relying solely on tests of statistical significance (10). Second, the findings are more usefully presented in graphic form, rather than the usual large, unappealing tables. Rather than

present actual measures of association between variables and statistical significance, three or four different levels of linear association are presented for each specific table, using a shading scheme designed to indicate the strength of the association.

Interpreting international comparisons and changes over time

Many researchers and policy-makers are interested in understanding the similarities and differences between countries in the HBSC Study and how this situation has changed over time. The ability to address such issues is clearly an attraction of such an international study, and efforts are made to standardize the methods employed in each country. Nevertheless, some caution should be exercised when interpreting the findings in this report.

Sampling has been dealt with in some detail, but numerous other factors need consideration when looking at the data presented here. The Study encompasses many school systems, crosses many cultures and languages (within and between countries) and uses different methods of survey administration (by, for example, teachers and researchers). Samples may differ in terms of variables such as age (see, for example, Table 2.3), socioeconomic status, school system and geographical coverage. In addition, school attendance may vary, which has the potential to introduce bias into the data presented. For example, past research has indicated that absentees are more likely to smoke (11). Further, seasonal differences in the timing of field work may affect particular variables. These sample variations may exist between and within countries over time, and should not be overlooked. Smith et al. (12) give a fuller treatment of this problem.

Given this range of complicating factors, comparisons across countries and over time should be interpreted with some caution, and analysis suggests that not too much weight should be given to differences of six percentage points or less. Nevertheless, methodological differences alone are unlikely to account for some of the huge variations between countries presented in this report.

Organization of the report

The remainder of this report is divided into nine sections. Section 3 presents the findings on general health and the use of medication. Section 4 focuses on students' family and peers, including communication within families, making friends and time spent with friends. Section 5 presents information on adolescent health and the school environment, dealing with satisfaction with school and perceptions of school life, such as involvement in school structures, support from peers and teachers, and academic achievement. Section 6 presents data on socioeconomic inequalities in adolescent health, examining the relationship between socioeconomic status and health behaviour across a number of countries. In section 7, physical and leisure-time activities are covered in terms of physical activity outside of school and other popular leisure pursuits, such as watching television and playing computer games. Section 8 presents data on eating habits and dental care, looking at foods eaten by young people, tooth brushing and dieting practices. Section 9 describes patterns of tobacco smoking and alcohol consumption. Section 10 looks at sexual health for the group of countries including these items, focusing on sexual behaviour and use of contraception. Finally, section 11 provides background information for each participating country, such as demographic characteristics, health policies and school systems.

3. Adolescents' general health and wellbeing –

Peter Scheidt, Mary D. Overpeck, Wendy Wyatt & Anna Aszmann

Introduction

Adolescence is defined as the period from the onset of puberty to the termination of physical growth and attainment of final adult height and characteristics (13) that occurs during the second decade of life. It is characterized by rapid physical growth, significant physical and psychological changes, and evolving personal relationships. Adolescence and the great and rapid changes associated with it may have major effects on the health of individuals, and, conversely, variations in health may significantly affect the transitions of adolescence. Thus, data on how young people move through adolescence, and factors that influence the success of and difficulty with this transition should include measures and indicators of health.

International comparisons of the rates and variations of transitions through adolescence and the interactions of adolescence with health offer rich opportunities to confirm fundamental biological and developmental processes while examining the effects of contextual and cultural processes. Perceptions of health, self-confidence and satisfaction with life reflect the level of stress and anxiety that young people experience. The frequency of morning tiredness may offer important guidance for policy on schools' hours of operation. Medication use for certain symptoms may reflect the prevalence of causes of these symptoms, and attitudes towards and availability of medication, or both. In most instances, these data cannot determine the cause of health events experienced by young people, but international comparisons can describe similarities between countries, and highlight issues to be addressed and questions to be answered.

General health and wellbeing

Adolescence is a period of greatly enhanced awareness of and attention to physical status and wellbeing. This period is traditionally viewed as a time of optimal health with low levels of morbidity and chronic disease (14). Indeed, from previous experience in the United States, the vast majority of middle-school students (93%) have reported being in good, very good or excellent health (15). Nevertheless, suicide, depression, other mental health conditions, AIDS and other adolescent-focused risks threaten this notion of prevailing good health for adolescence. This notion is related to the overall utilization of health services (16) and exposure to health risks. The concept of measuring adolescent health through standardized self-report is well established (17). Thus, a global measure of general health was included in the HBSC survey and in the international comparative analyses to measure the perceived impact of health risks on this population.

Feeling healthy

General health status was assessed by a single question that asked: "How healthy do you think you are?" Response choices were: "very healthy", "quite healthy" (or in some questionnaires, "somewhat healthy"), or "not very healthy". The first two responses were combined to derive a variable of feeling healthy, in contrast to not very healthy.

As in the last HBSC survey, most students in the 1997/1998 survey consider themselves healthy (total 91.8%, range 81.2% to 98.0%) (3). By a small but consistent difference, a higher percentage of males (93.7%) than females (90.0%) report feeling very healthy; and this pattern is consistent for all countries and regions. The youngest girls have the highest levels of feeling healthy (93.0%), and the percentage decreases for each subsequent age group (from 91.2% to 87.4%). Percentages of 11- and 13 year-old boys who feel healthy are similar (over 95%), with slight decreases for 15-year-old boys (93.6%). The same trend is seen among all participating

countries and for both genders, though the differences between age groups are not as great as those between genders.

As reported from the last survey (3), young people in Sweden report the highest rates of feeling healthy (98.0%), but rates for Finnish young people, previously in the middle, are now comparable. Least positive about their health are the young people of four countries in central and eastern Europe (84.2–88.8%) and the Russian Federation (81.2%). Students from the United States along with those in Wales, Estonia, and Northern Ireland, are relatively negative about their health.

Feeling happy

Assessments of how students feel about life in general, whether they feel low (have negative affect) or lonely, although not a direct measure of health, are included for correlation with symptoms and health outcome as factors that often affect or are affected by health, and as indicators of mental health.

How the students feel in general was assessed by asking: “In general, how do you feel about your life at present?” Responses included: “I feel very happy”, “I feel quite happy”, “I don’t feel very happy” and “I am not happy at all”. The first two and the last two were combined to derive measures of feeling happy and not feeling happy, respectively.

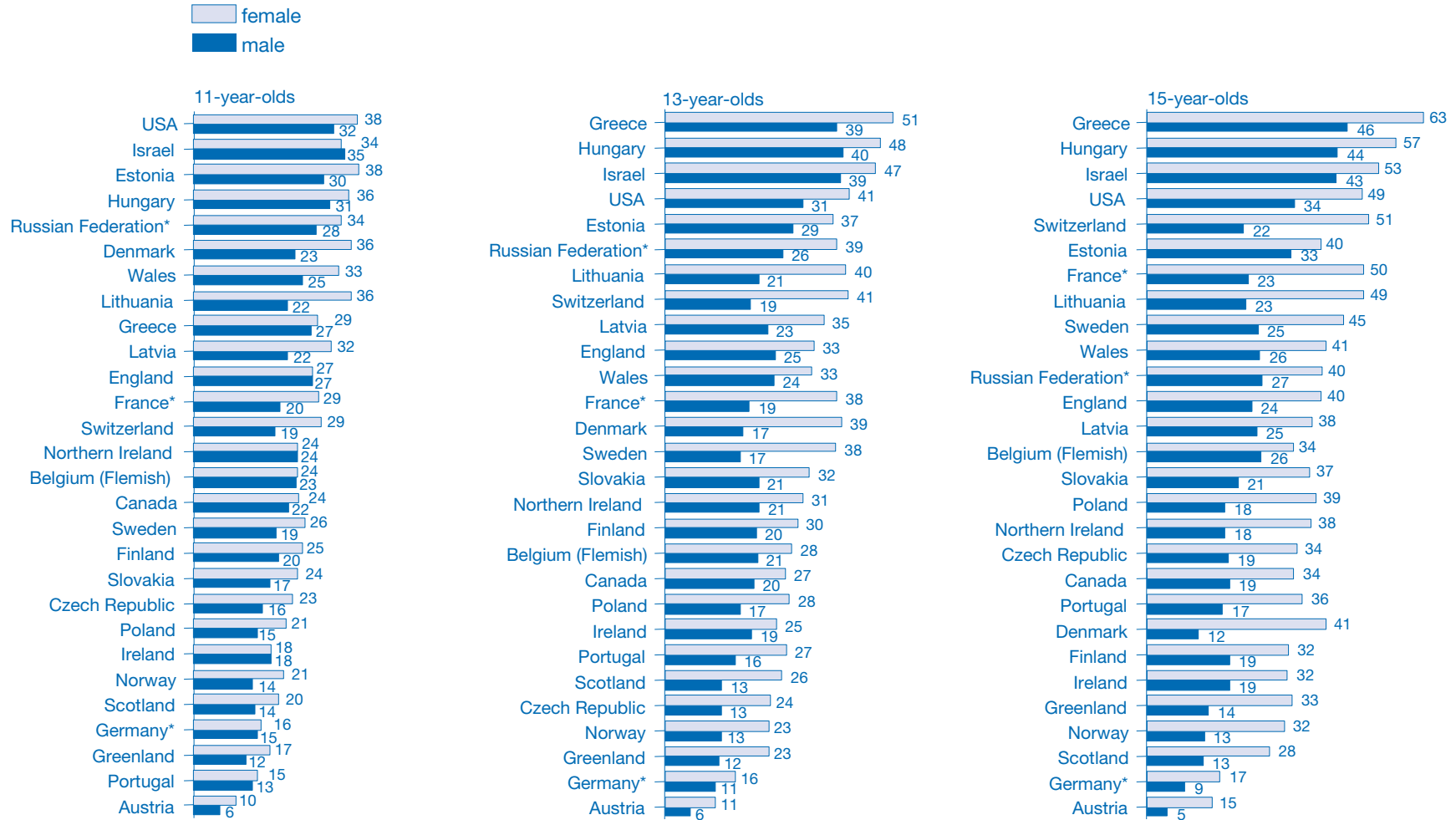
The vast majority of students report feeling happy (85.2%, 62.2% and 94.1% of 11-, 13- and 15-year-olds, respectively), although the percentages are not as high as those for feeling healthy. As with feeling healthy, boys are more positive overall than girls by 5%, and positive responses decrease as the students advance in age. The least happy students are those from Israel (62.2%). Interestingly, students from central and eastern Europe and the Russian Federation are as negative about their emotional state as their health. The most positive feelings are reported from Scandinavia (Sweden (94.1%), Norway (93.7%) and Denmark (93.6%)), followed by other northern European countries: Switzerland (93.3%), Austria (92.8%), England (92.3%), Flemish-speaking Belgium (92.1%), Finland (91.4%), Northern Ireland (90.0%), Germany (89.3%) and Ireland (89.2).

Feeling low

Depressive affect was assessed by including in the multipart question about symptoms: “In the past 6 months, how often have you had the following: feeling low.” Responses included: “Rarely or never”, “About once every month”, “About once every week”, “More than once a week” and “About every day”. For this comparison, the last three responses were combined to derive a rate of reporting low feelings at least once a week.

The overall percentage of students feeling low on a weekly basis is relatively high, averaging over 25%, with the students of all but one country exceeding 10% (Fig. 3.1). The negative affect is higher for girls than boys for all ages, and increases with age. In contrast, the relatively lower frequency of negative affect for boys remains stable at about 20% for the three age groups. The highest rates of feeling low (over 40%) are found in Greece, Israel, and Hungary, with the United States relatively close at 38%.

Fig. 3.1. HBSC survey, 1997/1998: students who report feeling low at least once a week during the last six months (%)



* France, Germany and Russia are represented only by regions

Feeling lonely

Feeling lonely was assessed by a single direct question: “Do you ever feel lonely?” responses included: “No”, “Yes, sometimes”, “Yes, rather often”, “Yes, very often”. The last two responses were combined to show the rate of students who report often feeling lonely.

Though most students do not report feeling lonely, such feelings are still common, exceeding 10% in all but four countries (Fig. 3.2). As with negative feelings about life and feeling low, feeling lonely occurs more often in girls than boys at all ages and increases as girls grow older. For boys, loneliness is substantially lower and remains the same through this period of adolescence. Two countries, Portugal and Israel, report loneliness rates much higher than those in all other countries.

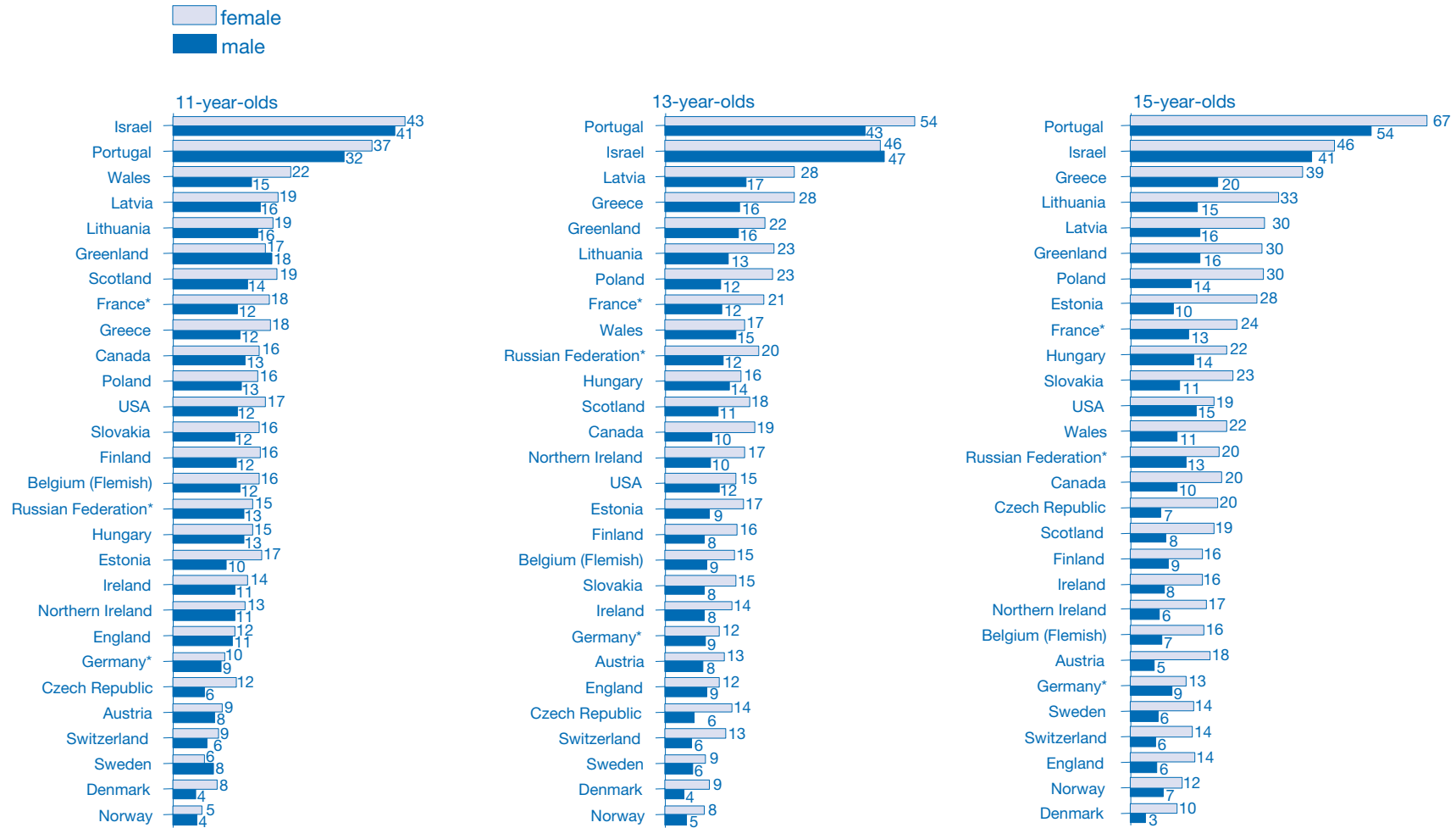
Feeling tired

Feelings of excessive tiredness or sleepiness do not contribute to a sense of wellbeing. Although not in general a problem for preadolescents, excessive daytime sleepiness has long been observed in adolescence (18). HBSC has previously documented a high frequency of morning tiredness associated with watching television, using psychoactive substances and decreasing physical activity (19–21). Feeling tired or sleepy in the morning can be an indication of increased demand for sleep, insufficient rest or pathological disturbance, such as depression. Sleep deprivation is an increasing fact of modern life, and progressive reductions in sleep time associated with sleepiness have been documented as children move into adolescence (22). Feeling tired in adolescence, however, also increases with physical and endocrinological maturation in the absence of any change in total nocturnal sleep time (23). In the United States and Israel, over the past several years, reports have suggested that the biological rhythms of adolescents are not suited to early morning waking (24,25). These observations have led to moving school starting times to later in the morning for high-school students in some districts. The frequency of perceived morning fatigue can be useful as an indicator of differences in sociocultural patterns, a basis for programme changes and as a marker for problems such as depression or chronic illness.

Morning tiredness was assessed with a question, “How often do you feel tired when you go to school in the morning?” Responses included: “Rarely or never”, “Occasionally (less than once a week)”, “1 to 3 times a week” and “4 or more times a week”. The analysis focused on the frequency of feeling tired most of the time: 4 or more times a week.

As also noted from other studies, morning tiredness is reported frequently in most of the countries participating in HBSC. The average rate of morning sleepiness on a weekly basis is 40%, with a range of 16–60%. An average of 22% of students report fatigue most days of the week, with a range of about 7–45%. In contrast to perception of health and other symptoms, boys feel more morning sleepiness than girls in all three age groups. Overall and for most countries, the percentage of students feeling tired increases with age for both boys and girls. Proportions of respondents reporting feeling tired in the morning at least 4 times a week are highest in Norwegian students followed by those from Finland and the United States (Fig. 3.3). Given the relatively low frequency of other symptoms for Norwegian students, the figures for morning sleepiness may be related to the time of year of survey administration (December), or possibly the high latitude, school schedules or other factors.

Fig. 3.2. HBSC survey, 1997/1998: students who report feeling lonely (%)



* France, Germany and Russia are represented only by regions

Symptoms

The rapid physical and psychological changes in adolescents are accompanied by increased sensitivity and attention to bodily symptoms (26). Symptoms such as recurring abdominal pain and headache have been studied extensively in selected school populations (27–30). Adolescents commonly experience headaches: 56% of boys and 74% of girls between the ages of 12 and 17 report having had one within the preceding month (31–33). Increases in symptoms that do not represent serious physical illness may reflect imbalance in the young people's psychosocial environment. Frequent headaches have been identified as a manifestation of depression in adolescents (34), and accentuated physical symptoms are associated with distress, anxiety and unstable psychosocial environments (35–37). The reported frequency of symptoms and responses to them provide important measures of the sense of wellbeing or of abnormality directly or indirectly related to the symptoms. Thus, professionals working with young people need information on these measures to understand normality and the expected frequency of physical and psychological symptoms in reference populations.

Somatic and affective symptoms were assessed with the use of a multipart question that asked students to report on the frequency of respective symptoms listed as part of the single question: "In the last 6 months, how often had you had the following? (followed by the list of symptoms) The response categories were: "About every day", "More than once a week", "About every week", "About every month" and "Rarely or never". To derive a frequency of at least once a week, the first three responses were combined for each symptom.

Headache

Headache is the most frequently reported symptom covered by the survey, and its prevalence appears to be about 5% higher than in the last survey (3). Substantially more girls have headaches at least once a week than boys, and the average increases with age, from 33% to 43% (Fig. 3.4). Fewer boys have headaches and the percentage remains stable at 24% for all three age groups. This pattern is similar to that observed in the previous survey. Young people from Israel and the United States report the greatest prevalence of headaches: over 50% for 13- and 15-year-old girls. For the remaining countries, the percentages of young people experiencing weekly headaches are evenly distributed between about 15% to 45%.

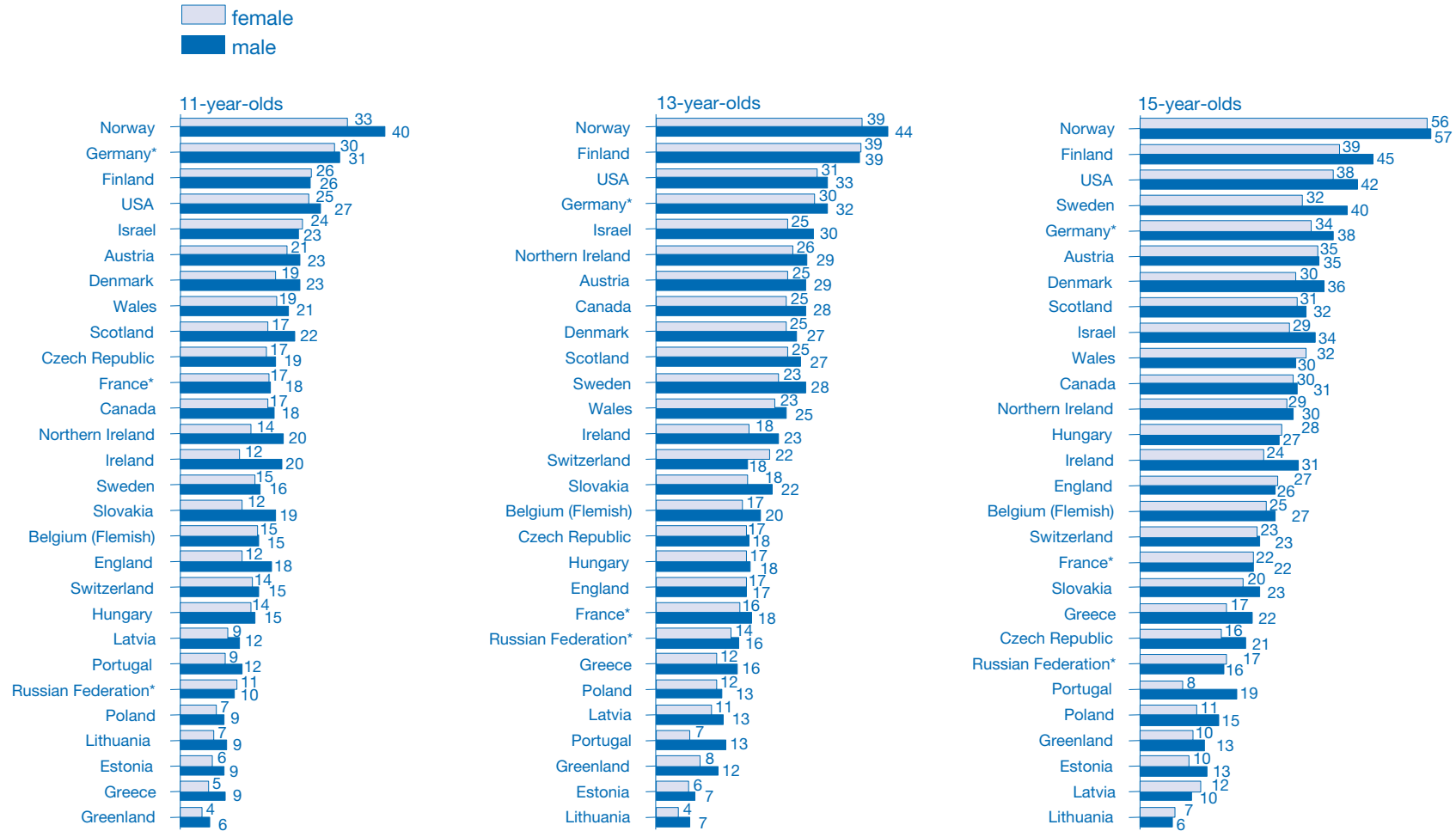
Stomach-ache

Weekly stomach-aches, though somewhat less frequent than headaches, are still quite common; rates range from under about 10% in Flemish-speaking Belgium and Greenland to over 35% in the United States and Israel (Fig. 3.5). The remaining countries are evenly distributed between these extremes. As with headaches, about 10% more girls than boys report weekly stomach-aches; the frequency for both genders is highest at age 11 and decreases slightly afterwards.

Backache

On average, fewer students have weekly backaches than stomach-aches and especially headaches (Fig. 3.6). In 24 countries, more girls than boys report backaches and the combined total is somewhat higher for girls (19.9% versus 17.1%). Backache increases modestly with age for both genders, from 14% and 16% for 11-year-old boys and girls to 22% and 25%, respectively, for 15-year-olds. Students from the United States report the highest frequency, followed by the Czech Republic and Slovakia, with the remaining countries evenly distributed between 13% and 27%.

Fig. 3.3. HBSC survey, 1997/1998: students who report feeling tired in the morning four or more times a week (%)



* France, Germany and Russia are represented only by regions

Medication use

The frequency of medication use for a specific symptom may serve as a definition of symptom severity or reflect the availability and inclination to use medication in a society or group. In addition, using medication available over the counter to treat common problems represents an important component of health care and response to symptoms. As adolescents move from parent-guided medication to the self-medication of adulthood, measurement of norms and patterns can improve understanding for the interpretation and guidance of adolescent behaviour. Since self-medication is frequently an issue with disturbed and self-destructive adolescents, understanding patterns of medication use and responses to stress can be important. The cost and availability of various medications may vary between countries and influence the frequency of reported use.

Medication use was assessed by asking, “During the past month have you taken medication for headache, stomach-ache, sleep, or nervousness: no, once, or more than once”. The last two responses were combined to derive the frequency of medication use during the preceding month.

For headache

Medication use for headache in young adolescents is extremely common. Its use for headache is comparable or slightly higher than in the last survey and corresponds to the report of headache as the most frequent symptom reported (Fig. 3.7). For seven survey participants – the United States, Scotland, Wales, England, Canada, Finland and Northern Ireland – levels of monthly medication use are 50% or more, and higher in girls than boys. The frequency of use increases with age but more steeply for girls than for boys.

For stomach-ache

Medication use for stomach-ache or abdominal pain is approximately half that for headaches but still quite common. Overall, almost twice as many girls as boys report medication use for stomach-ache (Fig. 3.8). Like the reported frequency of stomach-ache and in contrast to the steady increase in headache with age, the percentage of boys reporting medication use for stomach-ache decreases with age. Percentages for girls increase from age 11 to 15; this probably reflects the onset of menstruation and associated discomfort (38). Between countries, medication use roughly corresponds with the frequency of stomach-ache. All but four of the countries are within the same third for both symptom and related medication.

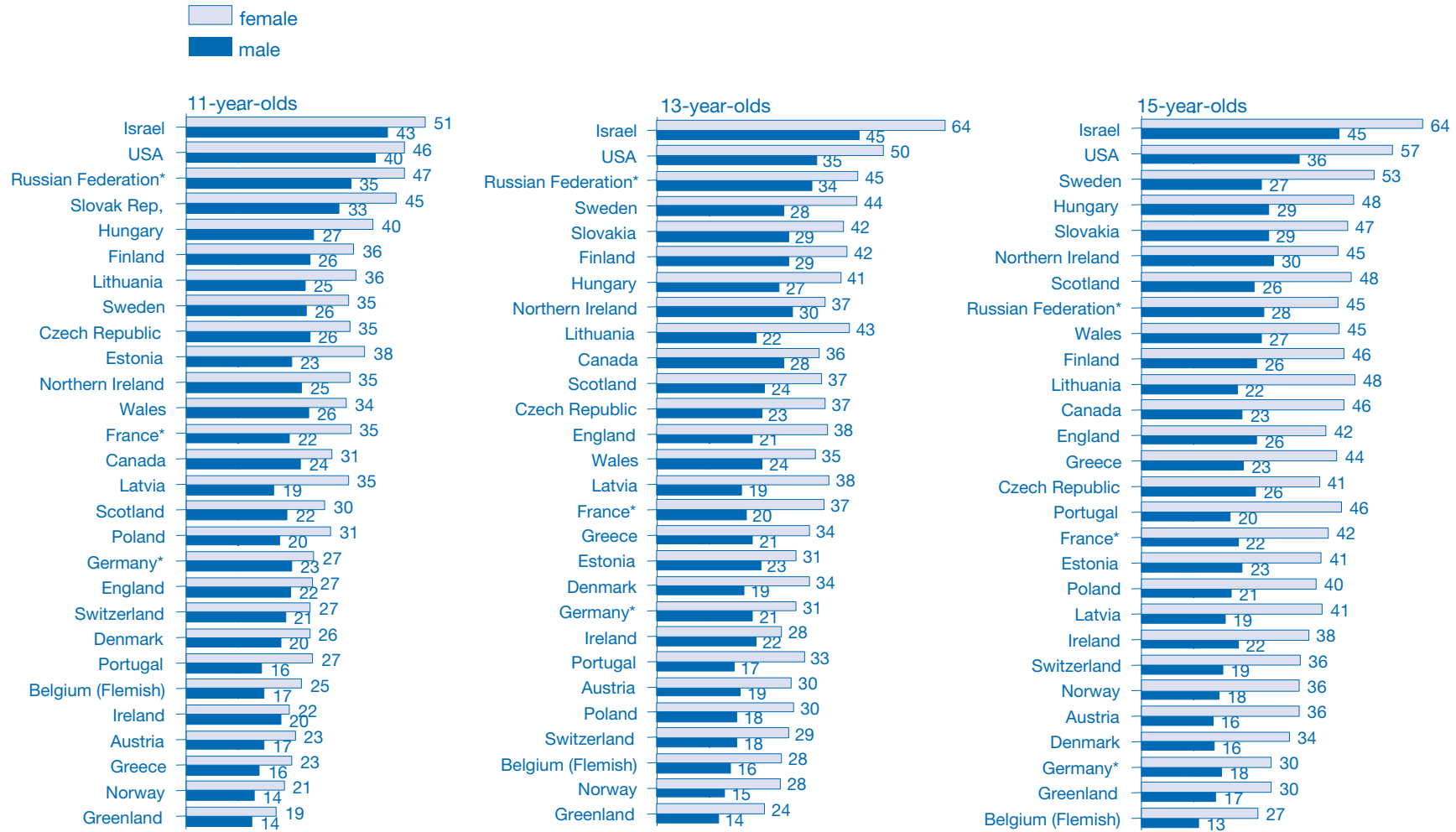
For nervousness

Students use medication considerably less often for nervousness than for the pain symptoms mentioned above. Following relatively high use by young people of Greenland (25%) and Israel (17%), the remaining countries are spread between almost no use in Norway (1%) up to 13% for young people in the Russian Federation (Fig. 3.9). Less than 10% of students in all but six countries report using medication for nervousness during the prior month. In contrast to other symptoms, the frequency of medication use for nervousness is quite similar for boys and girls, being most frequent at age 11, decreasing by age 13 and remaining stable between ages 13 and 15.

Conclusions

As might be expected for this young population, with its low prevalence of chronic diseases, over 90% of students in 23 countries report feeling relatively healthy. Nevertheless, more stu-

Fig. 3.4. HBSC survey, 1997/1998: students who report a headache at least once a week (%)



* France, Germany and Russia are represented only by regions

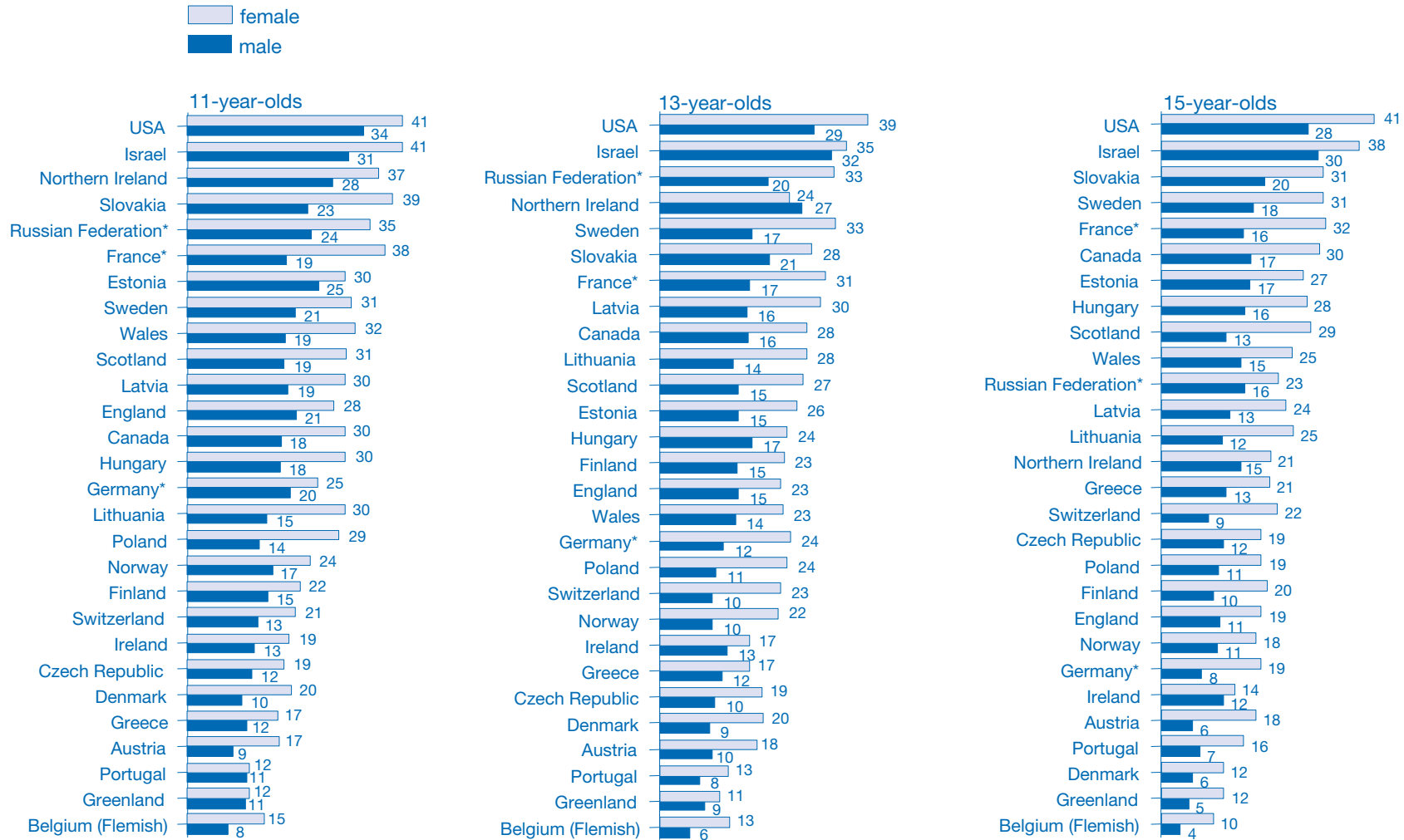
dents in more countries report the regular occurrence of specific symptoms and medication use for these symptoms than being unhealthy. Thus, while young adolescents commonly experience headache, stomach-ache and backache, they do not seem to equate the presence of such symptoms with poor health.

Interestingly, across most countries, young adolescent girls consistently report a higher frequency of general health problems, recurrent pain syndromes and negative affects than young adolescent boys. With respect to health-related issues, girls seem to have more difficulties than boys or to express greater awareness of the problems surveyed.

Students in two countries, Israel and the United States, report the highest frequency of health-related problems and symptoms. Of nine pain and negative-feeling symptoms, Israel has the highest percentages for five variables and is among the top four for all of the others except tiredness in the morning. The United States is among the top four for seven of the nine health symptoms reported above. Whether this pattern represents the consequences of exposure to stress and a relatively fast pace of life in these cultures, the way the survey was interpreted and answered, or other factors is interesting but unanswered.

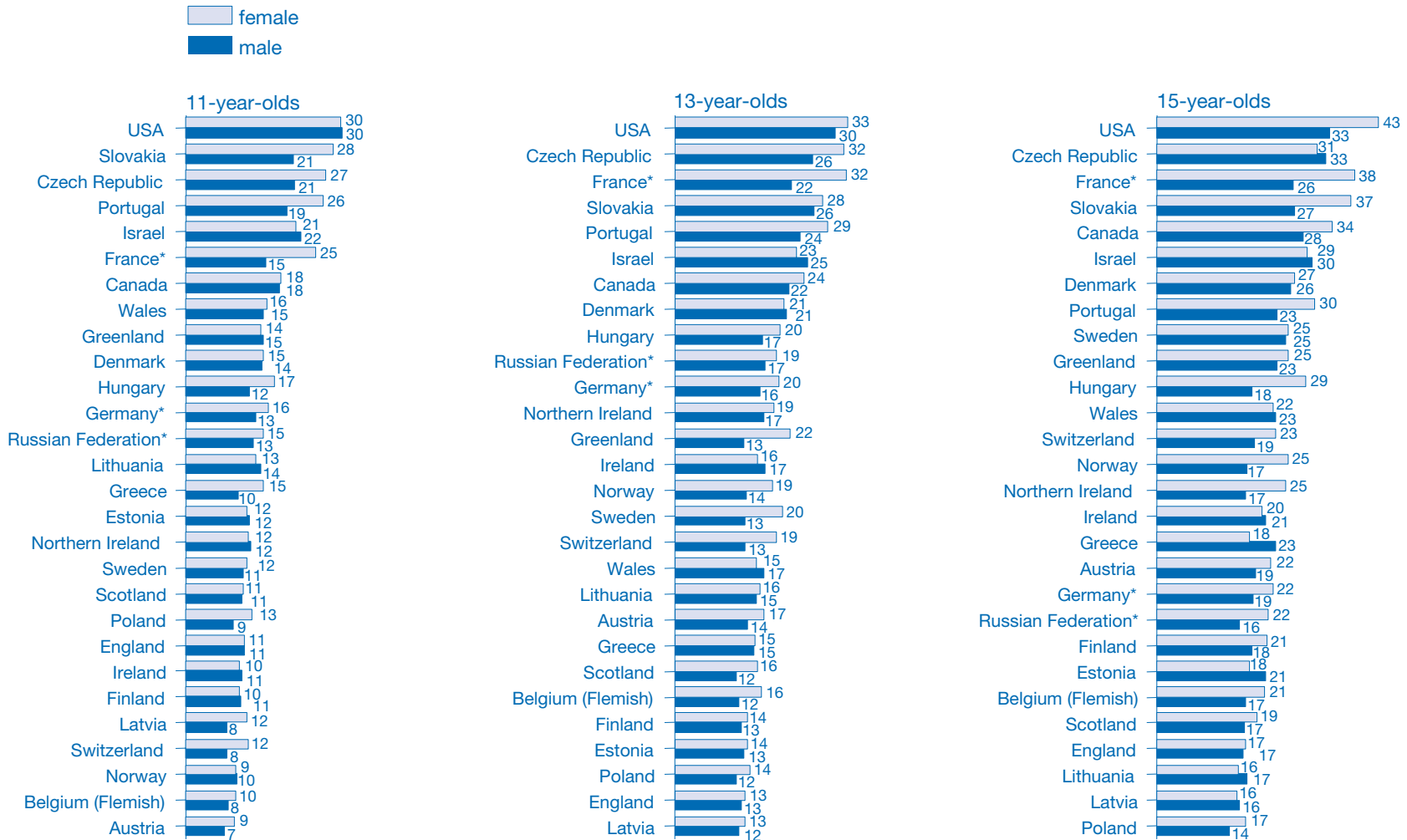
Responses to questions about health and health-related symptoms showed some distinct patterns across many countries. Similar patterns in many different countries and cultures provide confirmation of consistent developmental or biological characteristics. Such cross-national replication for some variables serves to confirm the validity of these findings. On the other hand, varying results and patterns between countries, such as differences in medication use and frequency of related symptoms, may result from differences in biological responses, cultures or national policies. Explanations of and insights into such patterns will be explored with more detailed cross-national analyses and are beyond the scope of this report.

Fig. 3.5. HBSC survey, 1997/1998: students who report a stomach-ache at least once a week (%)



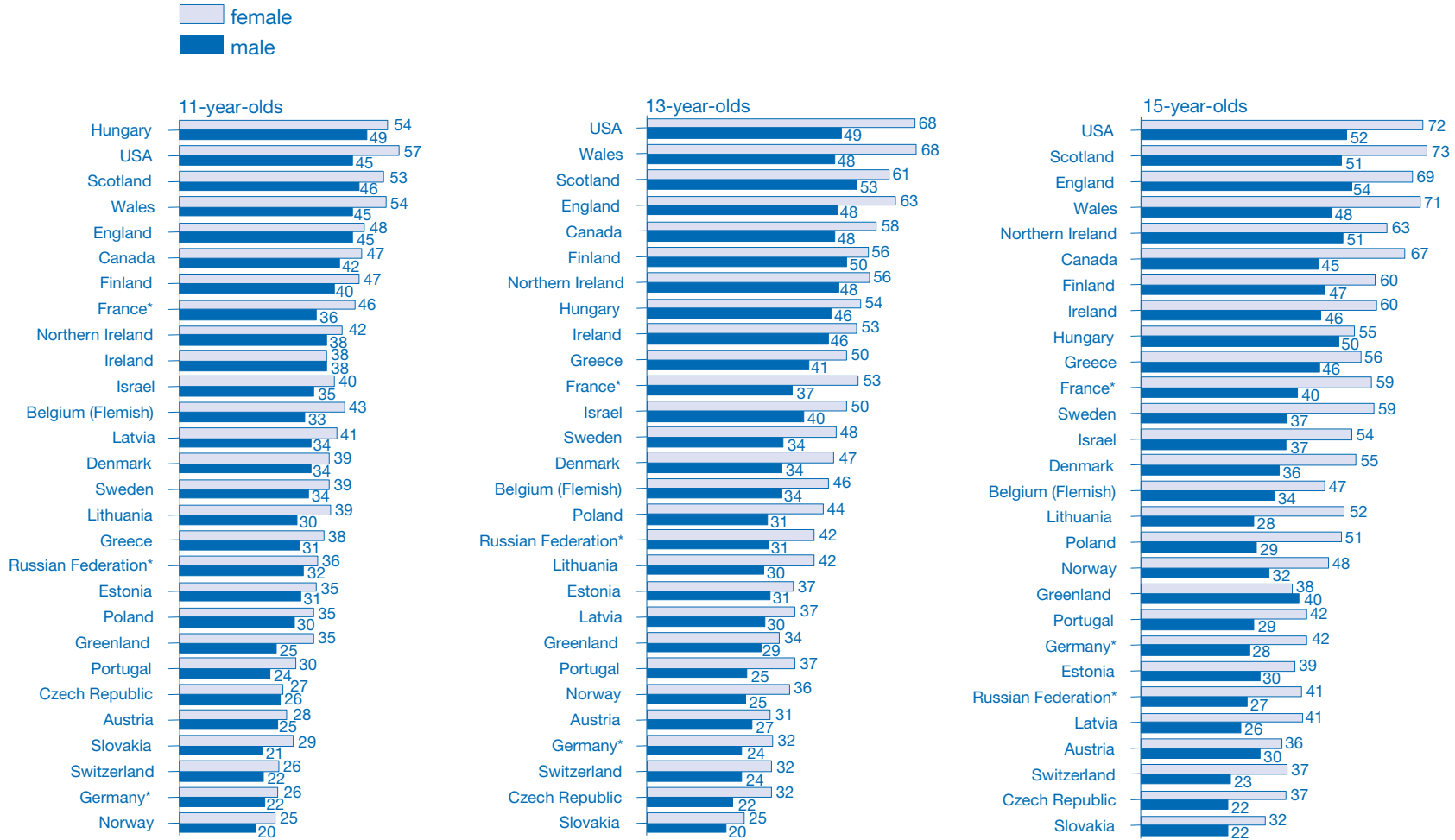
* France, Germany and Russia are represented only by regions

Fig. 3.6. HBS survey, 1997/1998: students who report a backache at least once a week (%)



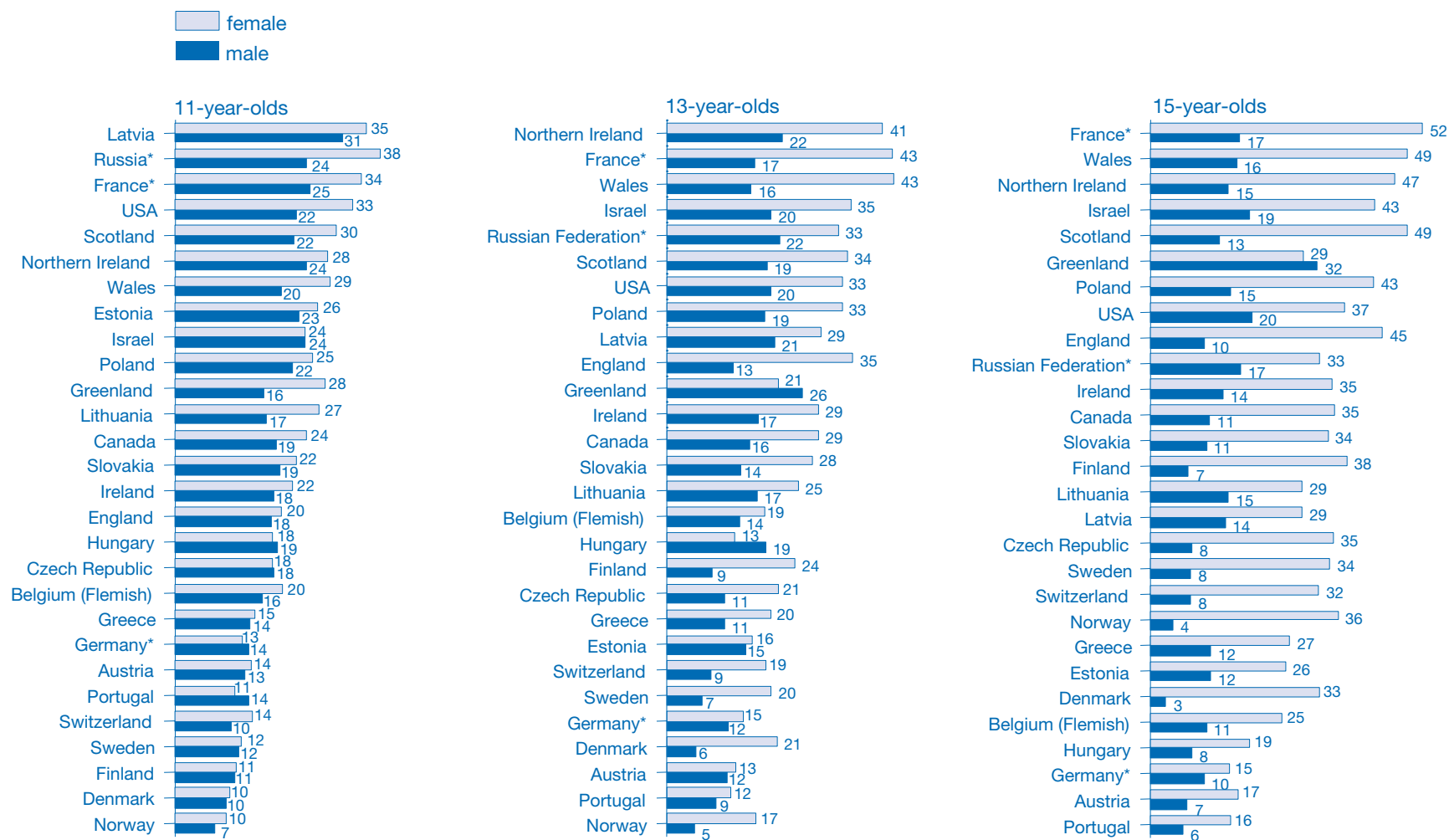
* France, Germany and Russia are represented only by regions

Fig. 3.7. HBSC survey, 1997/1998: students who report using medication for headache at least once a month (%)



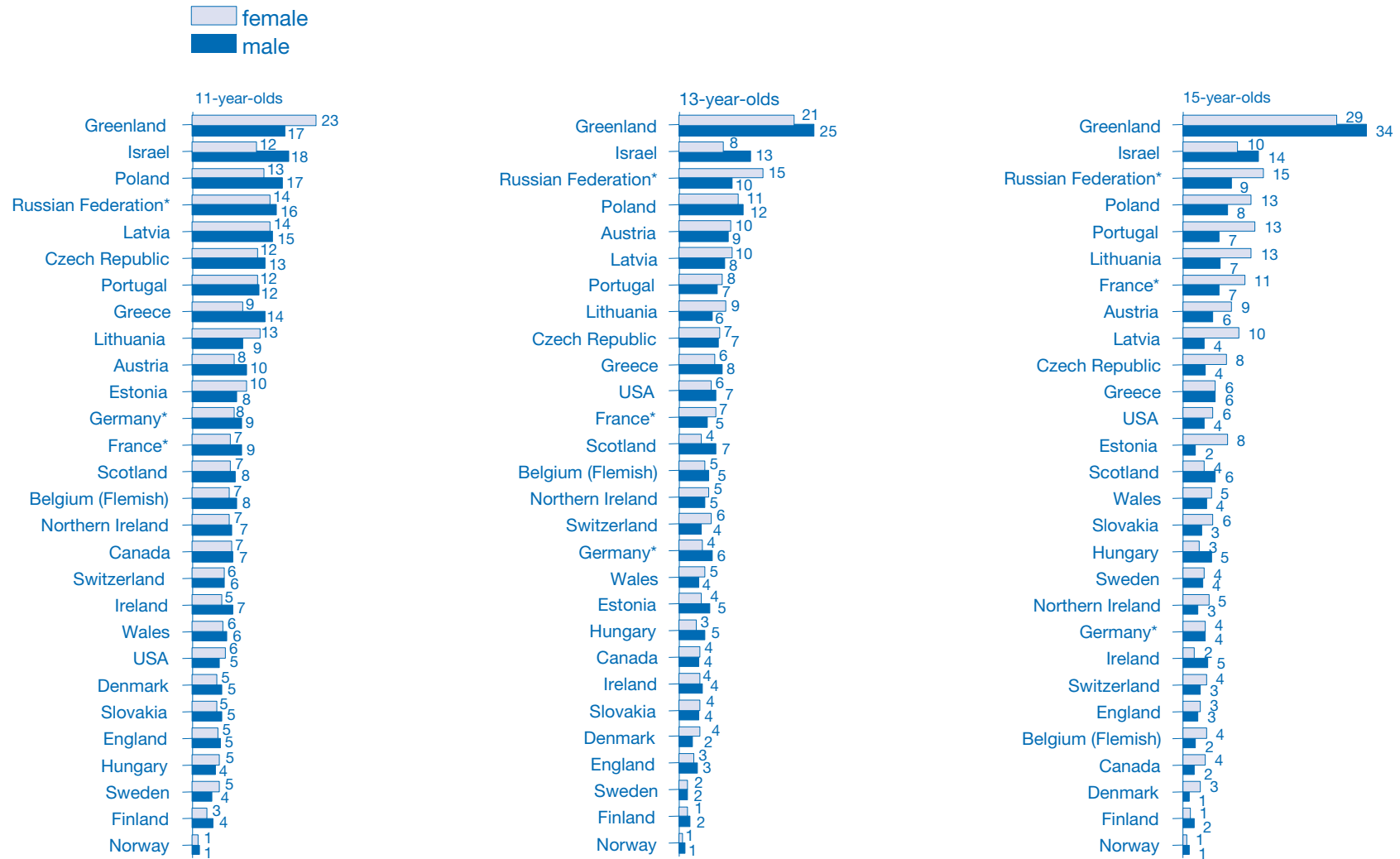
* France, Germany and Russia are represented only by regions

Fig. 3.8. HBSC survey, 1997/1998: students who report using medication for stomach-ache at least once a month (%)



* France, Germany and Russia are represented only by regions

Fig. 3.9. HBS survey, 1997/1998: students who report using medication for nervousness at least once a month (%)



* France, Germany and Russia are represented only by regions

4. Family and peer relations – *Wolfgang Settertobulte*

Numerous health behaviours and attitudes in adolescence and adulthood are begun in the family setting during childhood. Lifestyle-related habits in hygiene, nutrition and physical activity, as well as communication skills and social competences, are an essential part of familial education. Deficits in these areas are among the main reasons for health impairments in later life. The family is therefore a decisive factor in young people's health that needs investigation.

In adolescence the educational role of the family decreases. In search of individual adult identity, young people tend to orient themselves towards peer groups. In most cases this also means orientation towards adolescent subcultures. Risk behaviour, such as alcohol and tobacco consumption, is part of social interaction within these peer groups. While experimentation with such behaviour can be considered a regular developmental task, group pressure may cause their maintenance, which impairs health.

The HBSC Study includes variables describing family and peer relations. These variables focus on the form and size of families and the quality of communication within them. The influence of the peer group is measured by the frequency of meeting and by adolescents' estimations of their ability to make new friends easily. These variables do not cover the whole range of possible factors in families and peer groups, but the reported data show that they are important predictors of adolescent health behaviour.

The shape of families

Changes in the lifestyles of the parents' generation in most industrialized countries result in changes to family structures. Divorce rates are growing in most industrialized countries, where religious prohibitions are weak, and single-parent families are becoming more prevalent. Students were asked with whom they lived; the results in Fig. 4.1 show that this trend is already significant in some countries.

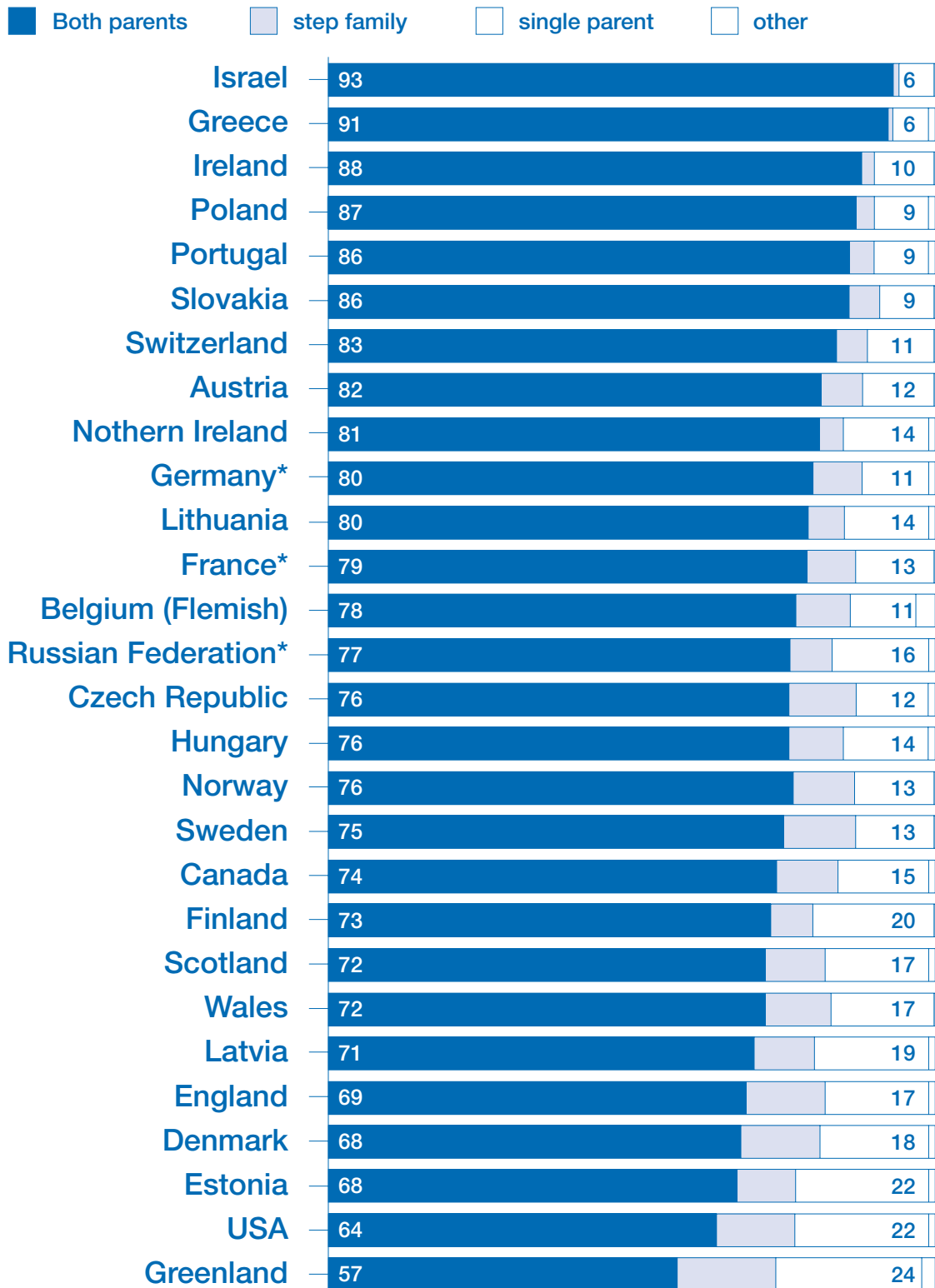
While more than 90% of the students in Greece, Israel, Portugal, Switzerland, Finland and Slovakia live with both of their parents, corresponding figures are lower in the other countries (Fig. 4.1). In almost half the countries, 10% or more children live with a step-parent.

Much research has examined the effects of divorce and restructured families since the 1970s, indicating that parental divorce carries both risks and opportunities for children and adolescents. About one third of the children affected by parental divorce appear to react with immediate health and psychological problems, while most negative effects do not surface until adolescence. Coping successfully with marital transitions in family life depends on the ability of divorcing parents to cooperate on parenting matters and to provide health-enhancing models of conflict resolution and relationship renegotiation. In these cases, adolescents' coping styles are likely to be strengthened and communication skills improved (39).

Communication within families

The family as a primary social environment plays a decisive role in the individual's development of communication skills, attitudes and behavioural patterns. A huge amount of research highlights the influence of parenting styles, family communication and parent-child relations on life skills, psychosocial adjustment, mental health and health behaviour (39–41). Adolescence is often seen as a time of heightened conflict with parents, as the child strives towards self-definition and embarks on separation from the family. While a certain amount of conflict

Fig. 4.1. HBSC survey, 1997/1998: families in which students lived, all age groups included (%)



* France, Germany and Russia are represented only by regions

seems to be a normal part of family life, severe conflict harms both adolescents and parents. In particular, family members' methods of resolving conflicts may be important for the development of either protective factors, such as interpersonal abilities, or risk factors, such as low self-esteem, depression and substance misuse. Owing to cultural influences, parenting styles are expected to vary between countries. Does this mean, however, that adolescents in some countries are at higher risk?

In the HBSC survey, the quality of the parent–child relationship from the adolescent's point of view is indicated by the perception of ease or difficulty in talking to his or her father and mother about things that really bother them. For the items on communication with parents, students had four response choices: “Very easy”, “Easy”, “Difficult” and “Very difficult”. The last two responses were combined for the following analysis.

Fig. 4.2 and 4.3 confirm former findings, showing that girls and boys have less difficulty in communicating with their mothers. In every country, children appear to see their mothers as more approachable than their fathers; mothers therefore play a more substantial role in helping children with their problems. As expected, older students report more difficulties with both parents than the younger age groups.

Very few children aged 11 report difficulties in talking to their mothers. The rates in Poland, Sweden, England, Greece, Hungary, Wales, Latvia and Norway are similarly small. During puberty, communication difficulties become more frequent, ranging from an average of 15% among 11-year-olds to 23% and then 28% among 13- and 15-year-olds, respectively. The ranking of results among the participating countries remains almost the same in all age groups. Only a few countries show significant gender differences.

In Germany and Northern Ireland, boys in all age groups more frequently report difficulties in talking to their mothers. Eleven and 13-year old girls, on the other hand, report less difficulties. Among the 15-year-old girls, however, communication difficulties appear significantly more frequent in Greenland, Flemish-speaking Belgium, France, the Russian Federation and in Ireland.

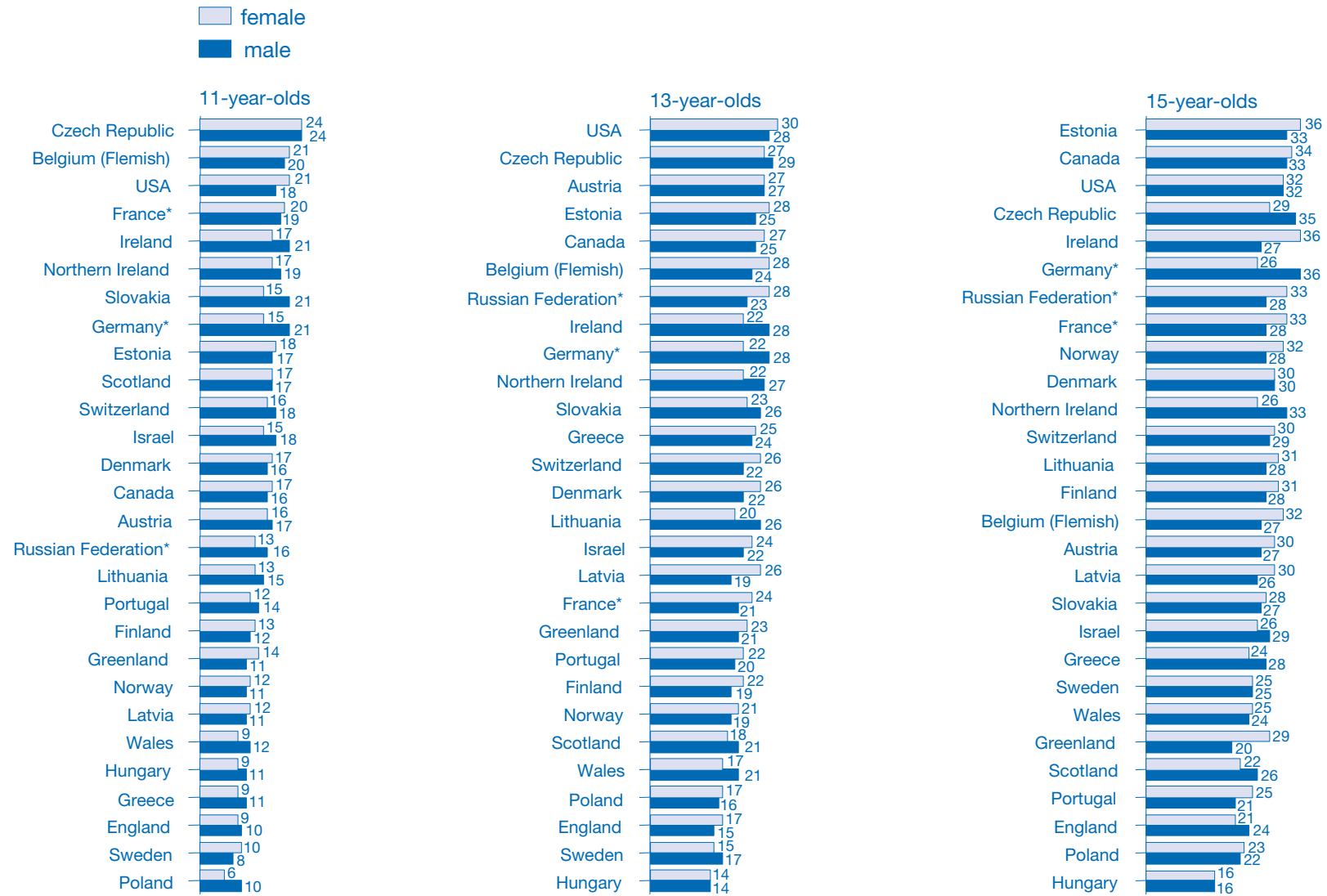
Communicating with the father is more difficult in every country and all three age groups. Girls report such difficulties significantly more often than boys. As with communication with mothers, the frequency of communication problems with fathers increases with age, rising from 33% in those aged 11 to 45% and 52% among 13- and 15-year-olds, respectively.

In general, countries have quite similar ranks with regard to communication with mother and father. This might be due to certain cultural attitudes towards education and parenting styles, varying from authoritarian to permissive. Despite the possibility of country-specific effects on parenting styles, general associations can be identified between the deficits in family communication and other variables that indicate health-related risks. To demonstrate the influence of family communication on other variables, both items were combined by addition.

Factors associated with parent communication

Table 4.1 shows the strength of associations between selected variables and parental communication by statistical methods chosen according to the scaling of the particular variables.

Fig. 4.2. HBSC survey, 1997/1998: students who report finding it difficult or very difficult to talk to their mothers (%)



* France, Germany and Russia are represented only by regions

Table 4.1. HBSC survey, 1997/1998: factors associated with difficulties in talking to parents

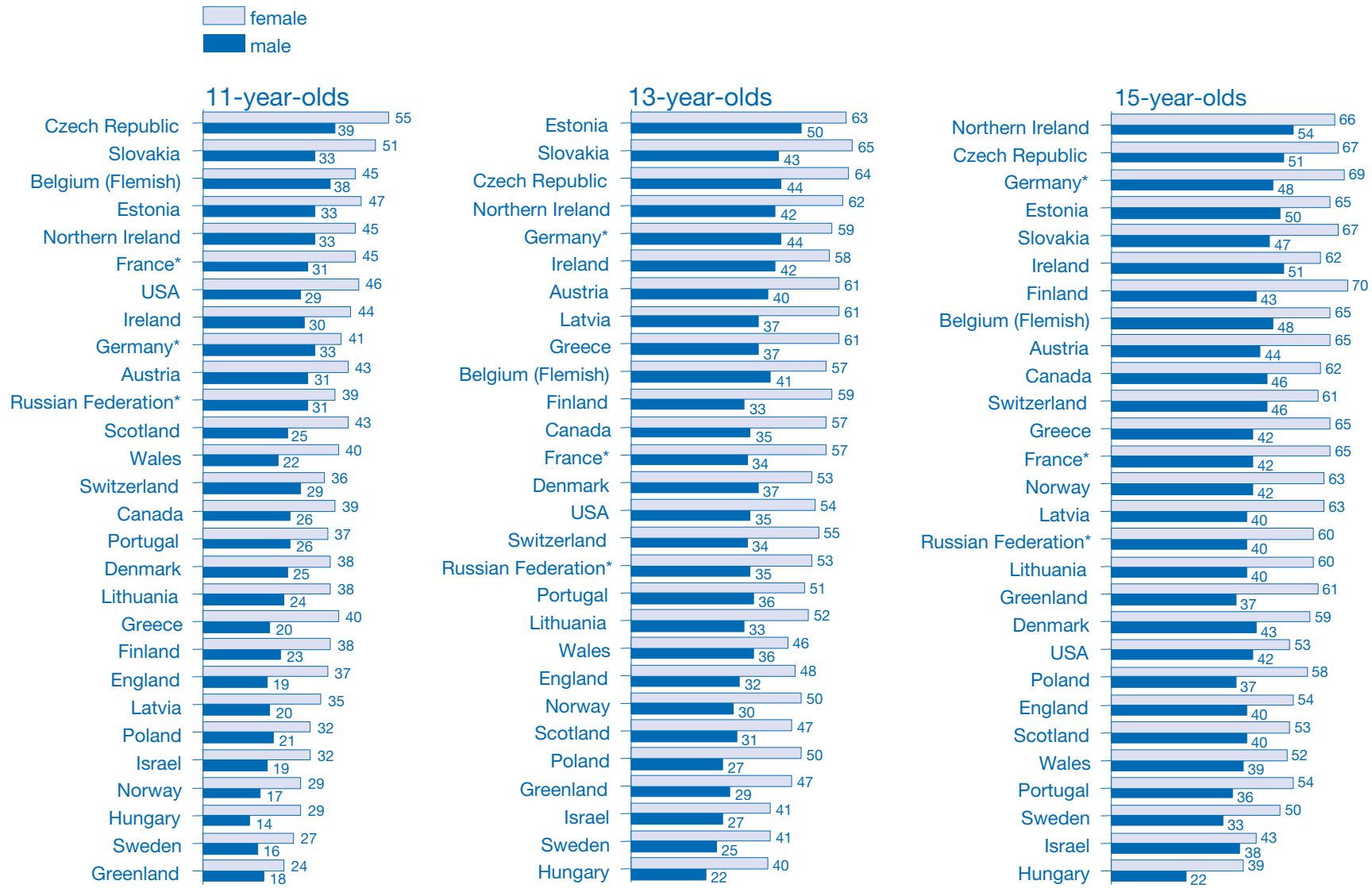
Young people who report difficulties in talking to their parents:	11-year-olds		13-year-olds		15-year-olds		Statistical method
	Boys	Girls	Boys	Girls	Boys	Girls	
have more difficulties talking to elder siblings							Pearson cor.
have more difficulties talking to friends							Pearson cor.
have more difficulties making friends							Pearson cor.
have a low number of close friends							χ^2
spend more time with friends after school							χ^2
feel less happy							Student's <i>t</i>
feel less healthy							Student's <i>t</i>
feel lonely more often							Pearson cor.
feel helpless more often							Pearson cor.
smoke more often							χ^2
drink alcohol more often							χ^2
have more experience of drunkenness							Student's <i>t</i>
Strength of association							
None		Medium		Strong			

Reported difficulties in talking to mother and father are strongly associated with similar difficulties with elder siblings of both sexes. This indicates that such problems were more or less a matter of poor family communication in general. It seems obvious that poor communication patterns and skills within the family also affect communication with others. This effect appears in all age groups. Easy communication with parents apparently facilitates the making of friends, as shown by the fact that those reporting difficulties in talking to their parents have fewer close friends than others. There is a strong association between these variables among 11- and 13-year-old girls while the effect in the other groups is of medium strength. Adolescents who report difficulties in talking with their parents spend more time with their friends after school. This association decreases with age and is not present for 13- and 15-year-old girls.

For 11-year-old girls, difficulties in talking to the parents were closely connected with a perception of their own health as being comparably worse, while there is no such association for the other groups. Feeling lonely is associated with poor family communication mainly for girls.

Feeling helpless is a strong predictor of depressive moods in all groups. While the association is weak for boys, it is of medium strength for girls. The results indicate that perceived difficul-

Fig. 4.3. HBSC survey, 1997/1998: students who report finding it difficult or very difficult to talk to their fathers (%)



* France, Germany and Russia are represented only by regions

ties in talking to parents influences the moods of young people. Girls are particularly sensitive to this influence.

The interaction of family problems, negative moods and the influence of the peer group are seen as a strong predictor of the use of tobacco and alcohol. The data show a direct association between smoking and difficulties in talking to parents. Among 11-year-olds, this association is weak for boys but significant for girls. Regular smokers are much more numerous among those with poor family communication. This relationship is strong for 13- and 15-year-old girls but weaker for boys in these age groups. A very similar pattern of association is found for the frequency of alcohol consumption; 11-year-old girls and both girls and boys in the older age groups who perceive communication with parents as poor drink alcohol more frequently. Again, this association is stronger for girls. While the association between experiences of drunkenness and poor family communication is strong among 11-year-old girls, it is of medium strength for boys and girls in the other age groups.

Peer relations

In striving towards personal autonomy, young people tend to increase their contacts outside the family in a group of others of similar age. This is seen as a decisive process for the development of one's own personality (42). As seen above, communication skills acquired in the family may facilitate the making of friends. On the other hand, a high degree of conflict with parents drives young people into the peer group, where they obtain the acknowledgement that they lack in the family.

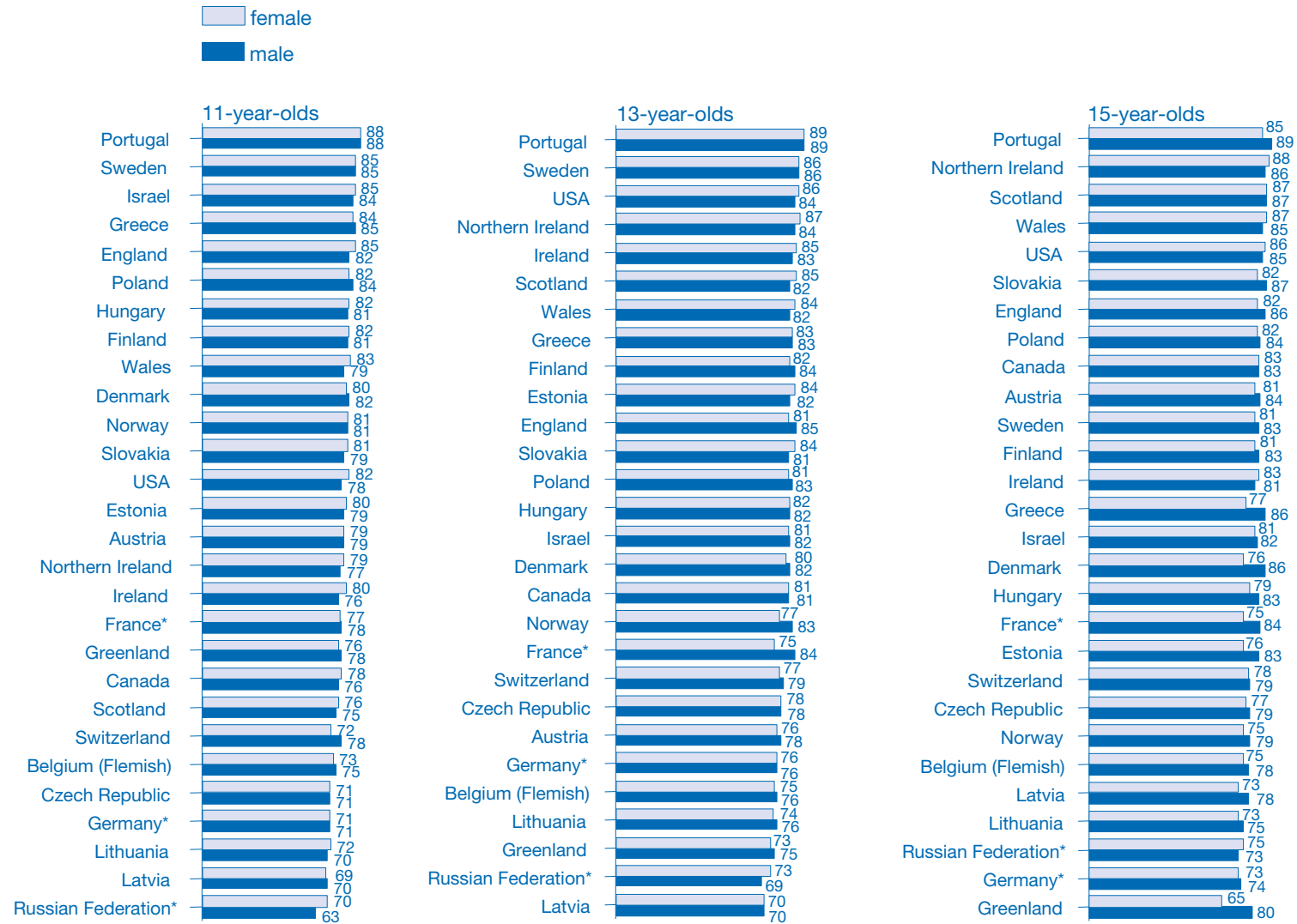
The HBSC survey asked students whether they find it easy or difficult to make new friends. Around three quarters of young people do not experience any difficulties in making friends (Fig. 4.4). The rates were similar for all age groups, and no significant gender differences were found in most countries. Exceptions are found in different age groups in the Russian Federation, France, Norway, Greece, Denmark, Estonia and Greenland. The cross-national comparison of answers to this question showed only small differences that may reflect differences in culturally transmitted values concerning friendship.

Time spent with friends after school

The most decisive factor in predicting risk behaviour in adolescence is the influence of the peer group. This influence consists of a communication process in which group rules and habits are exchanged. The strength of this influence is not easy to measure, but it was expected that the more time young people spend with friends in such a group, the bigger the influence would be. Here, the focus is on those who spend time with friends on most days of the week (Fig. 4.5).

Almost all students report spending time with friends at least once a week. In most countries, boys of all ages spend significantly more time with friends after school, with responses of 30–50% for boys and 20–40% for girls. A majority of students from Greenland and Norway spend time with their friends on most days of the week. Eleven-year-olds from Belgium, 11- and 13-year-olds from France and Switzerland and 15-year-olds from Denmark and Sweden are the least likely to spend 4–5 days a week with friends. Although it seems obvious that the amount of time spent with friends typically increases through adolescence, comparison between age groups confirms this in only a few countries and regions, such as Flemish-speaking

Fig. 4.4. HBSC survey, 1997/1998: students who report finding it easy or very easy to make new friends (%)



* France, Germany and Russia are represented only by regions

Belgium and Germany. In most countries the response rates remain almost the same or even decrease in the older age groups.

Factors associated with time spent with friends

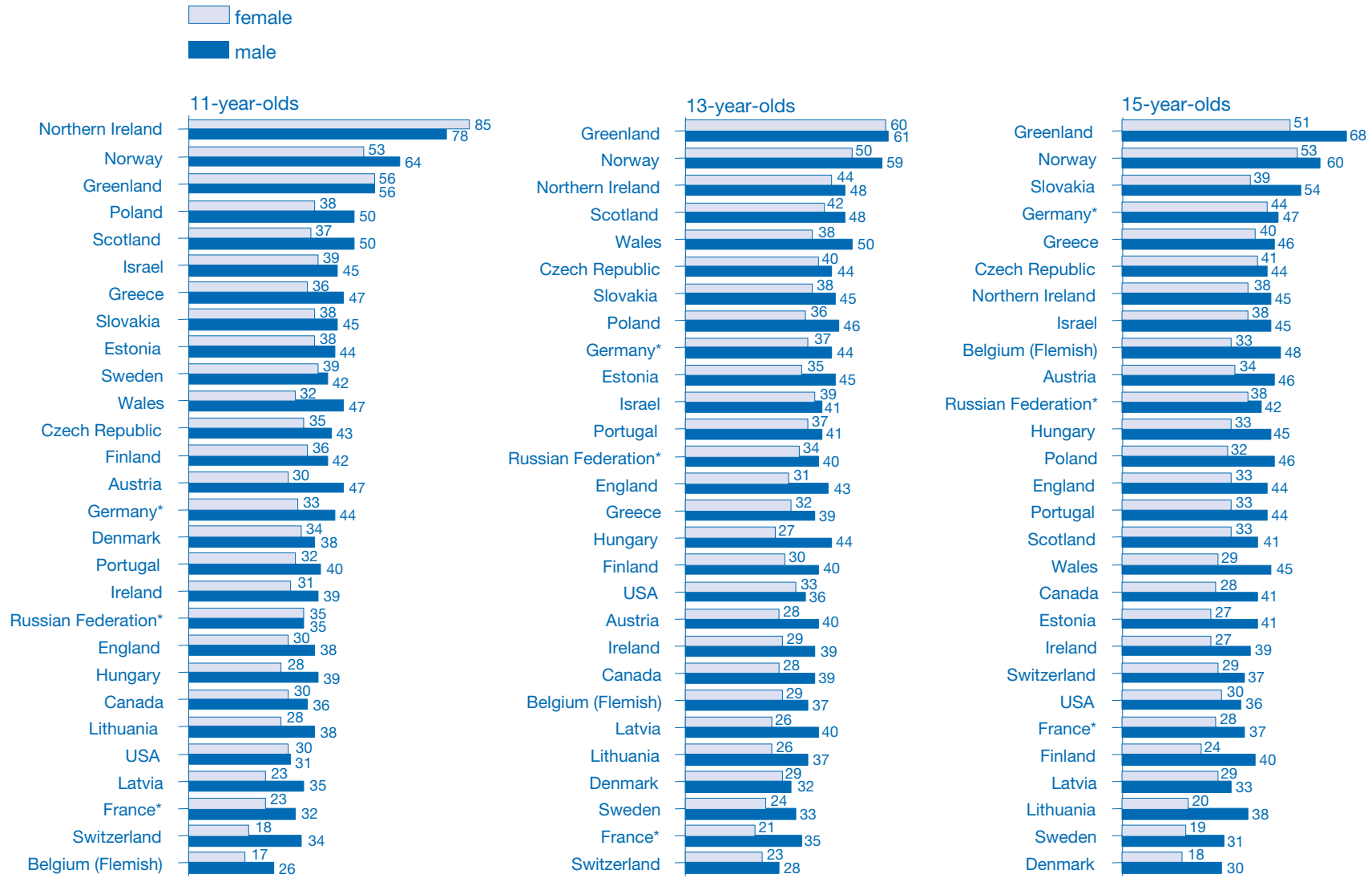
Table 4.2 shows the associations of time spent with friends with other variables, particularly that young people who spend a lot of time with friends find it easy to talk with peers, regardless of sex and age. They also have more friends. This association increases with age and indicated a growing involvement in peer-group settings. The students who spend more time with friends evidently find it easier to make new friends. Among 13-year-olds, this association is a bit stronger for girls than for boys. While involvement in a peer group seems to improve communication skills in the youngest age group, it is associated with increased risk behaviour among the older ones. For 11-year-olds, smoking and drinking alcohol are not yet associated with the amount of peer contact. Among 13-year-olds, however, the onset of smoking becomes more likely and the frequency of alcohol consumption and the incidence of drunkenness increase when a lot of time is spent in a group of friends. The association is of medium strength for 13-year-olds, but strengthens for 15-year-olds. At this age, the amount of time spent with friends is a decisive predictor for smoking, drinking alcohol and the experience of drunkenness.

Table 4.2. HBSC survey, 1997/1998: factors associated with time spent with friends after school

Young people who spend more time with friends after school:	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
find it easier to make friends						
have more close friends						
find it easy to talk to friends (of both genders)						
smoke more frequently						
drink alcohol more often						
have more experiences of drunkenness						
Strength of association*						
None		Medium (.15-.25)		Strong (>.25)		

(*Pearson cor.)

Fig. 4.5. HBSC survey, 1997/1998: students who report spending time with friends after school 4–5 days a week (%)



* France, Germany and Russia are represented only by regions

5. The school environment and the health of adolescents – *Oddrun Samdal & Wolfgang Dür*

The Ottawa Charter for Health Promotion (43) states:

Health is created by caring for oneself and others, by being able to take decisions and have control over one's life circumstances, and by ensuring that the society one lives in creates conditions that allow the attainment of health by all its members.

The social situation of adolescents is in broad terms the opposite of what the Ottawa Charter claims to be a healthy life. Adolescents are not normally allowed to make decisions that profoundly concern their lives and do not control their life circumstances. They are not able or not allowed to care for themselves or others, except in particular areas. In schools, adolescents are more like materials for pedagogical interventions than partners in and co-producers of learning. Adolescents are not allowed to vote and, so far, function as consumers and are in general excluded from the production side of the economic system. Finally, the only social system that fully includes them, the family, is the one they are supposed to leave. From a health promotion perspective, it is therefore important to investigate to what extent students can take part in and influence their school structures, and to what extent they are able and encouraged to manage the challenges that school provides for them.

A health promoting and supportive school environment may be considered a resource for the development of health-enhancing behaviour, health and subjective wellbeing, while a non-supportive school environment may constitute a risk. Most previous school studies have focused on characteristics of the school environment to evaluate its effectiveness. Such research has addressed school-related factors relevant to the improvement of students' academic achievement (44). Research into adult work environments, however, has studied predictors of both job performance and job satisfaction, and has found high autonomy and control, and adequate demands and high-level support from colleagues and management to be key predictors (45). These findings can be seen to support the Ottawa Charter's definition of what constitutes a healthy life. School may be considered students' work environment. Thus, this section utilizes concepts from research into adults' work environments to explore the relationship between students' perceived psychosocial school environment and their satisfaction with school, health behaviour, health and subjective wellbeing.

Satisfaction with school

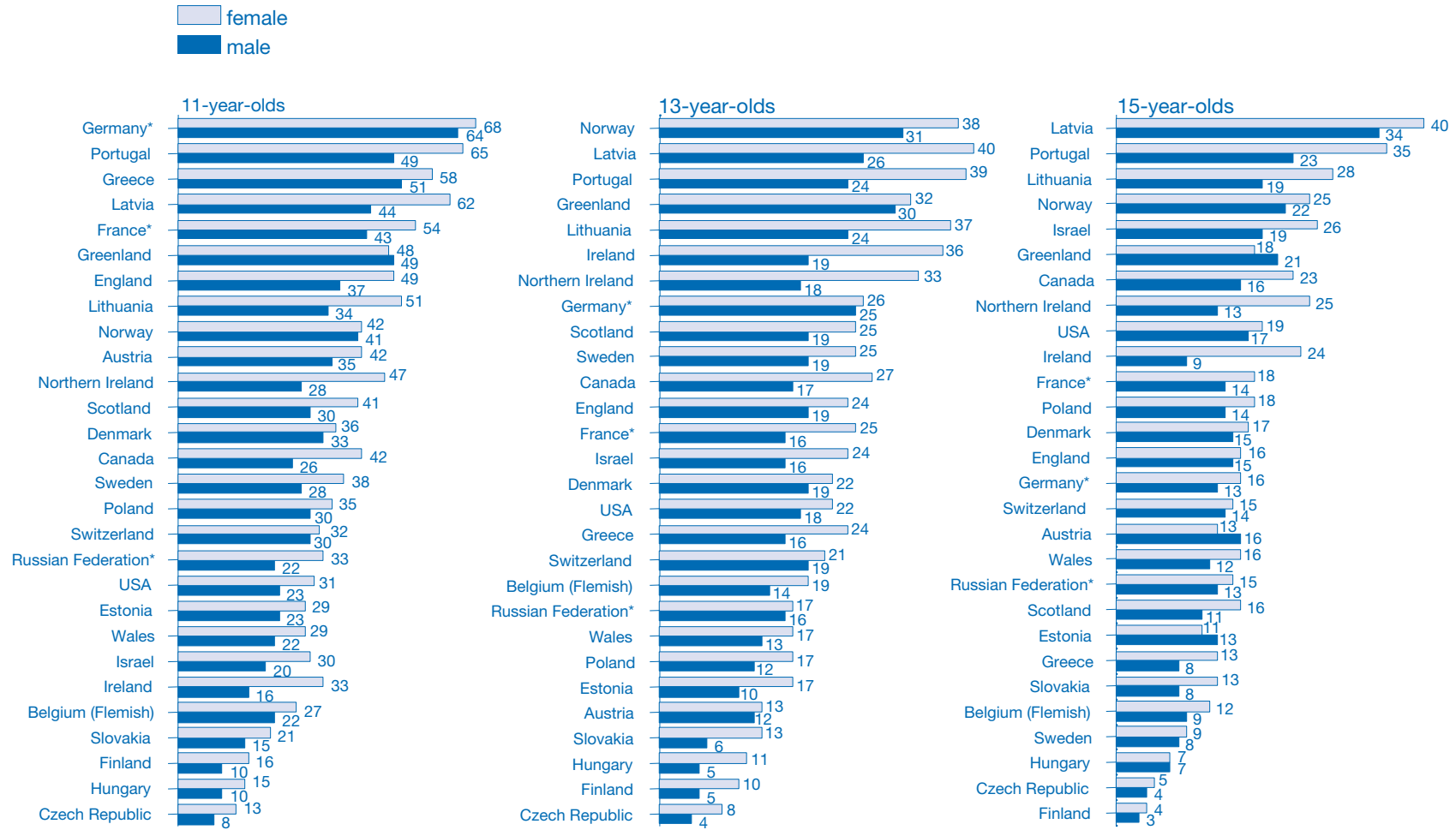
Satisfaction with school may be considered a domain-specific, subjective-wellbeing construct contributing to overall subjective wellbeing and quality of life among young people. The concept reflects immediate emotional responses such as happiness, enjoyment of school and a sense of wellbeing at school. The HBSC survey measured students' satisfaction with school by three items; "I like school", "School is a nice place to be", and "Going to school is boring". Fig. 5.1 shows the proportions of students who answered that they like school a lot. Students' liking of school tends to decrease with age across all countries. In most countries, more girls than boys like school a lot. Germany, Greenland, Latvia, Norway and Portugal seem to have the highest proportions of positive responses, while the lowest proportions are found in the Czech Republic, Finland, Hungary and Slovakia.

School perceptions

Involvement in school structures: making rules, strictness of rules

In general, students' participation in the making of school rules is low. Only every ninth stu-

Fig. 5.1. HBSC survey, 1997/1998: students who report liking school a lot (%)



* France, Germany and Russia are represented only by regions

dent strongly agrees to influencing the making of school rules. Most students feel they had at least some influence (Fig. 5.2).

Nevertheless, differences between countries are quite large. France, Greenland, Hungary, Israel and Switzerland report high levels of student influence; countries with low levels comprise Austria, Flemish-speaking Belgium, the Czech Republic, Finland, the Russian Federation and the United States. The differences between countries may have quite different causes, including differences in political cultures or school systems. Much more about participation needs investigating than the psychological and developmental state of young people.

In most countries, the feeling of participating in rule making decreases with age more or less dramatically. Participation at age 15 is half or less than half of that at age 11. This decrease may be related to a mismatch between adolescents' increasing social and communication abilities, and the school systems' reaction to or acknowledgement of their development. Only in a few countries are there noticeable differences between boys and girls and, in the majority of these cases, more boys than girls report participating in making school rules.

In general, school rules are not seen as strict. Less than 10% of the students strongly agree that the rules are strict or severe. As with participation in making rules, however, countries differ widely. Countries with lax rules comprise Austria, Denmark, England, Estonia, Finland, Germany, Greece, Latvia, Lithuania, Poland, Portugal, the Russian Federation, Sweden and Switzerland. On the opposite end are: Flemish-speaking Belgium, Israel, Northern Ireland and the United States (Fig. 5.3).

The countries show no clear pattern of association between age and the assessment of rules as strict. In some countries (Greenland, Portugal and Latvia) scores are highest for 11-year-olds; in others (Denmark, Germany, England, Greece, the Czech Republic, Scotland, Canada and the United States), for 13-year-olds and in yet others, 15-year-olds. All countries, however, clearly show boys finding school rules too strict more commonly than girls.

Participation in making and strictness of school rules

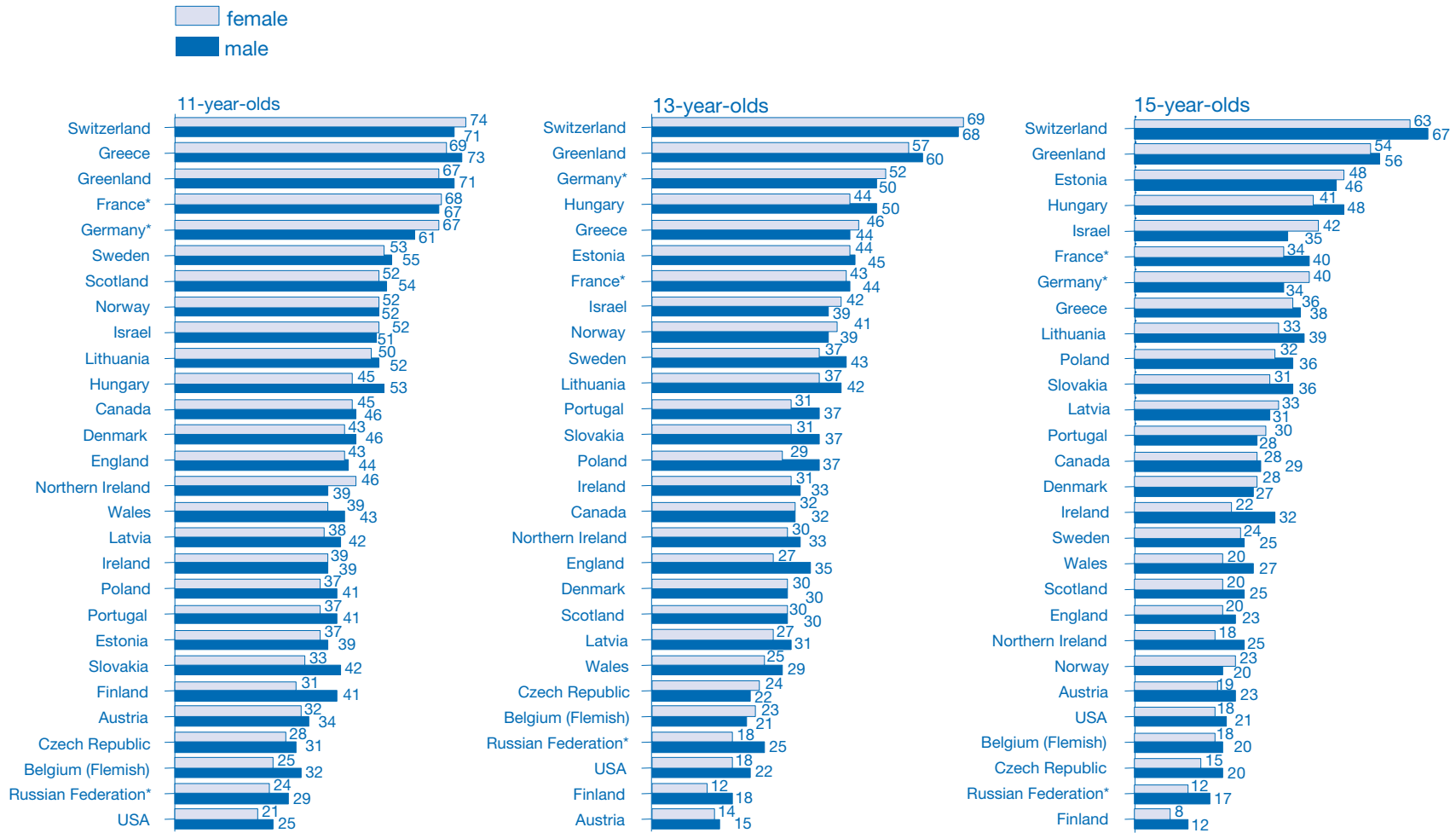
In most countries, the two variables – involvement in rule making and satisfaction with rules (strictness of rules) – were at least weakly associated. The less students feel involved, the more they tend to find rules too strict. This does not necessarily mean that countries with high involvement in rule making show less dissatisfaction with rules than countries with low involvement, as shown by the examples of Israel and Switzerland.

Teacher support

High-level social support from teachers is likely to comprise both personal and academic and task-related support. Individual response and follow-up from teachers may make students feel they are of interest to their teachers. This type of personal feedback may promote students' general self-esteem. Further, high-level teacher support on academic issues may help students to deal better with academic tasks that in turn may increase both their interest and achievement in school (49).

Teacher support was measured by four items in the survey: "Teachers show an interest in me as a person", "Teachers give help when needed", "Teachers encourage me to express my views" and "Teachers treat students fairly". Fig. 5.4 illustrates students' perceptions of teachers' inter-

Fig. 5.2. HBSC survey, 1997/1998: students who strongly agree or agree that they take part in making rules at school (%)



* France, Germany and Russia are represented only by regions

est in them. In Greenland, Israel, Portugal, Slovakia and Switzerland, most students agree or strongly agree that their teachers are interested in them as people. The lowest proportions of students agreeing to this statement are found in Estonia and Finland. The results indicate that, as students become older, they tend to perceive their teachers as having less and less interest in them as people. There are no marked differences between boys and girls in this perception. In most countries, students in secondary school have more teachers to relate to than students in primary school, and thus a close relationship between student and teacher is less likely to occur. This could explain the perceived decline in teachers' interest as students become older.

Student support

Fellow students may provide opportunities for social interaction, emotional support and help in both academic and social situations (50). Perceived high-level student support may suggest that students feel highly integrated with and accepted by their fellow students. Thus, affiliation is an important part of student relations, as interaction allows them simply to enjoy being with other adolescents (51,52).

Student or classmate support was measured by three variables: "Students enjoy being together", "Students are kind and helpful" and "Students accept me". Fig. 5.5 illustrates the proportions of students reporting that their classmates always or often provide kindness and help to those in need. There are no marked differences by age or gender in perceived kindness and readiness to help. The highest proportions of students agreeing that their fellow students would provide support are found in Denmark, Portugal, Sweden and Switzerland, and the lowest proportions in the Czech Republic, Lithuania and the United States.

Demands and achievement: parents' and teachers' expectations

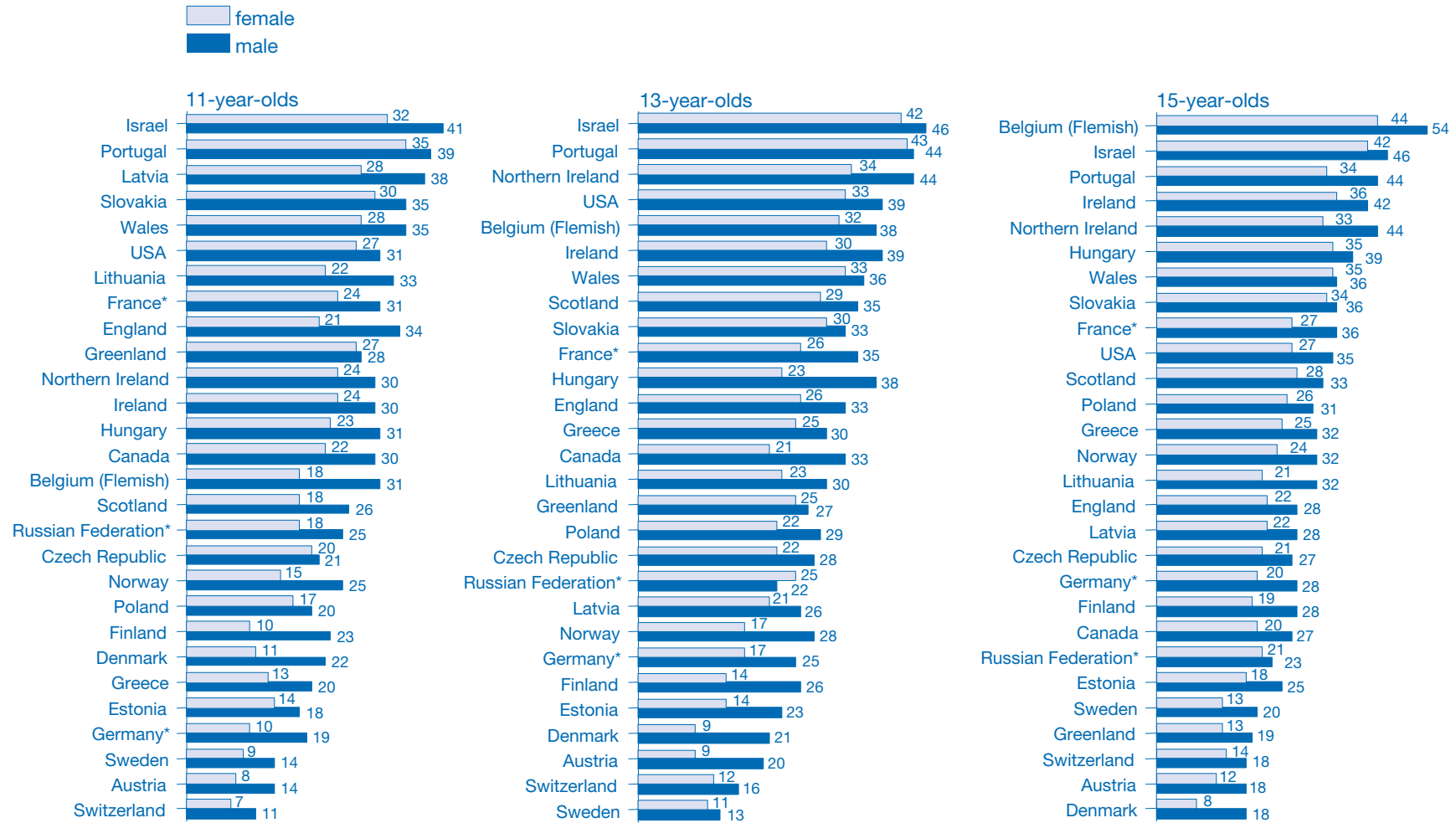
Parents expectations of their children are, in general, moderate. The exceptions are some students in Greece, Greenland, Israel, Lithuania, Portugal, and the Russian Federation (Fig. 5.6). The huge differences between countries suggest that students in countries with economic problems are especially likely to be challenged.

There is little difference between age groups. Noticeable differences appear only in England, Canada, Ireland, Wales, Norway, Estonia, Scotland, Finland and Switzerland. Though the differences were small, countries showed an interesting pattern. In those where expectations at the age of 11 are low, parents seem slightly to increase their pressure later, while in countries where expectations at the age of 11 are high, either pressure declines or students become used to it and learn to cope. In addition, however, this pattern could be due to school systems; namely, whether there is a crucial point of change in the school career.

Overall, boys complain more often than girls about excessive pressure. In other words, boys feel slightly more challenged, or some parents still treat girls differently, which may mirror the societal inequality between the sexes. Countries with distinct differences between boys and girls include Slovakia, Ireland and, to some extent, Sweden and Northern Ireland. At the opposite extreme, Canada, Wales, France, Scotland and Austria show almost no differences between boys and girls.

Teachers' expectations of their students are in general lower than those of parents, according to students' responses. Reports of excessive teacher expectations decrease gradually with age,

Fig. 5.3. HBSC survey, 1997/1998: students who strongly agree or agree that they are treated too strictly at school (%)



* France, Germany and Russia are represented only by regions

especially in countries where levels of teacher expectations are rather high, and vary between genders; 11-year-olds tend to report more cases of excessive teacher expectations than either 13- or 15-year-olds. As with parents, the expectations of teachers seem to diminish or students learn to handle them.

The disparities between parents' and teachers' expectations in most countries suggest an inverse relationship between the two. The higher the parents' expectations, the lower the teachers', as if they are compensating for each other. Exceptions to this pattern were found in the United States, Greenland and Israel, where parents and teachers seemed to be equally demanding.

Pressure from school work (stress)

In general, not too many students feel very stressed by what school demands of them. Differences between countries, however, are large, with levels in 15-year-old girls ranging from 1% in the Russian Federation to 36% in England. Few countries have rankings in school stress similar to the latter (Fig. 5.8).

For most countries, stress from school work increases rapidly with age. In some countries, three times as many 15-year-olds as 11-year-olds feel very stressed. The opposite situation can be observed only in Greenland. Countries reporting low levels of stress seem not to show much difference between age groups, while countries with high levels still show increases for 15-year-olds. These differences may be due not only to differences in school systems and the school careers they enable but also to different school cultures that define the conditions for success.

Most countries show no noticeable differences between genders in school stress; exceptions, for 15-year olds, include England, France, Ireland, Scotland, Sweden and Wales where girls outnumber boys by 7% or more, and Flemish Belgium where boys outnumber girls by 7%. There is no obvious pattern linking gender and pressure in school.

Self-reported academic achievement

Like pressure from school work, self-reported academic achievement varies widely between countries. It is lowest in Germany, where only 4% of all three age groups feel teachers' evaluation of them would be "very good", and highest in Greece where the average level is 33% (Fig. 5.9).

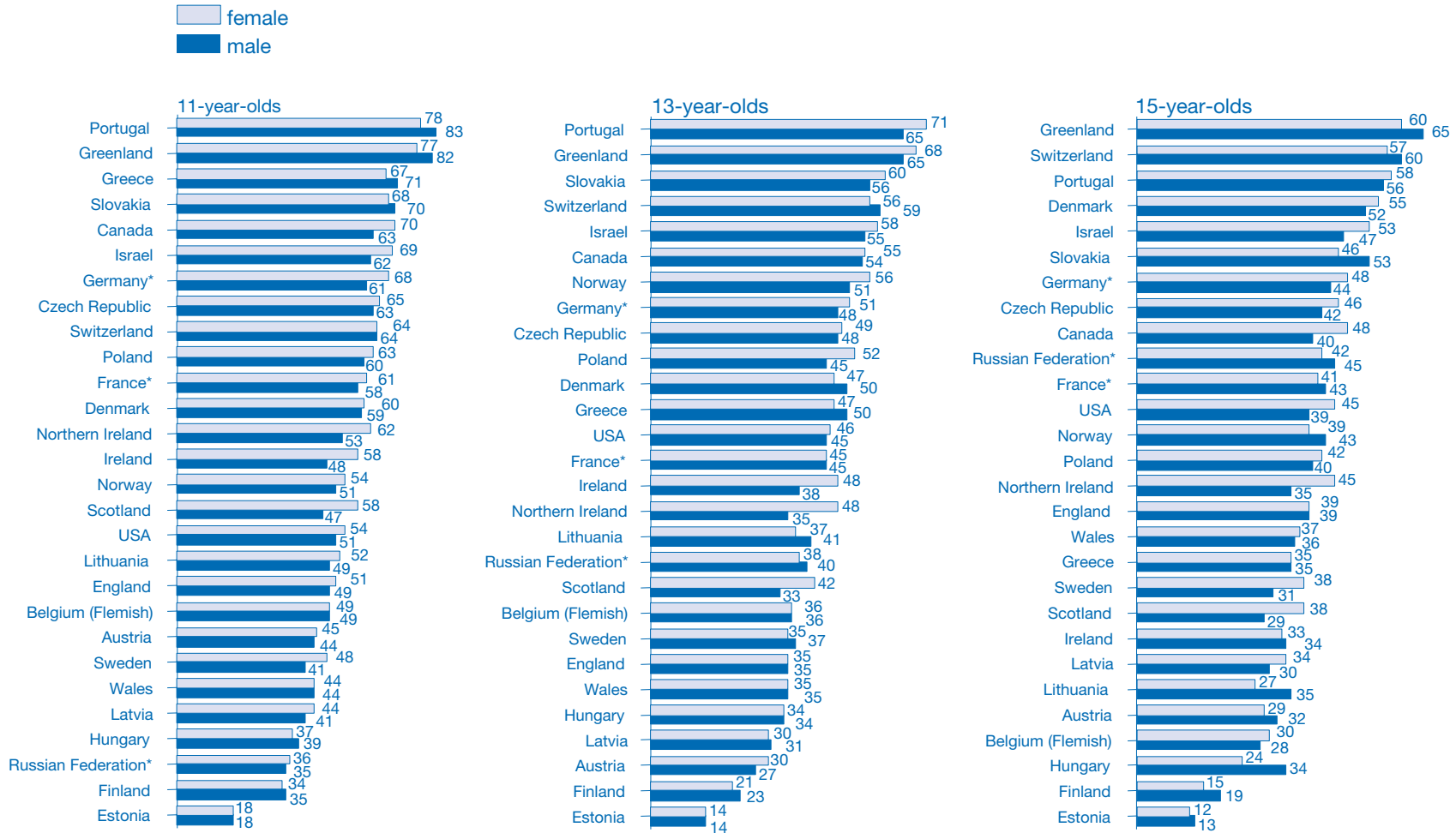
Relationships

A discussion of associations between self-reported health, quality of life and health behaviour, on the one hand, and satisfaction with school, participation in rule making, support from students and teachers, and high expectations, on the other, must take account of the complexity of these concepts and the difficulty of measuring them and particularly of fitting them into explanatory models. Analysis that facilitates a better understanding of these relationships is therefore a task for the future. Nevertheless, it is worth while both to comment on some findings and to pinpoint health factors that are normally neglected in scientific and political discussions on schooling.

Perceptions of and satisfaction with school

Based on data from all countries, Table 5.1 indicates students' perceptions of involvement in school and teacher support are the two dimensions in students' perception of school that

Fig. 5.4. HBSC survey, 1997/1998: students who strongly agree or agree that their teachers are interested in them as persons (%)



* France, Germany and Russia are represented only by regions

correlate most strongly with their satisfaction with school. Next follow perceived support from students and the expectations of parents and teachers. Thus, increasing students' involvement in daily school life and their perceived support from teachers seems the best means of improving satisfaction with school (53).

Table 5.1. HBSC survey, 1997/1998: factors associated with students' satisfaction with school

Students are satisfied with their school if:	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
they take part in setting rules at school	[Dark Blue]		[Dark Blue]		[Dark Blue]	
they get support from teachers when needed	[Dark Blue]		[Dark Blue]		[Dark Blue]	
they feel supported by other students	[Dark Blue]		[Light Blue]	[Dark Blue]	[Dark Blue]	
expectations of teachers and parents are high	[Light Blue]	[Light Blue]	[Light Blue]	[Light Blue]	[Light Blue]	[Light Blue]
Strength of statistical association*						
None (<0.15)		Medium (0.15–0.25)		Strong (>0.25)		

(*Pearson cor.)

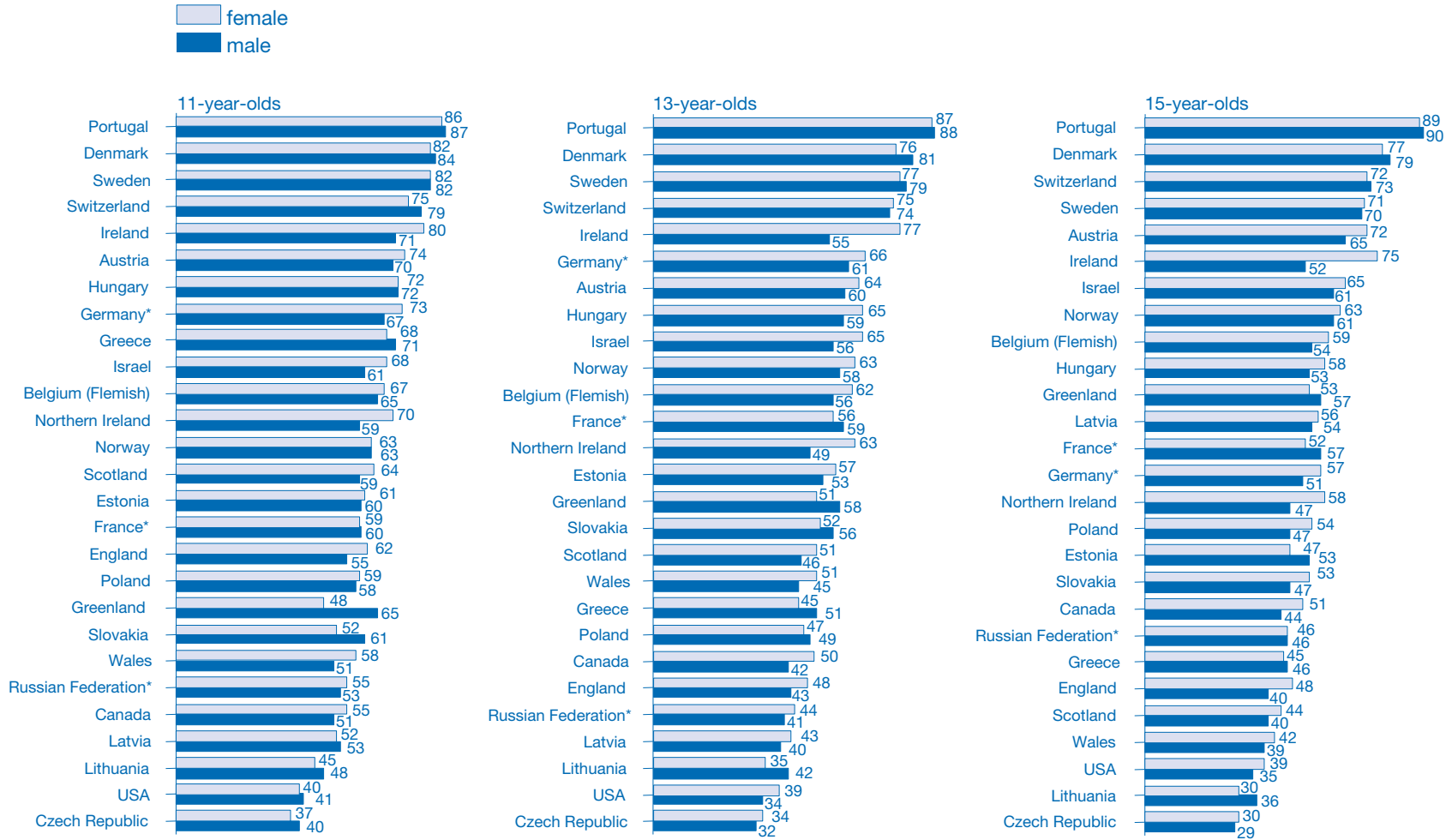
School perceptions and health aspects

Based on data from all countries, Table 5.2 shows that perceptions of school were weakly to moderately correlated with smoking, physical activity, perceived health and quality of life. Involvement in school and perceived teacher support, however, seem to be more strongly correlated with smoking behaviour than the two other school perception dimensions. This indicates that students that did not feel involved in school and support from their teachers were more likely to orient themselves away from school and start smoking.

Students' physical activity level does not seem strongly correlated with their perception of school. To a certain extent, students' perceived support from fellow students is related to their activity level, indicating that students who feel integrated into their classes and supported by classmates were also more active. This accords with a hypothesis of integration being important for students' activity level, as adolescents tend to be active in the company of their friends.

For all countries, the two support dimensions seem more strongly correlated with health and quality of life than other perceptions of school. A particularly strong association seems to exist between perceived student support and quality of life, harmonizing with research indicating that social relationships and support are essential components in human life (54). The stress-buffering effects of social relationships have been widely addressed (55,56), but these relationships may also have a direct effect on subjective wellbeing. Several authors (51,57) argue that this reflects the notion that affiliation – the sense of belonging – is a fundamental goal in human development, and, further, that humans are biologically predisposed to obtain subjective wellbeing from belonging and being with others.

Fig. 5.5. HBSC survey, 1997/1998: students who report that their classmates are always or often kind and helpful (%)



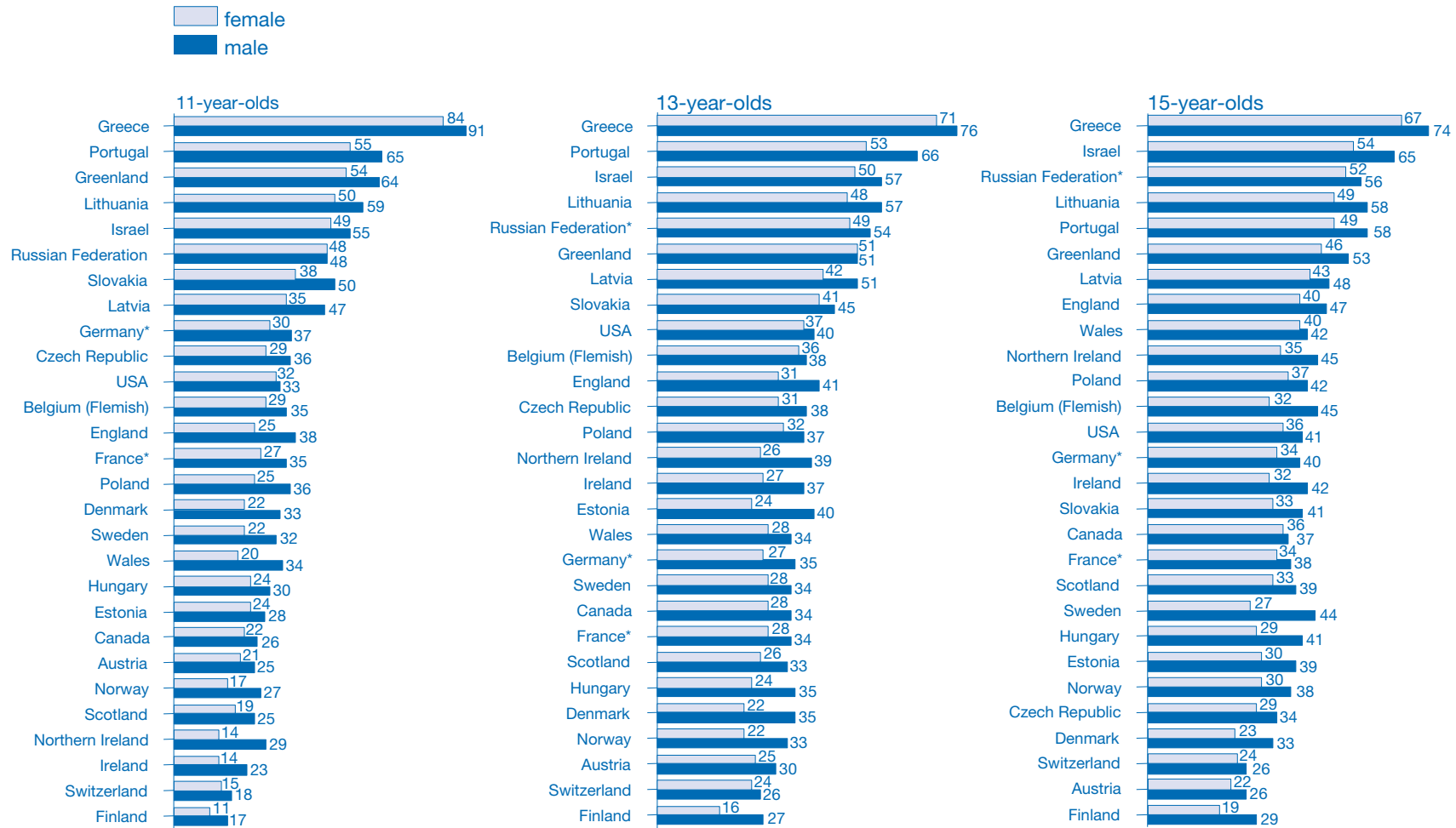
* France, Germany and Russia are represented only by regions

Table 5.2. HBSC survey, 1997/1998: factors associated with students' perception of school

Variable	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
Students smoke more if:						
they are not satisfied with their school			Medium	Medium	Medium	Medium
they are not involved in setting rules at school			Weak	Medium	Weak	Medium
they do not feel supported by teachers			Weak	Weak	Weak	Weak
they do not feel supported by other students						
expectations by parents and teachers are high				Weak	Weak	Medium
Students report a lower quality of life if:						
they are not satisfied with their school	Medium	Strong	Strong	Strong	Medium	Medium
they are not involved in setting rules at school	Medium	Medium	Weak	Medium	Weak	Weak
they do not feel supported by teachers	Medium	Medium	Medium	Strong	Medium	Medium
they do not feel supported by other students	Strong	Strong	Strong	Strong	Medium	Medium
expectations by parents and teachers are high	Weak		Weak	Medium	Weak	Medium
Students feel healthier if:						
they are satisfied with their school		Medium	Weak	Medium	Weak	Medium
they are involved in setting rules at school		Weak		Weak		Weak
they feel supported by teachers		Weak	Weak	Medium	Weak	Weak
they feel supported by other students	Medium	Medium	Medium	Medium	Medium	Weak
expectations by parents and teachers are low						Weak
Students report more physical activity if:						
they are satisfied with their school						
they are involved in setting rules at school						
they feel supported by teachers						
they feel supported by other students	Medium		Weak	Weak	Weak	
expectations by parents and teachers are low						
Strength of statistical association*						
None (0.00–0.09)		Weak (0.10–0.14)		Medium (0.15–0.24)		Strong (>0.25)

(*Pearson cor.)

Fig. 5.6. HBSC survey, 1997/1998: students who strongly agree or agree that their parents expect too much of them at school (%)



* France, Germany and Russia are represented only by regions

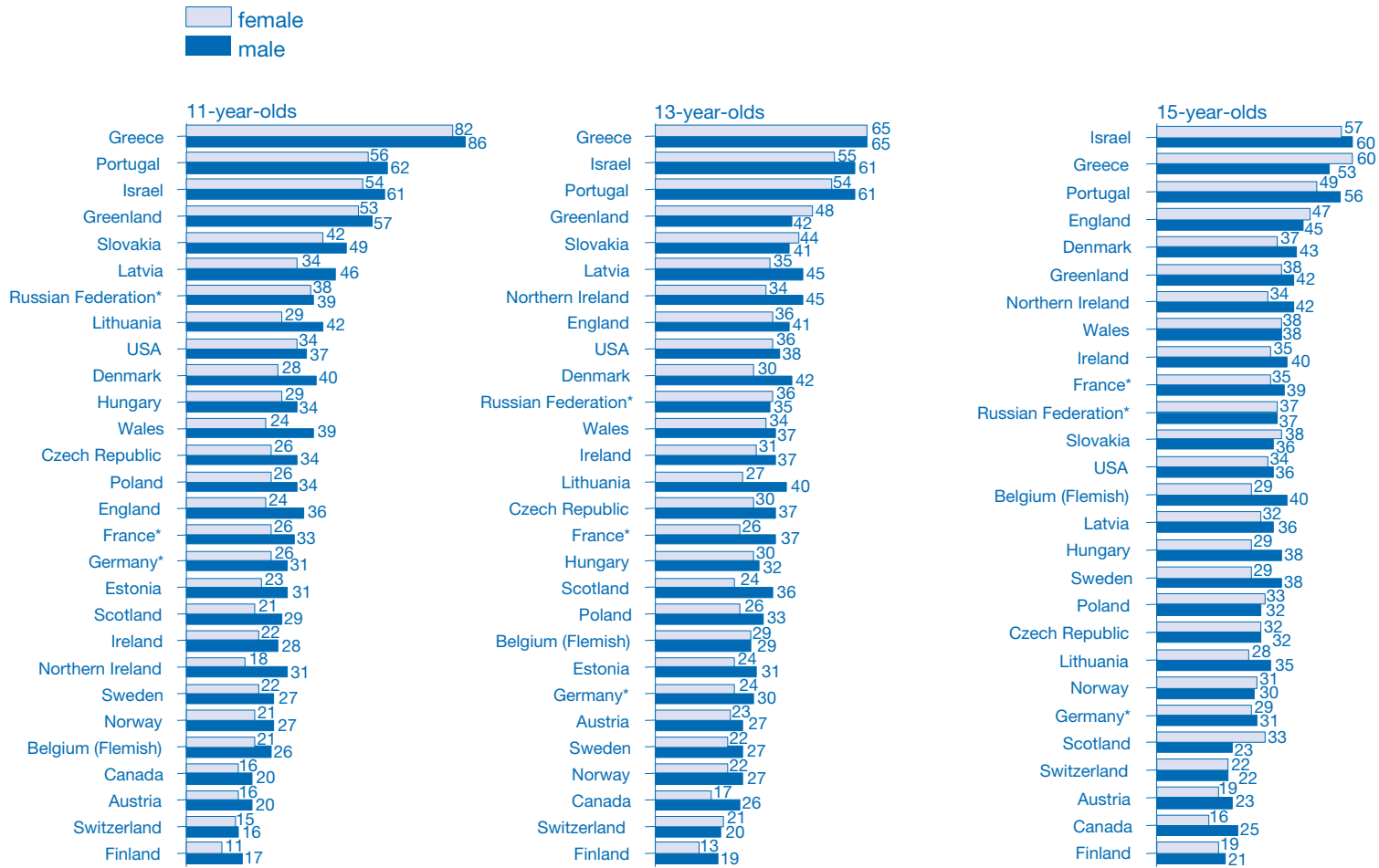
Conclusions

The observed relationships between students' perceptions of school and their smoking behaviour, physical activity, perceived health and subjective wellbeing implies that more attention should be given to the effects of school on adolescent health. Strategies should be developed and implemented to improve students' perceptions of school, particularly perceptions related to autonomy and to support from fellow students.

For adolescents, school is the most important living arena outside the family setting. At present, the school systems across the WHO European Region, Canada and the United States do not seem to take full account of this situation. The best possible academic achievement still seems to be considered the major goal of schooling; this imposes heavy workloads and health-compromising strain on adolescents. Social and democratic functioning, however, may be an equally significant aim of schooling, underlining the importance of student involvement and responsibility in learning, as well as the psychosocial processes at school. Although student involvement is becoming more common in schools, few students have extensive influence on the teaching and tasks set at school or its daily life and priorities (58). A change of perspective and working methods in the educational system thus seems to be required in many countries.

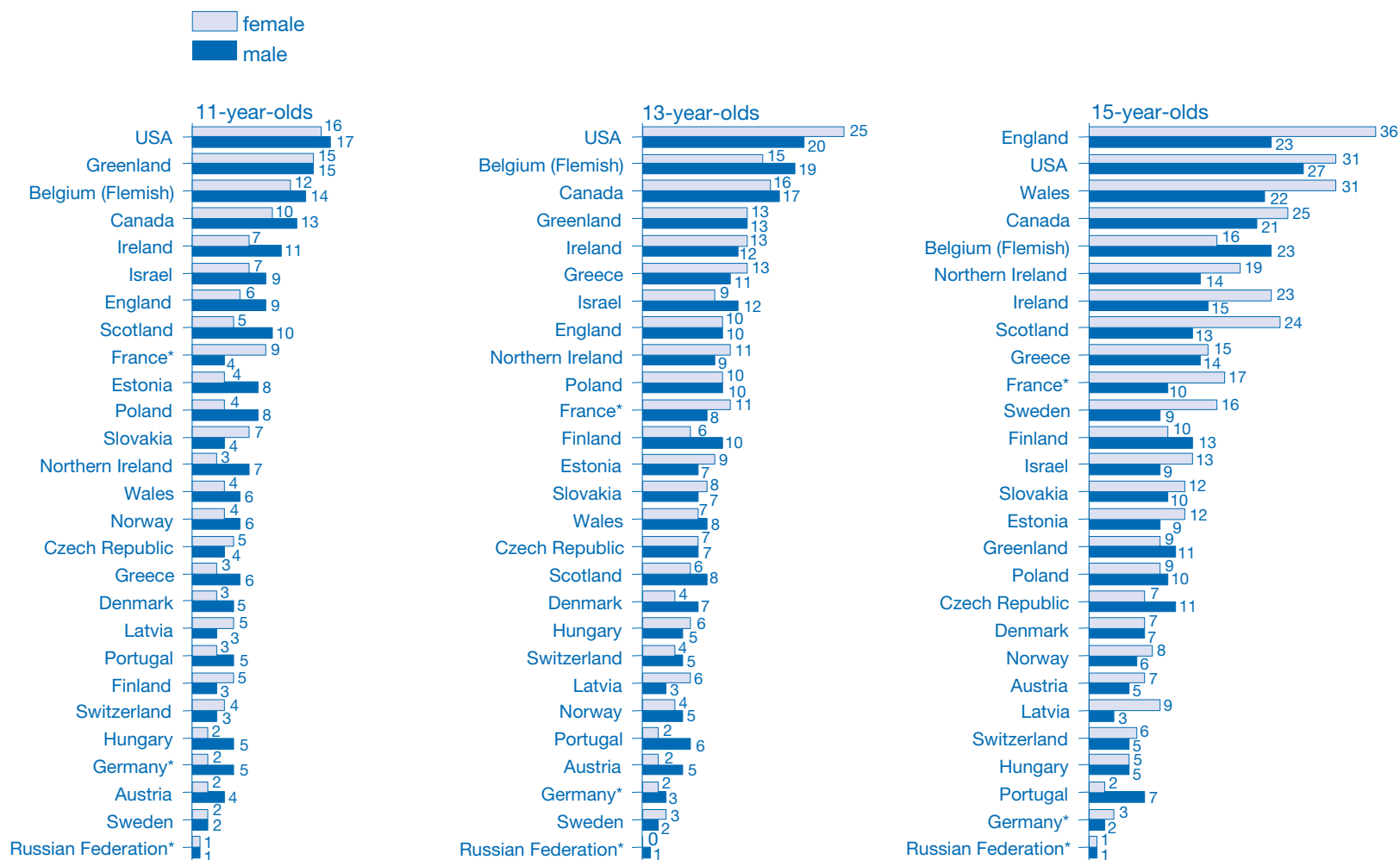
The findings of the HBSC survey indicate marked differences between countries in students' perception of school and the effect of school on their health. More research is required to create a better understanding of national school systems' influence on the development of adolescent health and wellbeing. At present, changes in the psychosocial setting of school are the aim of a variety of projects within the European Network of Health Promoting Schools. The evaluation of intervention strategies, along with broader cross-national research, may increase the understanding of general and more country-specific relations between students' perceptions of school and their reported health and wellbeing.

Fig. 5.7. HBSC survey, 1997/1998: students who strongly agree or agree that their teachers expect too much (%)



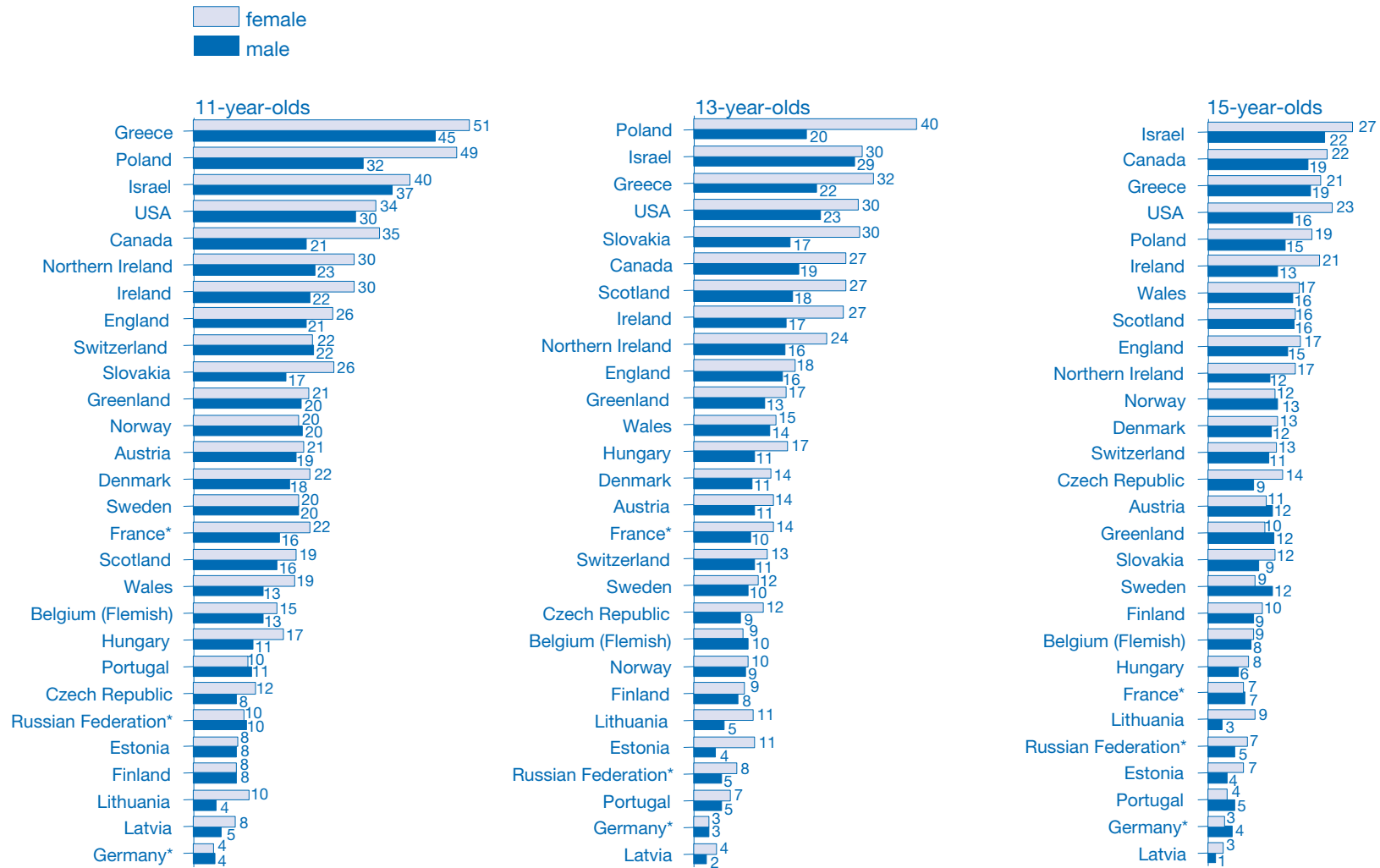
* France, Germany and Russia are represented only by regions

Fig. 5.8. HBSC survey, 1997/1998: students who report feeling pressured a lot by their school work (%)



* France, Germany and Russia are represented only by regions

Fig. 5.9. HBSC survey, 1997/1998: students who report being very good at school (academic achievement) (%)



* France, Germany and Russia are represented only by regions

6. Socioeconomic inequalities in adolescent health –

Elaine Mullan & Candace Currie

The 1990 Luxembourg Income Survey of 19 countries found that 15–20% of children under 16 years lived in poverty in Israel, Canada, Spain and Poland, and 25–30% did so in the Russian Federation, the United Kingdom and the United States (59). An ever increasing wealth of literature supports the link between ill health and poor socioeconomic conditions, so that lower socioeconomic status, however measured, is associated with poorer health, however measured. Differentials in morbidity and mortality, favouring the better off, have been observed across the United States and in all European countries for which data are available (60–62). Most of this research has focused on infants, young children and adults; young people aged 11–16 years have typically been invisible in the statistics. The research that has been done has tended to conclude that adolescence is characterized more by a relative equality than by inequality in health across the socioeconomic spectrum (63). Most of this research, however, has used a measure of socioeconomic status based on parental occupation and has focused primarily on morbidity and mortality; the patterning of health behaviour and risk behaviour according to socioeconomic status has rarely been considered.

Measuring young people's socioeconomic status

Very little research or detailed discussion has addressed the assignment of social class to children and young people. Historically, it has been determined according to the occupation of the head of the household. Youth surveys seldom request economic information from young people directly, because few know their parents' income. Many are also uncertain of their parents' occupations, however, and cannot describe them accurately or in sufficient detail for classification. Indeed, Currie et al. (64) found that over 20% of 11–15-year-olds were unable to provide a substantive response on their fathers' occupation. This is further complicated when families are separated and reconstituted, and/or the parent in question does not have paid work.

The current indicators of socioeconomic status used in the HBSC surveys are father's and mother's occupational class, which are coded from open-ended responses to questions asking for job descriptions. In the 1997/1998 HBSC survey, some responses to the questions about father's and mother's occupations (23% and 17%, respectively) could not be coded to give occupational categories. Even when responses allow classification into occupational categories, the huge cross-country variation in the number of coding categories employed in each country poses problems for cross-country comparison. Countries are currently required to condense their categories into a rather arbitrary common denominator of six categories that are only partially labelled, ranging from 1 (high socioeconomic status) to 5 (low socioeconomic status) and 6 (economically inactive). Although unavoidable, this is clearly unsatisfactory and of questionable usefulness for cross-national comparisons of health inequalities.

Aims

Given the need for more useful and appropriate indicators of socioeconomic status and the need to examine health and wellbeing issues, rather than morbidity and mortality, a study was carried out to accomplish three aims: to devise multiple indicators of socioeconomic status that were not based on parental occupation; to examine the patterning of health behaviour, risk behaviour and wellbeing as a function of these new measures; and to compare the results with those derived by examining the behavioural and wellbeing patterns by the socioeconomic status variable derived from parental occupation. This research is primarily exploratory and preliminary in nature.

Methods

Data collected on 11 participants in the 1997/1998 HBSC survey were examined: Austria, Denmark, Germany, Hungary, Latvia, Norway, Portugal, the Russian Federation, Scotland, Wales and the United States. They were selected, from the 28 available, to give a broad representation of the regions involved in the study (mainland Europe, the Benelux countries, eastern Europe, the Baltic states, Scandinavia, Mediterranean Europe, the Russian Federation, the British Isles and North America). The 15-year-old age group was selected for analysis since risk behaviour was more prevalent, and more likely to be established in this group.

Three indices – family material affluence, household car ownership, bedroom sharing and holidays – were selected as indicators of consumption and material deprivation (65,66):

- “Does your family have a car or a van?” (answers coded as 0, 1, 2)
- “Do you have a bedroom to yourself?” (answers coded as 0, 1)
- “During the past year how many times did you travel away on holiday (vacation) with your family?” (coded as 0, 1, 2, 3).

A composite score was calculated for each child based on his or her responses, producing an ordinal scale (0–3) called the family affluence scale (FAS), where FAS 3 indicates more wealth than FAS 1. An indicator of subjective family wealth was devised. Children were asked to rate how well off they thought their families were on a five-point scale ranging from “very well off” to “not at all well off”. Fathers’ and mothers’ socioeconomic status were derived by coding responses to the question “What are your parents’ jobs?” into six categories². The following indicators were used:

- for health behaviour: current smoking frequency, the total number of times respondents became drunk, episodes per week of vigorous exercise and the frequency of eating fruit; and
- for wellbeing: perceived health status, perceived happiness status, experience of feeling confident and feeling helpless, and experience of daily symptoms.

The relationships between the various socioeconomic status indicators and the health behaviour and wellbeing indicators were examined using bivariate correlations and the Pearson correlation coefficient.

Results

Response rates and distributions

Socioeconomic status by father’s and mother’s occupations could not be determined for 20% and 17% of 15-year-olds, respectively. These respondents either provided incomplete job descriptions, did not know their parents’ occupations or did not answer the question at all. In comparison, non-response rates for the number of cars, own bedroom, holidays and perceived wealth indicators of socioeconomic status were only 1%, 1%, 5% and 2%, respectively.

Table 6.1 shows the spread of FAS scores across the countries and clearly shows that Hungarian, Latvian and Russian 15-year-olds are far less likely to have more than one family car, go on regular holidays and have separate bedrooms for children than their coevals in other countries. Table 6.2 shows that Germany and the United States have the largest proportions of young people perceiving their families to be very well off. The number believing their families not to be very well off at all, however, is also greatest in the United States.

Table 6.1. HBS survey, 1997/1998: distribution of FAS scores

Country	Percentage (number)		
	FAS 1	FAS 2	FAS 3
Austria	19 (257)	62 (862)	19 (257)
Denmark	22 (340)	66 (1014)	12 (192)
Germany	17 (265)	62 (993)	21 (341)
Hungary	50 (412)	42 (343)	8 (63)
Latvia	54 (690)	41 (514)	5 (61)
Norway	8 (131)	57 (961)	35 (578)
Portugal	25 (315)	57 (710)	18 (220)
Russian Federation	62 (822)	34 (453)	4 (47)
United Kingdom			
Scotland	24 (413)	58 (1000)	18 (314)
Wales	21 (2969)	59 (840)	20 (291)
United States	12 (153)	50 (608)	18 (314)

Note: FAS 3 indicates more wealth than FAS 1.

Table 6.2. HBS survey, 1997/1998: distribution of perceived wealth scores

Country	Percentage (number)				
	Very well off	Quite well off	Average	Not very well off	Not well off at all
Austria	2 (21)	14 (182)	69 (938)	11 (193)	4 (57)
Denmark	2 (26)	17 (265)	69 (265)	11 (175)	1 (12)
Germany	13 (214)	34 (546)	46 (736)	5 (72)	2 (25)
Hungary	4 (38)	23 (186)	63 (509)	8 (64)	2 (17)
Latvia	3 (39)	32 (408)	50 (618)	13 (161)	2 (26)
Norway	7 (114)	43 (717)	41 (683)	7 (121)	1 (16)
Portugal	5 (63)	38 (473)	48 (598)	8 (99)	1 (15)
Russian Federation	5 (73)	42 (551)	40 (524)	12 (159)	1 (15)
United Kingdom					
Scotland	7 (117)	42 (712)	45 (755)	6 (95)	0.5 (8)
Wales	10 (147)	34 (490)	48 (689)	6 (86)	1 (12)
United States	18 (410)	24 (541)	24 (541)	28 (633)	5 (103)

Health and risk behaviour and wellbeing by socioeconomic status

Table 6.3 shows the strength of the relationship between health and risk behaviour, wellbeing and family affluence. In most countries, increased family affluence (material wealth) is consistently associated with such positive health behaviour as taking more regular exercise and eating more fruit. In contrast, health-compromising behaviour (smoking and being drunk) either displays no relationship to or an increased incidence with increasing family affluence. As to indicators of wellbeing, perceived health, happiness with life and self-confidence are related to increased family affluence in most countries (eight, seven and seven countries, respectively), while a greater incidence of daily symptoms of some description and feelings of helplessness were associated with lower family affluence in six and five countries, respectively.

Table 6.4 shows that, for both positive and negative health behaviour and perceived family wealth, countries show a pattern similar to that for FAS. Far more consistent patterns, however, are observed between the wellbeing indicators and perceived family wealth. In all countries, perceptions of family wealth are associated positively with perceived happiness and feelings of confidence, and negatively with feelings of helplessness. All but one or two countries exhibit the same patterns in perceived health and the experience of symptoms.

Table 6.5 shows that, with regard to the father's socioeconomic status, there was no discernibly consistent pattern across countries on any of the health behaviour or health indicators. The exceptions are fruit consumption and daily symptoms, which increase and decrease, respectively, with increased father's socioeconomic status.

Tables have been constructed to shift attention away from the size and statistical significance of the correlations between the variables and towards the patterning and consistency of their relationships. In general, correlations are small but within the expected range for social sciences research. Correlations between FAS and perceived wealth, and parents' socioeconomic status are small: -0.25 and 0.18 , respectively, with father's socioeconomic status, and -0.18 and 0.11 , respectively, with mother's socioeconomic status.

Discussion and conclusions

This preliminary research shows support for the use of multiple indicators of socioeconomic status that are not based on parental occupation. Results indicate that health behaviour and wellbeing indicators vary with affluence such that young people from wealthier families engage in more health-enhancing activities and have better levels of wellbeing than their less well-off counterparts. Specifically, the health and wellbeing indicators are the most consistently related to objective and subjective measures of family wealth measures. Greater wealth associated with subjective happiness, feeling confident and not feeling helpless in all countries and with perceived health and infrequent experience of symptoms in the vast majority of countries. In contrast, no consistent pattern of association links fathers' occupational status with health and wellbeing indicators.

Smoking and drinking (as measured here) among 15-year-olds are not subject to patterning by the socioeconomic status of the family, no matter how it is measured in this study. Clearly, this behaviour is influenced more strongly by other factors relating to individual characteristics (such as maturation stage and coping strategies) and the social environment (peer group or culture). In contrast, there is evidence of a moderately consistent pattern relating socioeconomic

Table 6.3. HBSC survey, 1997/1998: relationship between health and risk behaviour, wellbeing and family affluence (FAS), by country

Country	Smoking	Been drunk	Exercise	Eat fruit	Feel healthy	Feel happy	Feel confident	Feel helpless	Daily symptoms
Austria									
Denmark									
Germany									
Hungary									
Latvia		#							
Norway									
Portugal	#	#							
Russian Federation	#	#							
United Kingdom Scotland		#							
Wales		#							
United States									
Strength of statistical association*									
None (<0.05)	Weak (0.05–0.10)	Medium (0.101–0.200)	Strong (>0.200)						

Note: Increased affluence is significantly associated with a desirable outcome; # = associated with an undesirable outcome.
(*Spearman's Rho)

Table 6.4. HBSC survey, 1997/1998: relationship between health and risk behaviour, wellbeing and perceived family wealth, by country

Country	Smoking	Been drunk	Exercise	Eat fruit	Feel healthy	Feel happy	Feel confident	Feel helpless	Daily symptoms
Austria									
Denmark									
Germany									
Hungary	#	#							
Latvia	#	#							
Norway									
Portugal									
Russian Federation	#	#							
United Kingdom Scotland									
Wales									
United States									
Strength of statistical association*									
None (<0.05)	Weak (0.05–0.10)	Medium (0.101–0.200)	Strong (>0.200)						

Note: Increased affluence is significantly associated with a desirable outcome; # = associated with an undesirable outcome.

(*Spearman's Rho)

Table 6.5. HBSC survey, 1997/1998: relationship between health and risk behaviour, wellbeing and father's socioeconomic status, by country

Country	Smoking	Been drunk	Exercise	Eat fruit	Feel healthy	Feel happy	Feel confident	Feel helpless	Daily symptoms
Austria									
Denmark		#							
Germany									
Hungary									
Latvia									#
Norway									
Portugal									
Russian Federation		#							
United Kingdom Scotland									
Wales									
United States									
Strength of statistical association*									
None (<0.05)	Weak (0.05–0.10)	Medium (0.101–0.200)	Strong (>0.200)						

Note: Increased affluence is significantly associated with a desirable outcome. # = associated with an undesirable outcome.
(*Spearman's Rho)

status with physical activity and fruit consumption, both of which confer health benefits in the short and longer term. Both also have cost implications in many countries, which may explain their link to family affluence. These preliminary results appear to indicate that greater wealth confers greater life chances. Higher educational status, as inferred by high occupational status, may explain the greater incidence of health promoting behaviour in young people of less poor families.

Correlations between the traditional indicators of socioeconomic status, based on parental occupation, and these new objective and subjective indicators are small, which suggests that they may be tapping different aspects of socioeconomic status. For cross-national comparisons, the items comprising the FAS measure have the advantage over the traditional measure of requiring no intermediate coding. Certain limitations and biases, however, may apply to non-traditional measures. Family car ownership may vary according to areas of residence, and bedroom sharing, to family size and age and gender of children. Tables 6.1 and 6.2 clearly show how results vary across countries. Further work is needed to explore the possibility for weighting data by country. Nevertheless, the use of FAS, based on relevant items and a subjective wealth measure, clearly has potential as a supplementary measure to parental occupation in youth health surveys.

7. Exercise and leisure-time activities –

Mary Hickman, Chris Roberts & Margarida Gaspar de Matos

Introduction

This section examines the extent to which young people engage in the type of physical activity that is both beneficial when they are young and likely to encourage a lifelong involvement in physical exercise. Consideration of their involvement in leisure-time activities focuses on watching television, playing computer games and the health implications of these activities.

Previous research has demonstrated that moderate physical activity enhances physical, mental and social wellbeing, and plays an important role in the prevention of coronary heart disease (CHD) (67). In the past 20 years, several large, long-term studies of adults have shown that physical activity is a major risk factor for morbidity and premature mortality from CHD (68,69). Regular physical activity can benefit young people, as well (70). Since risk-factor levels in childhood predict levels in young adulthood (71), decreasing them in young people is an important health consideration.

In addition to benefits related to the prevention of CHD, physical activity appears to promote mental health in adults (72) and to enhance self-esteem in young people (73). Physical activity and sports, as well as being important types of health behaviour, constitute important socialization arenas for young people (74).

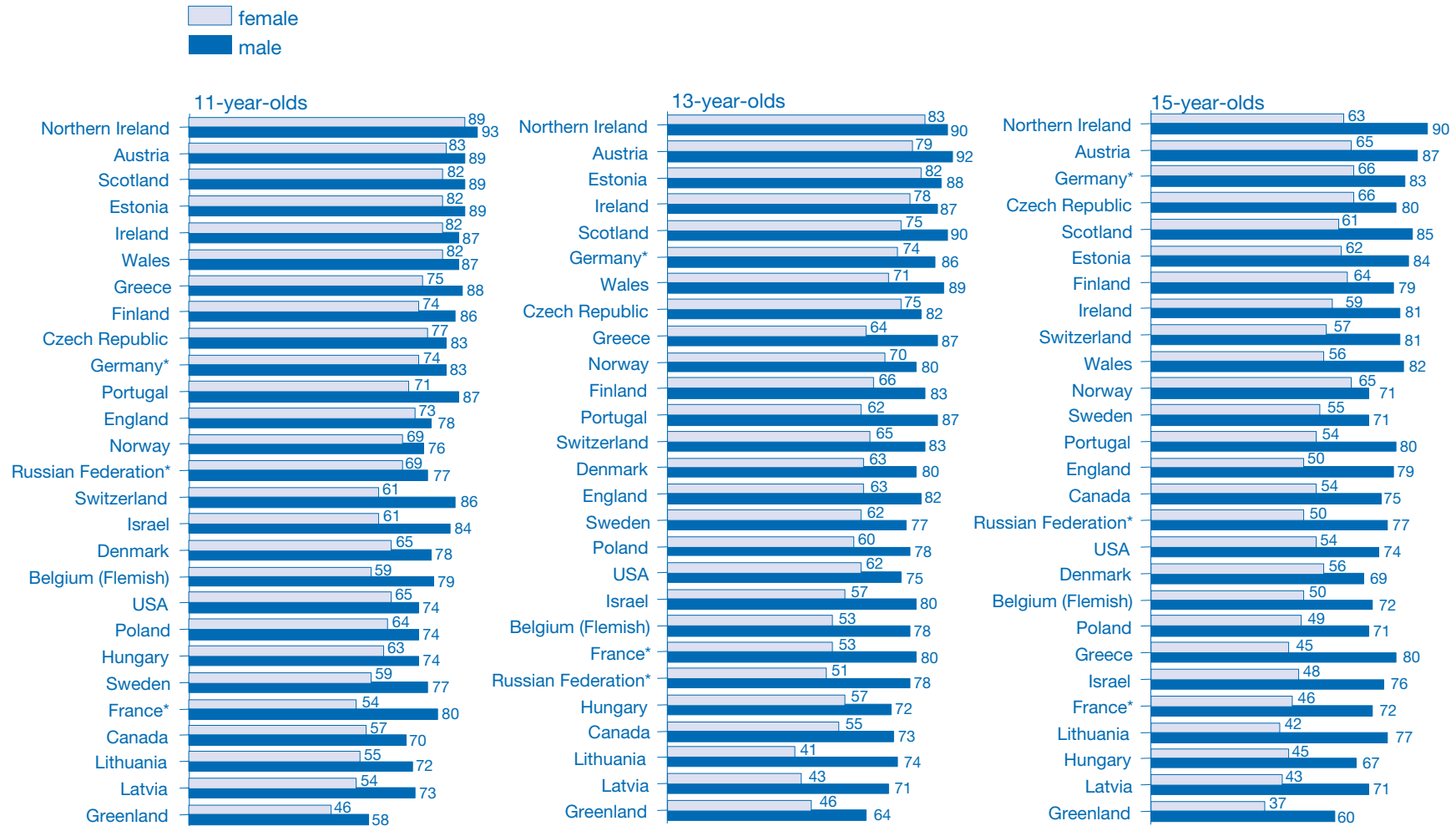
The nutrition task force in England has identified physical activity as important in relation to weight control and obesity (75). In September 1993, a national task force for physical activity was set up in England, to develop a national strategy for promoting physical activity. In April 1994, the Health Education Authority (HEA) in the United Kingdom held an international symposium whose participants reached consensus on recommended levels of physical activity for adults (76). These were adopted in the US Surgeon General's report of 1995 (77). The symposium participants recommended that young people (under 16) should be recognized as a priority group for the delivery of health promotion messages.

In 1996, HEA hosted an international symposium that looked specifically at young people's needs for physical activity (78). The participants stressed the importance of instilling at an early age both the fundamental skills for engaging in lifetime physical activity, and an understanding of the benefits of physical activity. These benefits include improved psychological wellbeing, enhanced self-esteem, enhanced moral and social development and a small but significant effect of reducing body fat, when combined with appropriate dietary modification. The symposium participants recommended that young people be moderately active for at least 30 minutes per day (78). Moderate-intensity activity is defined as activity usually equivalent to brisk walking, which might be expected to leave the participant feeling warm and slightly out of breath.

The benefits of physical activity are extremely important, but participation is not necessarily risk free (70). While most of the dangers are associated with carelessness or taking unnecessary risks, some simply result from taking part in games and play. Appropriate amounts of physical activity and effective safety measures tend to maximize the benefits and minimize the risks (3).

The cross-national comparisons made in this study must be cautiously interpreted, because the questionnaires were not administered in every country at the same time of year, and seasonal differences in opportunities for outdoor activity vary greatly from one country to another. For example, the winter sports of young people in Norway differ greatly from those in Portugal.

Fig. 7.1. HBSC survey, 1997/1998: students who report exercising twice a week or more (%)



* France, Germany and Russia are represented only by regions

This section presents the proportions of students exercising on a regular basis and looks at two other leisure-time pursuits included in the HBSC Study: watching television and playing computer games. In addition, a range of other variables in the Study were examined for associations with all three. These variables do not represent an exhaustive list but indicate some of the more important influences on these activities. These associations were assessed through a series of bivariate correlations. Given the ordinal nature of the data, Spearman's ρ correlation coefficients are presented. The lightest shading represents the weakest associations, where the correlation coefficient was below 0.1. The slightly darker shading represents coefficients above 0.1 but below 0.2 and the strongest associations (that is, those exceeding 0.2) are represented by the darkest shading. The coefficients were calculated by aggregating data by age and gender across all countries.

Exercise

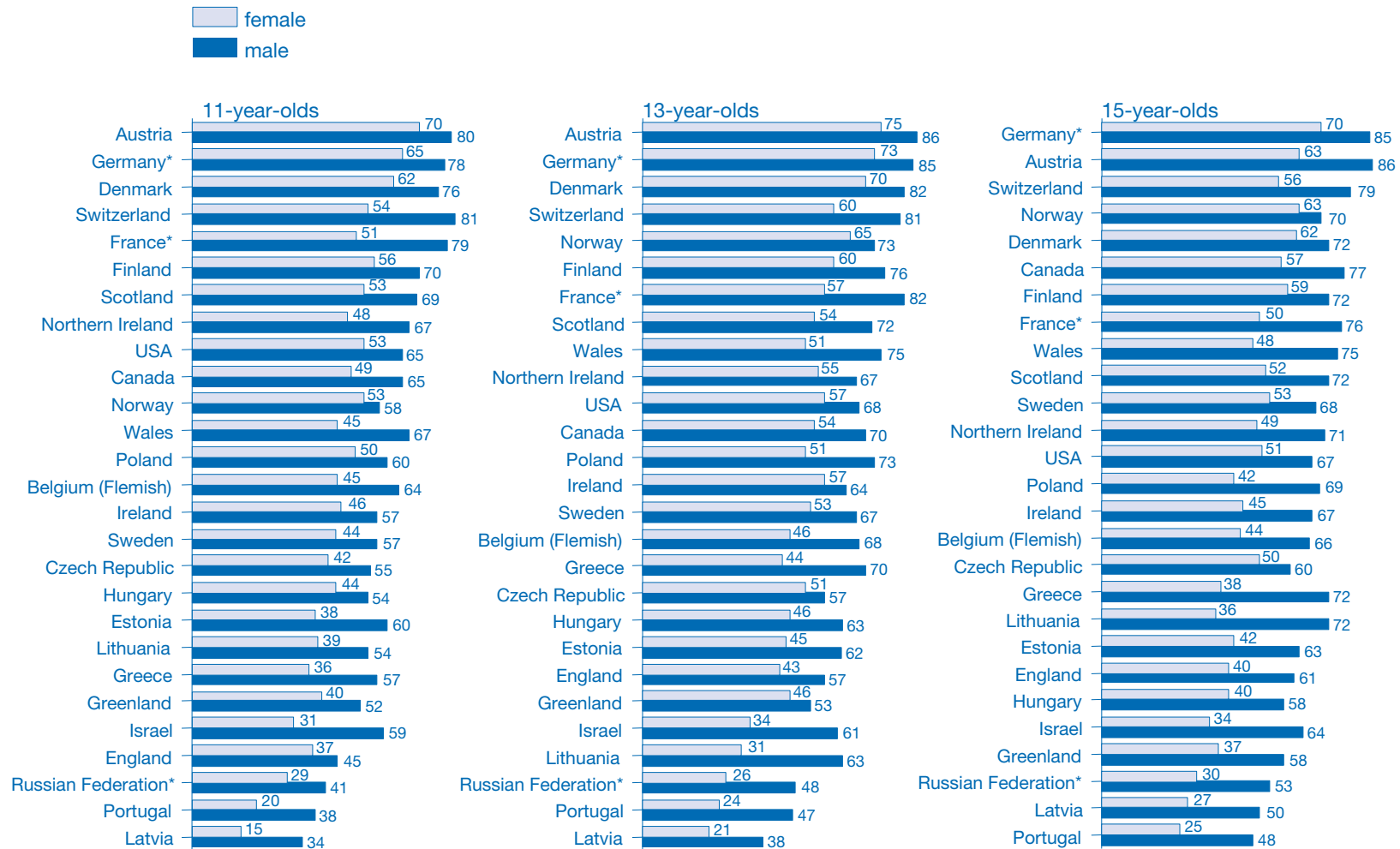
To obtain an estimate of weekly cardiovascular activity, students were asked how often and how many hours a week they took part in vigorous intensity activity outside school hours. Vigorous physical activity is defined as equivalent to at least slow jogging, which might be expected to leave the participant feeling out of breath and sweaty. This survey had no measures for the moderate levels of physical activity discussed above. Young people were asked how often they usually took part in vigorous physical activity in their free time. The response categories were: "every day", "4–6 times a week", "2–3 times a week", "once a week", "once a month", "less than once a month" and "never". They were also asked how many hours a week they usually spent in vigorous physical activity. Response categories for this question were: "none", "about half an hour", "about 1 hour", "about 2–3 hours", "about 4–6 hours" and "7 hours or more". In Portugal, the two questions were linked, so that the number of hours spent exercising were related to the frequency of exercise. The proportions exercising at least twice a week were therefore derived from responses to the two questions.

Patterns of involvement in physical activity across countries were found to be similar for different levels of exercising, although some activity is almost universal at the lower end of the scale. It was therefore decided to report on those who took part in vigorous activity twice a week or more and those who exercised for at least two hours a week. The question on duration of exercise was different in Portugal; students were asked to specify the duration of each occasion of activity, not weekly activity, so that the results are lower than for other countries. In addition, data from Slovakia have been omitted owing to deviations in the coding categories of both activity questions.

Fig. 7.1 presents the proportions of young people exercising on two or more occasions per week and shows that most of them exercise at this level. Across most countries, regular exercise is more common among boys than among girls and declines with age, especially for girls. The gender difference is pronounced in a number of countries. For example, the proportions of girls exercising at this level is approximately half that of boys among 15-year-olds in Greenland, Lithuania and Greece.

Among 11-year-olds, boys and girls are most likely to exercise regularly in a group of countries including Northern Ireland and Austria, with a similar pattern being observed among 13- and 15-year-olds. The lowest proportions at this level of activity are in Greenland.

Fig. 7.2. HBSC survey, 1997/1998: students who report exercising two hours a week or more (%)



* France, Germany and Russia are represented only by regions

Fig. 7.2 illustrates the proportions of respondents usually exercising for two or more hours a week. As with exercise frequency, boys are more likely than girls to exercise at this level among all age groups in each country, the difference being quite substantial in most cases. In all three age groups, students in Germany and Austria are most likely to report exercising for two or more hours a week, while those in countries such as Latvia, Portugal and the Russian Federation are least likely to do so.

The data presented in Table 7.1 indicate that regular exercise is most strongly associated with perceived health status, feeling confident, making friends, spending time with them outside school and having a family car. Clearly health status could be interpreted in two ways; that those who feel healthy are more likely to take exercise or vice versa. Likewise, becoming involved in physical activities might be seen as a good way of making friends or, alternatively, students with friends are more likely to participate in activities. Irrespective of the direction of these associations, students who exercise tend to be those who appear to be confident most of the time and to have a circle of friends. The association between levels of physical activity and perceived affluence is weak across all age groups and both genders (*see also chapter 6*).

Table 7.1. HBSC survey, 1997/1998: factors associated with the number of hours a week that students exercise during their free time

Students exercising regularly are more likely to:	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
achieve well at school						
be healthier						
have a higher quality of life						
watch television						
play computer games						
make friends easily						
spend time with friends after school						
feel confident						
have a family car						
perceive themselves to be well off						
Strength of association*						
None (<0.1)		Medium (0.1–0.199)		Strong (>0.2)		

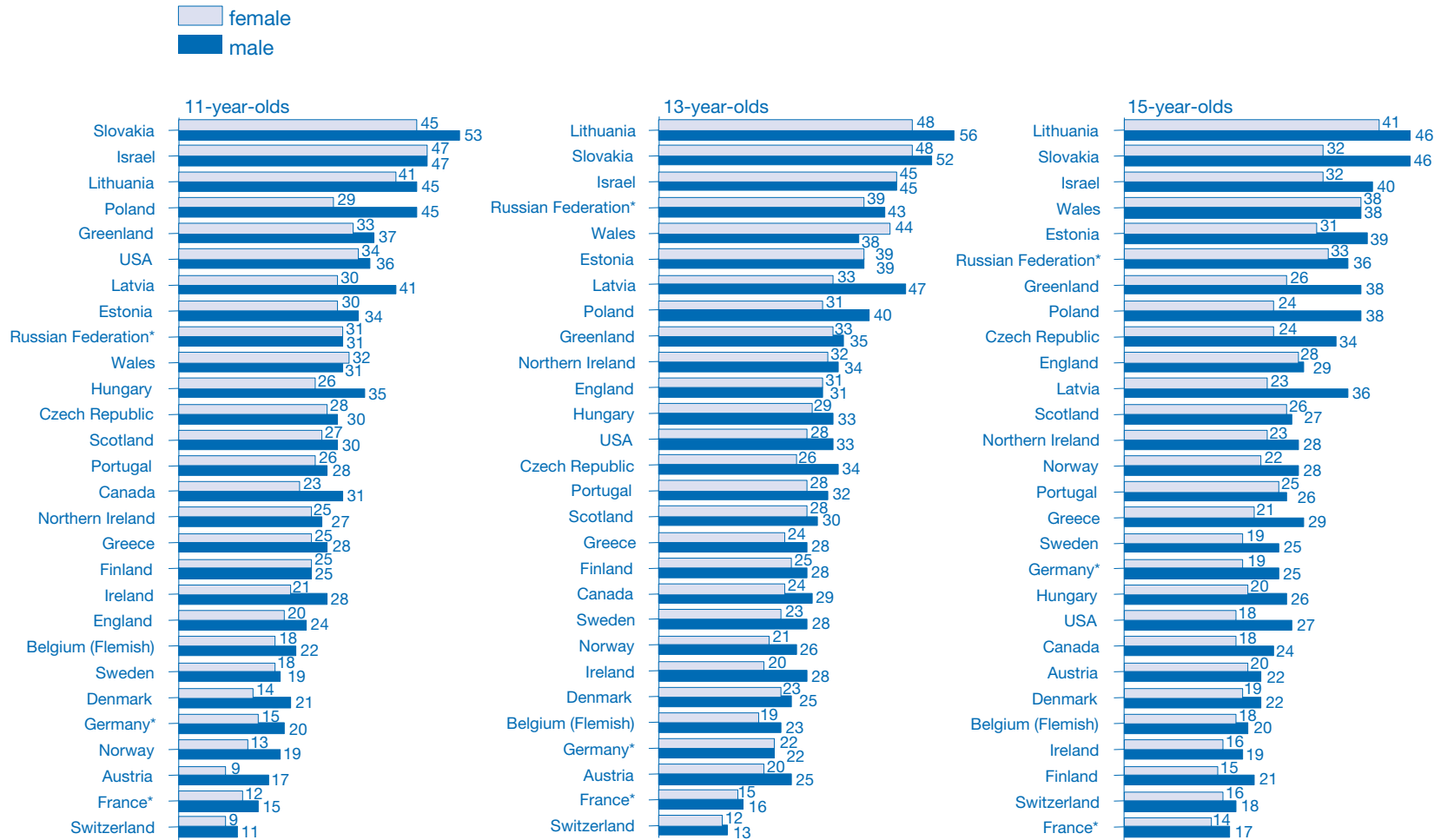
(*Spearman’s Rho)

Leisure-time activities

Leisure-time activities include out-of-school sports and exercise discussed above, as well as the many other pursuits in which students were involved, such as watching television and playing computer games. The amount of time young people spend watching television was included for two main reasons:

- time devoted to these essentially passive activities is not available for physical activity
- there is a great deal of concern about the effect of television on young people.

Fig. 7.3. HBSC survey, 1997/1998: students who report watching television four hours or more a day (%)



* France, Germany and Russia are represented only by regions

Numerous studies have examined the effect of television on children and young people, many of them centred on the negative impact of violent images. In recent years, concern has grown to include films available on video and computer games. Although television viewing is often regarded as a passive activity, it requires some degree of cognitive or mental effort. For example, viewers have been shown to be attentive and to be involved in message processing and meaning comprehension (79), and young people have proved their ability to perceive moral themes and to infer underlying messages from what they watch (80). On the other hand, recent research indicates an increase from 3% to 15% in aggressive behaviour among viewers of violent television programmes (81). In addition, over 1000 separate reports and reviews associate violence portrayed in the mass media with facilitating aggressive, antisocial behaviour and desensitizing viewers to future violence (82). Researchers have also found a relationship between excessive television viewing and poor dietary habits and a sedentary lifestyle (83–85).

Two indicators of popular leisure activities included in the study were the number of hours a day usually spent watching television and the number of hours a week students usually play computer games. The data from Israel are not included in the analysis because the questions were asked differently and the resultant findings are difficult to interpret.

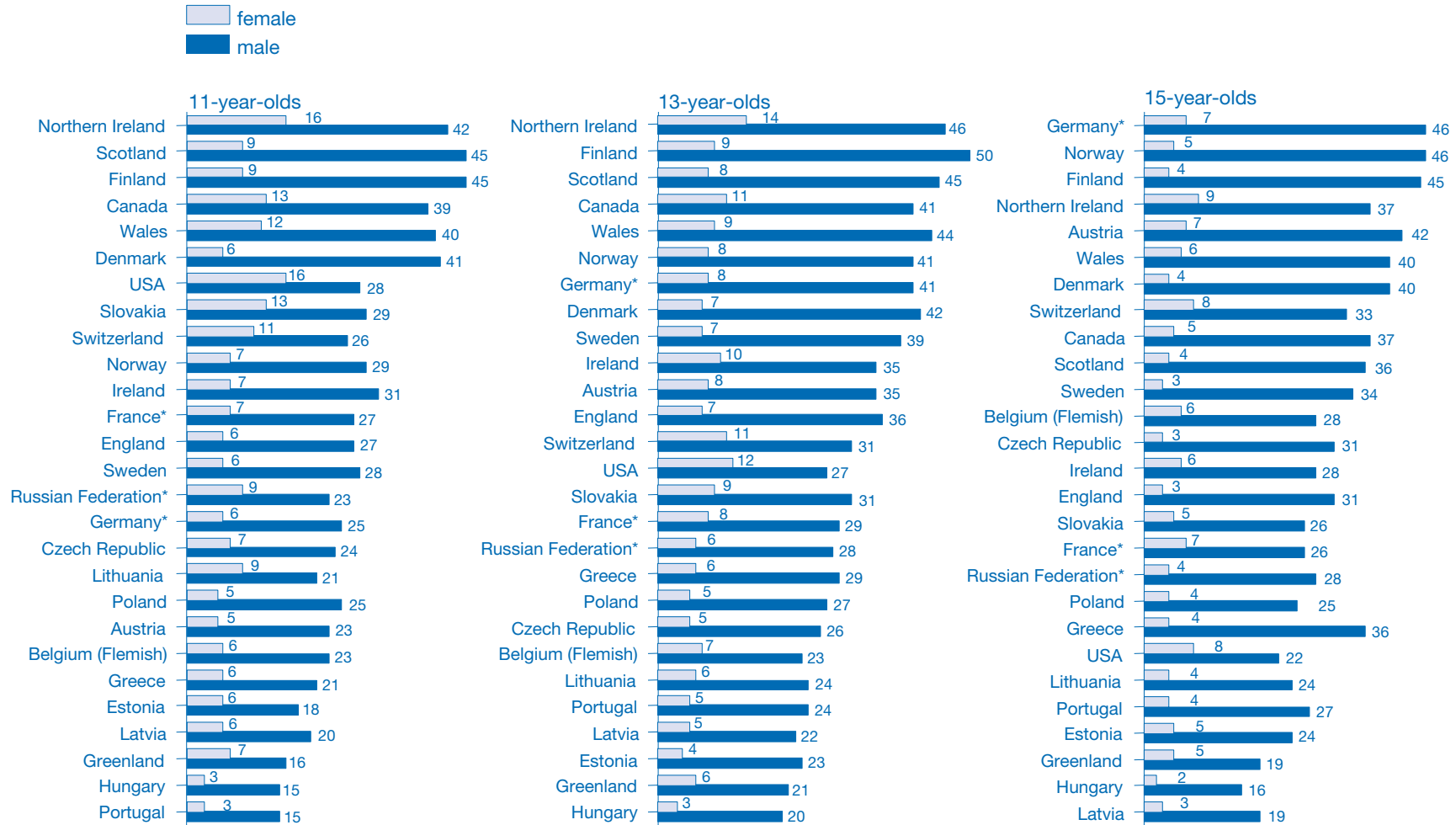
With the exception of 11- and 13-year-old boys in Slovakia and 13-year-old boys in Lithuania, less than half of all students report watching television for four or more hours a day (Fig. 7.3). In the vast majority of cases, boys are more likely than girls to watch television this often. The disparity between genders, however, is fairly small for most countries particularly among 11- and 13-year olds. The proportions watching television are similar for 11- and 13-year-olds, but decline for 15-year-olds of both genders. Frequent television watching is consistently high in countries such as Lithuania, Slovakia and Wales.

Table 7.2 shows that the strongest and most consistent associations with television watching, for both genders and all three age groups (but particularly 11- and 13-year-olds), are with the consumption of foodstuffs high in sugar and, to a lesser extent, fat. Sugared drinks, sweets and potato crisps are typical snack foods, likely to be consumed while watching television. Students watching television regularly, particularly within the younger groups, are also more likely to play computer games. In addition, there is an association, albeit weaker and for younger students only, between watching television and finding school boring or disliking it. Similarly, younger students of both genders watching television frequently are more likely to report having been drunk at some time. As seen above, there is little evidence of an association between watching television and levels of participation in physical activity.

Fig. 7.4 shows the proportions of respondents playing computer games for four or more hours a week. All three age groups show large gender differences, with boys far more likely than girls to play these games. In general the highest levels tend to be found in the United Kingdom, Canada and Finland.

The data presented in Table 7.3 suggest that the association between diet and playing computer games is weaker than that between diet and watching television. Interestingly, there is an association with car ownership, which may well reflect the fact that parents with access to one or more cars are likely to be able to purchase a computer for the household.

Fig. 7.4. HBSC survey, 1997/1998: students who report playing computer games four hours or more a week (%)



* France, Germany and Russia are represented only by regions

Table 7.2. HBSC survey, 1997/1998: factors associated with the number of hours a day that young people watch television

Students watching television regularly are likely to:Strong ³	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
dislike school						
think school is boring						
have been drunk						
consume soft drinks						
consume sweets						
consume potato crisps						
exercise regularly						
play computer games						
Strength of association*						
None (<0.1)	Medium (0.1–0.2)	Strong (>0.2)				

(*Spearman's Rho)

Table 7.3. HBSC survey, 1997/1998: factors associated with the number of hours a week that young people spend playing computer games

Students playing computer games regularly are more likely to:	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
dislike school						
think school is boring						
consume soft drinks						
consume sweets						
consume potato crisps						
exercise regularly						
watch television						
have a family car						
Strength of association*						
None (<0.1)	Medium (0.1–0.2)	Strong (>0.2)				

(*Spearman's Rho)

Conclusions

An examination of the figures indicates that levels of participation in physical activity are quite high for most countries, although the data indicate variations by age, gender and country. For example, 69% of 15 year-old boys in Denmark exercise two or more times a week, compared with 90% in Northern Ireland. Gender differences in levels of participation are consistent with previous HBSC findings (3,92) and other studies (70), with boys in each age group being more active than girls.

As to two or more hours' exercise a week, activity levels for boys and girls in all three age groups tend to be lower in Greenland and in central and eastern European countries such as Latvia, Lithuania, and the Russian Federation.

The factors associated with adolescents' regular participation in physical activity are interesting. Analysis suggests that those exercising regularly are more likely to spend time with friends, feel confident and have access to a family car. The finding that students with one or more family cars are more likely to exercise suggests that having access to leisure facilities and parents with higher socioeconomic status may have some bearing on levels of participation. This could have implications for future policy-making at both the national and the local levels.

Students who exercise regularly tend to report being healthier. Given the association of taking exercise with making and spending time with friends, adolescents appear to enjoy physical activity as a means of socializing. The potential for physical activity to contribute to the development of such social networks should not be underestimated.

In almost every country, less than half of students watch television for four or more hours a day, with boys more likely than girls to do so. A similar picture emerges for regular use of computer games, although the gender difference is more marked. Participation in sedentary activities such as watching television and playing computer games might be expected to be associated with lower levels of physical activity. While evidence that this might be the case is limited, particularly for older girls, the data presented here suggest that the link is in general weak and that further work is needed in this area.

Analysis suggests that students who watch television regularly are most likely to consume so-called junk food. While most young people consume such food, regular consumption may have implications for weight control and dental health. Snack food consumption however, is linked more strongly to watching television than to playing computer games.

8. Eating habits, dental care and dieting – *Carine Vereecken & Lea Maes*

Childhood is an important time for establishing healthy eating habits, and maintaining healthy eating patterns remains important as children grow into adolescents. When young people are hungry or undernourished, they have difficulty resisting infection and therefore are more likely to become sick, to miss school and to fall behind in class. They are irritable and have difficulty concentrating, which can interfere with learning, and they have low energy, which can limit their physical activity (87). Although undernutrition is in general associated with economically deprived or geographically isolated populations, it can also occur among young people as a result of the perception of thinness as an ideal of physical beauty (88). Moreover, adolescents may practice potentially dangerous weight control strategies. Simultaneously, obesity is an increasing risk factor in industrialized and developing countries. Dietary excess and imbalances, such as high-fat/high-energy food choices and snacking, as well as decreased physical activity, can contribute to obesity, cardiovascular diseases and diabetes.

Adolescents may not think of the long-term benefits of good health practice but rather consider only short-term consequences and assume they can alter their habits later for better health. The consumption of fruit and vegetables, sweets and chocolates, crisps and fried potatoes, soft drinks and milk are highlighted in this section of the report. These are important indicators of:

1. the intake of dietary fibre, which is important in promoting health benefits in childhood, may help reduce the risk of cancer, cardiovascular diseases and adult-onset diabetes mellitus (mediated through effects on obesity and blood cholesterol and blood glucose levels), and promotes normal laxation (89);
2. the intake of fat: consuming less fat (particularly saturated fat) and cholesterol is important in reducing the risk of not only obesity but also high blood cholesterol and high blood pressure;
3. the intake of sugar: sweets and soft drinks bring in only empty calories; and
4. the intake of calcium: calcium can reduce the risk of osteoporosis.

The HBSC questionnaire asked students to indicate the frequency of eating or drinking each listed food item by ticking one of the following five responses: “more than once a day”, “once a day”, “at least once a week, but not daily”, “seldom” and “never”. Three countries had deviant answering categories. Israel reversed the order of the answers. Flemish-speaking Belgium and Wales broke the category “at least once a week but not daily” into three: “5–6 days per week”, “2–4 days per week” and “once a week”. These countries have not been excluded from analysis, but comparisons of the figures should be made with caution. The two response categories of “more than once a day” and “once a day” were combined to derive a frequency of daily consumption for each food item.

Fruit and vegetables

Countries varied widely in percentages of respondents eating fruit at least once a day (Fig. 8.1). The highest levels were found in the southern Portuguese population, with a maximum of 95% for 15-year-old girls, while the lowest percentages were found for the population of northern Greenland, with an absolute minimum of nearly 29% for 15-year-old boys. The unavailability of fresh fruit is definitely an important factor in the low consumption in Greenland.

In general, more girls than boys report eating fruit. The most striking exception is Latvia, where 68% of boys report eating fruit daily, in contrast to 56% of girls. The greatest difference is

Fig. 8.1. HBSC survey, 1997/1998: students who report eating fruit every day (%)



* France, Germany and Russia are represented only by regions

found among 15-year-olds in Wales, where 39% of the boys and 55% of the girls eat fruit every day.

In almost all countries, the proportion of students who eat fruit every day decreases with age. The greatest decrease from age 11 to 15 (from 59% to 35%) is in Norwegian boys. The results of the 1997/1998 survey show a decrease in fruit consumption from the last survey (3) in about two thirds of the countries, with the greatest differences in Flemish-speaking Belgium and Israel. These, however, are probably due to the rewording of the answer categories of the food items in these countries. In all but two countries (Israel and Portugal), less than half of the students claim to eat raw vegetables daily. Countries where more than half of the students claim to eat cooked vegetables at least daily are Ireland, Northern Ireland and Portugal.

Slightly more girls than boys eat vegetables daily. As with daily fruit consumption, the consumption of vegetables tends to decline with age. The most striking differences are found between 11- and 15-year-old Slovakian girls: namely, 15% for cooked vegetables and 16% for raw vegetables. Countries with a substantial increase between ages 11 and 15 in the daily consumption of raw vegetables are Portugal, Israel and Sweden, and in the daily consumption of cooked vegetables, Canada, France, Ireland and Scotland.

Potato crisps and fried potatoes/chips

While less than 10% of students report eating potato crisps every day in only four countries (Denmark, Sweden, Norway and Switzerland), more than 20% do so in 13 countries; the figures are highest in Wales, Ireland, England, Scotland and Northern Ireland, ranging from 45% to 78% (Fig. 8.2). In all countries and regions except Northern Ireland, more boys than girls eat crisps daily and in most countries consumption diminishes with age.

In 11 countries, more than 20% of students eat chips or fried potatoes one or more times a day (Fig. 8.3). Levels are over 33% in Northern Ireland, Scotland and Israel, and 3% or under in Flemish-speaking Belgium, Denmark and Norway. As with crisps, consumption of fried potatoes is higher in boys and declines with age.

Candy and chocolate

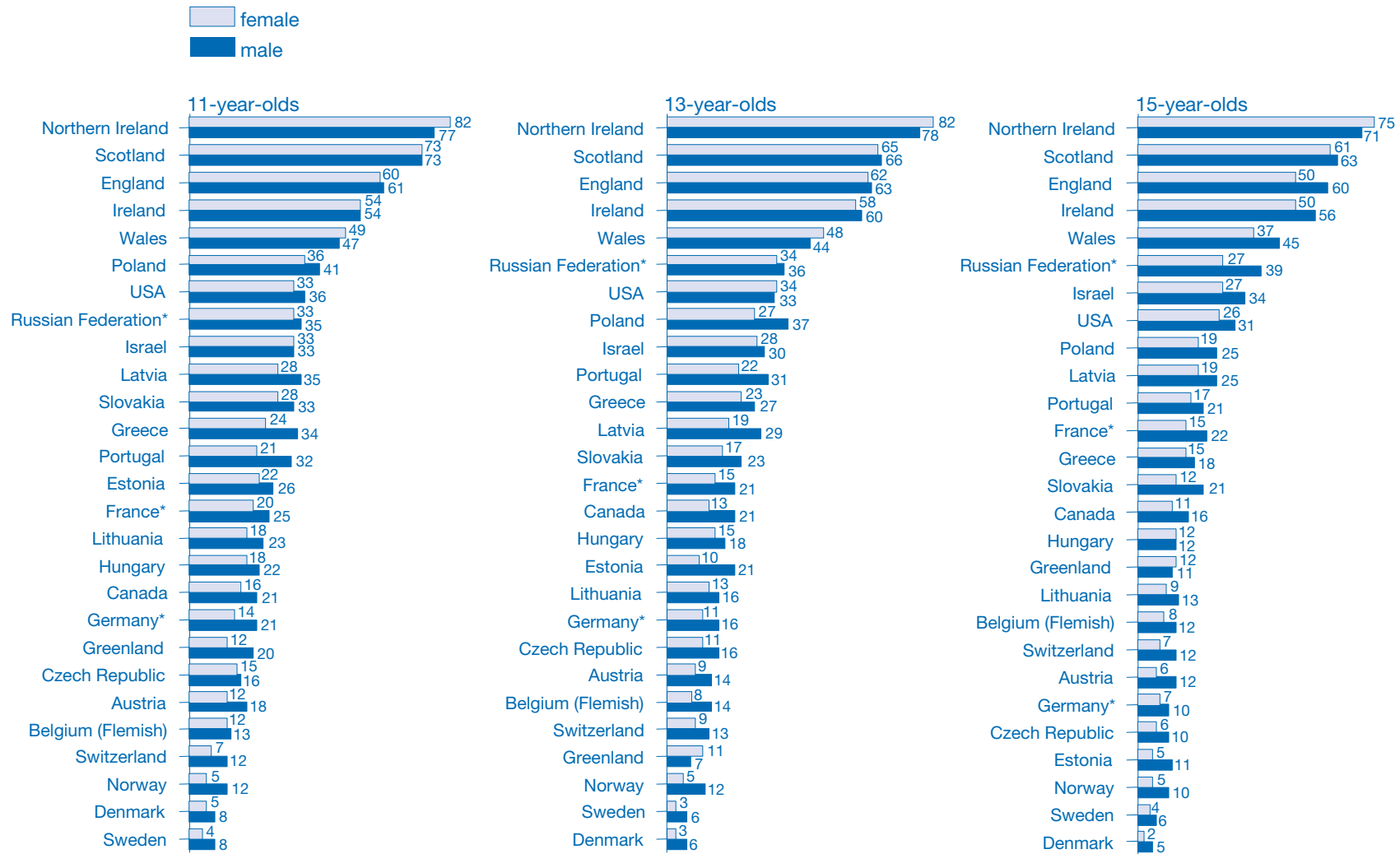
Fig. 8.4 gives an overview of the percentages of students who eat candy or chocolate bars at least once a day. Levels are particularly high in Ireland, Northern Ireland and Scotland and lowest in Finland, Norway and Sweden. Differences between boys and girls are rather small in most countries. Exceptions include 13-year-olds in the Russian Federation and 15-year-olds in Flemish-speaking Belgium and Finland.

Compared to the results of the previous survey (3), daily consumption of candy and chocolates in Denmark has declined in all age groups, varying from a 2% fall for 11-year-old boys to 18% for 15-year-old girls. Increases have been found for the populations of France and Slovakia, where 12% more youngsters now consume sweets daily.

Soft drinks

In all countries, more boys than girls drink soft drinks every day (Fig. 8.5), and boys show a greater increase in this percentage with age. By age 15, in almost two thirds of countries and regions, more than half of the male respondents drink soft drinks every day; female respondents

Fig. 8.2. HBSC survey, 1997/1998: students who report eating potato crisps every day (%)



* France, Germany and Russia are represented only by regions

do so in only one quarter of countries and regions. Levels of daily consumption for all ages and both genders are highest in Northern Ireland, as they were in the previous survey. Levels are lowest in girls in Finland.

Low-fat and full-fat milk

The survey included questions on the frequency of consumption of low-fat, semi-skimmed and full-fat milk. The frequencies of these items, show that the consumption of low-fat milk is particularly high ($\geq 70\%$) in countries such as Finland, Denmark, Northern Ireland, Canada, England and Norway, while the consumption of full-fat milk is particularly high ($\geq 70\%$) in countries such as Portugal, Greece and Sweden. More boys than girls drink milk every day, and consumption for both genders declines with age (Fig. 8.6).

To consider calcium intake, it would be better to combine the items. Because of the frequency categories, however, this is not possible; levels of once-a-week consumption of low-fat milk and full-fat milk give no indication of how much milk has been consumed during the week.

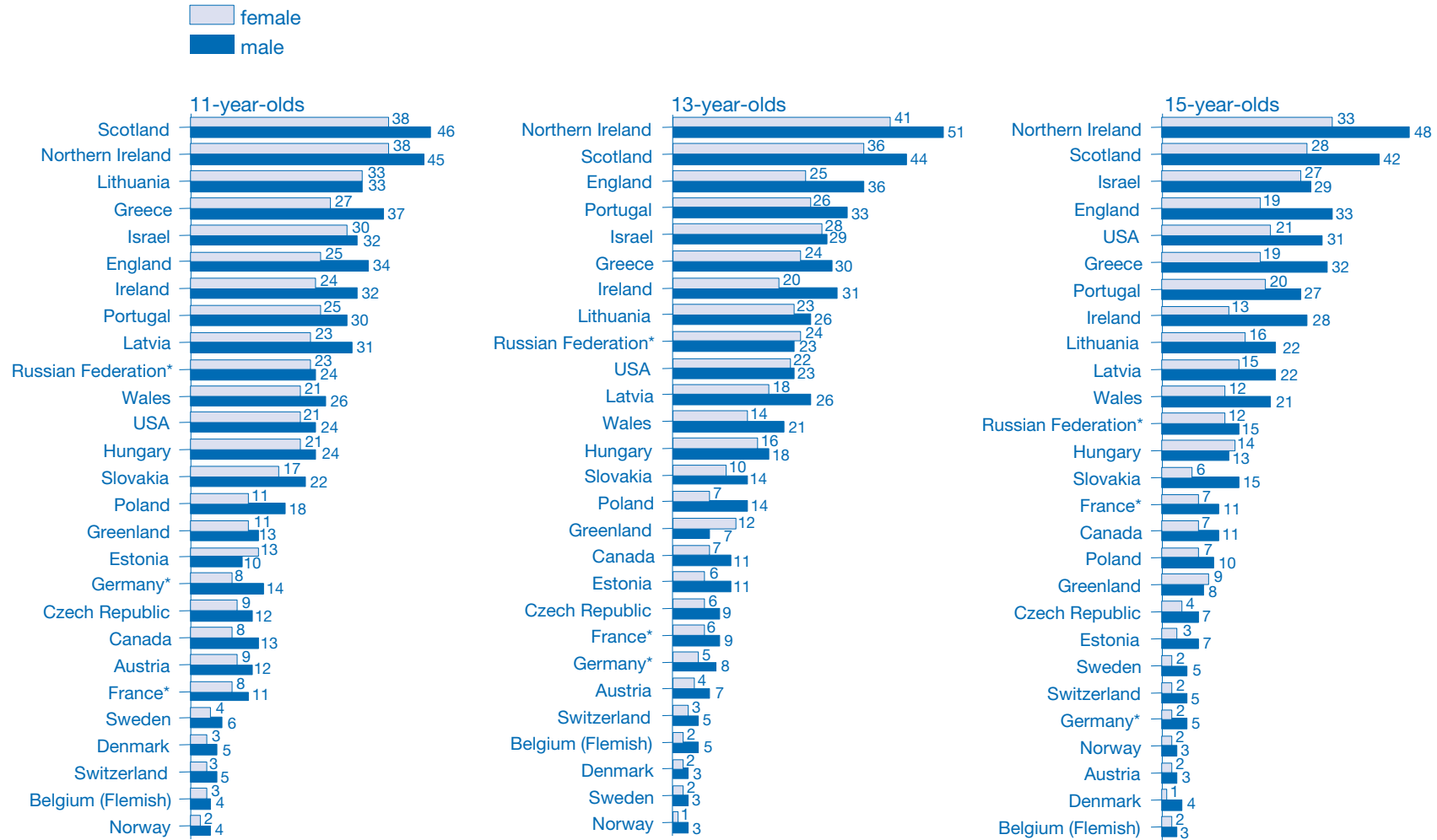
Influence of socioeconomic position of parents

Table 8.1 shows a cross-tabulation of the percentage of daily consumers of the different food items with the variables indicating the mother's socioeconomic status. Young people with mothers with high status have the highest levels of daily consumption of healthy food items, while those with mothers whose status is low have the highest daily consumption of less nutritious food items. Results are the same when the father's socioeconomic status is used.

Table 8.1. HBSC survey, 1997/1998: students' reported food consumption, according to mothers' socioeconomic status, all countries

Food item	Daily consumption according to mother's status (%)					
	High		Middle		Low	
	Girls	Boys	Girls	Boys	Girls	Boys
Fruits	70	63	70	64	66	60
Raw vegetables	41	34	36	31	35	28
Cooked vegetables	38	35	35	32	36	33
Sweet soft drinks	33	44	40	50	42	50
Sweets	41	43	45	48	47	48
Pastry	20	25	24	28	26	31
Crisps	18	23	24	29	28	32
Fried potatoes	10	14	12	17	16	21
Low-fat/Semi-skimmed milk	52	55	48	52	46	52
Full-fat milk	28	37	30	37	32	39

Fig. 8.3. HBSC survey, 1997/1998: students who report eating chips or fried potatoes every day (%)



* France, Germany and Russia are represented only by regions

Dental care

Considering the numbers of students who eat chocolate and sweets daily, the importance of brushing teeth more than once a day cannot be ignored (Fig. 8.7). Students in Sweden, Denmark and Switzerland are most likely to brush their teeth more than once a day, with overall levels over 80%. In contrast, less than half of students brush their teeth more than once a day in Lithuania, Flemish-speaking Belgium and Greece. In all countries and for all age groups, girls brush more frequently than boys, a difference that in general increases with age. The largest gender differences are found in 15-year-olds in Greece (29%) and Ireland (28%). For both genders, brushing more than once a day increases with age in most countries, with the most substantial difference in Flemish-speaking Belgian girls, rising from 44% in 11-year olds to 62% in 15-year-olds.

Since the last HBSC survey, impressive increases in brushing frequency are found in Estonia (overall about 15%), Latvia (about 18%) and the Russian Federation (about 25%). The Latvian result be attributable to several dental health care campaigns carried out since 1994.

Dieting

In almost all countries, more than half of 11- and 13-year-old students are satisfied with their weight; at age 15, more than half of the girls in 16 countries are dieting or feel that they should be on a diet (Fig. 8.8). In every country and all age groups, many more girls than boys are dieting or feel that they should do so; this gender difference increases significantly with age. The widest gaps (over 38%) are for 15-year-olds in the Czech Republic and Lithuania. Students in Israel, the United States and Austria are most likely to be *currently dieting*, and Sweden has the lowest level of reported dieting for both genders and all age groups, except 15-year-old boys.

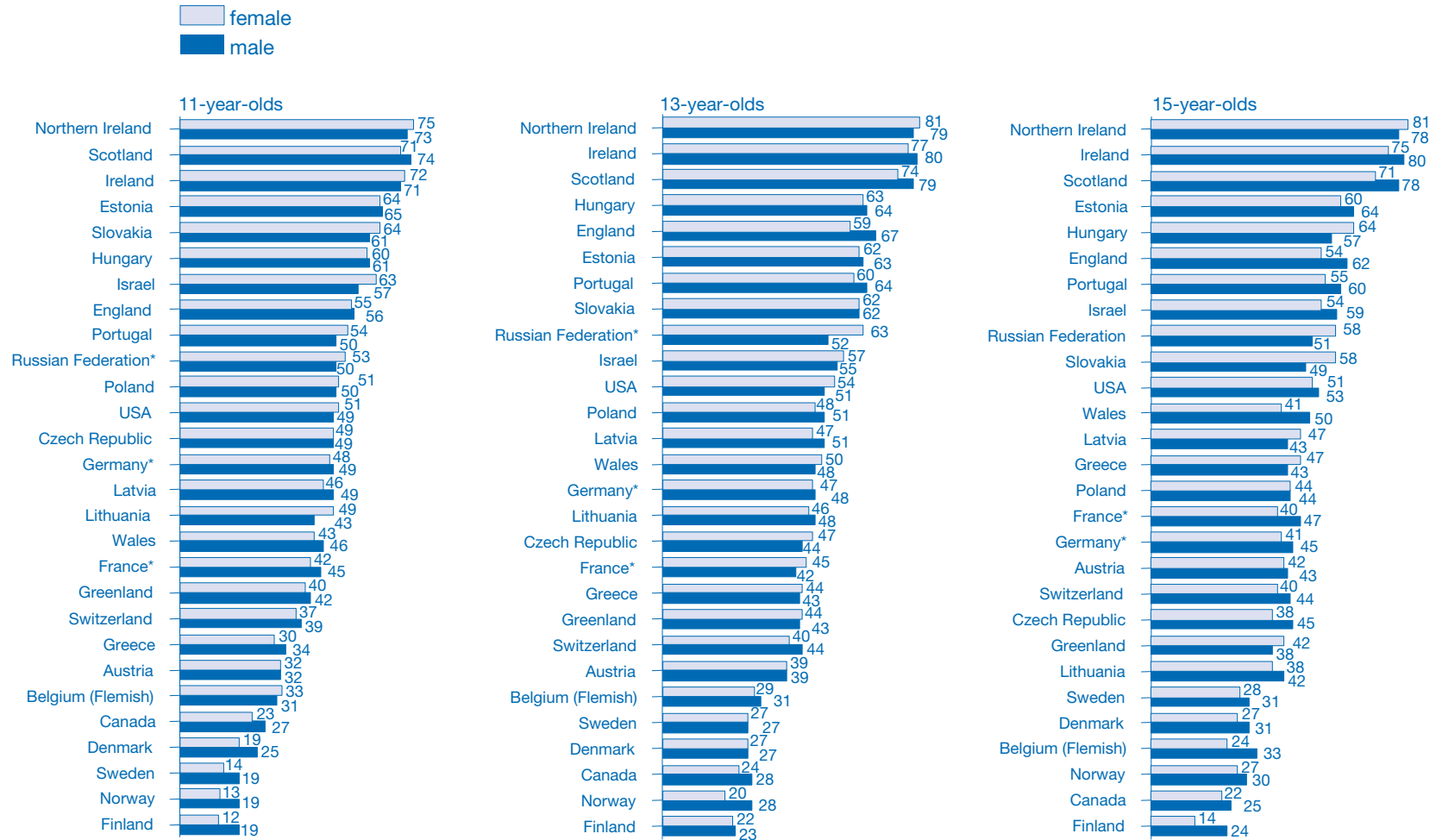
Few boys of any age report actual dieting, with the highest percentages among 11-year-olds. Levels for boys over 10% are found in only six countries, the highest being 14% in Austria. By age 13, less than 10% of boys claim to be on a diet in all but three countries: Austria, Israel and the United States. The highest level of dieting boys at age 15 (9%) is found in Israel. In contrast, dieting increases with age in girls; levels over 10% are found in 11-year-olds in 15 countries, in 13-year-olds in 22 countries and in 15-year-olds in all but one country (Sweden). Levels are highest for girls in Israel in each age group: 19%, 29% and 31%, respectively.

Cross-tabulation of the dieting variable with questions about the frequency of food consumption shows a positive association between dieting and the eating habits of the respondents (Table 8.2). Students on diets have a higher daily consumption of fruit and vegetables and low-fat or semi-skimmed milk, and lower consumption of full-fat milk and less nutritious food items.

Conclusions

As could be expected, food consumption patterns vary widely. In addition to personal and social factors, food availability and culture definitely play an important part. In general, girls seem to eat more fruit and vegetables daily, while boys more often both drink milk and consume the less nutritious items, high in fat and/or sugar (crisps, fried potatoes, candy and chocolate and sweet soft drinks). While daily consumption figures are very high for countries such as Northern Ireland and Scotland, an interesting finding for most of the countries is the percentages of students who claim to consume chips or fried potatoes every day.

Fig. 8.4. HBSC survey, 1997/1998: students who report eating sweets or chocolate every day (%)



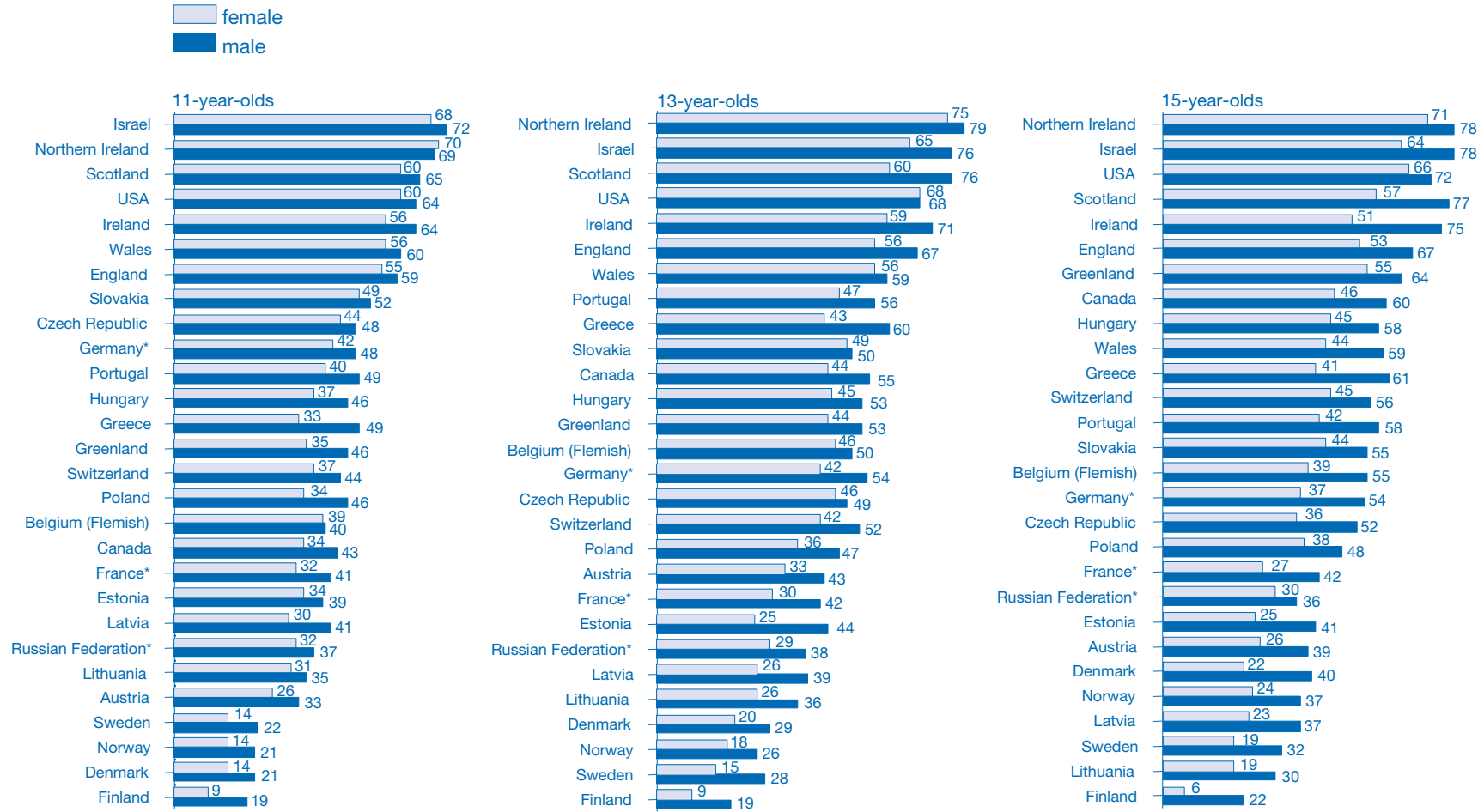
* France, Germany and Russia are represented only by regions

Important gender differences are found in tooth brushing and dieting. Girls tend to brush more often than boys, and this difference grows with age. Dieting is also more common among girls; it increases with age for girls but almost disappears for boys.

Table 8.2. HBSC survey, 1997/1998: distribution of food consumption according to students' perception of their weight

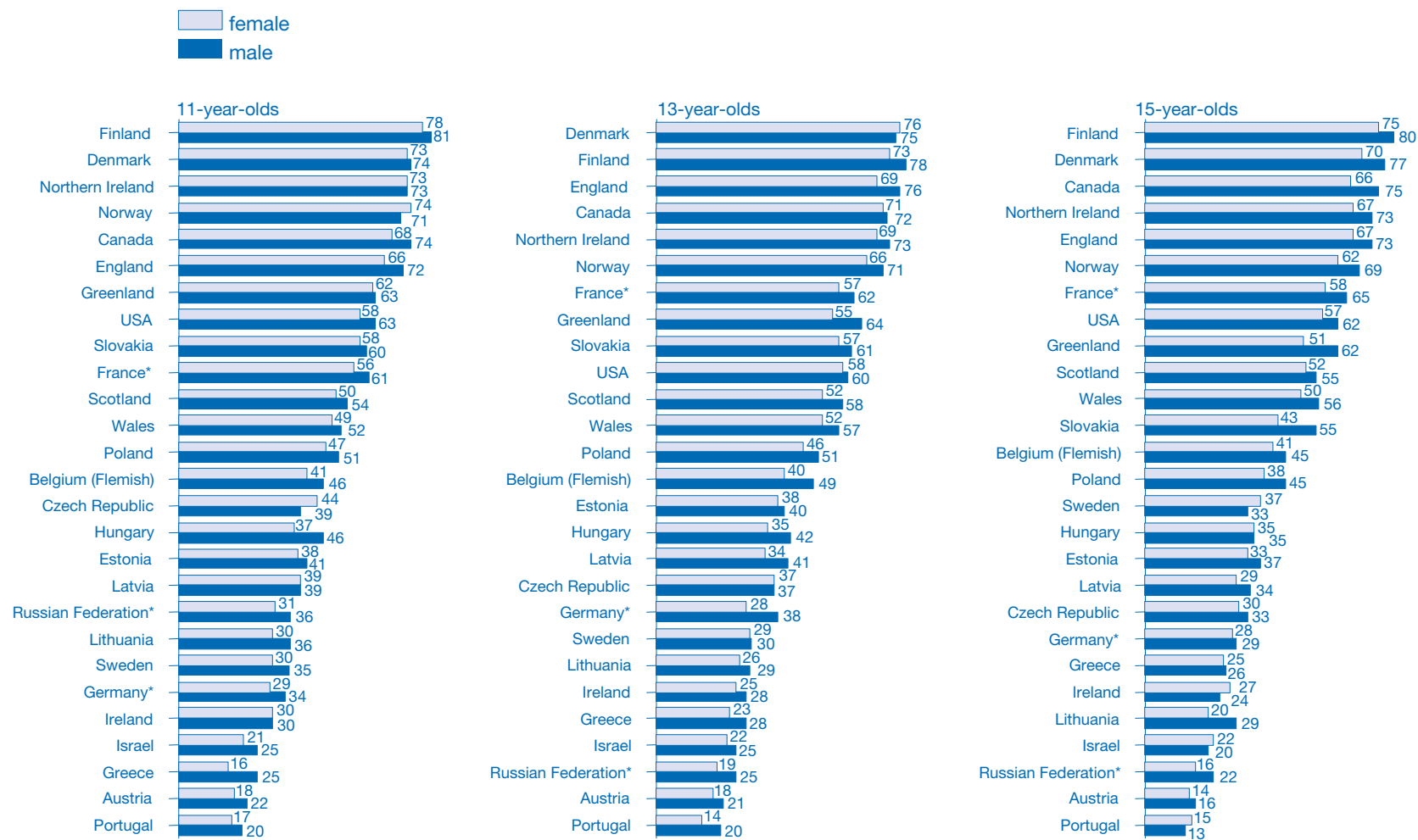
Food item	Daily consumption according to perception of weight (%)					
	Weight is fine		need to lose weight		On a diet	
	Girls	Boys	Girls	Boys	Girls	Boys
Fruits	69	63	66	61	73	68
Raw vegetables	38	31	34	28	41	36
Cooked vegetables	37	33	33	32	37	37
Sweet soft drinks	40	50	42	52	40	49
Sweets	48	49	46	44	36	37
Pastry	27	30	23	25	19	24
Crisps	26	29	24	28	21	28
Fried potatoes	15	20	14	18	14	21
Low-fat/Semi-skimmed milk	46	51	45	51	49	55
Full-fat milk	37	42	31	36	28	37

Fig. 8.5. HBSC survey, 1997/1998: students who report drinking soft drinks every day (%)



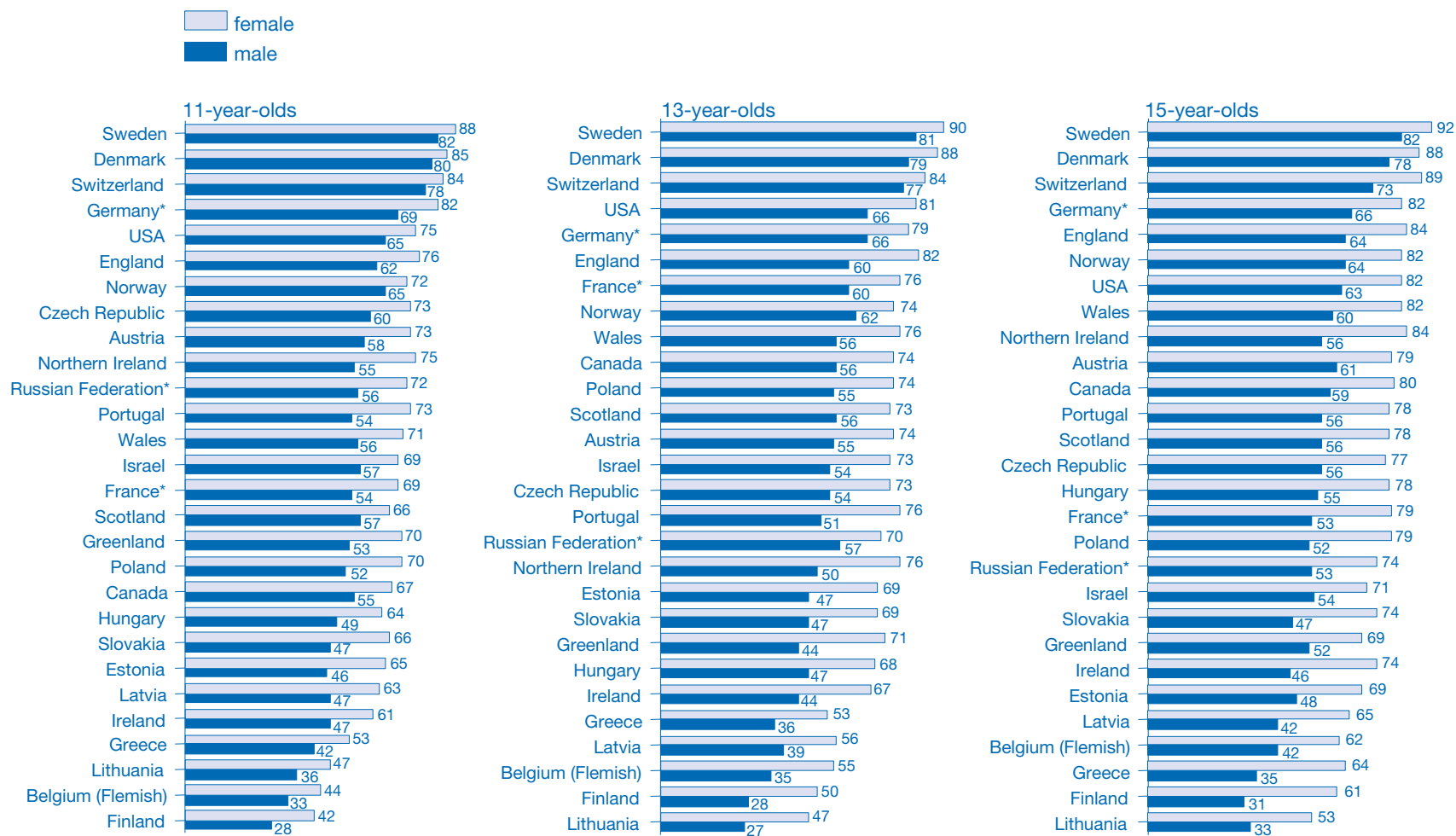
* France, Germany and Russia are represented only by regions

Fig. 8.6. HBSC survey, 1997/1998: students who report drinking low-fat milk every day (%)



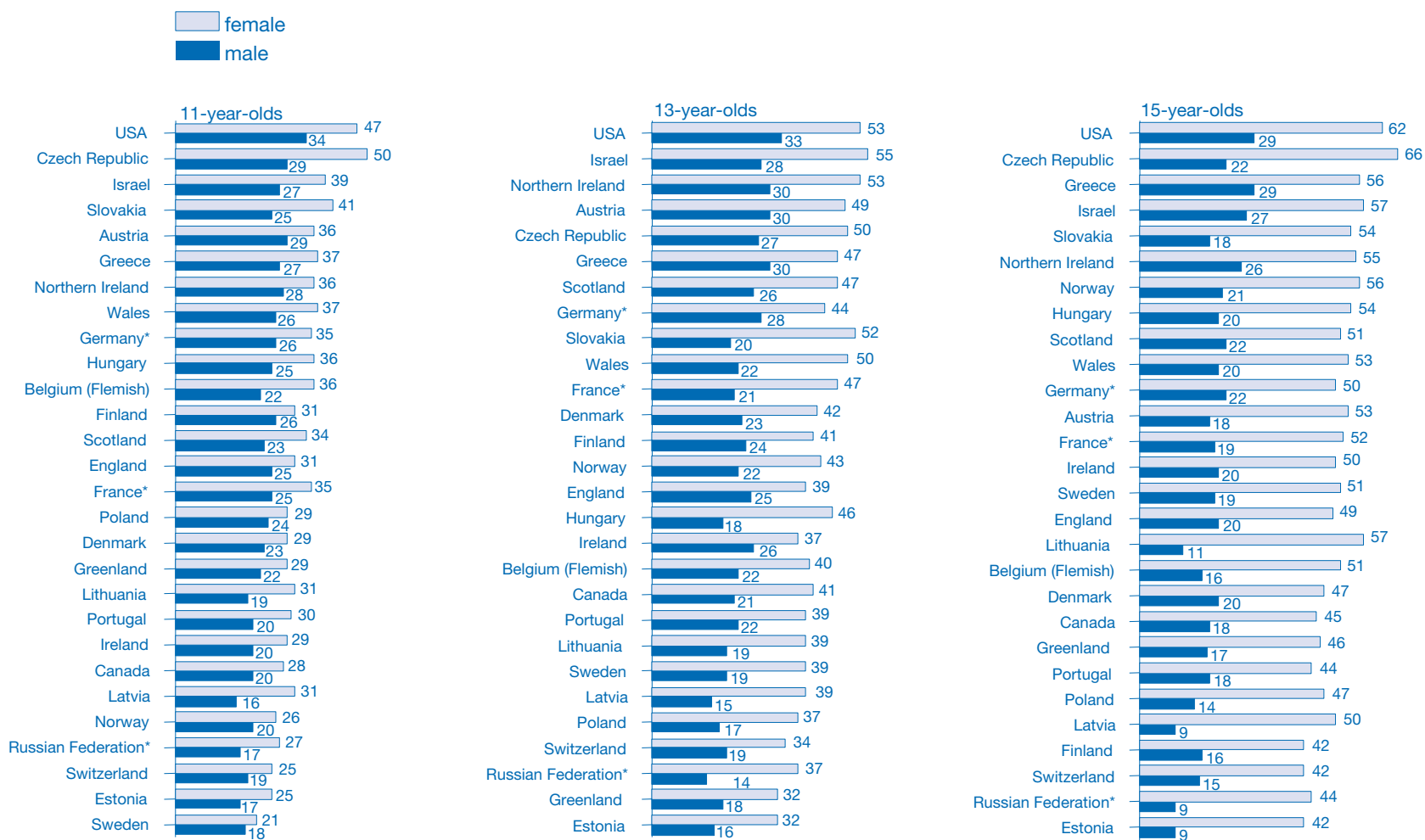
* France, Germany and Russia are represented only by regions

Fig. 8.7. HBSC survey, 1997/1998: students who report brushing their teeth more than once a day (%)



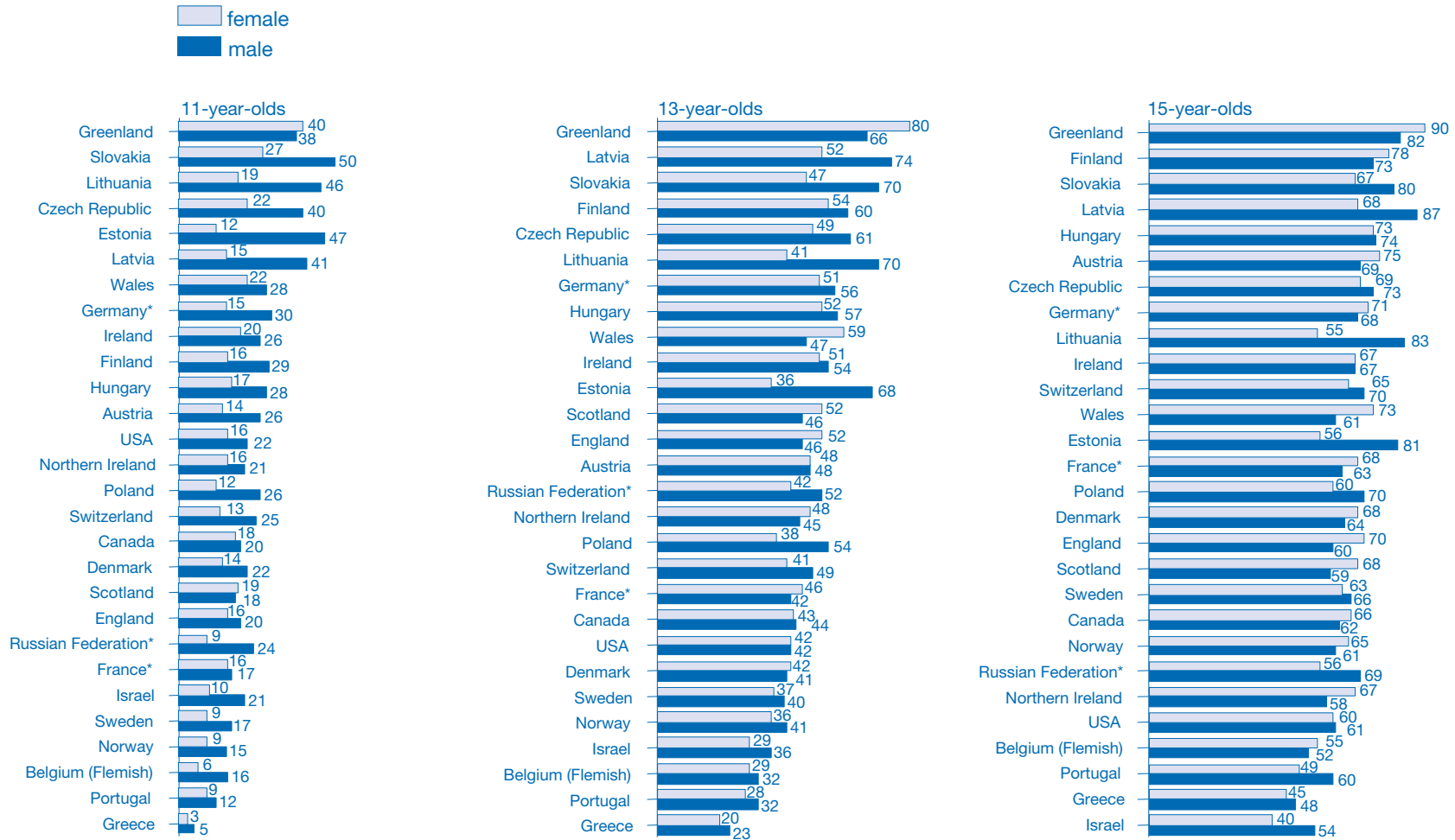
* France, Germany and Russia are represented only by regions

Fig. 8.8. HBSC survey, 1997/1998: students who report being on or feeling that they should be on a diet (%)



* France, Germany and Russia are represented only by regions

Fig. 9.1. HBSC survey, 1997/1998: students who report ever having tried a cigarette (%)



* France, Germany and Russia are represented only by regions

9. Substance use –

Saoirse Nic Gabhainn & Yves François

Introduction

While substance use is an important predictor of both morbidity and mortality among adults, it is more usually considered risk behaviour among adolescents. Although this behaviour is related to morbidity and mortality in both the short and long term, it is also an important indicator of wellbeing and social relations (90). In addition, a proportion of the adolescent population reports clusters of risk behaviour (91), which increases the risk of health damage.

Risk behaviour is an important issue among adolescents. In the search for identity and autonomy that is characteristic of adolescence, risk behaviour frequently comes into play when young people experiment with limits and test capacities. Substance use has been investigated across many disciplines, and theories of risk behaviour abound in the literature. The primary socialization theory (92) presents a global view of adolescent development that includes substance use. This model predicts a higher probability of being involved in risk behaviour when bonds between the adolescent and his or her family or school environment are weak.

Public health strategies across Europe and North America have set targets that include reducing the number of new smokers, increasing the age of the onset of smoking and reducing the overall level of consumption (93). Many also aim to support smoking cessation, promote moderation in alcohol use and reduce the risk of alcohol abuse. Nevertheless, the frequency of such behaviour is reported both to be high in many countries and to appear earlier among young people. It is essentially unknown whether this means that the prevention strategies employed are inefficient or whether other developmental, economic or social trends could prove explanatory.

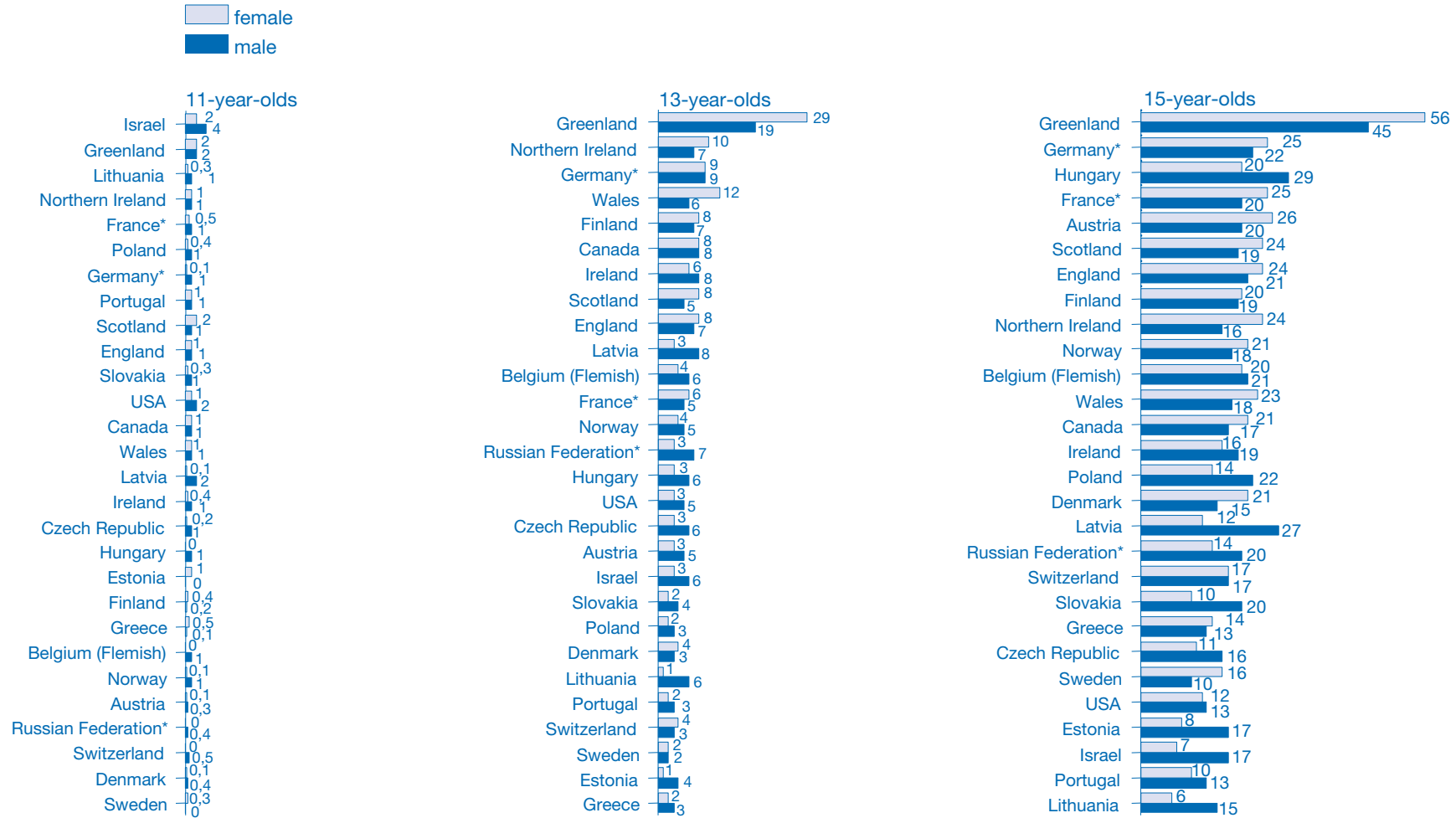
Students from all participants in the HBSC survey were asked the same questions about smoking and drinking alcohol; this is an extremely useful comparative set of data. This section presents the proportions of students involved with drinking and smoking across age groups, countries and genders.

A number of other variables measured in the HBSC Study were examined for associations with substance use. These were chosen because they are primarily related to the social context of the students:

- self-reported loneliness, happiness and health, to represent individual perceptions;
- ease of talking to parents, to represent family and more specifically parental relations; perceived attractiveness and thinness, to represent the way students perceive themselves to be seen by others;
- time spent with friends, both directly after school and at night, and the number of close friends, to represent relationships with peers;
- skipping, liking and feeling pressured by school, to represent school factors; and
- experiences with other substances, to represent a more general risk-taking perspective.

These are neither the only indicators that could be employed as predictors of substance use nor the only variables that could be measured within each subdomain. Nevertheless, they are intended here to act as representatives of the widening circles of social influence within which young people in Europe and North America live. The results of individual bivariate associations are presented below. These were either Phi-coefficients in the case of dichotomous variables (ever having had a cigarette or an alcoholic drink) or Spearman's ρ correlation coefficients in

Fig. 9.2. HBSC survey, 1997/1998: students who report smoking daily (%)



* France, Germany and Russia are represented only by regions

the case of variables measured on an ordinal scale (frequency of smoking or having been drunk). The symbols below portray the extent of the associations, rather than conventional statistical significances. Given the statistical power inherent in such large sample sizes, it is more meaningful to illustrate the strength of such associations. Where no symbol appears, the association achieved less than 0.10. Medium shading indicates an association of 0.10–0.24 and heavy shading, an association is ≥ 0.25 .

In each section below the trends over time are also briefly discussed. Twenty-five countries took part in the last (1993/1994) HBSC survey. When comparing these earlier data with the current set, some countries cannot be compared because either the sampling was not comparable (Germany), the survey has not been carried out during the same time period (Spain) or the data were not ready at the moment of these analyses (French-speaking Belgium). England, Greece, Portugal, Ireland and the United States were involved in the study for the first time in 1997/1998. Thus, no trend analyses are provided for these countries. In accordance with the methods described in Chapter 2, the rule-of-thumb table has been used for these trend analyses. For an approximate sample size of 750 students, a 5% difference between the two surveys was the minimal value to be described for a proportion around 10% and an 8% difference was the minimal value for proportions greater than or equal to 20%.

Smoking

Tobacco experimentation

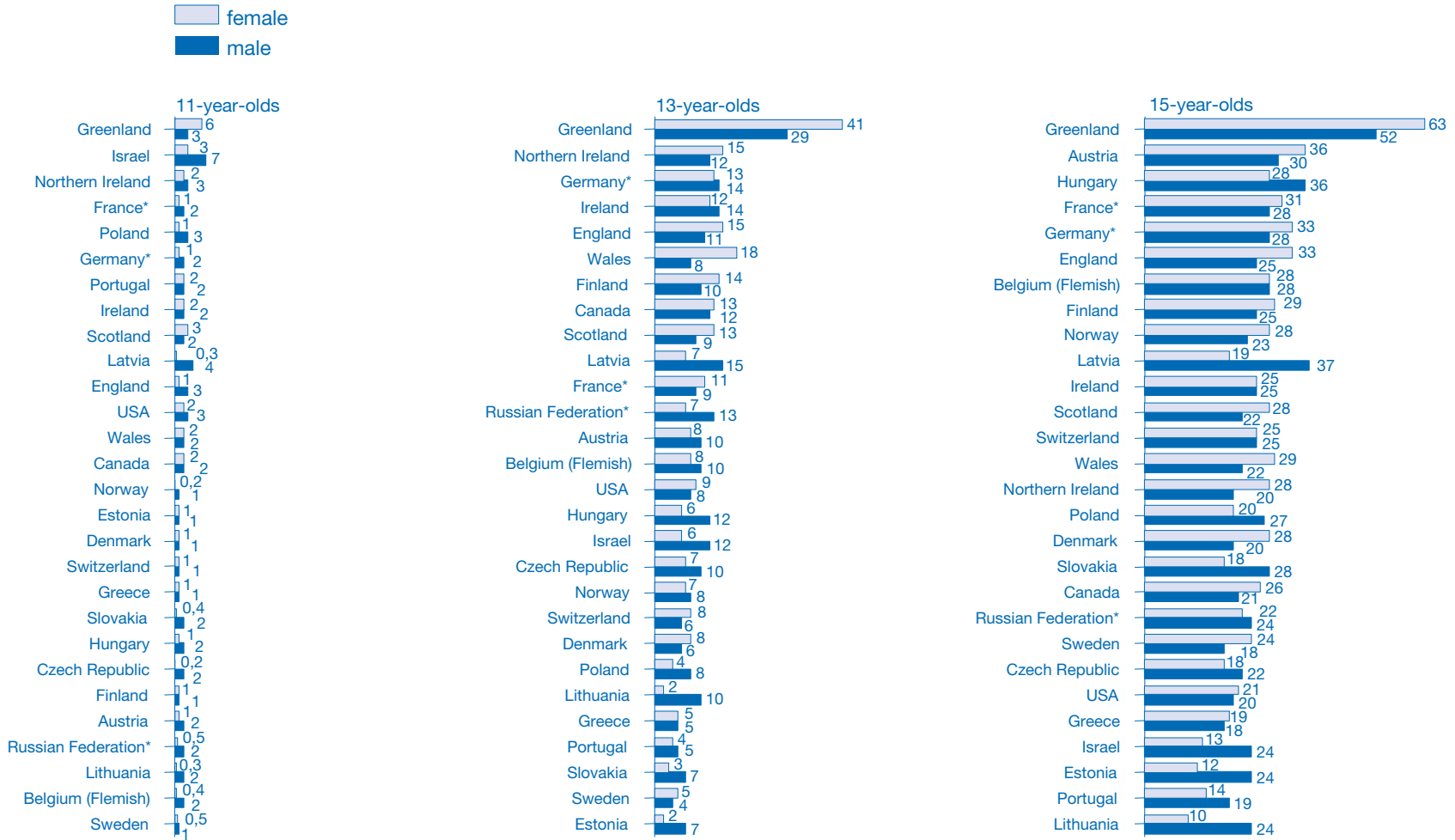
In relation to smoking, students were first asked whether they had ever smoked tobacco (Fig. 9.1). The starkest quality of the picture is the increase in tobacco experimentation across age groups, found in all countries and for both genders. The levels for Greek students provide a dramatic example. Other countries show this pattern, which can be followed through the figures below. The rates for tobacco experimentation are lowest for 11-year-olds; in most countries less than 20% of children report ever having tried cigarettes. Levels rise to 40–50% for 13-year-olds and 60–70% for 15-year-olds. Clearly, then, the legislation in all countries that attempts to control cigarette availability is either not fully enforced or ineffective.

The data also illustrate wide variations both between countries and between genders within countries. Students from countries that report low rates of tobacco experimentation at age 11 tend to be those who report the lowest levels through ages 13 and 15. For example, Greece, Flemish-speaking Belgium and Portugal have the three lowest rates of experimentation at ages 11 and 13, while being in the lowest four at age 15. On the other hand, Greenland and Slovakia have the two highest rates at age 11, and they are both in the top three at ages 13 and 15. Minor exceptions to this pattern include Israel, which moves from sixth lowest at age 11 to the lowest at age 15, and Finland, which moves from eleventh highest at age 11 to second highest at age 15.

In relation to gender, the experimentation rates for boys substantially exceed those for girls at each age level. Nevertheless, in most countries their relative standing is comparable. Notable exceptions include Canadian girls, who come higher in the hierarchy than Canadian boys, and the Russian Federation, Latvia and particularly Estonia, where the opposite is true. These gender differences in relative standing tend to be lower among the older age groups.

Some interesting differences emerge in the pattern of variables associated with tobacco experimentation (Table 9.1). The associations between school factors and tobacco experimentation

Fig. 9.3. HBSC survey, 1997/1998: students who report smoking at least weekly (%)



* France, Germany and Russia are represented only by regions

appear most stable across age groups and genders, while feeling pressured by school only emerges as a factor among the younger respondents. Time spent with friends is also consistently associated with having tried smoking, but the number of close friends is unrelated for all groups. Perceived healthiness is a factor only for older students. Parental relationships reveal a gender-specific pattern; for boys, experimentation is related to relationships with both parents at every age; for girls, however, experimentation is associated only with the relationship to the mother. Finally, the associations with alcohol use illustrate the clustering of risk behaviour, but these are weaker among the youngest girls.

Table 9.1. HBSC survey, 1997/1998: factors associated with tobacco experimentation

Young people who report experimenting with tobacco are more likely to:	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
feel lonely more often						
feel less happy						
feel less healthy						
have more difficulty talking to mother						
have more difficulty talking to father						
report being good-looking						
report being fat						
spend more time with friends after school						
spend more evenings with friends						
have more close friends						
be truant more often						
dislike school						
feel pressured by school						
have had an alcoholic drink						
drink beer more frequently						
be drunk more frequently						
Strength of statistical association*						
None (>.10)		Medium (.10 - .25)		Strong (> .25)		

(*Phi - Coefficient)

Daily smoking

Daily smoking increases substantially across age groups (Fig. 9.2). No country exceeds a daily smoking rate of 2% for 11-year-olds, while most are under 10% at age 13 and under 30% at age 15. Large increases are noted in every country between ages 13 and 15, and, in some countries, between ages 11 and 13. For example, both Northern Irish and Welsh data show rates of 1% at age 11, 9% at age 13 and 20% at age 15.

The data also show differences between countries. These are most striking among 15-year-old girls, where the rates vary between Lithuania at 6% to Greenland at 56%. Greenland is of particular concern, as smoking rates are exceptionally high at 24% at age 13 and 50% at

age 15. Interestingly, girls in Greenland report more daily smoking than boys in all three age groups, and girls report higher daily smoking in a number of other countries. This is clearest among 15-year-olds; more than half of the countries are in this position. These countries form no clear geographical pattern, and show no clear differences in policy on advertising or availability.

Weekly smoking

The rates of weekly smoking are substantially higher than the daily rates, reflecting the pattern of adolescent smoking across Europe and North America. Although the students who report smoking weekly are not as involved with smoking, they should certainly be considered at risk of more regular smoking and attendant physical damage.

Weekly smoking rates increase across age groups (Fig. 9.3). In general, these rates range from 5% and less among 11-year-olds to less than 20% among 13-year-olds and less than 40% among 15-year-olds. The only exception is Greenland, where reported weekly smoking among 13- and 15-year-olds (36% and 57%, respectively) far exceeds that of all other countries. As with daily smoking, the major increase in most countries occurs between ages 13 and 15; for example, at this point students in Austria jump from 9% to 33% and those in Hungary from 9% to 32%.

Countries vary widely, and in general those who report high daily smoking rates are also likely to report high weekly smoking rates. Austria, France, Germany, Hungary and Greenland all report the highest weekly and daily smoking rates at age 15. The relative standing of some countries varies across age groups. Austria, for example, moves from among the lowest (1%) at age 11 to second highest (33%) at age 15, while Israel moves from second highest at age 11 (4%) to fourth lowest (18%) at age 15. Gender differences within countries are particularly noticeable among both 13- and 15-year-olds. In only ten countries do boys exceed girls in weekly smoking at age 15 and, in each of these, the pattern is replicated at age 13. This mirrors the findings for daily smoking. In this case, however, a geographical pattern is more discernible. Boys report higher rates than girls in all of the countries from central and eastern Europe included in this survey (the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Russian Federation and Slovakia), although some western countries also show this pattern (Portugal and Israel).

Number of cigarettes consumed by smokers per week

Although both weekly and daily smoking rates in most countries are high, the median number of cigarettes smoked, as reported by those who say that they currently smoke, is relatively low. At age 11, most countries report medians of one or two cigarettes per week, while Israel is highest at five. Similarly, the medians for 13-year-olds are moderate; most are five or under and only two countries report medians over ten (Wales and Greenland).

Reported consumption is higher among 15-year-olds, where rates vary from 8 cigarettes per week in France to 30 in Greece, Greenland, Northern Ireland, Scotland and Wales. The absolute numbers reporting smoking are low (especially among those under 15) and therefore the medians are relatively unstable. The gender differences among the younger groups are minor, but among 15-year-olds boys report smoking substantially more cigarettes than girls. The opposite prevails in only three countries: Canada, France and Sweden.

Fewer of the potential predictor variables are associated with frequency of smoking (Table 9.3). Nevertheless, perceived health remains a factor for older students. Time spent with friends and

Table 9.2. Median number of cigarettes smoked weekly

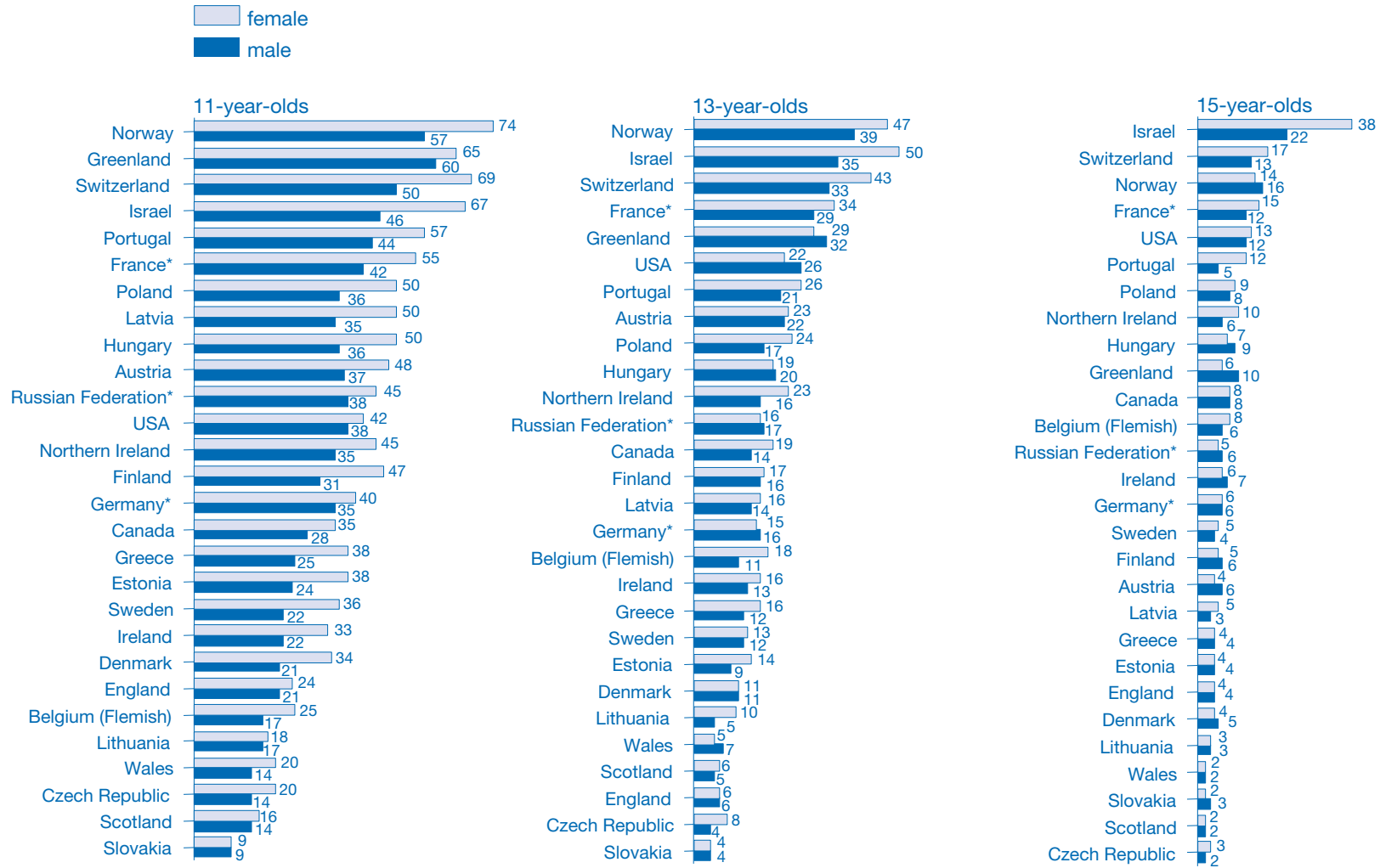
Country Median (Number of smokers)	Age 11		Age 13		Age 15	
	Boys	Girls	Boys	Girls	Boys	Girls
Austria	1 (33)	1 (20)	5 (130)	3 (129)	20 (220)	20 (325)
Belgium – Flemish	1 (31)	1 (15)	7 (111)	4 (95)	21 (247)	20 (237)
Canada	2 (42)	2 (42)	10 (179)	7 (205)	20 (292)	25 (382)
Czech Republic	2 (42)	2 (21)	5 (107)	3 (77)	14 (180)	10 (152)
Denmark	2 (12)	1 (11)	8 (72)	5 (96)	30 (179)	28 (257)
England	2 (67)	1 (39)	10 (171)	5 (244)	30 (268)	20 (371)
Estonia	1 (8)	4,5 (2)	5 (43)	1 (16)	20 (61)	10 (46)
Finland	2 (19)	2,5 (12)	10 (102)	9 (141)	26 (205)	20 (235)
France*	4,5 (16)	2,5 (10)	4,5 (32)	3 (57)	7 (65)	10 (76)
Germany*	3 (85)	5 (33)	10 (203)	9 (185)	29,5 (288)	20 (347)
Greece	7 (13)	4,5 (4)	7 (43)	6 (46)	35 (142)	30 (173)
Greenland	7 (12)	3,5 (12)	11,5 (72)	15 (117)	30 (155)	30 (178)
Hungary	1 (57)	1 (24)	3 (126)	3 (77)	24 (154)	12 (147)
Israel	5 (106)	3,5 (22)	5 (143)	4 (137)	20 (396)	10 (244)
Latvia	2 (43)	1 (7)	7 (109)	3 (70)	20 (210)	10 (188)
Lithuania	2 (40)	1 (2)	5 (112)	3 (47)	12 (196)	4 (113)
Northern Ireland	3 (32)	3 (16)	10 (100)	10 (99)	30 (123)	30 (167)
Norway	1 (32)	2,5 (4)	5 (113)	5 (98)	25 (247)	20 (291)
Poland	1 (50)	2,5 (12)	3 (118)	2 (80)	20 (280)	10 (196)
Portugal	2 (17)	2,5 (18)	5 (56)	3 (51)	20 (112)	20 (125)
Rep. of Ireland	1 (37)	2 (29)	10 (124)	5 (119)	25 (215)	20 (210)
Russia*	1 (27)	1 (10)	9 (120)	4,5 (74)	20 (189)	10 (196)
Scotland	2 (42)	2 (53)	5 (108)	8 (150)	30 (186)	30 (291)
Slovak Republic	2 (45)	2 (23)	5 (116)	3 (54)	30 (171)	15 (86)
Sweden	1 (13)	2 (3)	4 (45)	4 (50)	10 (123)	20 (138)
Switzerland	1 (38)	1 (12)	4 (106)	4 (133)	20 (266)	20 (271)
USA	1,5 (32)	3 (34)	4 (101)	3 (130)	20 (187)	10 (273)
Wales	4,5 (28)	2 (30)	11,5 (84)	12 (174)	30 (165)	30 (218)

* Represented only by regions

school-level variables also emerge as moderately important among 13- and 15-year-olds. Once again, alcohol use is associated with smoking, particularly regular alcohol use among older students.

Few changes since the last survey are noted in the percentages of 11-year-olds who have already tried smoking. In two Nordic countries, Finland and Sweden, levels have decreased among both girls and boys, while Israel, Lithuania and Wales show increases among both genders. Wales faces the biggest change. In 1993/1994, the rate was very low compared to the other participating countries (twenty-third among 25). The current rate leaves Wales as the seventh highest.

Fig. 9.4. HBSC survey, 1997/1998: students who report never having had a drink (%)



* France, Germany and Russia are represented only by regions

No country shows a decrease in weekly smoking among 15-year-olds since the last survey. Among boys, five countries (Hungary, Israel, Lithuania, Slovakia and Switzerland) show a significant increase. The Czech Republic, Denmark, France, Latvia and the Russian Federation also show such a trend, but it is not as substantial. All other countries show no significant trend. Among girls, Flemish-speaking Belgium, Greenland, Hungary, Lithuania, the Russian Federation and Slovakia show an increase. This trend is also present in the Czech Republic, Estonia, France, Latvia, Norway, Poland, Sweden and Switzerland, but is not as substantial. When boys and girls are taken together, the increased sample size means that a smaller absolute difference over time becomes significant; thus, the Czech Republic, Denmark, France, Greenland, Hungary, Israel, Lithuania, Norway, Poland, the Russian Federation, Slovakia and Switzerland all show an increase in regular tobacco use. This trend is present in 12 of 22 countries and in those with high as well as low overall consumption rates.

Table 9.3. HBSC survey, 1997/1998: factors associated with more frequent smoking

Students who smoke more frequently are more likely to:	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
feel lonely more often						
feel less happy						
feel less healthy						
have more difficulty talking to mother						
have more difficulty talking to father						
report being good-looking						
report being fat						
spend more time with friends after school						
spend more evenings with friends						
have more close friends						
be truant more often						
dislike school						
feel pressured by school						
have had an alcoholic drink						
drink beer more frequently						
be drunk more frequently						
Strength of association*						
None (>.10)	Medium (.10 - .25)	Strong (>.25)				

(*Spearman's Rho)

Alcohol

Students in each of the countries and regions were asked whether they had ever tasted an alcoholic drink. They were also asked how often they currently drank a range of beverages, including wine, spirits and beer. Finally, they were asked how often, if ever, they drank so much alcohol that they were really drunk.

Fig. 9.5. HBSC survey, 1997/1998: students who report drinking beer, wine or spirits at least weekly (%)



* France, Germany and Russia are represented only by regions

Alcohol experimentation

Although over half of 11-year-olds in most countries report having tasted alcohol, the abstinence rates decrease substantially with age, to below 10% among the 15-year-olds in most countries (Fig. 9.4). Abstinence falls relatively steadily with age in most countries, as illustrated by Poland, where levels drop from 44% at age 11 through 21% at age 13 to 8% at age 15.

As with the smoking data, rates vary considerably between countries. In Slovakia, 9% of all 11-year-olds report lifetime abstinence from alcohol, while in Switzerland, Norway and Greenland the rates reach 60% or more. Countries are widely and evenly spread, with no obvious geographical or political pattern. Students in Israel, Norway and Switzerland report the highest abstinence rates at ages 13 and 15. Those in Scotland, Wales, Slovakia and the Czech Republic, however, report relatively low abstinence rates in all age groups, dipping to 2% among 15-year-olds.

Gender differences within countries are not as marked as for the smoking variables, particularly among younger students. At age 13, abstinence rates are lower among boys than girls in most countries. The largest gender differences are noted in Israel (15%) and Switzerland (10%). In almost all countries, the abstinence rates of girls exceed those of boys. Among 15-year-olds, the pattern is slightly different. Abstinence rates are equal for boys and girls in 8 countries, and differ by no more than two percentage points in 22 countries. Israel shows the largest difference, followed by Portugal.

The predictor variables in Table 9.4 are more strongly associated with alcohol experimentation or abstinence by girls, rather than boys. Spending fewer evenings with friends and the school factors are the only indicators associated with abstinence by boys. Interestingly, communication with fathers is important here for girls, as it conspicuously is not for smoking.

The context of alcohol experimentation or abstinence is argued to be qualitatively different from more regular drinking. The frequencies of drinking various beverages were employed to calculate the proportions reporting that they drink wine, spirits or beer at least weekly (Fig. 9.6). English students, however, were asked about a number of different types of beer individually, and this should be considered when interpreting both their weekly drinking data and their reported beer consumption below. In addition, the values are highly dependent on age group, as drinking tends to increase with age. Among students aged 11, the individual country rates rarely exceed 10%, while rates exceed 40% for those aged 15. Many of these increases tend to be greatest between the 13- and 15-year-old age groups. For example, in Ireland, 4% of 11-year-olds, 7% of 13-year-olds and 19% of 15-year-olds report drinking wine, beer or spirits at least weekly. The same pattern is found in the Swedish data; rates rise from 2%, through 5% to 14%.

Substantial differences between countries can be identified. Students in Norway, Finland and Greenland consistently report lower weekly drinking rates. On the other hand, Greece and Wales consistently report higher rates. Some countries change their relative position across the three age groups. For example, students in Israel report the fourth highest rates at ages 11 and 13, but fall to the lowest quartile for 15-year-olds. Similarly, Denmark moves from about the middle of the table at age 11 to the second highest at 15 years.

Fig. 9.6. HBSC survey, 1997/1998: students who report drinking beer at least weekly (%)



* France, Germany and Russia are represented only by regions

Table 9.4. HBSC survey, 1997/1998: factors associated with abstinence from alcohol

Students who abstain from alcohol are more likely to:	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
feel lonely less often						
feel happier						
feel healthier						
have less difficulty talking to mother						
have less difficulty talking to father						
report being good-looking						
happy with body size						
spend less time with friends after school						
spend fewer evenings with friends						
have fewer close friends						
be truant less often						
like school						
not feel pressured by school						
never to have had a cigarette						
smoke less often						
Strength of association*						
None (>.10)	Medium (.10-.25)	Strong (>.25)				

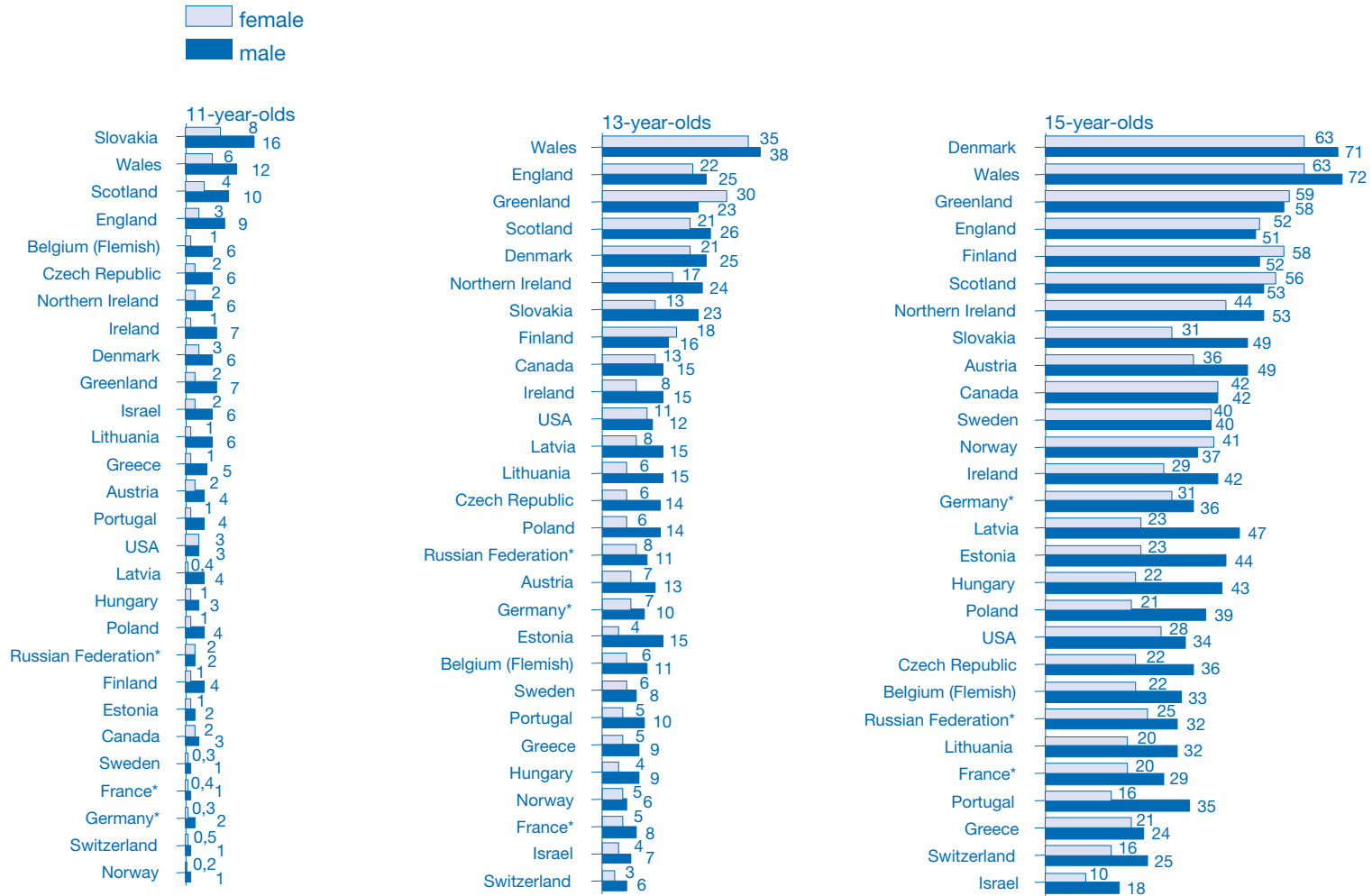
*Phi-coefficient

In addition, these variables show gender differences. In all but the United States and Greenland, more 13-year-old boys than girls report drinking wine, beer or spirits at least weekly. The differences are rarely substantial, however; in most cases they are less than five percentage points. At age 15, boys in all countries are more likely than girls to report drinking weekly, and the differences are larger than at age 13. In 16 countries the differences reach or exceed 10 percentage points; they are as large as 21% in Greece and 20% in Portugal.

The variables associated with frequency of drinking wine, beer or spirits differs from those associated with ever drinking (Table 9.5). Personal factors and self-perceptions rarely emerge as relevant, with the minor exception of perceived health for older girls. Time spent with peers, but not number of close friends, emerges as important only for older students, while school factors are relevant particularly for boys and older girls. In addition, the frequency of drinking wine, beer or spirits is associated with both tobacco experimentation and the frequency of smoking.

The weekly drinking rates for individual beverages differ by age, gender and country. Beer is clearly the most popular drink, with up to 10% of 11-year-olds, 15% of 13-year-olds and 38% of 15-year-olds reporting that they drink beer weekly. The equivalent percentages for spirits are 6%, 8% and 22%, and for wine, 9%, 10% and 15%. As with weekly drinking, the rates for consuming these beverages rise with age. Many countries report consistently high relative levels for all beverages; for example, Wales and Greece report among the highest levels of beer consumption, and also report higher levels of wine consumption, while students in Wales, England,

Fig. 9.7. HBSC survey, 1997/1998: students who report having been drunk twice or more often (%)



* France, Germany and Russia are represented only by regions

and Greece are among the higher spirits consumers. Students from other countries appear to favour one beverage over the others. For example, those from Slovakia report relatively higher frequencies of beer consumption, and French students report relatively higher frequencies of wine consumption. Of particular concern are the high absolute rates of weekly beer consumption among 15-year-old boys in Wales (50%), Denmark (43%), Greece (42%) and England (40%).

Gender differences across beverages vary between countries. Those within countries show that boys are more likely to report drinking beer weekly in most countries (Fig. 9.7). Among 15-year-olds, boys in all countries exceed girls in weekly beer drinking, to a large extent in some countries. In 13 countries, the differences between boys and girls reach or exceed 15 percentage points, rising to 28% in Wales, 23% in Austria and 22% in England. Gender differences in spirits and wine consumption are not as substantial; none is greater than 11%. Nevertheless, in most countries boys of all ages report more frequent consumption than girls for both types of beverage. At age 15, the only countries in which girls report more consumption of both spirits and wine than boys are Scotland (2% for wine, 12% for spirits), England (5% for wine, 7% for spirits) and Wales (8% for wine, 3% for spirits). This represents a clear geographical pattern for gender.

Table 9.5. HBSC survey, 1997/1998: factors associated with more frequent drinking of wine, beer or spirits

Students who drink more frequently are more likely to:	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
feel lonely more often						
feel less happy						
feel less healthy						
have more difficulty talking to mother						
have more difficulty talking to father						
report being good-looking						
be unhappy with body size						
spend more time with friends after school						
spend more evenings with friends						
have more close friends						
more frequent truancy						
dislike school						
pressured by school						
ever have had a cigarette						
smoke more frequently						
Strength of association*						
None (>.10)	Medium (.10-.25)	Strong (>.25)				

(*Spearman's Rho)

The frequency of beer drinking is associated most clearly with the peer-involvement and school-factor variables, and this is most clear for older students (Table 9.6). The self-perception items are relevant only for 13-year-old girls, and the items related to perception by others are not germane for any subgroup. Once again, the associations between drinking beer and smoking cigarettes illustrates the clustering effect of substance use.

Table 9.6. HBSC survey, 1997/1998: factors associated with frequency of drinking beer
Students who drink beer frequently are more likely to:

Students who drink beer frequently are more likely to:	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
feel lonely more often						
feel less happy						
feel less healthy						
have more difficulty talking to mother						
have more difficulty talking to father						
report being good-looking						
be unhappy with body size						
spend more time with friends after school						
spend more evenings with friends						
have more close friends						
more frequent truancy						
dislike school						
pressured by school						
ever have had a cigarette						
more frequent smoking						
Strength of association*						
None (>.10)		Medium (.10-.25)		Strong (>.25)		

(*Spearman's Rho)

Perceived drunkenness

The final variable to be considered in this section is perceived drunkenness. The rates of reported drunkenness on two or more occasions increase steeply across age groups, from up to 12% of 11-year-olds, to 37% of 13-year-olds and 67% of 15-year-olds (Fig. 9.7). For example, in Latvia, rates rise from 2% of 11-year-olds through 11% of 13-year-olds to 33% of 15-year-olds; in the United States, the corresponding rates are 3%, 12% and 31%, respectively. While a steady increase with age is apparent in most countries, the major difference in some countries lies between 13- and 15-year-olds; these include Sweden, where the rates of reported drunkenness rise from 7% for 13-year-olds to 40% of 15-year-olds, and Austria, where they are 10% and 42%, respectively.

Some countries maintain their relative standing in relation to drunkenness across age groups, with Switzerland, Israel, Portugal, Greece and France consistently among the lowest, while

Northern Ireland, England, Scotland and Wales are consistently high. This reflects a clear geographical pattern, with students from Mediterranean countries reporting low levels of drunkenness, in sharp contrast to those from the United Kingdom. Interestingly, students from Ireland appear more moderate than their closest neighbours. This pattern persists in 15-year-olds reporting being drunk ten times or more. Over 20% of 15-year-old students in Northern Ireland, Denmark and Wales report at least ten experiences of drunkenness.

Almost all gender differences show boys reporting more frequent drunkenness than girls at all ages. In general, the rates are very low for 11-year-old girls, and the differences between boys and girls tend to increase with age. In Estonia, 11% more 13-year-old boys than girls report having been drunk twice and in Slovakia the difference reaches 10%. Other differences in this age group are smaller. At age 15, the gender differences are typically more substantial, many exceeding 10%; they are over 20% in three countries: Estonia (21%), Hungary (21%) and Latvia (24%). This finding is similar to that for smoking among these countries.

In all countries, boys report more frequent drunkenness than girls at age 11. Among 13-year-olds, only two countries (Greenland and Finland) show more girls reporting having been drunk twice or more. At age 15, the same pattern emerges in Greenland, England, Norway and Scotland. The differences are relatively minor, with the exception of 13-year-olds from Greenland. At age 13, 7% more girls than boys from Greenland report having been drunk twice or more, and this mirrors the data for daily and weekly smoking, weekly beer drinking and weekly drinking among 13-year-olds. Boys' rates of having been drunk ten times or more exceed the rates of girls in all countries. The difference exceeds 10 percentage points in Finland, Greenland, Ireland and Scotland.

The pattern of the associations for frequent drunkenness is similar to those for frequent beer drinking (Table 9.7). The peer variables are particularly important among older students, and school factors consistently emerge as relevant. Personal factors and self-perceptions matter only among 13-year-old girls. Finally, these data again reveal the strength of the associations between smoking and drinking.

Since the 1993/1994 survey, weekly consumption among 15-year-olds girls has risen in Estonia, Norway, the Russian Federation and Slovakia, and fallen in Northern Ireland and Wales. Among boys of the same age, it has increased in Denmark, Estonia, Greenland, Latvia, Norway and the Russian Federation and declined in Finland, France and Northern Ireland. Except for boys in Finland, this reflects a geographical pattern in which consumption is increasing in many eastern and Nordic countries (although stable in Sweden) and decreasing in some western countries where the consumption rates had been among the highest (Wales, Northern Ireland and France).

Frequency of consumption is not sufficient to capture drinking patterns. Drinking to excess is also relevant behaviour among students. Nine countries show an increase in the proportion of 15-year-olds having been drunk two or more times, and none shows a decrease. Among girls, Estonia, Finland, France, Greenland, Northern Ireland, Norway, the Russian Federation, Slovakia and Sweden all report increases in drunkenness. Among boys, this trend can be identified in Estonia, Greenland, Israel, Latvia, Northern Ireland, Norway, the Russian Federation and Sweden. Most of these countries show increases for both genders. Interestingly, all countries

with increases in the frequency of weekly drinking (except Denmark) also show increases in the frequency of drunkenness. The latter also appear in some countries showing no changes in the frequency of consumption (or showing a decrease, as in Northern Ireland). This reveals not only an increase in alcohol use across countries but also a probable change in the drinking pattern towards more binge drinking.

Table 9.7. HBSC survey, 1997/1998: factors associated with more frequent self-reported drunkenness

Students who report more frequent drunkenness are more likely to:	11-year-olds		13-year-olds		15-year-olds	
	Boys	Girls	Boys	Girls	Boys	Girls
feel lonely more often						
feel less happy						
feel less healthy						
have more difficulty talking to mother						
have more difficulty talking to father						
report being good-looking						
be unhappy with body size						
spend more time with friends after school						
spend more evenings with friends						
have more close friends						
be truant more frequently						
dislike school						
feel pressured by school						
ever have had a cigarette						
smoke more frequently						
Strength of association*						
None (>.10)	Medium (.10-.25)	Strong (>.25)				

(*Spearman's Rho)

10. Sexual behaviour –

James Ross & Wendy Wyatt

Adolescents face greater challenges than ever. Pregnancy and sexually transmitted diseases (STDs) pose risks in the short run, but also can have lifelong consequences. These consequences involve both health and economic outcomes and, in the case of pregnancy, put both mother and child at great risk. Few data have been available about adolescent sexual behaviour across countries. Given the potential effects of unintended pregnancy and STDs on health and the quality of life, however, understanding adolescent sexual behaviour is a critical priority.

HEALTH21, the health for all policy framework for the WHO European Region, discusses the changes of adolescence (94):

The physical and emotional changes experienced by young people during puberty give rise to new feelings and perspectives. Such changes occur at differing speeds and with varying intensity... Young people may also be highly vulnerable to particular risks, however, such as drug taking and tobacco and alcohol use or behaviour related to sexual maturation. Unprotected sexual activity is still leading to many unwanted pregnancies, abortions and sexually transmitted diseases (STDs), including HIV infection. In many parts of the Region, unbiased sex education is not provided either in schools or in other settings, placing young people in vulnerable situations during a period of life when experimental activity is normal. Unnecessary emotional stress is created by the lack of information and understanding about issues to do with sexuality, bodily changes and functions, and emotional feelings. Inadequate provision of confidential health services for young people can also inhibit them from accessing appropriate health care and advice.

This section focuses on sexual behaviour among adolescents as reported in the 1997/1998 HBSC survey. Although not completely standardized, the presence of several questions on sexual behaviour across countries demonstrates the increasing awareness of the importance of adolescent sexual behaviour. To achieve such goals as that of target 4.4 of HEALTH21 (94) – to reduce the incidence of teenage pregnancies by at least one third by 2020 – one must first know what is happening among adolescents, why and, more specifically, who is at risk of negative outcomes. As a preliminary approach, examining the responses of different countries to basic questions about sexual behaviour should prove enlightening.

Methodology

Only the responses of the oldest group taking part in the HBSC survey (15-year-olds) are analysed here, because the overwhelming majority of younger adolescents have not yet experienced sexual intercourse, and including the few who have would have skewed response rates. Moreover, some countries ask questions related to sexual behaviour only of 15-year-olds, perhaps based on the belief that asking younger children is or would be perceived as inappropriate.

The questions on sexual behaviour were not part of the core or focus questions of the survey, nor were they part of any of the 1997/1998 optional packages. An optional package on sexuality was included in the 1989/1990 survey, with questions related to sexual behaviour that some countries have retained. Fewer than half of the countries and regions participating in the survey, however, included any questions about sexual behaviour. Some of these focused only on whether students have ever had sexual intercourse. Questions related to sexuality varied widely

in scope and content. Countries and regions were included in the discussion in this section if they asked whether students have ever had sexual intercourse, and either the age at which they had intercourse for the first time, or the type of contraception used during their most recent intercourse. These questions tended to be highly similar in structure. Even when differences arose, however, recoding responses into standardized categories was relatively easy. Eight countries asked such questions in the 1997/1998 HBSC survey: Finland, France, Hungary, Israel, Latvia, Northern Ireland, Poland and Scotland. As similar questions were asked in the United States on the 1997 Youth Risk Behavior Survey (YRBS), sponsored by the US Centers for Disease Control and Prevention, data from YRBS are included to provide a comparison with the United States.

The data should be interpreted with caution. Because of lack of standardization, the structure of the questions varied somewhat across countries. The types of responses (bivariate versus multivariate) also varied in a few countries. Care was taken, however, to err on the side of caution when including these countries' data in the comparisons that follow. In general, although some of the questions were phrased differently from country to country, much of the variation can be attributed to linguistic differences. For this report, questions were restructured as follows.

1. "Have you ever had sexual intercourse?"
2. "If so, how old were you at age of first sexual intercourse?"
3. "If so, did you use contraceptives the last time you had sexual intercourse?"
4. "If so, what type of contraceptive did you use, the last time you had sexual intercourse?"

The assumption here was that the first question acted as a screener for questions that followed. That is, those who responded "no" to the first should not have answered any of the subsequent questions. Data were examined and cleaned to conform to this rule. When there were credible responses to questions 2, 3, and 4, however, a "no" response to question 1 was changed to "yes". The rule employed was that a positive response to question 3 alone was insufficient to warrant a change in response to question 1, but a valid response to question 2 or detailed response to question 4 would qualify as sufficient for change. Israel is an exception; the response categories allowed adolescents to change their minds, from a "yes" to question 1 to a "no" on subsequent questions, by choosing the response "never had sex". This is the only example of a positive response to question 1 being changed. In addition, only Hebrew-speaking members of the population of Israel were asked these questions.

The discussion addresses four questions:

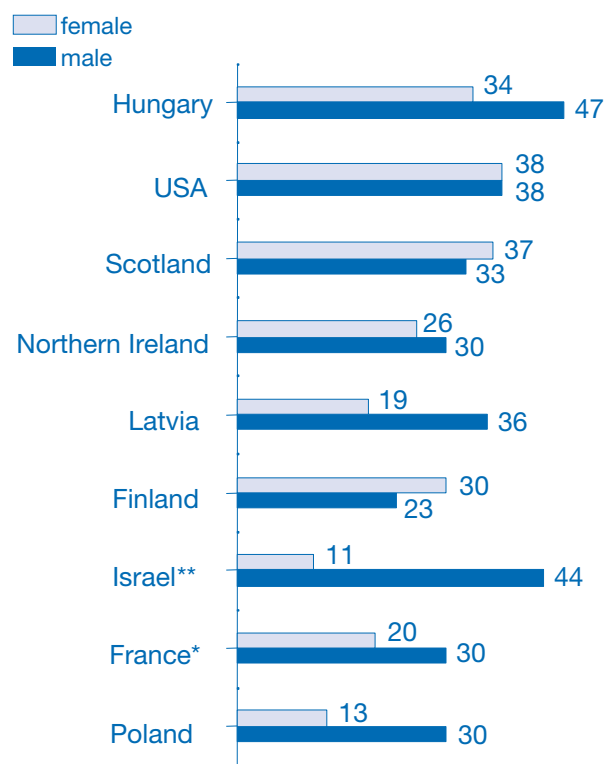
1. the portion of the population that has experienced sexual intercourse (and therefore is potentially at risk);
2. the portion of the sexually active population that has experienced early intercourse, or, more accurately, whether early intercourse varies between countries;
3. the portion of the sexually active population that uses condoms (in the most recent intercourse) as protection against disease; and
4. the portion of the sexually active population that uses some type of contraception (again, in the most recent intercourse) to prevent pregnancy.

Experience of sexual intercourse

Identifying the population that has ever engaged in sexual intercourse defines a group that has reached a particular level of maturation, and is potentially at risk of unintended pregnancy and STDs. All nine countries included in this analysis asked 15-year-old respondents whether they had ever had sexual intercourse, although not necessarily in a uniform format. In France, a slightly more complex question sought additional information about frequency (once, more than once) and number of partners (one, more than one). In Northern Ireland, the question was directed to determine the extent of sexual experience. Responses from both France and Northern Ireland were converted to a simple “yes” or “no” format for comparability.

As Fig. 10.1 shows, positive answers range from 11% to 38% for girls and from 23% to 42% for boys. While countries such as Northern Ireland, Scotland and the United States essentially show no gender differences, large differences between boys and girls are found in Israel, Latvia and Poland.

Fig. 10.1. HBSC survey, 1997/1998: 15-year-olds who report having had sexual intercourse (%)



* France is represented only by regions

** Refers to 15-year-old jewish secular population only

Age at first intercourse

Determining the age of first intercourse is widely thought to be significant, since those who engage in early first intercourse are thought to be at greater risk of unprotected sex and therefore unintended pregnancy and STDs. Six of the nine survey participants asked this question, including the United States (in YRBS). Mean ages were constructed as follows: all responses were given as integers and those from 8 through 14 were recoded to the half-year to use the

mean over the whole year. (All those responses claiming an age of less than 8 years were treated as miscodes and therefore not used.) For all those who were 15 years or older when surveyed and claimed first sexual intercourse at their current age, the mean of their reported age at intercourse in full years and their current age in months was used as the mean age of sexual initiation.

Table 10.1. HBSC survey, 1997/1998: mean age of sexual initiation

Country	Age (years)	
	Girls	Boys
France	14.72	14.25
Israel	15.53	14.55
Latvia	15.03	14.86
Northern Ireland	14.65	14.03
Scotland	14.42	14.27
United States	14.22	13.77

Table 10.1 shows the mean age of first intercourse for boys ranging from 13.77 to 14.86 years. The ranges reported are smallest in the United States (11.5–15.5) and Israel (10.50–16.50) with the rest extending more broadly from 8.5 to above 15.5. For girls, the mean age of first intercourse ranges from 14.22 to 15.53 years; the narrowest ranges are 14.5–16.29 (Israel) and 11.5–15.5 (the United States) with the rest moving from a low of 9.5 to a high above 16. The narrow ranges for the United States and Israel result partly from the precoded response options. In addition, differences between countries in the means age in sexual initiation may be affected by the mean age of the survey population.

Responses to the first two questions indicate that more 15-year-olds in the United States have had sexual intercourse than most of their peers in other countries; the United States ranks first for girls and third for boys. On average, these young people started intercourse earlier than those in other countries, as well. Scotland and Hungary show over 30% of both boys and girls reporting sexual intercourse. While Hungary did not ask about the age of sexual initiation, Scotland reports a mean age of 14.42 for girls, the second earliest. Mean age for boys, however, is 14.27, a relative ranking of fourth out of six.

Use of contraceptives

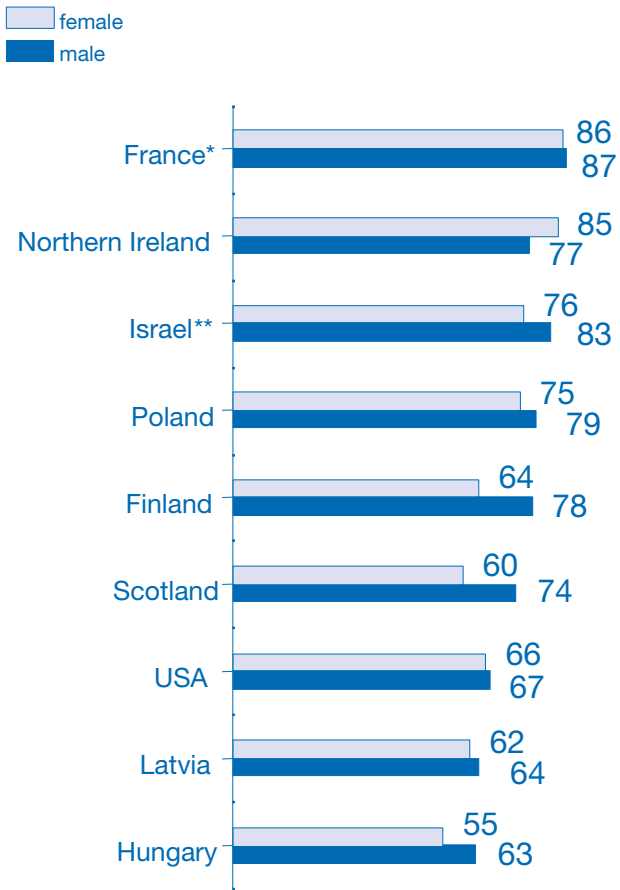
Use of condoms as protection against disease

Most countries first asked a general question about whether contraception were used in the most recent intercourse. Those answering “yes” were then asked to specify the type. Responses from sexually active young people who did not answer the first question but specified a type of contraceptive were included in the analysis. Those who answered neither question or did not specify a type were excluded. If the non-responders differ systematically from the responders, then the reported rates of contraceptive use may be biased upward or downward.

When examining the sexually active portion of the adolescent population, it is possible to derive analytically the protection afforded by contraception against pregnancy and disease. Although the questions did not directly address the purpose of contraceptive use, the responses provide

insight into whether adolescents are protecting themselves. As to condom use (including condoms and pills) during the last intercourse, the percentage of sexually active boys reporting using them ranges from 63% to 87% (Fig. 10.2). Condom use by girls ranges from 55% to 86%. The reported use of condoms displays a greater range for girls (31%) than boys (24%). More boys than girls use condoms, except in Northern Ireland.

Fig. 10.2. HBSC survey, 1997/1998: 15-year-olds who report using condoms during intercourse as protection against disease (%)



* France is represented only by regions
 ** Refers to 15-year-old jewish secular population only

Use of any form of contraception

As Table 10.2 shows, the percentage of sexually active boys using some form of contraception is highest in France (89%), descending through Finland (88%), Poland (85%), the United States (83%), Israel (81%), Northern Ireland (80%), Scotland (79%) and Latvia (75%) to Hungary (69%).

For sexually active girls, France again reports the highest total contraceptive use (98%), followed by Finland (91%), Northern Ireland (88%), the United States (85%), Poland (79%), Scotland (75%), Israel (73%), Hungary (72%) and Latvia (67%).

Table 10.2. HBSC survey, 1997/1998: use of contraceptives, by type, to prevent pregnancy

Country	Method used (%)									
	Condom		Pill		Condom + pill		Other		None	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Finland	73	60	9	24	5	5	1	2	12	9
France	54	76	2	8	33	10		4	11	2
Hungary	58	50	5	14	5	5	1	3	31	28
Latvia	48	46	10	5	16	16	1	0	25	33
Northern Ireland	66	77	3	1	11	9	0	1	20	12
Poland	63	59	3	4	17	16	2	0	15	21
Scotland	66	51	5	12	8	9	0	3	21	25
United States	62	62	4	7	5	4	12	12	17	15

Note: The question in Israel asked whether a condom was used during the most recent intercourse; 81% of boys and 73% of girls said “yes” and 19% and 27%, respectively, said “no”.

Conclusion

As stated previously, care must be taken when comparing questions that differ in structure and phrasing. This fundamental lack of standardization forms a singular barrier to understanding sexual behaviour among adolescents across countries. Without standardized questions and procedures (and more extensive analysis), it is difficult to determine either the reality or the gravity of the situation. In the future, including an optional package related to sexuality, with standardized questions, in the HBSC survey would enhance cross-national comparisons. Information should be collected on not only sexual behaviour but also beliefs about effective disease prevention and contraceptive practices, sources of information on disease prevention and contraception, sexual maturity and the outcomes of unprotected sex (rates of STDs and pregnancy). Such data will enhance understanding of the effects of education on risky sexual behaviour and identify steps that will protect young people.

11. Country background

Countries' differences and similarities in the frequencies and associations of the various variables concerning adolescent health and health behaviour derive from cultural influences, as well as from the countries' living conditions and national policies. Tables 11.1–11.3 display countries' demographic characteristics and policies on smoking and alcohol prevention.

The specific demographic characteristics of a country can be expected to influence young people's current living conditions and future prospects. While the average age of marriage marks a common age of transition to adulthood, divorce rates indicate adolescents' chances of living in complete and stable families. Unemployment rates may give an impression of young people's prospects for careers and economic wellbeing. As shown in the previous sections, all these factors are related to health and health behaviour.

Every country has regulations to protect children and adolescents against smoking and alcohol consumption. Owing to the cultural meaning of drinking and smoking and depending on the balance of power between the national interest in health promotion and the influence of industries affecting health, preventive strategies differ between countries. For example, some have very strict regulations on the sale of cigarettes and alcoholic beverages, and countries differ in the legal age for buying cigarettes and alcohol, rules for protecting nonsmokers and restrictions on advertisement. Do countries' policies influence the numbers of smokers and alcohol consumption patterns among adolescents?

The analysis of these factors for single countries and specific related variables is beyond the scope of this report; the three tables are intended to give an overview. The reader is invited to draw his or her own conclusions concerning differences between participants in the HBSC survey.

Table 11.1. HBSC survey, 1997/1998: national demographic characteristics

Country	Population		Unemployment rates (%)	Average size of families ¹	Average age at marriage (years)	
	Total (number)	11-16-year-olds (%)			Men	Women
Austria	8 072 200	7.1	7.1	2.5	28.9	26.6
Belgium (Flemish)	5 912 400	7.0	5.3	2.5	31.0	29.0
Canada	30 300 400	–	8.0	3.1	29.3	27.3
Czech Republic	10 299 125	7.8	5.4	2.6	27.7	
Denmark	5 294 900	6.0	7.9	2.2	35.3	32.7
Greenland	56 000	9.4	8.0	2.8	–	–
Estonia	1 462 100	8.9	10.0	2.3	26.3	24.1
Finland	5 147 000	(12.5 ²)	12.7	2.9	33.3	30.7
France	58 604 000	8.0	12.3	2.6	29.0	26.9
Germany	82 012 000	5.4	13.1	–	33.4	30.6
Greece	10 475 900	8.0	10.3	3.0	31.8	27.4
Hungary	10 174 400	10.4	8.7	2.9	29.7	
Ireland	3 660 600	(8.9 ⁵)	8.5	–	27.0	25.0
Israel	5 900 000	(8.7 ³)	7.7	3.5	28.5	25.4
Latvia	2 479 900	8.9	7.0	2.4	25.7	23.6
Lithuania	3 707 200	9.0	5.9	–	27.1	25.2
Norway	4 392 700	(12.0 ²)	4.1	2.1	33.4	30.4
Poland	38 660 000	8.5	10.3	3.2	–	–
Portugal	9 955 400	–	3.9/6.2 ⁴	–	–	–
Russian Federation	147 137 000	10.0	4.5	–	29.2	26.8
Slovakia	5 387 600	9.5	12.9	2.7	27.2	24.3
Sweden	8 847 600	6.9	8.0	2.1	32.2	29.6
Switzerland	7 096 500	6.9	5.2	3.1	–	–
United Kingdom:						
England	47 900 000	7.2	6.0	2.4	26.5	
Northern Ireland	1 675 000	9.2	8.5	2.7	29.2	
Scotland	5 122 500	7.6	8.7	2.4	28.7	
Wales	2 921 100	6.5	11.3	2.5	28.3	28.6
United States	268 765 000	8.5	4.4 ⁶	3.2	25.9	24.0

¹ People in household.

² Aged 10–19.

³ Aged 15–19.

⁴ Men/Women.

⁵ Aged 10–14.

⁶ 16 years and older.

Table 11.2. HBSC survey, 1997/1998: national smoking prevention policies

Country	Cigarette sales ¹					Legal age for buying cigarettes	Average cost of a single cigarette (Euro)	Smoking prohibited ²						Tobacco advertisement prohibited ³						
	A	B	C	D	E			A	B	C	D	E	F	A	B	C	D	E	F	G
Austria						16	0.14													
Belgium (Flemish)						NR ⁴	0.15													
Canada						18–19	0.15													
Czech Republic						16	0.92													
Denmark						NR	0.21													
Greenland						15	0.50													
Estonia	0 ⁵	0	0	0	0	0	0													
Finland						18	0.19													
France						NR	0.15													
Germany						16	0.13													
Greece						NR	0.13													
Hungary						18	0.05													
Ireland						16	0.20													
Israel						NR	0.11													
Latvia						18	0.04													
Lithuania						18	0.04													
Norway						18	0.28													
Poland						18	0.03													
Portugal						NR	0.06													
Russian Federation						18	0.01													
Slovakia						18	0.05													
Sweden						18	0.20													
Switzerland						NR	0.14													
United Kingdom:																				
England						16	0.22													
Northern Ireland						16	0.22													
Scotland						16	0.22													
Wales						16	0.22													
United States ⁶						18–21	0.08													

¹ Cigarettes sold in: vending machines (A), supermarkets (B), petrol stations (C), bars or restaurants (D), special stores (E).

² Smoking prohibited in: public transport (A), health care and educational institutions (B), public buildings (C), work sites (D), restricted areas (E). Smoking permitted in particular areas (F).

³ Tobacco advertisement prohibited: on television/radio (A), in newspapers/magazines (B), in cinemas (C), at sports events (D), on billboards/in public places next to educational and health care institutions (E), in any public area (F), when targeting young people (G).

⁴ Not restricted.

⁵ No information available.

⁶ Depending on laws in the federal states.

Table 11.3. HBSC survey, 1997/1998: country policies on alcohol

Country	Sale of alcoholic beverages ¹						Legal age for buying alcoholic beverages (years)	Average cost of 1 litre of beer (Euro)	Alcohol consumption restricted ²				Alcohol advertisement banned or restricted ³									
	A	B	C	D	E	F			A	B	C	D	A	B	C	D	E	F	G	H	I	
Austria							16 ⁴	1.46														
Belgium (Flemish)							16	1.15														
Canada							18-19 ⁴	2.34														
Czech Republic							18	0.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Denmark							15	0.86														
Greenland							18	11.0														
Estonia	0 ⁵	0	0	0	0	0	0	0	0	0	0	0										
Finland							18	2.93														
France							16	1.07														
Germany							16 (18 ⁶)	1.00														
Greece							NR	1.90														
Hungary							16	0.36														
Ireland							18	2.90														
Israel							18	2.15														
Latvia							18	1.10														
Lithuania							21	1.00														
Norway							18	3.50														
Poland							18	1.12														
Portugal							16	1.00														
Russian Federation							18	0.32														
Slovakia							18	0.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sweden							18-20	3.30														
Switzerland							16 (18 ⁶)	1.96														
United Kingdom:																						
England							18	4.70														
Northern Ireland							18	5.20														
Scotland							18	4.70														
Wales							18	4.70														
United States ⁷							21	2.49														

¹ Alcoholic beverages sold: in supermarkets (A), at public events (B), in petrol stations (C), in bars or restaurants (D), in liquor stores (E), licensed stores only (F).

² Legal restrictions on alcohol consumption: age restrictions (A), in public places (B), different restrictions in municipalities and regions (C), restricted areas (D).

³ Tobacco advertisement prohibited: on television/radio (A), in newspapers/magazines (B), in cinemas (C), at sports events (D), on billboards/in public places next to educational and health care institutions (E), in any public area (F), when targeting young people (G), for beverages with alcohol content above a certain level (G), unless it includes a health warning or preventive message (I).

⁴ Depending on laws in the federal states.

⁵ No information available.

⁶ Different restrictions for spirits.

⁷ Depending on laws in the states.

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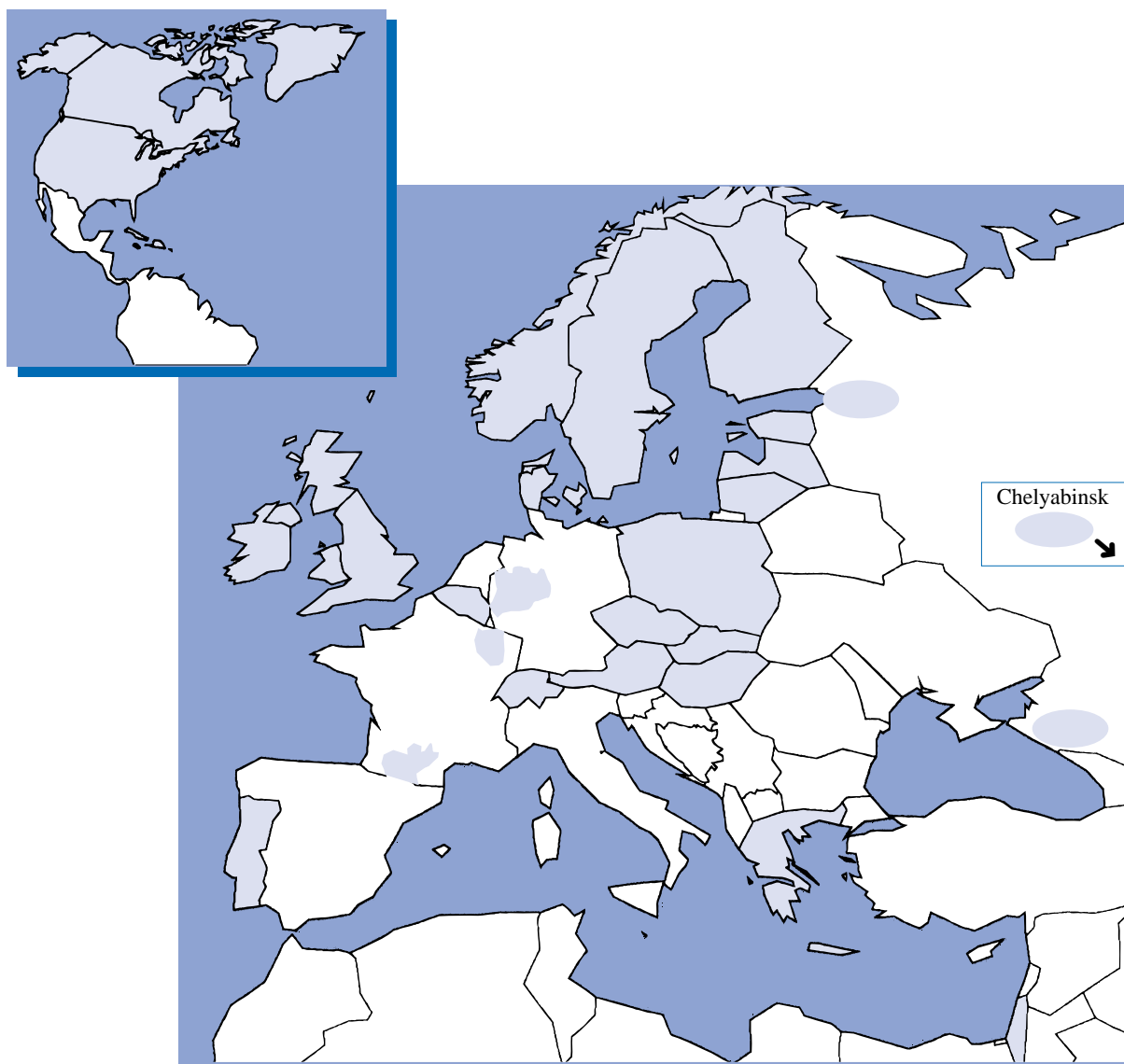
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