



HBSC Briefing Paper 7

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HBSC is the Health Behaviour in School-Aged Children: WHO Collaborative Cross-National Study

How are Scotland's young people doing? A cross-national perspective on physical activity, TV viewing, eating habits, body image and oral hygiene

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Introduction

Scotland first participated in the *Health Behaviour in School-Aged Children (HBSC): a WHO Collaborative Cross-National Study* in 1986, along with 12 other countries. The most recent HBSC survey in 2001/2 was conducted in 35 countries, including Scotland.

HBSC makes a unique contribution to the study of young people's health through the collection of cross-national data in surveys conducted every four years using a common survey protocol. This allows the measurement and tracking of aspects of adolescent health and health-related behaviours and their developmental and social contexts.¹

The report *Young People's Health in Context* begins the international dissemination of findings from the 2001/2 HBSC survey of more than 160,000 young people.² Data from the 2001/2 survey profile health and health-related behaviours within and between countries. This information will contribute to an evidence base for policy making at local, national and international levels.

Based upon chapters in *Young People's Health in Context*, this Briefing Paper compares Scotland with other HBSC countries. The focus is on: physical activity; TV viewing; eating behaviours; body image and oral health. It is recommended that readers consult the report in its entirety for both expanded details of results and pertinent literature.

Methods

In 2001/2, 35 countries drew national samples of 11, 13 and 15 year olds in accordance with the Study protocol.¹

In the main, fieldwork took place between the autumn of 2001 and the spring of 2002.² Approximately 1,500 respondents in each age group were targeted in every country. Pupils who were absent on the day of the survey were not followed up.

Data were collected by self-administered questionnaire. On completion of fieldwork, national data files were prepared using standard documentation and submitted to the HBSC International Data Bank at the University of Bergen, Norway. Data files were checked, cleaned and returned to countries for approval prior to

How are we doing?

Scotland in a cross-national perspective

Physical Activity

- ~ In all countries, boys consistently reported meeting the physical activity guideline more frequently than girls.
- ~ In Scotland, 38.4% of boys met the guideline at age 15 as did 22.8% of girls; proportions similar to the HBSC averages for 15 year olds.

TV viewing

- ~ In Scotland, about 1 in 3 young people reported watching TV four or more hours each weekday.

Eating habits

- ~ In all countries, girls reported eating more fruit although for both genders, consumption declined with age. On average, 24.7% of 15 year old boys and 32.5% of girls reported eating fruit at least once each day.
- ~ Within Scotland among 15 year olds, 25.1% of boys and 29.3% of girls reported that they ate fruit at least once a day.
- ~ Scotland ranked 2nd in soft drink consumption for every age. At age 15, 53.9% of boys and 45.2% of girls reported consuming sugary soft drinks at least once a day.

Body image

- ~ At age 15, 20.4% of boys and 42.2% of girls in the HBSC study reported themselves to be too fat.
- ~ In Scotland, 20.6% of boys and 52.3% of girls at age 15 perceived themselves to be too fat.

Tooth brushing

- ~ In Scotland, reported tooth brushing more than once each day exceeded the HBSC averages for each age group.
- ~ In Scotland, 61.2% of boys and 78.8% of girls aged 15 reported brushing their teeth more than once a day.

their placement in the international file. Further details can be found in *Young People's Health in Context*.²

The final 2001/2 international data file is composed of data from: Austria, Belgium (Flemish and French speaking populations), Canada, Croatia, Czech Republic, Denmark, England, Estonia, Finland, France, Germany, Greece, Greenland, Hungary, Ireland, Israel, Italy, Latvia, Lithuania, FYR Macedonia, Malta, Netherlands, Norway, Poland, Portugal, Russia, Scotland, Slovenia, Spain, Sweden, Switzerland, Ukraine, the United States and Wales[†].

Presentation of Cross-National Results

Results from the 2001/02 survey represent more than 160,000 young people. Respondents were distributed fairly evenly with respect to gender and age. The mean age within each age group was 11.6, 13.6 and 15.6 years.²

The sample in Scotland was nationally representative, drawn from mixed ability classes of both state and independent schools and yielded responses from 4,404 young people in Primary 7 (11 year olds), Secondary 2 (13 year olds) and Secondary 4 (15 year olds).

This Briefing Paper focuses on 15 year olds, although data on 11 and 13 year olds are presented. Comparisons are provided between Scotland, the entire HBSC survey and a subset of participating countries. Data from England and Wales are presented to show similarities and differences within the UK. A further four countries, one from each quartile, are also presented.[§]

Each figure illustrates the cross-national range of responses and the HBSC average. The ranking of each country, for boys and girls combined, is also shown in brackets. Ranks should be interpreted with caution and may reflect relatively small cross-national differences. A country may appear in one Figure but not another because of its relative international ranking.

Physical activity

Regular participation in physical activity is known to have many positive health effects. Habits established early in life are likely to persist and can affect health-related outcomes throughout life.

There is growing concern over the small and irregular amounts of physical activity reported by many young people and that boys are more likely to report being active than girls. This, combined with increasing levels of obesity, is of international concern.³⁻⁶

Current guidelines for young people are as follows:

- ideally, all young people should participate in physical activity of at least a moderate intensity for one hour each day for not less than five days a week
- for those young people currently undertaking little activity, the guidelines recommend a daily target of 30 minutes, initially
- furthermore, it is recommended that activities specifically aimed

at improving muscular strength, flexibility and bone health should be undertaken two or more days each week.

Moderate-to-vigorous physical activity (MVPA) was measured using two items, and was preceded by a definition and examples; the latter varied cross-nationally. The following was used in the Scottish survey.

Physical activity is any activity that increases your heart rate and makes you get out of breath some of the time. Physical activity can be done in sports, school activities, playing with friends, or walking to school. Some examples of physical activity are running, walking quickly, cycling, dancing, skateboarding, swimming, football, and gymnastics. For these next two questions, add up all the time you spend in physical activity each day.

- Over the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day?*
- Over a typical or usual week, on how many days are you physically active for a total of at least 60 minutes per day?*

Response categories were: 0 days, 1, 2, etc. ...up to 7 days.

An average score (a+b/2) of five or more meets the primary guideline of at least 60 minutes of MVPA on five or more days.

Physical activity patterns varied cross-nationally by age and gender. In all HBSC countries, boys reported more physical activity than girls at all ages (Figure 1). For 15 year olds in each country, the proportion of boys that met the guideline ranged from 22.6% to 57.1% and for girls the range was 11.2% to 41.8%.

Cross-nationally, the proportion of young people who met the MVPA guideline declined between age 11 and age 15. For boys, 43.8% met the guideline at age 11 and 35.3% at age 15. For girls, 33.1% met the MVPA guideline at age 11 and 22.3% at age 15.

In Scotland; 38.4% of boys met the guideline at age 15 as did 22.8% of girls. These proportions are similar to the HBSC average, although the gender gap (15.6%) is slightly wider.

It is noteworthy that with the exception of boys in the USA, no more than 50% of any national sample met the 60 minute guideline. The consistent differential between levels reported by boys and girls suggests the need for gender specific initiatives.

Sedentary behaviour

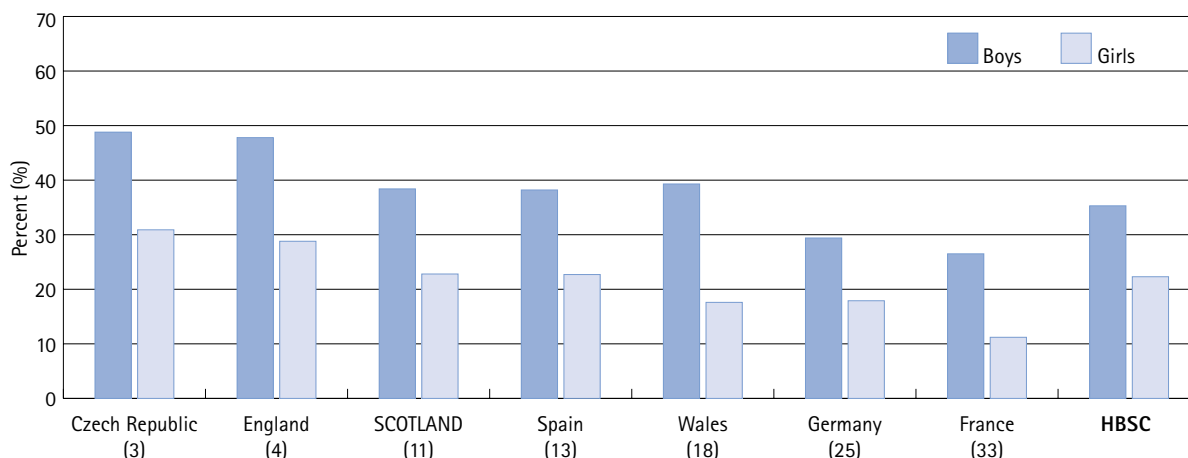
Over recent years, growing attention has been paid to measuring sedentary behaviours. There is evidence to suggest that being sedentary and being physically active are not mutually exclusive. Rather, it is the balance of these activities which is important in relation to well-being, energy consumption and energy expenditure.

Three sedentary behaviours were examined; time spent watching television, using a computer and doing homework. Weekday television

[†] A regional sample was selected in Germany (Nordrhein-Westfalen, Berlin, Hessen and Sachsen). Separate studies were carried out in Flemish and French speaking populations in Belgium, England, Scotland and Wales. Due to the small size of the 11, 13 and 15 year old population in Greenland, a census was taken.²

[§] Non-UK countries were ranked according to the responses from boys and girls combined. Countries ranked 3rd and 11th from the top and 3rd and 11th from the bottom of a cross-national comparison were used to represent the top two quartiles and the bottom two quartiles.

Figure 1. Proportion of 15 year olds that report meeting the current physical activity guideline.



Percent (%) meeting the MVPA guideline

Age	Boys	Girls
	Scotland (HBSC average)	Scotland (HBSC average)
11	54.6 (43.8)	41.1 (33.1)
13	46.3 (40.9)	28.2 (26.9)
15	38.4 (35.3)	22.8 (22.3)

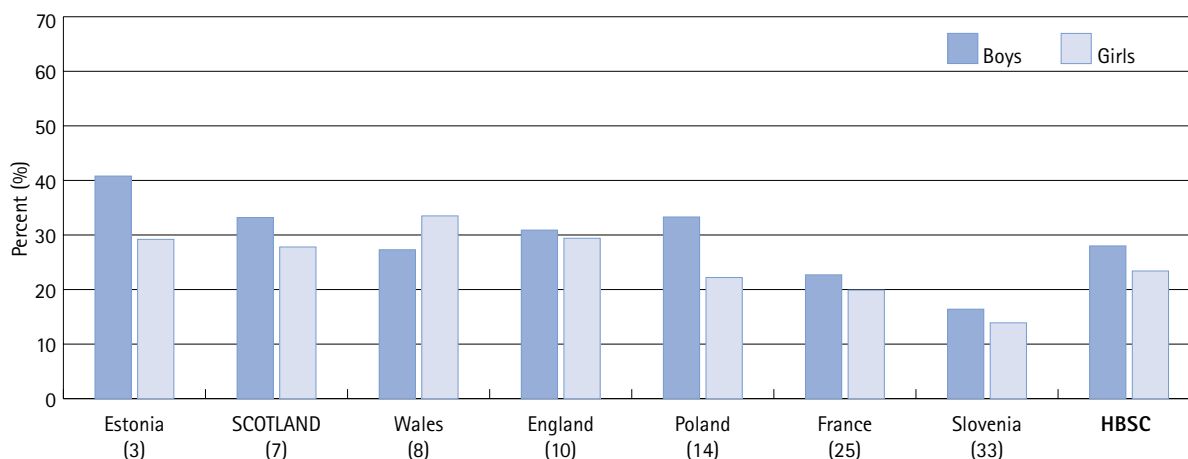
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viewing is presented here[†]. The following question was used:

About how many hours a day do you usually watch television (including videos) in your free time?

Response categories were: *None at all; About half an hour a day; About 1 hour a day; About 2 hours a day; About 3 hours a day; About 4 hours a day; About 5 hours a day; About 6 hours a day; About 7 or more hours a day.*

Figure 2. Four or more hours of TV viewing on weekdays as reported by 15 year olds.



Percent (%) reporting 4 or more hours of TV viewing each weekday

Age	Boys	Girls
	Scotland (HBSC average)	Scotland (HBSC average)
11	31.5 (26.5)	29.8 (22.1)
13	30.2 (30.5)	31.5 (27.2)
15	33.2 (28.0)	27.8 (23.4)

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[†] N.B. Definitions of weekday and weekend vary cross-nationally and within countries. Data were collected to measure weekday and weekend participation separately.¹

Reports of watching TV four or more hours each weekday varied cross-nationally (Figure 2). Neither age nor gender appeared to have a consistent cross-national effect.

Across the HBSC sample of 15 year olds 25.6% reported watching TV four or more hours each weekday, responses ranging from 14.4% to 42.3%. Boys reported more viewing than girls (28.0% and 23.4%, respectively).

Scotland ranked 7th, above the HBSC average (Figure 2). At age 15, 33.2% of boys in Scotland reported watching TV four or more hours each weekday as compared with 27.8% of girls.

At all ages, about one in three young people in Scotland reported watching TV for four or more hours each weekday, a similar proportion to that in England and Wales. Many professionals advise against excessive time spent engaged in sedentary activities and, like physical activity, targeted interventions may be necessary.

Eating habits

A number of factors can affect dietary intake, including economic, familial, cultural and peer group influences. During adolescence, young people are apt to have more freedom as compared to their childhood years. This includes exercising choices about foods, snacks and drinks.

There is also a greater propensity for young people to either skip meals, prepare their own foods, or consume foods and beverages away from home as independence increases.

Eating habits established in adolescence are often carried into adulthood. Reliance on soft drinks and sweets may replace the consumption of more nutritionally advantageous foods and may be

linked with growing prevalence of obesity in young people.⁷

Food and beverage consumption was measured using the following question:

*How many times a week do you usually eat or drink...
Fruits / Vegetables / Sweets (candy or chocolate) / Coke or other soft drinks that contain sugar*

Response categories were: *Never; Less than once a week; Once a week; 2–4 days a week; 5–6 days a week; Once a day, every day; Every day, more than once.*

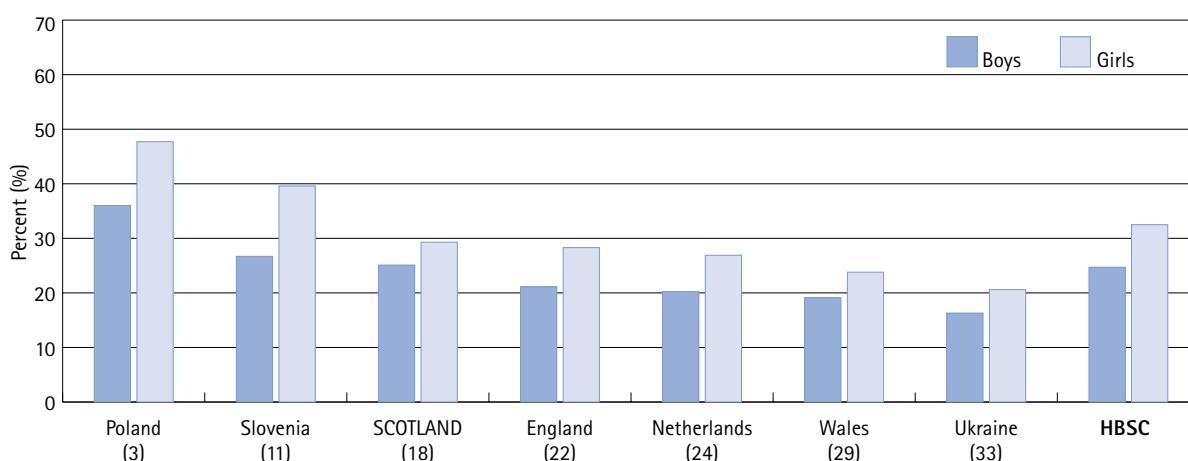
Results presented here focus on 15 year olds who reported eating fruit or drinking sugary soft drinks at least once each day, representing the last two response categories.

Reports of daily fruit consumption varied between countries, and by gender (Figure 3). Consumption also declined with age. On average, 28.8% of all 15 year olds reported consuming at least one piece of fruit every day with reports among boys lower than those from girls (24.7% and 32.5% respectively). With few exceptions, girls reported eating fruit more regularly than boys.

Within Scotland, 27.2% of 15 year olds reported that they ate fruit at least once a day; 25.1% of boys and 29.3% of girls. However, between the ages of 11 and 15, fruit consumption declined, by 12.0% in boys and 16.0% in girls, reflecting the cross-national trend.

Daily soft drink consumption ranged from 8.0% to 56.4% for 15 year olds across all HBSC countries. On average, boys reported that they drank sugary soft drinks more frequently than girls (Figure 4, 34.5% and 25.8%, respectively). The frequency with which young

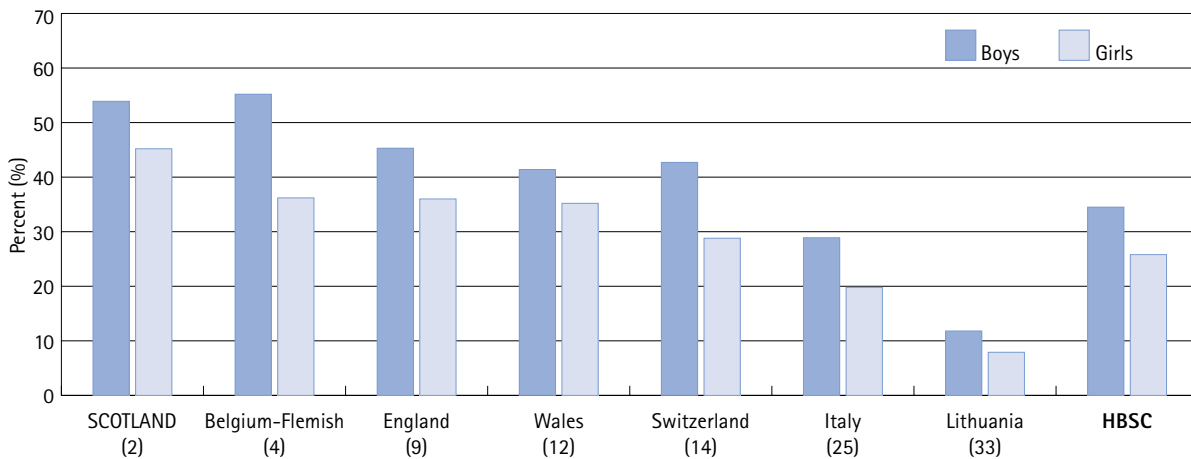
Figure 3. Reported daily fruit consumption among 15 year olds.



Percent (%) reporting daily consumption of fruit

Age	Scotland (HBSC average)	
	Boys	Girls
11	37.1 (35.5)	45.3 (40.7)
13	30.7 (30.4)	32.9 (36.1)
15	25.1 (24.7)	29.3 (32.5)

Figure 4. Reported daily sugary soft drink consumption among 15 year olds.



Percent (%) reporting daily soft drink consumption

Age	Boys	Girls
	Scotland (HBSC average)	Scotland (HBSC average)
11	47.3 (28.5)	40.4 (23.2)
13	51.6 (32.8)	44.9 (26.7)
15	53.9 (34.5)	45.2 (25.8)

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people reported drinking soft drinks exceeded that of eating fruit in 17 countries, including Scotland.

Within Scotland, soft drink consumption rose slightly between the ages of 11 and 15. At age 15 (Figure 4), 53.9% of boys in Scotland consumed sugary soft drinks at least once a day compared to 45.2% of girls. Only in Israel did soft drink consumption exceed that reported in Scotland, at any age.

Consumption of soft drinks or fruit cannot be considered in isolation from other aspects of diet. Often a sugary drink is more accessible and less expensive than bottled water. It can be cheaper and easier to buy chocolate than a fresh apple. Many schools are instituting healthier options and while this may have an effect, the challenge posed by widespread advertising and availability of unhealthy choices still needs to be addressed.⁷⁻⁹

Body Image

The impact of the physical and psychological changes associated with puberty that occur during adolescence affect perceptions of self. Perceptions of body image result from a multitude of factors, ranging from self esteem to the influence of the media.¹⁰

Perceptions of body image were measured using the following question:

Do you think your body is ...?

Response categories were: *Much too thin; A bit too thin; About the right size; A bit too fat; Much too fat.*

Data presented here combine the response categories *a bit too fat* and *much too fat*.

Perceptions of body image varied cross-nationally by age and gender. In 31 countries more girls than boys perceived themselves to be a bit too fat or much too fat at age 11; at age 13 this was true in 34 countries and at age 15, this was the case in all HBSC countries.

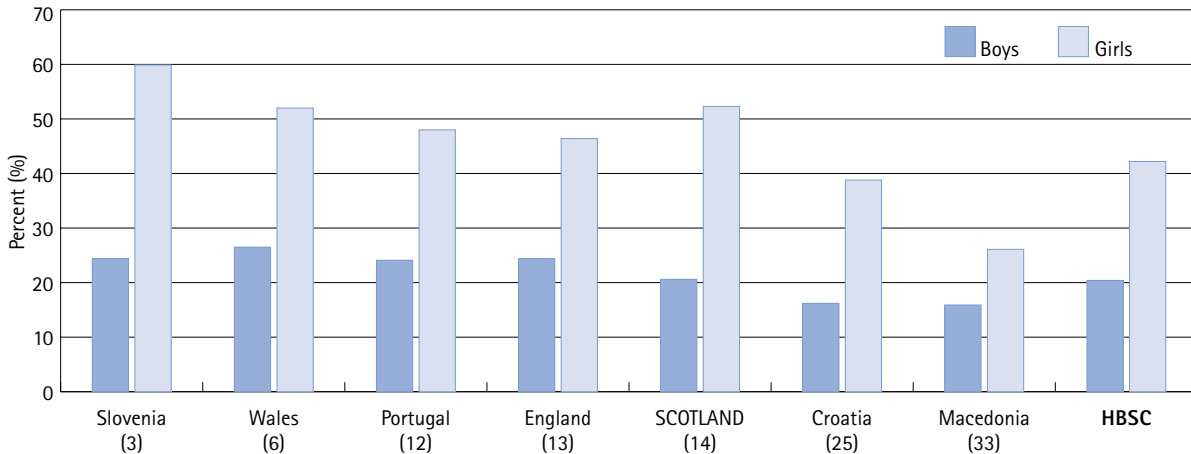
Overall, 31.9% of all 15 year olds perceived themselves to be too fat (range 10.2% to 43.3% across countries). At age 15, 20.4% of boys and 42.2% of girls in the HBSC survey reported themselves to be too fat (Figure 5). In four countries, including Scotland, gender differences at age 15 exceeded 30%.

In Scotland, 20.6% of boys and 52.3% of girls at age 15 perceived themselves to be too fat. Perceptions of body image among boys in Scotland fluctuated between 11 and 15 years and reflected HBSC averages. The proportion of girls who perceived themselves to be too fat rose by about 18% between ages 11 and 15 years and were consistently above HBSC averages.

Feeling too fat may be an accurate reflection of reality. Equally plausible is the possibility that girls, in particular, perceive themselves to be fat as a consequence of media images and this may have little to do with actual body weight.

Unrealistic perceptions of body size carry opposing health risks. On the one hand there are inappropriate attempts at dieting. On the other hand there is the failure to recognise and manage weight gain. Psychologically, an unfavourable body image may engender chronic dissatisfaction with self.

Figure 5. Perceptions of body image (a bit too fat / much too fat) among 15 year olds.



Percent (%) reporting feeling a bit too fat or much too fat

Age	Boys	Girls
	Scotland (HBSC average)	Scotland (HBSC average)
11	22.5 (21.6)	34.0 (27.9)
13	26.4 (23.4)	45.9 (36.6)
15	20.6 (20.4)	52.3 (42.2)

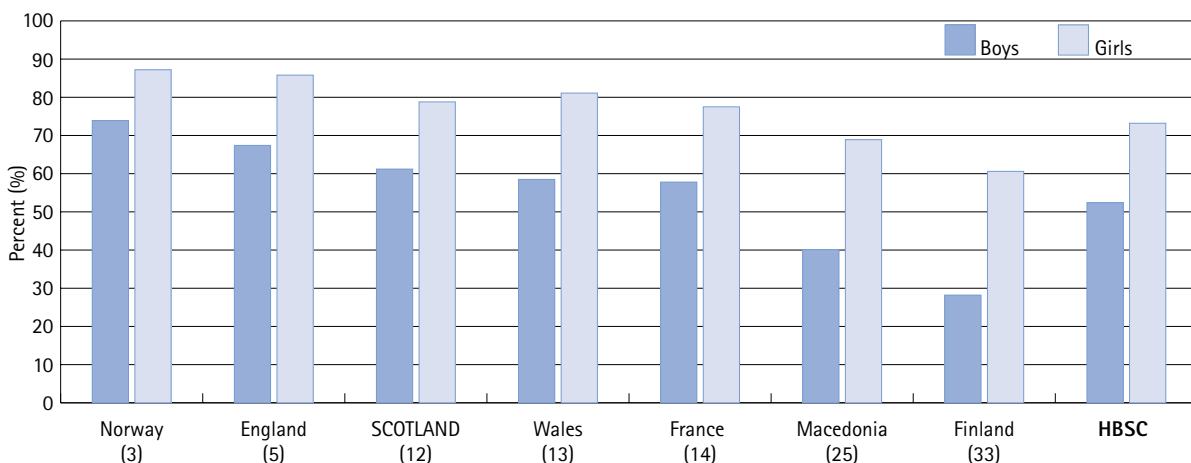
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Oral health

Oral health refers not just to the absence of diseases of the mouth but also to good oral hygiene which is critical to the prevention of dental caries. Dental caries are more prevalent among the poorest

10% of young people in Scotland¹¹ and those who consume high volumes of sugar. Oral health may also impact on body image. Tooth brushing is still the preferred method of preventing caries.

Figure 6. Reported tooth brushing, more than once a day, among 15 year olds.



Percent (%) reporting tooth brushing more than once a day

Age	Boys	Girls
	Scotland (HBSC average)	Scotland (HBSC average)
11	59.1 (55.8)	72.5 (67.0)
13	59.7 (53.7)	77.1 (69.2)
15	61.2 (52.4)	78.8 (73.2)

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Oral health habits were measured using the following question:

How often do you brush your teeth?

Response categories were: *More than once a day; Once a day; At least once a week but not daily; Less than once a week; Never.*

Reports among 15 year olds of brushing their teeth more than once a day varied between HBSC countries (18.0% to 82.9%) and by gender within countries (Figure 6). Girls of all ages were more likely to report brushing their teeth more than once a day.

Cross-nationally at the age of 15, 52.4% of boys reported brushing their teeth more than once a day (range 12.2% to 77.7%) as compared to 73.2% of girls (range 23.2% to 89.6%). Rates in Scotland and Wales were similar while rates in England were slightly higher (Figure 6).

For both boys and girls in Scotland, tooth brushing exceeded the HBSC average. At age 15, 61.2% of boys and 78.8% of girls reported brushing their teeth more than once a day.

Although levels of tooth brushing are relatively high, the differences within and between countries continue to present a challenge.¹² Poor oral health can not only lead to disease but it can also adversely affect appearance and social opportunities.

Acknowledgements

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HBSC publications and HBSC information

Further information on the international report from the 2001/02 survey can be obtained from the International Study website www.hbsc.org. The International Coordinating Centre of the HBSC Study is the Child and Adolescent Health Research Unit (CAHRU), The University of Edinburgh.

Reports from this and earlier surveys include

Alexander LM, Currie C, Todd J and Smith R. (2004). *HBSC Briefing Paper 6: How are Scotland's young people doing? A cross-national perspective on health-related risk*. Child & Adolescent Health Research Unit (CAHRU), Edinburgh.

Alexander LM, Currie C, Todd J and Smith R. (2004). *HBSC Briefing Paper 5: How are Scotland's young people doing? A cross-national perspective on physical and emotional well-being*. Child & Adolescent Health Research Unit (CAHRU), Edinburgh.

Alexander LM, Currie C (2004). *HBSC Briefing Paper 4. Mental-health and well-being in the context of school: Young people in Scotland*. Child & Adolescent Health Research Unit (CAHRU), Edinburgh.

Alexander LM, Currie C and Todd J. (2003). *HBSC Briefing Paper 3. Gender Matters: Physical activity patterns of schoolchildren in Scotland*. Child & Adolescent Health Research Unit (CAHRU), Edinburgh.

Currie C and Todd J. (2003). *HBSC Briefing Paper 2. Mental well-being among schoolchildren in Scotland: age and gender patterns, trends and cross-national comparisons*. Child & Adolescent Health Research Unit (CAHRU), Edinburgh.

Currie C, Todd J and Smith R. (2003). *HBSC Briefing Paper 1. Introduction, background and dissemination of the 2002 HBSC survey in Scotland*. Child & Adolescent Health Research Unit (CAHRU), Edinburgh.

