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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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 regions[1], 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 interrelationships between health behaviour and health, and the factors that may affect them. Both

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[1] *France, Germany and the Russian Federation were represented by regional samples.*

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 commonalties 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 ±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	1294	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:

$$se(p) = \sqrt{\frac{pq}{n}}$$

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:

$$se(p) = \sqrt{\frac{(0.25 x 0.75)}{1408}}$$

= 0.0115 or 1.15%

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

$$p \pm 1.96 \; x \; se(p)$$

In the current example, this gives confidence intervals of 25% ± 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÷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.

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

Variable	Czech Republic	Finland	Latvia	Norway	Portugal	Scotland	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 ≥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 ≥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	Scotland	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 ±4.2%, for both 70% and 30% is ±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 ±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 (%)

female
male

11-year-olds

Country	female	male
USA	38	32
Israel	34	35
Estonia	38	30
Hungary	36	31
Russian Federation*	34	28
Denmark	36	23
Wales	33	25
Lithuania	36	22
Greece	29	27
Latvia	32	22
England	27	27
France*	29	20
Switzerland	29	19
Northern Ireland	24	24
Belgium (Flemish)	24	23
Canada	24	22
Sweden	26	19
Finland	25	20
Slovakia	24	17
Czech Republic	23	16
Poland	21	15
Ireland	18	18
Norway	21	14
Scotland	20	14
Germany*	16	15
Greenland	17	12
Portugal	15	13
Austria	10	6

13-year-olds

Country	female	male
Greece	51	39
Hungary	48	40
Israel	47	39
USA	41	31
Estonia	37	29
Russian Federation*	39	26
Lithuania	40	21
Switzerland	41	19
Latvia	35	23
England	33	25
Wales	33	24
France*	38	19
Denmark	39	17
Sweden	38	17
Slovakia	32	21
Northern Ireland	31	21
Finland	30	20
Belgium (Flemish)	28	21
Canada	27	20
Poland	28	17
Ireland	25	19
Portugal	27	16
Scotland	26	13
Czech Republic	24	13
Norway	23	13
Greenland	23	12
Germany*	16	11
Austria	11	6

15-year-olds

Country	female	male
Greece	63	46
Hungary	57	44
Israel	53	43
USA	49	34
Switzerland	51	22
Estonia	40	33
France*	50	23
Lithuania	49	23
Sweden	45	25
Wales	41	26
Russian Federation*	40	27
England	40	24
Latvia	38	25
Belgium (Flemish)	34	26
Slovakia	37	21
Poland	39	18
Northern Ireland	38	18
Czech Republic	34	19
Canada	34	19
Portugal	36	17
Denmark	41	12
Finland	32	19
Ireland	32	19
Greenland	33	14
Norway	32	13
Scotland	28	13
Germany*	17	9
Austria	15	5

* 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 (%)

female
male

11-year-olds

Country	female	male
Israel	43	41
Portugal	37	32
Wales	22	15
Latvia	19	16
Lithuania	19	16
Greenland	17	18
Scotland	19	14
France*	18	12
Greece	18	12
Canada	16	13
Poland	16	13
USA	17	12
Slovakia	16	12
Finland	16	12
Belgium (Flemish)	16	12
Russian Federation*	15	13
Hungary	15	13
Estonia	17	10
Ireland	14	11
Northern Ireland	13	11
England	12	11
Germany*	10	9
Czech Republic	12	6
Austria	9	8
Switzerland	9	6
Sweden	6	8
Denmark	8	4
Norway	5	4

13-year-olds

Country	female	male
Portugal	54	43
Israel	46	47
Latvia	28	17
Greece	28	16
Greenland	22	16
Lithuania	23	13
Poland	23	12
France*	21	12
Wales	17	15
Russian Federation*	20	12
Hungary	16	14
Scotland	18	11
Canada	19	10
Northern Ireland	17	10
USA	15	12
Estonia	17	9
Finland	16	8
Belgium (Flemish)	15	9
Slovakia	15	8
Ireland	14	8
Germany*	12	9
Austria	13	8
England	12	9
Czech Republic	14	6
Switzerland	13	6
Sweden	9	6
Denmark	9	4
Norway	8	5

15-year-olds

Country	female	male
Portugal	67	54
Israel	46	41
Greece	39	20
Lithuania	33	15
Latvia	30	16
Greenland	30	16
Poland	30	14
Estonia	28	10
France*	24	13
Hungary	22	14
Slovakia	23	11
USA	19	15
Wales	22	11
Russian Federation*	20	13
Canada	20	10
Czech Republic	20	7
Scotland	19	8
Finland	16	9
Ireland	16	8
Northern Ireland	17	6
Belgium (Flemish)	16	7
Austria	18	5
Germany*	13	9
Sweden	14	6
Switzerland	14	6
England	14	6
Norway	12	7
Denmark	10	3

* 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 (%)

female
male

11-year-olds

Country	female	male
Norway	33	40
Germany*	30	31
Finland	26	26
USA	25	27
Israel	24	23
Austria	21	23
Denmark	19	23
Wales	19	21
Scotland	17	22
Czech Republic	17	19
France*	17	18
Canada	17	18
Northern Ireland	14	20
Ireland	12	20
Sweden	15	16
Slovakia	12	19
Belgium (Flemish)	15	15
England	12	18
Switzerland	14	15
Hungary	14	15
Latvia	9	12
Portugal	9	12
Russian Federation*	11	10
Poland	7	9
Lithuania	7	9
Estonia	6	9
Greece	5	9
Greenland	4	6

13-year-olds

Country	female	male
Norway	39	44
Finland	39	39
USA	31	33
Germany*	30	32
Israel	25	30
Northern Ireland	26	29
Austria	25	29
Canada	25	28
Denmark	25	27
Scotland	25	27
Sweden	23	28
Wales	23	25
Ireland	18	23
Switzerland	22	18
Slovakia	18	22
Belgium (Flemish)	17	20
Czech Republic	17	18
Hungary	17	18
England	17	17
France*	16	18
Russian Federation*	14	16
Greece	12	16
Poland	12	13
Latvia	11	13
Portugal	7	13
Greenland	8	12
Estonia	6	7
Lithuania	4	7

15-year-olds

Country	female	male
Norway	56	57
Finland	39	45
USA	38	42
Sweden	32	40
Germany*	34	38
Austria	35	35
Denmark	30	36
Scotland	31	32
Israel	29	34
Wales	30	32
Canada	30	31
Northern Ireland	29	30
Hungary	28	27
Ireland	24	31
England	27	26
Belgium (Flemish)	25	27
Switzerland	23	23
France*	22	22
Slovakia	20	23
Greece	17	22
Czech Republic	16	21
Russian Federation*	17	16
Portugal	8	19
Poland	11	15
Greenland	10	13
Estonia	10	13
Latvia	12	10
Lithuania	7	6

* 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 (%)

female
male

11-year-olds

Country	female	male
Israel	51	43
USA	46	40
Russian Federation*	47	35
Slovak Rep,	45	33
Hungary	40	27
Finland	36	26
Lithuania	36	25
Sweden	35	26
Czech Republic	35	26
Estonia	38	23
Northern Ireland	35	25
Wales	34	26
France*	35	22
Canada	31	24
Latvia	35	19
Scotland	30	22
Poland	31	20
Germany*	27	23
England	27	22
Switzerland	27	21
Denmark	26	20
Portugal	27	16
Belgium (Flemish)	25	17
Ireland	22	20
Austria	23	17
Greece	23	16
Norway	21	14
Greenland	19	14

13-year-olds

Country	female	male
Israel	64	45
USA	50	35
Russian Federation*	45	34
Sweden	44	28
Slovakia	42	29
Finland	42	29
Hungary	41	27
Northern Ireland	37	30
Lithuania	43	22
Canada	36	28
Scotland	37	24
Czech Republic	37	23
England	38	21
Wales	35	24
Latvia	38	19
France*	37	20
Greece	34	21
Estonia	31	23
Denmark	34	19
Germany*	31	21
Ireland	28	22
Portugal	33	17
Austria	30	19
Poland	30	18
Switzerland	29	18
Belgium (Flemish)	28	16
Norway	28	15
Greenland	24	14

15-year-olds

Country	female	male
Israel	64	45
USA	57	36
Sweden	53	27
Hungary	48	29
Slovakia	47	29
Northern Ireland	45	30
Scotland	48	26
Russian Federation*	45	28
Wales	45	27
Finland	46	26
Lithuania	48	22
Canada	46	23
England	42	26
Greece	44	23
Czech Republic	41	26
Portugal	46	20
France*	42	22
Estonia	41	23
Poland	40	21
Latvia	41	19
Ireland	38	22
Switzerland	36	19
Norway	36	18
Austria	36	16
Denmark	34	16
Germany*	30	18
Greenland	30	17
Belgium (Flemish)	27	13

* 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 (%)

female
male

11-year-olds

Country	male	female
USA	34	41
Israel	31	41
Northern Ireland	28	37
Slovakia	23	39
Russian Federation*	24	35
France*	19	38
Estonia	25	30
Sweden	21	31
Wales	19	32
Scotland	19	31
Latvia	19	30
England	21	28
Canada	18	30
Hungary	18	30
Germany*	20	25
Lithuania	15	30
Poland	14	29
Norway	17	24
Finland	15	22
Switzerland	13	21
Ireland	13	19
Czech Republic	12	19
Denmark	10	20
Greece	12	17
Austria	9	17
Portugal	11	12
Greenland	11	12
Belgium (Flemish)	8	15

13-year-olds

Country	male	female
USA	29	39
Israel	32	35
Russian Federation*	20	33
Northern Ireland	24	27
Sweden	17	33
Slovakia	21	28
France*	17	31
Latvia	16	30
Canada	16	28
Lithuania	14	28
Scotland	15	27
Estonia	15	26
Hungary	17	24
Finland	15	23
England	15	23
Wales	14	23
Germany*	12	24
Poland	11	24
Switzerland	10	23
Norway	10	22
Ireland	13	17
Greece	12	17
Czech Republic	10	19
Denmark	9	20
Austria	10	18
Portugal	8	13
Greenland	9	11
Belgium (Flemish)	6	13

15-year-olds

Country	male	female
USA	28	41
Israel	30	38
Slovakia	20	31
Sweden	18	31
France*	16	32
Canada	17	30
Estonia	17	27
Hungary	16	28
Scotland	13	29
Wales	15	25
Russian Federation*	16	23
Latvia	13	24
Lithuania	12	25
Northern Ireland	15	21
Greece	13	21
Switzerland	9	22
Czech Republic	12	19
Poland	11	19
Finland	10	20
England	11	19
Norway	11	18
Germany*	8	19
Ireland	12	14
Austria	6	18
Portugal	7	16
Denmark	6	12
Greenland	5	12
Belgium (Flemish)	4	10

* France, Germany and Russia are represented only by regions

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

female
male

11-year-olds

Country	female	male
USA	30	30
Slovakia	28	21
Czech Republic	27	21
Portugal	26	19
Israel	21	22
France*	25	15
Canada	18	18
Wales	16	15
Greenland	14	15
Denmark	15	14
Hungary	17	12
Germany*	16	13
Russian Federation*	15	13
Lithuania	13	14
Greece	15	10
Estonia	12	12
Northern Ireland	12	12
Sweden	12	11
Scotland	11	11
Poland	13	9
England	11	11
Ireland	10	11
Finland	10	11
Latvia	12	8
Switzerland	12	8
Norway	9	10
Belgium (Flemish)	10	8
Austria	9	7

13-year-olds

Country	female	male
USA	33	30
Czech Republic	32	26
France*	32	22
Slovakia	28	26
Portugal	29	24
Israel	23	25
Canada	24	22
Denmark	21	21
Hungary	20	17
Russian Federation*	19	17
Germany*	20	16
Northern Ireland	19	17
Greenland	22	13
Ireland	16	17
Norway	19	14
Sweden	20	13
Switzerland	19	13
Wales	15	17
Lithuania	16	15
Austria	17	14
Greece	15	15
Scotland	16	12
Belgium (Flemish)	16	12
Finland	14	13
Estonia	14	13
Poland	14	12
England	13	13
Latvia	13	12

15-year-olds

Country	female	male
USA	43	33
Czech Republic	31	33
France*	38	26
Slovakia	37	27
Canada	34	28
Israel	29	30
Denmark	27	26
Portugal	30	23
Sweden	25	25
Greenland	25	23
Hungary	29	18
Wales	22	23
Switzerland	23	19
Norway	25	17
Northern Ireland	25	17
Ireland	20	21
Greece	18	23
Austria	22	19
Germany*	22	19
Russian Federation*	22	16
Finland	21	18
Estonia	18	21
Belgium (Flemish)	21	17
Scotland	19	17
England	17	17
Lithuania	16	17
Latvia	16	16
Poland	17	14

* 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 (%)

female
male

11-year-olds

Country	Female	Male
Hungary	54	49
USA	57	45
Scotland	53	46
Wales	54	45
England	48	45
Canada	47	42
Finland	47	40
France*	46	36
Northern Ireland	42	38
Ireland	38	38
Israel	40	35
Belgium (Flemish)	43	33
Latvia	41	34
Denmark	39	34
Sweden	39	34
Lithuania	39	30
Greece	38	31
Russian Federation*	36	32
Estonia	35	31
Poland	35	30
Greenland	35	25
Portugal	30	24
Czech Republic	27	26
Austria	28	25
Slovakia	29	21
Switzerland	26	22
Germany*	26	22
Norway	25	20

13-year-olds

Country	Female	Male
USA	68	49
Wales	68	48
Scotland	61	53
England	63	48
Canada	58	48
Finland	56	50
Northern Ireland	56	48
Hungary	54	46
Ireland	53	46
Greece	50	41
France*	53	37
Israel	50	40
Sweden	48	34
Denmark	47	34
Belgium (Flemish)	46	34
Poland	44	31
Russian Federation*	42	31
Lithuania	42	30
Estonia	37	31
Latvia	37	30
Greenland	34	29
Portugal	37	25
Norway	36	25
Austria	31	27
Germany*	32	24
Switzerland	32	24
Czech Republic	32	22
Slovakia	25	20

15-year-olds

Country	Female	Male
USA	72	52
Scotland	73	51
England	69	54
Wales	71	48
Northern Ireland	63	51
Canada	67	45
Finland	60	47
Ireland	60	46
Hungary	55	50
Greece	56	46
France*	59	40
Sweden	59	37
Israel	54	37
Denmark	55	36
Belgium (Flemish)	47	34
Lithuania	52	28
Poland	51	29
Norway	48	32
Greenland	38	40
Portugal	42	29
Germany*	42	28
Estonia	39	30
Russian Federation*	41	27
Latvia	41	26
Austria	36	30
Switzerland	37	23
Czech Republic	37	22
Slovakia	32	22

* 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 (%)

female
male

11-year-olds

Country	female	male
Latvia	35	31
Russia*	38	24
France*	34	25
USA	33	22
Scotland	30	22
Northern Ireland	28	24
Wales	29	20
Estonia	26	23
Israel	24	24
Poland	25	22
Greenland	28	16
Lithuania	27	17
Canada	24	19
Slovakia	22	19
Ireland	22	18
England	20	18
Hungary	18	19
Czech Republic	18	18
Belgium (Flemish)	20	16
Greece	15	14
Germany*	13	14
Austria	14	13
Portugal	11	14
Switzerland	14	10
Sweden	12	12
Finland	11	11
Denmark	10	10
Norway	10	7

13-year-olds

Country	female	male
Northern Ireland	41	22
France*	43	17
Wales	43	16
Israel	35	20
Russian Federation*	33	22
Scotland	34	19
USA	33	20
Poland	33	19
Latvia	29	21
England	35	13
Greenland	21	26
Ireland	29	17
Canada	29	16
Slovakia	28	14
Lithuania	25	17
Belgium (Flemish)	19	14
Hungary	13	19
Finland	24	9
Czech Republic	21	11
Greece	20	11
Estonia	16	15
Switzerland	19	9
Sweden	20	7
Germany*	15	12
Denmark	21	6
Austria	13	12
Portugal	12	9
Norway	17	5

15-year-olds

Country	female	male
France*	52	17
Wales	49	16
Northern Ireland	47	15
Israel	43	19
Scotland	49	13
Greenland	29	32
Poland	43	15
USA	37	20
England	45	10
Russian Federation*	33	17
Ireland	35	14
Canada	35	11
Slovakia	34	11
Finland	38	7
Lithuania	29	15
Latvia	29	14
Czech Republic	35	8
Sweden	34	8
Switzerland	32	8
Norway	36	4
Greece	27	12
Estonia	26	12
Denmark	33	3
Belgium (Flemish)	25	11
Hungary	19	8
Germany*	15	10
Austria	17	7
Portugal	16	6

* France, Germany and Russia are represented only by regions

Fig. 3.9. HBSC 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 (%)

	Both parents	step family	single parent	other

Country	Both parents	other
Israel	93	6
Greece	91	6
Ireland	88	10
Poland	87	9
Portugal	86	9
Slovakia	86	9
Switzerland	83	11
Austria	82	12
Nothern Ireland	81	14
Germany*	80	11
Lithuania	80	14
France*	79	13
Belgium (Flemish)	78	11
Russian Federation*	77	16
Czech Republic	76	12
Hungary	76	14
Norway	76	13
Sweden	75	13
Canada	74	15
Finland	73	20
Scotland	72	17
Wales	72	17
Latvia	71	19
England	69	17
Denmark	68	18
Estonia	68	22
USA	64	22
Greenland	57	24

* 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 (%)

female
male

11-year-olds

	female	male
Czech Republic	24	24
Belgium (Flemish)	21	20
USA	21	18
France*	20	19
Ireland	17	21
Northern Ireland	17	19
Slovakia	15	21
Germany*	15	21
Estonia	18	17
Scotland	17	17
Switzerland	16	18
Israel	15	18
Denmark	17	16
Canada	17	16
Austria	16	17
Russian Federation*	13	16
Lithuania	13	15
Portugal	12	14
Finland	13	12
Greenland	14	11
Norway	12	11
Latvia	12	11
Wales	9	12
Hungary	9	11
Greece	9	11
England	9	10
Sweden	10	8
Poland	6	10

13-year-olds

	female	male
USA	30	28
Czech Republic	27	29
Austria	27	27
Estonia	28	25
Canada	27	25
Belgium (Flemish)	28	24
Russian Federation*	28	23
Ireland	22	28
Germany*	22	28
Northern Ireland	22	27
Slovakia	23	26
Greece	25	24
Switzerland	26	22
Denmark	26	22
Lithuania	20	26
Israel	24	22
Latvia	26	19
France*	24	21
Greenland	23	21
Portugal	22	20
Finland	22	19
Norway	21	19
Scotland	18	21
Wales	17	21
Poland	17	16
England	17	15
Sweden	15	17
Hungary	14	14

15-year-olds

	female	male
Estonia	36	33
Canada	34	33
USA	32	32
Czech Republic	29	35
Ireland	36	27
Germany*	26	36
Russian Federation*	33	28
France*	33	28
Norway	32	28
Denmark	30	30
Northern Ireland	26	33
Switzerland	30	29
Lithuania	31	28
Finland	31	28
Belgium (Flemish)	32	27
Austria	30	27
Latvia	30	26
Slovakia	28	27
Israel	26	29
Greece	24	28
Sweden	25	25
Wales	25	24
Greenland	29	20
Scotland	22	26
Portugal	25	21
England	21	24
Poland	23	22
Hungary	16	16

* 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	Strong	Strong	Strong	Strong	Strong	Strong	Pearson cor.
have more difficulties talking to friends	Medium	Medium	Medium	Medium	Medium	Medium	Pearson cor.
have more difficulties making friends	Medium	Medium	Medium	None	None	None	Pearson cor.
have a low number of close friends	Medium	Strong	Medium	Medium	Medium	Medium	χ^2
spend more time with friends after school	Medium	Medium	Medium	None	None	None	χ^2
feel less happy	Medium	Strong	Medium	Strong	Medium	Strong	Student's t
feel less healthy	None	Medium	None	None	None	None	Student's t
feel lonely more often	None	Medium	Medium	Medium	None	Medium	Pearson cor.
feel helpless more often	None	Medium	Medium	Medium	None	Medium	Pearson cor.
smoke more often	None	Medium	Medium	Strong	Medium	Strong	χ^2
drink alcohol more often	Medium	Medium	Medium	Strong	Medium	Medium	χ^2
have more experience of drunkenness	Medium	Strong	Medium	Medium	Medium	Medium	Student's t

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 (%)
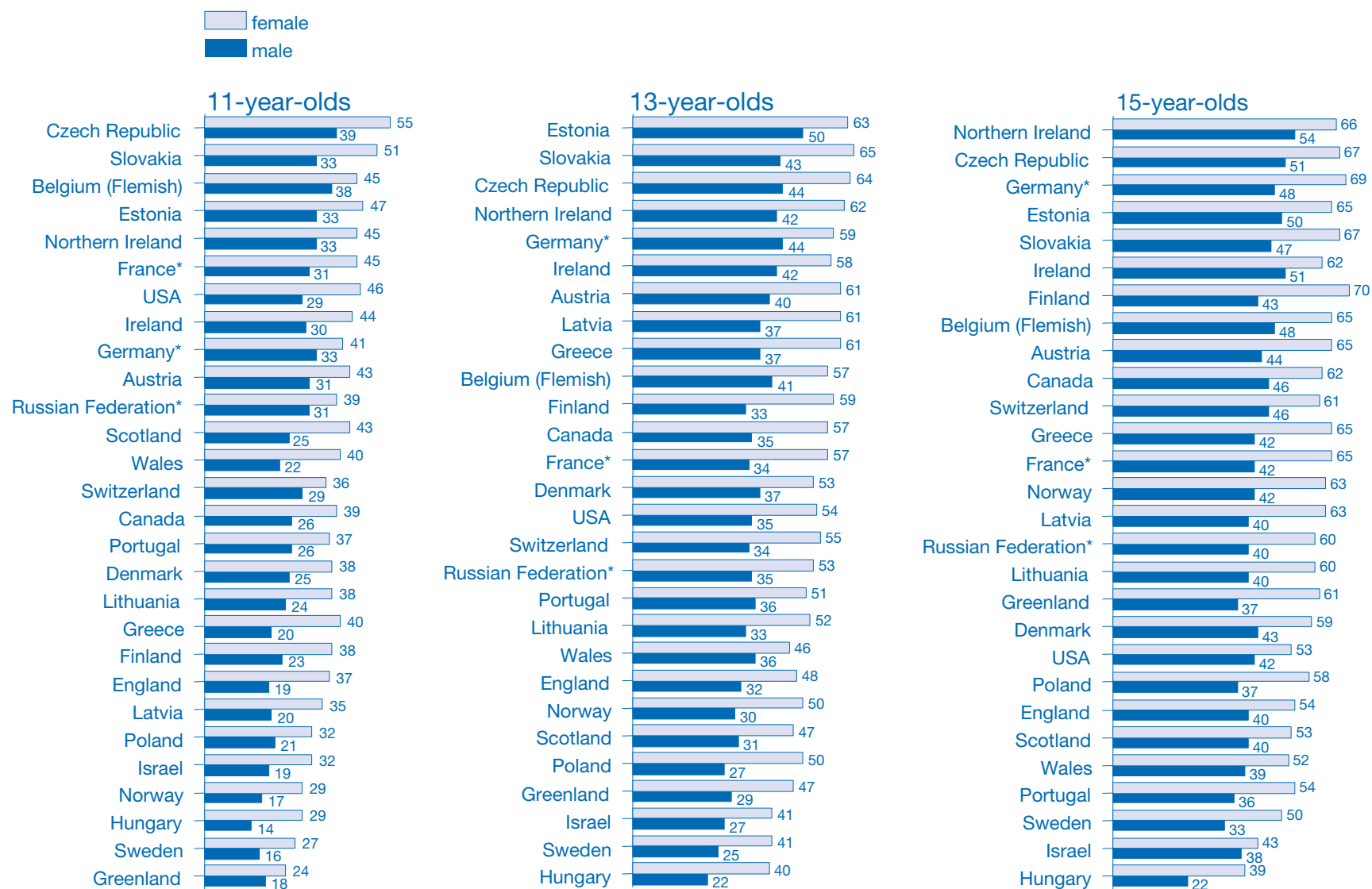
* France, Germany and Russia are represented only by regions

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 boy 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 (%)

female
male

11-year-olds

Country	female	male
Portugal	88	88
Sweden	85	85
Israel	85	84
Greece	84	85
England	85	82
Poland	82	84
Hungary	82	81
Finland	82	81
Wales	83	79
Denmark	80	82
Norway	81	81
Slovakia	81	79
USA	82	78
Estonia	80	79
Austria	79	79
Northern Ireland	79	77
Ireland	80	76
France*	77	78
Greenland	76	78
Canada	78	76
Scotland	76	75
Switzerland	72	78
Belgium (Flemish)	73	75
Czech Republic	71	71
Germany*	71	71
Lithuania	72	70
Latvia	69	70
Russian Federation*	70	63

13-year-olds

Country	female	male
Portugal	89	89
Sweden	86	86
USA	86	84
Northern Ireland	87	84
Ireland	85	83
Scotland	85	82
Wales	84	82
Greece	83	83
Finland	82	84
Estonia	84	82
England	81	85
Slovakia	84	81
Poland	81	83
Hungary	82	82
Israel	81	82
Denmark	80	82
Canada	81	81
Norway	77	83
France*	75	84
Switzerland	77	79
Czech Republic	78	78
Austria	76	78
Germany*	76	76
Belgium (Flemish)	75	76
Lithuania	74	76
Greenland	73	75
Russian Federation*	73	69
Latvia	70	70

15-year-olds

Country	female	male
Portugal	85	89
Northern Ireland	88	86
Scotland	87	87
Wales	87	85
USA	86	85
Slovakia	82	87
England	82	86
Poland	82	84
Canada	83	83
Austria	81	84
Sweden	81	83
Finland	81	83
Ireland	83	81
Greece	77	86
Israel	81	82
Denmark	76	86
Hungary	79	83
France*	75	84
Estonia	76	83
Switzerland	78	79
Czech Republic	77	79
Norway	75	79
Belgium (Flemish)	75	78
Latvia	73	78
Lithuania	73	75
Russian Federation*	75	73
Germany*	73	74
Greenland	65	80

* 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	None	None	Medium	Strong	Strong	Strong
have more close friends	None	Medium	Medium	Medium	Medium	Medium
find it easy to talk to friends (of both genders)	Medium	Medium	Medium	Medium	Medium	Medium
smoke more frequently	None	None	Medium	Medium	Strong	Strong
drink alcohol more often	None	None	Medium	Medium	Strong	Strong
have more experiences of drunkenness	None	None	Medium	Medium	Strong	Strong

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 (%)

female
male

11-year-olds

Country	female	male
Northern Ireland	85	78
Norway	53	64
Greenland	56	56
Poland	38	50
Scotland	37	50
Israel	39	45
Greece	36	47
Slovakia	38	45
Estonia	38	44
Sweden	39	42
Wales	32	47
Czech Republic	35	43
Finland	36	42
Austria	30	47
Germany*	33	44
Denmark	34	38
Portugal	32	40
Ireland	31	39
Russian Federation*	35	35
England	30	38
Hungary	28	39
Canada	30	36
Lithuania	28	38
USA	30	31
Latvia	23	35
France*	23	32
Switzerland	18	34
Belgium (Flemish)	17	26

13-year-olds

Country	female	male
Greenland	60	61
Norway	50	59
Northern Ireland	44	48
Scotland	42	48
Wales	38	50
Czech Republic	40	44
Slovakia	38	45
Poland	36	46
Germany*	37	44
Estonia	35	45
Israel	39	41
Portugal	37	41
Russian Federation*	34	40
England	31	43
Greece	32	39
Hungary	27	44
Finland	30	40
USA	33	36
Austria	28	40
Ireland	29	39
Canada	28	39
Belgium (Flemish)	29	37
Latvia	26	40
Lithuania	26	37
Denmark	29	32
Sweden	24	33
France*	21	35
Switzerland	23	28

15-year-olds

Country	female	male
Greenland	51	68
Norway	53	60
Slovakia	39	54
Germany*	44	47
Greece	40	46
Czech Republic	41	44
Northern Ireland	38	45
Israel	38	45
Belgium (Flemish)	33	48
Austria	34	46
Russian Federation*	38	42
Hungary	33	45
Poland	32	46
England	33	44
Portugal	33	44
Scotland	33	41
Wales	29	45
Canada	28	41
Estonia	27	41
Ireland	27	39
Switzerland	29	37
USA	30	36
France*	28	37
Finland	24	40
Latvia	29	33
Lithuania	20	38
Sweden	19	31
Denmark	18	30

* 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 (%)

female
male

11-year-olds

Country	female	male
Germany*	68	64
Portugal	65	49
Greece	58	51
Latvia	62	44
France*	54	43
Greenland	48	49
England	49	37
Lithuania	51	34
Norway	42	41
Austria	42	35
Northern Ireland	47	28
Scotland	41	30
Denmark	36	33
Canada	42	26
Sweden	38	28
Poland	35	30
Switzerland	32	30
Russian Federation*	33	22
USA	31	23
Estonia	29	23
Wales	29	22
Israel	30	20
Ireland	33	16
Belgium (Flemish)	27	22
Slovakia	21	15
Finland	16	10
Hungary	15	10
Czech Republic	13	8

13-year-olds

Country	female	male
Norway	38	31
Latvia	40	26
Portugal	39	24
Greenland	32	30
Lithuania	37	24
Ireland	36	19
Northern Ireland	33	18
Germany*	26	25
Scotland	25	19
Sweden	25	19
Canada	27	17
England	24	19
France*	25	16
Israel	24	16
Denmark	22	19
USA	22	18
Greece	24	16
Switzerland	21	19
Belgium (Flemish)	19	14
Russian Federation*	17	16
Wales	17	13
Poland	17	12
Estonia	17	10
Austria	13	12
Slovakia	13	6
Hungary	11	5
Finland	10	5
Czech Republic	8	4

15-year-olds

Country	female	male
Latvia	40	34
Portugal	35	23
Lithuania	28	19
Norway	25	22
Israel	26	19
Greenland	18	21
Canada	23	16
Northern Ireland	25	13
USA	19	17
Ireland	24	9
France*	18	14
Poland	18	14
Denmark	17	15
England	16	15
Germany*	16	13
Switzerland	15	14
Austria	13	16
Wales	16	12
Russian Federation*	15	13
Scotland	16	11
Estonia	11	13
Greece	13	8
Slovakia	13	8
Belgium (Flemish)	12	9
Sweden	9	8
Hungary	7	7
Czech Republic	5	4
Finland	4	3

* 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 (%)
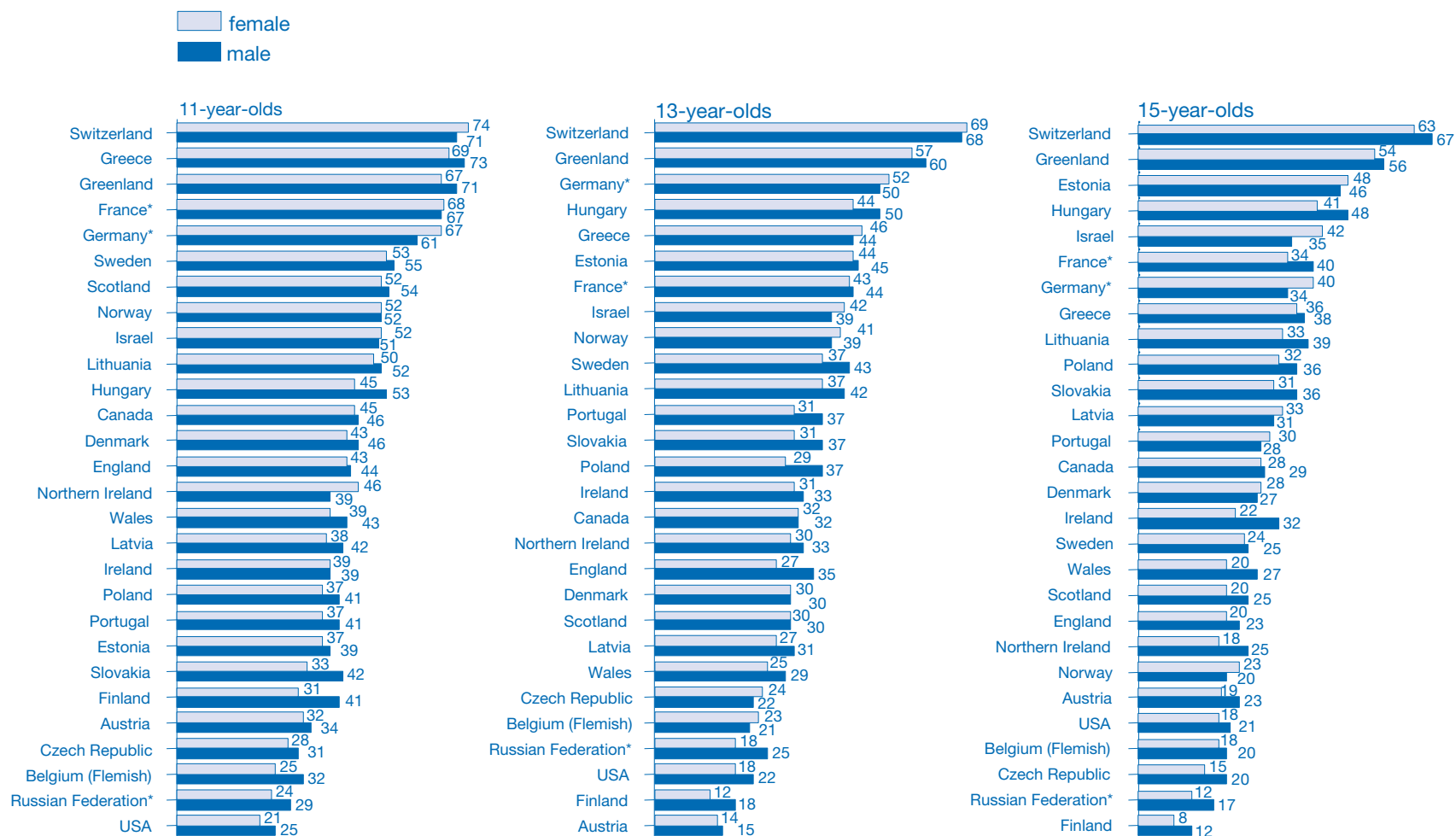
* France, Germany and Russia are represented only by regions

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 (%)

female
male

11-year-olds

Country	female	male
Israel	32	41
Portugal	35	39
Latvia	28	38
Slovakia	30	35
Wales	28	35
USA	27	31
Lithuania	22	33
France*	24	31
England	21	34
Greenland	27	28
Northern Ireland	24	30
Ireland	24	30
Hungary	23	31
Canada	22	30
Belgium (Flemish)	18	31
Scotland	18	26
Russian Federation*	18	25
Czech Republic	20	21
Norway	15	25
Poland	17	20
Finland	10	23
Denmark	11	22
Greece	13	20
Estonia	14	18
Germany*	10	19
Sweden	9	14
Austria	8	14
Switzerland	7	11

13-year-olds

Country	female	male
Israel	42	46
Portugal	43	44
Northern Ireland	34	44
USA	33	39
Belgium (Flemish)	32	38
Ireland	30	39
Wales	33	36
Scotland	29	35
Slovakia	30	33
France*	26	35
Hungary	23	38
England	26	33
Greece	25	30
Canada	21	33
Lithuania	23	30
Greenland	25	27
Poland	22	29
Czech Republic	22	28
Russian Federation*	25	22
Latvia	21	26
Norway	17	28
Germany*	17	25
Finland	14	26
Estonia	14	23
Denmark	9	21
Austria	9	20
Switzerland	12	16
Sweden	11	13

15-year-olds

Country	female	male
Belgium (Flemish)	44	54
Israel	42	46
Portugal	34	44
Ireland	36	42
Northern Ireland	33	44
Hungary	35	39
Wales	35	36
Slovakia	34	36
France*	27	36
USA	27	35
Scotland	28	33
Poland	26	31
Greece	25	32
Norway	24	32
Lithuania	21	32
England	22	28
Latvia	22	28
Czech Republic	21	27
Germany*	20	28
Finland	19	28
Canada	20	27
Russian Federation*	21	23
Estonia	18	25
Sweden	13	20
Greenland	13	19
Switzerland	14	18
Austria	12	18
Denmark	8	18

* 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 as11-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 (%)

female
male

11-year-olds

Country	female	male
Portugal	78	83
Greenland	77	82
Greece	67	71
Slovakia	68	70
Canada	70	63
Israel	69	62
Germany*	68	61
Czech Republic	65	63
Switzerland	64	64
Poland	63	60
France*	61	58
Denmark	60	59
Northern Ireland	62	53
Ireland	58	48
Norway	54	51
Scotland	58	47
USA	54	51
Lithuania	52	49
England	51	49
Belgium (Flemish)	49	49
Austria	45	44
Sweden	48	41
Wales	44	44
Latvia	44	41
Hungary	37	39
Russian Federation*	36	35
Finland	34	35
Estonia	18	18

13-year-olds

Country	female	male
Portugal	71	65
Greenland	68	65
Slovakia	60	56
Switzerland	56	59
Israel	58	55
Canada	55	54
Norway	56	51
Germany*	51	48
Czech Republic	49	48
Poland	52	45
Denmark	47	50
Greece	47	50
USA	46	45
France*	45	45
Ireland	48	38
Northern Ireland	48	35
Lithuania	37	41
Russian Federation*	38	40
Scotland	42	33
Belgium (Flemish)	36	36
Sweden	35	37
England	35	35
Wales	35	35
Hungary	34	34
Latvia	30	31
Austria	30	27
Finland	21	23
Estonia	14	14

15-year-olds

Country	female	male
Greenland	60	65
Switzerland	57	60
Portugal	58	56
Denmark	55	52
Israel	53	47
Slovakia	46	53
Germany*	48	44
Czech Republic	46	42
Canada	48	40
Russian Federation*	42	45
France*	41	43
USA	45	39
Norway	39	43
Poland	42	40
Northern Ireland	45	35
England	39	39
Wales	37	36
Greece	35	35
Sweden	38	31
Scotland	38	29
Ireland	33	34
Latvia	34	30
Lithuania	27	35
Austria	29	32
Belgium (Flemish)	30	28
Hungary	24	34
Finland	15	19
Estonia	12	13

* 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	Strong	Strong	Strong	Strong	Strong	Strong
they get support from teachers when needed	Strong	Strong	Strong	Strong	Strong	Strong
they feel supported by other students	Strong	Strong	Medium	Strong	Strong	Strong
expectations of teachers and parents are high	None	None	Medium	Medium	Medium	Medium

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 (%)

Legend: female, male

11-year-olds

Country	female	male
Portugal	86	87
Denmark	82	84
Sweden	82	82
Switzerland	75	79
Ireland	80	71
Austria	74	70
Hungary	72	72
Germany*	73	67
Greece	68	71
Israel	68	61
Belgium (Flemish)	67	65
Northern Ireland	70	59
Norway	63	63
Scotland	64	59
Estonia	61	60
France*	59	60
England	62	55
Poland	59	58
Greenland	48	65
Slovakia	52	61
Wales	58	51
Russian Federation*	55	53
Canada	55	51
Latvia	52	53
Lithuania	45	48
USA	40	41
Czech Republic	37	40

13-year-olds

Country	female	male
Portugal	87	88
Denmark	76	81
Sweden	77	79
Switzerland	75	74
Ireland	77	55
Germany*	66	61
Austria	64	60
Hungary	65	59
Israel	65	56
Norway	63	58
Belgium (Flemish)	62	56
France*	56	59
Northern Ireland	63	49
Estonia	57	53
Greenland	51	58
Slovakia	52	56
Scotland	51	46
Wales	51	45
Greece	45	51
Poland	47	49
Canada	50	42
England	48	43
Russian Federation*	44	41
Latvia	43	40
Lithuania	35	42
USA	39	34
Czech Republic	34	32

15-year-olds

Country	female	male
Portugal	89	90
Denmark	77	79
Switzerland	72	73
Sweden	71	70
Austria	72	65
Ireland	75	52
Israel	65	61
Norway	63	61
Belgium (Flemish)	59	54
Hungary	58	53
Greenland	53	57
Latvia	56	54
France*	52	57
Germany*	57	51
Northern Ireland	58	47
Poland	54	47
Estonia	47	53
Slovakia	53	47
Canada	51	44
Russian Federation*	46	46
Greece	45	46
England	48	40
Scotland	44	40
Wales	42	39
USA	39	35
Lithuania	30	36
Czech Republic	30	29

* 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	None	None	Medium	Medium	Medium	Medium
they are not involved in setting rules at school	None	None	Weak	Medium	Weak	Medium
they do not feel supported by teachers	None	None	Weak	Weak	Weak	Weak
they do not feel supported by other students	None	None	None	None	None	None
expectations by parents and teachers are high	None	None	None	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	None	Weak	Medium	Weak	Medium
Students feel healthier if:						
they are satisfied with their school	None	Medium	Weak	Medium	None	Medium
they are involved in setting rules at school	None	Weak	None	Weak	None	Weak
they feel supported by teachers	None	Weak	None	Medium	None	Weak
they feel supported by other students	Medium	Medium	Medium	Medium	Medium	Weak
expectations by parents and teachers are low	None	None	None	None	None	Weak
Students report more physical activity if:						
they are satisfied with their school	None	None	None	None	None	None
they are involved in setting rules at school	None	None	None	None	None	None
they feel supported by teachers	None	None	None	None	None	None
they feel supported by other students	Medium	None	Weak	Weak	None	None
expectations by parents and teachers are low	None	None	None	None	None	None

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 (%)

☐ female
■ male

11-year-olds

Country	female	male
Greece	84	91
Portugal	55	65
Greenland	54	64
Lithuania	50	59
Israel	49	55
Russian Federation	48	48
Slovakia	38	50
Latvia	35	47
Germany*	30	37
Czech Republic	29	36
USA	32	33
Belgium (Flemish)	29	35
England	25	38
France*	27	35
Poland	25	36
Denmark	22	33
Sweden	22	32
Wales	20	34
Hungary	24	30
Estonia	24	28
Canada	22	26
Austria	21	25
Norway	17	27
Scotland	19	25
Northern Ireland	14	29
Ireland	14	23
Switzerland	15	18
Finland	11	17

13-year-olds

Country	female	male
Greece	71	76
Portugal	53	66
Israel	50	57
Lithuania	48	57
Russian Federation*	49	54
Greenland	51	51
Latvia	42	51
Slovakia	41	45
USA	37	40
Belgium (Flemish)	36	38
England	31	41
Czech Republic	31	38
Poland	32	37
Northern Ireland	26	39
Ireland	27	37
Estonia	24	40
Wales	28	34
Germany*	27	35
Sweden	28	34
Canada	28	34
France*	28	34
Scotland	26	33
Hungary	24	35
Denmark	22	35
Norway	22	33
Austria	25	30
Switzerland	24	26
Finland	16	27

15-year-olds

Country	female	male
Greece	67	74
Israel	54	65
Russian Federation*	52	56
Lithuania	49	58
Portugal	49	58
Greenland	46	53
Latvia	43	48
England	40	47
Wales	40	42
Northern Ireland	35	45
Poland	37	42
Belgium (Flemish)	32	45
USA	36	41
Germany*	34	40
Ireland	32	42
Slovakia	33	41
Canada	36	37
France*	34	38
Scotland	33	39
Sweden	27	44
Hungary	29	41
Estonia	30	39
Norway	30	38
Czech Republic	29	34
Denmark	23	33
Switzerland	24	26
Austria	22	26
Finland	19	29

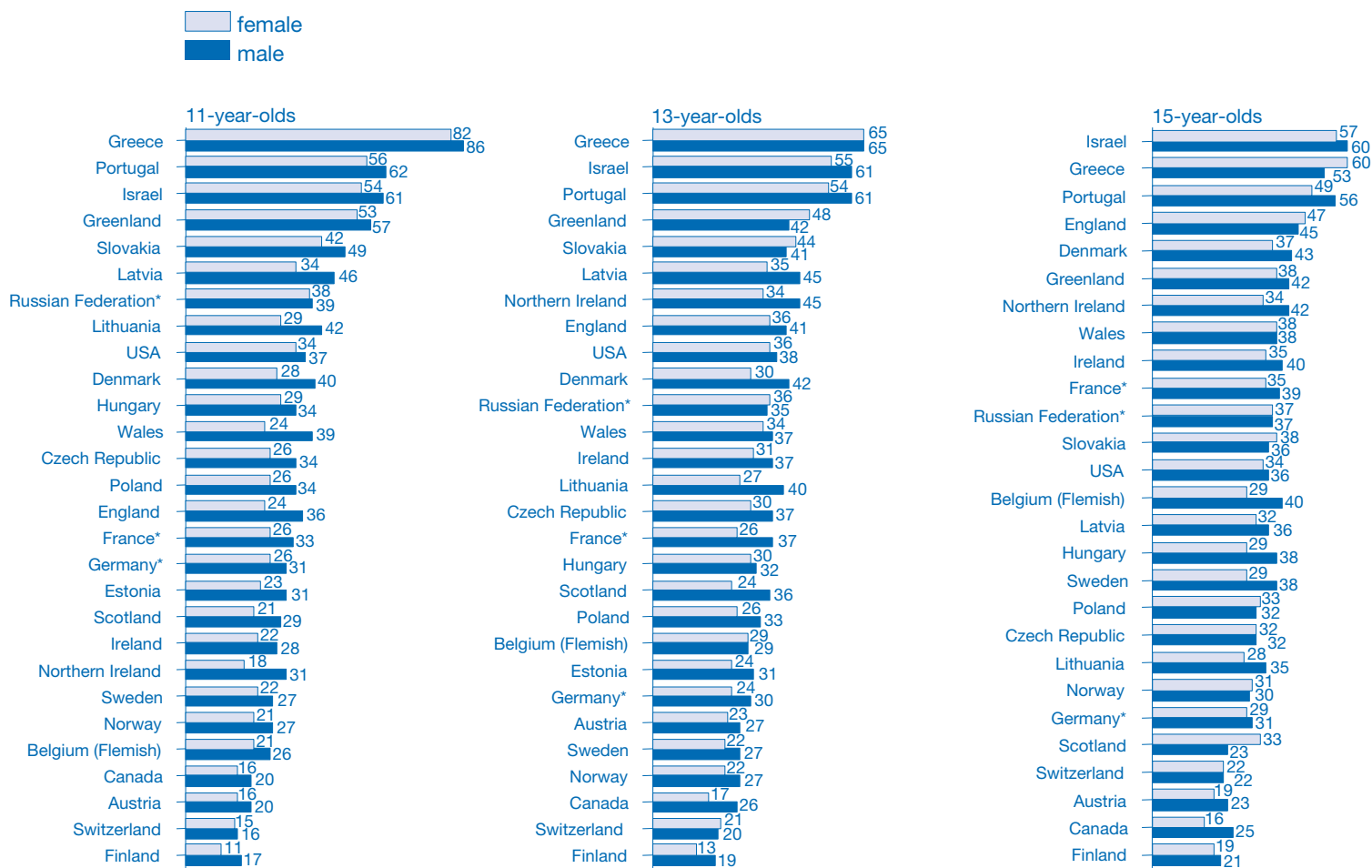* France, Germany and Russia are represented only by regions

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 (%)

□ female
■ male

11-year-olds

Country	female	male
Greece	82	86
Portugal	56	62
Israel	54	61
Greenland	53	57
Slovakia	42	49
Latvia	34	46
Russian Federation*	38	39
Lithuania	29	42
USA	34	37
Denmark	28	40
Hungary	29	34
Wales	24	39
Czech Republic	26	34
Poland	26	34
England	24	36
France*	26	33
Germany*	26	31
Estonia	23	31
Scotland	21	29
Ireland	22	28
Northern Ireland	18	31
Sweden	22	27
Norway	21	27
Belgium (Flemish)	21	26
Canada	16	20
Austria	16	20
Switzerland	15	16
Finland	11	17

13-year-olds

Country	female	male
Greece	65	65
Israel	55	61
Portugal	54	61
Greenland	48	42
Slovakia	44	41
Latvia	35	45
Northern Ireland	34	45
England	36	41
USA	36	38
Denmark	30	42
Russian Federation*	36	35
Wales	34	37
Ireland	31	37
Lithuania	27	40
Czech Republic	30	37
France*	26	37
Hungary	30	32
Scotland	24	36
Poland	26	33
Belgium (Flemish)	29	29
Estonia	24	31
Germany*	24	30
Austria	23	27
Sweden	22	27
Norway	22	27
Canada	17	26
Switzerland	21	20
Finland	13	19

15-year-olds

Country	female	male
Israel	57	60
Greece	60	53
Portugal	49	56
England	47	45
Denmark	37	43
Greenland	38	42
Northern Ireland	34	42
Wales	38	38
Ireland	35	40
France*	35	39
Russian Federation*	37	37
Slovakia	38	36
USA	34	36
Belgium (Flemish)	29	40
Latvia	32	36
Hungary	29	38
Sweden	29	38
Poland	33	32
Czech Republic	32	32
Lithuania	28	35
Norway	31	30
Germany*	29	31
Scotland	33	23
Switzerland	22	22
Austria	19	23
Canada	16	25
Finland	19	21

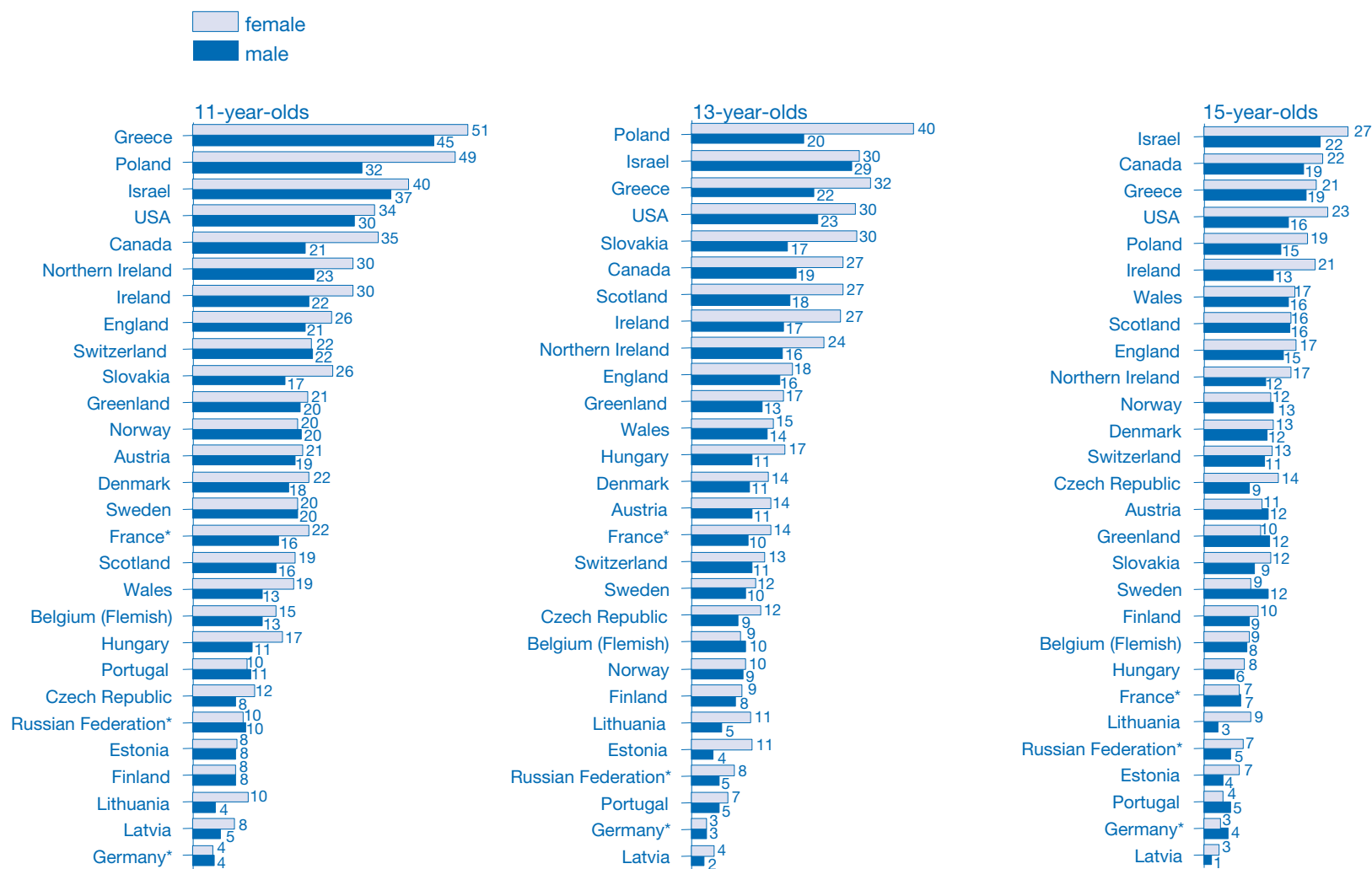* France, Germany and Russia are represented only by regions

Fig. 5.8. HBSC survey, 1997/1998: students who report feeling pressured a lot by their school work (%)
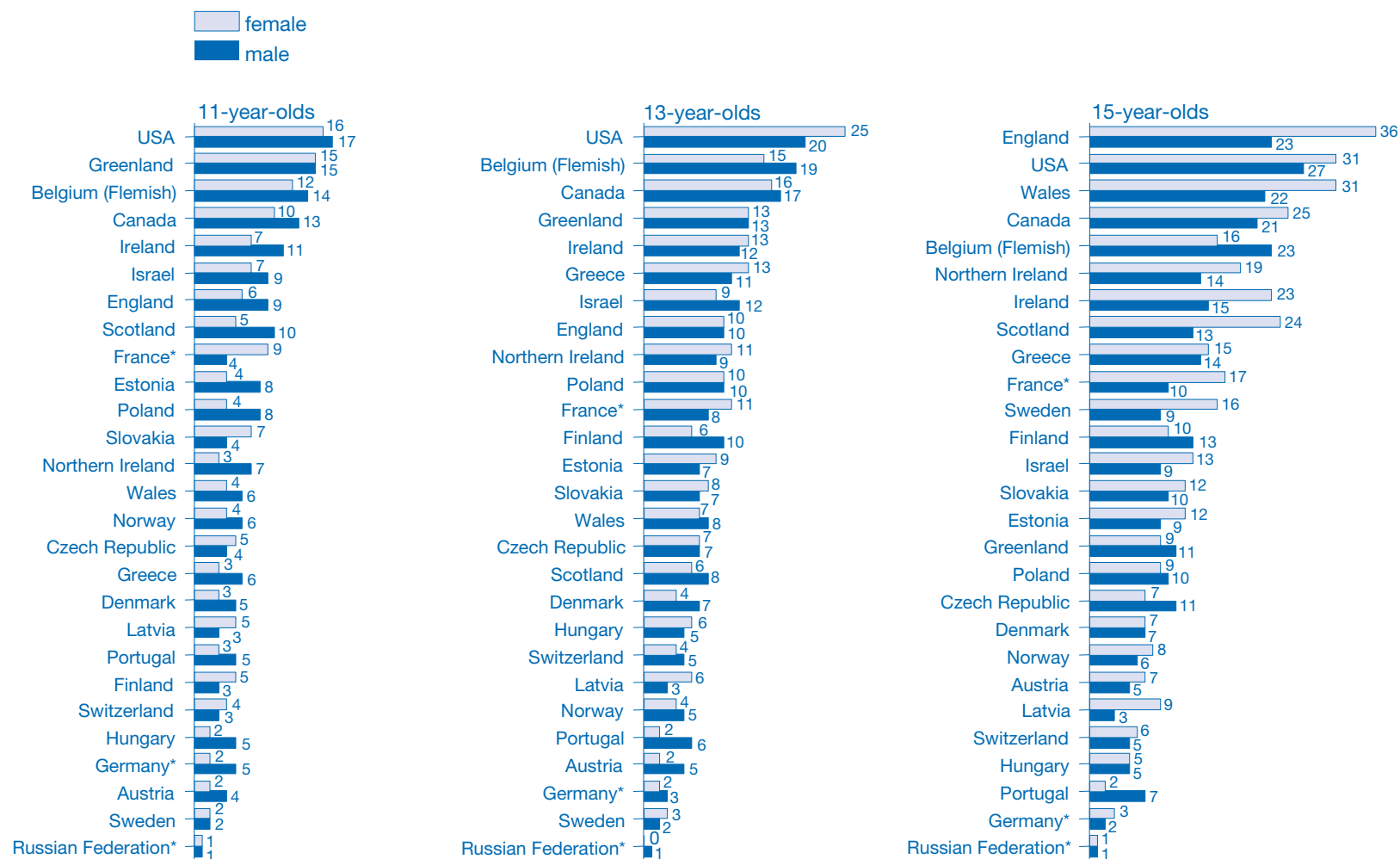
* France, Germany and Russia are represented only by regions

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

female
male

11-year-olds

Country	female	male
Greece	51	45
Poland	49	32
Israel	40	37
USA	34	30
Canada	35	21
Northern Ireland	30	23
Ireland	30	22
England	26	21
Switzerland	22	22
Slovakia	26	17
Greenland	21	20
Norway	20	20
Austria	21	19
Denmark	22	18
Sweden	20	20
France*	22	16
Scotland	19	16
Wales	19	13
Belgium (Flemish)	15	13
Hungary	17	11
Portugal	10	11
Czech Republic	12	8
Russian Federation*	10	10
Estonia	8	8
Finland	8	8
Lithuania	10	4
Latvia	8	5
Germany*	4	4

13-year-olds

Country	female	male
Poland	40	20
Israel	30	29
Greece	32	22
USA	30	23
Slovakia	30	17
Canada	27	19
Scotland	27	18
Ireland	27	17
Northern Ireland	24	16
England	18	16
Greenland	17	13
Wales	15	14
Hungary	17	11
Denmark	14	11
Austria	14	11
France*	14	10
Switzerland	13	11
Sweden	12	10
Czech Republic	12	9
Belgium (Flemish)	10	9
Norway	10	9
Finland	9	8
Lithuania	11	5
Estonia	11	4
Russian Federation*	8	5
Portugal	7	5
Germany*	3	3
Latvia	4	2

15-year-olds

Country	female	male
Israel	27	22
Canada	22	19
Greece	21	19
USA	23	16
Poland	19	15
Ireland	21	13
Wales	17	16
Scotland	16	16
England	17	15
Northern Ireland	17	12
Norway	12	13
Denmark	13	12
Switzerland	13	11
Czech Republic	14	9
Austria	11	12
Greenland	10	12
Slovakia	12	9
Sweden	9	12
Finland	10	9
Belgium (Flemish)	9	8
Hungary	8	6
France*	7	7
Lithuania	9	3
Russian Federation*	7	5
Estonia	7	4
Portugal	4	5
Germany*	3	4
Latvia	3	1

* 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 categories[2]. 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.

[2] *The full question read: "What are your parents' jobs? Please describe exactly what they do, for example, shop assistant, farm worker, lorry driver, dentist, hairdresser, teacher. You can write 'don't know', 'has no paid job at the moment' or 'unemployed'". Answers ranged from 1 = high socioeconomic status to 5 = low socioeconomic status and 6 = economically inactive.*

Table 6.1. HBSC 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. HBSC 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			weak		weak		weak	weak	
Denmark	weak		medium			weak	weak	medium	weak
Germany	weak		weak	weak					weak
Hungary			medium	medium	medium	medium	weak	medium	weak
Latvia		# (weak)	medium	medium	medium	medium		weak	weak
Norway					weak	medium			
Portugal	# (weak)	# (weak)	medium	weak	medium	medium	weak	weak	weak
Russian Federation	# (weak)	# (weak)	weak	strong	medium	medium	medium		
United Kingdom Scotland		# (weak)	weak	weak					
Wales		# (weak)	medium	weak	medium	medium	weak	weak	weak
United States			weak	weak		medium	weak		weak

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					weak				weak
Denmark		# (weak)	medium			weak	weak	weak	weak
Germany	weak								
Hungary	medium	weak		weak	weak	weak			
Latvia			weak		weak				# (weak)
Norway				weak			weak		
Portugal					medium	weak		weak	medium
Russian Federation		# (weak)	weak	medium	medium		weak		
United Kingdom Scotland	weak			strong			weak		
Wales			medium	medium	weak				weak
United States				weak				weak	medium

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 bed-room 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 (%)

female
male

11-year-olds

Country	female	male
Northern Ireland	89	93
Austria	83	89
Scotland	82	89
Estonia	82	89
Ireland	82	87
Wales	82	87
Greece	75	88
Finland	74	86
Czech Republic	77	83
Germany*	74	83
Portugal	71	87
England	73	78
Norway	69	76
Russian Federation*	69	77
Switzerland	61	86
Israel	61	84
Denmark	65	78
Belgium (Flemish)	59	79
USA	65	74
Poland	64	74
Hungary	63	74
Sweden	59	77
France*	54	80
Canada	57	70
Lithuania	55	72
Latvia	54	73
Greenland	46	58

13-year-olds

Country	female	male
Northern Ireland	83	90
Austria	79	92
Estonia	82	88
Ireland	78	87
Scotland	75	90
Germany*	74	86
Wales	71	89
Czech Republic	75	82
Greece	64	87
Norway	70	80
Finland	66	83
Portugal	62	87
Switzerland	65	83
Denmark	63	80
England	63	82
Sweden	62	77
Poland	60	78
USA	62	75
Israel	57	80
Belgium (Flemish)	53	78
France*	53	80
Russian Federation*	51	78
Hungary	57	72
Canada	55	73
Lithuania	41	74
Latvia	43	71
Greenland	46	64

15-year-olds

Country	female	male
Northern Ireland	63	90
Austria	65	87
Germany*	66	83
Czech Republic	66	80
Scotland	61	85
Estonia	62	84
Finland	64	79
Ireland	59	81
Switzerland	57	81
Wales	56	82
Norway	65	71
Sweden	55	71
Portugal	54	80
England	50	79
Canada	54	75
Russian Federation*	50	77
USA	54	74
Denmark	56	69
Belgium (Flemish)	50	72
Poland	49	71
Greece	45	80
Israel	48	76
France*	46	72
Lithuania	42	77
Hungary	45	67
Latvia	43	71
Greenland	37	60

* 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 co-efficient 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.
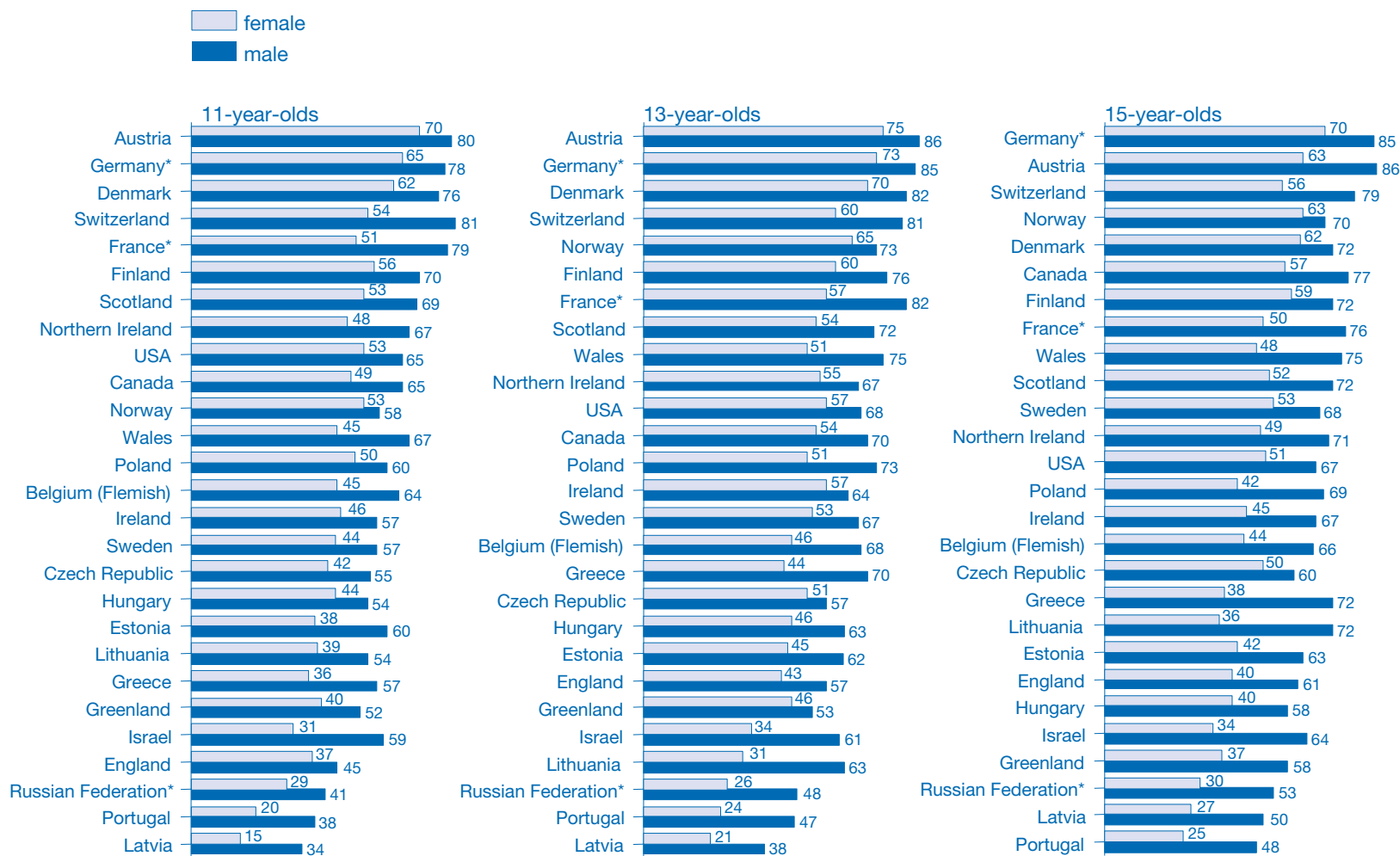
Exercise

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				Medium		
be healthier	Medium		Medium		Strong	Medium
have a higher quality of life			Medium	Medium	Medium	Medium
watch television			Medium	Medium		Medium
play computer games	Medium		Medium	Medium	Medium	Medium
make friends easily	Medium		Medium	Medium	Medium	Medium
spend time with friends after school	Medium	Medium	Medium	Medium	Medium	
feel confident	Medium		Medium	Medium	Medium	Medium
have a family car	Medium		Medium	Medium	Medium	Medium
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 (%)

☐ female
■ male

11-year-olds

Country	female	male
Slovakia	45	53
Israel	47	47
Lithuania	41	45
Poland	29	45
Greenland	33	37
USA	34	36
Latvia	30	41
Estonia	30	34
Russian Federation*	31	31
Wales	32	31
Hungary	26	35
Czech Republic	28	30
Scotland	27	30
Portugal	26	28
Canada	23	31
Northern Ireland	25	27
Greece	25	28
Finland	25	25
Ireland	21	28
England	20	24
Belgium (Flemish)	18	22
Sweden	18	19
Denmark	14	21
Germany*	15	20
Norway	13	19
Austria	9	17
France*	12	15
Switzerland	9	11

13-year-olds

Country	female	male
Lithuania	48	56
Slovakia	48	52
Israel	45	45
Russian Federation*	39	43
Wales	44	
Estonia	38	39
Latvia	33	47
Poland	31	40
Greenland	33	35
Northern Ireland	32	34
England	31	31
Hungary	29	33
USA	28	33
Czech Republic	26	34
Portugal	28	32
Scotland	28	30
Greece	24	28
Finland	25	28
Canada	24	29
Sweden	23	28
Norway	21	26
Ireland	20	28
Denmark	23	25
Belgium (Flemish)	19	23
Germany*	22	22
Austria	20	25
France*	15	16
Switzerland	12	13

15-year-olds

Country	female	male
Lithuania	41	46
Slovakia	32	46
Israel	32	40
Wales	38	38
Estonia	31	39
Russian Federation*	33	36
Greenland	26	38
Poland	24	38
Czech Republic	24	34
England	28	29
Latvia	23	36
Scotland	26	27
Northern Ireland	23	28
Norway	22	28
Portugal	25	26
Greece	21	29
Sweden	19	25
Germany*	19	25
Hungary	20	26
USA	18	27
Canada	18	24
Austria	20	22
Denmark	19	22
Belgium (Flemish)	18	20
Ireland	16	19
Finland	15	21
Switzerland	16	18
France*	14	17

* 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.
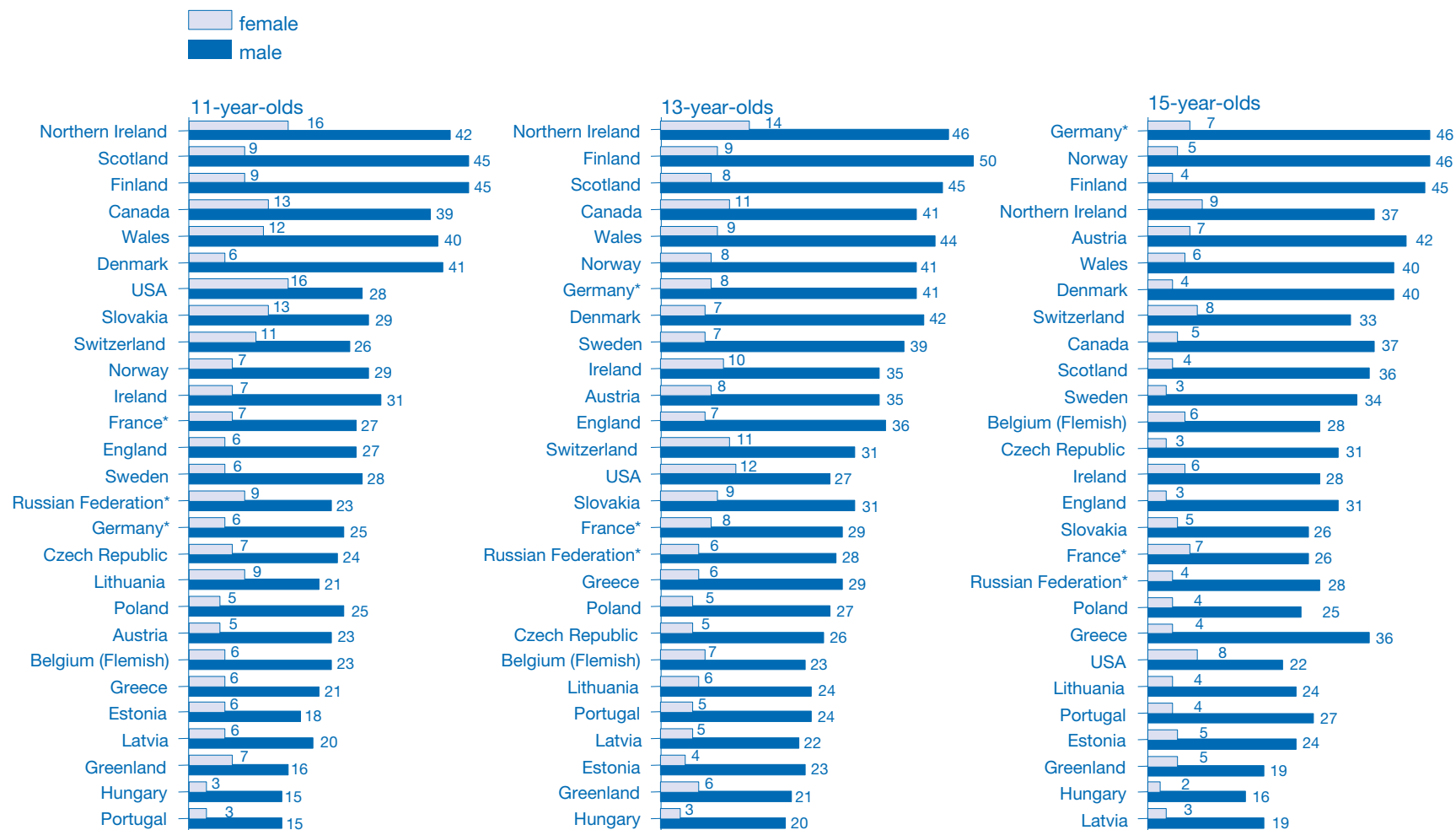
Table 7.2 shows that the strongest and most consistent associations with television watching, for both genders and all three age groups (but particularly 11- and 13-year-olds), are with the consumption of foodstuffs high in sugar and, to a lesser extent, fat. Sugared drinks, sweets and potato crisps 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 (%)

female
male

11-year-olds

Country	female	male
Northern Ireland	16	42
Scotland	9	45
Finland	9	45
Canada	13	39
Wales	12	40
Denmark	6	41
USA	16	28
Slovakia	13	29
Switzerland	11	26
Norway	7	29
Ireland	7	31
France*	7	27
England	6	27
Sweden	6	28
Russian Federation*	9	23
Germany*	6	25
Czech Republic	7	24
Lithuania	9	21
Poland	5	25
Austria	5	23
Belgium (Flemish)	6	23
Greece	6	21
Estonia	6	18
Latvia	6	20
Greenland	7	16
Hungary	3	15
Portugal	3	15

13-year-olds

Country	female	male
Northern Ireland	14	46
Finland	9	50
Scotland	8	45
Canada	11	41
Wales	9	44
Norway	8	41
Germany*	8	41
Denmark	7	42
Sweden	7	39
Ireland	10	35
Austria	8	35
England	7	36
Switzerland	11	31
USA	12	27
Slovakia	9	31
France*	8	29
Russian Federation*	6	28
Greece	6	29
Poland	5	27
Czech Republic	5	26
Belgium (Flemish)	7	23
Lithuania	6	24
Portugal	5	24
Latvia	5	22
Estonia	4	23
Greenland	6	21
Hungary	3	20

15-year-olds

Country	female	male
Germany*	7	46
Norway	5	46
Finland	4	45
Northern Ireland	9	37
Austria	7	42
Wales	6	40
Denmark	4	40
Switzerland	8	33
Canada	5	37
Scotland	4	36
Sweden	3	34
Belgium (Flemish)	6	28
Czech Republic	3	31
Ireland	6	28
England	3	31
Slovakia	5	26
France*	7	26
Russian Federation*	4	28
Poland	4	25
Greece	4	36
USA	8	22
Lithuania	4	24
Portugal	4	27
Estonia	5	24
Greenland	5	19
Hungary	2	16
Latvia	3	19

* 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	Medium	Medium	None	None	None	None
think school is boring	Medium	Medium	Medium	Medium	None	None
have been drunk	Medium	Medium	Medium	Medium	None	None
consume soft drinks	Strong	Strong	Strong	Strong	Medium	Medium
consume sweets	Strong	Strong	Strong	Medium	Medium	Medium
consume potato crisps	Medium	Medium	Medium	Medium	Medium	None
exercise regularly	None	None	None	Medium	Medium	Medium
play computer games	Medium	Medium	Medium	Medium	None	None

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	Medium	None	None	None	None	None
think school is boring	Medium	Medium	None	None	None	None
consume soft drinks	Medium	Medium	Medium	None	None	None
consume sweets	Medium	None	Medium	None	None	None
consume potato crisps	Medium	None	Medium	None	None	None
exercise regularly	Medium	None	None	None	None	None
watch television	Medium	Medium	Medium	None	None	None
have a family car	Medium	Medium	Medium	Medium	Medium	Medium

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 (%)

female
male

11-year-olds

Country	female	male
Portugal	94	92
Poland	87	85
Greece	85	87
Czech Republic	89	82
Hungary	84	81
Northern Ireland	85	73
Ireland	82	75
Slovakia	80	77
Sweden	79	70
Germany*	76	71
Israel	75	71
Austria	78	69
Canada	76	69
Scotland	75	69
Russian Federation*	72	65
Lithuania	67	66
England	70	63
Estonia	62	67
Denmark	70	59
Latvia	64	65
USA	67	61
Norway	63	59
Finland	62	58
Switzerland	60	58
Wales	62	55
France*	55	58
Belgium (Flemish)	54	46
Greenland	41	31

13-year-olds

Country	female	male
Portugal	93	92
Poland	85	82
Czech Republic	85	81
Greece	83	81
Hungary	82	80
Slovakia	81	76
Israel	78	74
Ireland	77	70
Northern Ireland	76	70
Sweden	75	67
Austria	77	63
Estonia	69	70
Russian Federation*	69	65
Germany*	69	64
Canada	69	64
Scotland	70	61
Denmark	66	59
Lithuania	62	62
Latvia	56	68
England	63	58
USA	61	60
Switzerland	60	52
France*	53	57
Wales	58	50
Finland	58	50
Norway	54	46
Belgium (Flemish)	48	46
Greenland	38	31

15-year-olds

Country	female	male
Portugal	95	91
Czech Republic	82	77
Poland	79	78
Hungary	79	76
Greece	76	75
Israel	78	73
Slovakia	78	70
Ireland	75	66
Northern Ireland	71	63
Russian Federation*	67	66
Sweden	69	58
Canada	65	61
Austria	69	55
Estonia	65	56
Latvia	59	59
Lithuania	58	57
Germany*	63	51
Scotland	60	54
France*	59	53
USA	58	53
England	57	52
Denmark	59	48
Switzerland	59	44
Finland	56	43
Wales	55	39
Belgium (Flemish)	53	39
Norway	50	35
Greenland	36	29

* 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.
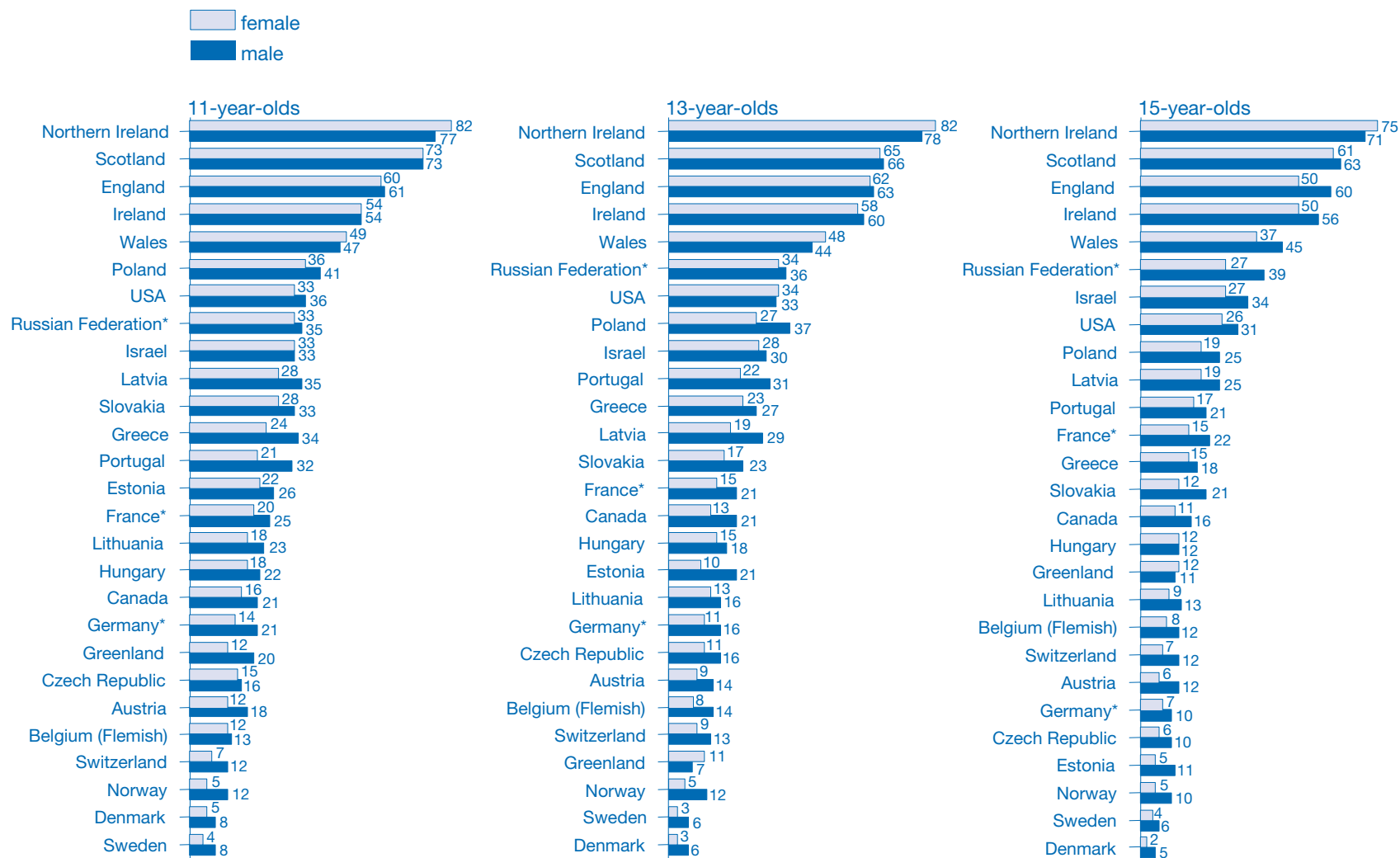
Candy and chocolate
Fig. 8.4 gives an overview of the percentages of students who eat candy or chocolate bars at least once a day. Levels are particularly high in Ireland, Northern Ireland and Scotland and lowest in Finland, Norway and Sweden. Differences between boys and girls are rather small in most 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 (%)

female
male

11-year-olds

Country	female	male
Northern Ireland	82	77
Scotland	73	73
England	60	61
Ireland	54	54
Wales	49	47
Poland	36	41
USA	33	36
Russian Federation*	33	35
Israel	33	33
Latvia	28	35
Slovakia	28	33
Greece	24	34
Portugal	21	32
Estonia	22	26
France*	20	25
Lithuania	18	23
Hungary	18	22
Canada	16	21
Germany*	14	21
Greenland	12	20
Czech Republic	15	16
Austria	12	18
Belgium (Flemish)	12	13
Switzerland	7	12
Norway	5	12
Denmark	5	8
Sweden	4	8

13-year-olds

Country	female	male
Northern Ireland	82	78
Scotland	65	66
England	62	63
Ireland	58	60
Wales	48	44
Russian Federation*	34	36
USA	34	33
Poland	27	37
Israel	28	30
Portugal	22	31
Greece	23	27
Latvia	19	29
Slovakia	17	23
France*	15	21
Canada	13	21
Hungary	15	18
Estonia	10	21
Lithuania	13	16
Germany*	11	16
Czech Republic	11	16
Austria	9	14
Belgium (Flemish)	8	14
Switzerland	9	13
Greenland	11	7
Norway	5	12
Sweden	3	6
Denmark	3	6

15-year-olds

Country	female	male
Northern Ireland	75	71
Scotland	61	63
England	50	60
Ireland	50	56
Wales	37	45
Russian Federation*	27	39
Israel	27	34
USA	26	31
Poland	19	25
Latvia	19	25
Portugal	17	21
France*	15	22
Greece	15	18
Slovakia	12	21
Canada	11	16
Hungary	12	12
Greenland	12	11
Lithuania	9	13
Belgium (Flemish)	8	12
Switzerland	7	12
Austria	6	12
Germany*	7	10
Czech Republic	6	10
Estonia	5	11
Norway	5	10
Sweden	4	6
Denmark	2	5

* 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 (≥70%) in countries such as Finland, Denmark, Northern Ireland, Canada, England and Norway, while the consumption of full-fat milk is particularly high (≥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 (%)
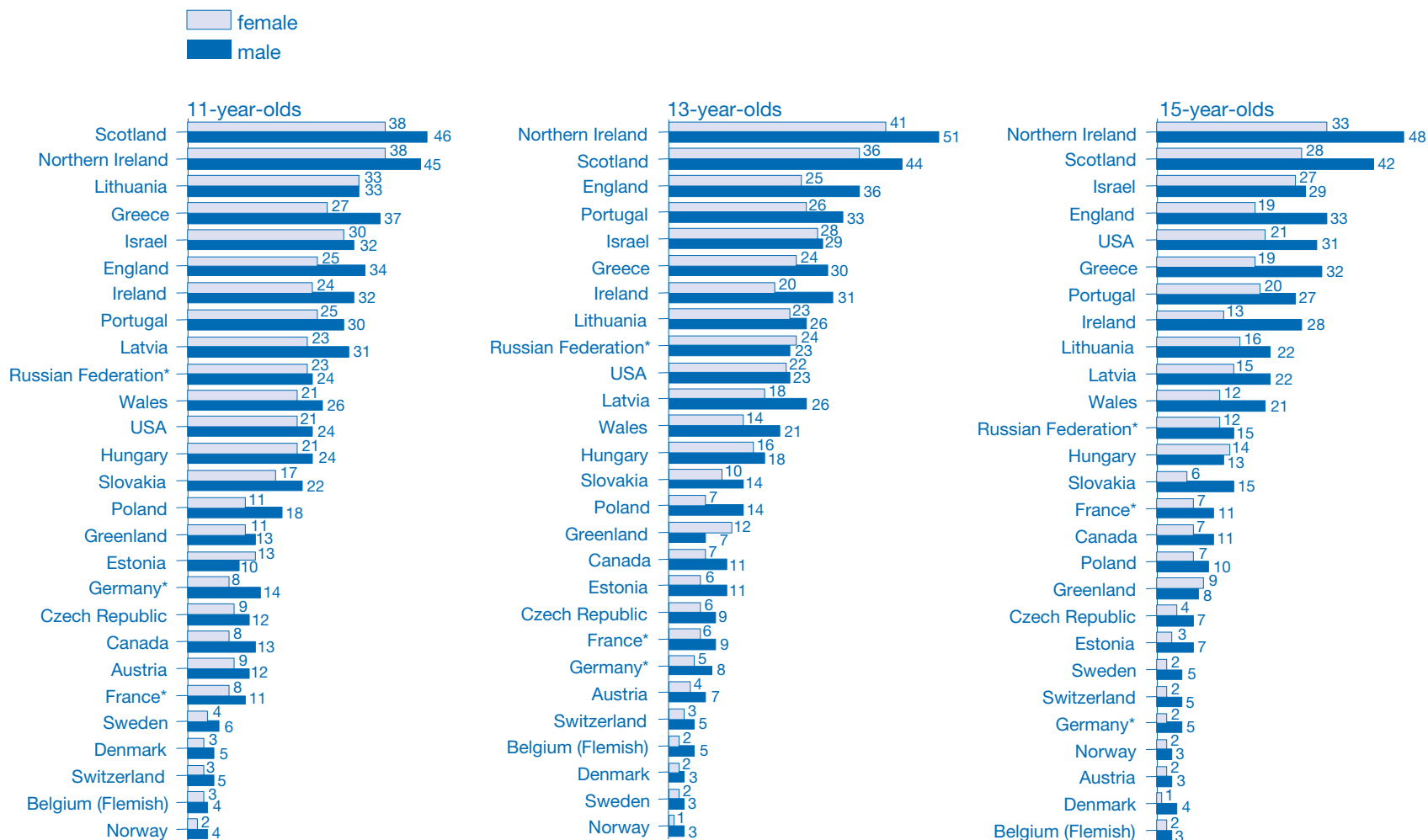
* France, Germany and Russia are represented only by regions

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.
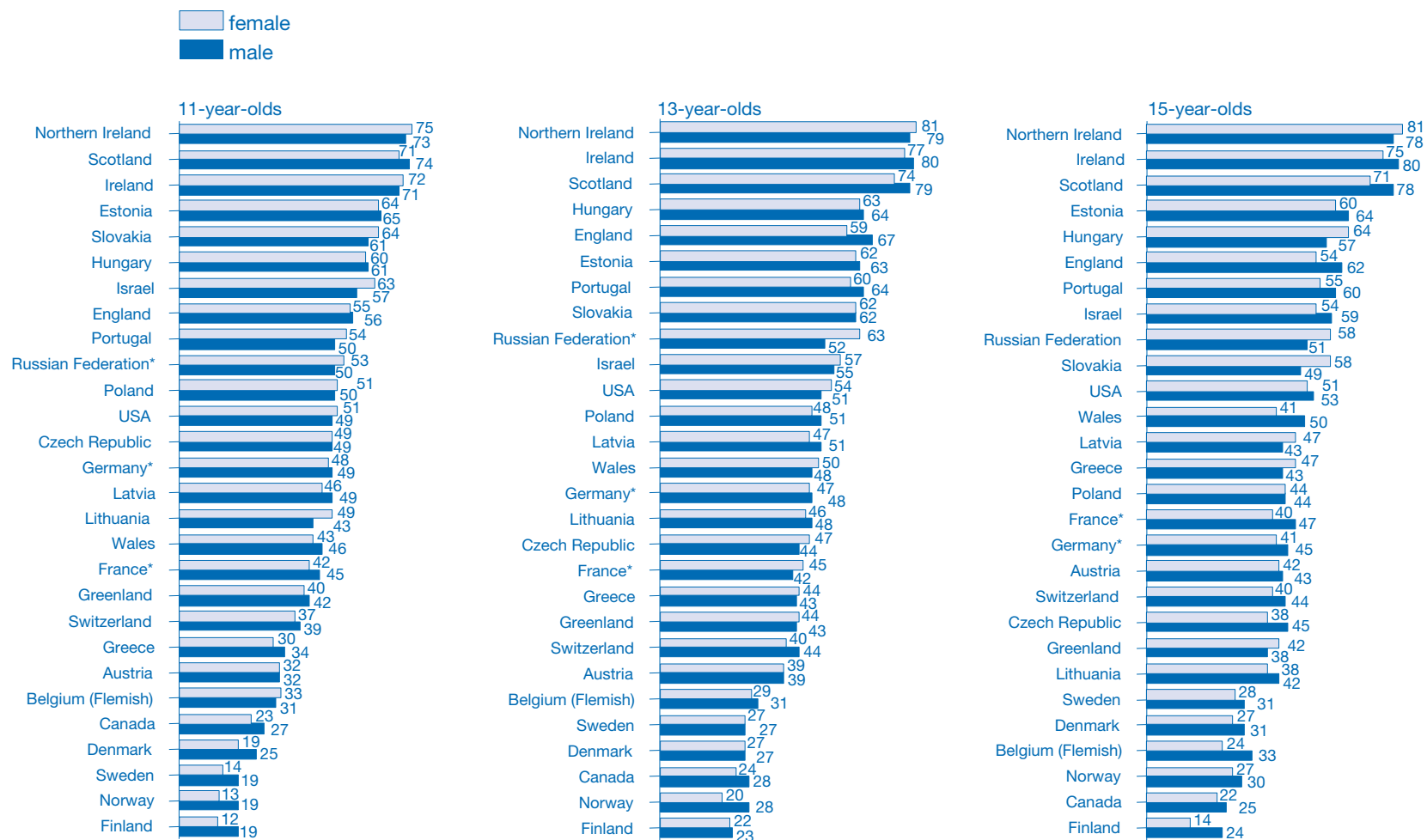
Few boys of any age report actual dieting, with the highest percentages among 11-year-olds. Levels for boys over 10% are found in only six countries, the highest being 14% in Austria. By age 13, less than 10% of boys claim to be on a diet in all but three countries: Austria, Israel and the United States. 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.

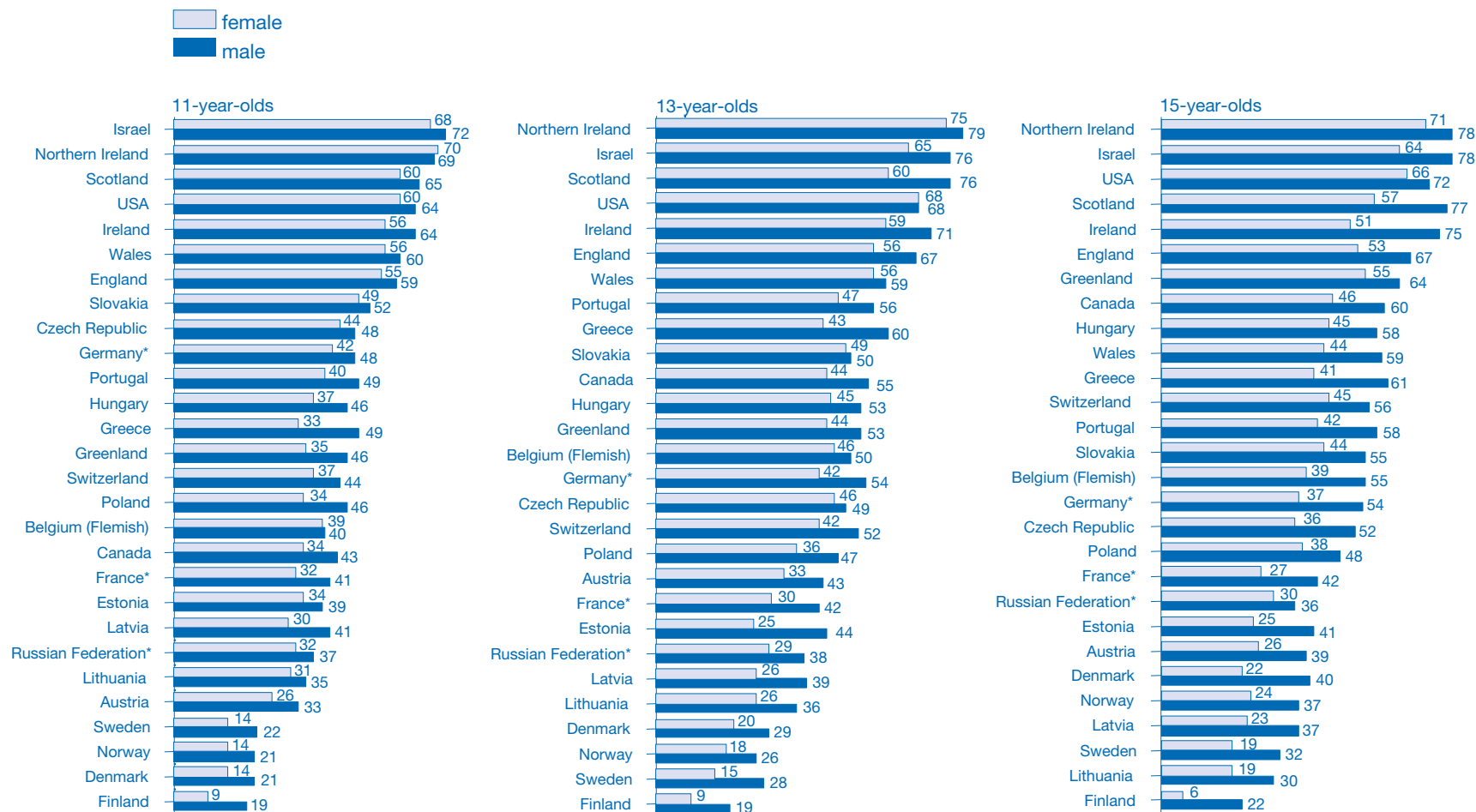# Fig. 8.4. HBSC survey, 1997/1998: students who report eating sweets or chocolate every day (%)

female
male

11-year-olds

Country	female	male
Northern Ireland	75	73
Scotland	71	74
Ireland	72	71
Estonia	64	65
Slovakia	64	61
Hungary	60	61
Israel	61	63
England	57	55
Portugal	56	54
Russian Federation*	50	53
Poland	50	51
USA	50	51
Czech Republic	49	49
Germany*	49	48
Latvia	49	46
Lithuania	49	49
Wales	43	43
France*	46	42
Greenland	45	40
Switzerland	42	37
Greece	39	30
Austria	34	32
Belgium (Flemish)	32	33
Canada	31	23
Denmark	27	19
Sweden	25	14
Norway	19	13
Finland	19	12

13-year-olds

Country	female	male
Northern Ireland	81	79
Ireland	77	80
Scotland	74	79
Hungary	63	64
England	59	67
Estonia	62	63
Portugal	60	64
Slovakia	62	62
Russian Federation*	63	52
Israel	57	55
USA	54	51
Poland	48	51
Latvia	47	51
Wales	50	48
Germany*	47	48
Lithuania	46	48
Czech Republic	47	44
France*	45	42
Greece	44	43
Greenland	44	43
Switzerland	40	44
Austria	39	39
Belgium (Flemish)	29	31
Sweden	27	27
Denmark	27	27
Canada	24	28
Norway	20	28
Finland	22	23

15-year-olds

Country	female	male
Northern Ireland	81	78
Ireland	75	80
Scotland	71	78
Estonia	60	64
Hungary	64	57
England	54	62
Portugal	55	60
Israel	54	59
Russian Federation	58	51
Slovakia	58	49
USA	51	53
Wales	41	50
Latvia	47	43
Greece	47	43
Poland	44	44
France*	40	47
Germany*	41	45
Austria	42	43
Switzerland	40	44
Czech Republic	38	45
Greenland	42	38
Lithuania	38	42
Sweden	28	31
Denmark	27	31
Belgium (Flemish)	24	33
Norway	27	30
Canada	22	25
Finland	14	24

* 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 (%)

female
male

11-year-olds

Country	male	female
Sweden	82	88
Denmark	80	85
Switzerland	78	84
Germany*	69	82
USA	65	75
England	62	76
Norway	65	72
Czech Republic	60	73
Austria	58	73
Northern Ireland	55	75
Russian Federation*	56	72
Portugal	54	73
Wales	56	71
Israel	57	69
France*	54	69
Scotland	57	66
Greenland	53	70
Poland	52	70
Canada	55	67
Hungary	49	64
Slovakia	47	66
Estonia	46	65
Latvia	47	63
Ireland	47	61
Greece	42	53
Lithuania	36	47
Belgium (Flemish)	33	44
Finland	28	42

13-year-olds

Country	male	female
Sweden	81	90
Denmark	79	88
Switzerland	77	84
USA	66	81
Germany*	66	79
England	60	82
France*	60	76
Norway	62	74
Wales	56	76
Canada	56	74
Poland	55	74
Scotland	56	73
Austria	55	74
Israel	54	73
Czech Republic	54	73
Portugal	51	76
Russian Federation*	57	70
Northern Ireland	50	76
Estonia	47	69
Slovakia	47	69
Greenland	44	71
Hungary	47	68
Ireland	44	67
Greece	36	53
Latvia	39	56
Belgium (Flemish)	35	55
Finland	28	50
Lithuania	27	47

15-year-olds

Country	male	female
Sweden	82	92
Denmark	78	88
Switzerland	73	89
Germany*	66	82
England	64	84
Norway	64	82
USA	63	82
Wales	60	82
Northern Ireland	56	84
Austria	61	79
Canada	59	80
Portugal	56	78
Scotland	56	78
Czech Republic	56	77
Hungary	55	78
France*	53	79
Poland	52	79
Russian Federation*	53	74
Israel	54	71
Slovakia	47	74
Greenland	52	69
Ireland	46	74
Estonia	48	65
Latvia	42	62
Belgium (Flemish)	42	64
Greece	35	61
Finland	31	53
Lithuania	33	53

* 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 (%)

female
male

11-year-olds

Country	female	male
USA	47	34
Czech Republic	50	29
Israel	39	27
Slovakia	41	25
Austria	36	29
Greece	37	27
Northern Ireland	36	28
Wales	37	26
Germany*	35	26
Hungary	36	25
Belgium (Flemish)	36	22
Finland	31	26
Scotland	34	23
England	31	25
France*	35	25
Poland	29	24
Denmark	29	23
Greenland	29	22
Lithuania	31	19
Portugal	30	20
Ireland	29	20
Canada	28	20
Latvia	31	16
Norway	26	20
Russian Federation*	27	17
Switzerland	25	19
Estonia	25	17
Sweden	21	18

13-year-olds

Country	female	male
USA	53	33
Israel	55	28
Northern Ireland	53	30
Austria	49	30
Czech Republic	50	27
Greece	47	30
Scotland	47	26
Germany*	44	28
Slovakia	52	20
Wales	50	22
France*	47	21
Denmark	42	23
Finland	41	24
Norway	43	22
England	39	25
Hungary	46	18
Ireland	37	26
Belgium (Flemish)	40	22
Canada	41	21
Portugal	39	22
Lithuania	39	19
Sweden	39	19
Latvia	39	15
Poland	37	17
Switzerland	34	19
Russian Federation*	37	14
Greenland	32	18
Estonia	32	16

15-year-olds

Country	female	male
USA	62	29
Czech Republic	66	22
Greece	56	29
Israel	57	27
Slovakia	54	18
Northern Ireland	55	26
Norway	56	21
Hungary	54	20
Scotland	51	22
Wales	53	20
Germany*	50	22
Austria	53	18
France*	52	19
Ireland	50	20
Sweden	51	19
England	49	20
Lithuania	57	11
Belgium (Flemish)	51	16
Denmark	47	20
Canada	45	18
Greenland	46	17
Portugal	44	18
Poland	47	14
Latvia	50	9
Finland	42	16
Switzerland	42	15
Russian Federation*	44	9
Estonia	42	9

* 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 heath 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 (%)

female
male

11-year-olds

Country	female	male
Israel	2	4
Greenland	2	2
Lithuania	0,3	1
Northern Ireland	1	1
France*	0,5	1
Poland	0,4	1
Germany*	0,1	1
Portugal	1	1
Scotland	2	1
England	1	1
Slovakia	0,3	1
USA	1	2
Canada	1	1
Wales	1	1
Latvia	0,1	2
Ireland	0,4	1
Czech Republic	0,2	1
	3	0
Hungary	1	1
Estonia	1	0
Finland	0,4	0,2
Greece	0,5	0,1
Belgium (Flemish)	0	1
Norway	0,1	1
Austria	0,1	0,3
Russian Federation*	0	0,4
Switzerland	0	0,5
Denmark	0,1	0,4
Sweden	0,3	0

13-year-olds

Country	female	male
Greenland	29	19
Northern Ireland	10	7
Germany*	9	9
Wales	12	6
Finland	8	7
Canada	8	8
Ireland	6	8
Scotland	8	5
England	8	7
Latvia	3	8
Belgium (Flemish)	4	6
France*	6	5
Norway	4	5
Russian Federation*	3	7
Hungary	3	6
USA	3	5
Czech Republic	3	6
Austria	3	5
Israel	3	6
Slovakia	2	4
Poland	2	3
Denmark	4	3
Lithuania	1	6
Portugal	2	3
Switzerland	4	3
Sweden	2	2
Estonia	1	4
Greece	2	3

15-year-olds

Country	female	male
Greenland	56	45
Germany*	25	22
Hungary	20	29
France*	25	20
Austria	26	20
Scotland	24	20
England	21	24
Finland	20	19
Northern Ireland	24	16
Norway	21	18
Belgium (Flemish)	20	21
Wales	23	18
Canada	21	17
Ireland	16	19
Poland	14	22
Denmark	21	15
Latvia	12	27
Russian Federation*	14	20
Switzerland	17	17
Slovakia	10	20
Greece	14	13
Czech Republic	11	16
Sweden	16	10
USA	12	13
Estonia	8	17
Israel	7	17
Portugal	10	13
Lithuania	6	15

* 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 convention 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 analysis (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 (%)

Legend: ☐ female ■ male

11-year-olds

Country	female	male
Greenland	6	3
Israel	2	7
Northern Ireland	2	3
France*	1	2
Poland	1	3
Germany*	1	2
Portugal	2	2
Ireland	2	2
Scotland	3	2
Latvia	0,3	4
England	1	3
USA	2	3
Wales	2	2
Canada	2	2
Norway	0,2	1
Estonia	1	1
Denmark	1	1
Switzerland	1	1
Greece	1	1
Slovakia	0,4	2
Hungary	1	2
Czech Republic	0,2	2
Finland	1	1
Austria	1	2
Russian Federation*	0,5	2
Lithuania	0,3	2
Belgium (Flemish)	0,4	2
Sweden	0,5	1

13-year-olds

Country	female	male
Greenland	41	29
Northern Ireland	15	12
Germany*	13	14
Ireland	12	14
England	15	11
Wales	18	8
Finland	14	10
Canada	13	12
Scotland	13	9
Latvia	7	15
France*	11	9
Russian Federation*	7	13
Austria	8	10
Belgium (Flemish)	8	10
USA	9	8
Hungary	6	12
Israel	6	12
Czech Republic	7	10
Norway	7	8
Switzerland	8	6
Denmark	8	6
Poland	4	8
Lithuania	2	10
Greece	5	5
Portugal	4	5
Slovakia	3	7
Sweden	5	4
Estonia	2	7

15-year-olds

Country	female	male
Greenland	63	52
Austria	36	30
Hungary	28	36
France*	31	28
Germany*	33	28
England	33	25
Belgium (Flemish)	28	28
Finland	29	25
Norway	28	23
Latvia	19	37
Ireland	25	25
Scotland	28	22
Switzerland	25	25
Wales	29	22
Northern Ireland	28	20
Poland	20	27
Denmark	28	20
Slovakia	18	28
Canada	26	21
Russian Federation*	22	24
Sweden	24	18
Czech Republic	18	22
USA	21	20
Greece	19	18
Israel	13	24
Estonia	12	24
Portugal	14	19
Lithuania	10	24

* 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	None	Medium	None	None	None	None
feel less happy	None	Medium	None	Medium	None	None
feel less healthy	None	Medium	None	None	Medium	Medium
have more difficulty talking to mother	None	Medium	None	Medium	None	Medium
have more difficulty talking to father	Medium	None	Medium	None	None	None
report being good-looking	None	None	None	None	None	None
report being fat	None	None	None	None	None	None
spend more time with friends after school	None	None	Medium	Medium	Medium	Medium
spend more evenings with friends	Medium	Medium	Medium	Strong	Medium	Strong
have more close friends	None	None	None	None	None	None
be truant more often	Medium	Medium	Medium	Medium	Medium	Medium
dislike school	Medium	Medium	Medium	Medium	Medium	Medium
feel pressured by school	Medium	Medium	Medium	None	None	None
have had an alcoholic drink	Strong	Medium	Strong	Strong	Strong	Strong
drink beer more frequently	Strong	Medium	Strong	Strong	Strong	Strong
be drunk more frequently	Medium	Medium	Strong	Strong	Strong	Strong

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 (%)
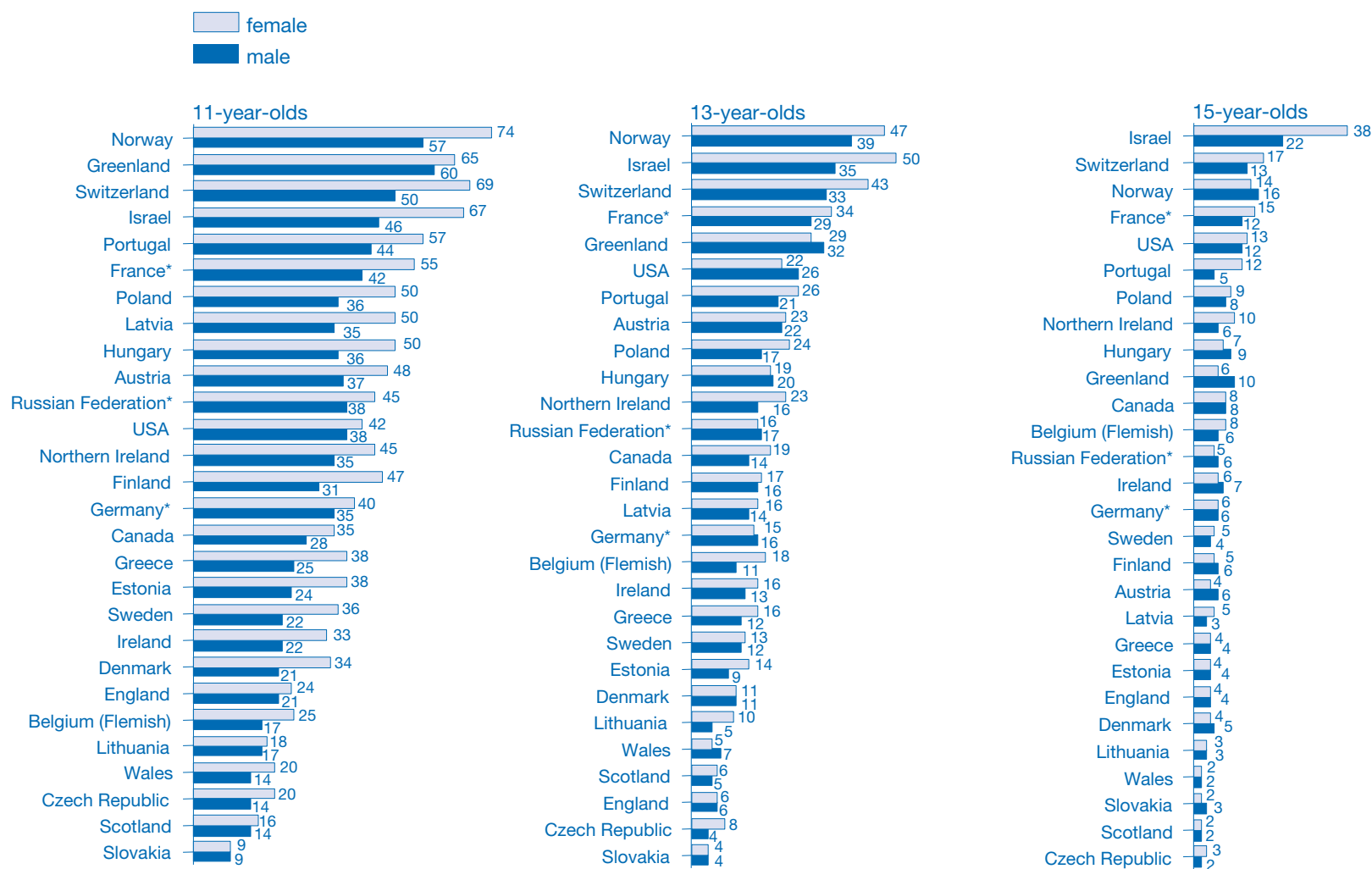
* France, Germany and Russia are represented only by regions

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			Medium	Medium		Medium
have more difficulty talking to mother						
have more difficulty talking to father						Medium
report being good-looking						
report being fat						
spend more time with friends after school			Medium	Medium	Medium	Medium
spend more evenings with friends	Medium		Medium	Medium	Strong	Strong
have more close friends						
be truant more often			Medium	Medium	Medium	Medium
dislike school			Medium	Medium	Medium	Medium
feel pressured by school						
have had an alcoholic drink	Medium	Medium	Medium	Medium	Medium	Medium
drink beer more frequently	Medium	Medium	Strong	Strong	Strong	Strong
be drunk more frequently	Medium	Medium	Strong	Strong	Strong	Strong

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 (%)

☐ female
■ male

11-year-olds

Country	female	male
Greece	8	20
Israel	6	18
England	9	14
Czech Republic	8	15
Slovakia	6	11
Wales	5	12
USA	7	8
Scotland	4	8
France*	3	6
Belgium (Flemish)	2	7
Russian Federation*	3	6
Lithuania	2	5
Ireland	1	7
Estonia	2	6
Northern Ireland	1	5
Denmark	2	4
Hungary	1	3
Poland	1	3
Austria	1	3
Portugal	1	4
Canada	2	3
Switzerland	0,5	4
Sweden	1	3
Latvia	0,4	2
Germany*	0,3	2
Finland	0,3	2
Norway	0,2	1
Greenland	0	1

13-year-olds

Country	female	male
Greece	16	27
Wales	16	24
England	16	22
Israel	9	20
Scotland	11	17
Czech Republic	9	16
Slovakia	9	14
Northern Ireland	6	14
Russian Federation*	9	11
Denmark	9	11
USA	11	10
France*	5	12
Belgium (Flemish)	6	11
Canada	6	10
Lithuania	4	10
Germany*	5	10
Ireland	6	8
Portugal	3	9
Latvia	4	9
Austria	4	8
Hungary	4	8
Poland	3	7
Finland	4	5
Sweden	4	6
Estonia	3	7
Greenland	6	3
Switzerland	3	5
Norway	3	4

15-year-olds

Country	female	male
Wales	36	53
Denmark	38	46
England	36	47
Greece	31	52
Scotland	33	37
Belgium (Flemish)	22	38
Austria	23	39
Northern Ireland	20	33
Czech Republic	19	32
Russian Federation*	24	28
Slovakia	16	32
Germany*	22	29
France*	15	31
Ireland	12	27
Hungary	11	29
Canada	17	22
Israel	10	26
USA	15	23
Latvia	12	28
Portugal	9	29
Poland	8	20
Estonia	10	21
Switzerland	9	19
Norway	12	16
Sweden	11	17
Greenland	10	13
Lithuania	9	16
Finland	8	11

* 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 (%)

□ female
■ male

11-year-olds

Country	female	male
Czech Republic	7	14
Greece	4	13
Israel	4	12
Slovakia	4	10
England	2	9
Wales	2	9
USA	5	5
Lithuania	2	5
Estonia	3	6
Russian Federation*	3	5
Belgium (Flemish)	1	5
Scotland	1	4
Sweden	2	4
Poland	0,4	3
Canada	1	2
Northern Ireland	0,5	4
France*	1	2
Ireland	0,4	3
Denmark	1	2
Hungary	0,5	2
Finland	0,1	1
Latvia	0,5	2
Austria	1	2
Switzerland	0	2
Germany*	0,1	2
Portugal	0,2	2
Norway	0,2	1
Greenland	0	0,5

13-year-olds

Country	female	male
Greece	11	19
Wales	9	20
Czech Republic	8	15
England	7	16
Israel	6	15
Northern Ireland	4	13
Russian Federation*	8	10
Slovakia	6	12
Denmark	7	8
Lithuania	3	11
Scotland	3	12
USA	8	7
Belgium (Flemish)	4	9
Germany*	3	6
Canada	3	8
Sweden	4	6
Latvia	3	8
Ireland	2	5
Portugal	3	6
Poland	3	6
Austria	3	6
France*	3	6
Finland	4	4
Estonia	2	6
Hungary	1	5
Greenland	5	2
Switzerland	1	4
Norway	2	2

15-year-olds

Country	female	male
Denmark	32	43
Wales	22	50
Greece	21	42
England	18	40
Belgium (Flemish)	16	33
Russian Federation*	23	27
Czech Republic	14	29
Northern Ireland	11	31
Germany*	17	26
Slovakia	10	27
Austria	10	33
Scotland	8	30
Ireland	6	24
Poland	8	20
Portugal	6	26
Canada	11	17
Latvia	6	26
France*	8	20
Israel	6	20
Estonia	8	19
Sweden	9	16
Greenland	10	13
Lithuania	8	16
USA	9	17
Hungary	3	23
Switzerland	7	16
Norway	9	14
Finland	7	10

* 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		Medium				
feel happier		Medium		Medium		
feel healthier		Medium				
have less difficulty talking to mother		Medium				
have less difficulty talking to father		Medium				Medium
report being good-looking		Medium				
happy with body size		Medium				
spend less time with friends after school				Medium		Medium
spend fewer evenings with friends			Medium	Medium	Medium	Medium
have fewer close friends						
be truant less often			Medium	Medium		
like school	Medium	Medium		Medium	Medium	Medium
not feel pressured by school		Medium				
never to have had a cigarette	Strong	Medium	Strong	Strong	Strong	Strong
smoke less often	Medium	Medium	Medium	Medium	Medium	Medium

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 (%)

☐ female
■ male

11-year-olds

Country	female	male
Slovakia	8	16
Wales	6	12
Scotland	4	10
England	3	9
Belgium (Flemish)	1	6
Czech Republic	2	6
Northern Ireland	2	6
Ireland	1	7
Denmark	3	6
Greenland	2	7
Israel	2	6
Lithuania	1	6
Greece	1	5
Austria	2	4
Portugal	1	4
USA	3	3
Latvia	0,4	4
Hungary	1	3
Poland	1	4
Russian Federation*	2	2
Finland	1	4
Estonia	1	2
Canada	2	3
Sweden	0,3	1
France*	0,4	1
Germany*	0,3	2
Switzerland	0,5	1
Norway	0,2	1

13-year-olds

Country	female	male
Wales	35	38
England	22	25
Greenland	30	23
Scotland	21	26
Denmark	21	25
Northern Ireland	17	24
Slovakia	13	23
Finland	18	16
Canada	13	15
Ireland	8	15
USA	11	12
Latvia	8	15
Lithuania	6	15
Czech Republic	6	14
Poland	6	14
Russian Federation*	8	11
Austria	7	13
Germany*	7	10
Estonia	4	15
Belgium (Flemish)	6	11
Sweden	6	8
Portugal	5	10
Greece	5	9
Hungary	4	9
Norway	5	6
France*	5	8
Israel	4	7
Switzerland	3	6

15-year-olds

Country	female	male
Denmark	63	71
Wales	63	72
Greenland	59	58
England	52	51
Finland	58	52
Scotland	56	53
Northern Ireland	44	53
Slovakia	31	49
Austria	36	49
Canada	42	42
Sweden	40	40
Norway	41	37
Ireland	29	42
Germany*	31	36
Latvia	23	47
Estonia	23	44
Hungary	22	43
Poland	21	39
USA	28	34
Czech Republic	22	36
Belgium (Flemish)	22	33
Russian Federation*	25	32
Lithuania	20	32
France*	20	29
Portugal	16	35
Greece	21	24
Switzerland	16	25
Israel	10	18

* 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		Medium		Medium		
feel less healthy				Medium		Medium
have more difficulty talking to mother				Medium		
have more difficulty talking to father						
report being good-looking						
be unhappy with body size						
spend more time with friends after school			Medium	Medium	Medium	Medium
spend more evenings with friends			Medium	Medium	Strong	Strong
have more close friends						
more frequent truancy			Medium	Medium		
dislike school	Medium		Medium			
pressured by school						
ever have had a cigarette	Strong	Medium	Strong	Strong	Strong	Strong
more frequent smoking	Medium	Medium	Strong	Strong	Strong	Strong

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	None	None	None	None	None	None
feel less happy	None	None	None	Medium	None	None
feel less healthy	None	None	None	Medium	None	Medium
have more difficulty talking to mother	None	None	None	Medium	None	None
have more difficulty talking to father	None	None	None	Medium	None	Medium
report being good-looking	None	None	None	None	None	None
be unhappy with body size	None	None	None	None	None	None
spend more time with friends after school	None	None	Medium	Medium	Medium	Medium
spend more evenings with friends	Medium	Medium	Strong	Strong	Strong	Strong
have more close friends	None	None	None	None	Medium	Medium
be truant more frequently	Medium	None	Medium	Medium	Medium	Medium
dislike school	Medium	None	Medium	Medium	Medium	Medium
feel pressured by school	Medium	None	Medium	None	None	None
ever have had a cigarette	Strong	Strong	Strong	Strong	Strong	Strong
smoke more frequently	Medium	Medium	Strong	Strong	Strong	Strong

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
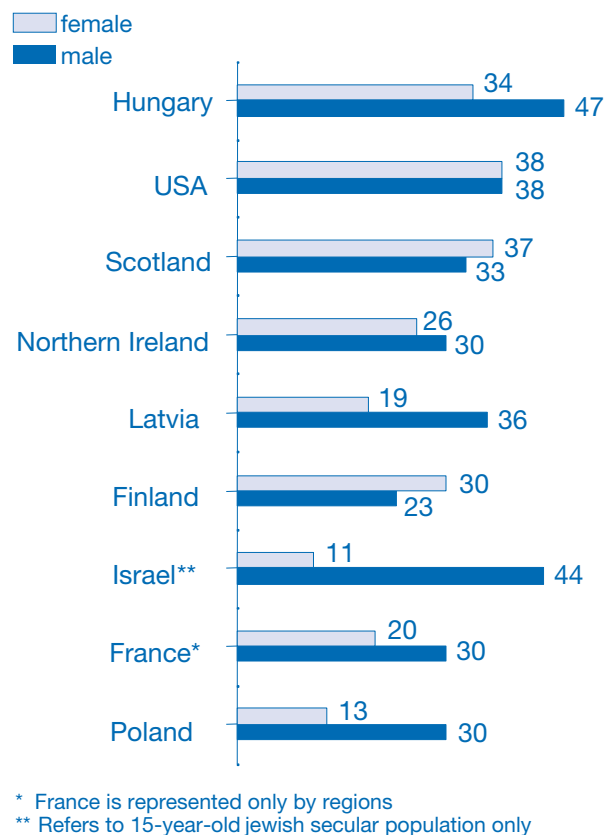
Age at first intercourse

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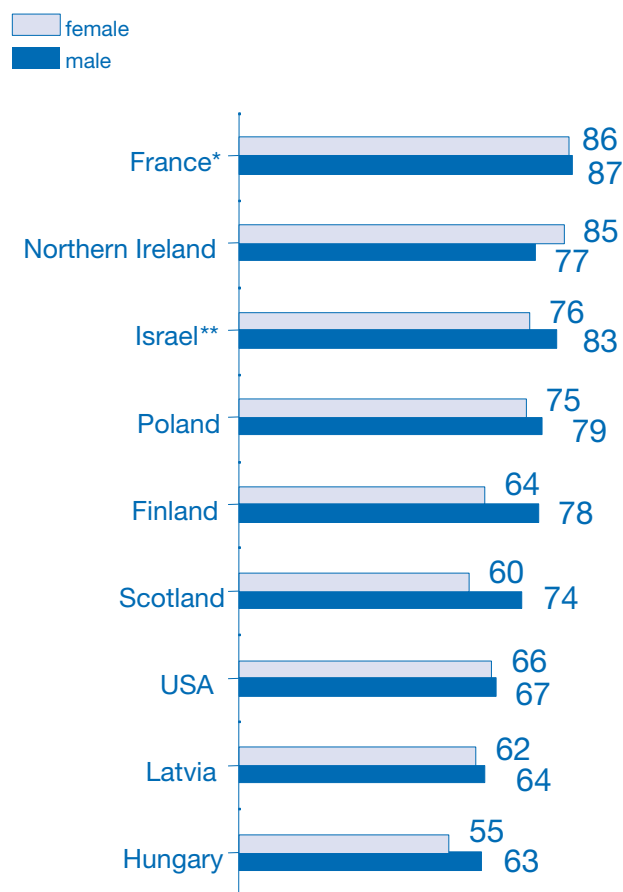
* France is represented only by regions
** Refers to 15-year-old jewish secular population only

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		Unem-ployment 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
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
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.

References

1. Currie, C. & Watson, J., ed. Translating research findings into health promotion action: Lessons from the HBSC Study. Edinburgh, Health Education Board for Scotland, 1998.

2. Currie, C. Health Behaviour in School-Aged Children. Research protocol for the 1997–98 survey. A World Health Organization Cross-National Study. Edinburgh, University of Edinburgh, 1998.

3. King, A. et al. The Health of Youth. A cross-national survey. Copenhagen, WHO Regional office for Europe, 1996 (WHO Regional Publications, European Series No. 69).

4. François, Y. et al. Sampling. In: Currie, C. Health Behaviour in School-Aged Children. Research protocol for the 1997–98 survey. A World Health Organization Cross-National Study. Edinburgh, University of Edinburgh, 1998.

5. Levy, S.P. & Lemeshow, S. Sampling of populations. Methods and applications. New York, Wiley, 1991.

6. Kish, L. Survey sampling. New York, John Wiley & Sons, 1965.

7. Roberts, C. Appendix B. Sample Design and Sampling Error. In: King, A. et al. The Health of Youth. A cross-national survey. Copenhagen, WHO Regional office for Europe, 1996 (WHO Regional Publications, European Series No. 69).

8. Gardner, M.J. & Altman D.G. Statistics with confidence: Confidence intervals and statistical guidelines. London, British Medical Journal, 1989.

9. Siegel, S. & Castellan, N. Nonparametric statistics for the behavioural sciences. 2nd ed. New York, McGraw-Hill, 1988.

10. Yancey, J. Ten rules for reading clinical research reports. American journal of surgery, **159**: 533–539 (1990).

11. Charlton, A. & Blair, V. Absence from school related to children's and parental smoking habits. British medical journal, **289**: 90–92 (1989).

12. Smith, C. et al. Health behaviour research with adolescents: a perspective from the WHO cross-national Health Behaviour in School-aged Children study. Health promotion journal of Australia, **2**(2): 41–44 (1992).

13. Dorland's illustrated medical dictionary, 25th ed. London, W.B. Saunders, 1974.

14. Sells, W.C. & Blum, R.W. Morbidity and mortality among US adolescents: an overview of data and trends. American journal of public health, **86**(4): 513–519(1996).

15. Millstein, S.G. et al. Health-risk behaviors and health concerns among young adolescents. Pediatrics, **89**: 422–428 (1992).

16. Irwin, C.D. et al. The health of America's youth: current trends in health status and utilization of health services. San Francisco, CA, University of California, San Francisco.

17. Starfield, B. et al. The adolescent child health and illness profile: a population-based measure of health. Medical care, **33**: 553–566 (1995).

18. Anders,T. et al. Sleep and sleepiness in children and adolescents. Pediatric clinics of North America, **27**: 29–43 (1980).

19. Tynjala, J. & Kannas, L. Sleeping habits of Finnish school children by sociodemographic background. Health promotion international, **8**: 281–289 (1993).

20. Tynjala, J. et al. How young Europeans sleep? Health education research, **8**: 69–80 (1993).

21. Tynjala, J. et al. Perceived tiredness among adolescents and its association with sleep habits and use of psychoactive substances. Journal of sleep research, **6**: 189–198 (1997).

22. Webb. W. & Agnew, H. Are we chronically sleep deprived. In: Kales, A., ed. Sleep physiology and pathology. Philadelphia, J.B. Lippincott, 1969, pp. 53–65.

23. Blader, J.C. et al. Sleep problems of elementary school children. A community survey. Archives of pediatric and adolescent medicine, **151**: 473–480 (1997).

24. Carskadon, M.A. & Dement, W.C. Effects of total sleep loss on sleep tendency. Perceptual and motor skills, **48**: 495–506 (1979).

25. Epstein, R. et al. Starting times of school: effects on daytime functioning of fifth-grade children in Israel. Sleep, **21**: 250–256 (1998).

26. McAnarney, E.R. et al. Textbook of adolescent medicine. Philadelphia, W.B. Saunders, 1993.

27. Stone, R.T. & Barbero, G.J. Recurrent abdominal pain in childhood. Pediatrics, **45** (5):732–738 (1970).

28. Apley, J. The child with abdominal pains. Oxford, Blackwell Scientific Publications, 1975.

29. Lundry, L. et al. Recurrent abdominal pain in school children 9–12 years of age. Ugeskrift for laeger, **152**: 2851–2854 (1990).

30. Hyams, J.S. Abdominal pain and irritable bowel syndrome in adolescents: a community-based study. Journal of pediatrics, **129**(2): 220–226 (1996).

31. Linet, M.S. et al. An epidemiologic study of headache among adolescents and young adults. Journal of the American Medical Association, **261**:2211–2216 (1989).

32. Rauste-von Wright, M. & von Wright, J. Habitual somatic discomfort in a representative sample of adolescents. *Journal of psychosomatic research,* **36**: 383–390 (1992).

33. Rothner, D.A. Headaches in adolescents. *Medical clinics of North America,* **75**: 653–660 (1991).

34. Kaiser, R.S. Depression in adolescent headache patients. *Headache,* **32**: 340–344 (1992).

35. Eminson, M. et al. Physical symptoms and illness attitudes in adolescents: an epidemiological study. *Journal of child psychology and psychiatry,* **37**: 519–528 (1996).

36. Gluckman, R.M. Physical symptoms as a mask for emotional disorder in adolescents. *Annals of the American Society of Adolescent Psychiatry,* **19**: 384–393 (1993).

37. Sharrer, V.W. & Ryan-Wenger, N.M. Measurement of stress and coping among school-aged children with and without recurrent abdominal pain. *Journal of school health,* **61**: 86–91 (1991).

38. Campbell, M.A. & McGrath, P.J. Use of medication by adolescents for the management of menstrual discomfort. *Archives of pediatric and adolescent medicine,* **151**: 905–913 (1997)

39. Galambos, N. L., & Ehrenberg, M. F. The family as health risk and opportunity: a focus on divorce and working families. In: Schulenberg, J. et al., ed. *Health risks and developmental transitions during adolescence.* Cambridge, Cambridge University Press, 1997.

40. Ryan, R.M. et al. Representations of relationships to teachers, parents and friends as predictors of academic motivation and self esteem. *Journal of early adolescence,* **14**(2): 226–249 (1994).

41. Field, T. et al. Adolescents' intimacy with parents and friends. *Adolescence,* **30**(117): 113–140 (1995).

42. Brown, B.B. et al. Transformations in peer relationships at adolescence: implications for health behavior. In: Schulenberg, J. et al., ed. *Health risks and developmental transitions during adolescence.* Cambridge, Cambridge University Press, 1997.

43. Ottawa Charter for Health Promotion. *Health promotion,* **1**(4): iii–v (1986).

44. Mortimore, P. *The road to improvement: Reflections on school effectiveness.* Lisse, Swets & Zeitlinger, 1998.

45. Karasek, R., & Theorell, T. *Healthy work : stress, productivity, and the reconstruction of working life.* New York, Basic Books, 1990.

46. Argyle, M. & Martin, M. The psychological causes of happiness. In: Strack, F. & Argyle, M., ed. *Subjective wellbeing: an interdisciplinary perspective.* Oxford, Pergamon Press, 1991, pp. 77–100.

47. Abbey, A., & Andrews, F.M. Modeling the psychological determinants of life quality. In: Andrews, F.M., ed. *Research on the quality of life.* Ann Arbor, University of Michigan, 1986, pp. 85–116.

48. Keith, K.D., & Schalock, R.L. The measurement of quality of life in adolescence: the Quality of Student Life Questionnaire. *American journal of family therapy,* **22**(1): 83–87 (1994).

49. Wentzel, K.R. Social relationships and motivation in middle school: the role of parents, teachers, and peers. *Journal of educational psychology,* **90**(2):202–209 (1998).

50. Hirsch, B.J. & DuBois, D.L. The school-nonschool ecology of early adolescent friendships. In: Belle, D., ed. *Children's social networks and social supports.* New York, John Wiley & Sons, 1989, pp. 260–274.

51. Baumeister, R.F. & Leary, M.R. The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin,* **117**(3): 497–529 (1995).

52. Berndt, T.J. Obtaining support from friends during childhood and adolescence. In: Belle, D., ed. *Children's social networks and social supports.* New York, John Wiley & Sons, 1989, pp. 308–331.

53. Samdal, O. et al. Achieving health and educational goals through schools: a study of the importance of school climate and students' satisfaction with school. *Health education research,* **13**(3): 383–397 (1998).

54. Bowlby, J. Developmental psychiatry comes of age. *American journal of psychiatry,* **145**(1): 1–10 (1988).

55. Cohen, S. Stress, social support and disorder. In: Veiel, H.O. & Baumann, U., ed. *The meaning and measurement of social support.* New York, Hemisphere, 1992, pp. 109–124.

56. Gore, S. & Aseltine, R.H. Protective processes in adolescence: matching stressors with social resources. *American journal of community psychology,* **23**(3): 301–327 (1995).

57. Ryan, R.M. Agency and organization: intrinsic motivation, autonomy, and the self in psychological development. *Nebraska Symposium on Motivation,* **40**: 1–56 (1992).

58. Schunk, D.H. & Zimmerman, B.J. *Self-regulation of learning and performance: issues and educational applications.* Hillsdale, Lawrence Erlbaum Associates, 1994.

59. Whiteford, P. et al. The economic circumstances of children in ten countries. In: Brannen, J. & O'Brien, M., ed. *Children in families: research and policy.* Falmer Press, 1996.

60. Wilkinson, R. Income and mortality. In: Wilkinson, R., ed. *Class and health: research and longitudinal data.* London, Tavistock, 1986.

61. LeGrand, J. Inequalities in health: some international comparisons. *European economic review,* **23**: 182–189 (1987).

62. Kunst, A.E., Groenhof, G., Mackenback, J.P. & the EU Working Group on Socioeconomic Inequalities in Health. *Occupational class and cause specific mortality in middle aged men in 11 European countries: comparison of population based studies.* (1998).

63. West, P. Health inequalities in the early years: is there equalisation in youth? *Social science and medicine,* **44**: 833–858 (1997).

64. Currie, C.E. et al. Indicators of socioeconomic status for adolescents: the WHO Health Behaviour in School-aged Children Survey. *Health education research,* **12**: 385–397 (1997).

65. Townsend, P. Deprivation. *Journal of social policy,* **16**: 125–146 (1987).

66. Carstairs, V. & Morris, R. *Deprivation and health in Scotland.* Aberdeen, Aberdeen University Press, 1991.

67. Bouchard, C. et al. *Exercise, fitness and health. A concensus of current knowledge.* Champion, IL, Human Kinetics Books, 1990.

68. Leon, A.S. et al. Leisure-time physical activity levels and risk of coronary heart disease and death: the multiple risk factor intervention trial. *Journal of the American Medical Association,* **258**: 2388–2395 (1987).

69. Powell, K.E. et al. Physical activity and the incidence of coronary heart disease *Annual review of public health,* **8**: 253–287 (1987).

70. Sallis, J.F. & Faucette, N. Physical Activity. In: Wallace, H.M. et al., ed. *Principle and practices of student health.* Oakland, CA, Third Party Publishing, 1992.

71. Cresanta, J.L. et al. Prevention of atherosclerosis in childhood: prevention in primary care. *Paediatric clinics of North America,* **33**: 835–858 (1986).

72. Taylor, C.B. et al. The relationship between physical activity and exercise and mental health. *Public health reports,* **100**(2): 195–202 (1985).

73. Gruber, J.J. Physical activity and self-esteem development in children: a meta-analysis. In: Stull, A.G. & Eckert, H.M., ed. *Effects of physical activity on children.* Champaign, IL, Human Kinetics Books, 1986.

74. Kenyon, G.S. & McPherson, B.D. Becoming involved in physical activity and sport: a process of socialization. In: Rarick G., ed. *Physical activity: human growth and development.* New York, Academic Press, 1973.

75. *Diet and health in school-aged children.* London, Health Education Authority, 1995.

76. Killoran, A. et al., ed. *Moving on: international perspectives on promoting physical activity.* London, Health Education Authority, 1994.

77. US Department of Health and Human Services. *Physical activity and health: a report of the Surgeon-General.* Atlanta, Centers for Disease Control and Prevention, 1996.

78. Biddle, S. et al., ed. *Young and active? Young people and health-enhancing physical activity: evidence and implications.* London, Health Education Authority, 1998.

79. Hawkins, R.P. & Pingee, S. Activity in the effects of television on children. In: Gurevitch, M. & Levy, M.R., ed. *Mass Communication Review Yearbook 6.* Thousand Oaks, CA, Sage Publications, 1987.

80. Christianson, P.G. Children's perceptions of moral themes in television drama. In: McLaughlin, M.L., ed. *Communication Year Book 9.* Thousand Oaks, CA: Sage Publications and International Communication Association, 1986.

81. Clark, C.S. TV violence. *CQ Researcher,* **3**(12): 167–187 (1993).

82. Comstock, G.A. & Strasburger, V.C. Adolescents and the media. *Adolescent medicine: state of the art reviews,* **4**(3): 495–509 (1993).

83. Robinson, T.N. & Killen, J.D. Ethnic and gender differences in the relationships between television viewing and obesity, physical activity and dietary fat intake. *Journal of health education,* **26**(2): 91–98 (1995).

84. Felts, M. et al. Adolescents' relative weight and self-reported weight loss activities. *Journal of school health,* **62**(8): 372–376 (1992).

85. Groves, D. Is childhood obesity related to TV addiction? *Physician and sports medicine,* **16**(11): 116–118, 120–122 (1988).

86. King, A.J.C. & Coles, B.J. *The health of Canada's youth: views and behaviours of 11-, 13-, and 15-year-olds from 11 countries.* Ottawa, Health and Welfare Canada, 1992.

87. Miles, G. & Eid, S. The dietary habits of young people. *Nursing times,* **93**(50): 46–48 (1997).

88. Trowbridge, F. & Collins, B. Measuring dietary behaviours among adolescents. *Public health reports,* **108**(Suppl. 1): 37–65 (1993).

89. Williams, C.L. Importance of dietary fiber in childhood. *Journal of the American Dietetic Association,* 9**5**(10): 1140–1149 (1995).

90. Di Clemente, R.J. et al. *Handbook of adolescent health risk behaviour: issues in clinical child psychology.* New York, Plenum Press, 1996.

91. Dryfoos, J.G. *Adolescents at risk.* London, Oxford University Press, 1990.

92. Oetting, E.R. & Donnermeyer, J.F. Primary socialisation theory: the etiology of drug use and deviance. *Substance use and misuse,* **33**(4): 995–1025 (1998).

93. Harkin, A.M. et al. *Smoking drinking and drug taking in the European Region.* Copenhagen, WHO Regional Office for Europe, 1997.

94. *HEALTH21: the health for all policy framework for the WHO European Region.* Copenhagen, WHO Regional Office for Europe, 1999 (European Health for All Series, No. 6), p. 27.

Health Behaviour in School-Aged Children

A WHO Cross-National Study 1997/98

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Belgium (Flemish)
Belgium (French)
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Estonia
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Greece
Greenland
Hungary
Ireland
Israel

Latvia
Lithuania
Norway
Poland
Portugal
* Russian Federation (St. Petersburg and district, Krasnodar, Chelyabinsk)
Slovak Republic
Sweden
Switzerland
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United Kingdom (Nothern Ireland)
United Kingdom (Scotland)
United Kingdom (Wales)
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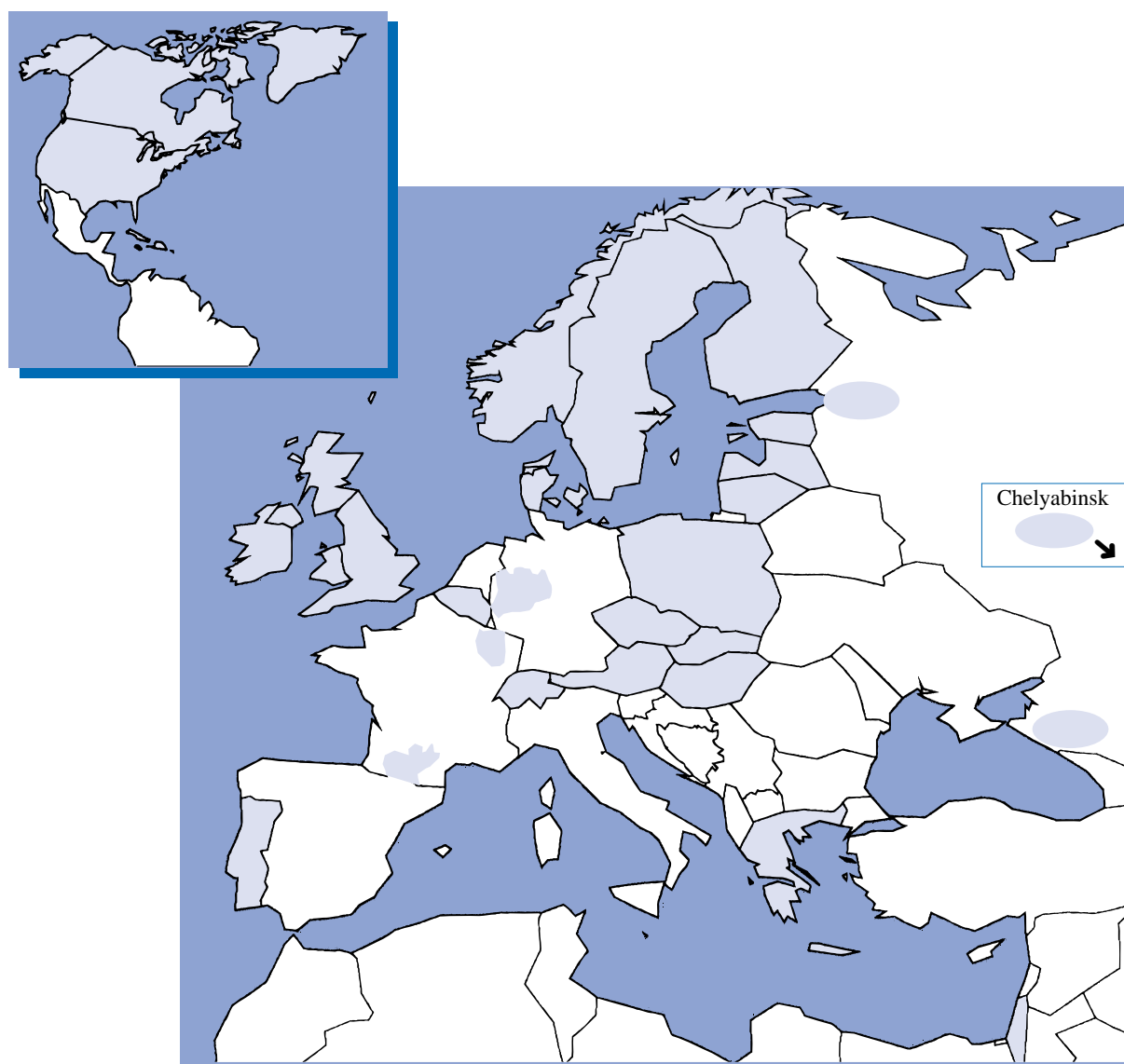
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