

# Annex 1. Methods –

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The key objectives of this technical annex are to provide information on the procedures used in the 2001/2002 HBSC survey for sampling and data collection, and to assist the reader in interpreting the findings presented in the report.

## Sampling

Each country and region should draw its sample in such a way as to ensure its needs are met for valid comparisons across time and within and across regions. In an international research project investigating comparisons across countries, however, the sample needs also to be drawn in a similar fashion by each. Valid cross-country comparisons are particularly important in emphasizing commonalities across countries and regions, as well as differences. In addition, researchers and policy-makers in each country and region should see the sample as representative, so that they are confident in the relevance of findings to health promotion initiatives. Many survey members are more interested in data on changes over time in their country or region than in comparisons across countries; information on such changes enables them to estimate the impact of health promotion interventions at a national or regional level. This section summarizes the sampling procedures used in 2001/2002. The current HBSC protocol (1) gives full details.

## Target population

The specific populations selected for sampling were young people attending school who are aged 11, 13 and 15; that is, in their twelfth, fourteenth and sixteenth years. In some countries and regions, each age group is in the same grade, because young people are promoted each year. In others, some young people are held back and others are put forward, and these need to be sampled as well as those who move from grade to grade at the normal rate. Of the respondents, 90% should be within 6 months of the mean age for each age group and the remaining 10% no more than 12 months from the mean age. The desired mean age for the three age groups is 11.5, 13.5 and 15.5 years, respectively.

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

In 2001/2002, a regional sample was selected in Germany (Berlin, Hessen, North Rhine-Westphalia and Saxony). Belgium (Flemish) and Belgium (French) are covered separately, as are England, Scotland and Wales. As the population of Greenland is relatively small, a census of the school population was taken, with the exception of young people absent on the day of fieldwork.

## Sample selection

Cluster sampling was used where 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 those 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 (2). 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 (3).

The recommended minimum sample size for each of the three age groups was set at 1536 students. This calculation assumed a 95% confidence interval of  $\pm 3\%$  around a proportion of 50% and a design factor of 1.2, based on analyses of the 1993/1994 and 1997/1998 HBSC data (4,5). 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 (6).

## 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 equally applicable. To overcome this complexity, age is the priority for the sampling procedures used in the study; each of the three age group samples is therefore drawn from all those in the appropriate age group. Where all students of the appropriate age are in the same grade, the sample can be drawn from within that grade only, but all grades are sampled where age groups are spread across grades. 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 has four classes eligible for sampling, then each of them 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, then the one chosen for the sample was randomly selected. This ensured that the probability of any class in the target population being selected was equal. 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 or region.

In some countries or regions, 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 and regions 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.

To produce mean ages of 11.5, 13.5 and 15.5, the survey was administered at appropriate times of the year in each country and region. In those where students of a particular age group are found across grades (where students are held back or advanced according to academic performance), all grades are sampled in most cases. In these circumstances, countries and regions created a class equivalent based on the distribution of students across the grades. The protocol (1) gives further details on sampling.

## Data collection and file preparation

Questionnaires were administered in schools between October 2001 and May 2002 in the vast majority of cases. Table 1 indicates the data collection period for each country and region.

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

Files from the 35 countries and regions were prepared and exported to the HBSC International Data Bank at the Norwegian Social Science Data Services, University of Bergen. The data were checked and cleaned according to strict criteria (1). Data for young people outside the targeted age ranges were

Table 1. Dates of fieldwork in the 2001/2002 HBSC survey, by country or region

Country or region	Dates
Austria	October–November 2001
Belgium (Flemish)	March–April 2002
Belgium (French)	January–February 2002
Canada	January–February 2002
Croatia	February–March 2002
Czech Republic	May 2002
Denmark	January–February 2002
England	March 2002
Estonia	October–November 2001
Finland	March–May 2002
France	March–June 2002
Germany	March–May 2002
Greece	October–November 2002
Greenland	May 2002
Hungary	March–April 2002
Ireland	April–June 2002
Israel	May–June 2002
Italy	April 2002
Latvia	November–December 2001
Lithuania	February–March 2002
Malta	January 2002
Netherlands	October–November 2001
Norway	December 2001
Poland	February–March 2002
Portugal	March–April 2002
Russian Federation	March 2002
Scotland	February–April 2002
Slovenia	March 2002
Spain	April–May 2002
Sweden	November–December 2001
Switzerland	March–May 2002
The former Yugoslav Republic of Macedonia	March 2002
Ukraine	February 2002
United States	November–December 2001
Wales	February–March 2002

removed and all deviations from the international standard were documented. The research protocol (1) provides a complete set of data-cleaning instructions.

Tables 2 and 3 present information on the respondents on the international data file. The 2001/2002 survey has data from more than 160 000 young people. These respondents are distributed fairly evenly by gender and age group. The mean age for the three age groups, pooled across the entire sample, is 11.6, 13.6

Table 2. Number of respondents in the 2001/2002 HBSC survey, by country or region, gender and age group

Country or region	Gender		Age group (years)			Total
	Boys	Girls	11	13	15	
Austria	2241	2231	1590	1584	1298	4472
Belgium (Flemish)	2996	3293	2153	2106	2030	6289
Belgium (French)	2069	2254	1439	1503	1381	4323
Canada	1996	2365	1641	1513	1207	4361
Croatia	2180	2217	1451	1500	1446	4397
Czech Republic	2412	2600	1691	1661	1660	5012
Denmark	2259	2413	1710	1582	1380	4672
England	2943	3138	2239	2069	1773	6081
Estonia	1983	1996	1288	1424	1267	3979
Finland	2713	2675	1911	1732	1745	5388
France	4054	4131	2671	2900	2614	8185
Germany	2786	2864	2100	1801	1749	5650
Greece	1870	1937	1252	1231	1324	3807
Greenland	386	505	295	356	240	891
Hungary	1848	2316	1371	1463	1330	4164
Ireland	1302	1573	1012	944	919	2875
Israel	2625	3036	1892	2202	1567	5661
Italy	2125	2261	1524	1633	1229	4386
Latvia	1633	1848	1195	1169	1117	3481
Lithuania	2887	2758	1867	1873	1905	5645
Malta	905	1075	619	694	667	1980
Netherlands	2120	2149	1477	1519	1273	4269
Norway	2554	2469	1660	1739	1624	5023
Poland	3204	3179	2100	2131	2152	6383
Portugal	1419	1521	1174	964	802	2940
Russian Federation	3752	4285	2522	2940	2575	8037
Scotland	2246	2158	1743	1512	1149	4404
Slovenia	1996	1960	1474	1413	1069	3956
Spain	2873	2954	2105	1966	1756	5827
Sweden	1978	1948	1499	1201	1226	3926
Switzerland	2309	2370	1468	1671	1540	4679
The former Yugoslav Republic of Macedonia	2053	2108	1348	1401	1412	4161
Ukraine	1893	2197	1192	1297	1601	4090
United States	2322	2703	1479	1921	1625	5025
Wales	2004	1883	1351	1372	1164	3887
Total	78 936	83 370	55 503	55 987	50 816	162 306

Table 3. Mean ages of respondents in the 2001/2002 HBSC survey, by country or region and age group

Country or region	Respondents' age (years)		
	11-year-olds	13-year-olds	15-year-olds
Austria	10.8	12.8	14.8
Belgium (Flemish)	11.5	13.5	15.5
Belgium (French)	11.5	13.4	15.5
Canada	11.8	13.8	15.7
Croatia	11.4	13.4	15.4
Czech Republic	11.5	13.5	15.4
Denmark	11.8	13.8	15.8
England	11.9	13.9	15.9
Estonia	11.4	13.3	15.3
Finland	11.8	13.8	15.8
France	11.2	13.1	15.1
Germany	11.6	13.6	15.7
Greece	11.4	13.3	15.3
Greenland	12.3	14.3	16.4
Hungary	11.5	13.5	15.5
Ireland	11.7	13.5	15.4
Israel	12.0	14.1	16.0
Italy	11.8	13.8	15.9
Latvia	11.6	13.6	15.5
Lithuania	11.7	13.7	15.7
Malta	11.7	13.7	15.6
Netherlands	11.5	13.5	15.5
Norway	11.5	13.5	15.5
Poland	11.7	13.7	15.7
Portugal	12.1	14.2	16.1
Russia	11.6	13.6	15.6
Scotland	11.5	13.6	15.5
Slovenia	11.7	13.7	15.8
Spain	11.5	13.5	15.5
Sweden	11.4	13.5	15.5
Switzerland	11.7	13.8	15.8
The former Yugoslav Republic of Macedonia	11.5	13.5	15.5
Ukraine	11.9	13.9	16.0
United States	11.6	13.5	15.5
Wales	12.0	14.0	16.0
Total	11.6	13.6	15.6

and 15.6 years, for 11-, 13- and 15-year-olds respectively. There are deviations, however, ranging from 10.8 in Austria to 12.3 in Greenland for the youngest age group, with a similar pattern for 13- and 15-year-olds.

## 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 two: the impact of sample design, and appropriate data analysis and presentation.

## Impact of sample design on interpreting findings

Sources of potential error in HBSC data, with particular reference to sampling error, have been dealt with elsewhere (4). To assist with interpreting the data presented in this report, however, this section provides some guidance on the key issues that should be taken into account.

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 interpretation of questions) can be estimated by calculating the variance or 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 or region. Under such a design, the standard error (se) of a proportion can be calculated using the sample proportion of interest and inserting these figures into the following equation:

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

$n$  = number of respondents  
 $p$  = proportion of respondents with characteristics

For example, there are 1351 11-year-olds in the Welsh sample ( $n = 1351$ ), of whom 36% report having been bullied at least once in the previous couple of months ( $p = 0.36$ ), so:

$$se(p) = \sqrt{\frac{(0.36 \times 0.64)}{1351}} = 0.013 \text{ or } 1.3\%$$

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

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

which, in the current example, gives confidence intervals of  $36\% \pm 2.5\%$  (or 33.5–38.5%). In simple terms, these results indicate that there is a 95% chance that the true population value lies somewhere between the calculated intervals.

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 were obtained using a simple random sample. Consequently, standard errors must be calculated using an appropriate method that takes account of the correlation of young people in schools or classes.

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

Various statistical software packages are now available to calculate standard errors that take complex sampling designs into account. As an alternative to presenting true standard errors (taking account of the complex sampling design) for all proportions of interest in a report such as this, a selection of design factors are given. The design factor (deft) in this instance is the ratio between the standard error derived from clustered sampling with stratification to that obtained assuming a simple random sample (3). Using the example of bullying among 11-year-olds in Wales, the true complex standard error obtained for this estimate is 1.6%, resulting in 95% confidence intervals around the estimate of 32.9–39.1%. This compares with a confidence interval of 33.5–38.5% under the assumption of simple random sampling. The deft value for this estimate is therefore  $1.6/1.3$  or 1.23.

Deft values for selected variables have been calculated for a small number of countries and regions and are presented for reference in Tables 4–6 for 11-, 13- and 15-year-olds. Values are not presented for

Table 4. Deft values for selected variables in the 2001/2002 HBSC survey, 11-year-olds

Variable	Finland	Hungary	Latvia	Norway	Portugal	Scotland	The former Yugoslav Republic of Macedonia	Wales
Eating fruit daily	1.01	1.15	1.09	1.16	1.18	1.36	1.43	1.34
Meeting physical activity guidelines <sup>a</sup>	1.61	1.18	1.26	1.58	1.24	1.46	1.24	1.39
Poor or fair health	0.95	1.19	1.22	1.07	1.14	1.20	1.25	1.15
Having been bullied in the past few months	1.17	1.55	1.21	1.34	1.31	1.24	1.52	1.21
Having been injured in the past year	1.13	1.19	1.02	1.21	1.07	1.24	1.54	1.27
Liking school	1.18	1.46	1.41	1.20	1.12	1.44	1.83	1.55
Academic achievement <sup>b</sup>	1.33	1.29	1.40	1.09	1.15	1.32	1.18	1.10
Spending four or more evenings with friends weekly	1.46	1.46	1.31	1.40	1.16	1.64	1.47	1.84
Daily electronic communication	1.06	1.24	1.54	1.12	1.07	1.24	1.59	1.05
Communicating easily with mother	1.05	1.27	1.06	1.10	0.98	1.14	1.35	1.14

<sup>a</sup> MVPA score of 5 or more (see Chapter 3, pp. 90–97).

<sup>b</sup> Those who feel they perform well or very well at school.

Table 5. Deft values for selected variables in the 2001/2002 HBSC survey, 13-year-olds

Variable	Finland	Hungary	Latvia	Norway	Portugal	Scotland	The former Yugoslav Republic of Macedonia	Wales
Smoking daily	1.42	1.46	1.30	1.25	1.43	1.12	1.01	1.36
Having been drunk twice or more	1.29	1.17	1.22	1.20	1.22	1.18	1.29	1.30
Eating fruit daily	1.18	1.25	1.14	1.17	1.04	1.14	1.27	1.18
Meeting physical activity guidelines <sup>a</sup>	1.15	1.41	1.15	1.25	1.13	1.21	1.23	1.22
Poor or fair health	1.00	1.38	1.28	1.10	1.25	1.26	1.34	1.12
Having been bullied in the past few months	1.17	1.14	1.18	1.28	1.26	1.03	1.43	1.21
Having been injured in the past year	1.09	1.11	1.15	1.14	1.11	1.17	1.50	1.30
Liking school	1.43	2.48	1.61	1.36	1.29	1.17	2.31	1.32
Academic achievement <sup>b</sup>	1.18	1.24	1.21	1.27	1.06	1.12	1.25	1.21
Spending four or more evenings with friends weekly	1.53	1.35	1.27	1.51	1.09	1.46	1.50	2.16
Daily electronic communication	1.13	1.13	1.61	1.09	1.33	1.14	1.79	1.16
Communicating easily with mother	1.23	1.09	1.16	1.11	1.20	1.17	1.23	1.00

<sup>a</sup> MVPA score of 5 or more (see Chapter 3, pp. 90–97).

<sup>b</sup> Those who feel they perform well or very well at school.

Table 6. Deft values for selected variables in the 2001/2002 HBSC survey, 15-year-olds

Variable	Finland	Hungary	Latvia	Norway	Portugal	Scotland	The former Yugoslav Republic of Macedonia	Wales
Smoking daily	1.11	1.79	1.29	1.29	1.11	1.26	1.57	1.62
Having been drunk twice or more	1.26	1.95	1.35	1.56	1.14	1.15	1.37	1.01
Eating fruit daily	1.18	1.24	1.04	1.24	1.08	1.08	1.35	1.11
Meeting physical activity guidelines <sup>a</sup>	1.26	1.50	1.12	1.25	1.36	1.30	1.07	1.16
Poor or fair health	1.11	1.41	1.19	0.95	1.00	1.23	1.30	1.34
Having been bullied in the past few months	1.16	1.12	1.26	1.42	1.03	0.98	1.67	1.23
Having been injured in the past year	1.08	1.20	1.26	0.98	1.01	1.12	1.40	1.25
Liking school	1.09	1.88	1.37	1.21	1.30	1.06	2.42	1.20
Academic achievement <sup>b</sup>	1.08	1.85	1.06	0.96	1.10	0.95	1.36	1.29
Spending four or more evenings with friends weekly	1.44	1.56	1.29	1.30	1.05	1.35	1.68	1.54
Daily electronic communication	1.27	1.41	1.67	1.26	1.22	1.19	2.10	0.98
Communicating easily with mother	1.00	1.10	1.13	1.02	0.93	0.94	1.18	1.12

<sup>a</sup> MVPA score of 5 or more (see Chapter 3, pp. 90–97).

<sup>b</sup> Those who feel they perform well or very well at school.

11-year-olds on daily smoking and being drunk on two or more occasions, owing to the extremely small prevalence of these variables: less than 1% in many countries and regions. True standard errors have been calculated using the Stata software package (7). Tables 4–6 show substantial variation in deft values between the selected variables for each country or region and age group, although some patterns emerge. For example, deft values tend to be higher in a number of countries and regions for variables focusing on school or friendship groups (such as liking school and spending four or more evenings with friends each week) and some risk behaviour (such as daily smoking). Conversely, lower deft values are recorded for variables such as academic achievement, ease of communication with parents and being injured in the previous year. Lower deft values suggest that the views or behaviour of students in the same class or school are no more likely to be similar to each other than they are to the views or behaviour of other students selected on a purely random basis.

Using an appropriate deft value, as presented in Tables 4–6, 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 deft value.

### Data analysis and presentation of findings

The vast majority of survey estimates presented in this report are proportions in simple bar-chart format, broken down by country and region, age and gender. On occasion, these estimates may differ slightly from those presented elsewhere (for example, in national reports or journal articles). This is most likely to occur when particular issues are being explored in more depth and two or more questions are being combined to create a new measure, such as assessing young people's current drinking patterns using the reported frequencies of both consumption of alcohol and having ever consumed alcohol. The data from one response category (or combination of response categories) are typically presented. Ideally, confidence intervals should be provided for each of the survey estimates, providing the likely range of values to be found in the population being considered. This is not practical for a report of this size, but Table 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 and region. In addition, a deft value of 1.2 has been assumed to take account of the clustered nature of the data. The confidence intervals are symmetrical around 50%: for example, the confidence interval for both 40% and 60% is  $\pm 4.2\%$ , for both 70% and 30%,  $\pm 3.9\%$  and so on. For example, if the estimated proportion of 15-year-old girls smoking weekly in Wales is 27%, the 95% confidence interval is around  $\pm 3.9\%$  and the true population figure would be somewhere between 23% and 31%.

In a small number of sections, authors have also presented the association between variables of interest and factors related to these variables in the form of simple bivariate associations; for example, Chapter 2

Table 7. Approximate 95% confidence intervals in the 2001/2002 HBSC survey

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

(pp. 42–51) presents data on student support and liking school. Given the nominal or ordinal nature of many HBSC variables, analysis has been undertaken using mostly non-parametric statistics such as Spearman rank-order correlation coefficients (8). In most cases, these associations have been calculated by aggregating data for all countries and regions, the primary purpose being to provide general patterns.

The statistical significance of each association has not been presented, given the large sample size when working with the entire data set. With such a large sample size the vast majority of coefficients, no matter how small, would be expected to be statistically significant and the presentation of *P* values meaningless.

## References

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# Annex 2. Summary tables of indicators of health and health-related behaviour

The tables summarize the findings of the 2001/2002 HBSC survey on the indicators discussed in Chapter 3. Cross-references are made to the relevant pages.

Table 1. Health and well-being (see also pp. 55–62)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
"Less than good" health (%)						
11-year-olds	12.1	5.3–27.2	15.7	4.4–43.7	13.9	4.9–35.1
13-year-olds	13.6	6.3–30.0	20.8	10.7–53.9	17.3	8.5–42.1
15-year-olds	16.1	8.0–31.5	27.2	12.8–63.1	21.9	10.4–47.3
Two or more symptoms more than once a week (%)						
11-year-olds	26.9	14.8–43.2	33.6	19.2–49.5	30.3	18.8–46.3
13-year-olds	25.8	13.4–45.0	38.2	25.0–57.1	32.2	19.3–48.6
15-year-olds	25.6	11.9–47.1	43.5	24.4–65.6	35.0	18.4–54.4
Satisfaction with life (Cantril ladder score of $\geq 6$ ) (%)						
11-year-olds	88.1	77.5–96.8	87.1	76.0–96.5	87.6	77.6–96.6
13-year-olds	86.9	77.7–95.3	82.5	71.1–91.8	84.6	76.1–93.6
15-year-olds	84.5	67.6–95.5	77.4	63.9–89.5	80.8	65.8–92.5

Table 2. Tobacco smoking (see also pp. 63–72)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Ever smoked (%)						
11-year-olds	19.1	4.1–42.2	10.8	2.3–49.7	14.9	3.2–46
13-year-olds	42.7	8.6–73.9	37.4	7.3–82.7	40.0	7.9–75.4
15-year-olds	62.5	37.4–88.7	61.3	34.3–88.4	61.9	35.8–85.7
Smoking weekly (%)						
11-year-olds	2.2	0.1–5.4	1.0	0.1–8.5	1.6	0.3–6.6
13-year-olds	8.9	2.9–18.8	7.9	1.1–36.7	8.4	2.0–28.9
15-year-olds	23.9	11.1–56.6	23.3	11.6–66.7	23.6	13.6–62.4
Smoking daily (%)						
11-year-olds	0.9	0.0–2.4	0.4	0.0–2.4	0.6	0.0–2.1
13-year-olds	5.2	1.6–16.9	4.4	0.7–28.1	4.8	1.1–23.1
15-year-olds	18.1	5.7–52.5	16.9	7.7–53.6	17.5	8.5–53.2
Mean age at first cigarette, 15-year-olds (years)						
Ever smokers	12.1	10.7–13.4	12.8	12.0–14.0	12.5	11.4–13.7
Weekly smokers	11.9	10.5–13.2	12.6	11.8–13.7	12.2	11.2–13.4
Daily smokers	11.7	9.9–12.9	12.4	11.5–13.7	12.1	10.7–13.2

Table 3. Alcohol use (see also pp. 73–83)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Drinking weekly (%)						
11-year-olds	7.3	0.9–18.7	3.0	0.3–8.5	5.1	0.8–13.7
13-year-olds	15.3	4.8–34.0	9.2	2.8–24.8	12.2	5.8–29.4
15-year-olds	34.3	18.1–58.0	23.9	10.1–54.4	28.8	15.5–56.3
Drinking beer weekly (%)						
11-year-olds	3.7	0.5–15.5	1.1	0.0–6.3	2.4	0.4–10.9
13-year-olds	9.4	1.3–21.1	4.0	0.3–10	6.6	1.2–14.8
15-year-olds	26	10.1–47.7	11.2	2.2–31.5	18.3	7–39.2
Drinking wine weekly (%)						
11-year-olds	2.7	0.0–12.5	0.9	0.0–4.1	1.8	0.3–8.4
13-year-olds	4.7	0.7–18.6	2.6	0.0–9.3	3.6	0.3–13.2
15-year-olds	8.3	1.5–31.5	6.2	0.0–16.4	7.2	1.6–23.5
Drinking spirits weekly (%)						
11-year-olds	1.6	0.1–6.5	0.6	0.0–4.7	1.1	0.1–5.6
13-year-olds	4.5	1.3–15.8	3.1	0.4–18.5	3.8	0.9–17.2
15-year-olds	12.4	3.0–36.3	9.7	1.1–37.1	11.0	2.5–34.7
Having been drunk two or more times (%)						
11-year-olds	4.3	0.7–10.7	1.5	0.2–6.4	2.9	0.5–8.5
13-year-olds	14.5	4.8–29.9	9.7	1.1–27.5	12.1	3.1–28.7
15-year-olds	39.8	16.9–67.7	31.4	5.9–64.8	35.4	11.2–66.2
Mean age at first drink (years)						
15-year-olds who have drunk alcohol	12.3	10.9–13.1	12.9	11.8–13.8	12.7	11.4–13.5
Mean age at first drunkenness (years)						
15-year-olds who have been drunk	13.6	12.7–14.2	13.9	13.4–14.7	13.7	13.3–14.4

Table 4. Cannabis use (see also pp. 84–89)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Cannabis use, 15-year-olds (%)						
Ever used	25.8	3.8–49.1	18.9	2.5–47.0	22.2	3.1–45.8
Used in the last year	21.7	3.9–43.3	16.0	2.1–37.5	18.7	3.1–40.0

Table 5. Physical activity (see also pp. 90–97)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Active for an hour or more, average of last week and typical week (mean days)						
11-year-olds	4.3	3.3–5.0	3.8	2.5–4.6	4.1	2.9–4.8
13-year-olds	4.2	3.4–5.1	3.6	2.8–4.3	3.9	3.1–4.7
15-year-olds	3.9	3.3–4.7	3.2	2.3–3.9	3.5	2.9–4.2
Meeting physical activity guidelines (%)						
11-year-olds	43.8	25.2–61.3	33.1	11.3–51.1	38.5	18.3–56.2
13-year-olds	40.9	25.5–61.2	26.9	13.6–43.7	33.7	19.6–51.4
15-year-olds	35.3	22.6–57.1	22.3	11.2–41.8	28.5	18.6–48.8

Table 6. Sedentary behaviour (see also pp. 98–109)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Watching television ≥ 4 hours a day, weekdays (%)						
11-year-olds	26.5	8.5–49.2	22.1	4.6–50.2	24.3	6.5–49.7
13-year-olds	30.5	12.8–52.2	27.2	11.6–53.1	28.8	12.2–51.0
15-year-olds	28.0	16.2–45.4	23.4	12.1–39.2	25.6	14.4–42.3
Watching television ≥ 4 hours a day, weekends (%)						
11-year-olds	42.7	22.9–69.1	35.9	14.8–62.2	39.2	18.8–65.8
13-year-olds	50.7	30.7–72.2	46.8	30.2–76.6	48.7	30.5–74.4
15-year-olds	49.9	29.1–67.9	46	25.7–70.3	47.8	28.4–68.6
Using a computer ≥ 3 hours a day, weekdays (%)						
11-year-olds	17.2	7.5–41.1	6.2	2.3–20.8	11.7	4.9–31.0
13-year-olds	21.8	9.7–45.1	8.1	2.2–20.9	14.8	6.2–31.6
15-year-olds	23.6	12.9–38.3	7.7	2.9–19.8	15.3	8.8–24.5
Using a computer ≥ 3 hours a day, weekends (%)						
11-year-olds	27.7	13.6–45.4	11.7	5.4–26.9	19.7	10.2–36.2
13-year-olds	37.1	16.0–49.0	16.4	6.3–36.6	26.5	11.2–40.0
15-year-olds	40.2	19.0–50.2	15.2	5.2–33.7	27.2	12.5–37.6
Doing homework ≥ 3 hours a day, weekdays (%)						
11-year-olds	13.0	2.1–47.8	17.2	1.8–62.1	15.1	2.0–54.9
13-year-olds	15.3	0.9–55.4	24.6	2.6–76.7	20.1	1.7–66.4
15-year-olds	14.6	0.7–45.4	28.2	2.9–71.6	21.7	1.8–58.9
Doing homework ≥ 3 hours a day, weekends (%)						
11-year-olds	12.5	1.1–41.4	14.8	1.1–49.8	13.7	1.1–45.6
13-year-olds	15.3	0.8–47.0	24.2	2.3–70.3	19.9	1.8–59.0
15-year-olds	17.3	1.4–45.3	30.9	4.1–69.8	24.4	2.8–57.9

Table 7. Eating habits (see also pp. 110–119)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Eating breakfast every school day (%)						
11-year-olds	72.9	47.2–91.4	69.1	40.0–89.9	71.0	43.6–89.5
13-year-olds	67.8	38.6–83.1	57.4	33.6–75.8	62.5	36.1–79.3
15-year-olds	64.1	38.7–79.4	51.7	28.7–70.5	57.6	33.9–74.5
Eating fruit every day (%)						
11-year-olds	35.5	20.9–52.1	40.7	19.1–59.4	38.1	23.4–54.9
13-year-olds	30.4	14.6–47.9	36.1	21.8–52.8	33.3	20.4–50.7
15-year-olds	24.7	12.0–46.1	32.5	13.3–52.2	28.8	15.1–49.5
Eating vegetables every day (%)						
11-year-olds	30.5	14.1–48.0	36.1	13.4–55.6	33.3	13.7–51.8
13-year-olds	28.1	9.4–47.3	33.3	10.1–57.4	30.8	9.8–52.7
15-year-olds	25.5	7.4–46.1	32.0	10.3–60.4	28.9	9.0–53.2
Drinking soft drinks every day (%)						
11-year-olds	28.5	7.5–54.6	23.2	4.6–49.3	25.8	6.0–51.9
13-year-olds	32.8	11.3–55.0	26.7	5.9–49.2	29.7	8.6–51.7
15-year-olds	34.5	10.0–58.7	25.8	5.1–54.5	29.9	8.0–56.4
Eating sweets every day (%)						
11-year-olds	27.6	7.3–49.1	27.4	6.2–56.6	27.5	7.0–52.3
13-year-olds	29.7	11.3–59.3	30.7	10.1–55.3	30.2	10.7–57.2
15-year-olds	28.1	9.2–52.0	29.5	9.0–56.3	28.9	9.1–54.7

Table 8. Body image, weight control and body weight (see also pp. 120–129)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Dissatisfied with body (bit too fat/much too fat) (%)						
11-year-olds	21.6	7.9–30.8	27.9	10.3–45.3	24.8	9.2–35.5
13-year-olds	23.4	6.8–36.0	36.6	11.4–52.6	30.2	9.5–42.1
15-year-olds	20.4	6.7–32.2	42.2	13.0–59.9	31.9	10.2–43.0
On a diet or doing something else to lose weight (%)						
11-year-olds	9.2	4.0–18.9	11.9	4.3–28.6	10.5	4.7–23.9
13-year-olds	8.5	4.1–17.6	18.2	7.8–34.4	13.4	6.0–26.6
15-year-olds	6.9	2.4–20.8	22.6	11.5–36.2	15.1	8.4–26.6
Overweight (%)						
13-year-olds	12.0	5.0–25.0	7.9	2.9–18.1	9.9	3.9–21.3
15-year-olds	12.2	4.4–23.5	7.1	2.8–30.1	9.5	3.7–23.7
Obese (%)						
13-year-olds	2.4	0.0–9.1	1.2	0.1–5.4	1.8	0.1–7.2
15-year-olds	2.3	0.4–10.5	1.4	0.3–5.3	1.9	0.4–7.7
Overweight/Obese (%)						
13-year-olds	–	–	–	–	11.7	4.0–28.5
15-year-olds	–	–	–	–	11.4	4.1–26.6

Table 9. Oral health (see also pp. 130–132)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Brushing teeth more than once a day (%)						
11-year-olds	55.8	21.0–81.0	67.0	29.5–86.1	61.5	25.9–83.6
13-year-olds	53.7	16.0–81.0	69.2	23.1–90.5	61.6	19.7–86.0
15-year-olds	52.4	12.2–77.7	73.2	23.2–89.6	63.3	18.0–82.9

Table 10. Involvement in bullying and physical fights (see also pp. 133–144)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Bullying someone else at school at least once in the last couple of months (%)						
11-year-olds	37.0	11.9–62.1	23.5	5.4–46.2	30.2	8.6–54.3
13-year-olds	44.6	21.0–76.8	31.0	11.8–65.1	37.6	16.5–71.1
15-year-olds	44.0	25.0–79.0	28.1	13.4–67.1	35.7	19.3–73.3
Bullying someone else at school at least 2–3 times a month in the last couple of months (%)						
11-year-olds	11.5	2.4–30.1	5.5	0.6–17.8	8.5	1.5–24.1
13-year-olds	16.4	5.1–43.6	8.4	2.2–29.5	12.3	3.7–36.7
15-year-olds	18.1	4.6–49.8	7.8	1.8–32.2	12.7	3.2–41.3
Being bullied at school in the past couple of months (%)						
11-year-olds	39.9	13.9–65.5	35.2	14.9–62.1	37.6	14.4–63.0
13-year-olds	37.7	18.4–68.2	33.8	14.3–69.4	35.7	17.1–68.8
15-year-olds	28.5	10.0–63.1	25.3	11.3–59.3	26.8	12.4–61.2
Being bullied at school at least 2–3 times a month in the past couple of months (%)						
11-year-olds	16.4	5.4–37.5	12.8	3.4–33.1	14.6	4.4–35.1
13-year-olds	15.4	5.9–38.6	12.4	4.8–34.0	13.8	5.8–36.3
15-year-olds	10.7	2.0–33.2	8.4	1.7–30.4	9.5	2.4–31.8
Being involved in a fight at least once in the past 12 months (%)						
11-year-olds	61.3	34.9–74.3	23.5	7.2–37.1	42.3	23.9–53.2
13-year-olds	57.3	37.1–74.2	24.1	15.0–34.5	40.3	26.2–51.7
15-year-olds	48.6	29.4–62.7	21.0	11.2–32.6	34.2	19.8–47.5
Being involved in a fight $\geq 3$ times in the past 12 months (%)						
11-year-olds	18.4	12.2–39.4	4.8	2.3–13.3	11.6	7.4–25.6
13-year-olds	14.3	13.3–31.3	4.5	2.6–13.2	9.3	7.7–20.7
15-year-olds	11.8	7.2–27.3	3.4	1.4–12.7	7.4	4.1–18.1

Table 11. Injuries (see also pp. 145–152)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Being injured (and requiring medical attention) $\geq 1$ times in the past year (%)						
11-year-olds	51.7	31.5–68.5	40.6	20.7–52.1	46.1	26.2–60.2
13-year-olds	52.9	33.4–66.2	39.9	21.4–54.7	46.3	28.3–60.2
15-year-olds	50.8	33.4–62.9	37.6	22.1–51.4	43.9	27.6–56.8
Being injured (and requiring medical attention) $\geq 2$ times in the past year (%)						
11-year-olds	49.7	27.5–61.2	41.7	29.9–51.6	46.2	28.6–56.3
13-year-olds	48.9	30.3–57.9	40.8	29.2–52.4	45.3	30.5–53.6
15-year-olds	48.2	33.2–58.0	41.7	27.0–53.0	45.3	32.0–54.2

Table 12. Sexual health (see also pp. 153–160)

Indicator	Boys		Girls		Total	
	HBSC average	Country/Region range	HBSC average	Country/Region range	HBSC average	Country/Region range
Having had sexual intercourse, 15-year-olds (%)	28.1	18.0–70.8	20.2	3.6–78.8	23.9	14.8–75.4
Mean age of first intercourse, 15-year-olds (years)	14.0	13.5–14.5	14.3	13.6–14.9	14.1	13.5–14.6
Using a condom in most recent sexual intercourse, sexually active 15-year-olds (%)	80.2	68.5–91.2	69.6	57.6–89.1	75.5	64.1–89.2
Using at least one contraceptive method in most recent sexual intercourse, sexually active 15-year-olds (%)	86.1	73.4–92.4	84.6	62.5–97.0	85.4	73.1–94.6

## The WHO Regional Office for Europe

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

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Young people make up the segment of society that has the greatest potential to benefit from policies and health initiatives based on sound research and information. The Health Behaviour in School-aged Children (HBSC) study, through this international report on the results of its most recent survey, aims to supply the up-to-date information needed by policy-makers at various levels of government, nongovernmental organizations, and professionals in sectors such as health, education, social services, justice and recreation.

This report is the first major presentation of the international data from the 2001/2002 HBSC survey. The survey covered the physical, emotional and psychological aspects of health, and the influences of the family, schools and peers on young people aged 11, 13 and 15 years in 35 countries and regions in the WHO European Region and North America. The main body of the report gives comprehensive cross-national data on health and well-being, smoking, alcohol consumption, physical activity and sedentary behaviour, eating habits and body image, oral health, bullying and fighting, injuries and – for the first time – cannabis use and sexual health. Other chapters describe the contexts of young people's health, show some relationships between the two, and discuss the implications of the survey's main findings for the future development of policies and programmes.

The impressive scope of HBSC increases the usefulness of its findings. This book provides high-quality information valuable to all who work for and with children and adolescents – be they policy-makers, planners and practitioners, educators, parents or care givers – and of course to young people themselves. This international report should reach all key people with an interest in or responsibility for promoting young people's health.

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