Health Policy for Children and Adolescents, No. 4

WORLD HEALTH ORGANIZATION
EUROPE

Young people's health in context

Health Behaviour in School-aged Children (HBSC) study: international report from the 2001/2002 survey

hbsc

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Health Behaviour in School-aged Children (HBSC) study: international report from the 2001/2002 survey

Edited by:
Candace Currie, Chris Roberts, Antony Morgan, Rebecca Smith, Wolfgang Settertobulte, Oddrun Samdal *and* **Vivian Barnekow Rasmussen**

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Candace Currie, Chris Roberts, Antony Morgan, Rebecca Smith, Wolfgang Settertobulte, Oddrun Samdal and Vivian Barnekow Rasmussen

[1] HBSC: Health Behaviour in School-aged Children: a World Health Organization collaborative cross-national study. Edinburgh, Child and Adolescent Health Research Unit, University of Edinburgh, 2002 (http://www.hbsc.org, accessed 26 January 2004).

Preface

The Health Behaviour in School-aged Children (HBSC) study provides unique insight into the health and behaviour of young people. It gives information about a much-neglected segment of society – but one that has the greatest potential to benefit from policies and health initiatives based on sound research and information.

This HBSC international report is relevant to all people working for and with this age group, be they policy-makers, planners, educators, teachers, parents, care givers and of course, young people themselves. WHO is grateful to the researchers carrying out the work, but is especially grateful to the young people who participated in the study. The data published here are theirs, resulting from an openness and willingness to share what are in many cases very personal issues. Without their trust and cooperation there would be no HBSC international report.

The study has been carried out over a wide geographical area and covers wide-ranging health topics. They include the physical, emotional and psychological aspects of health, and the influences of the family, schools and peers, and of socioeconomic and developmental factors. The quality and value of the information offered are high, so this international report should reach all key people who have an interest in or are responsible for promoting young people's health.

To maximize the use and impact of this publication, the WHO Regional Office for Europe, through its recently established European Office for Investment for Health and Development, will hold annual fora to facilitate the discussion of HBSC findings, create opportunities for advocacy and strengthen commitment to the promotion of the health of young people. This process is part of a wider plan to make these findings more accessible to a broad range of interested stakeholders at the international, national and local levels. The first priority is to raise the profile of reports, particularly among policy-makers, public health institutions and the mass media.

In these dissemination efforts, we at WHO shall also seek to put young people at the heart of the process. We see them as full partners in defining issues, considering strategy and examples of good practice, and debating options and alternative action to enhance their health. As citizens in their own right, children and adolescents are entitled to advocate and act upon their own health. They should also expect that their health will be actively promoted and protected as a fundamental policy objective in all civilized societies. This HBSC international report and WHO's work to promote it are intended to be important tools for pushing forward the agenda for young people's health.

Erio Ziglio
Head, Investment for Health and Development,
WHO Regional Office for Europe

Foreword

Looking after the health of young people is of vital importance for WHO's Member States and the European Region as a whole. The future rests with the younger population. We adults are obligated to ensure that we support and make the right investments in the promotion of the health of young people. We need a healthy, balanced, equitable foundation on which the younger members of society can grow and prosper.

The Health Behaviour in School-aged Children (HBSC) study, a WHO collaborative study, is a unique initiative that deepens our understanding of young people's perceived health, knowledge, attitudes and behaviour. We know that attitudes, behaviour and lifestyle patterns strongly influence well-being, and are shaped at a young age. It is important to know what factors determine these lifelong patterns.

HBSC fills a gap in research on people aged 11–15 years, recognizing that they are an integral part of society and not simply future adults. The study is truly collaborative and a good example of international cooperation and exchange of expertise and information. The results of the HBSC study provide a practical resource for public health work and health promotion. The information is increasingly used to complement the vast health for all data set, shedding light on a segment of the European population on which there had been a chronic lack of data, both in the European Region and worldwide.

At the WHO Regional Office for Europe, we are proud that so many countries and regions took part in the study and are active participants in HBSC. Many European countries – and Canada and the United States of America – contributed to this study, providing a far-reaching product and allowing broad geographical comparisons that are important in assessing health and behavioural trends. We hope that, encouraged by this report, all European Member States will soon become a part of HBSC and engage in this important work.

Over the years, HBSC has played a key role in providing the evidence needed for effective policies and programmes to create better opportunities for young people's health. We predict that HBSC will continue to foster discussion on and commitment to young people's health within and beyond the European Region.

This HBSC international report adds to the current efforts of the Regional Office and Member States to approach health as a fundamental human right of young people. The report clearly shows that the health of children and adolescents in the Region leaves much scope for improvement.

Marc Danzon
WHO Regional Director for Europe

Introduction –

Candace Currie and Chris Roberts

The Health Behaviour in School-aged Children (HBSC) study

The Health Behaviour in School-aged Children (HBSC) study, established 22 years ago, is cross-national research conducted by an international network of research teams in collaboration with the WHO Regional Office for Europe. Its aim is to gain new insight into and to increase understanding of young people's health, well-being, health behaviour and social context. Researchers from three countries started the HBSC study in 1982 *(1)*; since then, a growing number of countries and regions has joined the study network (Table 1.1).

The study considers young people's health in its broadest sense – physical, social and emotional well-being, not merely the absence of disease – thus, health is viewed as a resource for everyday living. HBSC is unique because, in addition to monitoring the health and health behaviour of young people over time and across countries, it encompasses the wider context of health. This includes investigating family, school

Table 1.1. HBSC surveys: countries and regions included in the international data files

HBSC surveys					
1983/1984	**1985/1986**	**1989/1990**	**1993/1994**	**1997/1998**	**2001/2002**
England	Finland	Finland	Finland	Finland	Finland
Finland	Norway	Norway	Norway	Norway	Norway
Norway	Austria	Austria	Austria	Austria	Austria
Austria	Belgium (French)	Belgium[a]	Belgium (French)	Belgium (French)	Belgium (French)
Denmark[b]	Hungary	Hungary	Hungary	Hungary	Hungary
	Israel	Scotland	Israel	Israel	Israel
	Scotland	Spain	Scotland	Scotland	Scotland
	Spain	Sweden	Spain	Sweden	Spain
	Sweden	Switzerland	Sweden	Switzerland	Sweden
	Switzerland	Wales	Switzerland	Wales	Switzerland
	Wales	Denmark[b]	Wales	Denmark	Wales
	Denmark[b]	Netherlands[b]	Denmark	Canada	Denmark
	Netherlands[b]	Canada	Canada	Latvia	Canada
		Latvia[b]	Latvia	Northern Ireland	Latvia
		Northern Ireland[b]	Northern Ireland	Poland	Poland
		Poland	Poland	Belgium (Flemish)	Belgium (Flemish)
			Belgium (Flemish)	Czech Republic	Czech Republic
			Czech Republic	Estonia	Estonia
			Estonia	France	France
			France	Germany	Germany
			Germany	Greenland	Greenland
			Greenland	Lithuania	Lithuania
			Lithuania	Russian Federation	Russian Federation
			Russian Federation	Slovakia	England
			Slovakia	England	Greece
				Greece	Portugal
				Portugal	Ireland
				Ireland	USA
				USA	The fomer Yugoslav Republic of Macedonia
					Netherlands
					Italy
					Croatia
					Malta
					Slovenia
					Ukraine

[a] National data file.

[b] Carried out the survey after scheduled fieldwork dates.

and peer settings, and the socioeconomic environment in which young people grow up, to understand what factors shape and influence their health and health behaviour.

The study produces a range and depth of information that are unobtainable from most monitoring studies. It has developed a research instrument that has a strong conceptual base and includes a coherent set of indicators of the social and individual determinants of health, as well as of health and behavioural outcomes. These are described in detail in the international research protocol for the 2001/2002 survey *(2)*.

The 2001/2002 HBSC survey

HBSC surveys are carried out at four-year intervals. Their findings are used to inform and influence health promotion and health education policy and practice for young people at the national and international levels, and to advance scientific knowledge. The 2001/2002 survey, on which this report is based, is the sixth in the series and the most recent. It was conducted successfully in 35 countries and regions (Table 1.1).

The data are collected in all participating countries and regions through school-based surveys, using the international research protocol. The survey instrument is a standard questionnaire developed by the international research network. The target population of the study comprises young people attending school, aged 11, 13 and 15 years. These three age groups represent the onset of adolescence, the time when young people face the challenges of physical and emotional change; and the middle years, when important life and career decisions are beginning to be made.

The questionnaire consists of a set of mandatory items that each country or region must use to facilitate the collection of a common set of data. These are the data presented in this international report. In addition, optional questionnaire items cover specific topics. Data from these will be reported in future publications.

Annex 1 describes the survey methods in detail. A brief summary is given here.

Sampling and data collection

The 2001/2002 HBSC survey was carried out in the following countries and regions in the WHO regions of the Americas and Europe: Austria, Belgium (the Flemish- and French-speaking populations), Canada, Croatia, the Czech Republic, Denmark, England, Estonia, Finland, France, Germany, Greece, Greenland, Hungary, Ireland, Israel, Italy, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, the Russian Federation, Scotland, Slovenia, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Ukraine, the United States of America and Wales.

A regional sample was selected in Germany (Berlin, Hessen, North Rhine-Westphalia and Saxony). Separate studies cover the Flemish- and French-speaking populations in Belgium, and England, Scotland and Wales in the United Kingdom. As the population of Greenland is relatively small, a census of the school population was taken and all children registered at school within the target age groups were surveyed, except those not present on the day of data collection. Fieldwork took place in all countries between autumn 2001 and spring 2002. Unfortunately, the sample size for Slovakia was considered too small to be included in the 2001/2002 international data file.

About 1500 respondents in each of the three age groups were targeted in every country. Children were selected using a clustered sampling design, where the initial sampling unit was either the school class or the school. The latter was sampled when class lists were not available. The requirement for minimum recommended sample size was met in the majority of countries and regions.

Every effort was made to ensure that the HBSC protocol was followed and that the survey instruments and data collection and processing procedures were consistent. Specially trained personnel, teachers and school nurses administered the completion of questionnaires in school classrooms. On completion of

the fieldwork, the data were prepared, using standard documentation, and submitted to the HBSC International Data Bank at the University of Bergen, Norway. The data were checked, cleaned and returned to the countries for approval before being placed in an international file.

An overview of the report: aim and contents

This report forms part of a series directed at a range of users responsible for the development of programmes to promote the health and well-being of school-aged children. These include policy-makers at various levels of government, nongovernmental organizations, and professionals in sectors such as health, education, social services, justice and recreation.

The media, both general and specialized, are a key influence on the public and therefore on politicians, policy- and decision-makers and public agencies. They are important to the survey for dissemination and outreach and the increase of public understanding. In addition, educators can benefit from access to these data, which can help them understand the children they teach. The data can be of key importance to universities in educating future teachers and health care professionals, and to established professionals in any number of fields, including health. Thus, the data should be available for both pre-service and in-service education.

International reports are available for the 1993/1994 and 1997/1998 HBSC surveys *(3,4)*. This report is the first major presentation of the international data from the 2001/2002 HBSC survey.

Policy-makers need to work with up-to-date information on the prevalence of priority health-related behaviour and key health indicators. Such data are the central component of the report (Chapter 3).

A special feature of the report is that it places these findings in their social and developmental contexts (Chapters 2 and 4). Thus, socioeconomic circumstances, the family, the school environment, peer relations and maturation are all examined as important factors that influence the health and health-related behaviour of school-aged children. In addition, the descriptions of the social and economic aspects of life in the different countries and regions may be used to develop indicators for health promotion and health development of young people, as described in Chapter 5.

Chapter 2 presents basic descriptive data on topics such as the socioeconomic status of the family, the structure of and communication within the family, peer groups and friendship patterns, and the school environment. Previous research, both within the HBSC study and elsewhere, has demonstrated that these social contexts strongly influence the health of young people in its broadest sense. Thus, the report pays due attention to the complex social arena in which health develops. Any attempt to promote the health of young people needs to consider these contexts and integrate them into the design of interventions and preventive programmes.

Chapter 3 is the main body of the report, which deals with the health and health-related behaviour of girls and boys aged 11, 13 and 15. The data are presented in sections on: health and well-being, smoking, alcohol consumption, the use of cannabis, physical activity and sedentary behaviour, eating habits and body image, oral health, bullying and fighting, injuries and sexual health. Previous HBSC international reports have covered many of these topics, but this report is the first to provide comprehensive cross-national data on sexual health and the use of cannabis.

Chapter 4 demonstrates the relevance of social and developmental context by examining some relationships between particular contextual factors and health and behavioural outcomes. This chapter is illustrative rather than comprehensive. The more complex picture of what influences young people's health will unfold in future HBSC reports and scientific papers. Publications from previous HBSC surveys are listed on the HBSC web site *(5)*.

Chapter 5 summarizes the main findings of the survey described in Chapters 2–4, and discusses their implications for the future development of policies and programmes to improve the health and well-being of young people.

Presentation of findings in Chapters 2–4

Most of the findings in this report are presented as proportions in simple bar charts, broken down by country/region, age and gender and presented in descending order of prevalence for boys and girls combined. The figures in Chapter 4, however, present countries and regions in alphabetical order, as the purpose is to demonstrate relationships between variables and/or similarities in patterns rather than to make rankings. Typically, the data from one or a combination of response categories are presented, such as the proportion of weekly smokers. In a few sections, the authors have also presented the relationships between variables of interest and factors related to them in the form of simple bivariate associations. In most cases, these associations have been calculated by aggregating the data for all the countries, to provide general patterns.

Interpreting the findings

Many researchers and policy-makers want to be able to understand the similarities and differences among participating countries and regions and how these have changed over time. The ability to address such issues is clearly one of the attractions of an international study such as HBSC, and efforts are being made to standardize the methods used to do so in each country. Nevertheless, the findings presented in this report should be interpreted with some caution.

Annex 1 covers sampling in some detail, but it is important to touch on some of the aspects of the HBSC sampling design that could have implications for interpretation of the findings presented here. The cluster sampling used in the study results in a correlation of items across respondents depending on the extent to which those making up a cluster (such as a school class) share similar behaviour or views. For example, class members are more likely to have similar views about liking school than about how easily they communicate with their parents. Greater weight can therefore be placed on small percentage differences (for example, between boys and girls or among countries and regions) for those items where the level of clustering is smaller, such as communicating with parents.

As mentioned, owing to the small sample size of Greenland and Malta, the sampling strategies used differed from those adopted in other areas. Confidence intervals for the data collected in Greenland are within the guidelines set out in the HBSC protocol when the data are presented for the region as a whole or by gender. When data are disaggregated by age and gender, however, confidence intervals are likely to be 4–8%, approximately twice those for data from other countries and regions.

While sample design is important, many other factors should be considered when looking at the findings presented here. The survey encompassed many different schooling systems and many cultures and languages; the methods of survey administration also varied within and between countries and regions. The importance of culture and language should not be underestimated when definition of concept is required as part of any item used in the survey: for example, when providing common definitions of physical activity or bullying. Samples may also differ in terms of variables such as age, socioeconomic status, school system and geographical coverage. 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 and that the number of smokers may therefore be underrepresented in the data *(6)*. Further, seasonal differences in the timing of fieldwork may affect particular variables, such as diet and physical activity. Samples may therefore vary in both geographical and temporal terms, and this should not be overlooked *(7)*.

Given this range of complicating factors, comparisons across countries and regions and over time should be interpreted with some caution. Analyses suggest that not too much importance should be attached to differences of six percentage points or fewer. Nevertheless, it is unlikely that methodological differences alone can account for some of the great variations and strong similarities presented in this report.

Collaborative research and capacity building

The report was written by 48 authors, with input from the members of the editorial group of the HBSC international research network. The authors of the chapters collaborated in the development of the HBSC protocol *(2)*, working together in topic-related focus groups, whose approaches depended on the authors' different disciplinary backgrounds and familiarity with related research paradigms. The chapters in the report therefore reflect their psychological, sociological and public health perspectives on young people's health. This diversity in approach lends richness to the report, displaying a range of viewpoints to policy-makers and practitioners.

A key objective of the HBSC study is to develop research capacity in participating countries and regions, especially in the new members where there is no tradition of research on the health of the school-aged population. Contributing to the preparation of the report proved to be one way to encourage collaborative research and help build capacity in some of the newer research teams. It also gave developing researchers the opportunity to benefit from the experience of the more established HBSC members.

WHO collaboration

Since the HBSC study became a WHO collaborative study, the WHO Regional Office for Europe has played a significant role in increasing the utilization of the findings. They are used extensively within WHO, and the study's approach and its focus on the social and economic determinants of health are fully compatible with the WHO health for all policy framework *(8)*. In addition, WHO influences the development of the HBSC study by identifying health issues of particular importance and by supporting the dissemination of results, for example, through publication in the series to which this book belongs, which targets a wide audience. WHO is also represented on the HBSC policy development group.

The Regional Office/HBSC partnership includes the WHO European Office for Investment for Health and Development. It provides many opportunities to take the study forward, for example, by developing a health forum that is planned to hold an event on young people's health, focusing on the findings presented here, in 2004.

As stated, the HBSC study has a wider goal than simply data collection. It aims to improve health through the promotion of scientific findings, which can contribute to the development of policies and programmes aimed at young people, health professionals, families, schools and the public, at both national and international levels.

Throughout the world, recognition is growing that a range of social, cultural, economic, political and physical environments affects health in all age groups. This fact is increasingly reflected in new public health agendas and policy frameworks that focus on the wider social and economic determinants of health as priorities for action. The information contained in this report aims to contribute to this process.

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Chapter 2

Life circumstances of young people

Introduction – *Antony Morgan*

Life circumstances substantially influence young people's ability to acquire, maintain and sustain good health and well-being. Moreover, research has shown that experiences and exposures across the life-course, particularly early on, have long-term implications for health and may indeed be one of the root causes of health inequality in later life *(1)*. From the outset, the HBSC study has sought to understand the health and health behaviour of adolescents by exploring the social, environmental and psychological influences on health *(2)*. It has, over the years, developed modules of questions, which have already helped to demonstrate the importance of these wider influences, and have untapped potential to map the patterns of health and health behaviour of young people in social contexts *(3–5)*.

Given the increasing commitment in international policy-making to take account of the contexts of people's lives when developing strategies for health, it is timely for HBSC to raise the profile of the information it collects on the life circumstances of young people. In doing so, HBSC will demonstrate its potential to contribute to an evidence base aimed at narrowing the gaps in health

found worldwide between groups differing in socioeconomic status, geographical location, gender, race and ethnicity *(6)*.

Previous HBSC reports *(7–8)* have highlighted family, school, peers and socioeconomic circumstances as the key contexts related to the health and health behaviour of young people. The next four sections of this chapter introduce these contexts to the reader by:

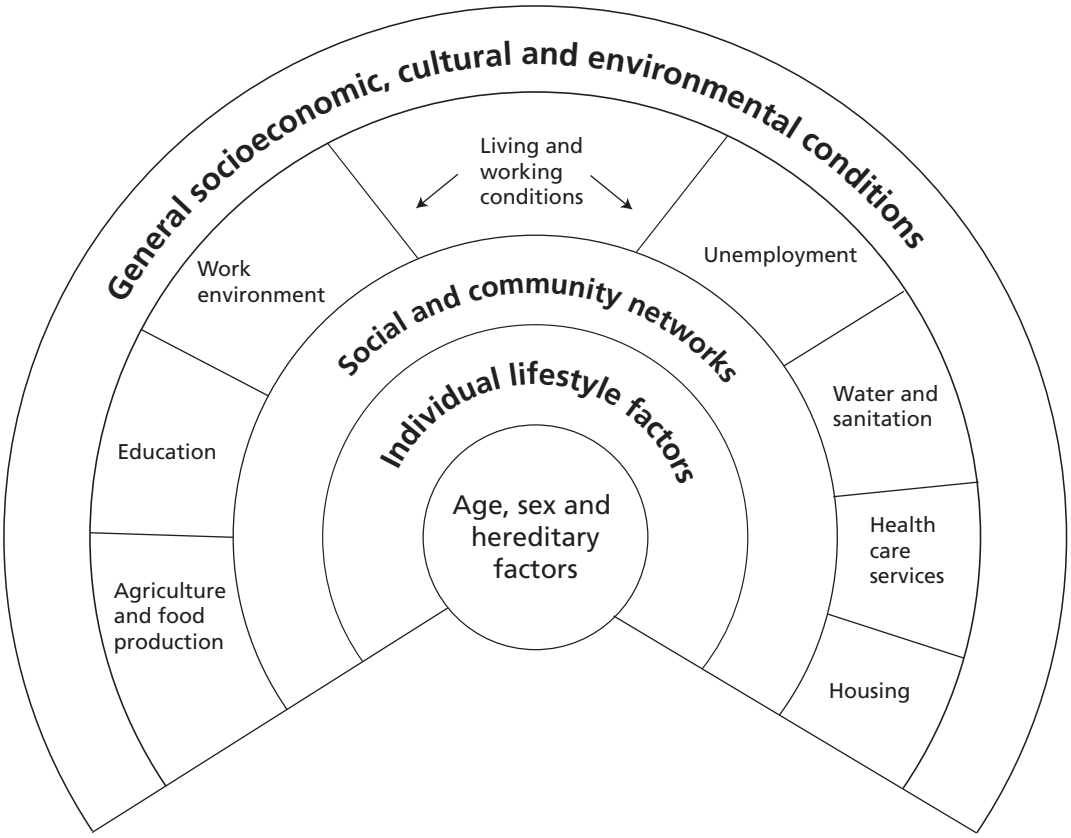
- discussing their importance to the health of young people;
- describing some of the measures developed to portray their significance to young people's health and health behaviour; and
- illustrating the differences and similarities in the patterns of these contexts across countries and regions, age groups and genders.

These sections provide a framework for the more detailed analytical approach taken in Chapter 4, which examines the relationships between these contexts and a range of health and related outcomes.

Importance of context

Internationally, recognition of the importance of the wider determinants of health has increased over the last 10 years. Consequently, models have been developed to identify the range of determinants and their influence on health. One such model, frequently used in international and national policy documents, is Dahlgren's policy rainbow *(9),* which describes the layers of influence on an individual's potential for health (Fig. 2.1). It presents a social model for health, including fixed factors such as age, gender and

Fig. 2.1. The policy rainbow



Source: based on Dahlgren *(9)*.

genetic characteristics, and a set of potentially modifiable factors, both within and outside the individual's control.

Whitehead *(10)* describes these layers of influence in the context of action required by policy-makers to tackle health inequalities. The model prompts questions about how much the factors in each layer influence health, what is the feasibility of changing specific factors and what action would be required for the factors in one layer to influence those to which they are linked in others.

From a research perspective, the model provides a useful framework for building analytical strategies to test existing theories on the health and health behaviour of young people and to support the development of new ones. The model reinforces the need to build these strategies at the individual, environmental (including social interaction) and societal levels, as identified in previous HBSC research protocols *(4,5)*.

Over the years, HBSC has encouraged a broad approach to understanding the health and health behaviour of young people and has not restricted itself to the concepts or frameworks of any specific theoretical perspective. Various conceptual approaches are integrated into the study, reflecting the participation of researchers from different disciplinary backgrounds *(3)*. The strength of the HBSC study therefore lies in its ability to accommodate a range of complementary and often overlapping approaches, resulting in the possibility to develop a more sophisticated and multifaceted understanding of health in young people.

Some authors *(11,12)* call for the development of new theories on the differential health experiences of various population groups living in different contexts and circumstances. The development of any new theory relies on the ability accurately to conceptualize and measure the particular phenomenon being studied. One of the unique features of the HBSC study is the availability of a large range of tried and tested social indicators to support theory development using a social model of health.

Policy-makers, researchers and practitioners interested in promoting the health and well-being of young people need to understand the influences of families, schools, peers and the socioeconomic environment. The following four sections introduce the work done in these areas over the last few years. They provide HBSC with the possibility to add to knowledge of the complex jigsaw of the determinants of health described by Dahlgren *(9)*. They set the scene for the use of a number of contextual indicators in Chapter 4 of this report, which explores the health of young people in relation to their life circumstances.

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Socioeconomic inequality – *William Boyce and Lorenza Dallago*

Introduction

This section introduces the basic rationale for studying socioeconomic status and inequality in young people's health. In defining public health policies across socially, demographically or geographically defined populations, considering inequality is crucial *(1)*. Socioeconomic status, which is considered to be a major social basis for inequality, is a composite measure that incorporates economic status (income), social status (education) and work status (occupation). Although socioeconomic inequality is very difficult to change at the country level, it remains an extremely important predictor of health at all ages.

Impact of socioeconomic inequality on adult health

Socioeconomic status is important to health for both theoretical and practical reasons. From a research perspective, differences in this status have been shown to have both a direct and an indirect impact on health *(2)*. Health behaviours such as smoking, dieting, physical activity and alcohol use are directly linked to both socioeconomic status and health outcomes in adults. There is also evidence that psychological characteristics in adults, such as depression, hostility, anxiety, poor self-esteem, psychological stress and lack of coping resources, are indirectly associated with low socioeconomic status *(3–5)* and that this association occurs at every income level. Not only do people living in poverty have poorer health than those in more favourable circumstances, but those at the highest end of the scale enjoy better health than those at a slightly lower level *(6,7)*. This pattern poses the challenge of understanding how socioeconomic status affects health.

There are two major trains of thought. The first takes a material view, suggesting that the health disadvantage of the poor is due mainly to the direct physiological effects of lower absolute material standards, such as bad housing, poor diet and inadequate heating. The second takes the psychosocial perspective, suggesting that stress associated with being poorer than neighbours or other relevant reference groups results in health disadvantage. Having a lower social position can lead to chronic mental and emotional illness resulting in direct physiological consequences, as well as to indirect exposure to behavioural risks in the form of stress-relief strategies, such as smoking, drinking and overeating. These different views lead researchers to focus either on absolute differences in material wealth or on relative differences in social position, using the appropriate measures of socioeconomic status for each.

Poverty

From a practical perspective, the association between socioeconomic status and health is of concern because, across the industrialized world, socioeconomic inequality and the number of people living in poverty are increasing. This is the case throughout the western half of the WHO European Region, Canada and the United States. In the eastern half of the WHO European Region, a widening gap between the poor and the rich has replaced the comparative equality in standards of living and access to opportunities in life that existed before the 1990s *(8,9)*. Increasing socioeconomic inequality has changed family living conditions for children and adolescents. Globalized or restructured economies have resulted in reduced material and social well-being, as parents increasingly are unemployed, have low-paid employment or are employed on a contractual basis without social benefits.

In most industrialized countries, about 5–15% of all children under the age of 16 are living in poverty, as measured by national standards *(10)*. The Nordic countries have the lowest rates of child poverty, followed by northern European countries. In southern European countries and the United Kingdom, much larger proportions of children live in poor households. The eastern countries of the Region have

very high poverty rates, as measured in constant (inflation-adjusted) international dollars, while their relative poverty rates vary widely. The United States has a much higher level of child poverty than its national income level would suggest *(11)*.

According to new research sponsored by the United Nations Children's Fund (UNICEF) *(12)*, many more children experience poverty than is reflected in standard statistics. Child poverty rates of 8–25% were recorded in Germany, Hungary, Ireland, Spain, the United Kingdom and the United States during single years in the 1990s, but the proportion of children who had lived in poverty at some time was significantly higher. In the United Kingdom, for example, 39% of children had lived in poverty at least once in a five-year period – more than twice the child poverty rate for any single year. This pattern was seen in many countries in the European Region. Over a ten-year period, one in five children in Germany and more than two in five in the United States had lived in poverty at least once *(11,13)*. Even periodic poverty can significantly affect the health of young people during the sensitive developmental stages of their lives.

As described in the following section, family structures have changed in recent years. Young people live in a wide range of structures, including single-parent families, stepfamilies and so-called commuter families: those whose members live together only part of the time, owing to the employment patterns of the parents. Family structure has been associated with poverty *(11,14)*, with certain types being more prone to poverty. For example, only 37% of young people live in families with three or more children, yet these families constitute nearly half of all those living in poverty *(14,15)*. Other factors, however, may mediate the association between child poverty and family size. For example, single parents, usually young mothers, are at a higher risk of poverty, but are also more likely to have smaller families *(16,17)*. On the other hand, larger families are more likely to be found in some ethnic groups, where there are also high rates of unemployment *(17–19)*.

Evidence on social inequalities in the health of young people

Inequalities in socioeconomic status have been shown to be of key importance to the health of adults and younger children according to a wide range of indicators, including mortality, morbidity, psychosomatic and somatic illness and perceived health *(7,20)*. The evidence on social inequalities in adolescent health is much less clear. Some authors find strong relationships between socioeconomic status and health in young people *(21–23)*, while others find weak or no associations *(24,25)*. The latter view adolescence as a period when young people look for and earn independence from their parents. Thus, they think that, during this period of life, social equalization occurs and gives peers the strongest influence on adolescents, outweighing any other family characteristic, including socioeconomic status.

In summary, an important focus of the HBSC study is to examine differences in socioeconomic status, and their relationship(s) to health, health behaviour (such as smoking or exercise) and health outcomes in young people. To this end, HBSC researchers have developed measures and indicators of young people's socioeconomic status and have studied their relationships to health-related outcomes through a series of surveys, including this one.

This section has two primary objectives: to provide evidence of socioeconomic inequalities between HBSC countries and regions, and to present an appropriate method for measuring them among young people. Chapter 4 explores the relationships between socioeconomic status and several health-related outcomes.

Measurement of socioeconomic status of young people

Over the years, the HBSC study has used a number of measures that focus on objective and subjective family socioeconomic status. Previous surveys have reported on parental occupation and family material affluence and perceived wealth, which essentially are measures of social status. Young people are aware of socioeconomic inequalities and inequitable opportunities *(26,27)*, but some cannot accurately report their parents' occupations or educational levels, much less their incomes *(28)*. When gathered, data on

these measures of social position and relative wealth are useful for within-country analyses and help to explain variations in certain health outcomes and behaviour *(29)*. They are less useful for cross-national comparison, however, which requires comparability of countries' occupational coding systems, labour market conditions and social welfare programmes.

This report analyses inequalities in socioeconomic status by focusing on variations in income that are expressed in the consumption of material goods, using the HBSC family affluence scale. We have chosen to use family wealth (consumption of material goods) as a proxy for family income because of the difficulty of obtaining clear information from young people on parent and family income levels. This difficulty is especially great for younger children and those who do not live in a traditional family structure.

Methods

Development of a measure of family wealth: the family affluence scale

The family affluence scale (FAS), developed for earlier HBSC surveys as a measure of family wealth, *(28,29)*, was also used in the 2001/2002 survey *(30)*. FAS is conceptually related to common indices of material deprivation *(31,32)* and is similar to an index of home affluence *(33)*. It comprises the following four items, which young people are likely to know about: family car ownership, bedroom occupancy, and family holidays and computer ownership.

Does your family own a car, van or truck? Response categories were: *No* (= 1), *Yes, one* (= 2), *Yes, two or more* (= 3). This item is a component of a Scottish deprivation index developed by Carstairs and Morris *(31)*, which is used widely in research on health inequalities.

Do you have your own bedroom for yourself? Response categories were: *No* (= 1), *Yes* (= 2). This item is a simple proxy for overcrowding, classified by Townsend *(32)* as housing deprivation; it is also a component of the Scottish deprivation index.

During the past 12 months, how many times did you travel away on holiday with your family? Response categories were: *Not at all* (= 1), *Once* (= 2), *Twice* (= 3), *More than twice* (= 4). This item is a measure of deprivation in home facilities *(32)*.

How many computers does your family own? Response categories were: *None* (= 1), *One* (= 2), *Two* (= 3), *More than two* (= 4). This item was added to the 2001/2002 survey questionnaire to identify families with higher socioeconomic status in affluent countries.

Certain biases and limitations may apply to these questions. For example, car ownership may vary according to whether a residence is urban or rural. Bedroom sharing may be related to the culture and size of the family, and to the age and gender of the children.

A composite FAS score was calculated for each young person based on his or her responses to these four items.[1] For the analysis, we used a three-point ordinal scale, where FAS 1 (score = 0–3) indicated low affluence; FAS 2 (score = 4, 5) indicated middle affluence; and FAS 3 (score = 6, 7) indicated high affluence.

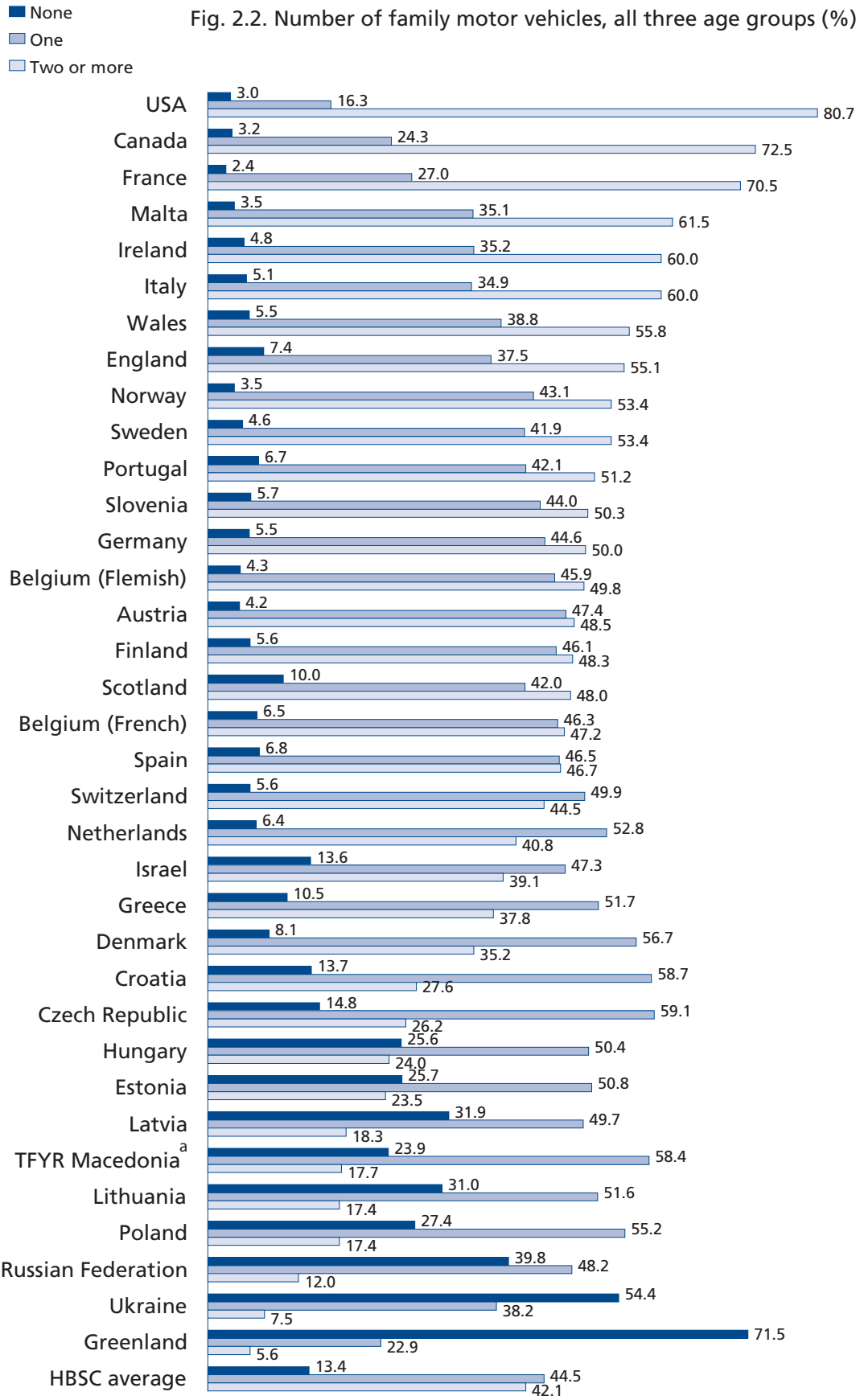
Results

Fig. 2.2–2.5 show the percentage of young people reporting on individual FAS items. Most young people report their families' having at least one vehicle, except in Greenland and Ukraine (Fig. 2.2). Young people in over two thirds of the countries and regions report having two or more vehicles in a family.

[1] The composite FAS score was calculated by:

- recode CAR (1 = 0) (2 = 1) (3 = 2);
- recode BEDROOM (1 = 0) (2 = 1);
- recode HOLIDAY, COMPUTER (1 = 0) (2 = 1) (3,4 = 2);
- compute FAS = CAR+BEDROOM+HOLIDAY+COMPUTER;
- recode FAS (0, 1, 2, 3 = 1) (4, 5 = 2) (6, 7 = 3).

Fig. 2.2. Number of family motor vehicles, all three age groups (%)



[a] The former Yugoslav Republic of Macedonia.

Fig. 2.3. Young people having their own bedroom, all three age groups (%)

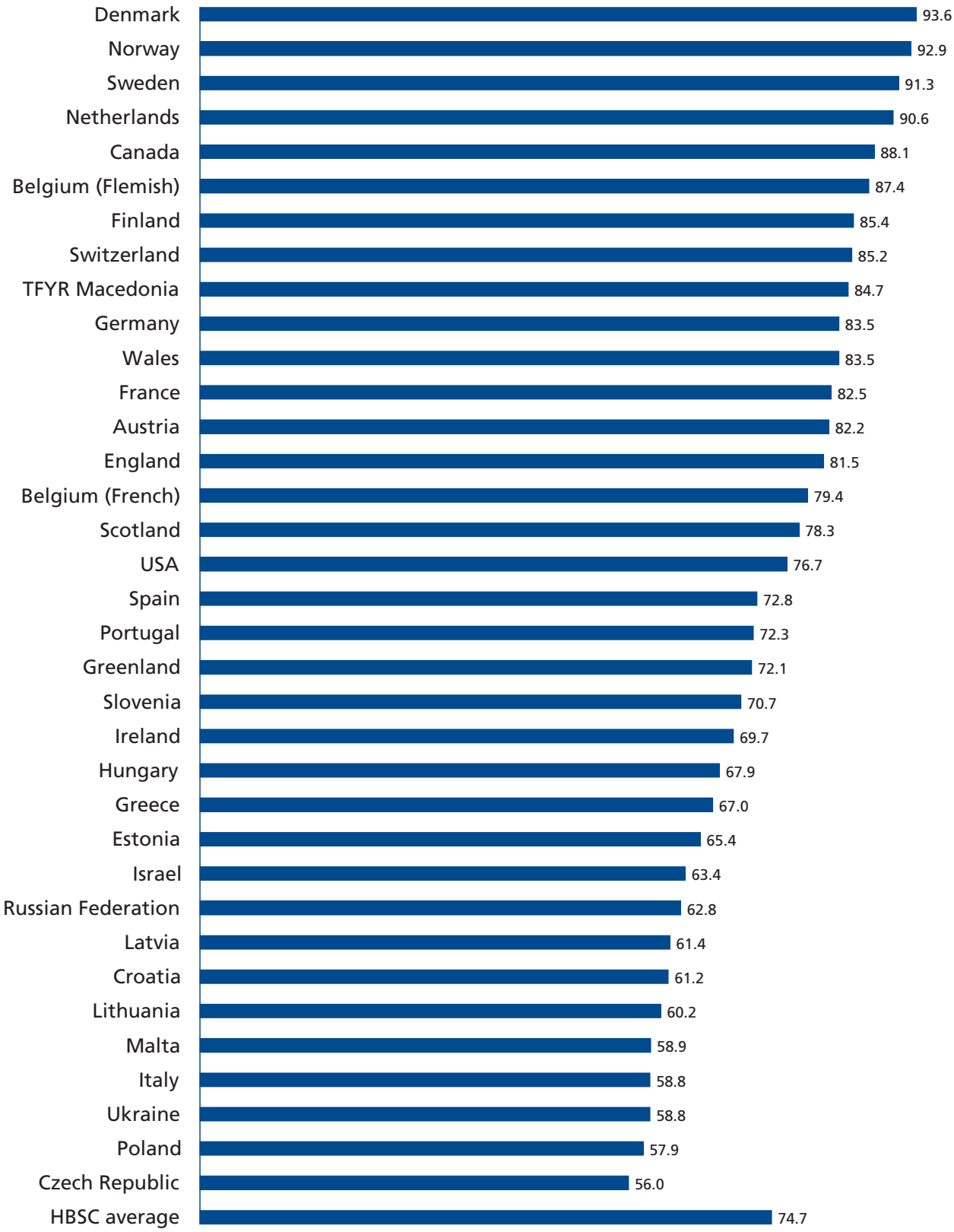


Fig. 2.4. The number of family holidays in the previous 12 months, all three age groups (%)

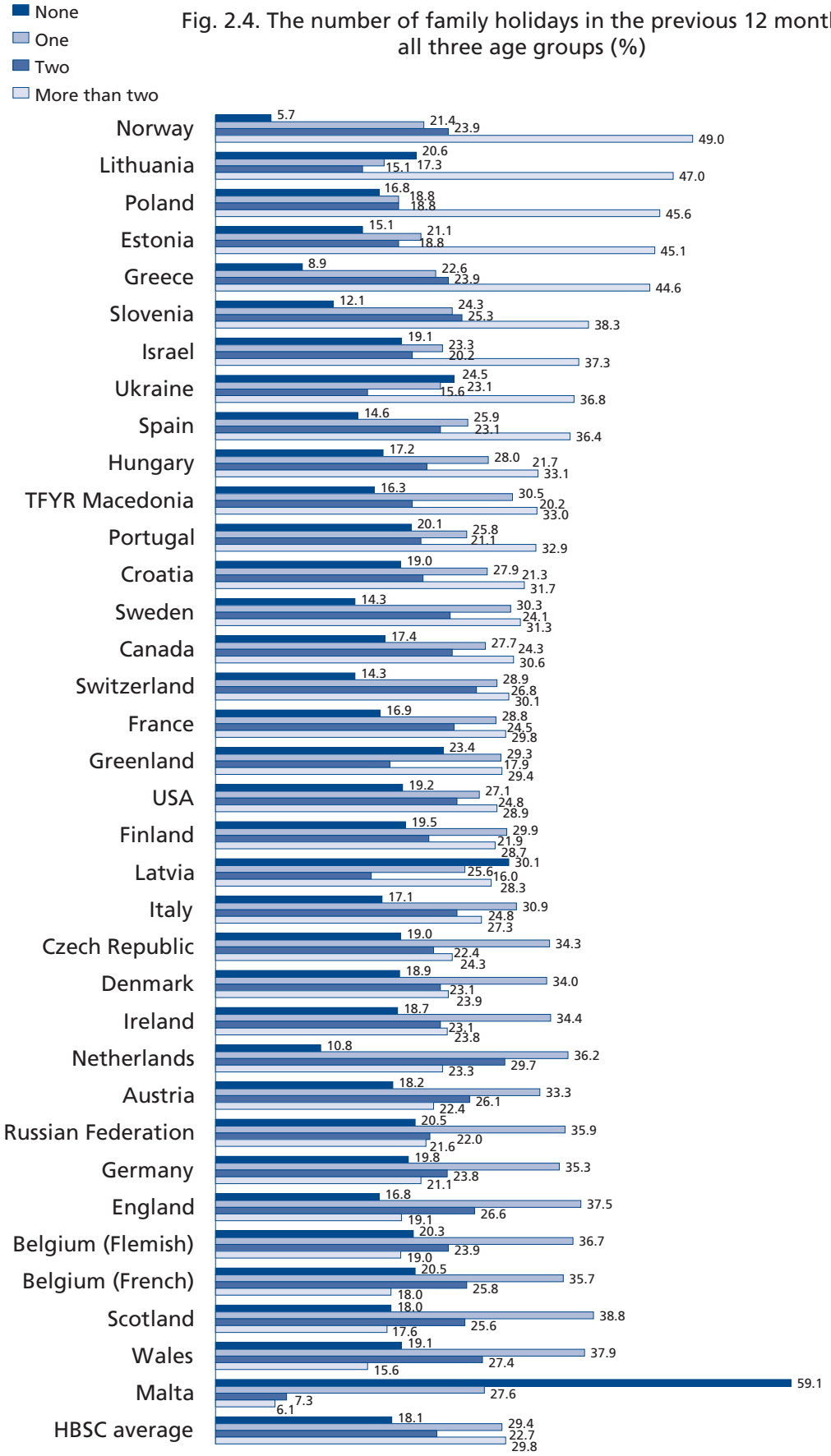
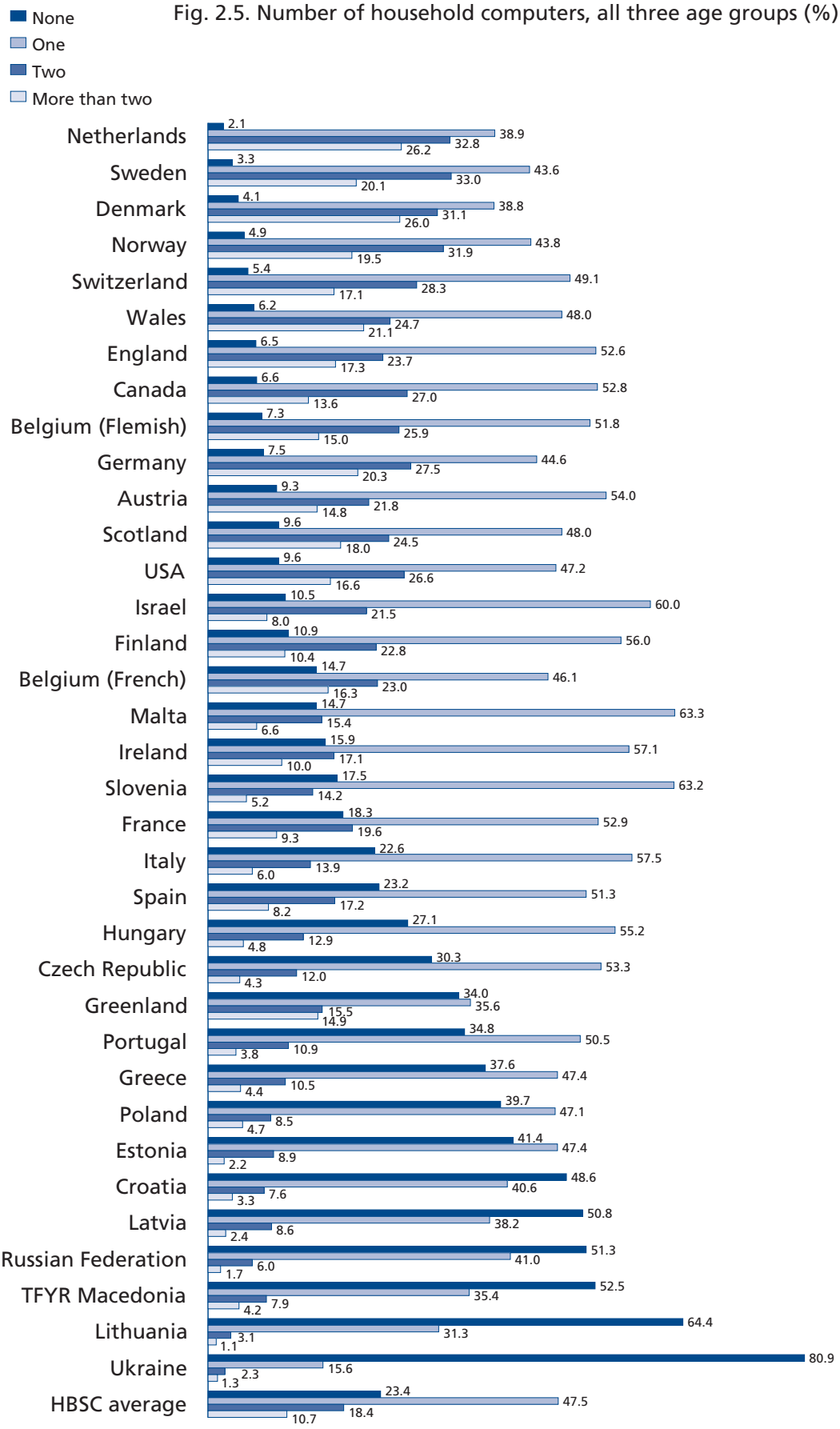


Fig. 2.5. Number of household computers, all three age groups (%)



Multiple car ownership is thus extremely common, particularly in North American countries and France. Young people in some of the affluent countries report that their families do not own a car, but it is difficult to say whether this is due to poverty or to choice. Use of public transportation may be higher in affluent countries with good transportation systems.

Most of the young people in all countries and regions report having bedrooms to themselves (Fig. 2.3): over 90% in northern and western European countries and a somewhat smaller proportion in southern European countries and the eastern half of the WHO European Region. This variation might be explained by differences in family wealth, but the size of dwellings in urban or built-up areas, as well as the size of the family, could also have a bearing.

Going away on family holiday is a common experience, but the number of holidays reported varies widely. Greenland, Malta, Latvia and Ukraine have the highest proportions of families that do not go away on holiday (Fig. 2.4). Family holiday patterns may represent cultural and social traditions, since high numbers of young people in some of the less affluent countries report going on holiday more than twice.

Finally, the number of computers owned by families was investigated to assess wealth distribution in higher-income countries (Fig. 2.5). Not surprisingly, more young people in western and northern European countries and the North American countries report owing multiple computers. In most countries and regions, most young people report that the family owns one computer. Only in Latvia, Lithuania, the Russian Federation, The former Yugoslav Republic of Macedonia and Ukraine do most young people report that their families do not own a computer.

Fig. 2.6 presents the spread of FAS composite scores across the HBSC countries and regions; the proportions of affluent families (FAS 3) are clearly higher in northern and western Europe and North America. These countries are also more likely to have few families with low affluence (FAS 1), except Israel. The survey indicates a higher proportion of low family affluence in the eastern half of the Region, particularly the Commonwealth of Independent States (CIS). Results for the Mediterranean countries (Israel, Italy, Spain) were in the middle of the range.

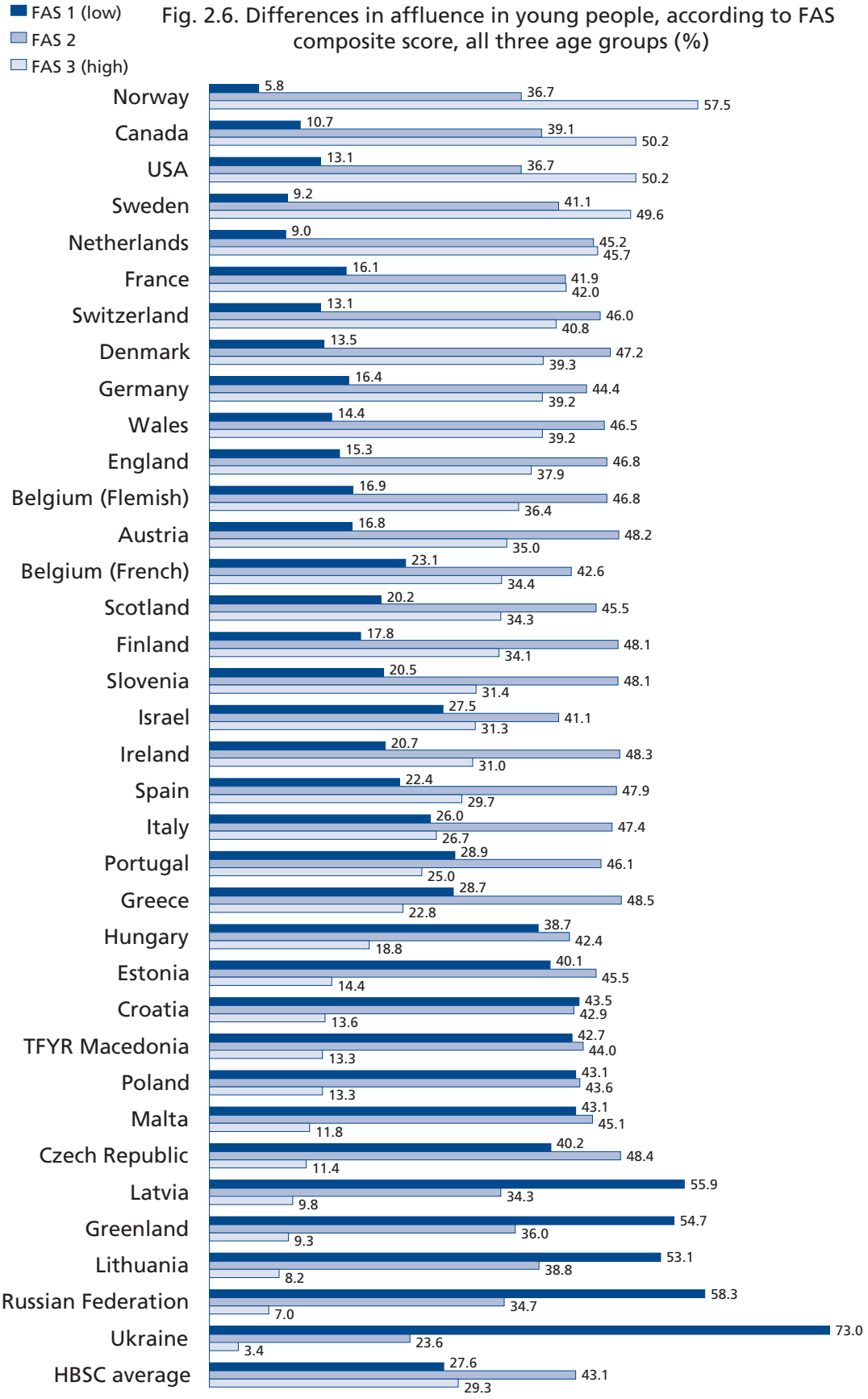
These data also demonstrate a mirroring effect: it is most common for young people living in richer countries (such as Canada, Norway, Sweden and the United States), to indicate high affluence, and for those in poorer countries (such as Lithuania, the Russian Federation and Ukraine) to indicate low affluence. In contrast, FAS 2, the middle level of affluence, represents a consistent proportion (34–48%) of each sample, apart from Ukraine. Thus, the middle-income group is about the same size in most HBSC countries and regions.

Validity of FAS

The FAS data illustrate a compelling pattern of socioeconomic inequality in HBSC countries and regions. For most, FAS values were missing in less than 3% of responses. Nevertheless, the validity of a socioeconomic measure for young people also depends on its links with other measures, such as parental occupation. A key indicator of socioeconomic status in the HBSC surveys, and in numerous other studies, has been paternal and maternal occupational status *(34–36)*. These measures tend to be more valuable for national analyses than for cross-national comparisons, however, since occupational coding schemes vary across countries and are not strictly comparable. Nevertheless, parental occupation should be related to FAS, at least moderately, if both are valid measures of socioeconomic status.

We measured parental occupation in the HBSC survey by asking young people about the type (such as engineer, office manager) and location (such as hospital, farm) of the work done by their mothers and fathers. Their open-ended responses were coded into eight categories, from high to low socioeconomic status. A five-point coding scheme was elaborated in each country and region, based on either the main occupational classification system used or the status typically accorded to various occupations. Thus, the classification of teachers, for example, may have varied. We used three additional categories for parental occupation: economically active (looking for a job), economically inactive (being a student, sick or retired) or unclassifiable (insufficient information for coding purposes).

Fig. 2.6. Differences in affluence in young people, according to FAS composite score, all three age groups (%)



The validity of FAS can be demonstrated by examining the association between the FAS scores and the categories relating to father's occupation (Table 2.1). For these analyses, the five categories relating to father's occupation were used, ranging from high to low socioeconomic status; the economically active, economically inactive and unclassifiable categories were excluded. A sample of 22 HBSC countries and regions with 70% or more of all responses in these five categories was used in the analysis. The association of FAS with father's occupation was in the moderate range (Spearman's rho ≥ 0.20) for 18 countries and regions. These values indicate that FAS, although not identical to parental occupation, may serve as an adequate proxy and be validly used to examine socioeconomic inequalities and their relationship with adolescent health in a cross-national context.

Discussion

HEALTH21, the health for all policy framework for the WHO European Region *(37)*, addresses the social and economic factors that influence health and lead to disparities among different population groups. It calls for action: "the health gap between socioeconomic groups within countries should be reduced by at least one fourth in all Member States by substantially improving the level of health of disadvantaged groups" *(37)*. Public policies should therefore address the root causes of socioeconomic inequalities.

The patterns of wealth distribution seen in this section are in accordance with those reported elsewhere *(38)*. Young people in the eastern half of the European Region report greater levels of most types of material deprivation, although differences in family structure and country infrastructure (such as urban transport systems) may also influence the reported patterns of wealth distribution.

The HBSC research strategy contributes to an increased understanding of the socioeconomic status of young people and to an improved ability to monitor progress towards the strategic goal of reducing income inequality. It shows that absolute material wealth among young people can be assessed and compared across countries and regions.

Table 2.1. Relationship between FAS scores and father's occupation

Country or region	Spearman's rho
Belgium (Flemish)	0.25
Canada	0.19
Croatia	0.25
Czech Republic	0.24
Denmark	0.25
Estonia	0.24
France	0.27
Germany	0.32
Greece	0.31
Hungary	0.30
Ireland	0.18
Israel	0.27
Italy	0.20
Malta	0.27
Norway	0.14
Poland	0.34
Portugal	0.31
Russian Federation	0.22
Slovenia	0.30
Spain	0.26
Switzerland	0.24
United States	0.26

Strong positive relationships between FAS and various health outcomes (such as life satisfaction and self-rated health) and health behaviour (such as good nutritional practices and exercise) have been demonstrated previously *(29,39).* Other analyses of FAS and risk behaviour, such as smoking and drunkenness, have indicated a more complex relationship that varies across countries *(39).* Further research is needed to determine whether young people from wealthier families engage in less risk behaviour and have higher levels of well-being than their counterparts from poorer families. Finally, analyses of the relationships between FAS scores and psychological and emotional outcomes and psychosomatic symptoms are also needed. Chapter 4 (see pp.165–172) presents examples of such analyses, with a focus on FAS and selected health and behavioural outcomes.

FAS is clearly a reliable and practical tool for young people's reporting on the absolute wealth or deprivation in their families *(28,39).* FAS has also been used as a predictor of socioeconomic status in relation to young people's health in country studies on injuries *(40)*, nutritional status *(41)* and a range of health indicators and behaviours *(28).* More recently, it was used to explain self-rated health patterning across 22 countries, using data from the 1997/1998 HBSC survey *(42).*

Further validation studies on associations between FAS and other measures of national wealth (such as gross domestic product, median income and other indicators) are underway. These will contribute to the acceptance of FAS as a new standard for the measurement of wealth in young people.

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Family – *Michael Pedersen, Maria Carmen Granado Alcón, Carmen Moreno Rodriguez and Rebecca Smith*

Introduction

The family is possibly the most important context for the development of the young child, the context in which social behaviour and attitudes are first adopted. Some consider it the most important setting in which health-related concepts emerge *(1)*. The influence of the family continues throughout adolescence and indeed throughout the life-course in varying degrees.

The family is not a closed and static unit, but a complex and dynamic system, both affecting and affected by social, cultural and historical development *(2)* and by individual cycles and transitions *(3)*. One of the most significant of these transitions takes place when the child reaches adolescence. During these years, as a result of the physical, cognitive and social changes undergone by the adolescent, the family system has to adapt to many new circumstances *(4,5)*. For example, conflicts between parents and children increase, with changes in the child's concept of and reaction to parental authority *(6,7)*. Throughout the child's experience of moving away from the parents, however, the significance of the family as an emotional resource may remain the same *(8,9)*.

Changing family structures

The pattern of family structures has evolved throughout history as a result of social, cultural and economic changes. The later decades of the 20th century in particular saw significant shifts in the shape of the family in the European Region and North America. The effects on the traditional family structure of declining birth rates, increase in separation and divorce rates and decrease in marriage rates are well known and documented *(10,11)*.

In addition to the rise in numbers of single-parent families, the growing incidence of parents' divorce or separation and subsequent establishment of new partnerships has meant an increasingly complex and varied set of living arrangements for young people. New terminology has arisen over recent decades to describe family set-ups that were traditionally called stepfamilies. Terms such as the reconstructed, reconstituted or blended family are now common and encompass the notion of a plurality of relationships when new households are established. For example, such families very often include children from previous marriages or partnerships and children born into the new family set-up. Thus, a blended family may be a stepfamily from the perspective of one child, and a biological, two-parent family from that of another. A child may also be part of two families, when both biological parents establish new households; or live for the most part with one biological parent but also feel part of the stepfamily established through the other.

Many protective and risk factors relevant to the development of health in young people are associated with aspects of family life *(1)*. Some family structures (single-parent families and stepfamilies) can predict *a priori* an increased risk for health development, such as a higher risk of smoking *(12,13)*. The effects on children of major family transitions – whether parents' divorce or separation, death or establishment of a new stepfamily – can vary.

As indicated in the section on socioeconomic inequalities, single-parent families are at a higher risk of living in poverty, and this is a key predictor of health. In addition, both the living circumstances of so-called traditional or intact families (with two biological parents) and their impact on the health and development of young people vary widely. Factors such as parents' unemployment or long working hours, and close ties with the extended family contribute to the variability within family types.

Family dynamics

No matter what its structure, the family's basic function remains the same: to attend to the physical and psychological needs of its members, especially the children. Parents carry out their responsibilities in several ways, through: the provision of a structured environment in which a child lives and organizes

his or her daily life, their own attitudes towards and values for development and education, and their interaction with children, which facilitates development and contact with other contexts, such as peers and school *(14)*.

The influence of parents and family life on child development can be examined from many perspectives: parents as role models, parenting styles, parental norms and values and the social support and involvement of parents and the extended family. Within the broad framework of the HBSC study, it is neither possible nor appropriate to cover all these themes within the international standard questionnaire. The study measures communication between parents and young people as a broad indicator of the quality of this primary social bond.

Methods

Family structure

Items on family structure in previous HBSC surveys focused on a simple set of questions about household composition. For the 2001/2002 survey, the items were revised and extended to take account of various family structures. The question allowed children living in more complex family set-ups to answer for two homes, instead of just one. The question was designed in two columns, one for each home, with a checklist of people with whom the child lives in each: parents, stepparents, siblings and members of the extended family or other adults. There was also an option for those living in a foster home or children's home. A brief introductory text explained the question format and asked the respondent to identify one of the columns as the main or the only home. A further question attempted to estimate the amount of time that the child spends in each of the two homes.

The new question format was intended not only to give a better picture of the family configuration but also to increase the sensitivity of the questionnaire by ensuring that respondents could find an option that adequately described their individual circumstances.

For the purposes of this report, the family structure categories were reduced to four: living with both parents, single-parent family, stepfamily and other, with the main home as the reference. Future analyses will investigate the potential of these data to give a more detailed picture of family structures: for example, the effect of the size of the family and the prevalence of shared or co-parenting, in which the child lives regularly in both households of separated parents, and of single-parent families, in which the child has no regular contact with the non-custodial parent.

Communication with parents

The four previous HBSC surveys used the question on communication with parents as a good measure of the quality of parent–child relations. It asks how easy or difficult children find it to talk to a number of different people, including parents.

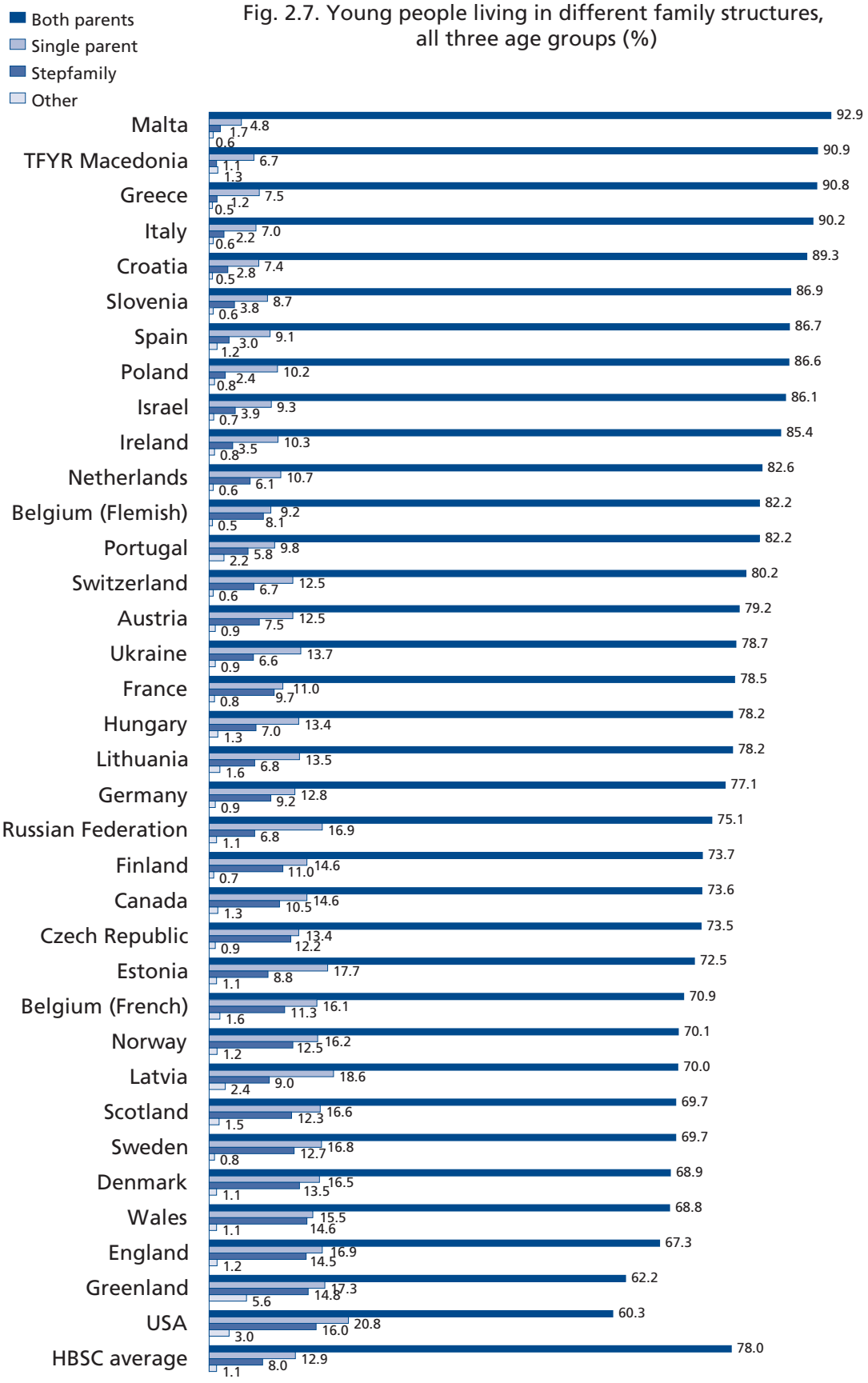
How easy is it for you to talk to the following persons about things that really bother you? Father/Mother. Response categories are: *Very easy*, *Easy*, *Difficult*, *Very difficult*, *Don't have or see this person*. The data presented in this chapter reflect the responses of the young people who found it difficult or very difficult to talk to their mothers and/or fathers.

Results

Family structure

Fig. 2.7 shows the types of family structure and the percentages of young people who report living in each type, across all countries and regions. In all, most young people report living with both parents: 78% of the total sample. Variation among countries and regions is considerable, however. For example, about 60% of young people in Greenland and the United States report living with both parents, compared with over 90% in Italy, Greece, Malta and The former Yugoslav Republic of Macedonia. Different cultural and societal norms and economic factors account for many of these differences. In particular, the countries in the European Region with the fewest single-parent or stepfamilies often have strong religious traditions.

Fig. 2.7. Young people living in different family structures, all three age groups (%)



Stepfamilies are more common in northern and north-western European countries, while the proportion of single-parent families is much higher in many countries in the eastern half of the Region. For example, numbers of single-parent families and stepfamilies are almost equal in Wales and Denmark, but there are more than twice as many single-parent families as stepfamilies in Latvia and the Russian Federation.

Communication with parents

Perceived ease of communication with parents varies considerably (Fig. 2.8, 2.9). Countries such as the Netherlands, Slovenia and The former Yugoslav Republic of Macedonia are consistently in the top quartile across all ages and both genders; others, such as Belgium (French) and the United States, are consistently in the lowest quartile.

In general, young people in all age groups and across all countries and regions find it easier to talk to their mothers than to their fathers. Although boys and girls show no significant differences in ease of communication with their mothers, there is a clear gender difference in communication with fathers.

In all countries and regions, girls have more difficulty than boys in talking to their fathers. By the age of 15, less than half of the girls in over two thirds of the countries and regions report easy communication with their fathers. For boys aged 15, the same is true only for Malta. Fig. 2.10 and 2.11 show how perceived difficulty in communicating with parents increases with age in all countries and regions. For girls in particular, difficulty in talking to fathers rises more sharply.

Discussion

The data presented here give a broad picture of the varied family structures in which young people live and of the quality of communication within families. Family structure is only one of many factors to be considered when investigating the family as a context for health and well-being in young people. Health-related variables often vary more within family structures than between them, and socioeconomic factors or family dynamics may often account for the differences. Chapter 4 (see pp. 173–177) describes the relationship between family structure, communication with parents and health outcome variables.

The data on family structure are also of interest from a purely demographic standpoint. Very few cross-national studies collect information on family structure from the child's perspective *(15)*. Existing demographic information of this kind is often based on marriage and divorce rates; the data presented here are reported by young people themselves and include cohabiting couples as well as married ones. HBSC can therefore make a major contribution to current research not only on the family as a context relevant to the health of young people but also on family demographics across countries and regions.

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Fig. 2.8. Young people who find it easy to talk to their mothers (%)

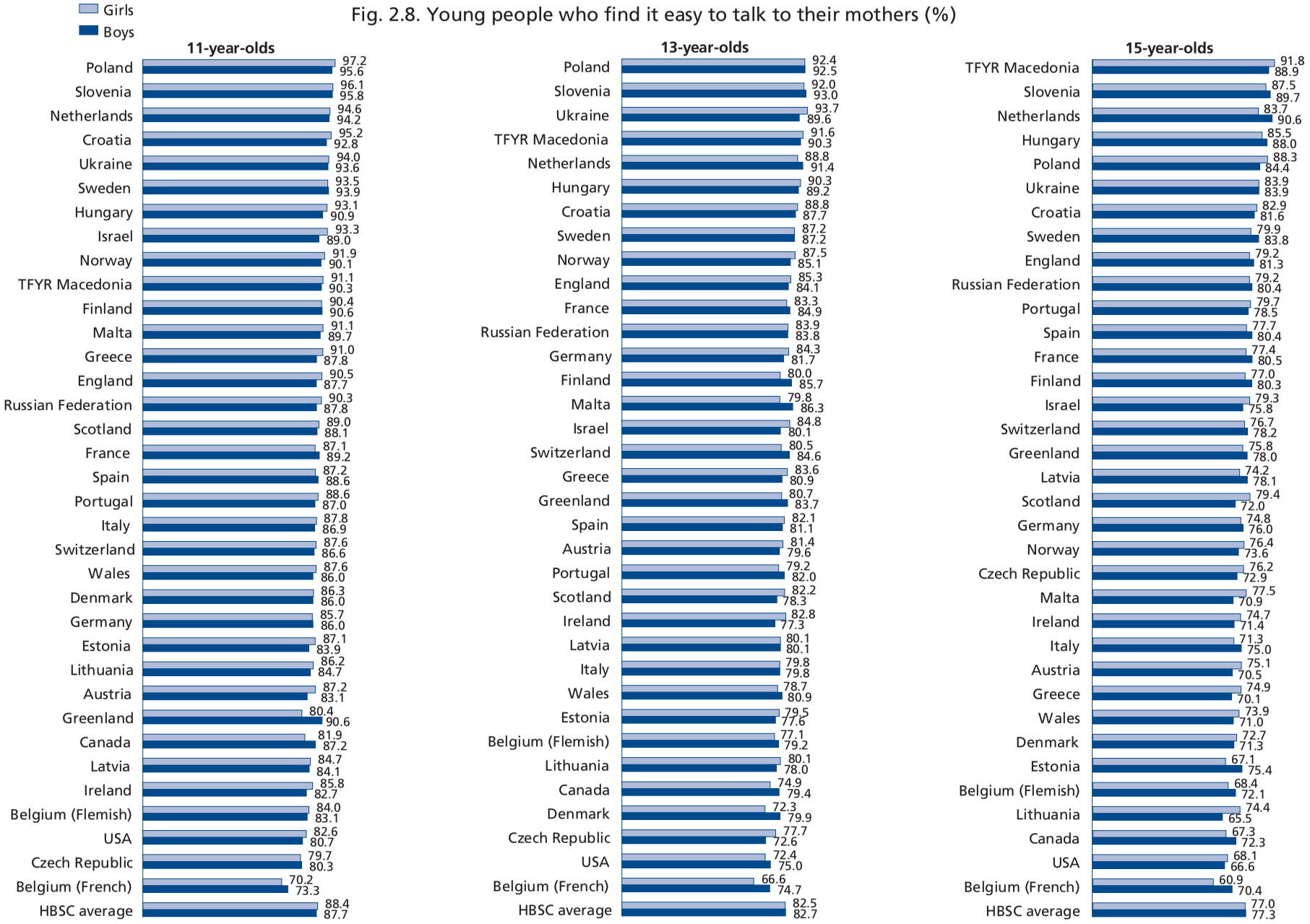


Fig. 2.9. Young people who find it easy to talk to their fathers (%)

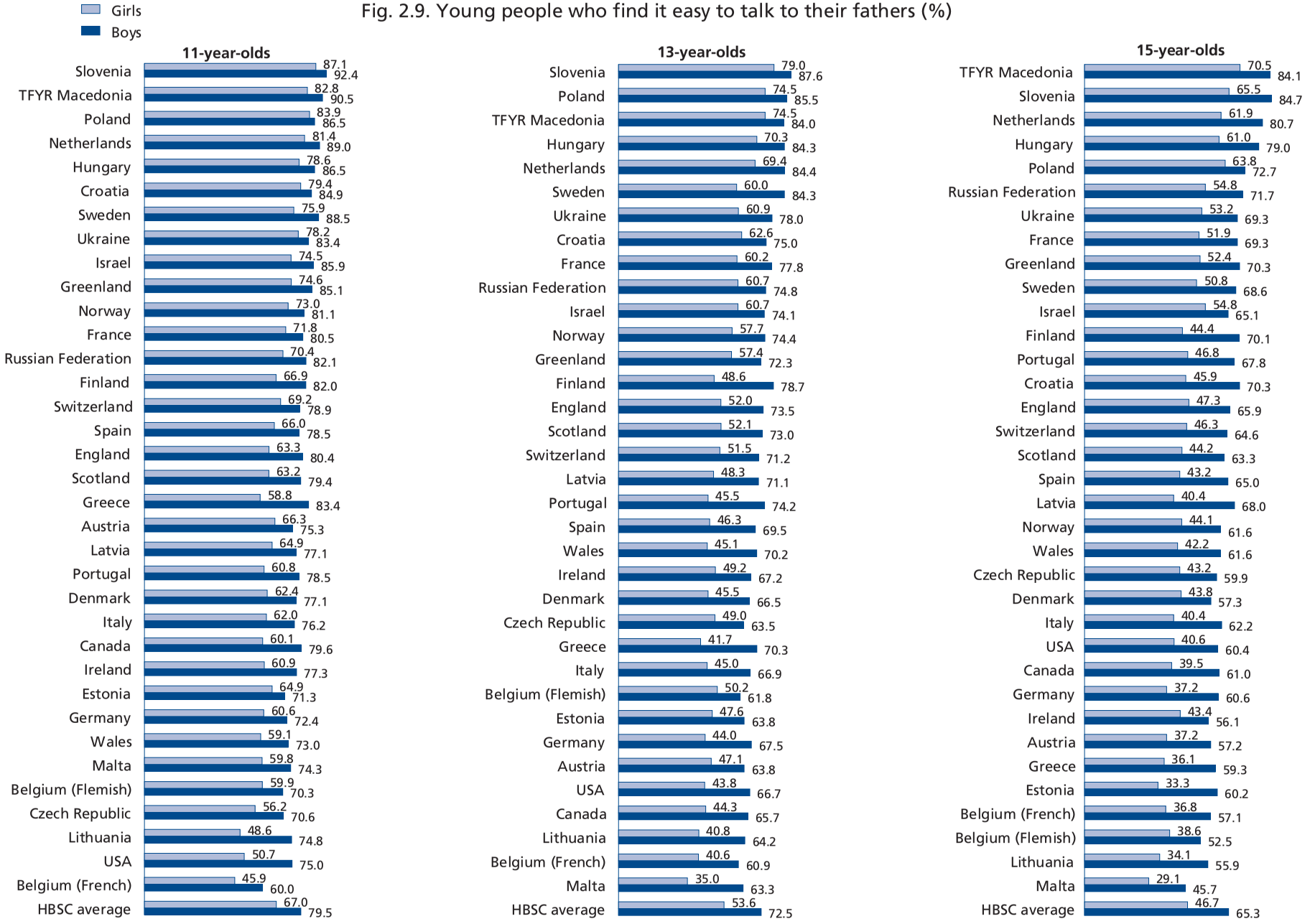


Fig. 2.10. Young people who find it difficult to talk to their mothers (%)

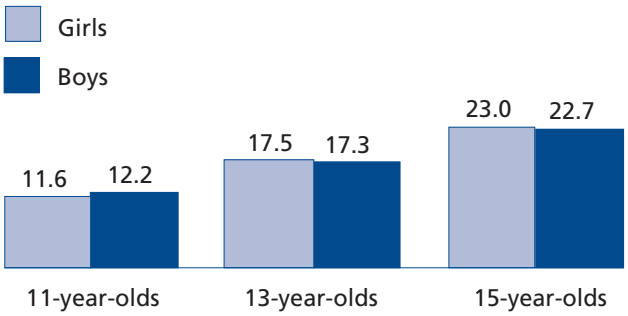
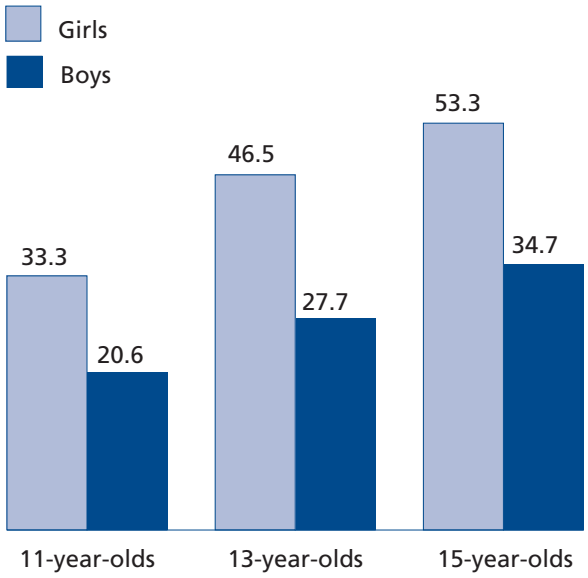


Fig. 2.11. Young people who find it difficult to talk to their fathers (%)



Peers – *Wolfgang Settertobulte and Margarida Gaspar de Matos*

Introduction

The HBSC study is designed to cover the critical developmental period, when young people are adjusting to physical changes, exploring their sexuality, establishing their personal identity, seeking greater independence and increasingly relying on friendship groups. The importance of peers is highlighted throughout this report.

The peer group decisively affects health-related behaviour and attitudes by influencing and reinforcing norms and values, establishing a social and cultural identity and providing models of behaviour. From a health perspective the influence of peers is complex, providing both protective and risk factors.

Being liked and accepted by peers is crucial to young people's health development, and those who are not socially integrated are far more likely to exhibit difficulties with their physical and emotional health *(1)*. Isolation from peers in adolescence can lead to feelings of loneliness and psychological symptoms *(2)*. Interaction with friends tends to improve social skills and strengthen the ability to cope with stressful events *(3)*.

On the other hand, the influence of friends can lead to risk behaviour during adolescence. Previous HBSC surveys found higher rates of smoking and alcohol consumption and episodes of drunkenness *(4,5)* among young people who frequently meet with peers in the evening. Research on peer culture in adolescence has revealed that the subcultural orientation of the friendship group determines its risk-taking or protective character *(6,7)*. Whether the group initiates attitudes and behaviour, or whether individuals select groups with similar attitudes to reinforce them, has yet to be determined. Probably both hypotheses hold true *(8,9)*.

Owing to space limitations within a comprehensive set of research questions, the HBSC surveys focus on exposure to peers. This provides an indication of young people's social network and of peer influence within a framework of social relations, including family, school and neighbourhood.

Methods

HBSC surveys have used two main indicators to examine exposure to peer influences: the size of the friendship group and the frequency of contact with friends. The 2001/2002 survey included an additional item: contact with friends through electronic media.

The question on the friendship group asked about the number and gender of close friends. *At present, how many close male and female friends do you have?* Response options differentiated between males and females: *None, One; Two, Three or more*. The tables presented here show those with three or more close friends, indicating a reasonably large group in which the targeted social processes take place. Having only one or two close friends would indicate a different kind of social attachment.

Frequency of contact with friends was measured, first, by two questions on meeting with friends in the afternoon and in the evening. *How many days a week do you usually spend time with friends right after school?* Response options ranged from *0 days* to *5 days* (or 6 days, depending on the country's schooling system). *How many evenings a week do you usually spend out with your friends?* Response options ranged from *0 evenings* to *7 evenings*.

This section presents data on those reporting that they meet with friends four or more times a week, both straight after school and in the evening.

As electronic media gain more importance in everyday communication, the new question covered the frequency of peer contact by telephone, e-mail or text message. *How often do you talk to your friend(s) on the phone or send them text or e-mail messages?* The response options were: *Rarely or never, 1 or 2 days a week, 3 or 4 days a week, 5 or 6 days a week, Every day*. This section gives data on those responding that they communicate with friends every day.

Results

Size of the friendship group

Findings on the average number of close friends vary unexpectedly widely between countries and regions (Fig. 2.12). Among all age groups, about 60–90% of young people have three or more friends of the same gender. The geographical pattern of these differences can be roughly described on an axis from the north-west to the south-east of the European Region. While young people in English-speaking countries (Canada, England, Scotland, the United States and Wales), Israel and the Scandinavian countries report frequencies around 80–90%, the frequencies in Mediterranean and eastern European countries are around 70% or less. Finland and Greenland, with frequencies of about 75%, are the only exceptions. This pattern remains stable across the three age groups, with only small, statistically insignificant differences.

Although girls are commonly seen as being more socially attached, the results in the majority of countries and regions show a higher frequency of boys with three or more close friends. Exceptions to this are found only in English-speaking countries, the Scandinavian countries and Malta. Within individual countries this gender difference is stable across age groups.

The size of the friendship group appears to be culturally influenced. The most obvious explanation is a difference in the semantic meaning of "close friends". This is supported by the fact that groups of countries with similar language types have similar frequencies. Language cannot, however, explain the distribution pattern – from high frequencies in the north to lower frequencies in the south. This indicates that there are also cultural differences in the way young people choose their friends.

Frequency of peer contact

The amount of time young people spend with their friends can be a strong predictor for the influence of the peer group on the individual, as it indicates the importance of the group in the process of identity development. Frequent meeting with friends is often associated with different types of risk behaviour; Chapter 4 explores this further (see pp. 178–183).

Fig. 2.13 shows the percentages of young people that spend time with friends four or more afternoons a week. On a country or regional level, there appear to be no associations between the number of friends and the amount of time spent together after school, as rankings for the two variables are quite different. Nevertheless, another picture may emerge on an individual level. Differences in school systems obviously have a large effect on the geographical differences: the probability of meeting friends after school is smaller in countries where school hours are usually extended to the afternoon than in those where school usually ends at lunchtime.

Countries and regions vary widely. For example, the rates of 13-year-olds meeting with friends after school on a regular basis are more than 60% in Greenland and Malta, and less than 30% in Belgium (French), Greece and Sweden. In most countries and regions, boys meet with friends after school more frequently than girls (Table 2.2).

Fig. 2.14 shows how many young people meet with friends four or more evenings a week. Again, differences are very great. Among 11-year-olds, the frequencies range from around 50% in Finland, Greenland, the Russian Federation, Scotland and Wales, to less than 10% in, for example, Belgium

Table 2.2. Young people spending time with friends after school four or more days a week (%)

Age group (years)	Girls (%)	Boys (%)	Both (%)
11	34.2	40.9	37.5
13	35.8	43.4	39.5
15	35.8	44.6	40.0

Fig. 2.12. Young people with three or more close friends of the same gender (%)

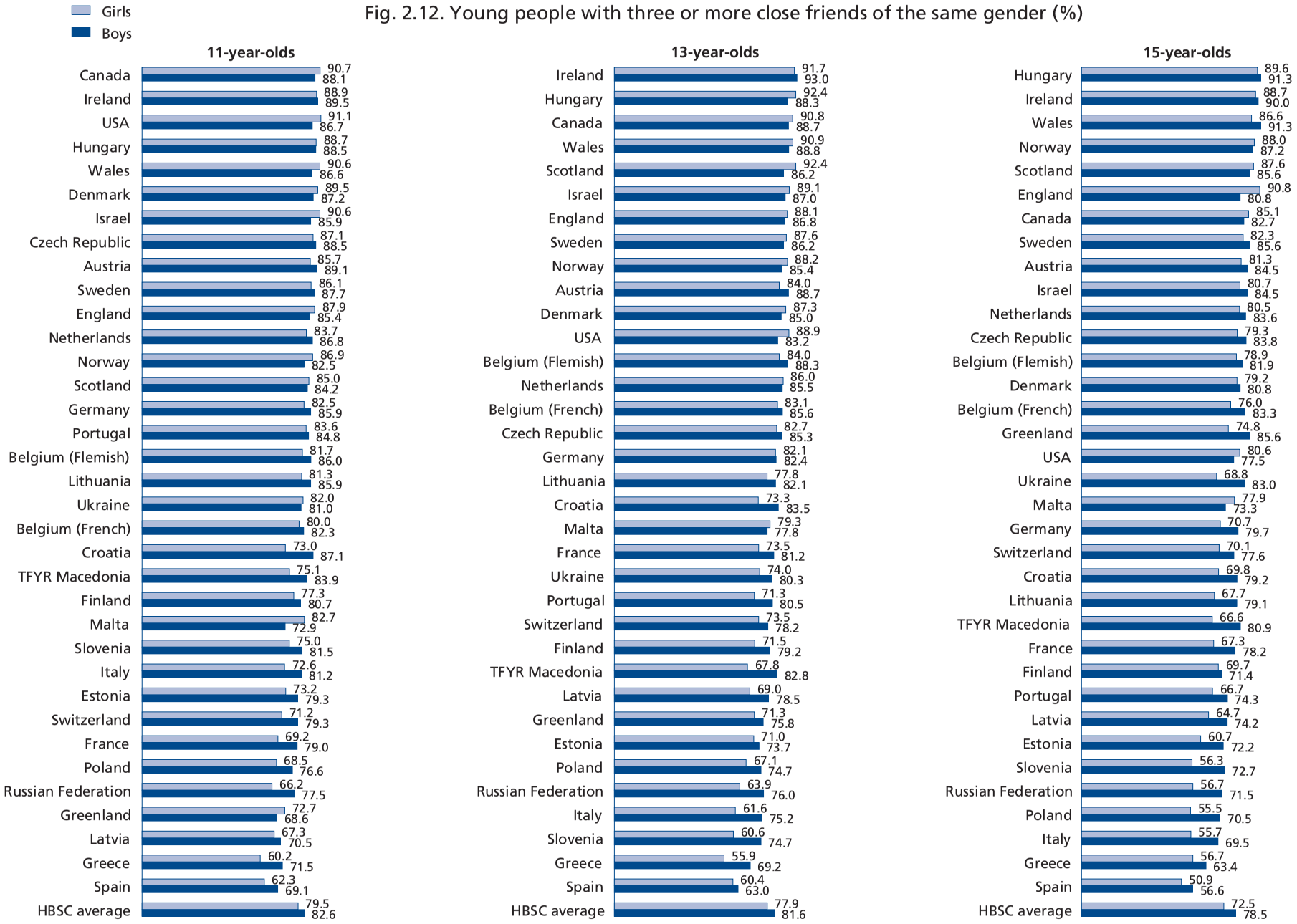


Fig. 2.13. Young people spending time with friends after school four or more days a week (%)

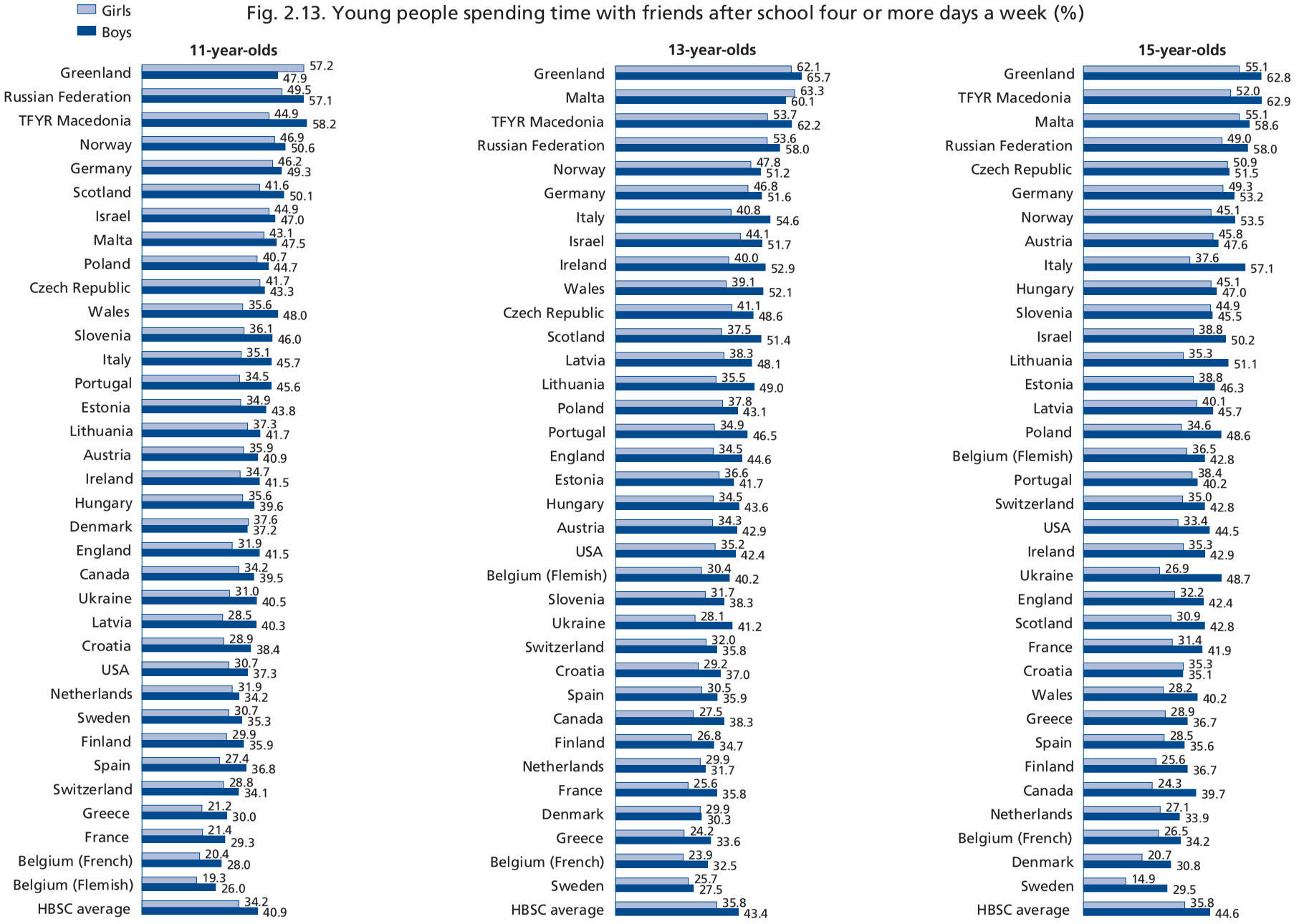
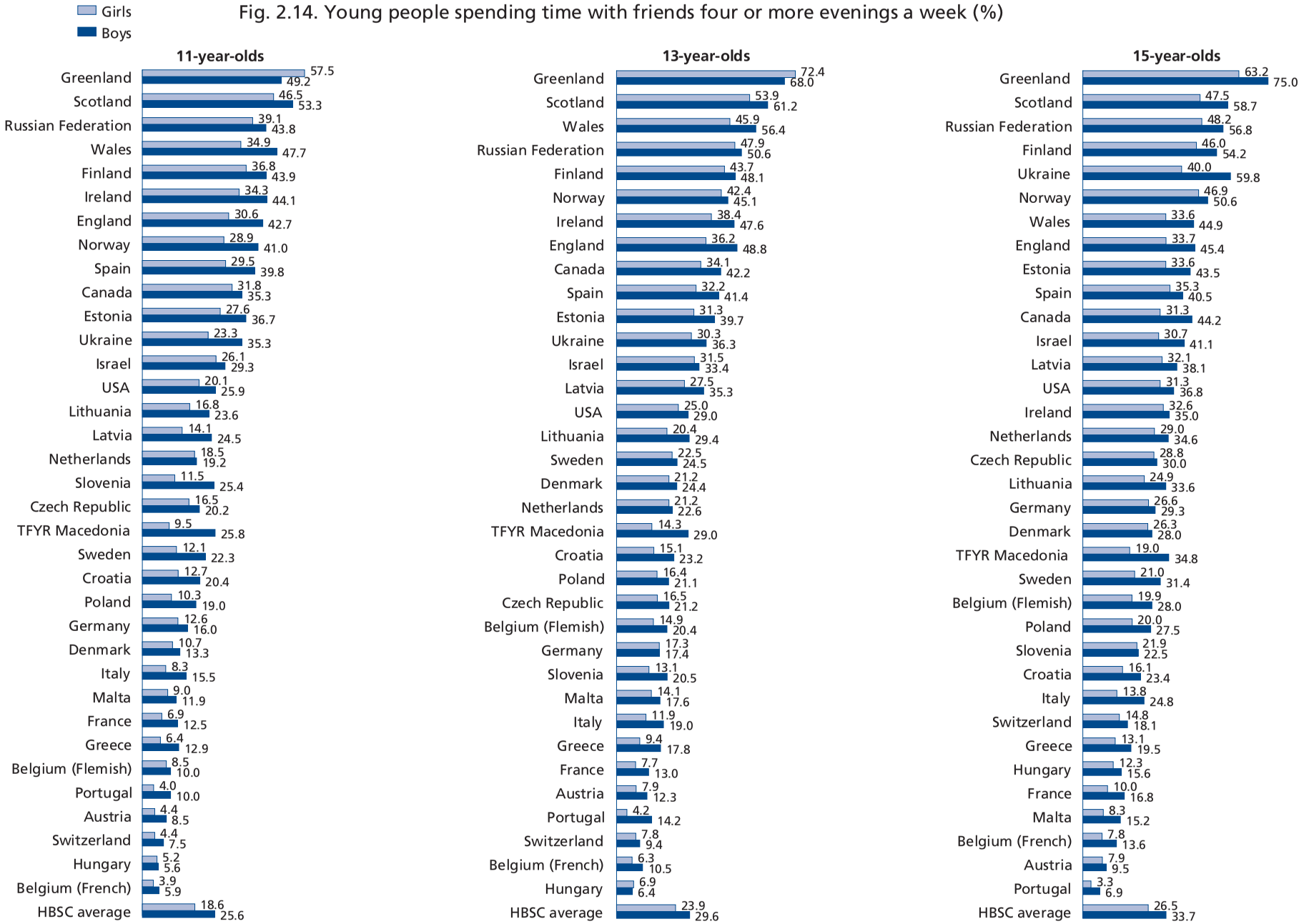


Fig. 2.14. Young people spending time with friends four or more evenings a week (%)



(French), Hungary and Switzerland. The same ranking pattern is consistent across all age groups. The frequency of meeting with friends in the evening increases gradually with age, as perhaps would be expected with the greater degree of independence afforded to young people as they grow older.

In all countries and regions except Greenland, boys report meeting more frequently with friends in the evening than girls. The gender difference in this variable shows a geographical pattern: in general, in all age groups the difference between boys and girls increases from the north to the south.

Communication through electronic media

In recent years, the availability and use of electronic communication media have become increasingly common, particularly with the boom in mobile phone use. On the premise that such peer contact may add a new dimension to peer exposure, a question on frequency of such contact was added to the standard international questionnaire in the 2001/2002 survey.

Once again, the range across countries and regions is very large (Fig. 2.15). For example, among 11-year-old girls, 48% in the Russian Federation report daily electronic contact with friends, but only 3% in France. The use of electronic communication media increases with age, particularly between the ages of 11 and 13, in most countries and regions. Among 15-year-olds, it increases even further in some countries and regions, but seems to remain steady in others, such as the Russian Federation. Here Croatia, Denmark, Greece, Israel and Norway take the lead with reported frequencies of around 50%. With very few exceptions, more girls than boys in all age groups use electronic communication to contact their friends. In most countries and regions, this gender difference increases with age.

Unlike meeting with friends in the evening, this type of peer contact seems to have no discernible geographical or cultural pattern. The amount of electronic media use among young people of course varies according to circumstances, such as the availability and cost of facilities.

Discussion

Peer contact in the European Region and North America increases with age under all cultural circumstances, as young people extend their social networks of peers during puberty. Several factors, such as cultural norms, traditions and opportunities, influence the onset and speed of this process. Presumably, opportunities for peer contact are influenced by the school system and organized leisure activities in the younger age groups, and are increasingly self-organized and take place in different settings in the older age groups.

In southern European countries, boys socialize in the evenings more than girls. They may have greater freedom; or girls may choose to spend more time on homework (see Chapter 3, pp. 98–109) or other activities.

Electronic communication by e-mail or telephone increases with age and may enhance networking within friendship groups. The higher rates of use among girls may be linked to fewer evenings out with friends. Chapter 4 (see pp. 178–183) examines the effect of the size of the peer group and the frequency of contact with friends on health outcomes, with particular reference to gender differences.

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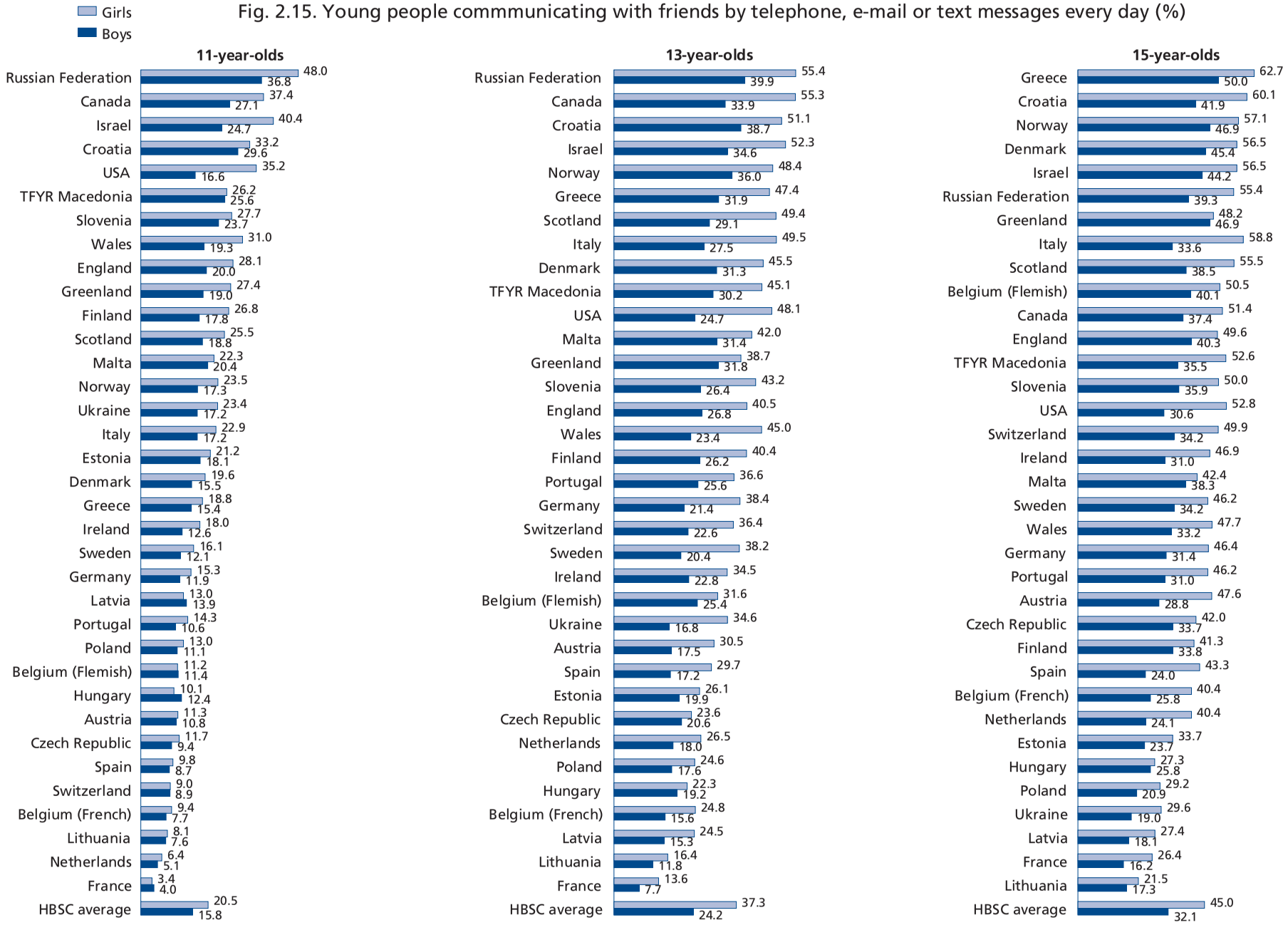
Fig. 2.15. Young people commmunicating with friends by telephone, e-mail or text messages every day (%)



School – *Oddrun Samdal, Wolfgang Dür and John Freeman*

Introduction

School systems in the countries and regions participating in HBSC vary considerably in everything from national educational policies to the resources available for schools, and schools differ widely within countries, too. No matter what the educational system, the school setting has great significance in the lives of young people in all countries.

The school environment or the psychosocial school climate has been studied mostly from the perspective of increasing young people's academic achievement *(1–3)*, but is also of great interest from a health perspective *(4–6)*. Young people who enjoy school are more likely to feel good about themselves and to report high subjective well-being. Conversely, young people who do not enjoy school are more likely to perform unsatisfactorily, which may result in feelings of stress. This in turn may lead to subjective health complaints and low satisfaction with life. Clearly, this relationship is bidirectional in that young people who have fewer subjective health complaints and are more satisfied with life are more likely to perform well in school *(7)*.

Studying the school environment for its effects on the health and well-being of young people, both at school and in general, is valuable *(6,8)*. The school setting is a key arena for children for at least 9–10 years of their lives. As they spend 6–8 hours a day carrying out the job of being students, their situation is comparable to that of adults in their work environments. Research has found that the psychosocial aspects of the work environment influence adults' reported health and health behaviour *(9,10)*. By analogy, daily life in school is also likely to affect young people's health and well-being, although the exact nature of the relationship is less clear.

Our interest in studying young people's school experiences is based on the strong relationship revealed by previous HBSC surveys between liking school and reported health and health behaviour *(11–13)*. The more young people like school, the less prone they are to smoke or drink alcohol and the more likely they are to feel happy. Reaching a better understanding of the development of young people's health and health behaviour requires the identification of aspects of the school environment that enhance or diminish their feelings of satisfaction. From this perspective, school can be seen as a resource for or a risk to young people's health. As liking school clearly influences the health and health behaviour of young people, it is one of the key concepts of the HBSC study. Young people's academic achievement is also included to identify how it relates to liking school and possibly to reported health and health behaviour.

Research on the adult work environment takes an organizational and holistic view and aims to understand the impact of work organization on job satisfaction and overall health and well-being. It studies three key aspects of the work environment *(10,14)*: autonomy and control, perceived demands and perceived support. The main focus is on how control and demand are balanced and how support moderates any perceived imbalance. The HBSC study selected equivalent concepts: peer support and perceived pressure or demands. This allows the examination of the relationship between strain and support on the one hand and young people's satisfaction with school and academic performance on the other.

Personal relationships forged in the school community are likely to be important to young people's well-being. Support received particular emphasis, as peer relations are of key significance in the lives of school-aged children *(15)*. Perceived pressure at school may be particularly relevant to young people's perceptions of strain and thus health. Moreover, the concept is closely related to academic achievement.

Finally, liking school is related to academic achievement. Children who like school tend to do better and vice versa *(16)*. Indeed, all four of these concepts intersect. For example, students who experience a high level of pressure might also be less likely to enjoy school, particularly if they are not rewarded by high grades or supported by their peers.

Methods

The four main concepts were measured through six items.

A single item measured liking school. *How do you feel about school at present?* Response categories were: *I like it a lot, I like it a bit, I don't like it very much, I don't like it at all.*

Another measured academic achievement. *In your opinion, what does your class teacher(s) think about your school performance compared to your classmates?* Response categories were: *Very good, Good, Average, Below average*.

Peer support was measured using three items in the form of statements, with which respondents were asked to agree or disagree. *The students in my class(es) enjoy being together. Most of the students in my class(es) are kind and helpful. Other students accept me as I am*. Response categories were: *Strongly agree, Agree, Neither agree nor disagree, Disagree, Strongly disagree*.

The last item measured school pressure. *How pressured do you feel by the schoolwork you have to do?* Response categories were: *Not at all, A little, Some, A lot*.

Results

Liking school

Liking school declines with increasing age across all countries and regions (Fig. 2.16). Overall, more girls tend to like school than boys.

Reported strong liking for school varies hugely across countries and regions. In The former Yugoslav Republic of Macedonia, more than 80% of 11-year-olds and more than 50% of 13- and 15-year-olds report high satisfaction. The corresponding figures for Croatia, the Czech Republic, Estonia, and Finland, however, are less than 20% for 11-year-olds and 10% for 13- and 15-year-olds. In most countries and regions, 25–50% of 11-year-olds and 10–20% of 13- and 15-year-olds like school a lot. This could be described as a rather low level of satisfaction.

Academic achievement

Fig. 2.17 shows that the proportion of young people who report performing well or very well at school declines with age, but not as substantially as that for liking school. Once more, girls are more likely to report good performance.

While countries and regions vary in the proportions of young people reporting good performance, these differences are not as great as those for satisfaction with school. In Croatia, Greece and The former Yugoslav Republic of Macedonia, around 90% of 11-year-olds and more than 70% of 13- and 15-year-olds report high academic achievement. In contrast, only 35–50% in all three age groups report the same level of academic achievement in Estonia, the Russian Federation and Ukraine. The situation in Germany is similar for 13- and 15-year-olds.

Peer support

Across all countries and regions, the overall results for the three items measuring peer support – the proportions agreeing or strongly agreeing that their peers enjoy being together, that they are accepted by their peers and that their peers are kind and helpful – are highly similar. As an example, only the data on young people agreeing that their peers are kind and helpful are presented here (Fig. 2.18).

Variation between age groups is not marked, but 11-year-olds tend to report kind and helpful peers more than 13- and 15-year-olds. Differences between boys and girls are minor. The range across countries and regions is similar to that for academic achievement. In the upper range, 80–90% of 11-year-olds and 70–80% of 13- and 15-year-olds in Portugal, Sweden, Switzerland and The former Yugoslav Republic of Macedonia agree with the statement. The corresponding rates in the lower range are 30–50% across the three age groups in the Czech Republic, England and the Russian Federation.

Fig. 2.16. Young people liking school a lot (%)

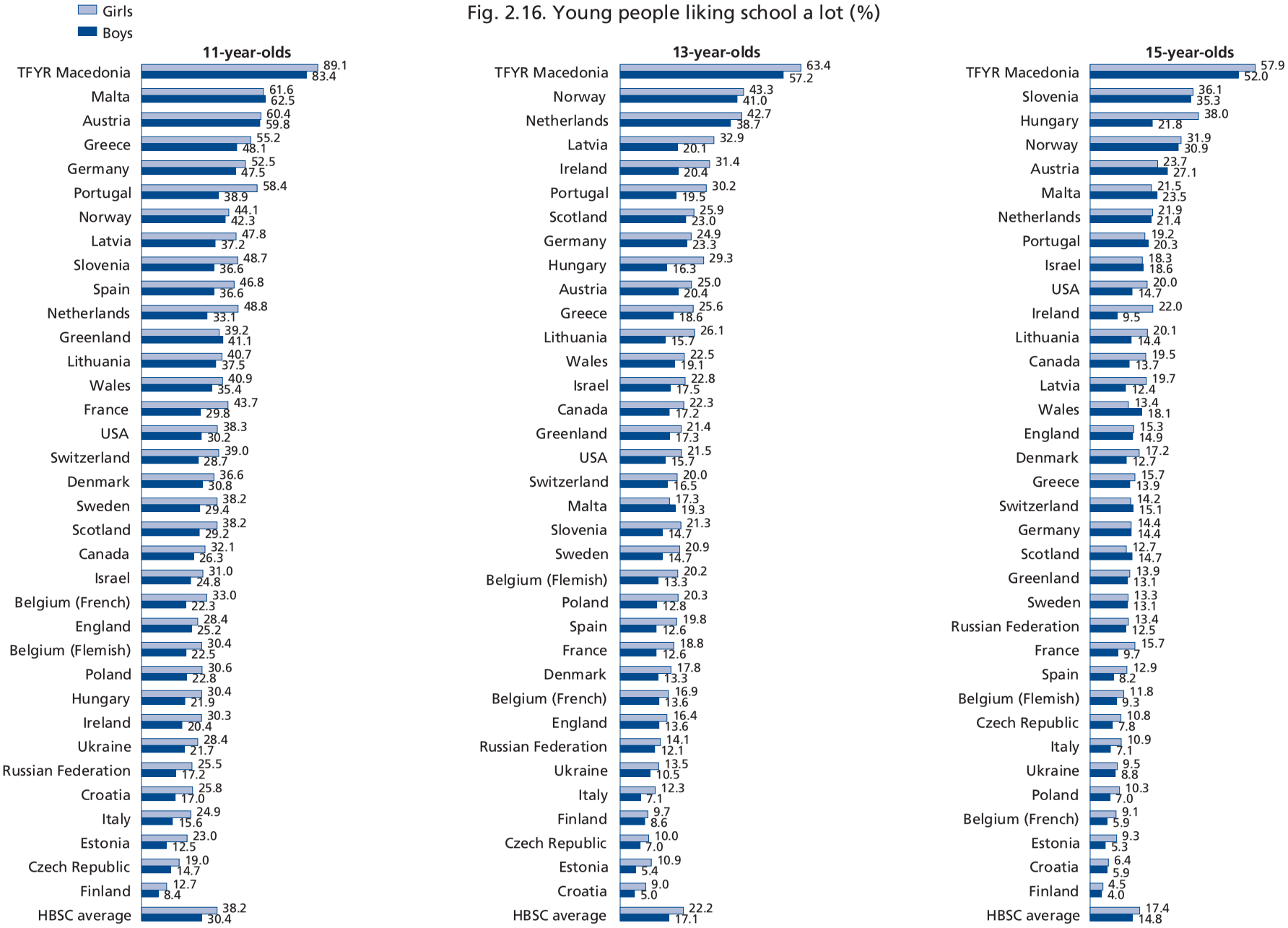


Fig. 2.17. Young people performing well or very well at school (%)

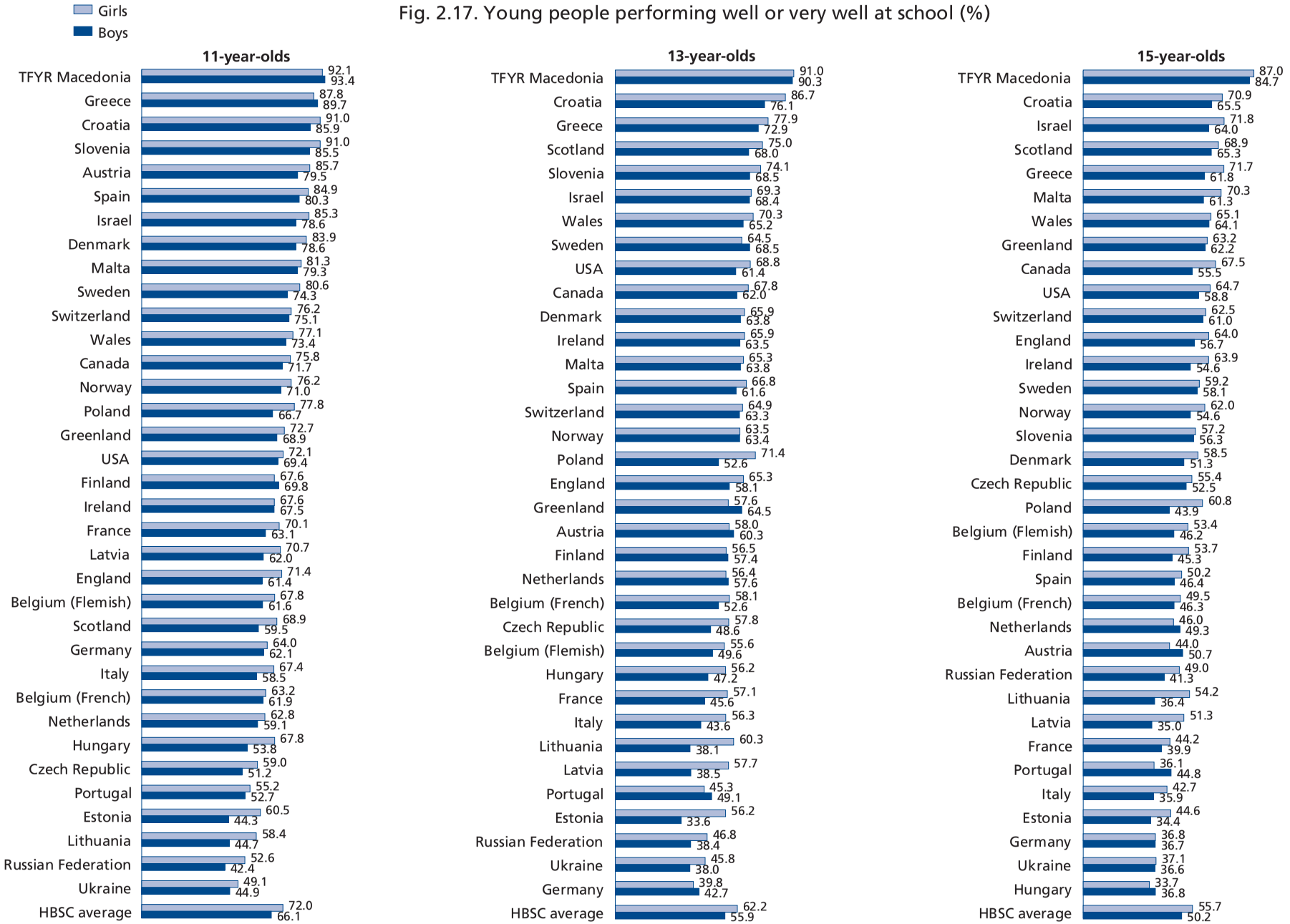
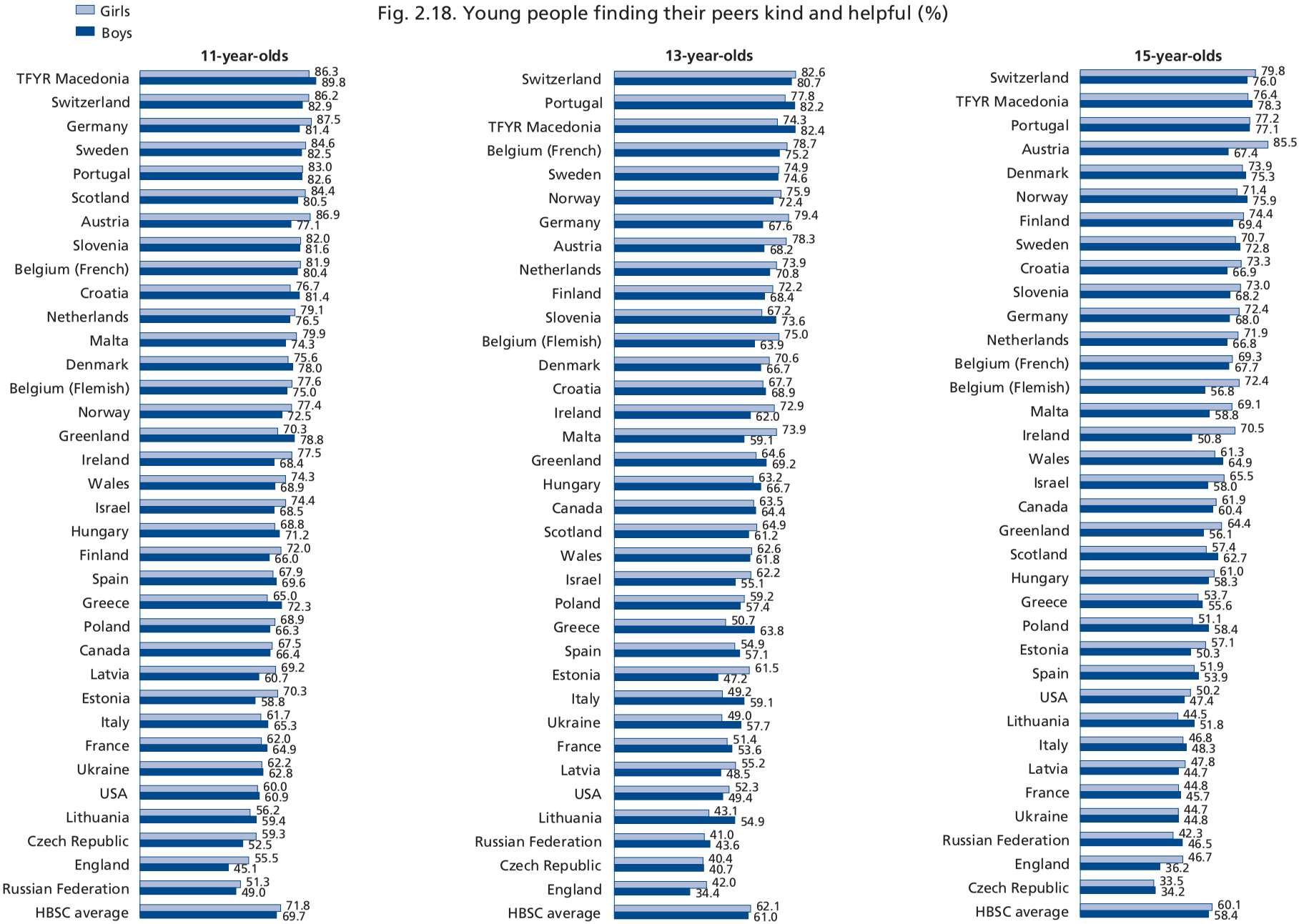


Fig. 2.18. Young people finding their peers kind and helpful (%)



Feeling pressured by schoolwork

Reported feelings of pressure at school vary widely and show a pattern similar to that for liking school (Fig. 2.19). Across all countries and regions, the older the young people, the more pressure they report. In general, girls feel more pressured than boys among 15-year-olds, but the gender difference is not so clear for 11- and 13-year-olds.

Pressure seems greatest on young people across all three age groups in Lithuania and Malta: about 44% of 11-year-olds and 65–80% of 13- and 15-year-olds report feeling some or a lot of pressure. The young people who least report feeling pressured are those in the Netherlands (all three age groups), Austria (11- and 13-year-olds) and Belgium (French) and Germany (13- and 15-year-olds). Across these countries and regions, roughly 25% reported some or a lot of pressure, except 11- and 13-year-olds in the Netherlands (where 5% and 13%, respectively, report this level of pressure) and 11-year-olds in Austria (10%).

Relationships between the factors surveyed

Data on all age groups show a positive relationship between academic achievement and liking school: r = 0.26 for 11-year-olds, r = 0.28 for 13-year-olds and r = 0.29 for 15-year-olds (Pearson's correlation coefficient). As the data are cross-sectional, it is not possible to infer the direction of this relationship: that is, whether reported academic achievement affects liking school or vice versa. Theoretically, there are arguments for both views. It seems reasonable that young people who do well and meet the important aims of schooling are more inclined to like school, but one can argue that young people who like school are more interested and motivated to do well there.

In terms of practical implications, if the relationship is causal, improving conditions in one arena may promote improvements in the other. Thus, we examined aspects of the psychosocial climate of the school and how they relate to these factors.

An analysis of the data for all countries and regions shows weak-to-moderate relationships for each age group between academic achievement and both peer support and school pressure (Table 2.3). The latter is negative, indicating that the higher the perceived pressure, the lower the academic achievement. Of course, this relationship could equally be interpreted the other way around: that is, the more that young people feel that teachers are dissatisfied with their achievements, the more likely they are to feel pressured by their schoolwork. No matter how one chooses to interpret the direction, the clear relationship between these factors highlights the importance of teachers' striking an appropriate balance in their expectations of students.

The relationship between peer support and academic achievement is positive, suggesting that young people perceiving that they have the support of their peers are likely to report good academic performance. This relationship becomes weaker as age increases, as does the relationship with school pressure.

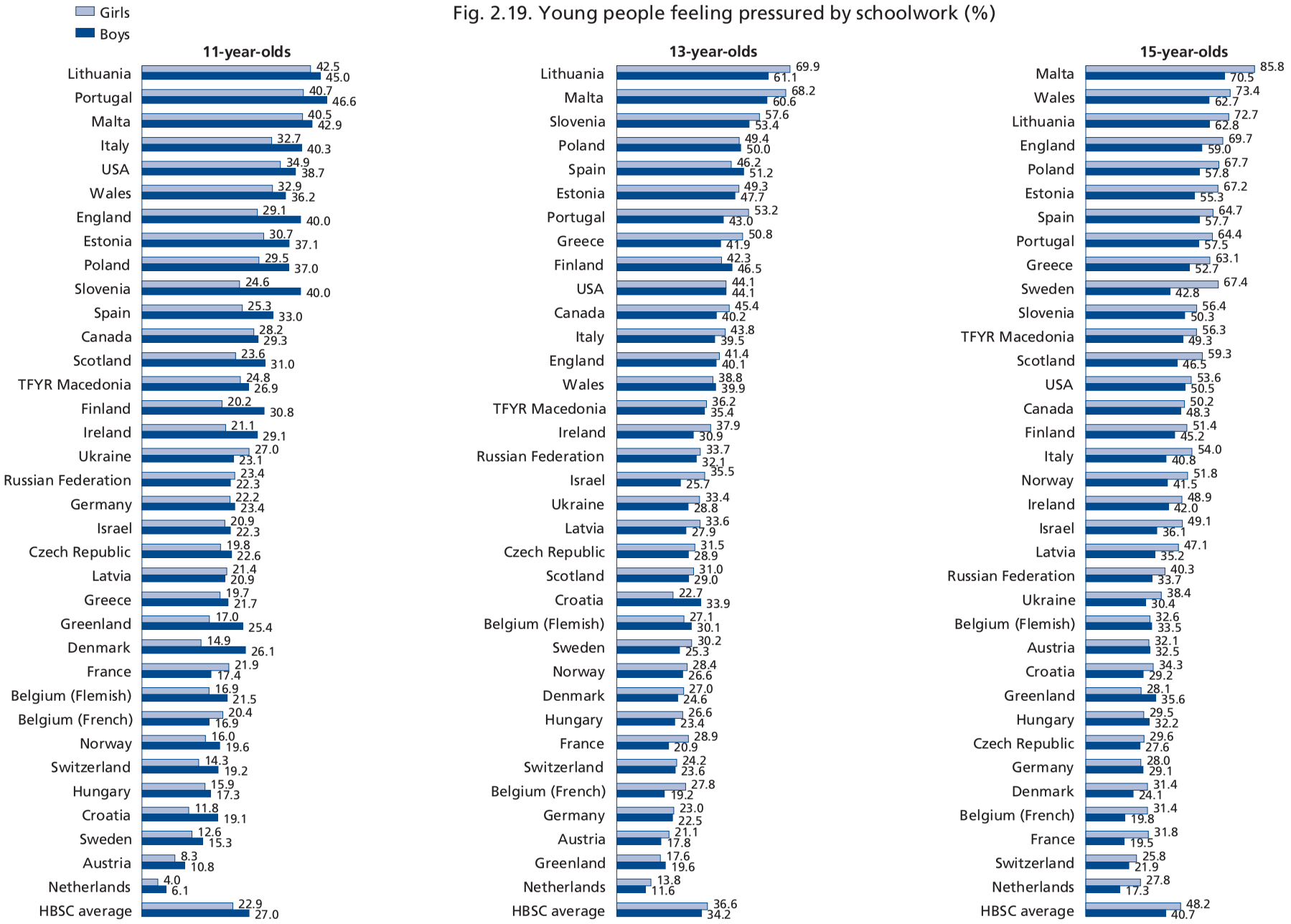
Moderate relationships can be seen across age groups between liking school and both peer support and school pressure, although the latter type is negative. In contrast to academic achievement, the strength of the associations between peer support and liking school does not decline. This indicates that these relationships stay stable in all three age groups throughout the period covered.

Table 2.3. Correlations[a] between peer support, school pressure, academic achievement and liking school (Pearson's correlation coefficient)

Factors	Academic achievement			Liking school		
	11-year-olds	13-year-olds	15-year-olds	11-year-olds	13-year-olds	15-year-olds
Peer support	0.14	0.10	0.09	0.24	0.22	0.23
School pressure	–0.18	–0.13	–0.06	–0.26	–0.22	–0.15

[a] Statistical significance is $P \leq 0.01$.

Fig. 2.19. Young people feeling pressured by schoolwork (%)



The strength of the relationship between school pressure and liking school, however, decreases slightly with age, indicating that school pressure might not have such great impact as students grow older or learn to cope with it.

Discussion

Age and gender differences in perceptions of school

The 2001/2002 HBSC survey found both age and gender differences for two outcome measures: liking school and academic achievement. Older respondents appear to like school less and to believe that they do not perform as well. Girls are more likely to report liking school and performing well. These differences show that school does not provide a homogeneous experience for everyone. Examinations of the influence of school on young people's health should consider this important fact.

Perceived peer support varies little by age and gender. Given the positive relationship in all age groups between receiving support from peers and both liking school and performing well, the promotion of such support should be an important issue in school development: a fundamental condition for successful schooling. This observation is particularly relevant from a health perspective, as peer support is important to the well-being of young people, especially as they grow older *(17,18)* (see Chapter 4, pp. 178–183). High levels of perceived peer support can thus provide a buffer against the negative health effects of school pressure.

Perceived school pressure increases with age and is highest among girls at age 15. This increase may be related to the growing importance of achieving good grades in examinations. A certain degree of pressure at school is found to assist academic achievement, as it can stimulate aspiration. Pressure that exceeds capability, however, is likely to be negative and can result in failure, which could influence motivation and performance *(2,19)*.

Another interpretation could be that young people become less likely to accept teachers' expectations for them as they grow older. They become more capable of controlling and shaping their school performance, which may lead to greater responsibility and pressure. Further, young people have other developmental tasks during puberty that are as important to them as schoolwork, if not more so.

Range in levels across countries

All the school perception measures reveal substantial variation across countries and regions. The ranking is fairly stable, particularly for those in the lower quartile. Most of the countries and regions ranking low on liking school also rank low on peer support and high on school pressure.

These differences undoubtedly reflect differences in school environments and education systems. Investigating and analysing such demographic factors are beyond the scope of this report, but some countries have conducted a separate survey at the school level to capture school policy issues related to the psychosocial school environment. These data may shed more light on the differences observed.

Age differences in the relationship between school experiences and liking school

The strength of the relationship between peer support and liking school is similar for all age groups, indicating that the importance of peer support does not change much.

Nevertheless, age differences emerge in the relationship between school pressure and liking school, following the pattern observed for academic achievement. With increasing age, the relationship between school pressure and liking school weakens, although the level of pressure increases. The reason for this may be that older children are more prepared to accept and handle such pressure, so that it does not affect their liking for school as much.

Implications for practice

The negative relationship between school pressure and both academic achievement and liking school, and the positive relationship between academic achievement and liking school combine to form a clear

pattern. It differentiates the school experience of young people who perceive themselves as successful, under a manageable level of pressure and liking to go to school from that of those who do not. From a systemic perspective, one might ask what schools contribute to the development of such patterns. The question could be answered by examining the pedagogical approaches used in schools. Giving all young people a greater say in decision-making on learning objectives and methods to achieve them may result in their taking more interest in and greater responsibility for their schoolwork in order to achieve these objectives.

The importance of perceived peer support for both academic achievement and liking school emphasizes the need to prioritize school activities that promote bonding and prevent bullying and hostile attitudes towards peers. Establishing systems to ensure a health promoting school environment through commitment to the guidelines in the European Network of Health Promoting Schools is one way systematically to improve the psychosocial climate in schools, as well as peer relations *(20,21)*. The primary aim of the health promoting school initiative *(22)* is to involve all partners of the school community (students, staff, parents and school health services) in identifying aspects of the school climate that need improvement and in developing and implementing interventions to this end.

Where students have played an active part in deciding and organizing activities, schools have experienced reduced levels of vandalism and disciplinary problems and both students and teachers have reported an increase in the young people's general satisfaction with school. Such participation facilitates young people's bonding with the school community, including their peers *(21)*.

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Summary – *Antony Morgan*

Chapter 2 describes four key contexts for the health and health-related behaviour of young people – socioeconomic status, the family, peers and school – and shows the patterns in these contexts across the age groups, genders and countries and regions participating in the HBSC study. In doing so, they have provided a new set of indicators for exploring young people's health in relation to their sociodemographic environments in these contexts.

The indicators described in this chapter are valuable both as intermediate outcomes of health and for use in secondary analyses that aim to establish the relationships between the contexts in which young people live and their health experience. The indicators offer the potential to understand the exact mechanisms by which contextual factors affect health. The key findings in this chapter are the following.

1. While using survey instruments to classify young people's socioeconomic circumstances has difficulties, the HBSC FAS can be used to assess their absolute material wealth and to compare results across countries and regions.
2. More young people live in affluent families in the northern and western countries in the European Region and in North America than in the eastern half of the Region.
3. Living with both parents is still commonplace for most young people across countries and regions, although single-parent families in general are more common in northern and north-western European countries and North America.
4. Mothers are a more accessible source of social support than fathers across most countries and regions.
5. Although peer contact increases with age across all countries and regions, gender inequalities exist in peer socializing, according to culture.
6. As young people grow older, they tend to like school less, perceive their performance to be poorer and feel more pressured by schoolwork. Countries and regions vary widely, however, in overall proportions.

Chapter 4 explores the relationship of the indicators presented in Chapter 2 with a range of health and health-related behavioural outcomes.

Young people's health and health-related behaviour

Introduction – *Saoirse Nic Gabhainn*

This chapter presents the data on health and health-related behaviour described in the Introduction and in the HBSC research protocol for the 2001/2002 HBSC survey *(1)*. It is designed to meet the objectives of this international study: to aid in monitoring health behaviour both within and among countries and regions and to assist the makers of health, education and social policy.

Adolescence is regarded as a period of relative health and low mortality, when disparities in health are minimal *(2)*. It is also a period of tremendous change in the physical, psychological, economic and social contexts of health behaviour. Behaviour that compromises, sustains or promotes health in childhood and adolescence is associated with short-term health-related outcomes and predictive of morbidity and health service utilization *(3–6)*. Patterns of behaviour established early in life are often maintained into adulthood. Further, health-compromising behaviour may indirectly influence educational engagement and psychosocial development *(7)*.

One of the major issues facing the HBSC research teams during the 2001/2002 survey was to update some questionnaire items, to bring them in line with new epidemiological or psychometric evidence, and to maintain others to facilitate measuring change over time. This resulted in a number of important improvements to the questions. The HBSC protocol *(1)* describes these in detail, along with the associated rationales and information on pilot testing. For example, the questions on physical activity were substantially revised to comprise a new measure of moderate-to-vigorous physical activity *(8)*, while those relating to sedentary activity now include time spent using a computer and doing homework. Changes to the items on positive health and well-being include an amended version of the Cantril ladder of life satisfaction *(9)*. In addition, data were collected on the reported age at onset of substance use. Although a few of the countries and regions participating in the HBSC study were unable to include the questions on sexual behaviour, owing to their sensitivity, the data gained from so many for the first time are particularly informative.

The wide range of health behaviour covered by the HBSC study remains one of its strengths. The items of the 2001/2002 international standard questionnaire ranged from issues of major public health concern (substance use, body image and dieting) to behaviours that lead to the principal causes of mortality in young people (violence and injuries), covering those that are substantially influenced by the settings in which young people live. Thus, the data in this chapter should not be considered in isolation from their cultural, political and interpersonal contexts, some of which are described in Chapter 2.

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Health and well-being – *Torbjørn Torsheim, Raili Välimaa and Mia Danielson*

Introduction

This section provides an overview of young people's reported state of health, across age, gender and country. It is based on the assumptions that health is an important resource and that the health of young people is a good indicator of that of society as a whole *(1)*. Knowledge about young people's health may say important things about their capacity to deal with the challenges they encounter, and help to identify groups or populations at risk.

Health as a resource

WHO defines health as a resource for living a productive life *(2)*. Poor health may significantly impair functional ability and prevent the achievement of life goals. In modern society, some of the most challenging health problems – such as musculoskeletal pain, chronic fatigue and depression – are related to functional impairment rather than to defined diseases. As an example of what could be called a rising epidemic of disability, up to 50% of long-term sickness certificates can be attributed to problems that have no objective indication of pathology *(3)*, but whose key feature is the inability to cope with the demands of working life. If health is a resource, public health investment is an issue not only of preventing or curing disease but also of enabling people to function optimally in the face of demands and challenges.

In adolescence, health is a particularly important resource and poor health may have long-term negative effects. Young people must deal with a variety of challenges during their transition to adulthood. Being in good health – physically, emotionally and socially – helps them deal productively with these challenges. Promoting young people's health can have long-term benefits for individuals and societies.

Three subjective indicators of health

Conventionally, data on health have been obtained from national morbidity and mortality statistics. While morbidity and mortality are important indicators of health, they may offer limited information in adolescence, since illness and death rates are usually very low during this period. Underscoring the need for a more comprehensive set of measures, this section assesses young people's health through the use of subjective indicators derived from young people's perceptions and reports.

There are several reasons for using subjective indicators. First, on the principle of empowerment, a description of young people's health should include their perspectives and definitions of their emotional and physical well-being *(4)*. Second, a focus on subjective health is more relevant than standard indicators of morbidity and mortality for the whole population of young people because it includes all of them, not just clinical subgroups. Third, in terms of impact, subjective indicators have objective behavioural consequences. Perceived health problems motivate young people to seek medical advice, to use medicine and to stay away from school, irrespective of the physical conditions underlying their perceptions.

The findings presented here are based on three indicators: self-rated health, subjective health complaints and life satisfaction. All HBSC surveys have used these key aspects of health and well-being.

People's subjective experience is a central indicator, often investigated by asking them to rate their own health. Such evaluations provide highly valuable information. Studies on adult populations clearly indicate that seemingly subjective health ratings predict or indeed coincide with objective health outcomes, including mortality *(5)*.

When young people are asked to rate health concerns, they consistently give high rank to somatic and psychological complaints *(6–8)*. We prefer to use the term subjective health complaints *(9)* as a general label. Thus, we make no assumptions about whether the primary causes of such complaints are biological or psychological, but record that the individual experiences and reports them. Health complaints tend

to cluster together *(10,11)*; rather than isolated symptoms, subjective health complaints can be viewed as a syndrome, in which an individual regularly experiences two or more health complaints at the same time. These range from the occasional headache that most young people sometimes experience to clinical manifestations of somatic or affective symptoms that impair everyday functioning. Such impairment has been associated with lower academic performance *(12)*, increased demand for primary care services *(13)* and increased use of medicine *(14)*.

We used an indicator of life satisfaction *(15)* to measure young people's global evaluation of their lives. It provides a direct assessment of the extent to which young people can fulfil their developmental tasks related to peers, parents and education. In young people, social relationships with parents/peers are among the most important correlates of life satisfaction.

Methods

Measuring health and well-being

Measuring health through self-reporting on a questionnaire has both strengths and limitations. On the one hand, it is standard, thus enabling comparisons between individuals and countries; it is non-invasive and designed to ensure the individual's integrity and anonymity; and it can be administered efficiently.

On the other hand, a fixed, standardized questionnaire limits the depth and coverage of measurement as compared with more qualitative methods.

The question on self-rated health was: *Would you say your health is Excellent, Good, Fair or Poor?* The findings given here focus on the young people who said their health was fair or poor, and the term poorer health is used to define these two responses. This group may be at particular risk, since a large majority of young people rate their health as excellent.

We used a standard symptom checklist to measure subjective health complaints *(10,16)*. *In the last 6 months how often have you had the following: Headache, Stomach-ache, Back-ache, Feeling low, Irritability or bad temper, Feeling nervous, Difficulties in getting to sleep, Feeling dizzy.* Response options were: *About every day, More than once a week, About every week, About every month, Rarely or never.*

Multiple recurrent health complaints may represent a significantly heavier burden on daily functional ability and well-being than single symptoms. The findings presented here therefore focus on young people who report experiencing multiple health complaints several times a week or daily. The recurrence of multiple complaints during a single week may have a much stronger impact than experiencing them once a month or once a week.

Life satisfaction was derived from the measurement technique known as the Cantril ladder *(17)*. It has 10 steps: the top of the ladder indicates the best possible life, and the bottom, the worst possible life. Young people were asked to indicate the step of the ladder at which they would place their lives at present. *Here is a picture of a ladder. The top of the ladder, 10, is the best possible life for you and the bottom, 0, is the worst possible life for you. In general, where on the ladder do you feel you stand at the moment? Tick the box next to the number that best describes where you stand.* A score of 6 or more was defined as a positive level of life satisfaction.

Results

Self-rated health

Table 3.1 shows that the proportions of young people rating their health as fair or poor differ considerably by gender and age. Poorer health is higher among girls and rises significantly with age.

Fig. 3.1 echoes the gender and age differences shown in Table 3.1 but reveals that countries and regions not only differ substantially in self-rated health but show some consistency in their relative positions. In general, the differences in ratings are greater for girls. Levels of poorer health reported by girls range from 4–44% in 11-year-olds, to 10–54% in 13-year-olds, to 13–63% in 15-year-olds. Latvia, Lithuania, the Russian Federation and Ukraine are four of the six countries with the highest levels for all age groups and both genders, while Greece, Israel, The former Yugoslav Republic of Macedonia and Spain consistently show low levels.

Table 3.1. Young people rating their health as fair or poor (%)

Gender	Fair or poor health (%)		
	11-year-olds	13-year-olds	15-year-olds
Girls	15.7	20.8	27.2
Boys	12.1	13.6	16.1

Subjective health complaints

Girls report multiple subjective health complaints more often than boys and these levels rise with age, while those for boys change little (Table 3.2).

Fig. 3.2 illustrates a consistent overall pattern of gender differences across age groups. In most countries and regions, the gender differences increase with age. For 15-year-olds, gender differences are notably high in the Baltic countries and in some southern countries in the European Region, including Croatia, Greece, Italy, Portugal and Spain.

Levels of multiple subjective health complaints differ substantially across countries and regions: ranging, for example, from 15% in Germany to 43% in Italy among 11-year-old boys. Multiple subjective health complaints are consistently higher among young people in Greece, Israel and Italy, and consistently lower in Austria, Germany and Switzerland.

Table 3.2. Young people experiencing multiple subective health complaints (%)

Gender	Multiple complaints (%)		
	11-year-olds	13-year-olds	15-year-olds
Girls	33.6	38.2	43.5
Boys	26.9	25.8	25.6

Life satisfaction

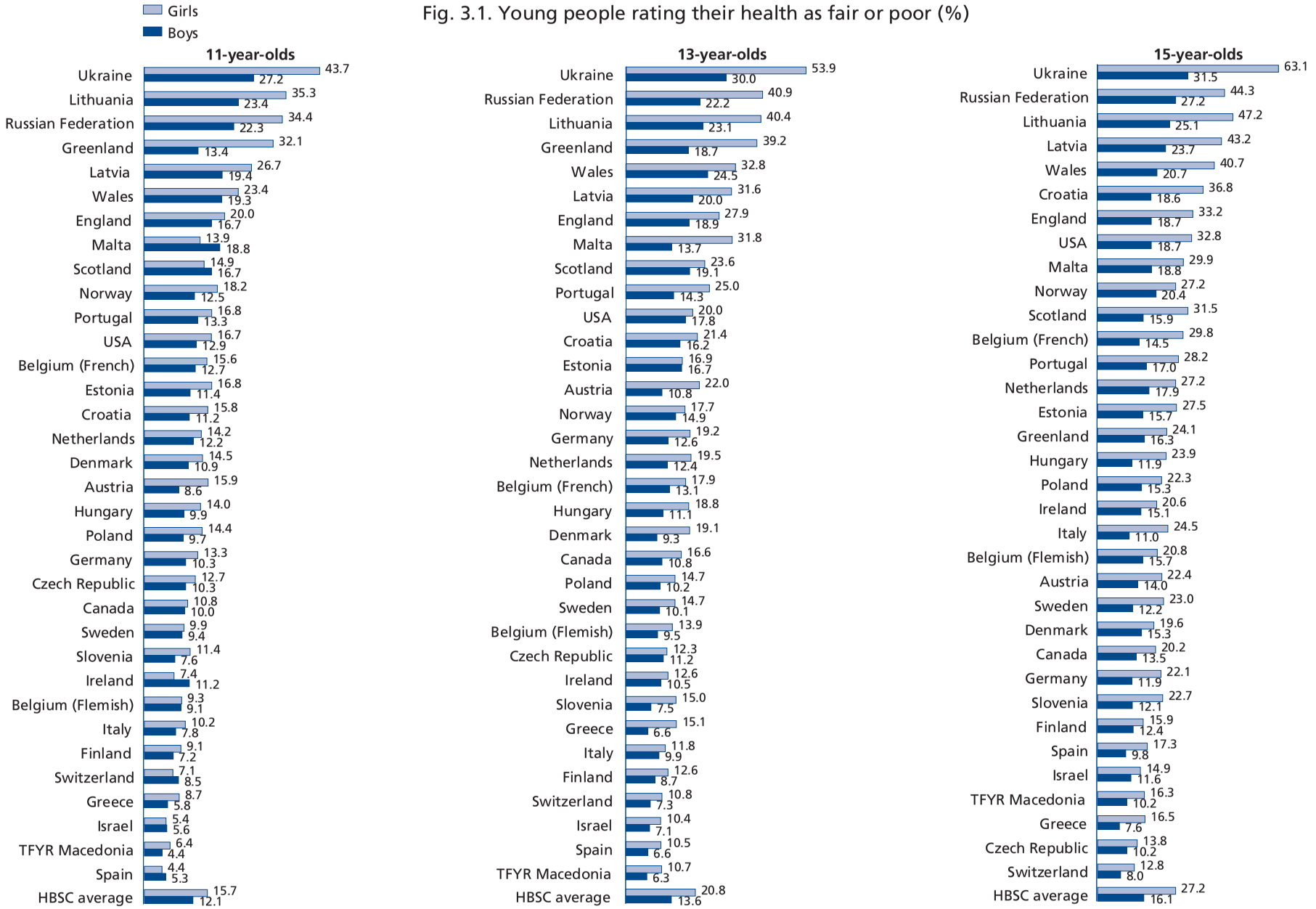
Table 3.3 shows the overall pattern of life satisfaction across age groups and genders. Very high percentages of young people place themselves above the middle of the Cantril ladder (scores of ≥ 6), indicating high satisfaction. Across age groups, there is a small trend towards decreasing life satisfaction, particularly for girls.

Although most young people are satisfied with their lives in all countries and regions, the geographical differences are substantial and remain consistent across age groups (Fig. 3.3). Scores are consistently high in Finland and the Netherlands and low in comparison in Latvia, Lithuania and Ukraine.

Table 3.3. Young people with scores above the middle of a life satisfaction scale (%)

Gender	Life satisfaction (%)		
	11-year-olds	13-year-olds	15-year-olds
Girls	87.1	82.5	77.4
Boys	88.1	86.9	84.5

Fig. 3.1. Young people rating their health as fair or poor (%)



Note: Data are unavailable for France.

Fig. 3.2. Young people experiencing two or more subjective health complaints more than once a week (%)

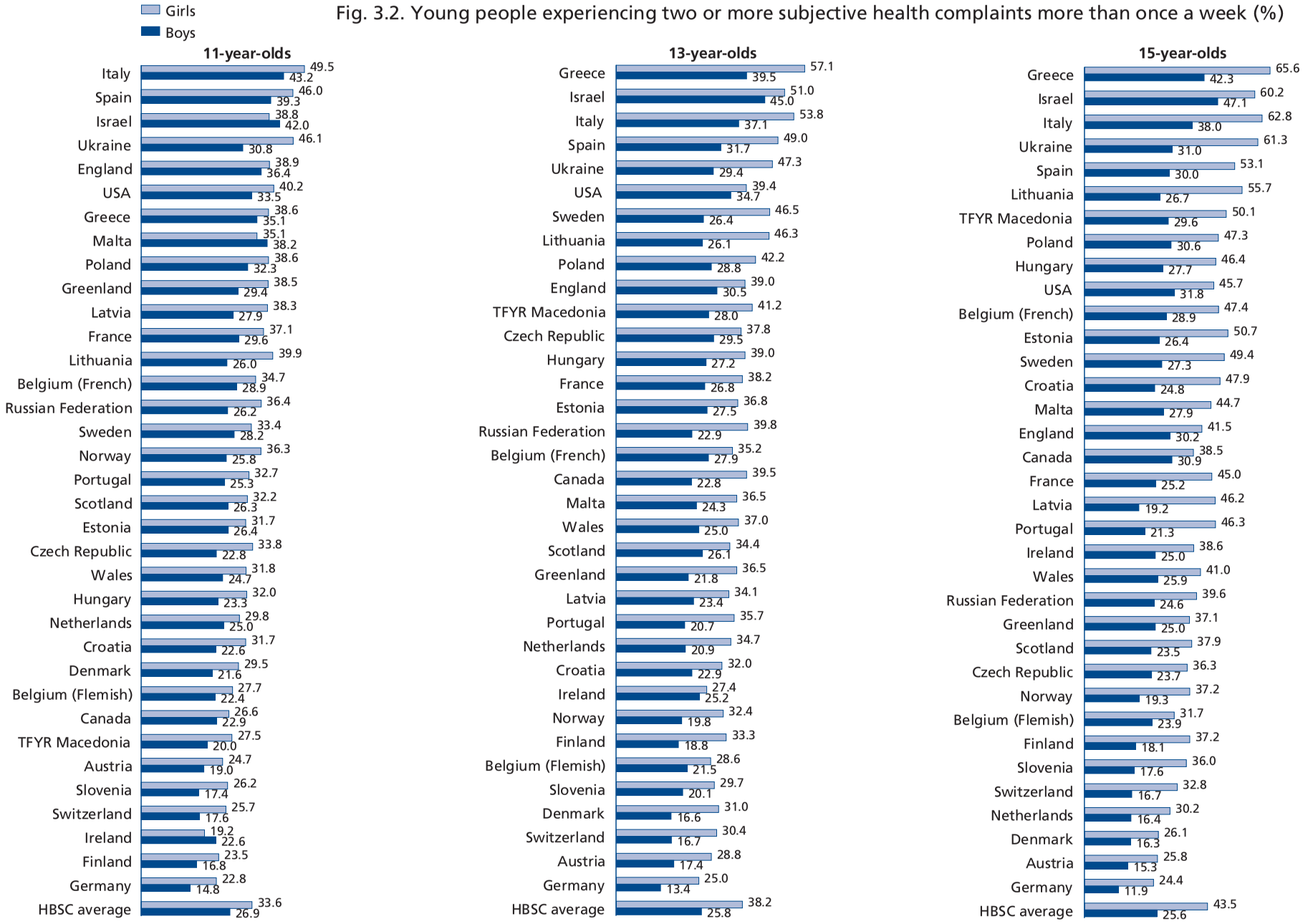
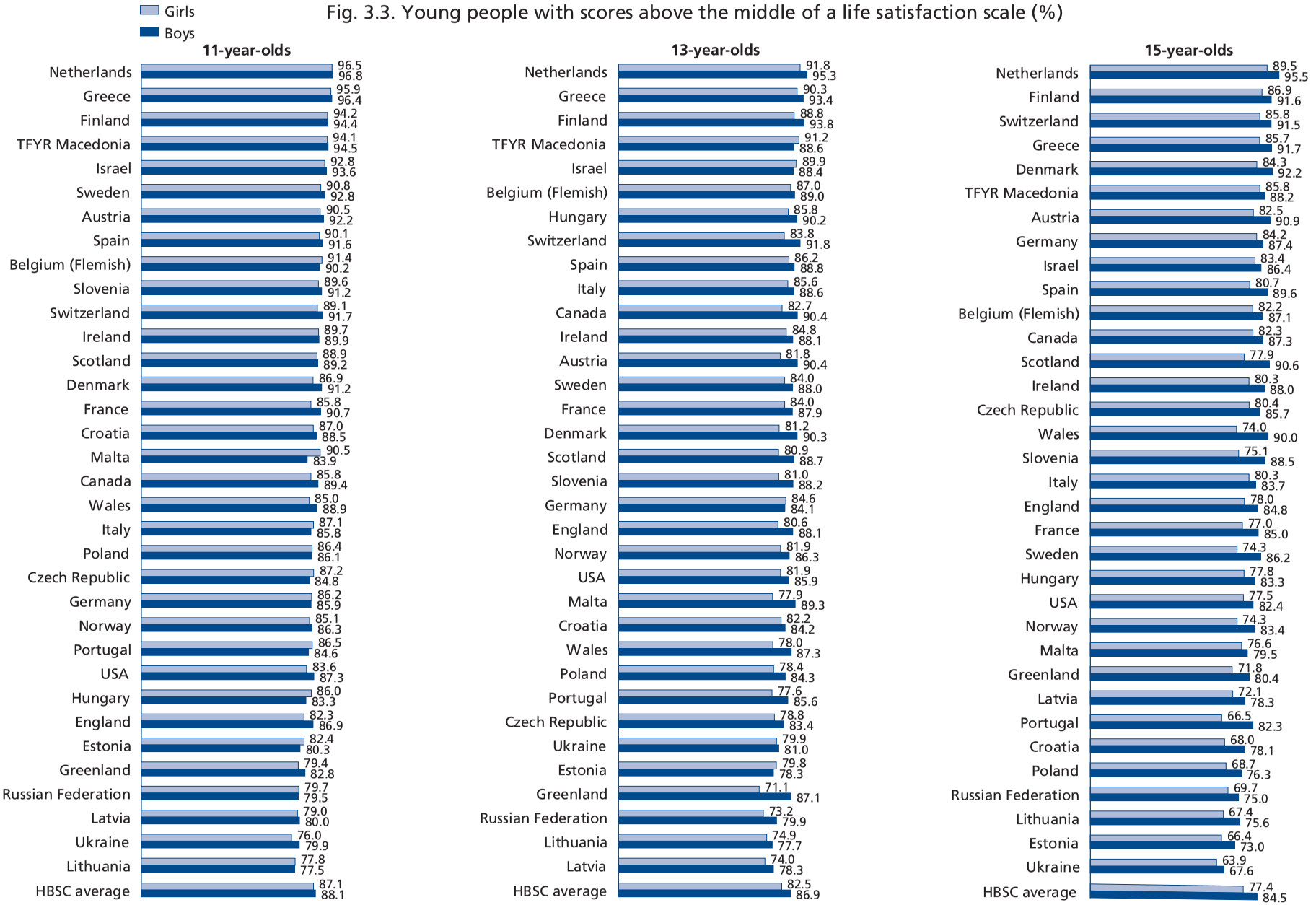


Fig. 3.3. Young people with scores above the middle of a life satisfaction scale (%)



Note: Data are unavailable for Belgium (French).

Discussion

The results presented in this section can be read as both good and bad news. The good news is that most of the young people surveyed rate their health as good or excellent, do not have multiple health complaints and are satisfied with their lives. The bad news is that a large minority of young people hold the opposite view of their health. The observed variations in self-rated health suggest that describing adolescence as a period of good health may be an oversimplification. Rather, it may be better described as a period of increasing health inequality. This section identifies two important sources of health inequality: gender and country or region. The following sections outline the content and implications of these two findings in more detail.

The most robust findings are that gender inequality in health increases significantly between the ages of 11 and 15, with an increasing risk of poor subjective health in girls. Across indicators, the subjective health of boys and girls showed comparable levels at age 11, but 15-year-old girls report a much less favourable pattern than boys, marked by higher rates of poorer health, higher rates of health complaints and lower rates of life satisfaction. Almost all countries and regions show the pattern of gradually increasing gender differences, indicating that the comparatively higher risk for low subjective health in girls is relatively independent of variation in societal and cultural factors.

Although this section cannot provide data to explain the gender difference in health, three potentially contributing factors can be examined.

First, the difference may be, to some extent, attributable to biological maturation and the onset of puberty. A follow-up study in Finland *(18)* found higher levels of health complaints among girls maturing earlier, after controlling for dating and drinking. Also, growing pains and onset of menarche may explain some of the gender differences. Chapter 4 (see pp. 196–204) discusses the effects of puberty and pubertal timing on young people's health and well-being.

A second contributing factor is that girls feel more pressure in areas such as body image, social relations and school *(19,20)*. Because girls, to a greater extent than boys, have to cope with more conflicting socialization tasks, they may also be more vulnerable to developing poor health.

Third, an explanation could be that socialization teaches girls to be more aware of their physical and emotional state, and to have a lower threshold for detecting and reporting health complaints *(21)*. The "boys-don't-cry" doctrine may deter boys from reporting health complaints. Thus, the increasing gender differences may be related to boys' relative underreporting of health problems.

These explanations are not mutually exclusive, but reflect processes that may operate in parallel or even interact. The important issue is that the additive effects of these processes create a substantial gender gap in young people's health. If this is interpreted primarily as a natural development, there is a risk that phenomena that could have a strong impact on public health may be overlooked. Poor subjective health puts 15-year-old girls at extra risk during the transition from adolescence to adulthood.

Although no formal statistical test was carried out, the cross-national differences for all indicators of health and well-being are clearly greater than would be expected from pure chance (see Annex 1). This implies that cross-national factors contribute to health inequality during adolescence.

To some extent the cross-national variations in health and well-being are consistent across indicators. Notably, young people from the Baltic states (excluding Estonia) and the eastern countries in the European Region tend to have higher rates of poorer health and lower rates of life satisfaction. The pattern could be described simply as an east–west gradient in young people's health, which tentatively indicates that social and structural conditions have much to offer in explaining such differences. The pattern is highly consistent with that documented by Micklewright and Stewart *(22)* on the significant socioeconomic differences between central and eastern European countries and countries in the European Union (EU). Compared to the EU average, the central and eastern countries in the European Region had a significantly lower national income and a significantly higher level of income inequality. Attempts to account for geographical differences in health and well-being may need to focus on structural and economic conditions.

This section documents health inequality among young people across three indicators. Although the majority report good overall subjective health, a large minority report indications of health impairment and may be at increased risk of being unable to cope with the life challenges that young people face in peer relations, academic performance and the development of identity.

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Tobacco smoking – *Emmanuelle Godeau, Giora Rahav and Anne Hublet*

Introduction

WHO identifies tobacco smoking as the leading cause of premature illness and death in developed countries *(1),* responsible for more than 14% of all deaths in the WHO European Region in 1999 *(2).*

Although the vast majority of smoking-related deaths occur in middle-aged and elderly people, smoking behaviour is undeniably established in adolescence. In the United States, for example, some 80% of adult smokers reportedly started smoking before the age of 18 *(3).* Young smokers may acquire the habit and become addicted before reaching adulthood, making them less able to quit and more likely to have a tobacco-related health problem. The longer the onset of smoking is delayed, the less likely a person is to become addicted *(3).* Pierce and Gilpin *(4)* estimated that half of all new male adolescent smokers will smoke for at least 16 years, while females will smoke for at least 20 years *(4).*

Although the acute and early detrimental health outcomes of alcohol are more immediately obvious and serious than those of tobacco (see the following section), smoking leads to short-term health problems in young people, including reduced lung function; increased asthmatic problems, coughing, wheezing and shortness of breath; reduced physical fitness; and greater susceptibility to and severity of respiratory illness *(3).* Nevertheless, many young people view smoking as agreeable, adult and fashionable *(5).*

A review of the literature documents a number of factors that contribute to young people's smoking *(6)*, including the behaviour, attitudes and expectations of both parents and peers. Young people are more likely to be smokers if they have parents, older siblings and/or friends who smoke. Parental support, however, has been shown to be a protective factor against the onset of smoking, particularly through involvement in school and extra-curricular activities *(7).* Peers who smoke are particularly influential, as they often provide initial access to cigarettes, increase the perceived prevalence of smoking behaviour and help to create norms with which young people identify *(8).* Peer pressure, explicit or implicit, is often presented as a major reason for adolescent smoking *(9).* Exposure to adverse life conditions, such as child abuse and stressful events, are also associated with a higher risk of regular smoking *(10),* as is low self-esteem *(11).*

When viewed from a lifestyle perspective, smoking is also associated with other types of risk behaviour, such as using illicit drugs and drinking alcohol, and with antisocial behaviour. For example, young smokers are three times more likely to use alcohol regularly and eight times more likely to use cannabis than nonsmokers *(12).* Finally, tobacco smoking is suspected to be a major gateway to other forms of substance use *(13).*

Most young people can recite the dangers associated with smoking, although they underestimate the virulence of its consequences and their personal vulnerability *(14).* They focus on the perceived immediate attractions, rather than the long-term disadvantages. For example, they expect smoking to help them cope with everyday stresses, to facilitate contact with members of the opposite sex by sharing cigarettes and, particularly among girls, to reduce or control body weight *(15).*

Methods

The 2001/2002 HBSC survey used three questions to obtain a broad picture of smoking behaviour, from experimentation to current smoking status.

The first was: *Have you ever smoked tobacco (at least one cigarette, cigar or pipe)?* Response categories were: *Yes*, *No*. This definition of those ever having smoked covers a range of people, including those who experiment, those who might eventually become regular smokers, those who already smoke regularly, those who have stopped smoking, those who might stop in the near future and those who smoke occasionally.

The second question measured frequency: *How often do you smoke tobacco at present?* Response categories were: *I don't smoke, Every day, At least once a week, but not every day, Less than once a week*.

Frequency of smoking is presented in weekly and daily terms. The data presented here are hierarchical; in other words, those who smoke daily are included in the group of weekly smokers and the daily and weekly smokers are included in the group of those ever having smoked. While these questions do not directly measure dependence, they are indicators of behaviour that might reflect it. The data presented allow an examination of the movement from experimentation to occasional and more regular use. Regular smokers are at the highest risk of continuing to smoke as adults and experiencing the associated short- and long-term harm.

Several HBSC surveys included these two questions. Many countries use them as surveillance tools, to monitor tobacco use over time. Together they help demonstrate changes and trends across survey cycles. Alternative survey questions have been used in similar studies, but HBSC emphasizes continuity and comparability. Thus, these HBSC questions were retained in their existing format.

The 2001/2002 survey added a third question, to capture the age at which young people first smoked tobacco. It was included in a short list of items on onset of behaviour, including drinking alcohol and getting drunk: *At what age did you first do the following things … Smoke a cigarette (more than a puff)?* Response options were: *Never* and *I was ___ years old.*

Assessing the age of initiation of cigarette smoking among the younger age groups in the study suffers from an obvious methodological shortcoming: an unbiased estimate cannot be provided until all those who could potentially initiate a behaviour have had the time to do so. The window of opportunity is narrow, as some of those categorized as never having smoked are still likely to try smoking later, thereby raising the mean age of initiation. To minimize this problem and to avoid further confusion due to different recall periods among the three age groups, the analysis of onset presented here is restricted to 15-year-olds.

Results

Ever having smoked

In all countries and regions, given that the measurement of ever having smoked is by definition cumulative, the proportions of young people reporting having smoked rise significantly with age: from 15% for 11-year-olds to 40% for 13-year-olds and 62% for 15-year-olds (Fig. 3.4). The rates are below 25% in 30 countries and regions at age 11, but only in 2 at age 13 and in none at age 15. Countries such as Greece, The former Yugoslav Republic of Macedonia and the United States consistently show low rates across age groups, while Estonia, Greenland, Latvia, Lithuania and Ukraine show high rates.

Except in The former Yugoslav Republic of Macedonia, reported rates of ever having smoked rise more between 11 and 13 years of age than between 13 and 15. In almost half the countries and regions, these rates are at least three times higher for 13-year-olds than for 11-year-olds. The largest difference is observed in Malta, where the rate rises from 7% to 30%.

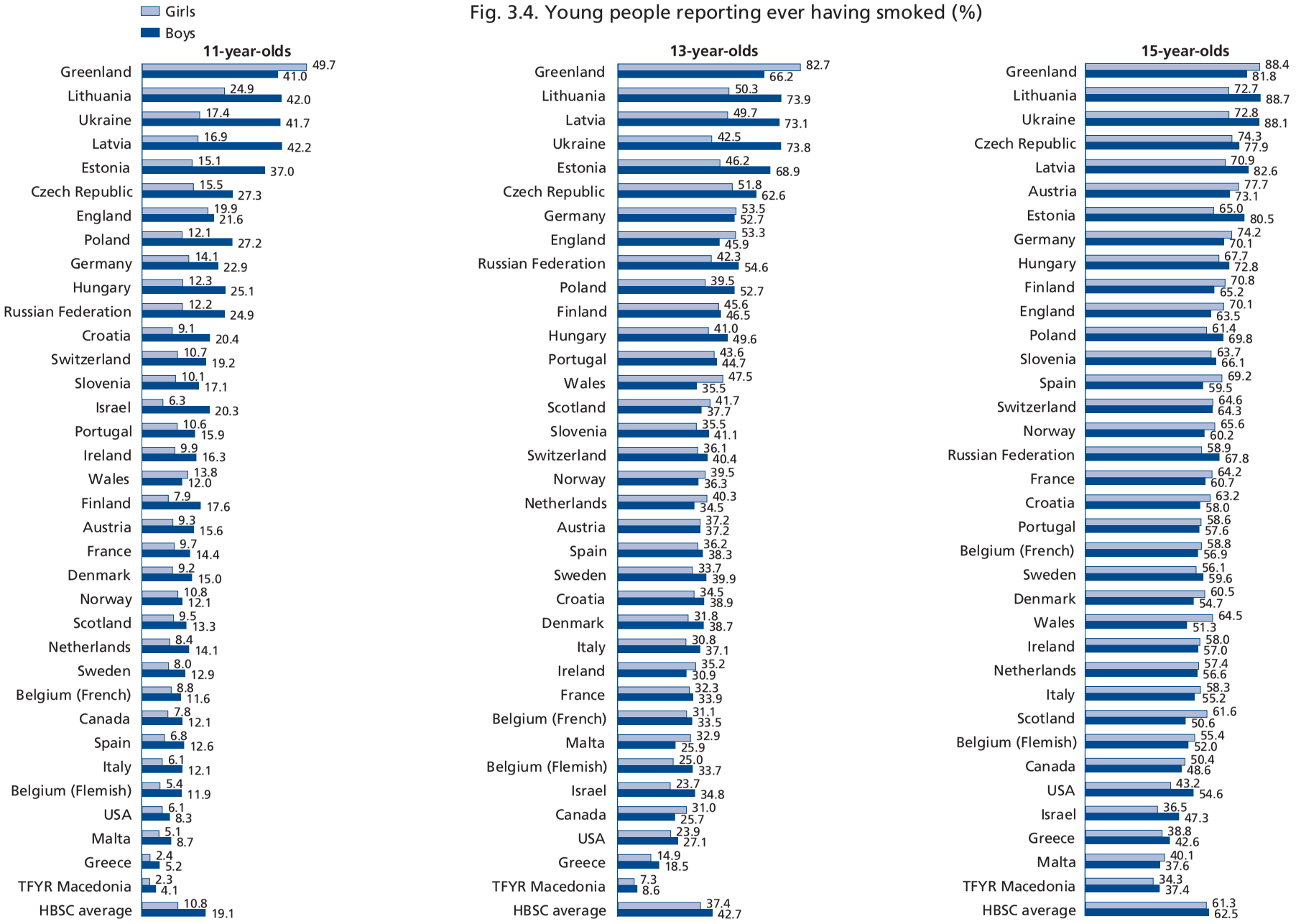
Clear gender differences are also apparent. Among 11-year-olds, rates of ever having smoked are substantially higher for boys than for girls of the same age in almost all countries and regions. At age 13, however, this is true for less than half the countries and regions, with around one third having similar rates for boys and girls and more than a quarter with higher rates for girls. This trend continues in the 15-year-olds, where more girls than boys have smoked in over half the countries and regions, the differences being particularly marked in Scotland and Wales. In contrast, across all age groups in eastern European countries and some central European countries, where the overall rates are highest, boys are more likely to have experimented with tobacco smoking. In this group of countries, the largest gender differences are observed in Estonia, Lithuania and Ukraine. Israel and the United States also follow this pattern, although with lower rates.

Current smoking

Frequency

Across countries and regions, 84% of young people report that they do not smoke. About one third of the 16% who smoke do so less than once a week (5%) with the other two thirds (11%) smoking at least once

Fig. 3.4. Young people reporting ever having smoked (%)



a week, 7% of whom (almost half of all smokers) smoke daily. These global figures, however, hide striking age, gender and geographical differences.

Weekly smoking

As noted, weekly smokers range from those who smoke at least once a week to those smoking on a daily basis. For all countries and regions combined, rates of weekly smoking increase with age, from 2% among 11-year-olds, to 8% among 13-year-olds to 24% among 15-year-olds (Fig. 3.5). With the exception of Greenland, where rates are exceptionally high, weekly smokers comprise no more than 5% of 11-year-olds, 15% of 13-year-olds and 35% of 15-year-olds in all countries and regions. In almost all, rates rise more steeply between the ages of 11 and 13 than between 13 and 15.

Gender differences follow a similar pattern to those found for ever having smoked. For example, among 15-year-olds, in more than half of the countries and regions (mainly in northern and western Europe) girls are more likely than or as likely as boys to be weekly smokers. Elsewhere, the reverse is seen. In 13-year-olds, for example, weekly smoking is about twice as high for girls than for boys in Scotland and Wales, but at least twice as high for boys than girls in Latvia, The former Yugoslav Republic of Macedonia and Ukraine.

Daily smoking

As with weekly smoking, daily smoking rises substantially with age: 1%, 5% and 18% among 11-, 13- and 15-year-olds, respectively (Fig. 3.6). Rates are below 3% among 11-year-olds in all countries and regions, no higher than 10% for 13-year-olds in all except Germany and Greenland, and 30% for 15-year-olds in most countries and regions. The vast majority show a more substantial increase between the ages of 11 and 13 than between 13 and 15.

The gender differences observed are similar to those for the other variables. Among 15-year-olds, girls are as likely as if not more likely than boys to be daily smokers in more than half of the countries and regions (mainly in northern and western Europe). The reverse is the case elsewhere. Among 15-year-olds, for example, girls are about twice as likely as boys to be daily smokers in Sweden and Wales, while boys are more than twice as likely to be daily smokers as girls in Estonia, Lithuania and Ukraine.

Onset of smoking

As described, the analysis presented here addresses 15-year-olds because of the methodological issues associated with the initiation process in the study population.

Fig. 3.7 shows the age at which three categories of 15-year-old smokers report having their first cigarette, cigar or pipe. Among 15-year-olds who report ever having smoked, the mean age of onset is 12.5 years, with a range from 11.4 years in Lithuania to 13.7 years in Greece and Israel. The corresponding figure for weekly smokers is 12.2 years, with a range from 11.2 years in the United States to 13.4 years in Greece and Israel; that for daily smokers is 12.1 years, with a range from 10.7 years in the United States to 13.2 years in Israel.

The frequency of smoking for 15-year-olds seems to show an association with the age at which they first smoked: the earlier the first cigarette, the higher the proportion of regular smokers. Among current smokers who had their first cigar, pipe or cigarette before the age of 10, 69% now smoke at least weekly and 49% smoke daily. In contrast, among young people who started to smoke at 15, 61% reported smoking at least weekly and 37%, daily.

Except in Greenland, Malta, Scotland and Wales, boys who report ever having smoked start smoking earlier than girls. The gender gap is largest in the Ukraine, where girls start smoking more than two years after boys. Weekly and daily smokers show the same pattern. Only in Greenland and Scotland does onset in both weekly and daily smokers occur earlier among girls.

Discussion

Owing to the harm to health caused by smoking tobacco and the idea that it is the first step on a path that might lead to other forms of substance use, finding that two thirds of 15-year-olds and more than a third

Fig. 3.5. Young people who smoke at least once a week (%)

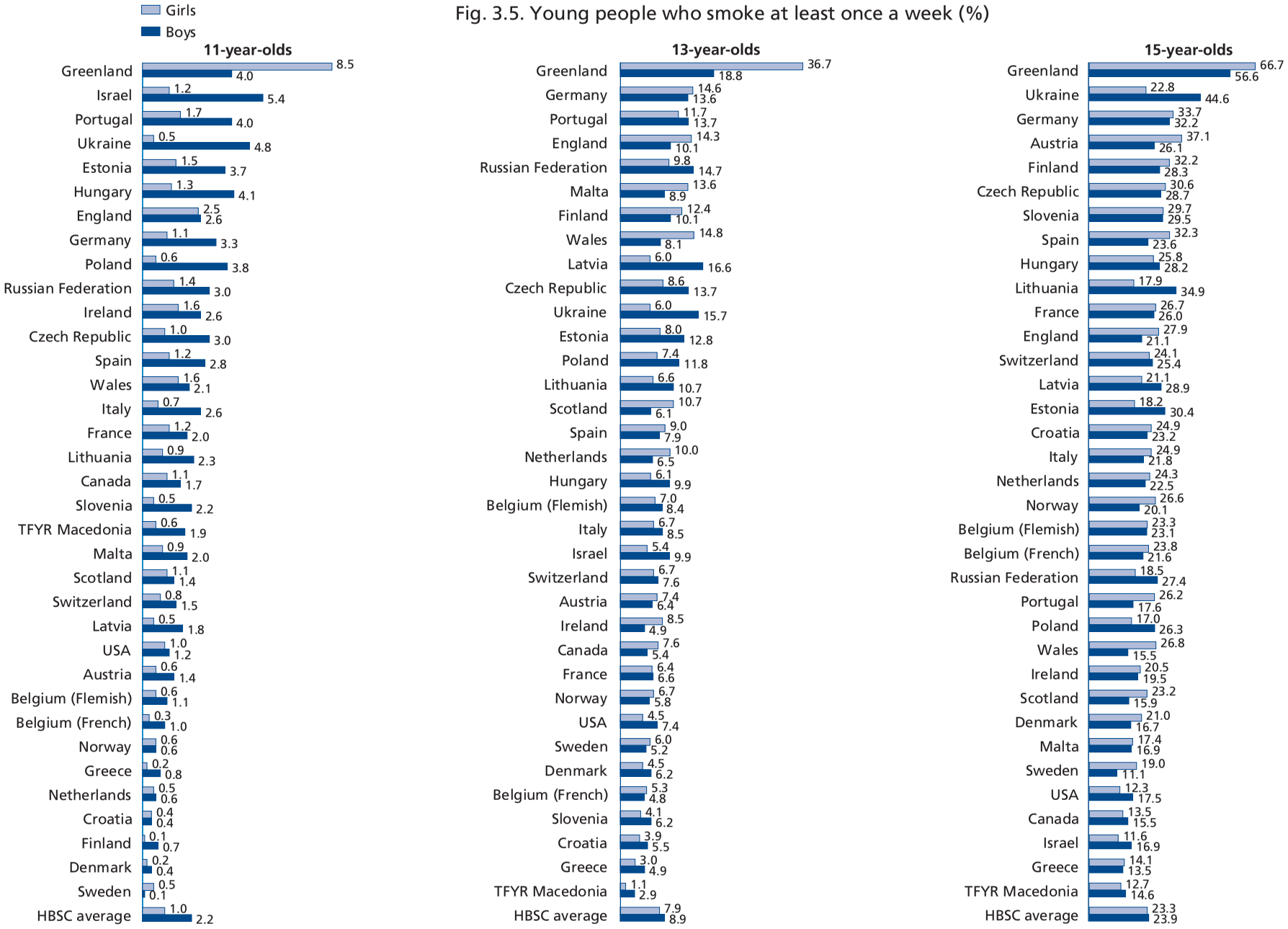


Fig. 3.6. Young people who smoke every day (%)

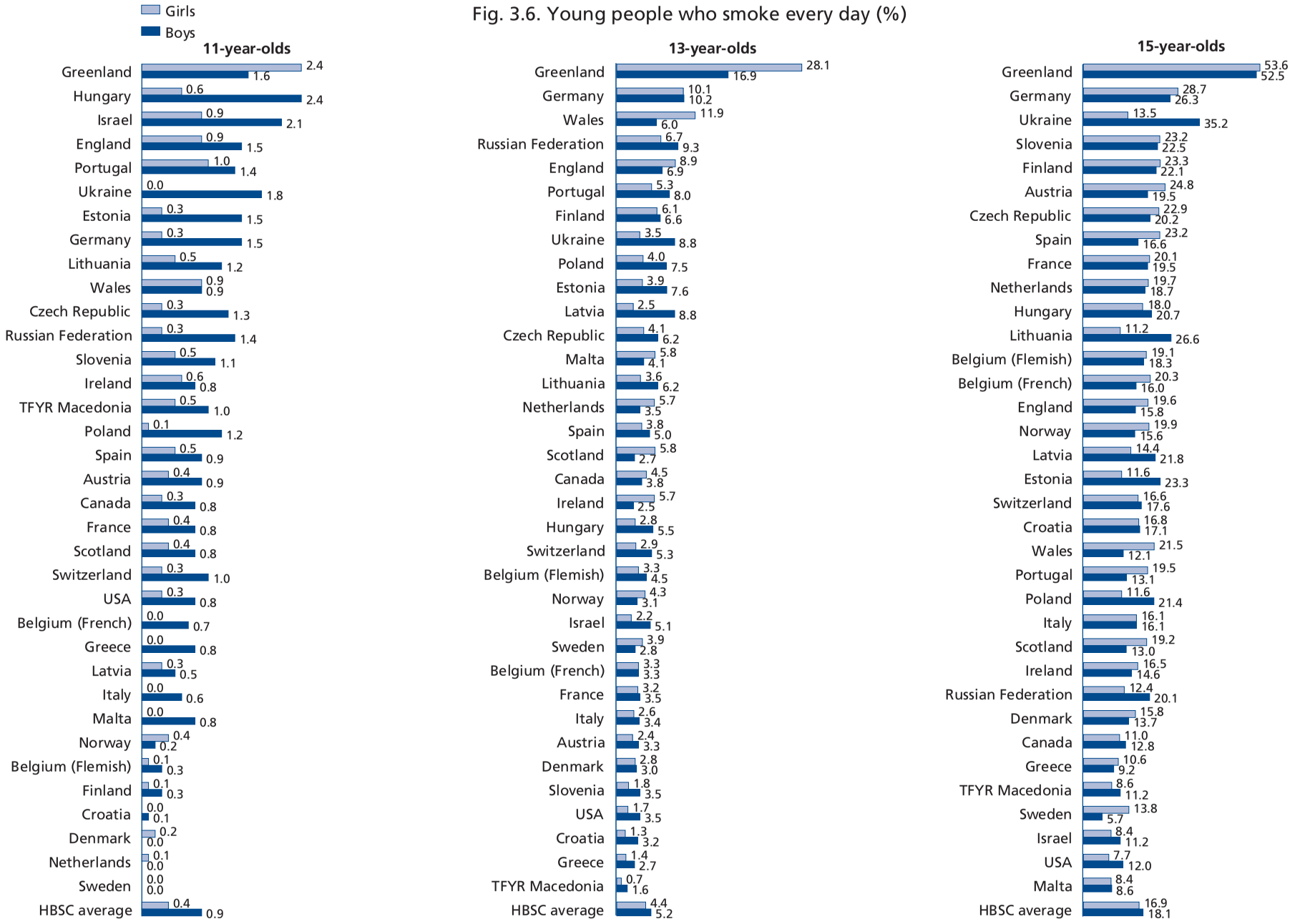
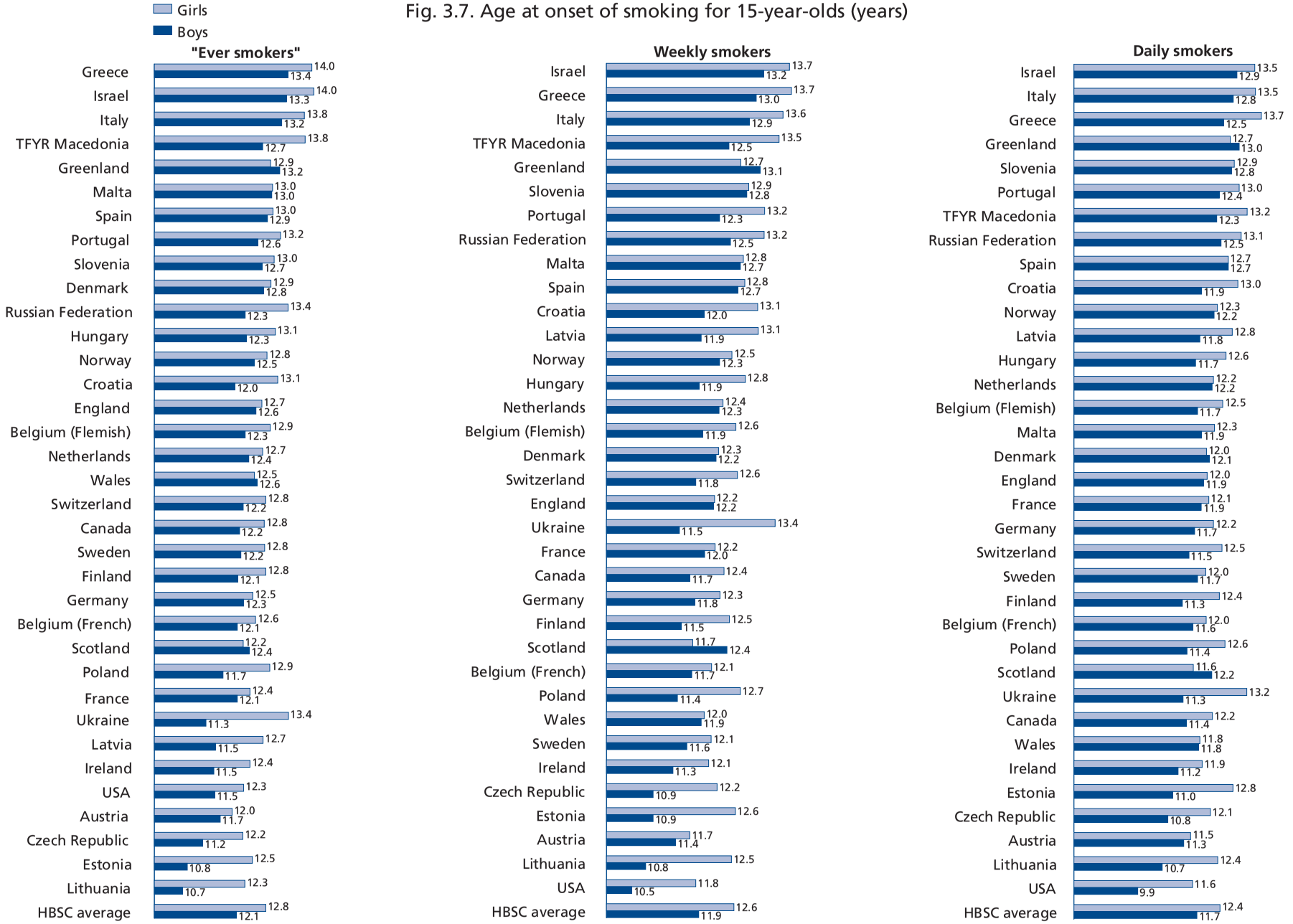


Fig. 3.7. Age at onset of smoking for 15-year-olds (years)



of 13-year-olds have already experimented with tobacco is a major concern. These aggregate figures hide large differences among countries and regions.

A very important finding is that the proportion of girls who smoke continues to rise in a number of countries and regions. This can be clearly seen among 15-year-olds in particular: smoking rates tend to be higher among girls than boys. In only a small number of eastern countries in the European Region are boys much more likely to smoke. Boys are still more likely to start smoking earlier than girls.

With few exceptions, the survey results seem to define a broad geographical pattern for gender differences in smoking, particularly in the older age groups: more boys than girls smoking in eastern countries in the Region, minimal gender differences in central and southern countries, and smoking rates for girls overtaking those for boys in many northern and western European countries.

All this may suggest the emergence of a new pattern of gender differences, which the 1997/1998 HBSC survey found only in daily smokers and weekly smokers of the oldest age group (*16,17).* This pattern may be associated with broader changes in the status of women in industrialized countries and is consistent with the epidemic curve observed for the adult population in these countries *(18,19).*

Not surprisingly, rates of smoking rise with age in all countries, and the earlier the onset, the higher the rate of regular smoking. Nevertheless, the rates of tobacco use in the three categories (ever having smoked, weekly smoking and daily smoking) need careful examination. Given its cumulative nature, the proportion of those ever having smoked inevitably increases with age. Further, experimental smoking does not always result in regular smoking. The rise in reported weekly and daily smoking may reflect a decline in adults' control over adolescents as they grow older, as well as a process of progression and habituation, which may reach the stages of dependence and addiction in at least some cases. The finding that higher rates of smoking among 15-year-olds tend to be associated with lower ages of initiation provides evidence of this progression. In addition, of course, 15-year-olds have more money and opportunity to obtain cigarettes than younger age groups. Also, smoking is more likely to be seen as acceptable at this age and to engender more social support.

Where rates of smoking remain high in HBSC countries and regions, the policies and programmes tackling tobacco use among young people may not have been sufficiently effective. Rates could be higher still, however, in the absence of such activities. For example, in the United States, where HBSC data show a relatively low rate of tobacco use in 2001/2002, smoking started to decline after peaking in 1997. This is thought to be linked to increases in: the retail price of cigarettes (rising 70% from December 1997 to May 2001), school-based efforts to prevent tobacco use and the exposure of young people to state and national mass-media smoking prevention campaigns *(20)*. The decline occurred despite a major increase in tobacco companies' expenditure on advertising and promotion and frequent depictions of smoking in films *(21)*. This is in sharp contrast to conditions in countries where smoking is more common, such as Germany and Ukraine. Here, easier access to tobacco, greater exposure to advertising and relatively weak control efforts may reduce the potential for change, even when programmes are implemented in schools. A recent review of the effectiveness of prevention programmes in the United States *(22)* supports this conclusion. It indicates that policy-level interventions to restrict the use of tobacco by young people – such as clean air laws, price increases through taxation, counter-advertising and the enforcement of existing laws restricting tobacco purchases by minors – need to be combined with school-based prevention programmes for maximum long-term effect *(22).*

Smoking rates have not changed overall from earlier HBSC data, although this masks increases in some countries and decreases in others. In countries such as Estonia, the Czech Republic and Lithuania, daily smoking rates for 15-year-old boys and/or girls have increased up to 12% from the levels found by the 1997/1998 HBSC survey *(17).* For example, boys' daily smoking rose from 15% in 1997/1998 to 27% in 2001/2002 in Lithuania. In contrast, daily smoking among 15-year-olds stabilized or fell by less than 5% in most western European countries. Among boys in Israel, Scotland and Wales and among girls in Canada, daily smoking rates declined by at least 6% (from 19%, 18%, 17% and 21% in 1997/1998

to 13%, 12%, 11% and 11% in 2001/2002, respectively). Further in-depth quantitative and qualitative analyses at the country and individual levels are needed to reach a better understanding of this process.

The findings from the 2001/2003 HBSC survey suggest that countries should implement comprehensive intervention programmes for young people, and consider implementing gender-specific programmes. Adolescent girls should be targeted in particular because regular smoking is rising faster (or at least declining more slowly) among them and may result in future gender-related health effects. For example, the interaction between smoking and oral contraceptives is thought to increase the risk of cardiovascular diseases and affect reproductive health *(23).* Further, maternal smoking status is related to the exposure of children to environmental tobacco smoke and to the future smoking status of young people *(24).* Smoking in women may therefore have a significant impact on the developmental and growth environment of the next generation.

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Alcohol use – *Holger Schmid and Saoirse Nic Gabhainn*

Introduction

Alcohol use is embedded in the cultures of most of the 35 countries and regions taking part in the HBSC study; in 1996 the annual per capita consumption of alcohol exceeded 10 litres in about half of them *(1)*. For young people living in these countries and regions, adults, peers, siblings and the mass media provide important role models for the use of alcohol *(2)*. Apart from being influenced by different social factors, adolescents also actively select activities, such as drinking alcohol, on the basis of their personal beliefs and goals, as well as familial or societal characteristics. An understanding of the function of alcohol for the individual may help to explain how it fits into young people's lives *(3)*.

Alcohol may represent one of the desired privileges of adulthood and using it may make young people feel that they appear older. They may see it as a means of increasing autonomy and achieving independence from parents or guardians. In a peer group, alcohol may facilitate interaction and making new friends, increase perceived popularity or influence young people's image among their peers. It may also provide a means of fitting into the misperceived norm that everyone in the peer group drinks. Alcohol may also help young people to relax and provide a means of coping with a variety of perceived demands. The immediate attractions of alcohol are more salient for young people than life-long or even short-term consequences. For example, commercial advertising associates alcohol with a variety of benefits that appeal to young people, including social camaraderie, masculinity, sexual attraction, romance, escape and adventure. Rarely do media images aimed at young people show any of the negative consequences of drinking alcohol, such as embarrassment, hangovers, accidents and violence *(4)*.

Adverse health outcomes resulting from alcohol use are common among young people and many alcohol-related deaths occur relatively early in life *(5)*. They also include intentional and unintentional injuries, both of which are related to patterns of drinking. The negative social consequences include missing school, falling behind in schoolwork, unplanned and unprotected sexual activity, arguments with friends, destructive behaviour and trouble with the police *(6,7)*. As noted by WHO *(1)*, however, much of the available evidence on drinking alcohol and the consequences of doing so is weak, relying on small surveys or anecdotal or descriptive accounts.

This section provides a basic description of alcohol use in a large representative sample of young people in many countries, by age group and gender.

Methods

The 2001/2002 HBSC survey asked young people how many times a week they usually drink alcohol, how often they consume a range of alcoholic drinks, and how often, if ever, they became drunk. In addition, they were asked at what age they started drinking alcohol and at what age they were drunk for the first time. The previous HBSC surveys used the first three items *(8)*.

The following item measured frequency of intake: *How many times a week do you usually drink any alcoholic drink?* 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*. It was included in a list of items on consumption frequency of various foods and drinks. Weekly drinking is defined as reportedly consuming alcohol once a week or more.

Three questions addressed the frequency of intake of beer, wine and spirits: *At present, how often do you drink anything alcoholic, such as beer, wine or spirits? Try to include even those times when you only drink a small amount*. Response categories were: *Every day, Every week, Every month, Rarely, Never*.

Where other alcoholic drinks targeted at young people were available (such as alcopops, strong beer and cider), some countries and regions included additional items on types of drink to the list in their questionnaires. As the range of types of alcohol available is extremely broad, the analysis presented here is restricted to the three dominant categories or types asked about in all the countries and regions.

Self-reports on drunkenness were obtained by the question: *Have you ever had so much alcohol that you were really drunk?* Response categories were: *No, never; Yes, once; Yes, 2–3 times; Yes, 4–10 times; Yes, more than 10 times*. This item provides a measure of excessive alcohol use.

A new question, addressing use of both alcohol and tobacco, assessed age at the onset of drinking and age when drunk for the first time. *At what age did you first do the following things … Drink alcohol (more than a small amount); Get drunk?* Response categories were: *Never, I was ___ years old*. The question was added to the 2001/2002 survey because the earlier drinking alcohol begins, the more likely a person is to establish a lifestyle pattern that includes it and to be at a higher risk of associated negative health outcomes *(9)*.

Results

Frequency of drinking

Data on weekly drinking are presented as an indicator of regular alcohol consumption. Across all countries, 5% of 11-year-olds, 12% of 13-year-olds and 29% of 15-year-olds report regular drinking (Fig. 3.8).

Geographical differences are substantial, however. The rates of weekly drinking among 11-year-olds are highest in Israel and Italy and lowest in Finland, Greenland, Norway and Portugal. In a third of countries and regions, rates of weekly drinking do not exceed 5%. Across the age groups, England and Wales tend to have the highest rates, but the ranking of countries and regions can change with age. For example, Malta and the Netherlands have high rates of regular drinking in 13- and 15-year-olds, while rates in Israel do not increase with age. Weekly drinking rates for 15-year-olds are over 50% in England, the Netherlands and Wales but under 17% in Finland, France, Latvia, Portugal and the United States.

Boys are more likely than girls to drink alcohol regularly. In contrast to smoking rates, this pattern appears in all three age groups and all countries and regions, except 13-year-olds in Finland and 11- and 13-year-olds in Greenland. The gender gap appears to increase with age, but varies in extent between countries and regions. Gender differences in regular drinking are substantial in countries such as Greece, Italy and Poland, but minor in Austria, Finland, Norway, Scotland and Wales.

Frequency of drinking beer, wine and spirits

Young people show a clear preference for certain types of beverage (Fig. 3.9–3.11). Beer largely dominates alcohol consumption *(10,11)*, even though some countries report the newly designed premixed drinks or alcopops to be more popular among girls *(12)*. Most beer has an alcohol content of 4–6%, although some beers have less or no alcohol or as much as 14% alcohol content. Young people are less likely to drink wine, which usually has an alcohol content of 10–14%. Distilled spirits may vary considerably in strength, but usually contain more than 35% pure alcohol.

In most countries and regions, all three age groups prefer beer to wine. As would be expected, drinking increases with age (Table 3.4).

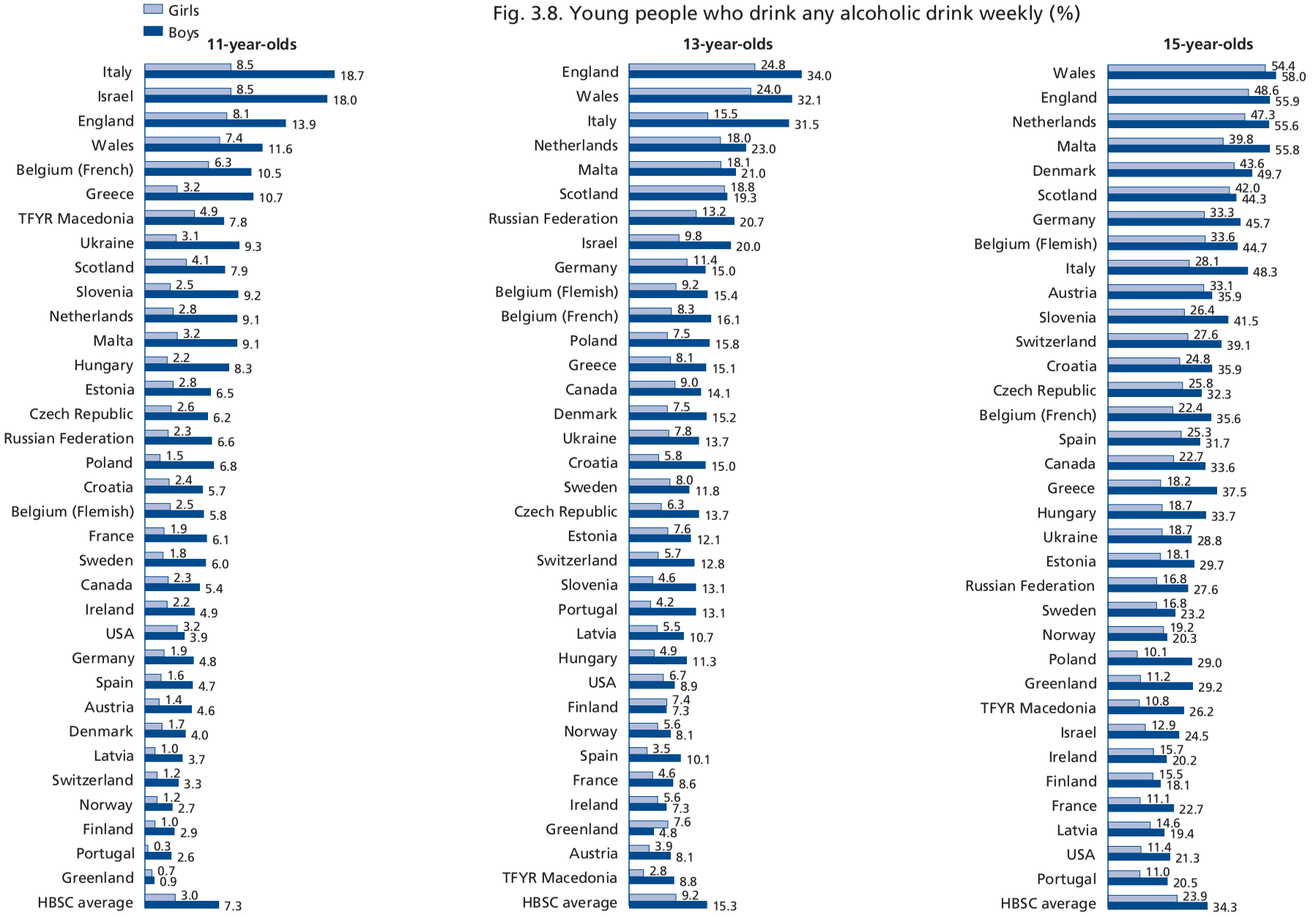
Among 15-year-olds, boys report frequent consumption of more than one type of alcoholic drink in, for example, Denmark, England, Hungary, Italy and Malta. Boys report frequent consumption of all three types of alcoholic drink in England and Malta, of beer and spirits in Denmark and of wine and spirits in Hungary and Italy. Boys' consumption of spirits is highest where there are high proportions of frequent beer and/or wine drinking (Pearson's correlation coefficient r = 0.64).

A similar picture emerges for 15-year-old girls, where frequent consumption of more than one type of drink is most common in Denmark, England and Malta. Girls often drink wine and spirits in England and Malta and beer and spirits in Denmark. As with boys, more girls tend to drink spirits where the reported regular consumption of beer and/or wine is also high (Pearson's correlation coefficient r = 0.38).

Frequency of drunkenness

Because young people who become drunk more than once run a higher risk of negative health outcomes, the proportions of those who report having been drunk twice or more are presented here. This is also the cut-off point most frequently reported in the relevant scientific literature *(10)*.

Fig. 3.8. Young people who drink any alcoholic drink weekly (%)



Note: Data are unavailable for Lithuania.

Fig. 3.9. Young people who drink beer weekly (%)

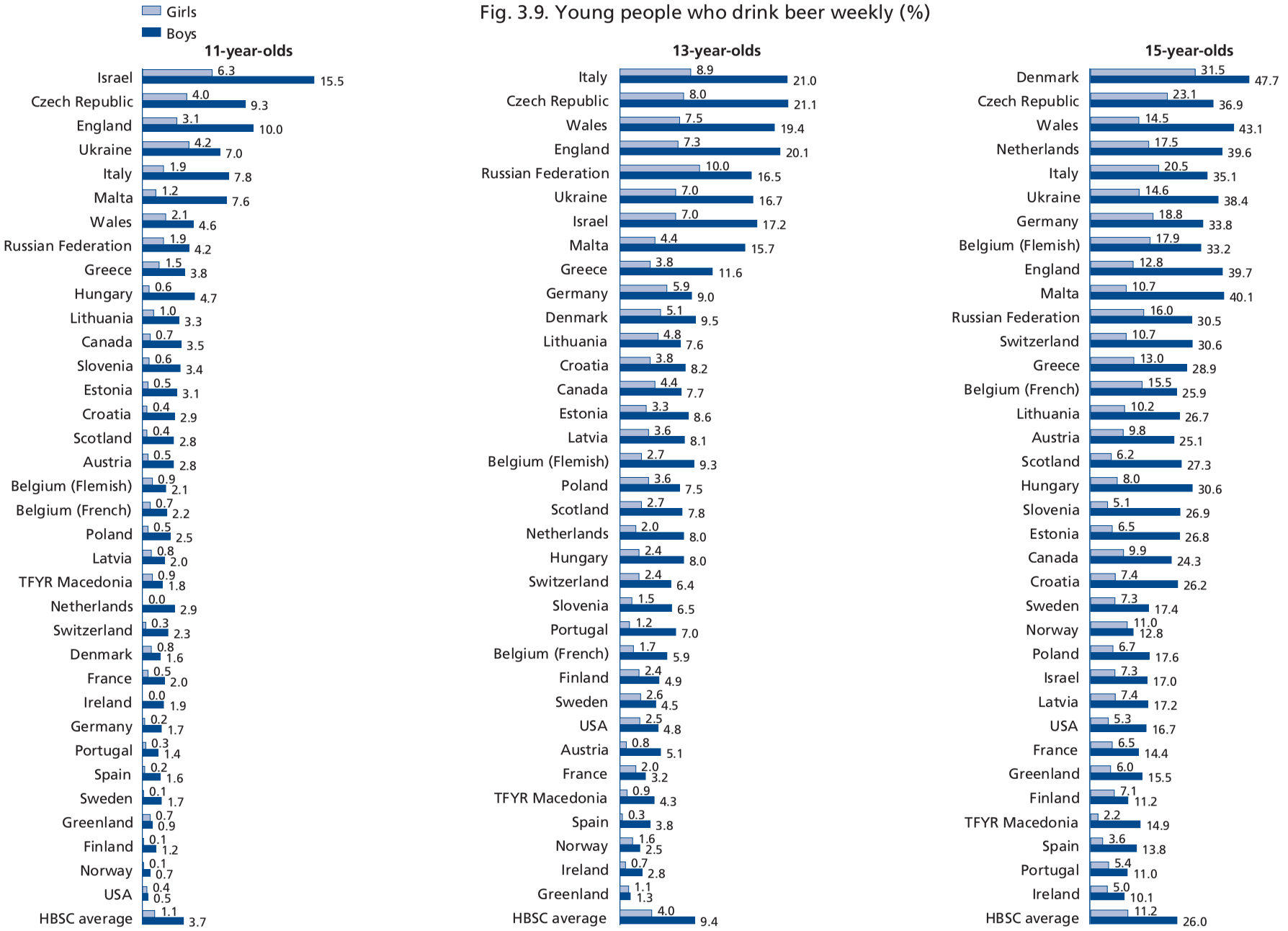


Fig. 3.10. Young people who drink wine weekly (%)

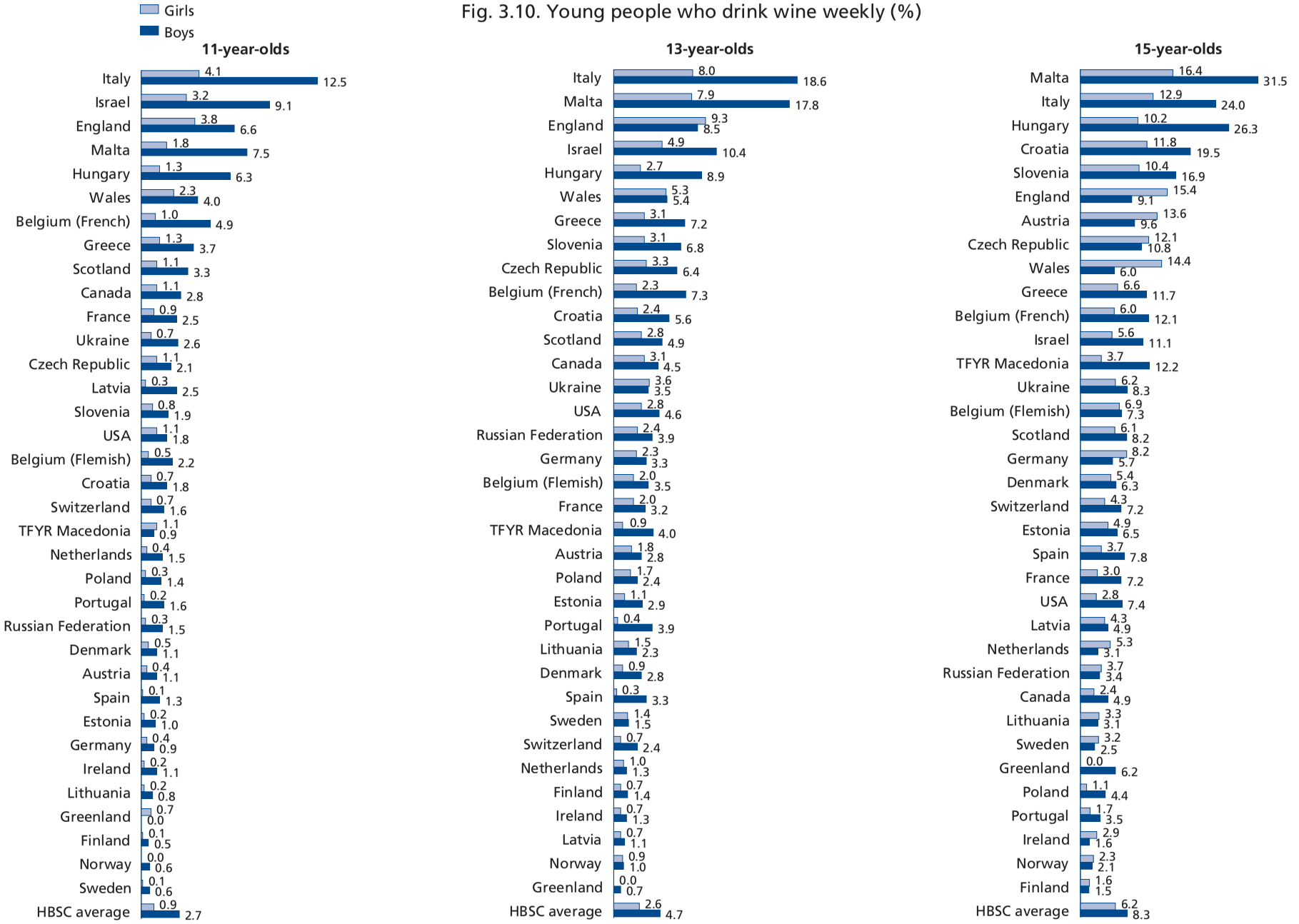


Fig. 3.11. Young people who drink spirits weekly (%)

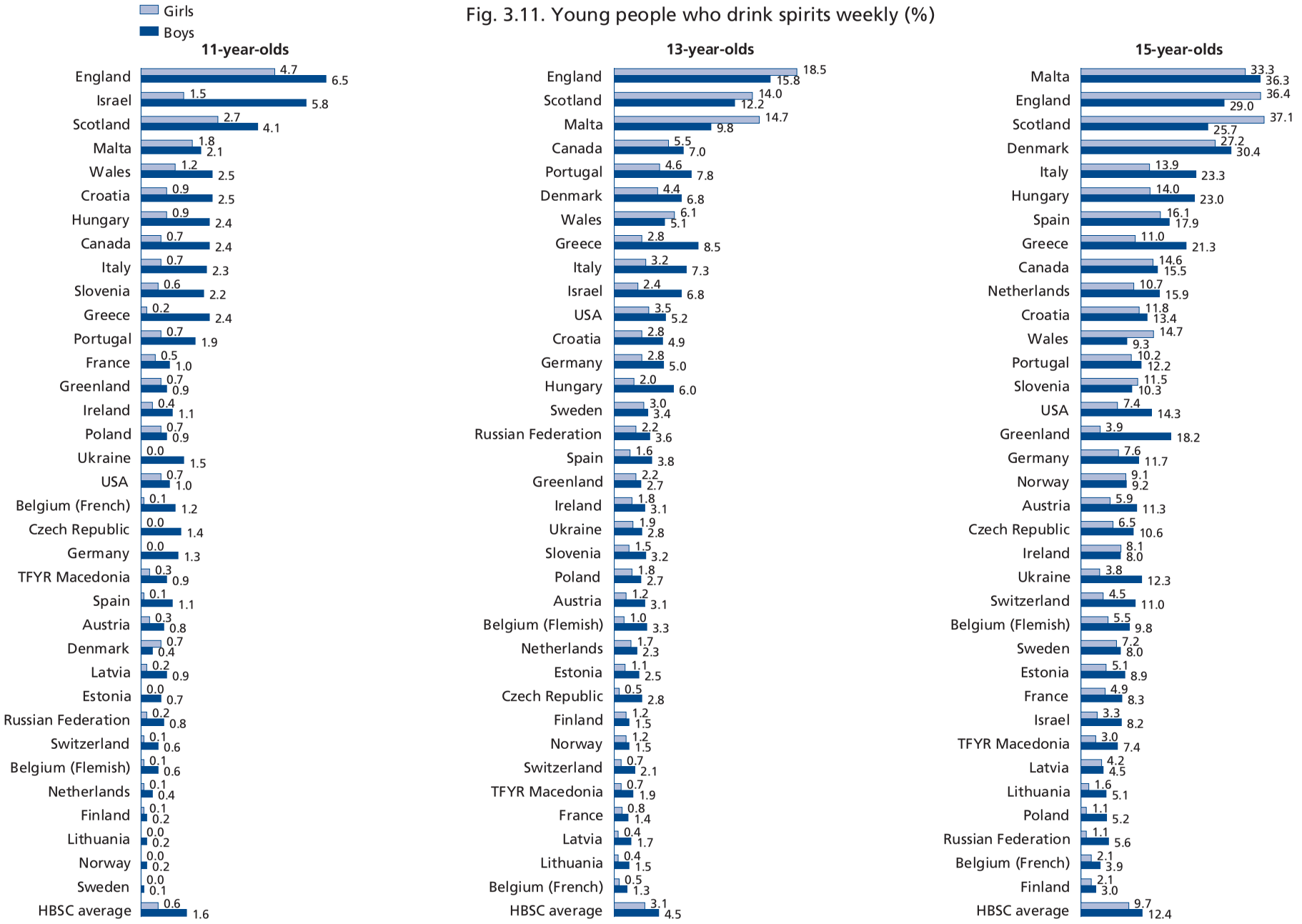


Table 3.4. Weekly consumption of beer, wine and spirits (%)

Drink	Consumption (%)		
	11-year-olds	13-year-olds	15-year-olds
Beer	2.4	6.6	18.3
Wine	1.8	3.6	7.2
Spirits	1.1	3.8	11.0

Across all countries and regions and in all age groups, boys are more likely than girls to report having been drunk twice or more (Fig. 3.12). The gender difference is greatest among 15-year-olds and smallest among 11-year-olds. For 13- and 15-year-olds, the rates of drunkenness are highest in Denmark, England, Greenland and Wales; England and Wales also have the highest rates for 11-year-olds.

Onset of drinking alcohol and drunkenness

To maximize accuracy and comparability (for the same reasons as outlined for onset of smoking – see the previous section), the analysis of age at onset of drinking alcohol and of drunkenness is restricted to 15-year-olds.

Of the young people surveyed, 20% of all boys and 22% of all girls report that they have never drunk alcohol. Those who have drunk alcohol report doing so for the first time at a mean age of 12.3 years for boys (standard deviation of 2.3 years) and 12.9 years for girls (standard deviation of 1.9 years) (Fig. 3.13). Young people start drinking relatively early in Austria, the Czech Republic and Lithuania and somewhat later in Finland, Greenland, Israel, Italy and the Russian Federation. The later the average age of onset in a country or region, the less important the gender difference (Pearson's correlation coefficient $r = -0.28$).

The mean age for reported onset of drunkenness is 13.6 years for boys (standard deviation of 1.7 years) and 13.9 years for girls (standard deviation of 1.2 years) (Fig. 3.13). Young people become drunk for the first time relatively early in Austria and the United States and somewhat later in Italy, Israel, Portugal and Ukraine. As with the onset of alcohol consumption, boys report starting earlier than girls. Contrary to the findings for first drinking alcohol – where gender differences tend to be smaller in countries and regions where onset of drinking is delayed – no such pattern is found for the onset of drunkenness.

Discussion

The data show a gender gap for all alcohol consumption variables. Interestingly, gender differences are smaller in age at onset of drinking but more substantial for weekly drinking and drunkenness. At age 15, boys are more likely to use alcohol regularly and for the purpose of becoming drunk. More than a third of the young people report having been drunk twice or more, with boys more likely to report drunkenness than girls. The intake of spirits plays an important role in the search for the effects of alcohol and is associated with problem behaviour in general *(13,14)*. Spirits intake is high in the countries and regions also reporting high rates of consumption of all types of alcohol. Thus, young people reporting consumption of spirits do not necessarily report a lower consumption of wine or beer.

The pattern of alcohol consumption among young people varies considerably between countries and regions, reflecting different drinking cultures. In Israel and Italy, for example, young people report a relatively late onset of drinking and drunkenness, but regular drinking is very common. Finland has high rates of reported drunkenness and low rates of weekly drinking, while Italy has low rates of drunkenness and high rates of regular consumption of beer, wine and spirits.

Countries and regions can be clustered according to their traditions in alcohol use *(15)*. One cluster comprises countries on the Mediterranean sea that produce wine and are predominantly Catholic or Orthodox in religion (such as France, Greece, Italy and Spain). Here, 15-year-olds have a relatively late onset and a low proportion of drunkenness.

Fig. 3.12. Young people who have been drunk two or more times (%)

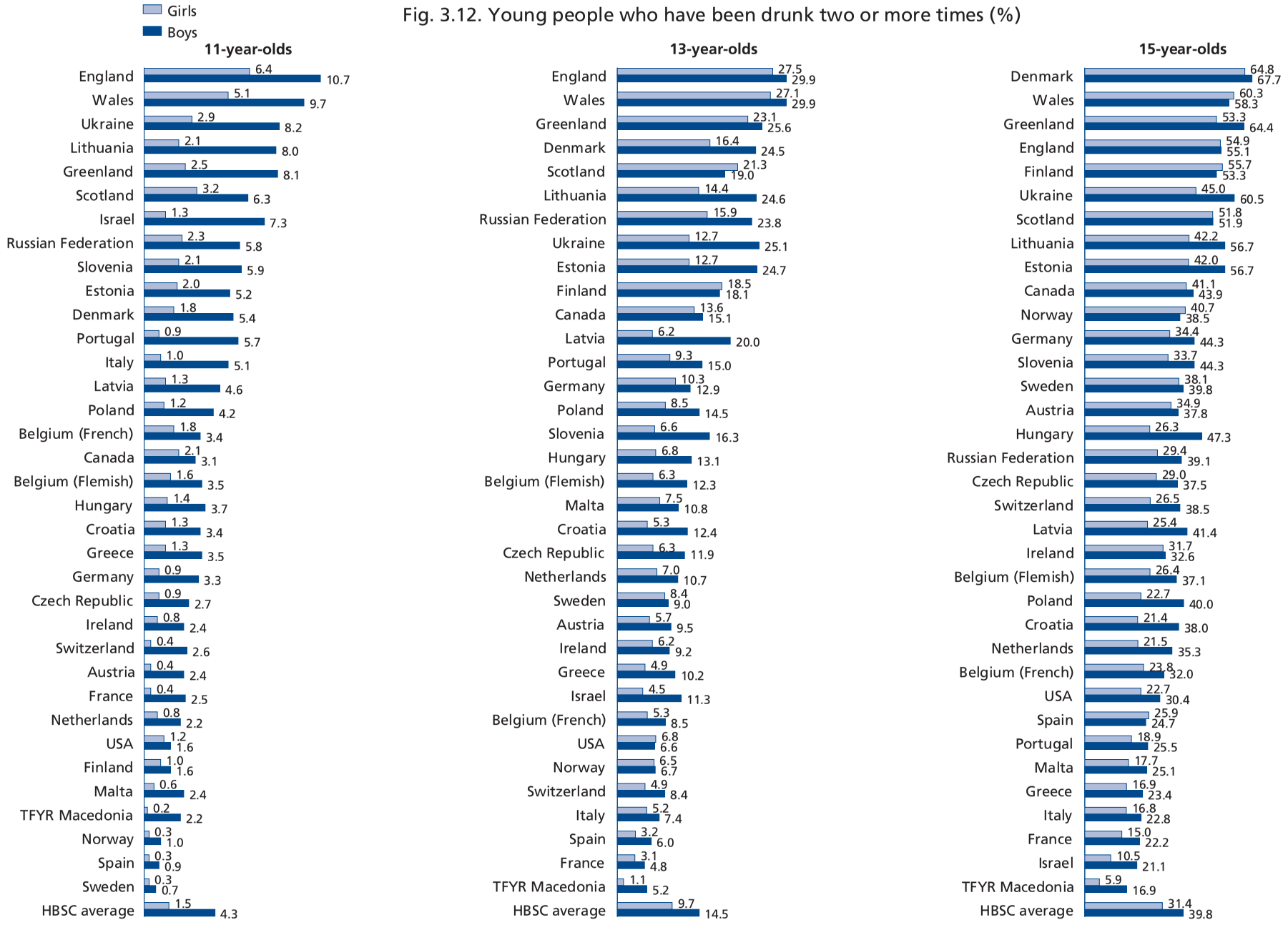
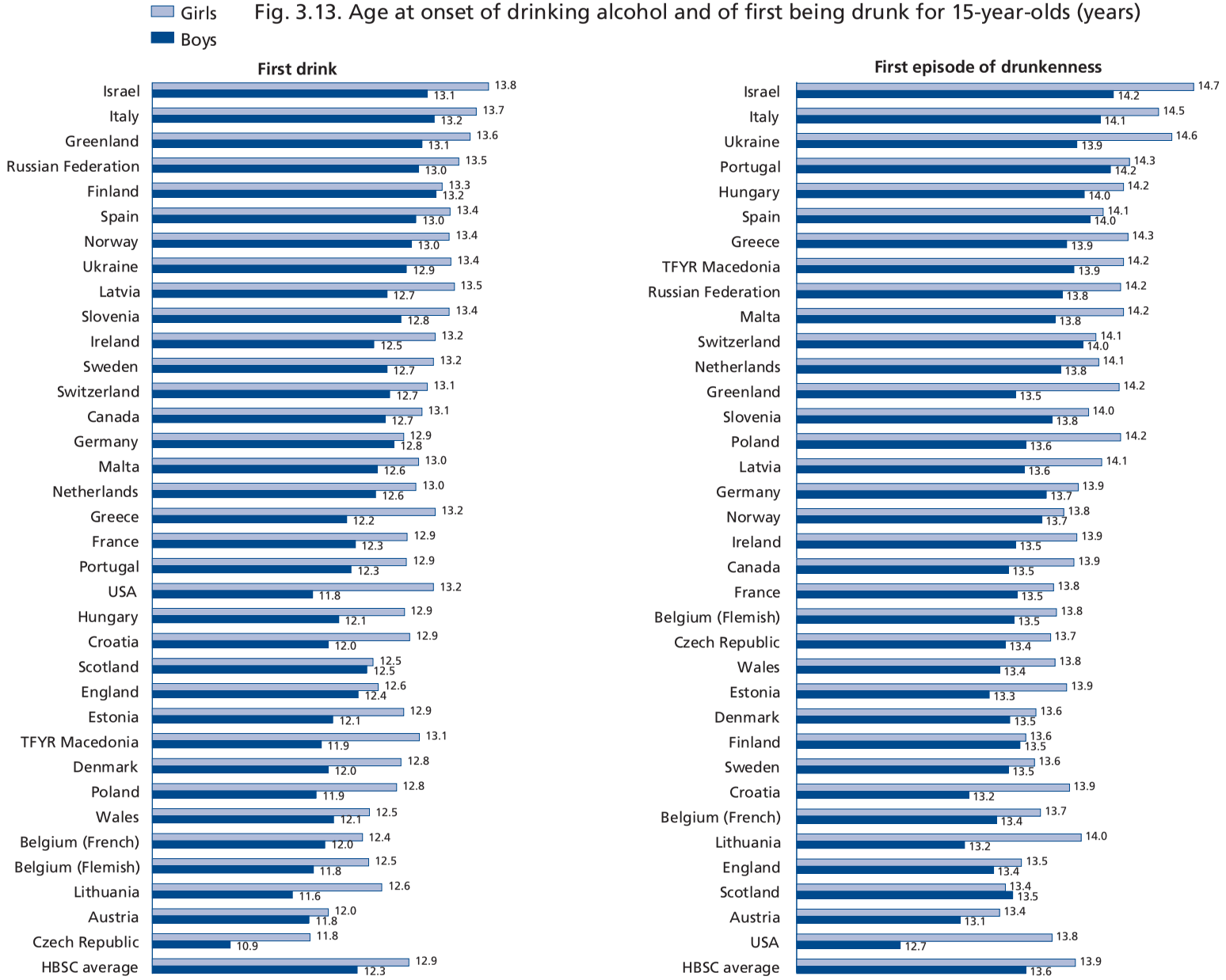


Fig. 3.13. Age at onset of drinking alcohol and of first being drunk for 15-year-olds (years)



Another cluster of countries (such as Denmark, Finland, Norway and Sweden) may be defined as representative of the Nordic drinking tradition, and shows relatively low proportions of wine intake. In some of these, drunkenness has a rather early onset (Denmark, Finland and Sweden) and is widespread in young people (Denmark in particular).

Countries in the eastern half of the European Region (such as the Czech Republic, Hungary, the Russian Federation and the Baltic states) tend to have a more spirits-oriented drinking culture among adults, but the findings show neither particularly high nor particularly low rates of regular drinking or drunkenness among young people. In contrast to the adult population in these countries, spirits intake in 15-year-olds is relatively low *(1)*.

Countries in western Europe (such as Belgium, England, Germany, Ireland, the Netherlands, Scotland and Wales) show a relatively early onset of drunkenness and high proportions of 15-year-old weekly drinkers and of regular beer drinkers.

Alcohol is a psychoactive drug that tends to have positive connotations for young people and plays an important role in the etiology of important adverse effects on their health. When the purpose of alcohol consumption is drunkenness and the result is intoxication, harm to health can be expected. Intoxication results in the loss of motor control and critical judgement and in reduced levels of inhibition. Among younger adolescents, effects such as these are likely even when the amount consumed is relatively small *(16,17)*.

The high prevalence of harmful alcohol consumption and important differences in drinking cultures among countries present a challenge to health professionals to implement comprehensive programmes of education, treatment and regulation, as encouraged by WHO *(1)*, and suggest that such programmes be tailored specifically to meet each country's needs. Young people in particular urgently need a greater awareness of the potential ill effects of drinking *(18)*. In addition to the education and health promotion activities on alcohol that target young people directly and are most commonly based in schools and local community and health centres, other areas that affect young people's drinking also need consideration: the family, for example. Findings from a longitudinal study spanning more than 30 years indicate that young people with strong family involvement seem to be protected from developing problem behaviour in adulthood *(19)*. Some experts have proposed transferring the principles of programmes such as Sensible Drinking *(20)* to young people and creating principles for taking so-called sensible risks *(21)*. On the other hand, the impact of learning to use alcohol sensibly (for example, in the family context) is unclear *(19)*. The effect of rendering young people more competent to manage risks in general, and those of alcohol use in particular, however, should be critically reviewed and evaluated.

School-based prevention programmes, skills training and brief interventions appear promising, especially when combined with community interventions. Mass-media campaigns, advertising restrictions and the regulation of alcohol availability to young people through a policy on outlet stores (governing their number, opening hours, training of managers and staff, etc.) should all be considered by governments in countries where such policies are not already in operation. Legislative considerations that could form part of prevention policy are the systems for licensing alcohol production and sale, the use of health risk warning labels on drinks and, perhaps more important for price-sensitive young drinkers, taxes on alcohol.

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Cannabis use – *Tom ter Bogt, Anastasios Fotiou and Saoirse Nic Gabhainn*

Introduction

For both adults and adolescents, cannabis is the most widely used substance after alcohol and tobacco, despite the illegality of its use in most HBSC countries and regions *(1,2).* Cannabis use increased in the European Region during the 1990s. From 1995 to 1999, for example, cannabis use declined in just 3 of the 21 countries participating in the European School Survey Project on Alcohol and Other Drugs (ESPAD) study. In 14 countries the figures for 1999 were higher than those for 1995, sometimes doubling during this period. Nevertheless, lifetime and current use vary widely. Lifetime prevalence exceeds 30% in the ESPAD target group of 15-year-olds in some countries, but is below 10% elsewhere. In general, boys are more likely than girls to report experimentation with and current use of cannabis *(1).* In the United States, about half of high-school seniors reported having tried cannabis and a third reported using it within the previous month. Cannabis use in the United States reached an all-time high in the 1970s, declined during the 1980s and started to rise again in the 1990s *(2).*

These data suggest that an increase in cannabis experimentation is common in the industrialized world. In both the European Region and the United States, this increase may be part of a wider trend in the growth of illegal drug use. Young people report using more drugs and starting to do so at an earlier age *(1,2).*

Adolescents are subjected to contradictory influences in relation to cannabis use. On the one hand, it is presented as a threat to health and mental stability and even as a stepping-stone to the use of harder drugs. On the other, it is glamorized as one of the drugs used by pop stars and other popular role models. By advising on the potential harmfulness of cannabis, parents and teachers may affect the use of the drug *(3).* As with drinking alcohol and smoking tobacco, however, young people may see experimentation with cannabis as part of the process of becoming an adult: an attempt to assert adult status *(4).*

While parents, other role models, policy measures and mass-media campaigns all influence attitudes on legal and illegal psychoactive substances to some extent *(3),* the strongest predictor of individual drug use is perceived drug use in the peer group. Young people may seek friends who share their attitudes, thereby fortifying their own opinions and behaviour *(5).* Peers model drug use, shape norms, attitudes and values, and provide opportunities for and support in the use of drugs. The attribution of drug use to friends normalizes the idea and encourages young people to use them *(6–8).* For some adolescents, taking drugs may be an attempt to signal an independent, adult-like status while affirming a sense of alienation from the adult world. They may perceive it as an essential aspect of peer culture's resistance to the world of grown-ups *(9).*

Occasional cannabis use appears to be the norm among a substantial minority of young people in the European Region and North America. Several studies argue that this pattern of use is not necessarily harmful, at least socially. There is evidence to suggest that adolescents who use alcohol or cannabis in modest doses are better adjusted and have better social skills than those who make no use or heavy use of psychoactive substances *(10,11).*

Distinguishing occasional from frequent use of cannabis, however, is important. The latter is associated with a host of negative outcomes. Frequent use of drugs at an early age is predictive of dropping out of school, having unprotected sex and being involved in delinquent behaviour *(12).* Cannabis use *per se* does not necessarily cause these problems. Substance users, even before they start misusing alcohol and drugs, are less likely to be self-reliant, confident, sociable, trustworthy or able to plan ahead *(10).* Cannabis use may exacerbate their problems. Heavy use is associated with problems at school, depression, physical ill health, risk taking and deviance *(13).* Recent studies offer converging evidence that cannabis use may trigger psychoses and depression, particularly among people who are prone to them *(14–18).*

Methods

As cannabis use is infrequent among children and early adolescents, only 15-year-olds were asked about their experience.

Two questions asked young people whether they had ever used cannabis and, if so, how often during the previous year.

- *Have you ever taken cannabis in your life?*
- *Have you ever taken cannabis in the last 12 months?*

The response categories for both were: *Never, Once or twice, 3 to 5 times, 6 to 9 times, 10 to 19 times, 20 to 39 times, More than 39 times.*

Some young people experiment with cannabis once or a few times and then stop, while others use it more regularly. There are recreational users and heavy users, the latter comprising a smaller group. Four groups were identified among those who report having used cannabis at least once in their lives, based on the number of times they have used it:

Group	Use in last 12 months
Former users	0 times
Experimental users	1–2 times
Recreational users	3–39 times
Heavy users	≥ 40 times

Results

Ever using cannabis

The geographical differences in the rates of ever having used cannabis are substantial (Fig. 3.14), with levels ranging from less than 10% in Greece, Israel, Lithuania, Malta, Sweden and The former Yugoslav Republic of Macedonia to over 40% in Canada, England, Greenland and Switzerland. Most countries in eastern and northern Europe are to be found in the lower half of Fig. 3.14. With the exception of Spain and, to a lesser extent, Italy and Portugal, most southern countries in the European Region (such as Greece, Israel, Malta and The former Yugoslav Republic of Macedonia) tend to have lower figures. Interestingly, Switzerland stands out with a rate far higher than those of its neighbouring countries.

On the whole, more boys than girls report having tried cannabis, with the greatest gender differences in general found in the eastern and southern countries of the European Region.

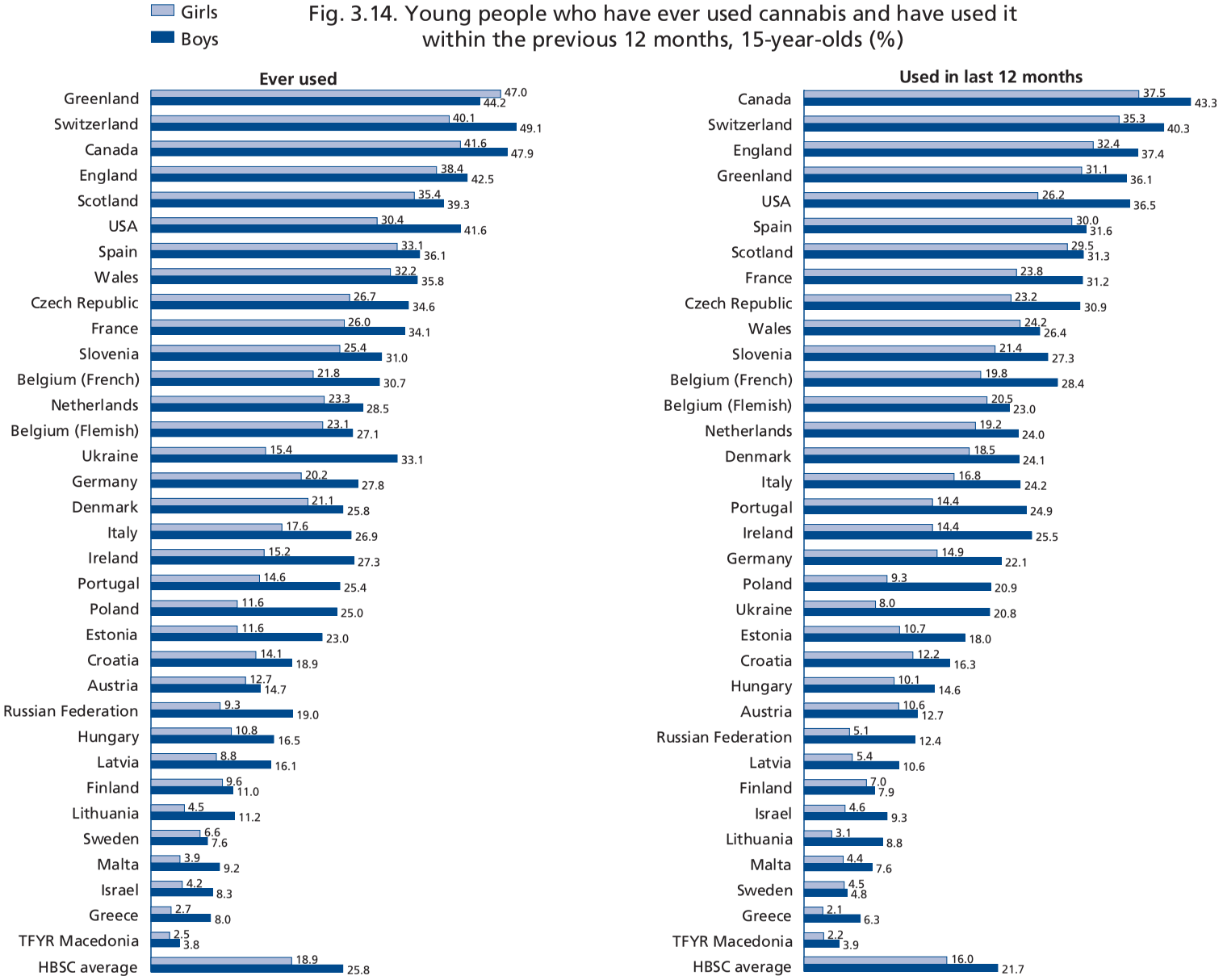
Use of cannabis in the previous year

The rates for the use of cannabis in the previous year are close to those for ever having tried it (Fig. 3.14). This suggests that there are two main groups of user: those who tried the drug before the age of 14 and continued using it and those who started using cannabis within the previous year.

In general, the same geographical pattern occurs as that for having tried cannabis. This includes striking geographical differences, with rates ranging from 3% in The former Yugoslav Republic of Macedonia to 40% in Canada. More than 30% of 15-year-olds report using cannabis in the previous year in countries such as Canada, England, Greenland, Scotland, Spain, Switzerland and the United States. In contrast, prevalence in many other countries, particularly in the east of the Region, is relatively low. Between these extremes is a group with moderate prevalence, largely in central and western Europe (such as Belgium (Flemish), Belgium (French), the Czech Republic, Denmark, France, Germany and the Netherlands).

As with trying cannabis, use during the previous year is more common among boys than girls. This gender difference is greatest in eastern and southern countries in the European Region, with the notable exception of Spain.

Fig. 3.14. Young people who have ever used cannabis and have used it within the previous 12 months, 15-year-olds (%)



Note: Data are unavailable for Norway.

Continued use of cannabis and frequency

To compare patterns among the young people reporting that they have used cannabis, Fig. 3.15 shows the proportions of each national sample as a whole that were allocated to the four user groups. In general, experimentation and recreational use are far more common than heavy use. Heavy users comprise 5–10% of the samples in Canada, England, Scotland, Spain, Switzerland and the United States; 4–5% of the samples in Belgium (French), France and Slovenia; and about 3% in Belgium (Flemish), the Czech Republic, Germany, Greenland, Ireland, Italy, the Netherlands, Portugal and Wales. In most other countries and regions, the group of heavy users is relatively small: less than 2%. In all countries, more boys than girls report being heavy users.

Discussion

Experimentation with and regular use of cannabis are most common in a group including Canada, England, Greenland, Switzerland and the United States, followed by most of the other western countries in the European Region. In general, eastern, northern and southern countries in the Region report the lowest figures. Although there may be some differences in cannabis use for individual countries, the HBSC and ESPAD studies show fairly similar geographical patterning *(1).*

Some research suggests that differences within the Region or even worldwide may shrink in the near future. The ESPAD study *(1)* shows that young people's cannabis use in most eastern and northern countries in the Region is increasing rapidly and diminishing the differences with rates in western European countries and North America.

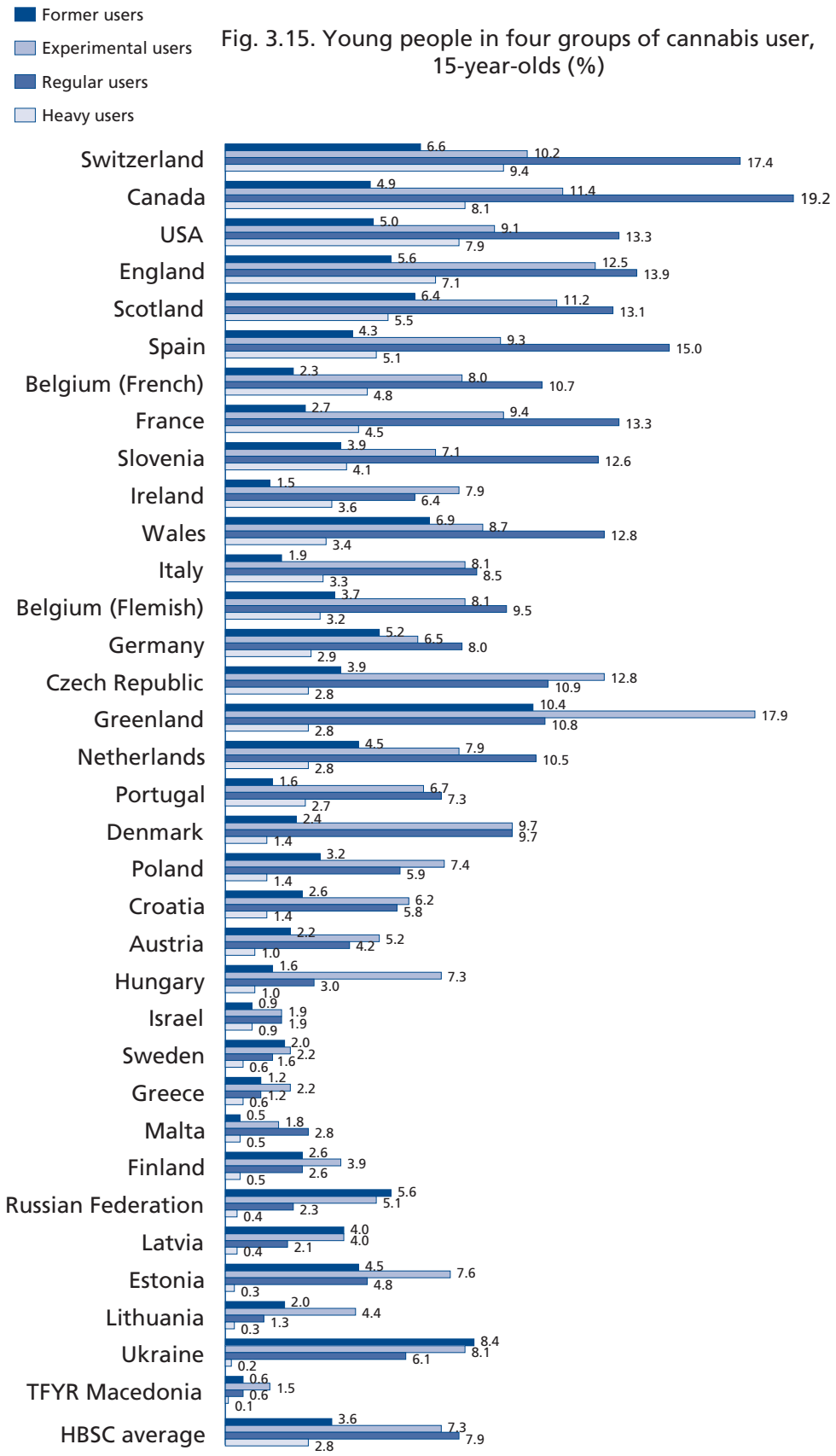
Gender differences may also become less marked in the near future. In eastern and southern countries in the European Region (except Spain), girls report using cannabis less frequently than boys. The changing patterns of drug use in North America and western Europe may indicate how patterns could change in other countries and regions in the future.

While research suggests that the recreational use of cannabis may not harm social functioning *(10,11),* heavy use may be an indicator of problem behaviour, both internalized and externalized, such as depression, risk taking and deviance *(12,13)*. Although most users in all countries and regions belong to the experimental or recreational groups and seem to be able to control their cannabis use, the HBSC sample comprises relatively young age groups. The small numbers reporting heavy use at this stage of their lives may well be at risk of adverse health and social consequences and should be the focus of targeted interventions.

Cannabis use continues to be illegal in almost all the countries participating in the HBSC study. This fact appears to be irrelevant to a growing proportion of adolescents who consider using it to be part of a normal behavioural repertoire and peer group culture. Policies on drugs and drug use vary widely across the European Region and North America. Government policy – including health education, health promotion and school-, family- and community-based counselling programmes – needs to address both the increase in cannabis use and the fact that a substantial group of young people treats the drug in the same way as other culturally legitimized psychoactive substances, such as alcohol.

Many studies have examined the effectiveness of interventions in this area, most of them in the United States. Reviews such as that by Cuijpers *(19)* suggest that effective school-based programmes, using an interactive approach, are available, but that their dissemination in the European Region and the United States has been limited. Family-based and community-oriented prevention and intervention programmes may also be effective. Mass-media campaigns have demonstrated an increase in knowledge about drugs but seem to have been less successful in preventing or reducing drug use. Nevertheless, they may interact positively with other, complementary programmes *(19).* Whether national policies are liberal or restrictive, countries should develop programmes of education and prevention that make the adverse health effects of heavy cannabis use clear to young people.

Fig. 3.15. Young people in four groups of cannabis user, 15-year-olds (%)



Note: Data are unavailable for Norway.

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Physical activity – *Chris Roberts, Jorma Tynjälä and Alexander Komkov*

Introduction

The benefits of physical activity to the health of adults are well documented; regular physical activity can make an important contribution to improving the quality of life, both physical and psychological *(1,2)*. The relationship is complex, however, in that the type and amount of physical activity play a part. Regular physical activity can reduce the risk of cardiovascular diseases, cancer of the colon, non-insulin-dependent diabetes mellitus and osteoporosis. It can also benefit people with arthritis, the obese and those suffering from mental problems such as anxiety and depression. An increase in physical activity is also often associated with a corresponding increase in fitness, which in turn can influence the quality of sleep *(3)*. Sleep is essential to good health and the quality of life in general.

The benefits of physical activity to the health of young people are not as well documented, although reviews have identified modest positive effects on health outcomes, such as aerobic fitness, blood pressure, blood lipids, skeletal health and psychological well-being *(4,5)*. In addition, the benefits of an active childhood can carry over into adulthood in that an active child is more likely to be an active adult *(6)*. The likelihood of musculoskeletal injury, however, increases in parallel with increases in activity levels. Previous HBSC data suggest that more than half of the injuries requiring medical attention occur during sports or recreational activities *(7)*. Nevertheless, in view of the benefits to the health of young people, increasing physical activity levels among them is an important public health challenge *(8)*.

Much work has gone into identifying the determinants of physical activity, in order to address potential barriers and promote more opportunities to participate. For example, previous HBSC research has demonstrated that physical activity rates decline with age, particularly among girls *(9)*. Numerous recent studies have documented factors associated with young people's physical activity. Sallis et al. *(8)* provide a useful review of work in this area, suggesting that the key determinants include demographic factors (such as the greater likelihood of activity in younger people, particularly boys), psychological factors (such as perceived competence and enjoyment), social factors (such as encouragement from parents, siblings and peers) and the physical environment (such as the availability of facilities and programmes).

Recommended levels of physical activity

Appropriate guidelines for physical activity at population level, for example in terms of intensity and duration, have been widely debated in recent years. Much of this debate has focused more on adults than young people, but the emerging consensus is similar for both. It emphasizes activity of moderate intensity, based on evidence that an accumulation of such activity over a period of time can result in health benefits *(2)*.

In 1997, an international group of experts re-examined the guidelines for young people and produced two primary recommendations. First, inactive young people should participate in physical activity of at least moderate intensity for at least 30 minutes per day. Second and more important, all young people should ideally participate in such activity for 1 hour per day *(10,11)*. Moderate intensity was defined as being equivalent to brisk walking, which might leave the participant feeling warm and slightly out of breath. Further, activities improving muscular strength, flexibility and bone health should be undertaken on two or more days a week.

The current guidelines differ significantly from those established in 1994 *(12)*. Undertaking twenty-minute periods of structured moderate-to-vigorous activity three or more days a week is no longer part of standard recommendations. The shift from 30 to 60 minutes was largely due to the fact that most young people are already active 30 minutes a day and to concern about increasing levels of obesity.

Methods

As Welk et al. (*13)* point out, measuring physical activity among young people is not easy. The challenge becomes even greater when attempting to do so across countries. Looking specifically at the HBSC study, there are three key constraints in developing items for a school-based survey that covers a broad range of health and health-related interests: the time that schools can give, the space available in a questionnaire and the need to ensure consistency with items in other areas. In practical terms, this means that items relating to physical activity are inevitably limited in scope and cannot make use of physical measurements, such as heart rate data. The 1997/1998 HBSC survey had two items on physical activity, covering how many hours a week and how often young people exercised *(14)*. These attempted to define how much strenuous physical activity young people undertook in their free time. In moving towards the current guidelines outlined above, however, the 2001/2002 survey introduced revised questions that focused on physical activity of at least moderate intensity, carried out at school and/or in free-time, during both the previous week and a typical week.

The moderate-to-vigorous physical activity (MVPA) screening measure developed by Prochaska et al. *(15)* consists of two questions relating to the number of days that adolescents undertake physical activity of at least moderate intensity for at least 60 minutes.

The questions were preceded by the following definition of physical activity, which was modified for the HBSC survey to allow the inclusion of activity within school. *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, brisk walking, rollerblading, biking, dancing, skateboarding, swimming, soccer, basketball, football and surfing. For these next two questions, add up all the time you spend in physical activity each day.*

The first question asked about physical activity undertaken in the previous week, and the second, about a typical week.

- *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?*

The response categories for both were: *0 days, 1 day, 2 days, … 7 days.*

Scores were calculated by averaging the results for the two items. A score of 5 or more classifies the respondent as meeting the primary recommendation of more than one hour of moderate activity a day on most days. Research on the MVPA measure in the United States suggests that it provides a reasonable estimate of those meeting this recommendation. Prochaska et al. *(15)* concluded that the measure is a reasonable method for assessing participation in overall physical activity and the achievement of the current guidelines. Important for HBSC, the measure is also brief and has been shown to correlate significantly with an objective measure of physical activity.

This section presents the reported average numbers of days on which young people are physically active for a total of one hour or more and the proportions of young people meeting the recommendations in the current guidelines: 60 minutes or more of activity on 5 or more days a week. The 2001/2002 survey also included complementary measures of sedentary behaviour: watching television, using a computer and doing homework. The next section covers these.

Results

Average levels of physical activity

Averaging physical activity undertaken in the previous week and a typical week appears to show that young people are active for an hour or more on 3.8 days a week. Countries and regions vary widely, with levels

ranging from 3.4 days in Belgium (Flemish) to 4.9 in Ireland for boys, and from 2.7 days in France to 4.1 in Canada for girls. Despite differences between age groups, some countries and regions are consistently in the top quartile (Canada, England, Ireland and Lithuania) or the bottom quartile (Belgium (Flemish), France, Italy and Portugal) (Fig. 3.16).

In all countries and across all three age groups, boys report being physically active for at least an hour a day more often than girls: on average, 4.1 days and 3.5 days, respectively. The gender difference varies, however. In 15-year-olds, for example, the difference is at least 1 day in Greece and Ukraine, and minimal in the Netherlands.

The frequency of physical activity declines with age, although this decline is more pronounced in some countries and regions than others. For example, the decline is about 1 day for girls in Austria, Scotland and Wales, but the differences are minimal in a small group, including France, the Netherlands and Spain. While the decline with age can be seen clearly in both genders, it is more apparent among girls than boys in most countries and regions (Fig. 3.16).

Meeting current guidelines on physical activity

Using the MVPA measure, which averages across the previous week and a typical week, about a third of all young people (34%) report undertaking physical activity at a level that meets the current guidelines: one hour or more of at least moderate intensity on five or more days a week. Again, however, there was wide variation, with proportions ranging from 26% in Belgium (Flemish) to 57% in Ireland for boys and from 12% in France to 44% in the United States for girls. Despite differences between age groups, some countries and regions are consistently in the top quartile (Canada, England, Ireland, Lithuania and the United States) or in the bottom quartile (Belgium (Flemish), Estonia, France, Italy, Norway and Portugal) (Fig. 3.17).

In all countries and regions and across all three age groups, more boys (40%) than girls (27%) meet the current guidelines. The gender difference exceeds 10% in more than half of the countries and regions, although variations by age group can be seen. Among 15-year-olds, for example, the difference between boys and girls was 24% in Malta and 22% in Wales but only 5% in Italy and 1% in the Netherlands.

In the vast majority of countries and regions, the proportions meeting the current guidelines decline with age, although patterns vary. For example, Austria, Hungary and Scotland show a clear gradient. In other countries, physical activity declines more between the ages of 11 and 13 than between 13 and 15 (Sweden), or vice versa (Greece). Finally, a small group of countries shows no decline with age, notably France, the Netherlands, Switzerland, The Former Yugoslav Republic of Macedonia and the United States.

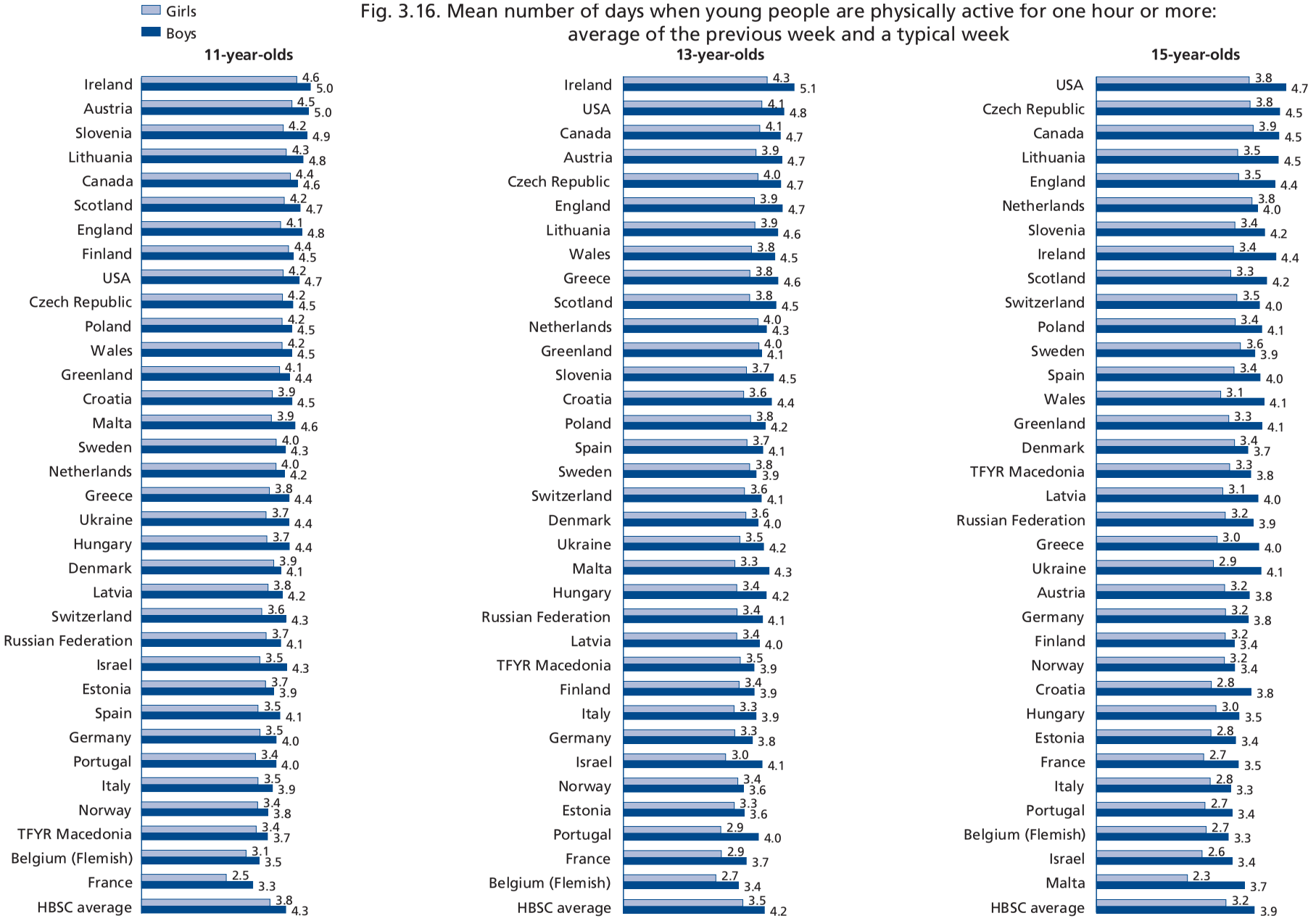
Discussion

As with any international study, the comparisons made here should be interpreted with caution. For example, the timing of fieldwork differs between countries and regions, and seasonal differences can affect opportunities for outdoor activity. In addition, issues such as translation (for example, the definition of moderate-to-vigorous activity) need to be taken into account.

That said, the HBSC study is unique in providing a measure of physical activity among young people in the WHO European Region and North America. The results presented here show that substantial numbers of young people in all countries and regions do not meet the current recommended guidelines. Even where regular activity is more common, fewer than half of young people report being physically active at the recommended level in the vast majority of cases. In addition, the patterns of physical activity vary widely, according to geography, gender and age group. Rates of physical activity are higher in Austria, Canada, England, Ireland, Lithuania and the United States and lower in Belgium (Flemish), France, Italy and Portugal. Previously published studies, while focusing on smaller groups of countries, have found similar variations by country, age and gender *(16)*.

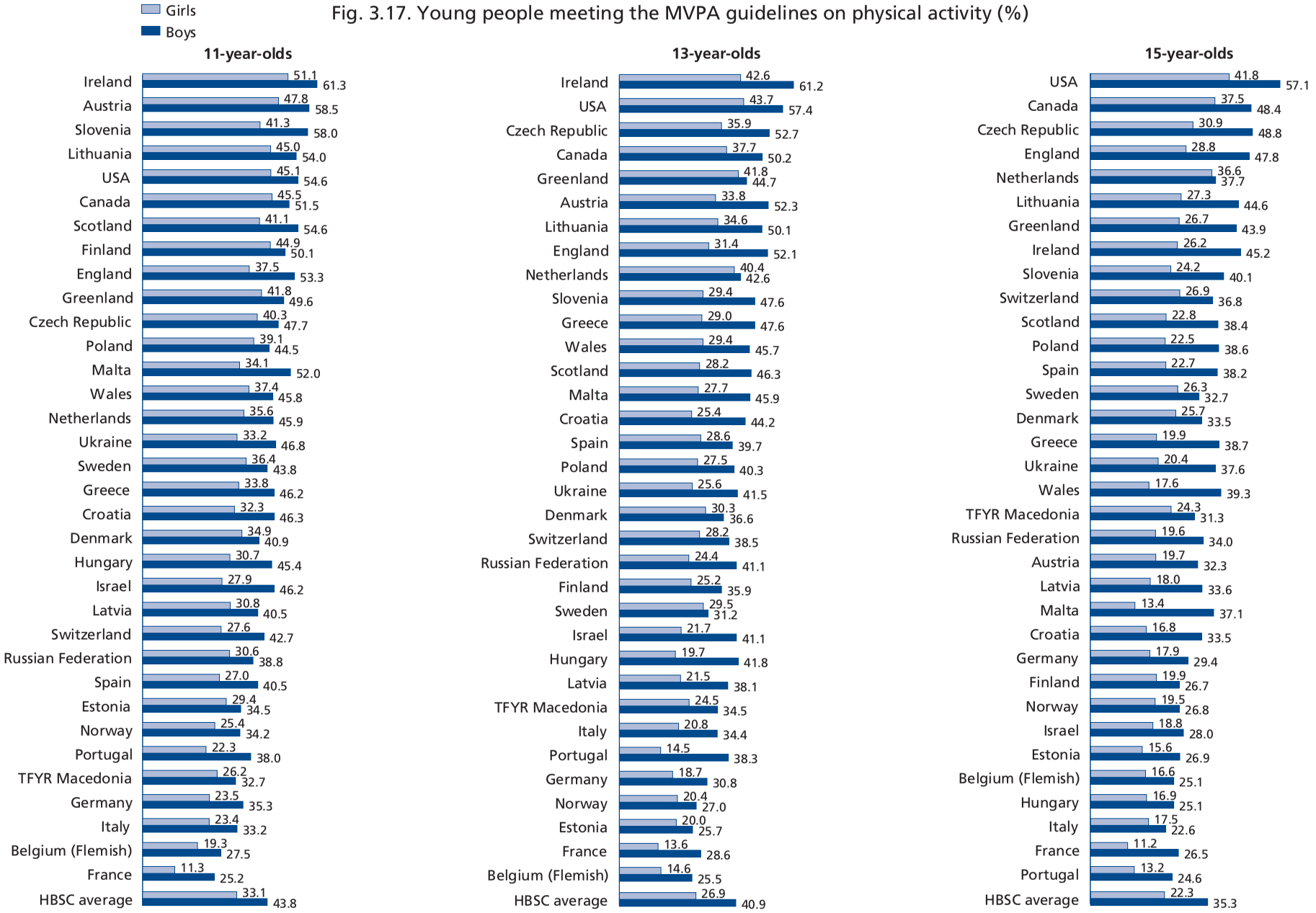
The paucity of available data makes international comparisons among adults difficult, but the 1999 EU survey of consumer attitudes to physical activity, body weight and health *(17)* provides limited

Fig. 3.16. Mean number of days when young people are physically active for one hour or more: average of the previous week and a typical week



Note: Data are unavailable for Belgium (French).

Fig. 3.17. Young people meeting the MVPA guidelines on physical activity (%)



Note: Data are unavailable for Belgium (French).

information on physical activity. Adults were most likely to report participating in various physical activities for more than 5 hours in a typical week in Austria, Finland, Ireland, the Netherlands and Sweden, and least likely in Belgium, France, Greece, Italy and Portugal. The consistency of these findings with the HBSC findings is quite striking, particularly for the countries where levels of physical activity are lowest.

As suggested above, methodological issues need to be considered in comparisons of young people's levels of activity across countries, but these are highly unlikely to account for all the differences that emerge. The key determinants of physical activity for young people are noted earlier, but one should also consider whether factors of national importance may assist the interpretation of cross-national differences. One obvious example is the role of physical education at school, which is likely to be a major influence, particularly in the light of increasing time pressures and an emphasis on academic achievement. A report from the European Heart Health Initiative *(18)* highlights this issue and shows how the amount of physical education at school and the way in which it is organized vary from country to country. In addition, the amount of free time that is available during the school day for non-organized activities is also likely to affect the amount of physical activity. Evidence-based guidelines on how to develop good physical education practice in schools are available, such as those published by the Centers for Disease Control and Prevention (CDC) in the United States *(19)*.

Further, the presence of warmer, southern European countries (such as Portugal and southern parts of France and Italy) among those reporting least physical activity is also interesting. Although respondents were asked to include all forms of physical activity, those who tend to spend their leisure time on informal outdoor activities may overlook this and focus more on formal activities at a leisure centre or swimming pool. In a selection of countries, qualitative research is required to examine this issue in more detail. Other important factors that may play a part in explaining the wide geographical differences are likely to be environmental, particularly patterns of travel to school (such as travelling by car rather than walking or cycling) and the availability and accessibility of leisure facilities. In addition, individual factors, such as the degree to which popularity and sporting achievement are related, could differ among countries and have some impact on the results presented here.

The results clearly show that boys are more likely than girls to meet the current guidelines on recommended frequency, although the magnitude of this gender difference varies across countries and regions. In addition, levels of physical activity fall as young people become older, particularly among girls. Again, this relationship between age and activity levels varies across countries and regions. With the introduction of different measures of physical activity to the 2001/2002 study, the information reported here differs from that presented in previous HBSC reports; thus, tracking trends is difficult. Nevertheless, the age and gender findings reported here are consistent with those from earlier surveys *(9,20,21)*.

The findings suggest that much work is needed to increase levels of physical activity in order to maximize the potential health benefits. Those developing policy and programmes should bear in mind the key barriers to participation and the available evidence on the effectiveness of interventions. A recent systematic review by the Evidence for Policy and Practice Information and Co-ordinating Centre established that robust research on interventions to promote physical activity is lacking, but the following key messages have emerged from the few studies carried out *(22)*. Any efforts to improve levels of physical activity among young people should take account of the barriers to and facilitators of participation that they themselves have identified (for example, improving the choice of physical education activities at school and emphasizing the social aspects of sport) and of gender issues, particularly the needs of girls (such as adequate changing facilities at school). In addition, policy-makers should place more emphasis on wider societal challenges, such as the availability of facilities. The HBSC data presented here also suggest the importance of tackling the decline in the physical activity of both boys and girls as they grow older and of tailoring initiatives accordingly. Finally, action needs to be culturally sensitive, given the wide variation in levels of activity across the 35 countries and regions for which data are available.

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Sedentary behaviour – *Joanna Todd and Dorothy Currie*

Introduction

This section reports on three sedentary activities and briefly examines them in light of the patterns in young people's physical activity. Much concern has been expressed about the amount of time young people spend in front of television screens *(1)* and the resulting impact on physical activity levels. Similarly, the use of computers, which has rapidly increased over the past decade, is another popular sedentary leisure-time activity that may displace physical activity. Some studies show that heavy computer use has a negative effect on people's well-being *(2)*. In addition, the number of hours spent doing school homework further limits the time available for active leisure pursuits.

The worry is that increasing levels of sedentary behaviour are reducing energy expenditure while energy intake remains unaltered, resulting in a rising prevalence of overweight and obesity in children and adolescents *(3–6)*. Obesity in children can develop from a small energy imbalance over time *(7)*. Resultant childhood health problems may include non-insulin-dependent diabetes and the development of cardiovascular disease risk factors, pulmonary complications and psychosocial problems *(8)*. A later section of this chapter (see pp. 120–129) examines body weight and weight control.

Although the growing popularity of watching television and other sedentary activities is widely perceived to contribute to an increasingly inactive generation, there is evidence that a proportion of high-level users of electronic media are more physically active than low-level users *(9,10)*. Further, some studies have found a positive association between heavy use of computers and academic success, self-confidence and social physical activity *(9,11)*.

Methods

Questions on sedentary behaviour complement the measure of physical activity in that they also measure physical inactivity. Three items were used: watching television and videos, using a computer and doing school homework.

Distinguishing between weekend and weekday sedentary activities was important, to gain a more accurate picture of the time spent participating in them. Various factors influence the amount of participation, depending on whether young people are at school. Because the definition of weekend varies between and even within countries, the data on weekday and weekend participation in sedentary activities are presented separately.

The questions on time spent on sedentary activities were the following.

- *About how many hours a day do you usually watch television (including videos) in your free time?*
- *About how many hours a day do you usually use a computer (for playing games, emailing, chatting or surfing the Internet) in your free time?*
- *About how many hours a day do you usually spend doing school homework out of school hours?*

The response options, for both weekdays and weekends, were the same for all three questions: *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*. Responses were combined to form three categories:

- high levels of television use (≥ 4 hours a day)
- high levels of computer use (≥ 3 hours a day)
- long hours spent on homework (≥ 3 hours a day).

The time categories selected for analysis were designed to reflect extremes of each activity, particularly on weekdays. Because young people can participate in more than one sedentary activity at a time – such as doing homework on the computer or while the television is on – it is inappropriate merely to add the time spent on each.

Two items measured MVPA (moderate-to-vigorous physical activity) patterns, as described in the previous section. The direction and magnitude of the association between the three sedentary activities and MVPA were assessed. Spearman correlations were calculated between the number of hours spent on each sedentary activity each weekday and the average number of days with one or more hours of MVPA.

Results

Watching television and videos

More than a quarter of all respondents (26%) report high levels of television use on each weekday (Fig. 3.18). This rises to 45% at weekends (Fig. 3.19). In all countries and regions except Israel, young people watch more television at weekends than on weekdays. Countries and regions vary widely, however, with levels ranging from 11% in Switzerland to 46% in Israel for weekdays and from 28% in Italy to 70% in Ukraine for weekends.

On the whole, the ranking of countries and regions shows little consistency between weekday and weekend viewing or between age groups. Nevertheless, some countries are consistently in the top quartile (Estonia, Latvia, Lithuania and Ukraine) or bottom quartile (Austria and Switzerland) for both weekday and weekend viewing for all age groups.

No direct comparisons can be made with the 1997/1998 HBSC data, as the item on television use changed slightly *(12)*.

In the majority of countries and regions and for all age groups, slightly more boys than girls report high television use (28% and 24% on weekdays and 48% and 43% at weekends, respectively). In a few, girls at some ages report levels that are similar to or greater than those of boys. The absolute gender difference rarely exceeds 10%. Despite the geographical differences in high levels of television use, the relative gender difference is not great; the percentages of boys reporting high levels of television use are similar to or up to 1.5 times higher than those of girls.

In most countries and regions, levels of high television use at weekends rise slightly between the ages of 11 and 13. At age 15, levels remain similar for weekend viewing but fall back to around the same level as at age 11 for weekday viewing. The absolute differences between the ages of 11 and 15 years are largest in Austria, France and Germany, where weekend use increases by about 20%. These three countries, however, are all in the lowest quartile for high levels of weekend television use at age 11.

Using computers

In all countries and regions, the percentage of young people reporting high levels of computer use is greater at weekends than on weekdays (Fig. 3.20 and 3.21). Figures vary among countries and regions by over 20%, ranging from 7% in Switzerland to 30% in Israel for weekdays and from 11% in Italy to 35% in Israel for weekends.

The ranking of countries and regions varies between weekday and weekend use and across age groups. Some countries, however, are consistently in the top (Canada and Israel) or bottom quartiles (France and Italy) in all cases.

In all countries and regions, more boys than girls report high levels of computer use both during the week and at weekends (21% and 7% on weekdays and 35% and 15% at weekends, respectively). Relative gender differences are lowest in Canada and the United States and greatest in Denmark and Finland, where the percentages for boys are about six times those for girls for weekday computer use and about five times those for weekend use. The marked gender difference appears in all three age groups.

Fig. 3.18. Young people who watch television ≥ 4 hours a day on weekdays (%)

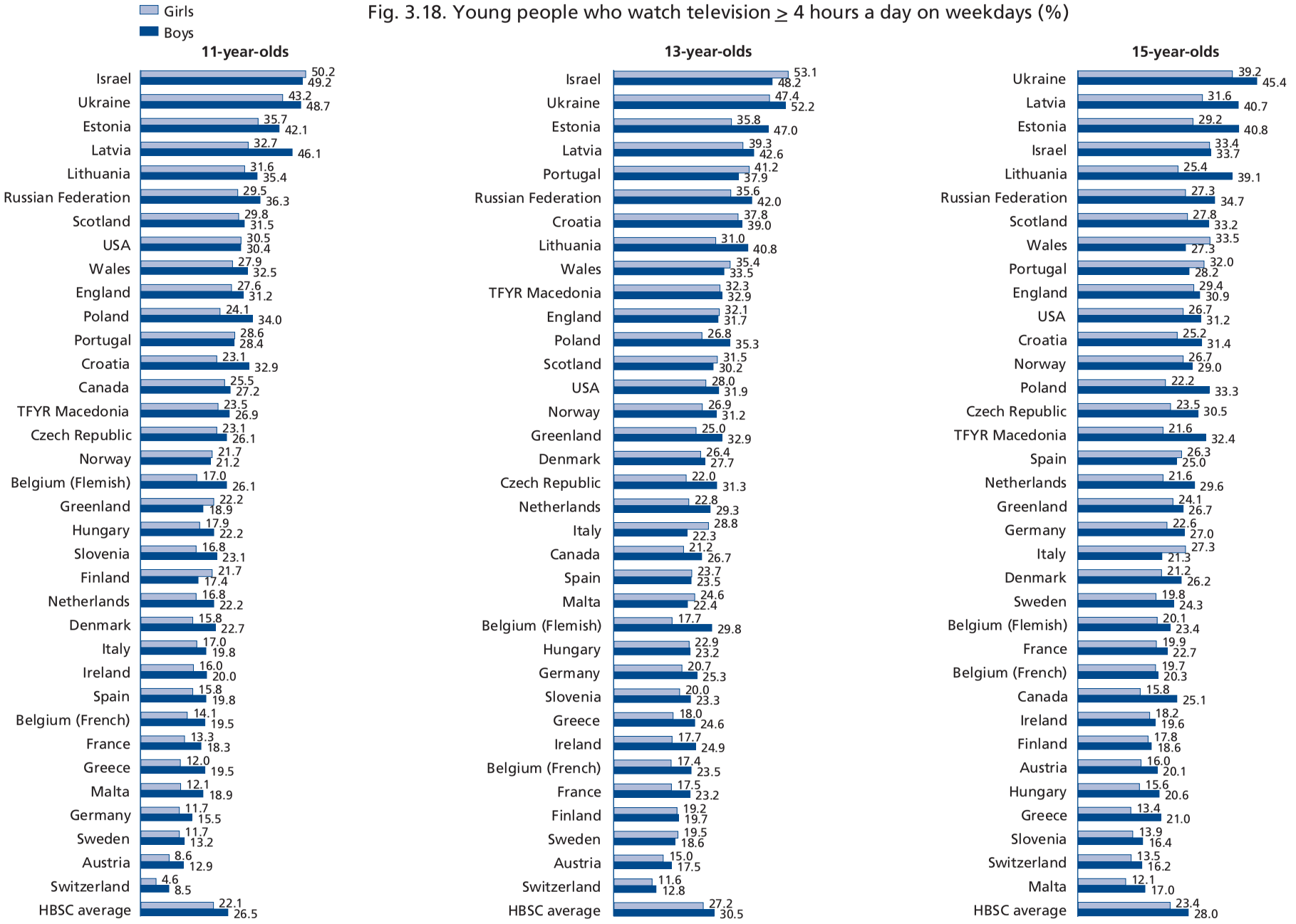


Fig. 3.19. Young people who watch television ≥ 4 hours a day at weekends (%)

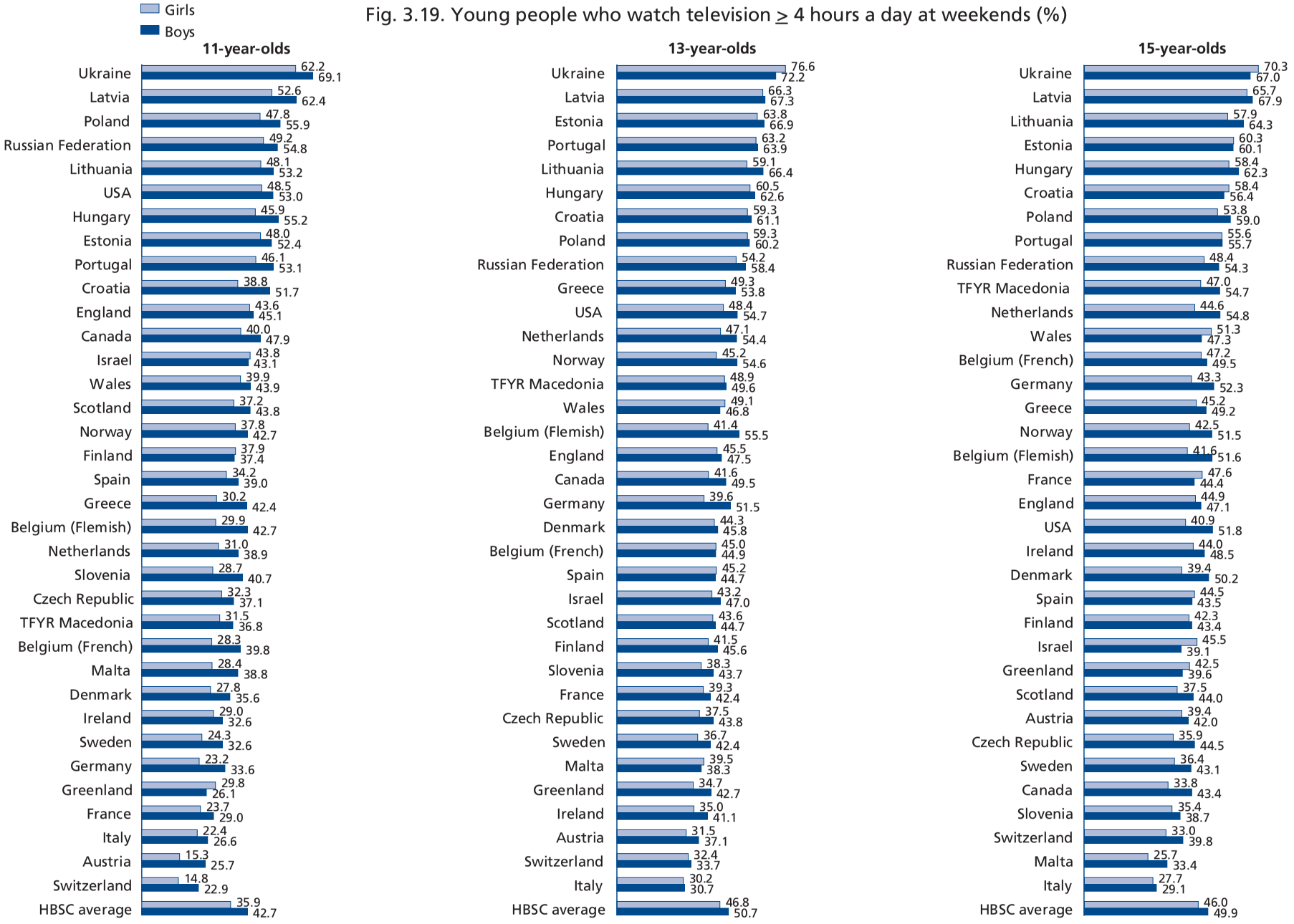
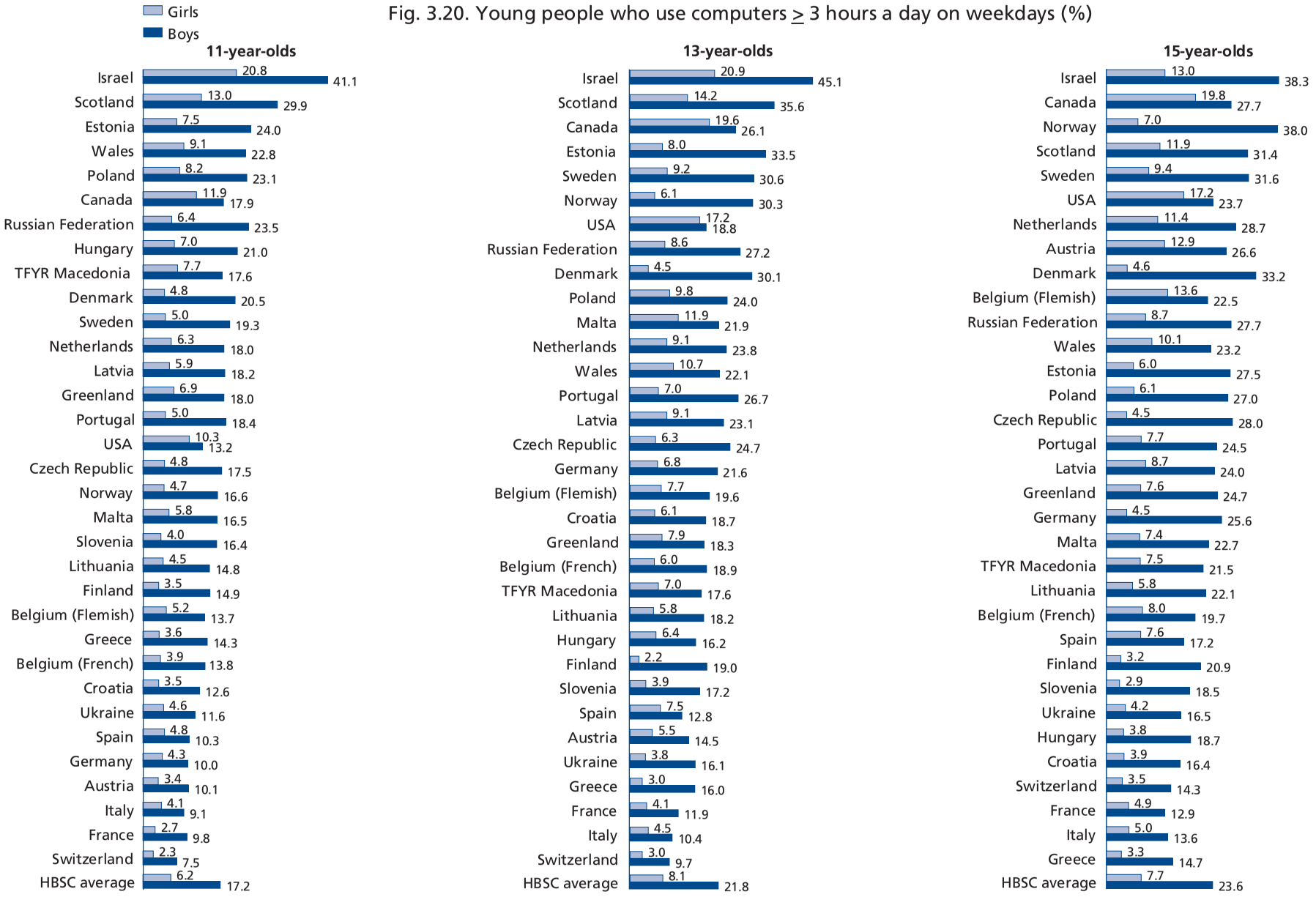
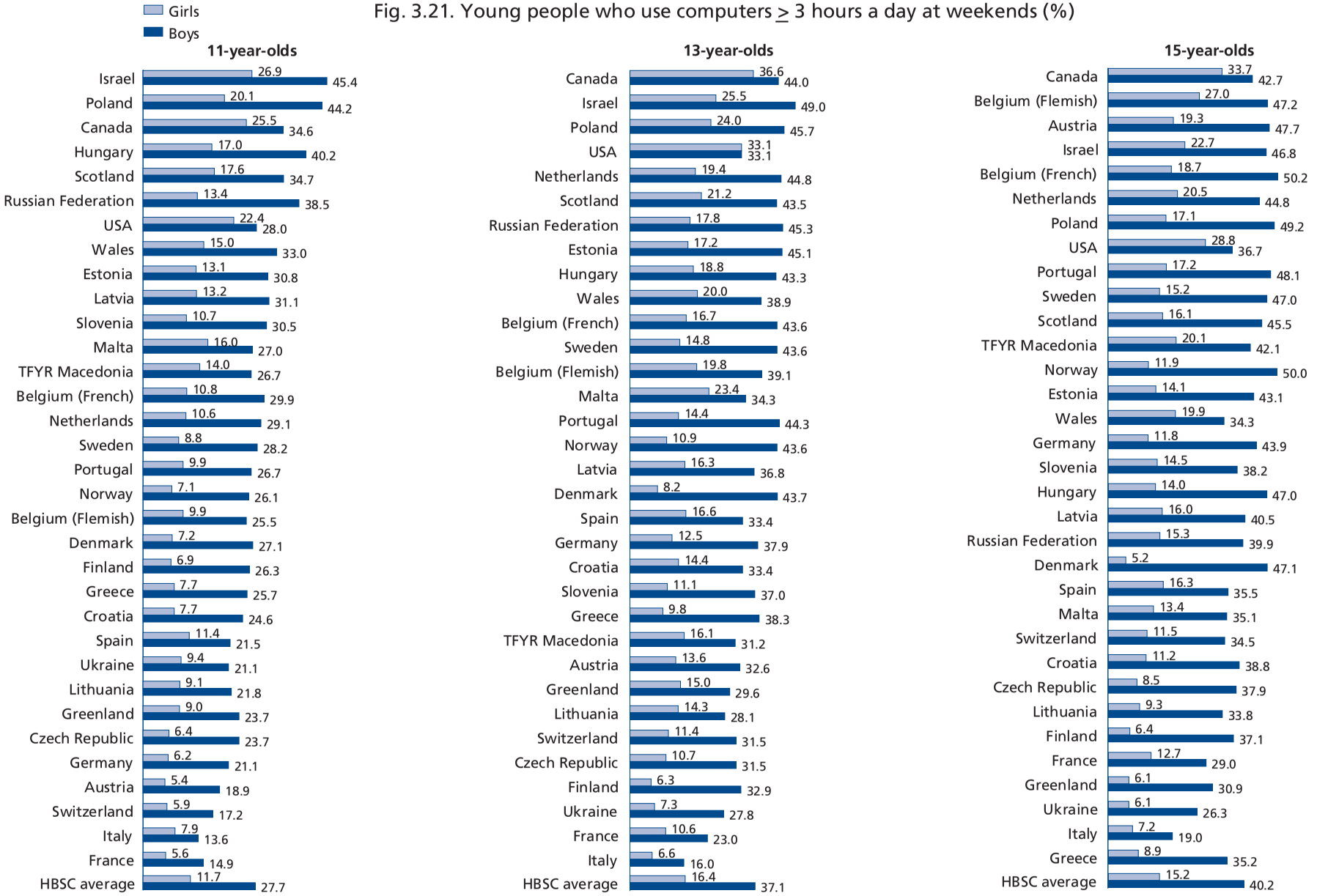


Fig. 3.20. Young people who use computers ≥ 3 hours a day on weekdays (%)



Note: Data are unavailable for England and Ireland.

Fig. 3.21. Young people who use computers ≥ 3 hours a day at weekends (%)



Note: Data are unavailable for England and Ireland.

Computer use increases with age in most countries, mostly between the ages of 11 and 13. Subsequently, countries and regions diverge: computer use continues to rise in some, while it decreases or remains the same as at age 13 in others. Boys and girls show different patterns of change with age. In almost all countries and regions, greater percentages of boys show high levels of computer use at age 15 than at age 11. The picture is more complex among girls, with some countries and regions reporting increases in high levels of computer use between the ages of 11 and 15, while a third report decreases.

School homework

The average percentages of young people who spend long hours doing homework on weekdays and at weekends are the same: 19% (Fig. 3.22 and 3.23). There is considerable variation among countries and regions, however, with levels ranging from 2% in Finland to 60% in Greece for weekdays and from 2% in Finland to 54% in Greece for weekends.

In about half of the countries and regions, more young people report spending three or more hours on homework at weekends than on weekdays, while the reverse is true for the other half. Belgium (Flemish) shows the largest relative increase, from 14% for weekdays to 24% for weekends. Norway shows the largest relative decrease, from 12% for weekdays to 4% for weekends.

The ranking of countries and regions varies between weekdays and weekends and across age groups. Some countries, however, are consistently in the top (Croatia, Greece, Hungary, Malta, and the Russian Federation) or bottom quartiles (Finland and Sweden) for both weekdays and weekends and for all age groups.

In all countries and regions but one, more girls than boys spend long hours on homework both on weekdays and at weekends. The gender difference is largest in Lithuania: more than 2.5 times the level for boys. In general, percentages for girls are 1.2–2 times those for boys. While the gender difference is less apparent at age 11, most countries and regions show it for both weekdays and weekends at ages 13 and 15.

The proportions of young people spending long hours on homework both on weekdays and at weekends increase with age, and more between the ages of 11 and 13 than between 13 and 15.

Girls and boys show different age patterns. Among girls, only the Czech Republic and Israel show a decrease between the ages of 11 and 15 in the proportions both for weekdays and weekends. Among boys, however, a decrease between the ages of 11 and 15 is found in about half of the countries and regions, but only in four with respect to homework at weekends.

Associations between sedentary behaviour and physical activity

An analysis of the associations between reported sedentary behaviour and physical activity patterns showed geographical and gender differences, the highest significant correlation being 0.17. Although the direction of association between sedentary behaviour and physical activity was not found to be consistent across all countries, some patterns could be seen.

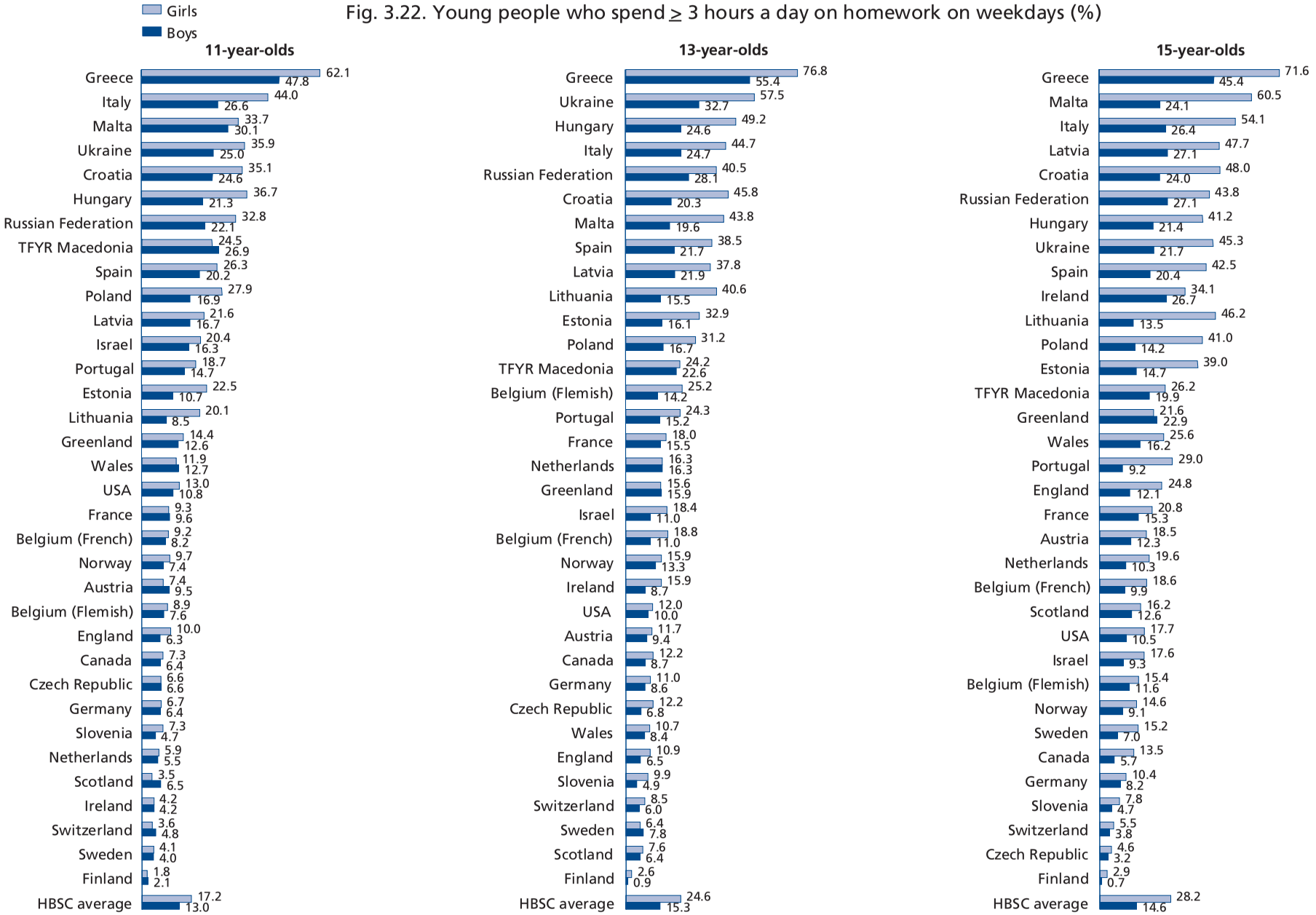
For girls, a significant negative association was found between television use and physical activity in most countries and regions: that is, physical activity decreased as television viewing increased. Only half of the countries and regions showed a significant positive association between computer use/hours spent on homework and physical activity.

In most countries and regions, there are no significant associations between physical activity and sedentary behaviour for boys. Where a significant association is found, it is between television use and physical activity and mostly negative, as is the association between computer use and physical activity. This is contrary to the pattern observed for girls. In the few countries with a significant association between hours spent on homework and physical activity for boys, the direction of the association varies and shows no clear pattern.

Discussion

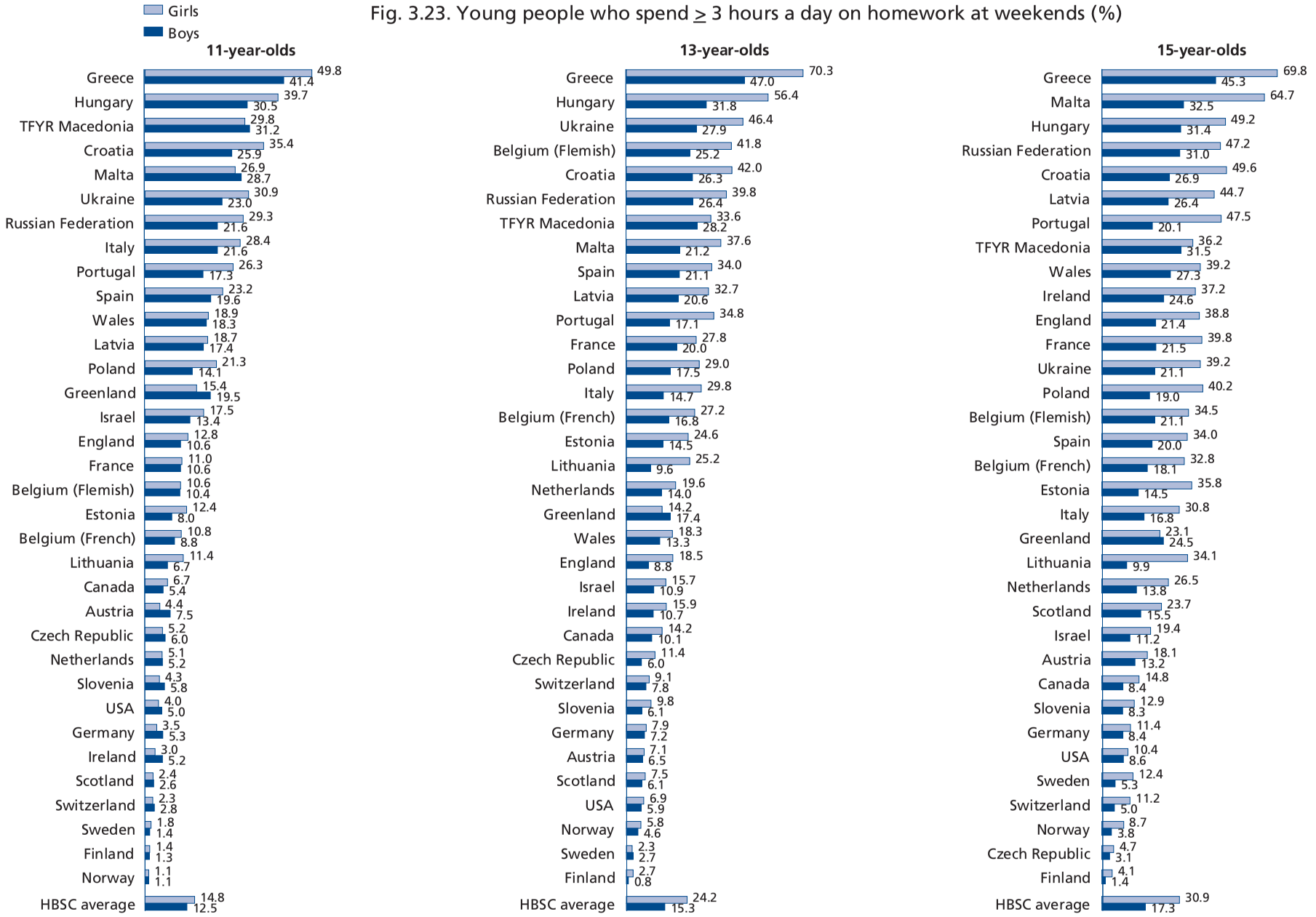
The proportions of young people reporting high levels of television and computer use and long hours spent on homework show wide geographical differences but the first of these sedentary activities is most

Fig. 3.22. Young people who spend ≥ 3 hours a day on homework on weekdays (%)



Note: Data are unavailable for Denmark.

Fig. 3.23. Young people who spend ≥ 3 hours a day on homework at weekends (%)



Note: Data are unavailable for Denmark.

common. More young people report high levels of television use than high levels of computer use or long hours spent on homework on weekdays in 29 out of the 35 countries and regions, and at weekends in 33 out of 35. Over 25% report watching television and videos 4 hours a day on weekdays, and almost 50% at weekends.

Thus, watching television constitutes a significant part of young people's leisure time in many countries and regions. This is of potential concern since associations have been found between television viewing and both obesity and the consumption of energy-dense foods *(7)*, and time spent watching television reduces the time available for active pursuits. Indeed, the American Academy of Paediatrics has recommended that children spend no longer than 2 hours a day watching television *(1)*. A large proportion of young people surveyed do not meet this recommendation.

As may be expected, in all countries and regions, more young people report high levels of television use (except in Israel) and computer use at weekends, when they have more free time. In Israel, religious practices may greatly reduce the time available to use the media at weekends.

A number of factors may explain high television and computer use. The variety and quality of television programmes vary greatly between countries, and this, combined with cultural and/or parental attitudes, may influence the amount of time young people spend watching television. High levels of media use depend on ease of access to the equipment, and rankings of high levels of computer use may reflect this to a certain extent. In some of the more affluent countries and regions with high levels of computer ownership, however, the percentage of young people reporting high levels of use is comparatively low, indicating that ease of access is only a partial explanation. In addition, the cost of access to the Internet may affect the amount of time spent on computers, and the introduction of video-game machines in many countries may reduce it. The way young people use computers is changing in many countries. Downloading music and interacting via chat rooms are increasingly popular and offer much greater potential to add a social element to this sedentary activity.

High levels of television or computer use may be perceived as positive or negative, depending on the content of the television programmes watched and the purpose for which computers are used.

The geographical variations in the percentages reporting long hours spent on homework both at weekends and on weekdays may reflect differences in school systems and/or the length of the school day. Where the school day is short, students may need to complete a regular amount of work at home. Equally, if the school day is long, having homework may be unusual. Receiving tuition for examinations outside school may increase the amount of homework, as is the case in Greece. In some countries, the curriculum may be so full and/or demanding that young people must complete additional work at home, regardless of the length of the school day. Also, the attitude towards homework and the value placed on academic success may vary across school systems and countries.

Although the proportions of young people reporting high participation in all three activities change with age, the changes show no clear pattern and differ between girls and boys. The proportions of boys reporting high levels of computer use on weekdays and at weekends, and high levels of television use and long hours spent on homework at weekends increase between the ages of 11 and 15 in nearly all countries and regions. Changes with age for boys in television use and homework on weekdays are mixed. For girls in nearly all countries and regions, long hours spent on homework on weekdays and at weekends and high levels of television use at weekends increase between the ages of 11 and 15. Changes with age for girls in television use on weekdays and computer use on weekdays and at weekends are mixed. Both between and within countries, boys and girls are likely to handle the increasing pressures with age to socialize on the one hand and to achieve academically on the other in different ways. These depend on the priorities of the individual, which in turn are influenced by the social norms in each country.

All three sedentary activities show consistent gender differences that vary in extent. The difference is greatest in computer use: in most countries and regions, the overall proportion of boys reporting high use is at least double that of girls. For homework, the gender difference is less pronounced and in the opposite direction, with 1.2–2 times as many girls as boys reporting long hours spent. The difference in watching

television is small in comparison to the other two activities, with slightly more boys than girls reporting high levels of use.

The associations found between the three sedentary activities and physical activity are all weak. They show gender, age and geographical differences, so that no clear pattern emerges. The conflicting picture of the association between computer use/homework and physical activity may be partially attributable to the large gender differences found in these sedentary activities. The relatively small gender difference in television use, on the other hand, may contribute to the more consistent pattern across countries and regions of a weak negative association between television use and physical activity.

The data do not support the view that high levels of sedentary behaviour are directly linked to low levels of physical activity, and imply that reducing hours spent in front of the television may not have a substantial impact on energy expenditure. Watching television and videos may affect the overall energy balance through its association with increased energy intake, however, and thereby contribute to childhood obesity.

In summary, although participation in these sedentary activities varies considerably, there is no clear patterning of countries and regions in the top or bottom quartiles. Countries and regions show much clearer similarities in a consistent gender difference in high levels of computer use and spending long hours on homework. While watching television and videos is universally popular among both boys and girls, high levels of computer use are more common among boys and long hours spent on homework among girls. The explanation for the former may lie in the different uses boys and girls have for computers. Conclusions cannot be drawn here, however, as the 2001/2002 HBSC survey did not investigate different types of computer activity.

The persistent gender difference in long hours spent on homework is more puzzling, since both boys and girls presumably receive the same amounts of homework. Do boys work faster than girls and thus complete their homework in less time? Are girls more conscientious than boys and thus take more trouble and time over their homework? Are girls more motivated academically? Will this gender difference decrease as greater equality between the sexes is achieved across the WHO European Region and North America? These are intriguing questions that possibly only qualitative research can resolve.

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Eating habits – *Carine Vereecken, Kristiina Ojala and Marina Delgrande Jordan*

Introduction

Adolescence is a time when the physiological need for nutrients increases and the consumption of a diet of high nutritional quality is particularly important *(1)*. WHO recognizes that young people who develop healthy eating habits early in life are more likely to maintain them in maturity and to have reduced risk of chronic diseases, such as cardiovascular diseases, cancer, non-insulin-dependent diabetes mellitus and osteoporosis *(2,3)*.

A balanced and appropriate diet during childhood and adolescence is likely to reduce the risk of immediate health problems, such as dental caries, anaemia, constitutional growth delay, overweight and obesity. Patterns of eating are also important. For example, skipping breakfast leads to midmorning fatigue and interferes with cognition and learning, effects that are more pronounced in nutritionally at-risk young people than in the well nourished *(4)*. Those who skip breakfast also appear more likely to consume snacks with a high fat and low fibre content during the remainder of the day *(5)*. In addition, eating breakfast, particularly if the meal includes fortified breakfast cereals, has been associated with improved overall nutritional status *(6)*, and young people who consume at least two meals a day, with or without snacks, have a more nutrient-dense diet *(7)*.

Social factors greatly influence dietary intake, especially during adolescence. The eating habits of young people reflect the weakening influence of the family and the increasing influence of peers on food choice and meal patterning. Changes in eating habits at this age can be associated with the need to express freedom from parental control and the forging of identity *(8,9)*. This burgeoning independence can be seen in an increased consumption of meals eaten outside the home or the school, which often comprise take-away fast foods *(10)*. Children and adolescents are also influenced by extensive marketing and advertising, which target them.

Another influence on eating habits is cultural pressures, predominant in industrialized countries, to have a so-called ideal body shape. The desire to be thin and the stigma of obesity may be of particular concern to young people, and this may have a significant effect on body image, body esteem and self-esteem.

Preferred patterns of snacking and meals may compromise dietary content during adolescence, as they may reduce the consumption of fruit and vegetables, which are important sources of carbohydrates, vitamins and minerals. An abundant and regular consumption of fruit and vegetables may decrease the risk of developing a degenerative chronic disease. The consumption of soft drinks and sweets, which contain a lot of empty calories, compromises the intake of more nutritious foods and may impede compliance with current dietary guidance *(11)*. Moreover, it has been suggested that the consumption of sugar-sweetened drinks is linked to the rise in the prevalence of obesity *(12)*.

Methods

Measuring food habits among children and adolescents is difficult. The differences in culture and climate across the HBSC countries and regions exacerbate these challenges. Standard measurement instruments, such as food diaries and repeated 24-hour recalls, are expensive and time consuming and remain outside the scope of this study. Detailed food frequency questionnaires are not appropriate due to the limited space in the standard international questionnaire, and the wide variation in dietary patterns. The 2001/2002 survey therefore used a set of items that interest most countries and regions and that reflect general cross-national food habits: meal patterns and the consumption of fruit, vegetables, sweets and soft drinks.

Questions on the frequency of having breakfast, lunch (midday meal) and dinner (evening meal) measured meal patterns. Young people were asked to respond separately for weekdays and for weekends.

How often do you usually have breakfast (more than a glass of milk or fruit juice)? Response options for weekdays were: *I never have breakfast during the week, One day, Two days, Three days, Four days, Five days.* Response options for weekends were: *I never have breakfast during the weekend, I usually have breakfast on only one day of the weekend (Saturday OR Sunday), I usually have breakfast on both weekend days (Saturday AND Sunday).*

The same type of question was asked for all three meals, but data are presented only on breakfast, as young people skip this meal most often.

The question on food consumption was: *How many times a week do you usually eat or drink … Fruit/Vegetables/Sweets (candy or chocolate)/Coke or other soft drinks that contain sugar?* Response options 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.*

The response options for the 2001/2002 survey were revised to be more comprehensive, so comparisons with previous HBSC survey data for these variables are not possible.

Results

Comparisons among countries should be viewed with caution. As noted, cultural factors need particular consideration when looking at cross-national differences in eating habits. For example, regional dishes may contain a lot of hidden vegetables (for example, in mixed dishes or soups) and this may influence the ranking of countries and regions. Seasonal differences in the timing of fieldwork might also influence the consumption of fruits, vegetables and soft drinks. Availability and price of food items across countries may also affect geographical differences.

Breakfast consumption

Fig. 3.24 shows the percentages of young people who have breakfast every morning on school days: on average, 69% of boys and 60% of girls. The figures show great geographic differences, however, with ranges of 44–90% for 11-year-olds, 36–79% for 13-year-olds and 34–75% for 15-year-olds.

Boys have breakfast more often than girls. This gender difference becomes more pronounced with age: between the ages of 11 and 15, breakfast consumption falls 9% among boys and 17% among girls. In England, Scotland and Wales, this difference reaches 20% at age 15. The decrease with age is most marked in girls in the Netherlands: 29%.

Fruit consumption

On average, only 30% of boys and 37% of girls report eating fruit daily. Consumption is highest in Israel (49% of boys and 54% of girls) and lowest in Estonia (17% of boys and 23% of girls) (Fig. 3.25).

The overall proportions of young people who eat fruit five days or more a week are 45% for boys and 51% for girls, with responses ranging from 30% to 67%. In 16 countries and regions, more than 25% of the young people seldom consume fruit (once a week or less).

In nearly all countries and regions, more girls report eating fruit every day, although there is considerable geographical variation.

In all countries and regions except Italy, the proportion of young people eating fruit every day decreases with age. This decrease is greater in boys: more than 10% in two thirds of the countries and regions. Girls show a similar rate in only one third.

Vegetable consumption

In all countries and regions but Belgium (Flemish), less than 50% of all young people report eating vegetables daily (Fig. 3.26).

Similarly to fruit consumption, girls in general report eating vegetables more often than boys (34% and 28%, respectively). This difference exceeds 10% in 3 countries and regions (Belgium (Flemish), Finland and Germany) and exceeds 5% in 17.

Fig. 3.24. Young people who eat breakfast every school day (%)

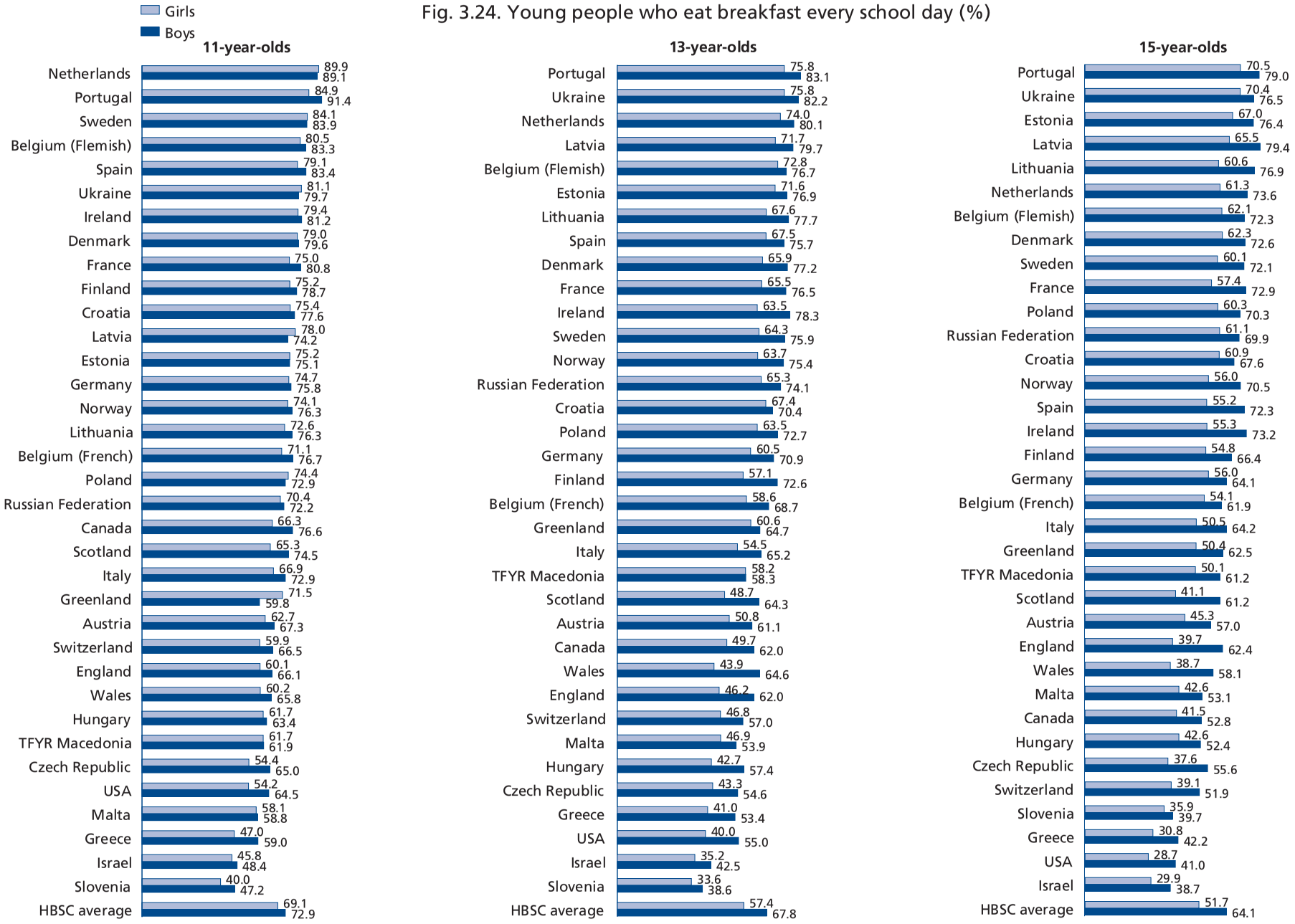


Fig. 3.25. Young people who eat fruit every day (%)

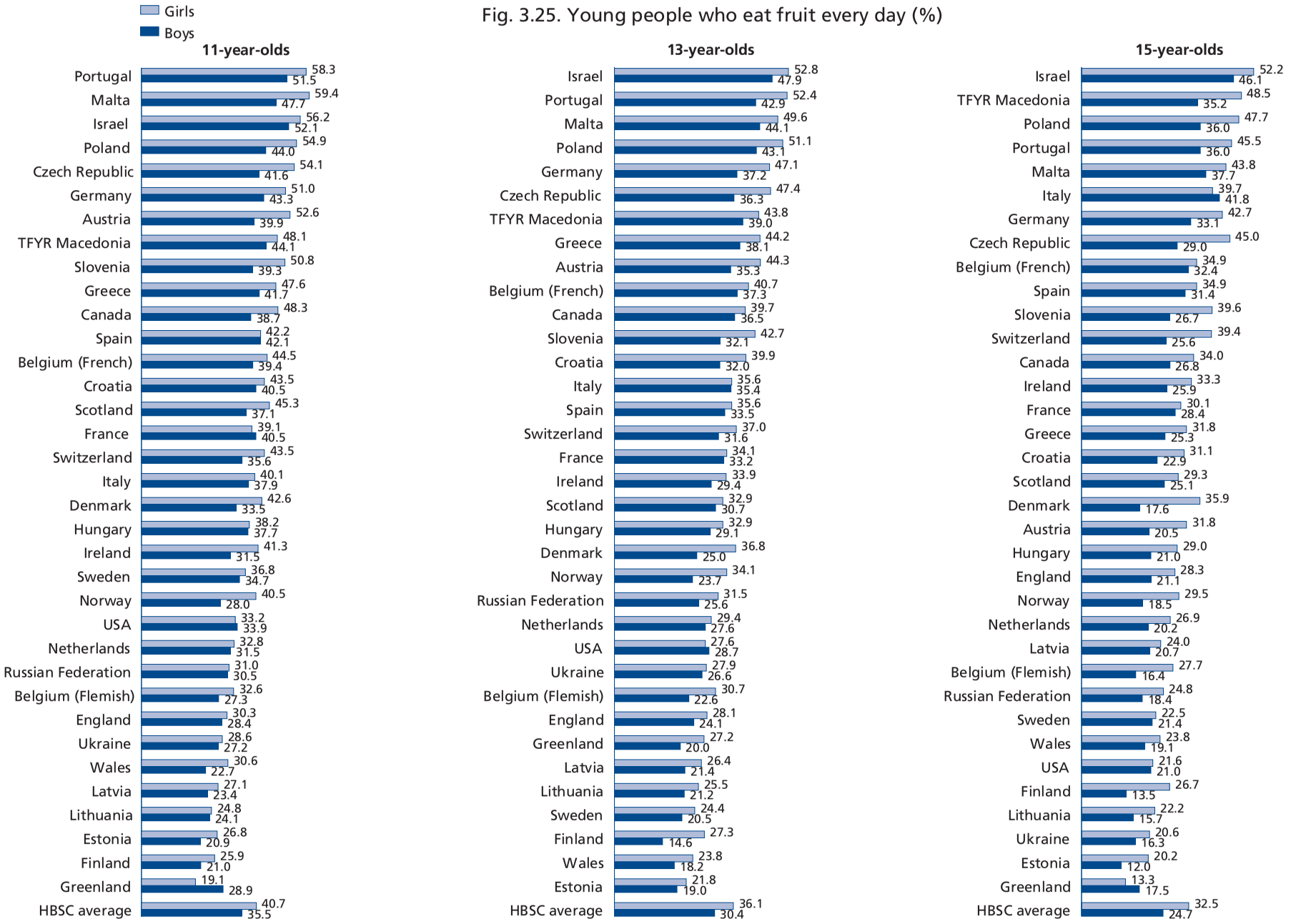
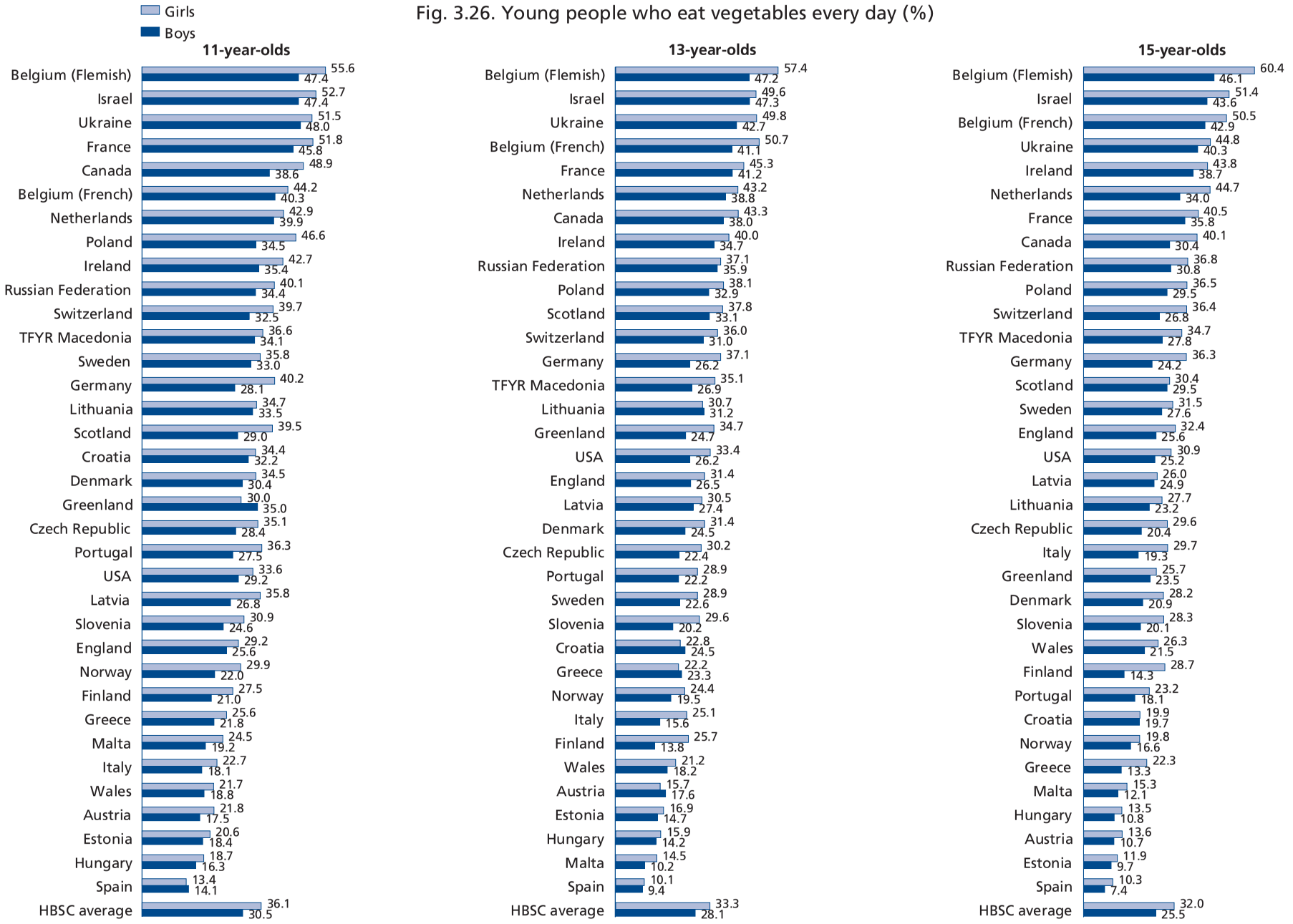


Fig. 3.26. Young people who eat vegetables every day (%)



Comparison of the three age groups shows a small overall decrease of about 4–5% between 11- and 15-year-olds. The decrease between the ages of 11 and 15 in daily vegetable consumption is greater than 10% for both sexes in Croatia and France, for boys in Greenland and Lithuania and for girls in Norway and Portugal.

Soft drinks

In Israel, Malta, the Netherlands, Slovenia, Scotland and the United States, daily soft-drink consumption is 40% or more (Fig. 3.27). Consumption is lowest in all age groups in some Scandinavian countries (Denmark, Finland and Sweden), the Baltic states (Estonia, Latvia and Lithuania), and Greece and Ukraine, where less than 20% report drinking soft drinks daily.

While 32% of boys and 25% of girls report drinking sugared soft drinks daily, 32% of boys and 43% of girls do not drink them more than once a week. Again, countries and regions vary widely in the latter: for example, from 18% for Scotland to 60% for Lithuania.

Unlike fruit and vegetable consumption, more boys than girls drink soft drinks every day in most countries and regions and for most age groups, with very few exceptions. Although this gender difference is quite small for 11-year-olds (29% of boys and 23% of girls), it widens by age 15 (35% of boys and 26% of girls).

In Portugal, however, 15-year-old boys and girls consume fewer soft drinks than their 11-year-old counterparts. In all other countries and regions, the differences are small or show a slight increase with age. The differences between age groups exceed 10% for boys in nine countries and regions but reach 10% for girls in only two.

Sweets

Almost one third of young people eat sweets or chocolates once or more a day (Fig. 3.28) and a similar proportion (29%) consumes them once a week or less. Young people report eating sweets less frequently in Denmark, Finland, Norway and Sweden. Malta has the highest percentage of daily consumers (54%), followed by Scotland and Ireland (45% and 49%, respectively).

Overall, the age and gender differences in the consumption of sweets and chocolate are negligible compared to those for the other food and drink items presented.

Discussion

The findings reflect a substantial variation in food consumption across countries and regions. A number of factors play a role in these differences: cultural habits and norms, availability (of particular relevance for fruit and vegetables), pricing, advertising and national policies that regulate or support food-related issues, such as school food policies and health education programmes.

The findings indicate that high consumption of sweets and soft drinks is common among adolescents. In addition, a significant number of young people skip breakfast and consume few fruits and vegetables. Only about 30% of young people eat fruit every day, despite the increased focus in many countries over the last decade on promoting fruit and vegetable consumption to reduce the risk of diet-related chronic diseases. Even fewer young people eat vegetables every day. The consumption of soft drinks, on the other hand, has increased dramatically in recent decades: about 30% of young people drink them every day in many countries and regions.

Notable also are the gender and age differences in skipping breakfast, eating fruit and vegetables and consuming soft drinks. The higher proportion of girls who reportedly go without breakfast might be explained by the relatively high proportion trying to change or maintain their body weight (see the next section). Skipping meals, particularly breakfast, can be a popular method of weight control, but often results in a greater consumption of mid-morning snacks as a substitute, and these tend to be high-sugar, high-fat foods *(13).* Also, increasing concerns about weight and shape might explain girls' higher frequency in consumption of fruits and vegetables and the lower frequency in consumption of soft drinks.

Fig. 3.27. Young people who drink soft drinks every day (%)

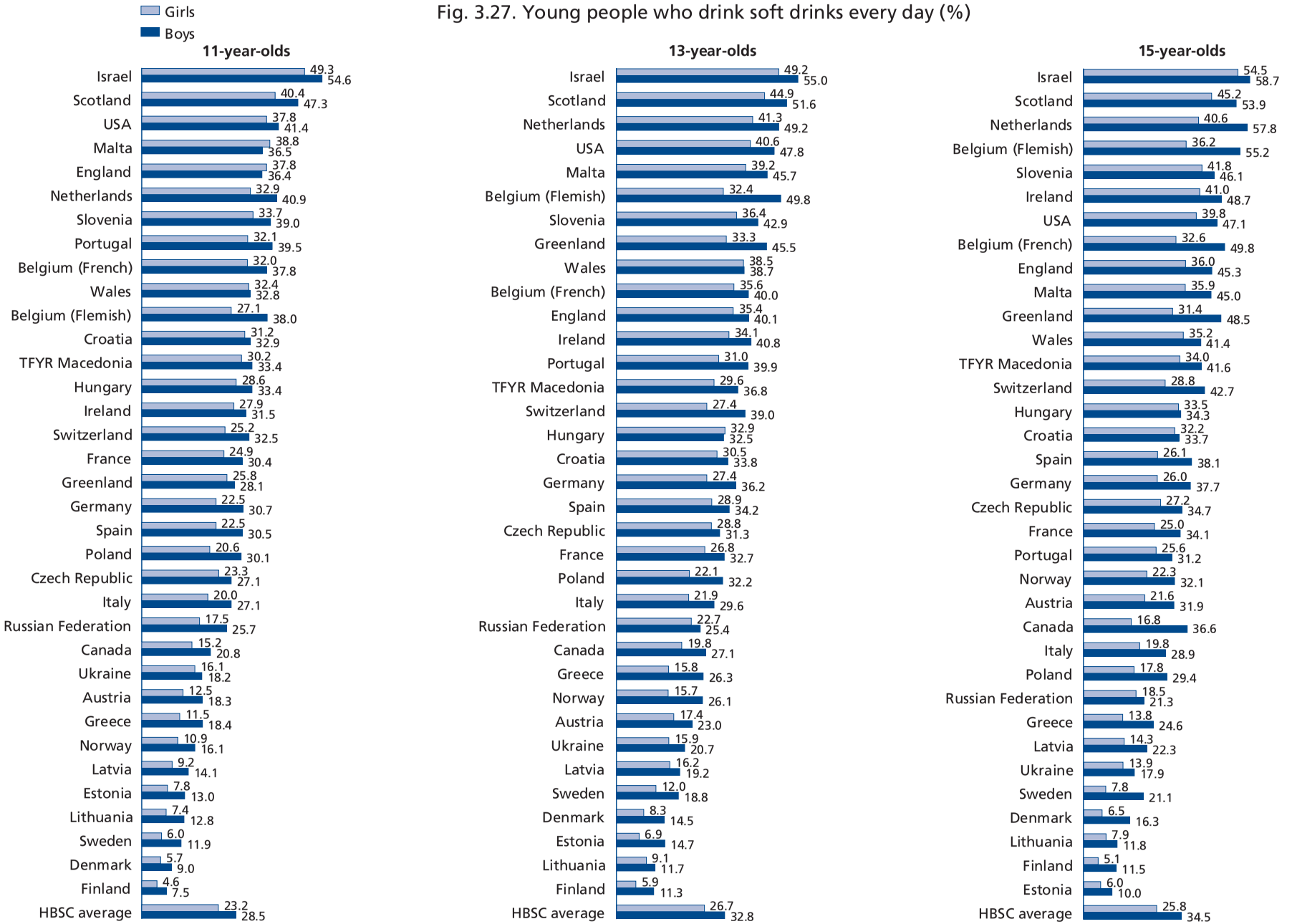
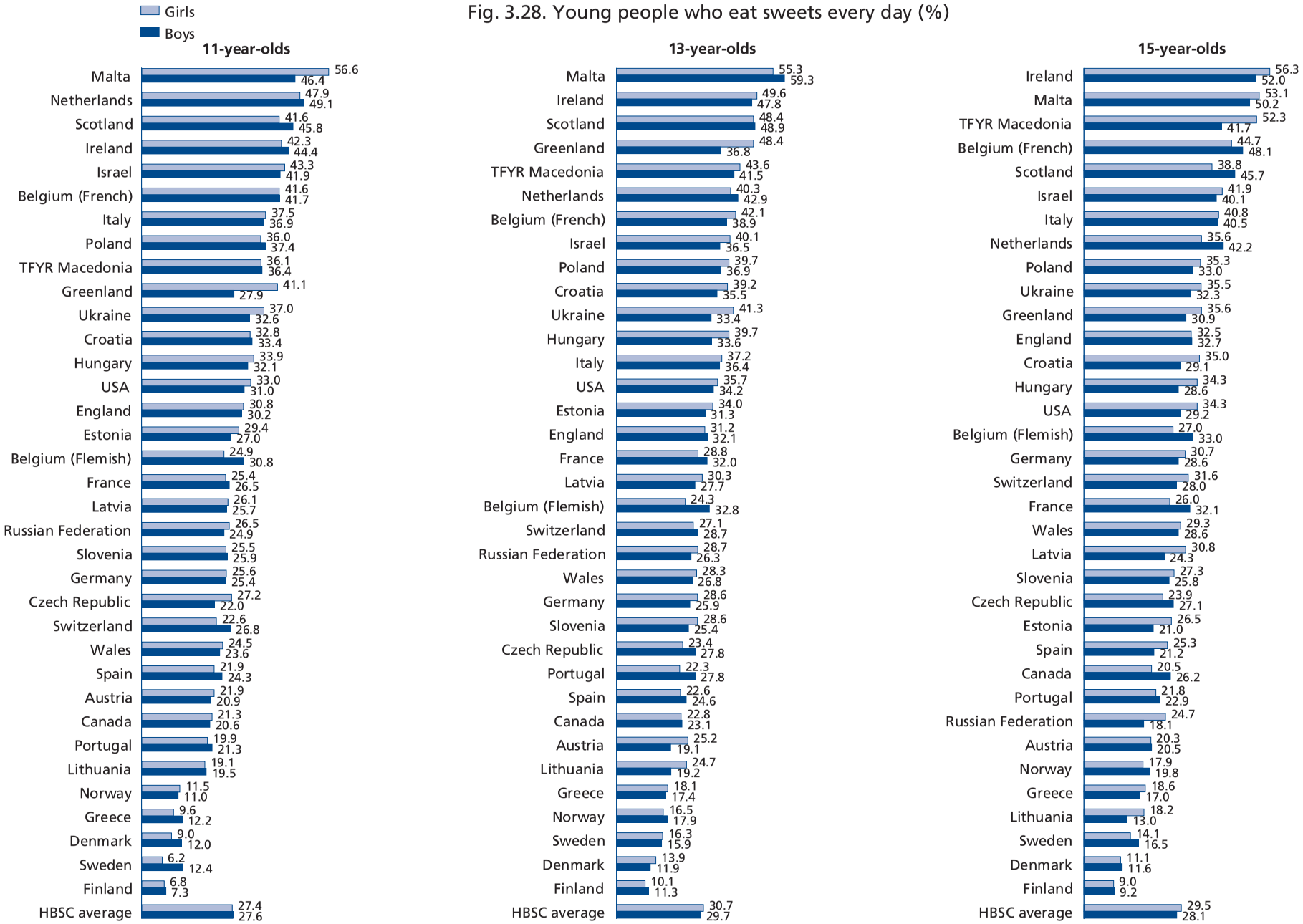


Fig. 3.28. Young people who eat sweets every day (%)



Other possible reasons include a lower required energy intake *(14),* awareness of health issues and cultural and gender-specific socialization influences *(15,16).*

A further influence on the food habits observed may be increasing independence and autonomy. During childhood, parents can influence food consumption patterns by limiting availability and accessibility, as well as modelling, positive reinforcement and discipline. As children grow up, however, they may use food choices as part of the process of individualization. Young people commonly seek more control over eating patterns by, for example, skipping meals or preparing their own food *(17).* The process of individualization frequently involves the rejection of familial values and is accompanied by the growing influence of peers and increasing participation in a social life outside the family. At the same time, soft-drink advertisements persuade young people to quench their thirst in a modern, youthful, palatable and popular way *(18),* while the advertising of fruit and vegetables does not yet target them.

The cross-national data point to the conclusion that programmes are needed to improve the eating habits of the adolescent population. The development of effective strategies, however, requires an understanding of adolescent eating behaviours and the factors that influence them. A recent review *(19)* established a model that conceptualizes adolescent eating behaviour as a complex function of interacting influences at the individual (such as biological and psychological), social (such as family and peers), physical environment (such as school and fast-food outlets) and macro-system or societal (such as mass media and social and cultural norms) levels. If this model is used as a framework for developing interventions, young people should receive consistent messages on healthy eating in multiple settings and from a variety of sources, including home, schools, health care settings, community organizations, the mass media and government agencies. Further, the image of healthy food habits could be improved and tasty, convenient and less expensive foods could be made more readily available; this would certainly help young people to improve their food choices.

Other lifestyle factors need to be considered in relation to the eating habits of young people. High-fat, energy-dense diets and sedentary lifestyles have caused an increasing prevalence of obesity among adolescents worldwide. On the other hand, social pressures to achieve a distorted body image are creating what has been called the "malnutrition of affluence" *(18).* The next section examines these issues in more detail.

Eating habits need to be considered in a broader social context. Food and drink choices are, for example, closely linked with socioeconomic status. Young people from lower socioeconomic groups consume snacks and sweets and skip breakfast more frequently, and eat less fruit and vegetables than young people from higher socioeconomic groups *(2,20).* An examination of these wider social influences on eating habits is therefore needed.

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Body image, weight control and body weight –

Caroline Mulvihill, Ágnes Németh and Carine Vereecken

Introduction

Few doubt that some of the most important events to which young people must adjust are the multitude of physical and physiological changes that occur during adolescence, including the continuing development of self-esteem. There are several reasons for this. The physical changes can create a change in body image and thus in the sense of self. Intellectual development and emotional independence make possible a more complex and sophisticated self-concept, and the transitional nature of adolescence, in particular the role changes that occur, is associated with some modifications of self-concept *(1)*. The relationship between body image and self-esteem is now well established *(2,3)* and is stronger in girls *(4,5)*. Gender differences are also apparent in the ways in which male and female adolescents evaluate their bodies. Girls tend to view their bodies primarily as a means of attracting others, while boys perceive their bodies as a means of effectively operating in the external environment *(6)*.

Research over the past 30 years has shown that the cultural influences of slimness and dieting, which predominate in modern society, have filtered down to the adolescent population. Young people, particularly girls, therefore, often feel fat and dissatisfied with their bodies. Dieting and other weight control methods have become well-known features of adolescent behaviour, as a means of achieving the perfect body. Adolescents often find it difficult to classify themselves appropriately in terms of weight, so a perception of overweight, rather than actual weight, appears to be a potent force behind weight concerns and dieting. For many girls, the goal may not be normal weight, but underweight *(7)*; boys are more likely to perceive themselves as underweight and to engage in weight-gaining (muscle-enhancing) activities *(8)*.

Concern has arisen about young people's use of dieting and other weight control methods, as these can be associated with negative physical and psychological outcomes. Dieters are more prone to irritability, concentration problems, sleep disturbances, menstrual irregularities, growth retardation, delayed sexual maturation and nutritional deficiencies *(9)*. Dieting can notably affect psychological well-being *(10)*, including a strong relationship with depression *(11)* and reduced feelings of self-esteem *(12)*. Polivy et al. conclude that "people with low self-esteem who undertake dieting – often, ironically, in an attempt to raise self-esteem – may find themselves worse off than if they had not attempted to improve themselves" *(12)*. In addition, dieting can involve less acceptable methods, such as skipping meals (particularly breakfast) and fasting *(13)*, and extreme practices, such as vomiting and laxative abuse *(14)*. This is more common among girls. Cultural pressures on young people, especially girls, to attain an unrealistic body weight, may lead to extreme dietary practices and a negative psychological profile *(14)*. Finally, a reported association between dieting and the development of eating disorders *(15)* gives rise to concern, considering the potentially fatal consequences.

The physical changes occurring during adolescence can include one harmful to health: the accumulation of excess body weight that may lead to obesity. Obesity is a major public health concern, described by WHO as "a global epidemic" *(16)* due to its high and increasing prevalence. Overweight and obesity in young people have been shown to be significantly associated with long-term morbidity and mortality. The most important long-term consequence of childhood obesity is persistence into adulthood. Strong evidence confirms this link *(17,18)* and suggests that overweight during adolescence compromises long-term health, as it is associated with increased mortality, especially from coronary heart disease, arteriosclerosis and colorectal cancer *(17)*. Further, negative stereotypical attitudes towards obesity develop from an early age *(19,20)* and obese people may encounter discrimination in education and work settings *(21,22)*. Finally, it has been suggested that, without aggressive approaches to prevention and treatment, the health and social consequences of obesity are substantial and long lasting *(23)*.

There appears to be a dichotomy of concerns about the issue of body image, weight control and body weight in young people. They often feel dissatisfied with their body weight and use weight control practices, and these are associated with negative physical and psychological changes. Conversely, the prevalence of overweight and obesity is also increasing and this in turn is associated with consequences for long-term health.

Methods

The HBSC questionnaire assessed self-perception of body weight and dieting and weight control behaviour.

A single item assessed body image. *Do you think your body is … ?* Response options were: *Much too thin, A bit too thin, About the right size, A bit too fat, Much too fat*. The last two responses were combined as an indicator of perceived dissatisfaction with body weight.

The question on weight control behaviour was: *At present are you on a diet or doing something to lose weight?* Response options were: *No, my weight is fine; No, but I should lose some weight; No, because I need to put on weight; Yes*. Data on the last response are presented here as an indicator of dieting and weight control behaviour.

Other items collected information on the height and weight of each student:

- *How much do you weigh without clothes?*
- *How tall are you without shoes?*

The data were used to calculate the respondents' body mass index (BMI).[2] Some countries allowed reporting in stones, pounds, feet and inches, which were converted into kilograms and metres.

The use of BMI alone – that is, the criteria for overweight (BMI of 25.0–29.9) and obesity (BMI of ≥ 30.0) – is not appropriate for classifying young people, due to methodological issues caused by the normal rapid growth in this age group, especially around puberty. Age- and gender-specific BMI international cut-off points were therefore used to calculate the prevalence of overweight *(24)*. These cut-off points were calculated from pooled international data on nearly 200 000 BMI measurements and are recommended for use in international comparisons of overweight and obesity. From these findings, subjects were subdivided further into pre-obese and obese groups, which correspond to the adult BMI values of 25.0–29.9 and ≥ 30.0 and over.

The findings presented here show levels of pre-obese (overweight) and obese young people. The term overweight is used to cover both groups.

Results

Body image

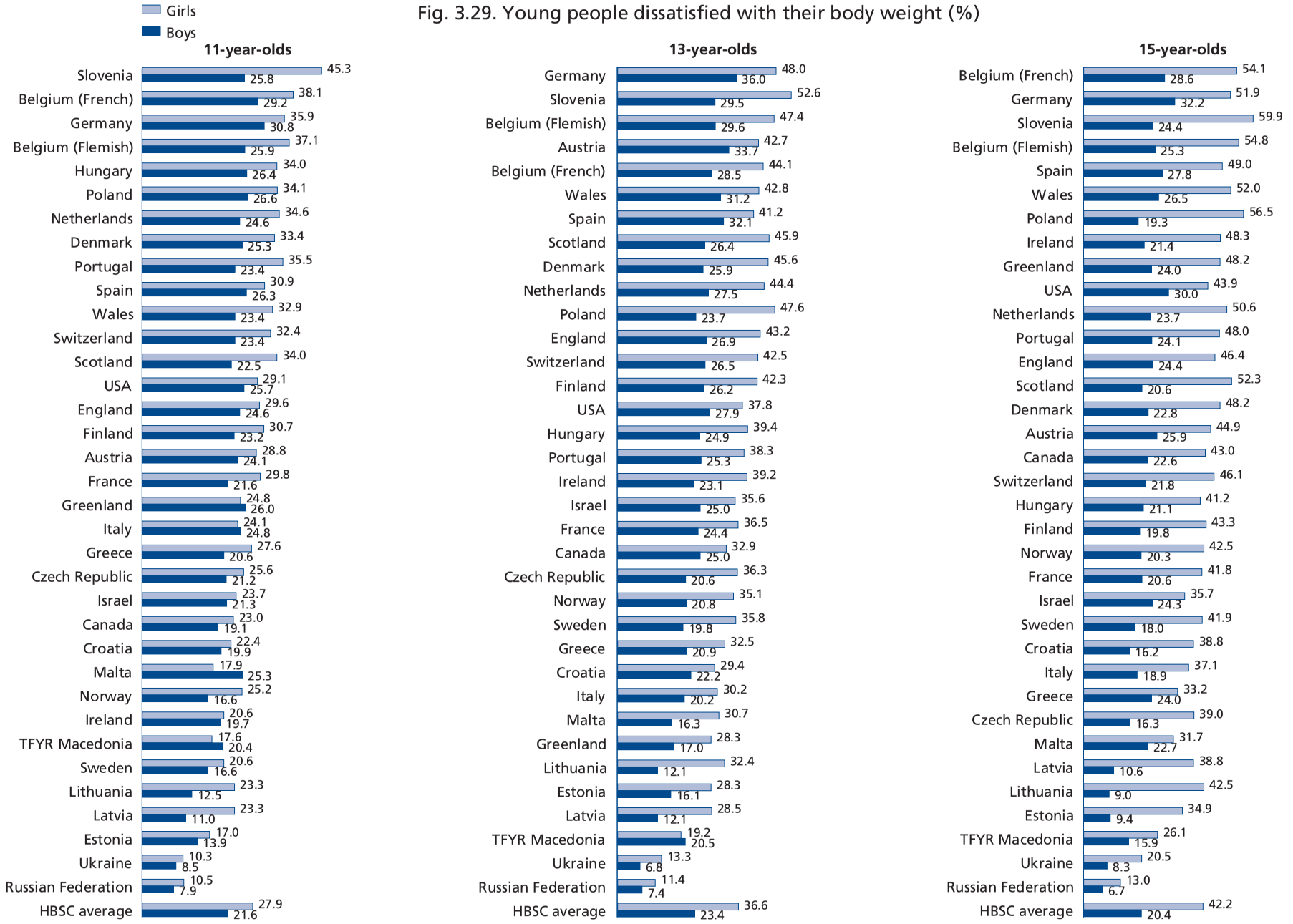
Fig. 3.29 shows the proportions of young people reporting dissatisfaction with their bodies (i.e. feeling a bit too fat or much too fat). There are clear gender differences: more girls (36%) than boys (22%) report dissatisfaction with body weight. Girls' dissatisfaction increases with age, from 28% in 11-year-olds to 42% in 15-year-olds, but that of boys does not, remaining at 20–24%.

Among 11-year-olds, levels are similar in boys and girls for about half of the countries and regions, within a range of 5%. In the remainder, 8–12% more girls than boys report feelings of dissatisfaction with body weight, exception in Slovenia, where the level is 20% higher in girls.

The gender difference is more pronounced in 13- and 15-year-olds. In most countries and regions, levels of dissatisfaction with body weight increase in girls but remain static in boys. Among 13-year-olds, only the Russian Federation and The former Yugoslav Republic of Macedonia report similar findings

[2] BMI = weight (kg)/height (m)^2.

Fig. 3.29. Young people dissatisfied with their body weight (%)



within a range of 5%; no countries and regions report such similarities for 15-year-olds. The levels of dissatisfaction are 10–20% higher in 13-year-old girls than in boys, but over 20% higher in Poland and Slovenia. Among 15-year-olds, the levels for girls are, again, over 20% higher in Poland and Slovenia and over 30% higher in Lithuania and Scotland.

For boys, the highest levels of dissatisfaction with body weight across the three age groups are found in Austria, Belgium (Flemish), Belgium (French), Germany, Spain, the United States and Wales. The highest levels for girls are found in Belgium (Flemish), Belgium (French), Germany, Poland, Scotland and Slovenia. The Russian Federation and Ukraine have levels well below the average for both boys and girls across all age groups.

Dieting and weight control behaviour

Like dissatisfaction with body weight, dieting and weight control behaviour show clear gender differences (Fig. 3.30), with higher levels in girls (18%) than boys (8%). Levels also increase with age in girls, from 12% for 11-year-olds to 23% for 15-year-olds. In contrast, levels in boys remain static, between 9% and 7%.

The gender difference is less pronounced in 11-year-olds, but, by age 15, girls are three times as likely as boys to report engaging in weight control behaviour across all countries and regions. No countries report similar findings for boys and girls in either 13- or 15-year-olds. Levels are on average 15–30% higher for 13-year-old girls than for their male counterparts, rising to 20–40% higher for 15-year-old girls than boys.

Boys in Denmark, Hungary, Israel, Malta and the United States are among those with the highest levels of dieting and weight control behaviour. The highest levels for girls are found in a group including Denmark, Hungary, Israel, Scotland, the United States and Wales. Israel and the United States also reported higher levels of dieting behaviour in the 1997/1998 HBSC survey, indicating that it has remained constant in these countries over the past four years.

Comparison of dissatisfaction with body size and weight control behaviour

The findings appear to show similar gender differences in dissatisfaction with body weight and dieting and weight control behaviour. Levels are higher and increase with age in girls, while remaining static in boys.

Nevertheless, there is not an exact correspondence in girls between dissatisfaction with body weight and dieting and weight control behaviour. Fewer girls try to control their weight (18%) than feel dissatisfied with it (36%). This is also the case when the data are examined by age: 12% versus 28% for 11-year-olds, 18% versus 37% for 13-year-olds and 23% versus 42% for 15-year-olds. There is also considerable variation among countries and regions; for example, Belgium (Flemish), Germany, Greenland, the Netherlands, Poland, Portugal, Slovenia, and Spain show differences of more than 30% for 15-year-old girls between the levels for the two indicators.

Overweight (pre-obese and obese)

Fig. 3.31 presents the percentages of overweight 13- and 15-year-olds young people in all the HBSC countries and regions.

Information is not presented on 11-year-olds, due to the high proportion of missing data (19% for 11-year-olds as compared with 14% and 9% for 13- and 15-year-olds, respectively). Further, a very high proportion of BMI data (over 25%) was missing in (Belgium (French), England, Greenland, Ireland, Lithuania, Malta and Scotland. Table 3.5 tabulates missing data by age, gender and country or region. Caution should be used when interpreting the findings from these countries, owing to the possible response bias in these data (see below).

The percentage of overweight boys and girls (the combined total of pre-obese and obese young people) varies enormously across countries and regions (3–34%), in both 13- and 15-year-olds. Canada,

Fig. 3.30. Young people engaged in dieting and weight control behaviour (%)

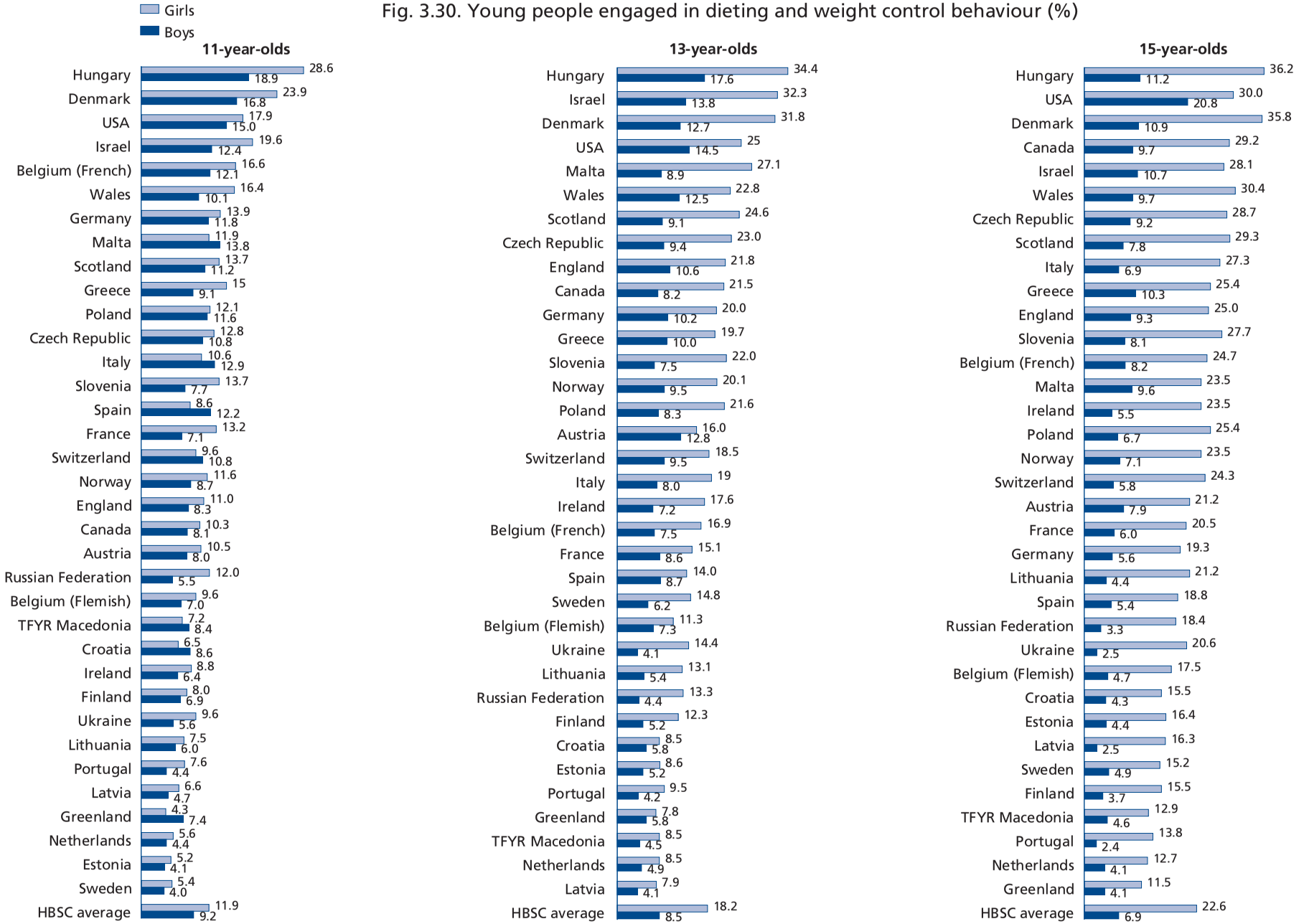


Fig. 3.31. Young people who are overweight according to BMI, 13- and 15-year-olds (%)

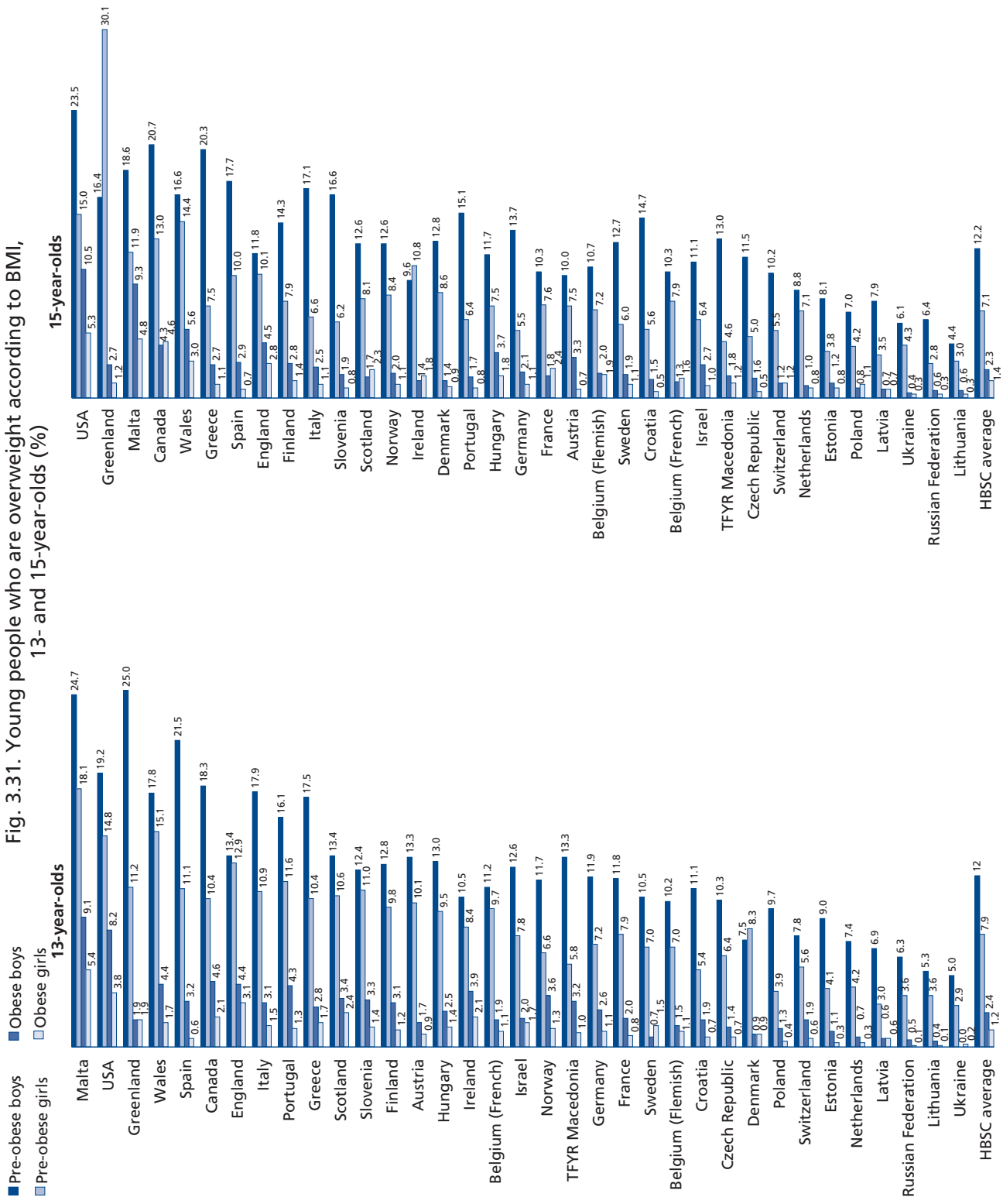


Table 3.5. Missing BMI data in the 2001/2002 HBSC survey by age and gender (%)

Country or region	13-year-olds (%)		15-year-olds (%)	
	Boys	Girls	Boys	Girls
Austria	7.8	5.5	7.4	6.9
Belgium (Flemish)	8.7	7.5	5.9	4.1
Belgium (French)	25.2	29.1	25.8	23.7
Canada	14.2	16.5	6.6	10.6
Croatia	4.0	4.3	4.6	2.3
Czech Republic	0.4	0.5	0.7	0.0
Denmark	12.3	11.7	8.0	8.7
England	37.5	42.1	23.0	25.2
Estonia	6.4	3.4	4.8	1.7
Finland	4.0	3.4	2.1	1.6
France	7.6	6.4	3.6	3.1
Germany	11.8	11.3	9.1	9.6
Greece	5.0	5.4	3.3	3.8
Greenland	33.5	43.9	21.8	36.7
Hungary	7.1	4.7	2.7	2.1
Ireland	59.9	61.3	36.5	51.6
Israel	22.4	24.1	14.0	15.7
Italy	5.7	4.9	4.0	3.8
Latvia	13.1	9.5	8.7	5.7
Lithuania	28.2	21.9	18.1	13.8
Malta	52.6	54.5	24.0	35.0
Netherlands	10.7	9.9	9.4	7.4
Norway	11.0	11.1	6.9	7.5
Poland	6.0	6.1	3.7	3.9
Portugal	7.5	11.2	6.1	6.1
Russian Federation	8.4	7.5	4.5	4.0
Scotland	52.1	56.2	39.6	46.1
Slovenia	2.7	2.2	3.4	2.0
Spain	23.8	20.1	15.5	10.8
Sweden	10.7	10.1	5.9	6.4
Switzerland	9.8	8.1	4.9	5.6
The former Yugoslav Republic of Macedonia	7.5	11.8	7.4	7.5
Ukraine	12.2	10.5	4.5	4.5
United States	11.9	13.0	7.6	4.8
Wales	17.2	20.7	10.9	9.4

Greenland, Malta, the United States and Wales have the highest rates of overweight in both genders and all age groups. There is a clear relationship between the prevalence of pre-obesity and the development of obesity: countries with higher percentages of pre-obesity also report a higher prevalence of obesity.

In both 13- and 15-year-olds, overweight appears to show a geographical pattern. Prevalence is highest in Canada, Greenland and the United States, followed by England, Scotland and Wales and some southern European countries: Greece, Italy, Malta, Portugal and Spain. The Scandinavian countries and the central European countries have a lower proportion of overweight young people, and prevalence is lowest in the eastern half of the WHO European Region.

Among 13-year-olds, boys have higher rates than girls in a number of countries, with the highest gender differences found in Canada, Malta and Spain. Among 15-year-olds, again boys have higher rates than girls in 10 countries with the highest gender differences in Croatia, Greece, Italy, Malta, Slovenia and the United States.

A comparison of the age groups does not reveal a relationship between the levels of overweight at 13 and 15 years. The number of countries and regions in which prevalence rises or falls between the ages of 13 and 15 is similar for both genders, and there are no geographical differences.

Among 13-year-olds, obesity is highest in boys (4–9%) in Canada, England, Malta, Portugal, the United States and Wales, and in girls (2–6%) in Canada, England, Ireland, Malta, Scotland and the United States. Except in Sweden and Ukraine, the prevalence of obesity is much higher in boys: up to five times the levels in girls. In Denmark, Greenland and Latvia, however, the obesity findings for boys and girls are identical.

Among 15-year-olds, the results are similar. Canada, England, Malta, the United States and Wales have the highest prevalence of obesity: 4–11% in boys and 3–5% in girls. Similar to the findings in the younger age group, most countries and regions – except Belgium (French), Canada, France, Ireland, Poland and Scotland – report a higher prevalence of obesity in boys. The gender difference is not as large, however; levels for boys are on average two or three times higher. Finally, Latvia and Switzerland report identical obesity findings in boys and girls.

Again, similar to the findings for overweight, there does not appear to be a relationship between levels of obesity at 13 and 15 years. In all countries and regions, prevalence does not increase or decrease greatly between the two ages.

Missing BMI data

As mentioned, the proportion of missing BMI data is particularly high in Belgium (French), England, Greenland, Ireland, Lithuania, Malta and Scotland. With the exception of Belgium (French), Ireland and Lithuania, these countries and regions also have a higher prevalence of overweight and obesity.

An analysis of the characteristics of the young people who do not report their height and weight, compared with those who did, reveals some interesting findings. The young people who do not report their height and weight are:

- less likely to come from higher socioeconomic groups;
- less likely to be physically active;
- more likely to be dieting or feel the need to lose weight (with some exceptions, such as boys in England, Scotland, Spain and Wales, and girls in Malta);
- more likely to consume less fruit, vegetables and, perhaps surprisingly, sweets (13-year-olds only).

These findings suggest that young people who do not report their height and weight are more likely to be overweight or obese, and dissatisfied with the size and weight of their bodies. These concerns may have influenced them in responding to the questionnaire. In addition, of course, many young people in countries and regions with high rates of missing data may not know their height and weight and cannot give a sufficiently accurate response. The variation across countries in practices for measuring height and weight in school, for example, undoubtedly plays a role here.

Discussion

The HBSC survey findings confirm that dissatisfaction with body weight and dieting and weight control behaviour are common in young people, especially girls *(14)*. These concerns increase as girls grow older, and the physical pubertal changes that occur at this time may be an important causal factor in increasing them *(14)*.

In addition, perception of overweight and dissatisfaction with body size, rather than actual weight, appear to be a potent force behind girls' dieting and weight control behaviour. Such behaviour in this age group is associated with negative physical and psychological changes and can lead to life-threatening conditions, including eating disorders *(9–15)*.

An analysis of the HBSC data from the United States has shown that the timing of pubertal maturation is associated with body size and fatness in adolescents *(25)*. This may explain the lack of relationship

between the 13- and 15-year-olds in the prevalence of overweight, as the timing of pubertal changes can vary. Prevalence increases or decreases between the two age groups in similar numbers of countries and regions. Chapter 4 (see pp. 196–204) discusses the influence of pubertal changes in more detail.

Other factors affect young people's concerns about body size and weight. Socioeconomic background has been shown strongly to influence the development of overweight, reduced body esteem and weight concerns *(26)*. Links with eating behaviour, physical activity and sedentary behaviour should also be examined. Dieting has been associated with negative dietary practices *(9,13)*, and the promotion of physical activity and reduction of sedentary behaviour in young people are recommended. Daily exercise may be a better and safer way to manage weight than dieting, and less likely to lead to the development of eating disorders *(15)*. Finally, how body weight and dissatisfaction with weight influence health and well-being also needs to be considered.

The high prevalence of overweight in some countries is indicative of a worldwide trend *(16)*. The avoidance of excessive weight gain in young people would prevent the development of obesity, which has implications for future health *(17)*. It is therefore vital to develop effective and appropriate evidence-based programmes and strategies on the prevention and treatment of overweight and obesity in young people.

Some surveys of young people, such as the National Health and Nutritional Examination Survey, Cycle III *(27)* and the National Longitudinal Study of Adolescent Health *(28)* in the United States, have collected accurate self-reported height and weight data. Although the absolute BMI values may be underestimated through self-reporting, 94% of young people aged 12–16 years have been estimated to be correctly classified as normal weight or obese *(27)*. This suggests that the rates for overweight and obesity derived through self-reporting measures are quite accurate. Further, the association between overweight and lifestyle habits in young people (for example, eating habits and participation in physical activity) based on measured height and weight does not differ from that based on self-reported height and weight, *(27)*. Other investigators, however, conclude that these measures should be treated with caution *(29–31)*.

Policy-makers and anyone involved in developing disease prevention and health promotion programmes should consider the current obesogenic environment in which young people live: for example, how factors of daily living, such as the use of transport systems in preference to walking and cycling and lack of access to healthier foods, can contribute to overweight and obesity. At the same time, they should think about how to deal with the effects of overweight and obesity on body image and body esteem. A balance is needed to ensure that young people both maintain a healthy body weight and are protected from the pressures of negative body image and weight control practices.

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Oral health – *Lea Maes, Mai Maser and Sisko Honkala*

Introduction

Oral diseases are the most common of all illnesses in industrial societies *(1)*. Oral health, however, does not only imply that teeth are healthy; it has further health implications. Disorders of the teeth are a common cause of pain *(2)* and an appreciable source of disability and handicap. Poor oral health limits personal choices and social opportunities. Oral ill health diminishes life satisfaction in the same way as diseases of other body systems *(3,4)*.

The most prevalent oral diseases, dental caries and periodontal diseases, can be considered mainly as behavioural problems because they can be prevented by limiting the frequency of intake of sugar products, maintaining good oral hygiene and using fluoride toothpaste in regular toothbrushing *(1)*. In recent decades, dental caries has declined in many European countries and North America *(5–9)* but large socioeconomic differences persist in the uptake of preventive interventions and prevalence *(10)*. Toothbrushing remains the main preventive method for everyone, and the universally recommended frequency is twice a day, in the morning and in the evening *(11,12)*.

Methods

All HBSC surveys have measured oral health habits with the following question: *How often do you brush your teeth?* Response options were: *More than once a day, Once a day, At least once a week but not daily, Less than once a week, Never.*

Results

The geographical differences in toothbrushing frequencies are large (Fig. 3.32). In 15-year-olds, the reported prevalence of recommended toothbrushing is highest (≥ 80%) in Denmark, Norway, Switzerland and Sweden and lowest (≥ 50%) in Belgium (Flemish), Finland, Greece, Lithuania, Malta, Spain and Ukraine. In most of the countries and regions, levels differ only slightly between age groups. In all countries and regions and all age groups, girls report brushing their teeth more frequently than boys; in several cases, the difference exceeds 20%.

When looking at toothbrushing only once a day, more than 10% of 11-year-olds report not even reaching that frequency in Greenland, Latvia, Lithuania and Malta. In 15-year-olds, this figure exceeds 10% only for Malta.

Discussion

Previous research, some of which was based on HBSC data, has shown that girls brush their teeth more often than boys *(13,14)* and that there are considerable geographical differences in the frequency of toothbrushing in the European Region *(13,15–17)*. These trends seem to persist.

Previous findings also observed that older children brush more regularly than younger children, but the 2001/2002 survey shows that this is true only in some countries and regions, and is not a general trend. The habit of toothbrushing seems to stay rather stable during adolescence, which is a very important consideration when targeting health education.

The large geographical differences in toothbrushing remain a challenge for oral health promotion in several countries. Although the prevalence of brushing at least twice a day is high in a few countries in the European Region, most still have room for improvement. Strategies to promote effective toothbrushing need to be implemented, particularly those targeting boys and younger schoolchildren.

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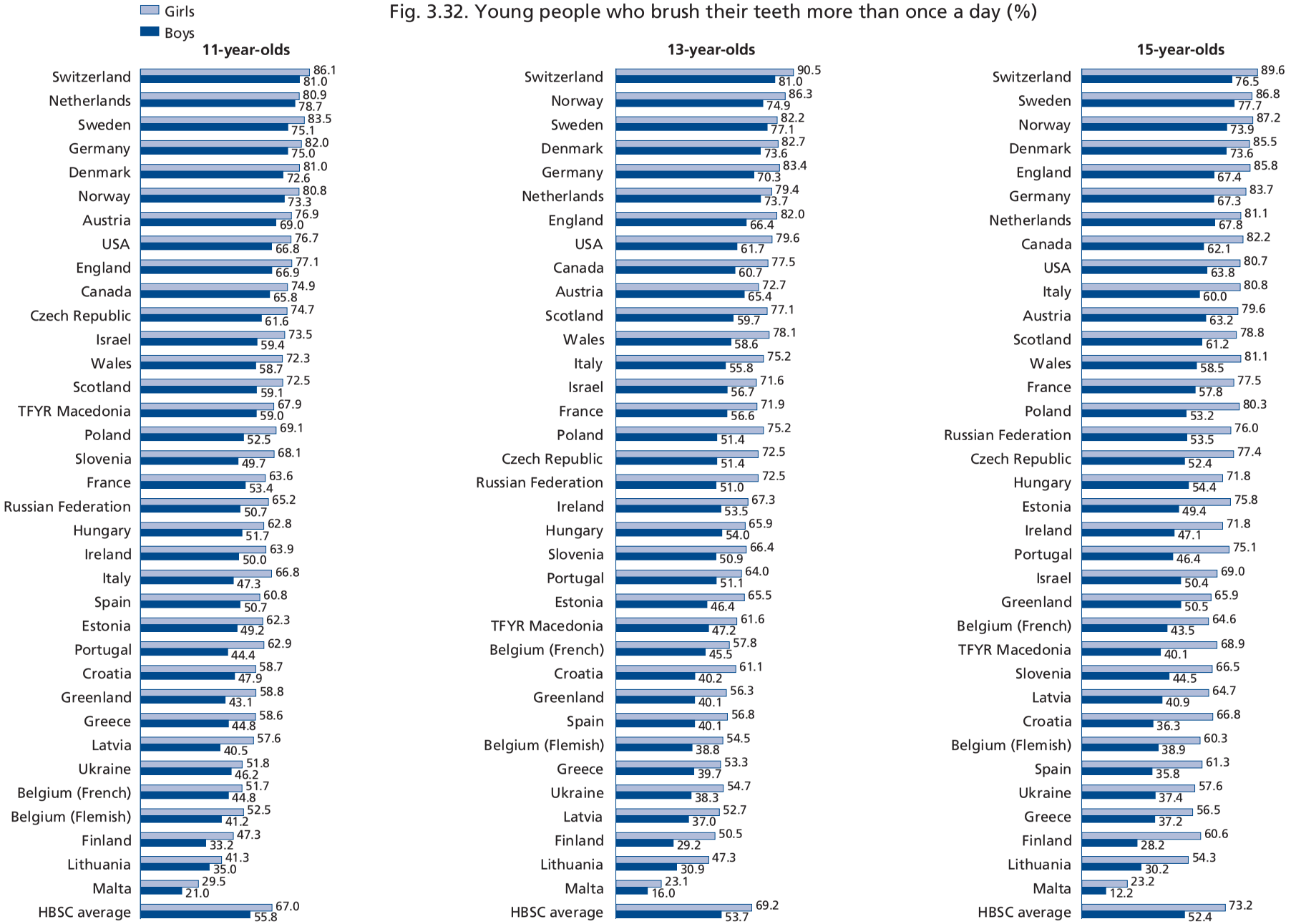
Fig. 3.32. Young people who brush their teeth more than once a day (%)



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Bullying, physical fighting and victimization –

Wendy M. Craig and Yossi Harel

Introduction

Aggression in schools is a problem in many countries around the world *(1–5)*. Bullying, victimization and fighting depict different types of involvement in violence during adolescence. Bullying is a problem of relationship; it is the assertion of interpersonal power through aggression *(5,6)*. Bullying involves negative physical or verbal action that has hostile intent, causes distress to the victims, is repeated over time and involves a power differential between bullies and their victims *(5)*. Victimization by bullying occurs when a person is made the recipient of aggressive behaviour; the victim is typically someone less powerful than the perpetrator, who may be larger, stronger or older. Repeated bullying consolidates the power relations between bullies and their victims: the former gain power and the latter lose it. In such a relationship, the children who are being bullied become increasingly unable to defend themselves. Fighting is an aggressive behaviour and the people involved are typically of a similar age and equal strength.

Along with the immediate effects, bullying, victimization and fighting have long-term negative consequences for all involved; the bullies *(7)*, victims *(8)*, fighters and those who observe the interaction *(9)*. Retrospective reports have found that children who are bullies tend to be bullies as adults and to have children who are bullies; similarly, children who are victimized tend to have children who are victimized *(7)*.

Pepler and Craig *(10)* have examined bullying from a developmental perspective and argue that this type of aggressive behaviour merits attention because it underlies many problems related to interpersonal violence. Bullying may be one step along a continuum of aggressive behaviour combining the use of power and aggression. The same combination of power and aggression found in playground bullying is a key component of sexual and workplace harassment, dating and marital aggression, and abuse of children and elderly people *(10)*. Longitudinal research indicates that childhood bullying is associated with antisocial behaviour in adulthood, such as criminality, and with limited opportunities to attain socially desired objectives, such as stable employment and long-term relationships *(7)*. Victimized children are at risk of a variety of negative outcomes. They are more anxious and insecure *(5)*, have lower self esteem and are lonelier *(3)*, more likely to be rejected by their peers, and more depressed *(8)* than others. For children, the propensity to be victimized is stable. Using retrospective reports, Olweus *(11)* found that boys who were victimized at age 13 were also victimized at age 16. Peers can suffer, too, by feeling group pressure to join in bullying. Merely observing bullying can lead to distress *(9)*.

The costs of involvement in bullying to individuals, families, schools and society are high. Children who bully or are victimized generate life-long costs because they become involved in multiple systems, such as mental health services, juvenile justice, special education and social services. Interrupting this pattern of behaviour is a critical issue. The prevalence and seriousness of bullying and victimization compel researchers to examine the risk and protective factors associated with the initiation, maintenance and termination of these behaviours. The knowledge gained can be used to provide direction for social policy and to design effective interventions for eliminating, or at least curtailing, this problem.

Methods

The questions on bullying used in the survey were those developed by Olweus *(11)*. A definition of bullying preceded the questions. *We say a student is being bullied when another student, or a group of students, says or does nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she doesn't like, or when [he or she is] deliberately left out of things. But it is not bullying when two students of about the same strength quarrel or fight. It is also not bullying when the teasing is done in a friendly and playful way.* This comprehensive definition includes the concept of intentional exclusion as a form of bullying and helps to reduce as far as possible the challenge of translation, particularly into languages with no specific word to describe bullying.

Two questions followed the definition, one on being bullied and one on bullying others:

- *How often have you been bullied at school in the past couple of months?*
- *How often have you taken part in bullying another student(s) at school in the past couple of months?*

The response options for both were almost the same: *I haven't been bullied* (or *bullied another student(s)*) *at school in the past couple of months, It has only happened once or twice, 2 or 3 times a month, About once a week, Several times a week.*

Two levels of involvement were examined: being bullied or bullying others at least once in the past couple of months, and being bullied or bullying others at least 2–3 three times a month. This method of assessing the prevalence of bullying is well established in research *(5)* and was validated with other HBSC surveys *(12).*

A single item assessed fighting behaviour. *During the past 12 months, how many times were you in a physical fight?* Response options were: *I have not been in a physical fight, 1 time, 2 times, 3 times, 4 times or more.*

Young people who indicated involvement in any form of physical fighting in the previous 12 months were identified as fighters. The data for frequent fighters (those who had engaged in this behaviour 3 or more times in the previous 12 months) are presented in a similar way to those for bullying. This method was validated in previous HBSC surveys.

Results

There is wide geographical variation in the percentages of young people reporting bullying, victimization and physical fighting. The differences in the prevalence of these behaviours are striking, and these behaviours may be more culturally sanctioned in some countries than in others. In addition, recent evidence indicates that bullying is hard to define in some languages so that translation may be difficult. Thus, country variations should be interpreted with caution.

Bullying others at school

About 35% of the young people in the HBSC study report being involved in bullying others at least once during the previous couple of months (Fig. 3.33). This rate varies substantially across countries and regions: 9–54% for 11-year-olds, 17–71% for 13-year-olds and 19–73% for 15-year-olds. The mean percentages for the three age groups are 30%, 38% and 36%, respectively. Bullying is more common in 13-year-olds than 11-year-olds and in boys than girls.

Fig. 3.34 presents the distribution of young people who report bullying others more frequently. As would perhaps be expected, the prevalence is lower than that of less frequent bullying: 11%. As with bullying at least once in the previous couple of months, however, this overall percentage masks significant variation among countries and regions: 2–24% for 11-year-olds, 4–37% for 13-year-olds and 3–41% for 15-year-olds. The mean proportions for frequent bullying for the three age groups are 9%, 12% and 13%, respectively.

At both levels of frequency, Austria, Estonia, Germany, Latvia, Lithuania, Switzerland and Ukraine are consistently in the top quartile across all age groups, and the Czech Republic, Ireland, Scotland, Slovenia, Sweden, The former Yugoslav Republic of Macedonia and Wales are in the lowest quartile.

Gender and age differences

In all countries and regions and all age groups, boys report bullying others more than girls. The gender difference is particularly marked in frequent bullying, with about three quarters of countries and regions showing far higher rates for boys.

In most countries and regions, the higher increase in reported bullying occurs between the ages of 11 and 13. Twenty indicate a peak at age 13 in bullying others at least once in the previous couple of months.

Fig. 3.33. Young people who bullied others at least once in the previous couple of months (%)

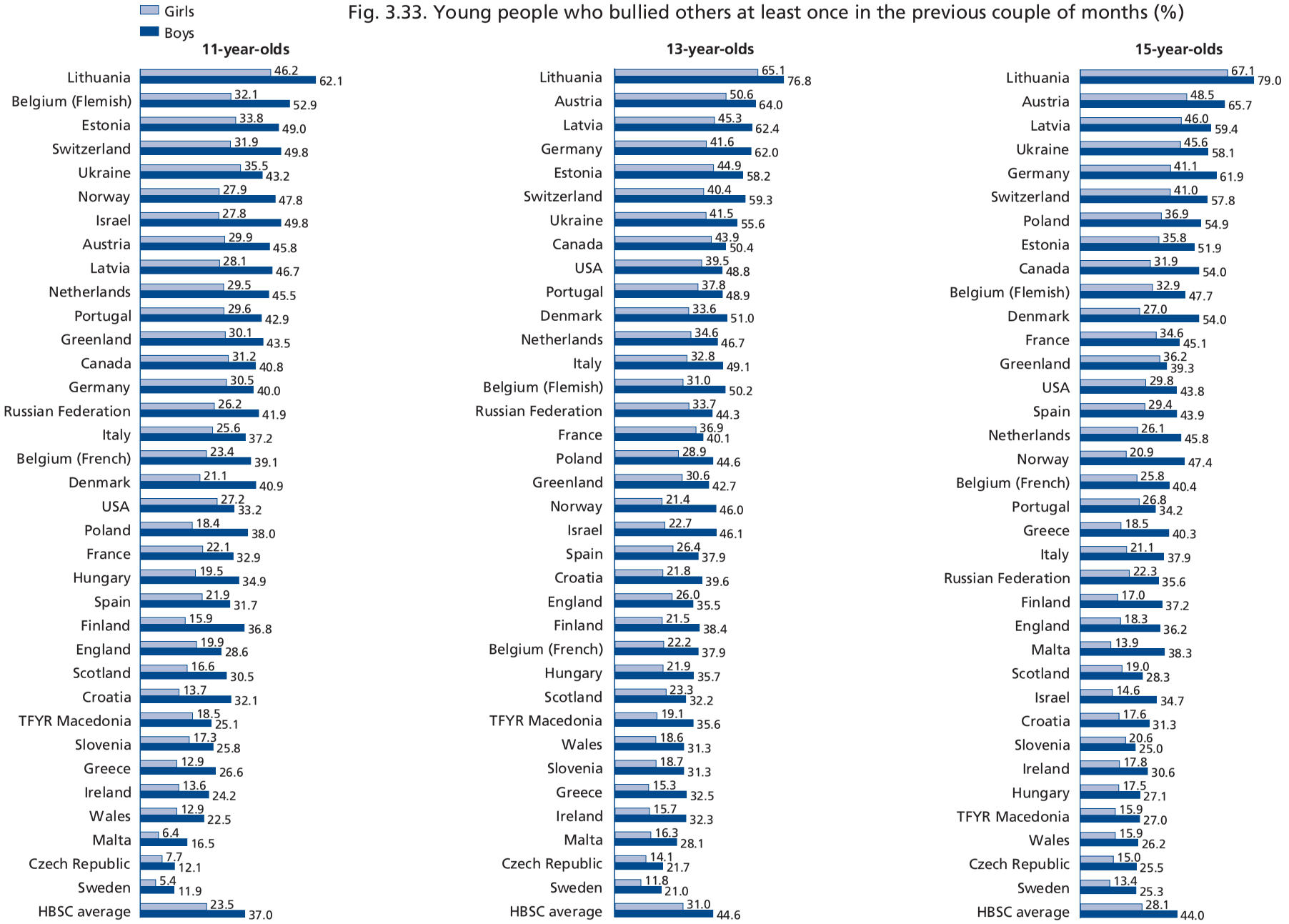
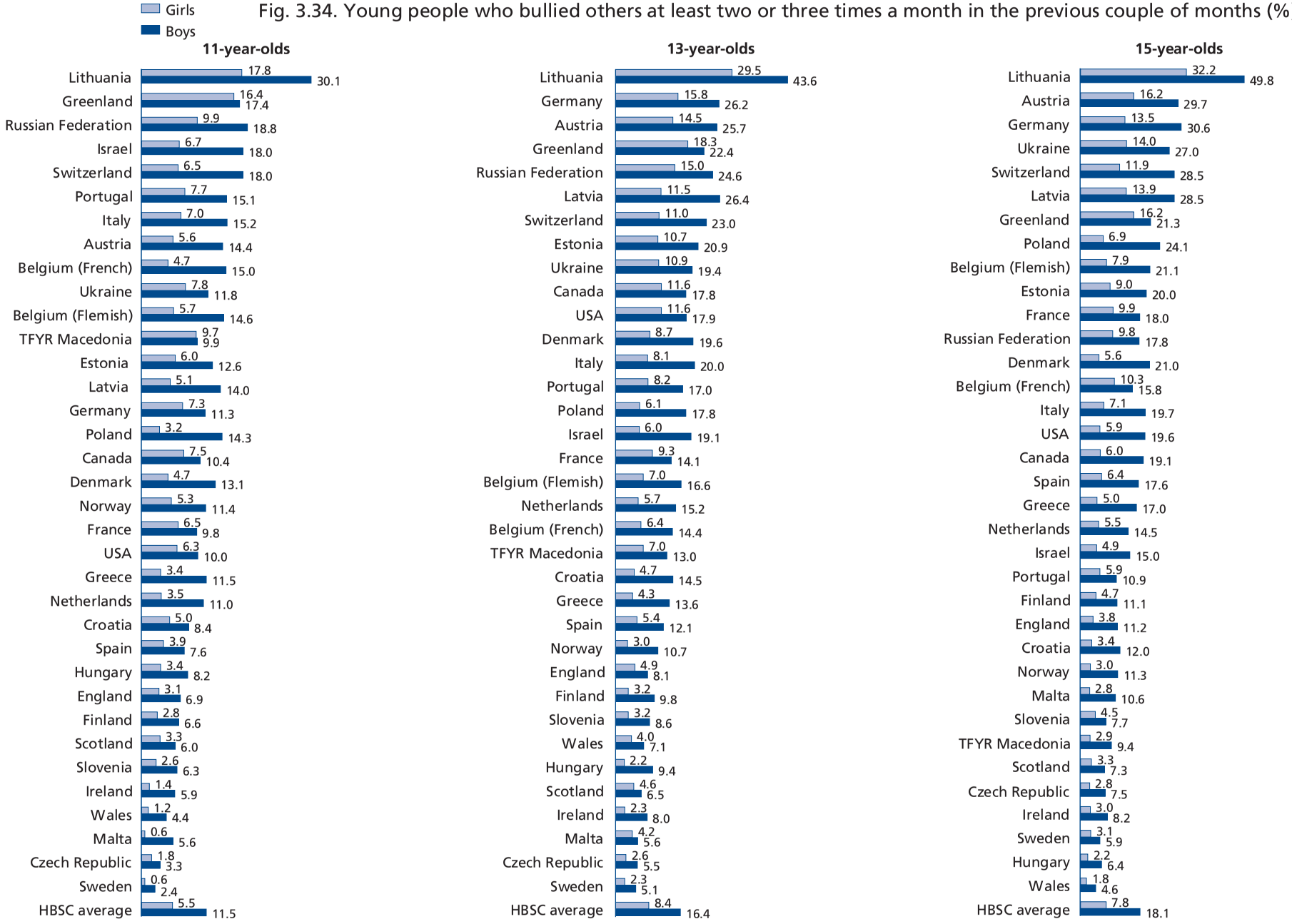


Fig. 3.34. Young people who bullied others at least two or three times a month in the previous couple of months (%)



Across all age groups, 10 countries and regions show an increase with age; 3 show similar rates (Belgium (Flemish), Belgium (French) and Greenland) and 2, a decrease with age (Israel and Norway).

Being bullied at school

Fig. 3.35 presents patterns of victimization: about 34% of all young people in the 35 participating countries and regions report being bullied at least once during the previous couple of months. The rates vary significantly by country and region: 14–63% in 11-year-olds, 17–69% in 13-year-olds and 12–61% in 15-year-olds. The mean proportions for victimization in the previous couple of months for the three age groups are 38%, 36% and 27%, respectively.

Being bullied at school two or three times or more during the previous couple of months is a measure of repeated victimization, indicative of young people at higher risk. Across all 35 countries and regions, 11% of young people reported being bullied this often. Here, too, rates vary significantly between countries and regions (about 2–36%) and age groups (4–36%) in 11-year-olds, 6–36% in 13-year-olds and 2–32% in 15-year-olds (Fig. 3.36). The mean percentages for the three age groups are 15%, 14%, and 10% for ages 11, 13, and 15, respectively.

For both levels of frequency, Estonia, Greenland, Latvia, Lithuania, Portugal and Ukraine are in the highest quartile for all age groups. Estonia and Lithuania are also in the highest quartile for bullying, which suggests that significant numbers of young people in these countries bully others or are being victimized. In contrast, Croatia, the Czech Republic, Slovenia and Sweden are in the lowest quartile for all ages with respect to victimization. Three countries, the Czech Republic, Slovenia and Sweden, report low rates for both bullying and victimization.

Gender and age differences

In contrast to the rates for bullying, which are far higher for boys, victimization shows relatively small gender differences overall. Although more boys than girls report being bullied in some countries and regions, such as Belgium (French) and Israel, most show more similarity between the genders than the contrary and some show slightly more girls reporting victimization. In many countries and regions, gender differences vary between age groups and no consistent pattern can be seen. Looking at being bullied at least once in the previous couple of months on a broad level across all countries and regions, however, gender differences appear to decrease with age. The differences are small or nonexistent in 21, 25 and 28 countries and regions for 11-, 13- and 15-year-olds, respectively.

At both levels of frequency, most countries and regions show a significant decrease in victimization with age. It decreases by more than half between the ages of 11 and 15 in some (such as Hungary, Italy, Israel, Norway and the Russian Federation) and peaks at 13 in seven.

Fighting behaviour

On average, 39% of all young people report involvement in at least one physical fight in the previous year (Fig. 3.37). The rates vary across countries and regions (24–53% in 11-year-olds, 26–52% in 13-year-olds and 20–48% in 15-year-olds) but slightly less than the rates for bullying and victimization. The mean percentages for the three age groups are 42%, 40% and 34%, respectively.

Of all young people, 10% report fighting more frequently: three or more times during the previous year (Fig. 3.38). These rates vary across age groups: 7–26% in 11-year-olds, 8–21% in 13-year-olds and 4–18% in 15-year-olds. The mean percentages for the three groups are 12%, 9%, and 7%, respectively.

For both levels of frequency, Estonia, Hungary and Lithuania are consistently in the highest quartile for all age groups. As mentioned, Estonia and Lithuania are also in the top quartile for bullying for all age groups. In contrast, the lowest quartile for all age groups consistently includes Finland, Germany and The former Yugoslav Republic of Macedonia, the last of which is the only country consistently in the lowest quartile for both bullying and fighting.

Fig. 3.35. Young people who were bullied at least once in the previous couple of months (%)

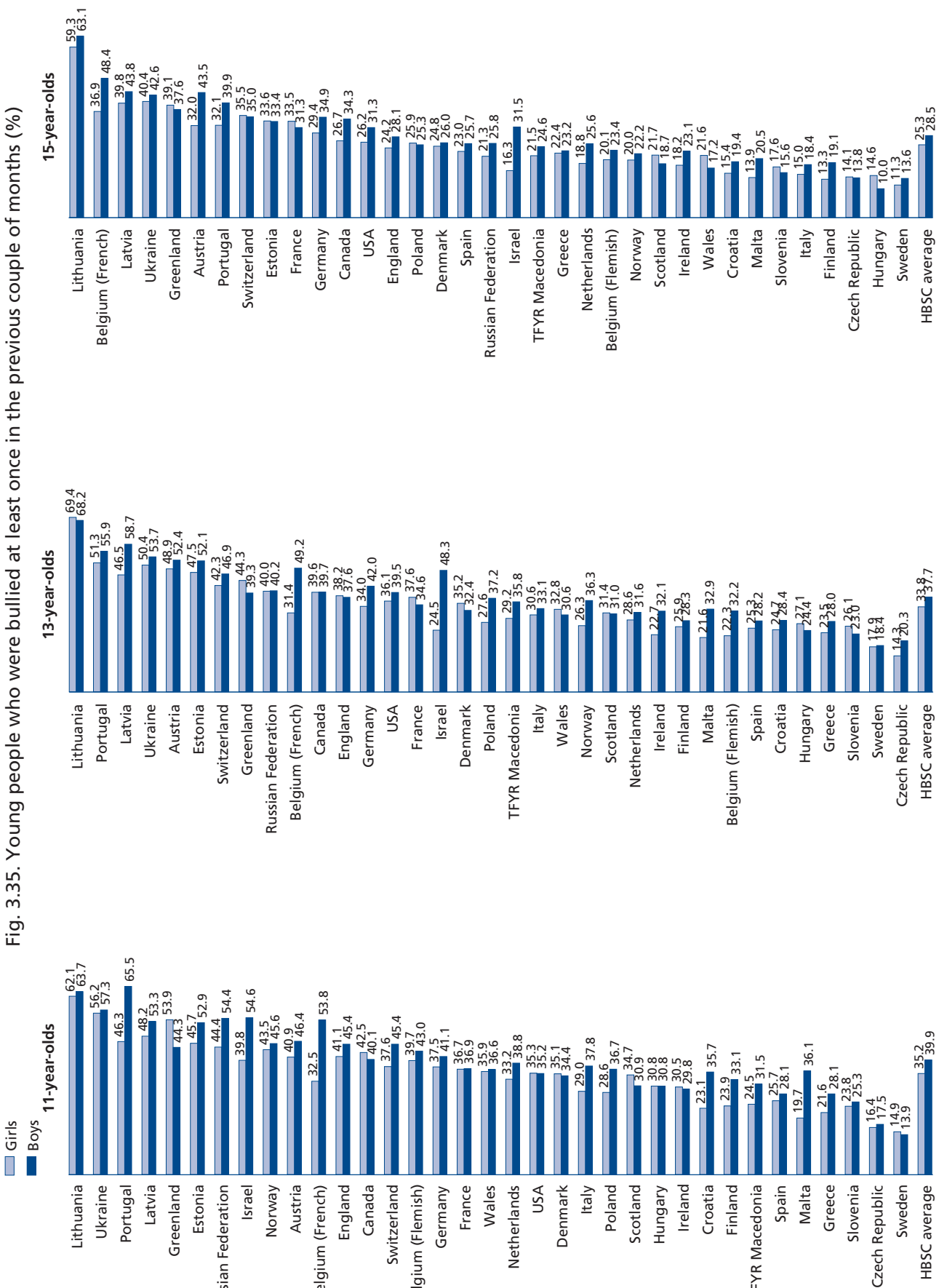


Fig. 3.36. Young people who were bullied two or three times or more in the previous couple of months (%)

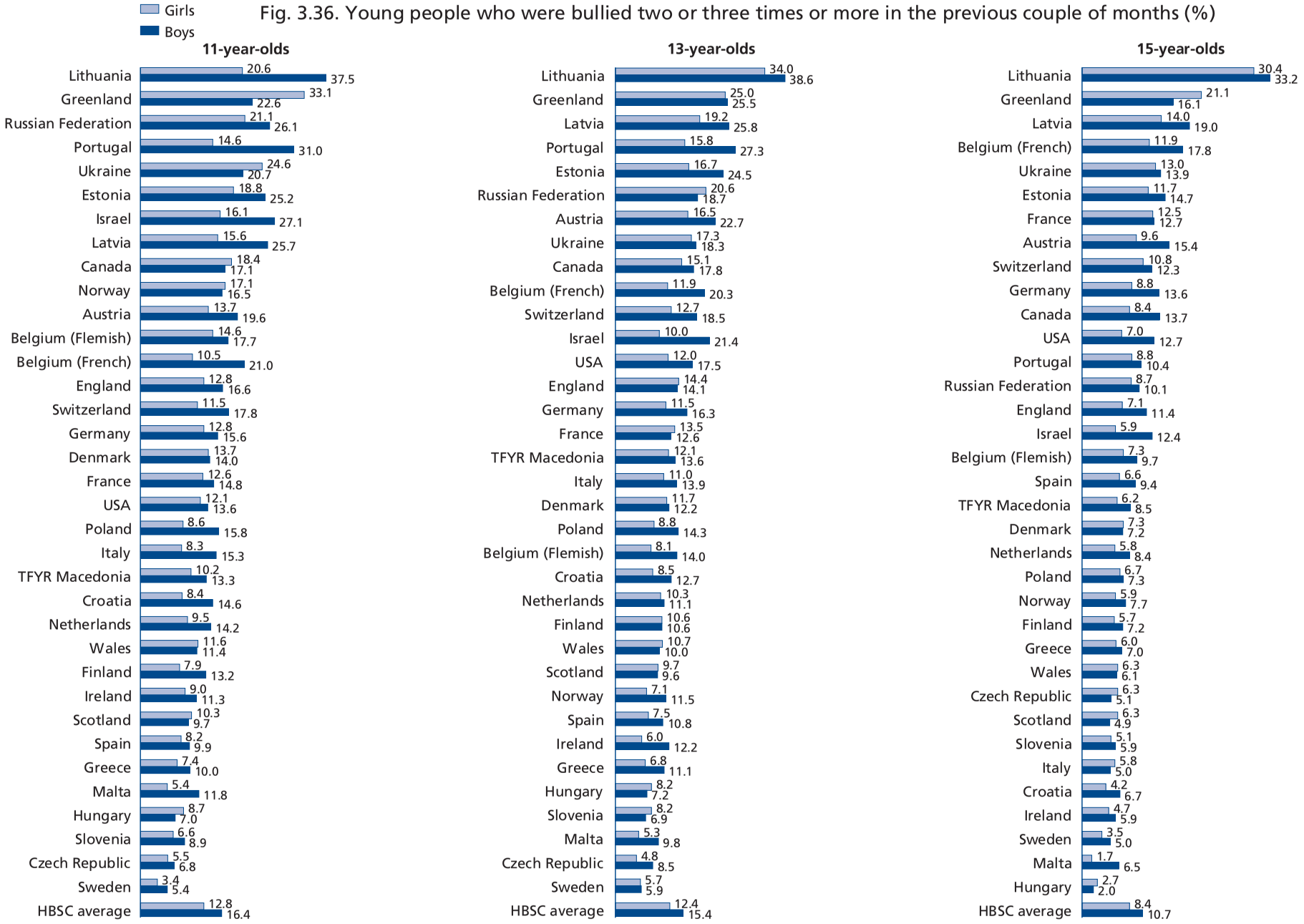


Fig. 3.37. Young people who were involved in physical fighting at least once in the previous 12 months (%)

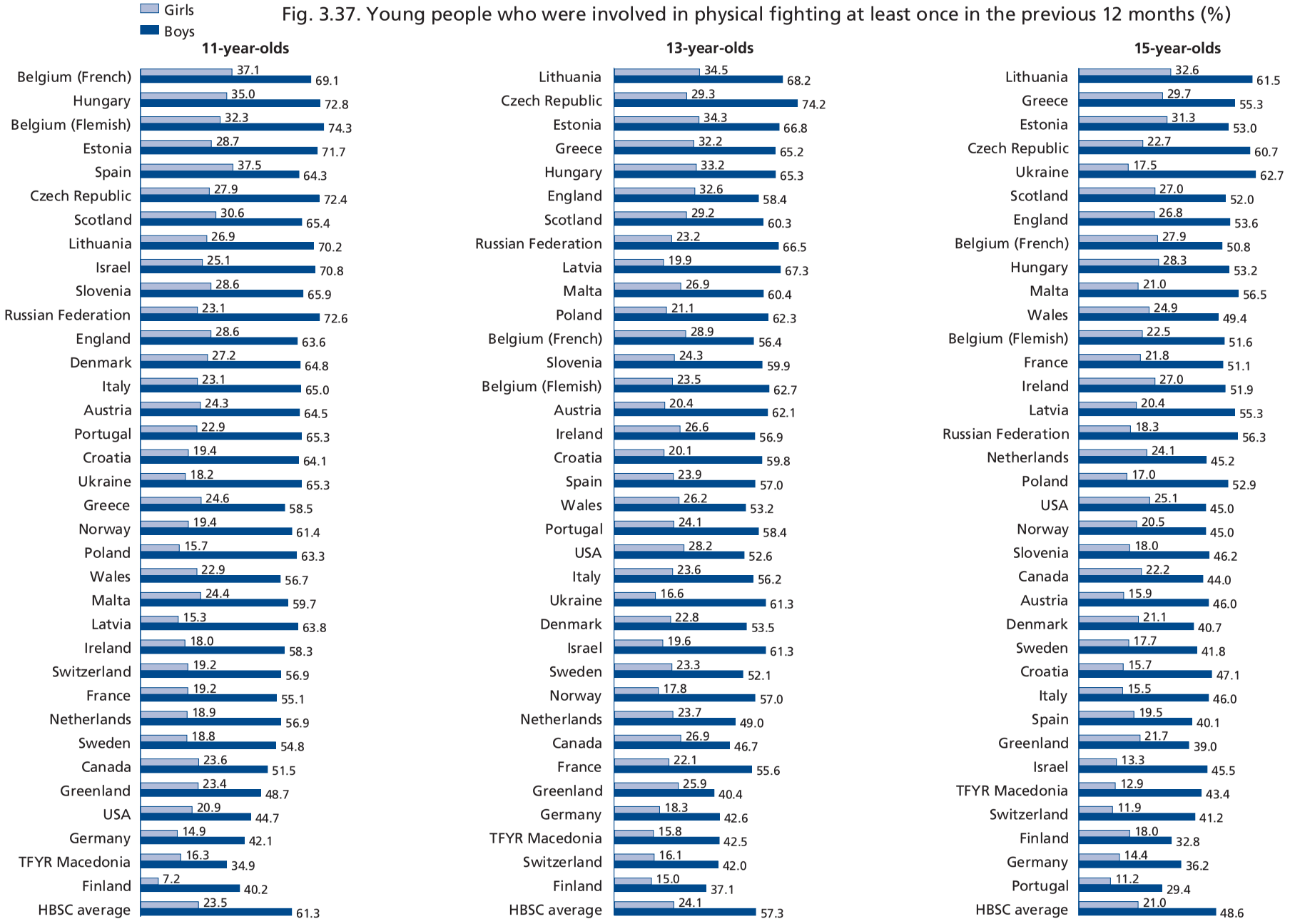
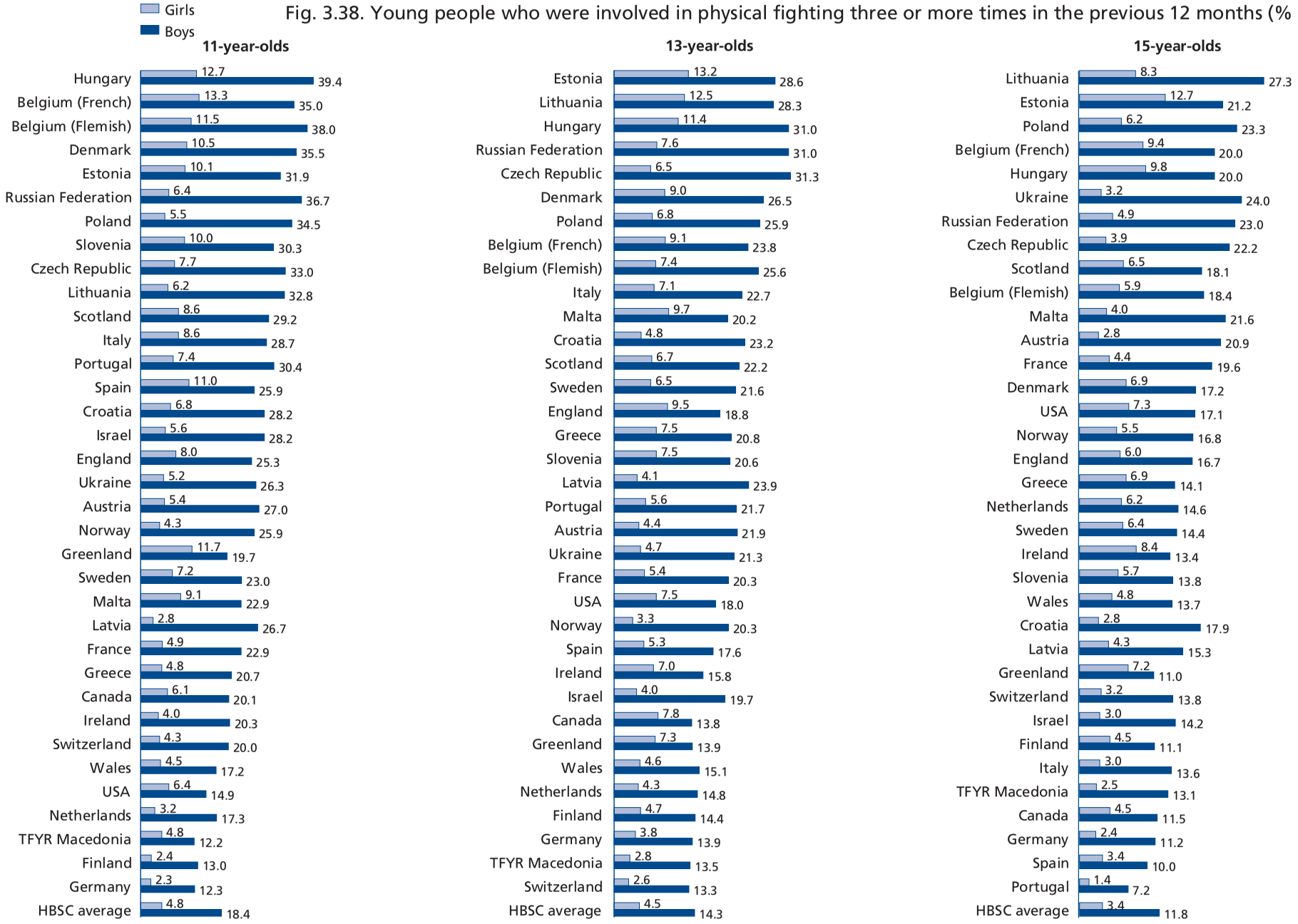


Fig. 3.38. Young people who were involved in physical fighting three or more times in the previous 12 months (%



Gender and age differences

Fighting behaviour shows substantial gender differences across all countries and regions and age groups. The rates for boys are at least double those for girls and, in many instances, more than triple. Overall, almost twice as many boys as girls report being involved in fighting.

Most countries show either similar or decreased rates in fighting behaviour with age. In Israel, Portugal, and Spain, the decrease is substantial: over 20%.

Overlap between fighting, being bullied and bullying others

Fig. 3.39 provides a unique glimpse of the overlap between three distinctive forms of aggressive behaviour among the 163 000 young people surveyed in the 35 HBSC countries and regions. The largest share is not involved in any of the three forms of adolescent violence. A smaller share is victimized but not involved in fighting or in bullying others.

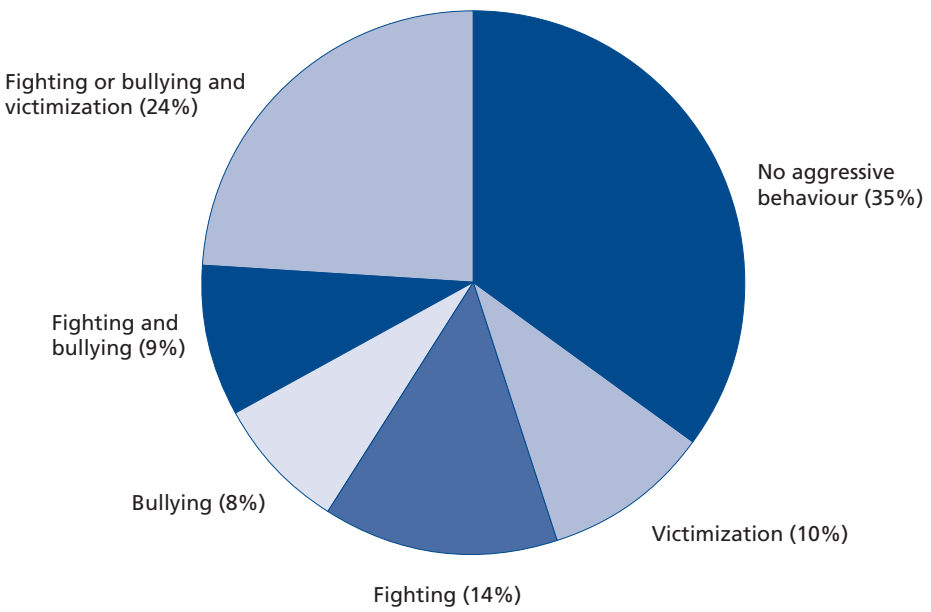
Of the aggressive behaviours, more young people are involved in fighting than in bullying only. A small group engages in both fighting and bullying, and a larger one reports being involved in aggressive behaviour, either as fighters or bullies and as victims.

Discussion

In all countries, boys report more bullying and physical fighting than girls. This finding does not necessarily indicate that boys are more aggressive than girls, but rather that they are more likely to engage in this overt form of aggression, while girls may be more likely to engage in subtler, more covert forms of indirect aggression, not assessed in the questionnaire *(13)*. Other population reports have found similar gender patterns. While the gender differences are more marked in some countries and regions than in others, the stability of this finding is particularly striking. In contrast to the robust gender differences in overt forms of aggression, the results for victimization are not as consistent across countries and regions.

The age trends for bullying and fighting behaviour differ between countries and regions. The age changes related to bullying are not as consistent across countries and regions as those related to fighting, and this may be an indication of the cultural and linguistic norms for bullying. Both fighting and bullying show some consistent results, which indicate that these behaviours usually increase around age 13. This may be related to other factors, such as puberty (particularly in boys) or school transitions.

Fig. 3.39. Overlap between fighting, bullying and being bullied (%)



These results indicate that fighting, bullying and victimization occur frequently. This gives rise to serious concern about the potential effects of these behaviours on young people's health. For example, a third of young people report experiencing each of them. Although prevalence declines as frequency increases (that is, three or more fights in the last year or involvement in bullying at least twice a month), considerable evidence shows that many children engage in or are victims of these behaviours and that a small minority engage in them regularly. The more frequently young people engage in these behaviours, the more likely they are to be at risk of developing emotional, physical, psychological and academic problems *(3,5,8,9,11,14,15).* Similarly, about a quarter of young people report both engaging in aggressive behaviours and being victimized. They also risk developing physical, social and psychological health problems. For both types of aggressive behaviour, the rates for boys are almost double those for girls.

The study findings have a number of important implications for developing health policy. They demonstrate the magnitude of the problems related to fighting, bullying, and victimization and highlight the importance of addressing these behaviours as a significant mental and physical health issue. These behaviours clearly transcend national boundaries and unfold in many cultures.

This recognition is only the first step. To intervene effectively and reduce prevalence, social policy needs to be informed by research. Increasing evidence indicates that systemic, whole-school interventions reduce the problems of bullying *(4–6,14).* The process of change, however, is demanding and slow; effective interventions are required to deal with the young people who bully, those who are victimized, and peer groups, teachers, parents and the wider community. The most effective interventions, such as those implemented in Norway, manage to reduce the levels of bullying and victimization by about 50% *(5).* This means that many young people are still at risk of regular abuse at the hands of their peers and that many aggressive young people are not receiving the support they need to move off pathways that may have long-term negative health consequences.

Young people are not all equally at risk through fighting, bullying and/or victimization. Being at risk relates to the severity, frequency and pervasiveness of the problem. For example, 36% of young people are not involved at all in fighting and bullying, although they are negatively influenced when they watch. Others engage in these behaviours occasionally, and for them a universal programme targeted at changing their behaviour and engaging them in preventing bullying is likely to be effective. About 11–14% of young people are involved in frequent fighting or bullying and likely experience negative effects. They have the most significant adjustment difficulties and need the most intensive form of intervention. These young people need to be identified through assessments and supported through targeted and multisystemic interventions.

Finally, age influences these behaviours. Early intervention may reduce the problem, which means targeting children before the prevalence of these behaviours starts to increase. Thus, from a policy perspective, prevention programmes need to be in place long before children are 11 years old.

Peer aggression and victimization are rapidly becoming recognized as a significant obstacle to healthy educational, social and emotional adjustment. Without intervention, the young people involved are likely to be trapped in a snowballing pattern of negative interaction with family, teachers, peers and romantic partners. The possibility to change decreases over time, as young people become alienated from essential social influence and support. The high prevalence and negative effects of aggression and victimization represent a significant social cost, as well as a loss in potential for young people.

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Injuries – *William Pickett*

Introduction

Injuries and their consequences contribute to a silent epidemic experienced by young people throughout the world. During the latter half of the 20th century, injuries replaced infectious disease as the largest cause of death in children and adolescents in some countries *(1)*. The risk of injury rises dramatically as children enter adolescence *(2)* and unintentional and intentional injuries account for over 70% of all deaths in young people *(3)*.

The costs associated with injuries can be measured in a number of different ways. At an individual level, injuries can result in pain, suffering, loss of time and productivity, and inconvenience to the victims and their families. More severe forms of injury can result in substantial medical treatment, the need for rehabilitation, continuing disability and even death. The societal impact of injuries can be measured financially by the costs of treatment, rehabilitation and losses in productivity. In the United States in the early 1990s, for example, injuries to young people accounted for tens of billions of dollars in economic losses annually *(4,5)*. Because of the increased risk of injury in young people, injuries are also the leading cause of potential years of life lost before the age of 65 years *(6)*.

Methods

A single question – found to be acceptable to young people as used and validated in previous HBSC surveys and other studies – measured the occurrence of injuries *(7,8)*. The item was preceded by a definition of an injury.

Many young people get hurt or injured from activities such as playing sports or fighting with others at different places such as the street or home. Injuries can include being poisoned or burned. Injuries do not include illnesses such as measles or the flu. The following [question is] about injuries you may have had during the past 12 months.

- *During the past 12 months, how many times were you injured and [did you have] to be treated by a doctor or nurse?*

Response options were: *I was not injured in the past 12 months, 1 time, 2 times, 3 times, 4 times or more.*

Examples of medical attention included: being admitted to hospital, requiring a visit to an emergency department and receiving medical care in a doctor's office or health clinic. Limiting the injuries to medically treated events is a widely accepted and frequently used approach. The one-year period of recall was used to be consistent with past research practice and to maximize levels of recall *(9)*.

Results

Two main injury outcomes were available for analysis: the frequency of young people reporting at least one medically treated injury during the previous year and those reporting more than one such injury during the period *(10)*.

Cross-national comparisons must be interpreted with caution as the questionnaires were not administered at the same time of year in every country. Seasonal differences in the occurrence of injury exist, and young people tend to recall the most recent injuries more accurately *(9)*. Each of these factors may have influenced the magnitude of the injury rates observed in countries and regions. Variations among them could also be attributed to differences in health care systems and access to medical care or to differences in exposure to hazardous environments and activities.

Table 3.6 presents the notably high rates of young people reporting at least one medically treated injury during the previous 12 months. The overall average is 45%. The table presents cross-national averages by age and gender, as well as the highest and lowest national rates, but not the total number of

Table 3.6. Young people who have been injured during the previous 12 months (%)

Age (years)	Injured once or more (% of whole HSBC sample)						Injured twice or more (% of those reporting an injury)					
	Boys			Girls			Boys			Girls		
	Average	Lowest	Highest	Average	Lowest	Highest	Average	Lowest	Highest	Average	Lowest	Highest
11	51.7	31.5	68.5	40.6	20.7	52.1	49.7	27.5	61.2	41.7	29.9	61.2
13	52.9	33.4	66.2	39.9	21.4	54.7	48.8	30.3	57.9	40.8	29.2	52.4
15	50.8	33.4	62.9	37.6	22.1	51.4	48.2	33.2	58.0	41.7	27.0	53.0

injuries. Roughly 50% of the young people report the occurrence of two or more injuries, and 5% report being injured four or more times. These percentages demonstrate that injuries constitute an enormous health problem within the populations of young people under study.

Fig. 3.40 shows the proportions of young people who were injured at least once during the previous year. The rates show considerable geographical differences, with ranges of 26–60% in 11-year-olds, 28–60% in 13-year-olds and 28–57% in 15-year-olds. The mean percentages for the three age groups are remarkably similar: 46% for both 11- and 13-year-olds and 44% for 15-year-olds. Across all age groups, Estonia, Hungary, Poland, The former Yugoslav Republic of Macedonia and Ukraine are consistently in the lowest quartile, and Austria, Germany, Spain and Wales, in the highest quartile.

Fig. 3.41 presents the proportions of young people reporting two or more injuries in the previous year. Again, rates show geographical differences (ranges of 29–56% for 11-year-olds, 31–54% for 13-year-olds and 32–54% for 15-year-olds), and the mean percentages across age groups are practically the same (46% at age 11 and 45% at ages 13 and 15). Canada, Denmark, England, France, Germany and the United States are in the top quartile and the Czech Republic, Finland, Poland, the Netherlands and The former Yugoslav Republic of Macedonia, in the bottom.

Gender and age differences

In each of the 35 countries and regions and within each of the three age groups (a total of 105 comparisons), more boys than girls have had one or more medically treated injuries. This finding is consistent with virtually all of the population-based literature available to describe the problem of childhood injury. In all cultures throughout the world, boys are likely to be exposed to more physical risks than girls, and this translates into higher rates of injury. While the gender differences are more pronounced in some countries and regions, the consistency of this trend is remarkable.

In general, the rates for reported injuries show a remarkable consistency across all age groups. Of the 35 countries and regions, 20 reported injury rates that are basically stable across the three age groups. Only four of the others – Belgium (French), Croatia, Israel and the Russian Federation – report variations in age-specific rates of injury over 7%. In these four, injury rates decrease notably with age: from 60% to 47% in Israel, from 48% to 38% in the Russian Federation, from 44% to 35% in Croatia and from 42% to 34% in Belgium (French). Canada, Estonia, Spain and Switzerland all show increases in age-specific rates of 5–7%, mainly between the ages of 11 and 13.

In a few countries – Canada, France, Norway and Switzerland – the extent of the injury problem, in terms of relative international ranking, appears to increase with age. Those reporting the opposite trend – a notable decline in relative ranking – include Belgium (Flemish), England, Israel and Lithuania. Only the countries and regions that move from the first quartile to the second are noted here.

Discussion

The HBSC study findings on injuries provide a first look at the magnitude and distribution of the problem and establish the importance of the issue. Injuries are the leading cause of mortality and morbidity in young people, and few other issues have as great an impact on their health.

National *(11)* and international *(12)* reports have been published on the occurrence of injuries reported in previous HBSC surveys. While no international report describes cross-national comparisons of injury patterns, the existing reports suggest some recurrent patterns. The most dominant external cause of the majority of injuries experienced by young people is participation in sports. Consistent with this pattern, common settings for the occurrence of injuries include sports facilities and school and home environments, venues for both organized and unorganized activities.

Past studies based on HBSC data have demonstrated that injuries take an enormous toll on young people. While most injuries are minor and treated on an outpatient basis, up to 20% have serious consequences. Leading injuries include fractures, soft-tissue injuries, lacerations and trauma to the head and neck. These translate into large numbers of visits to medical clinics and emergency rooms, as well

Fig. 3.40. Young people who were injured once or more during the previous 12 months (%)

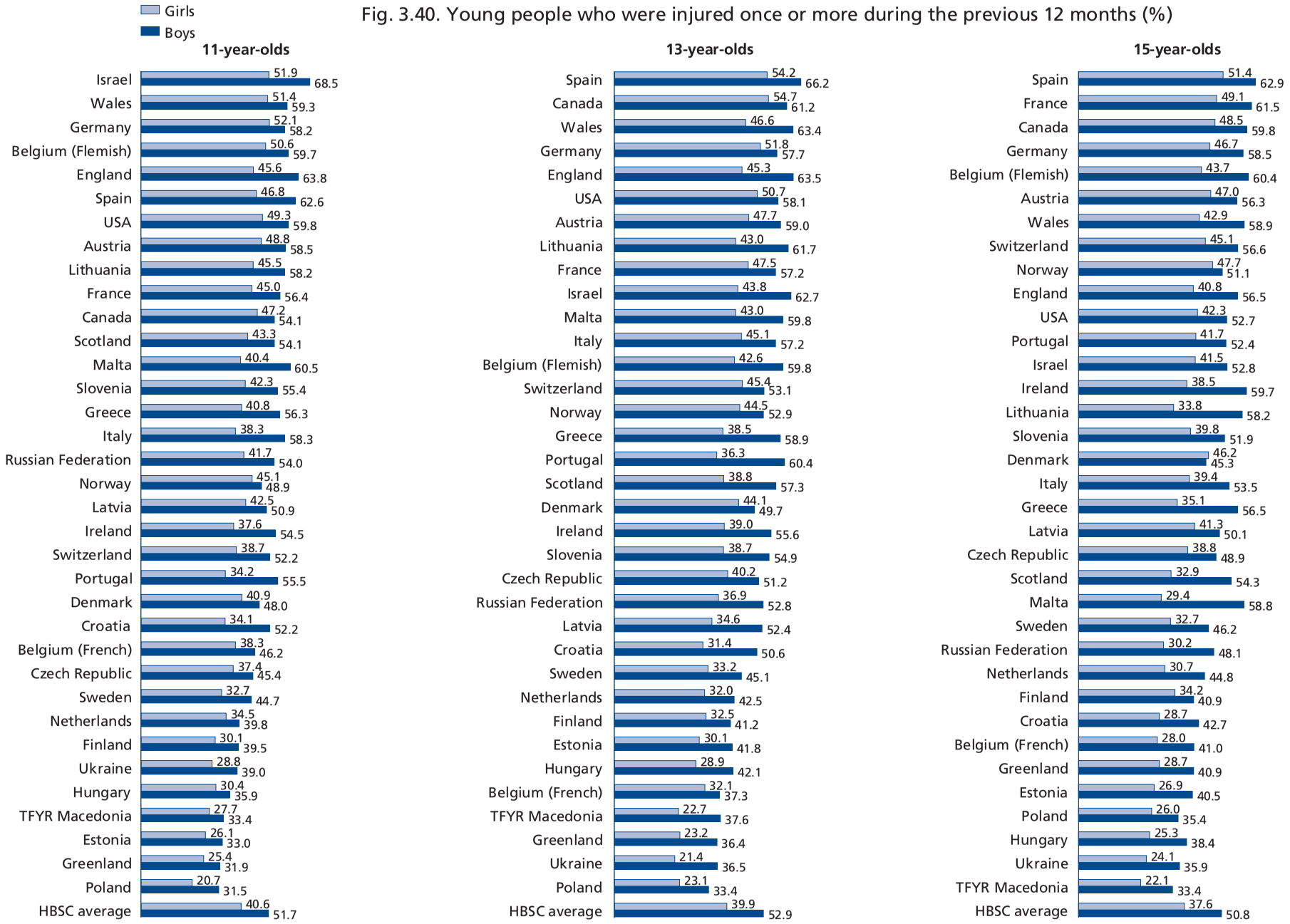
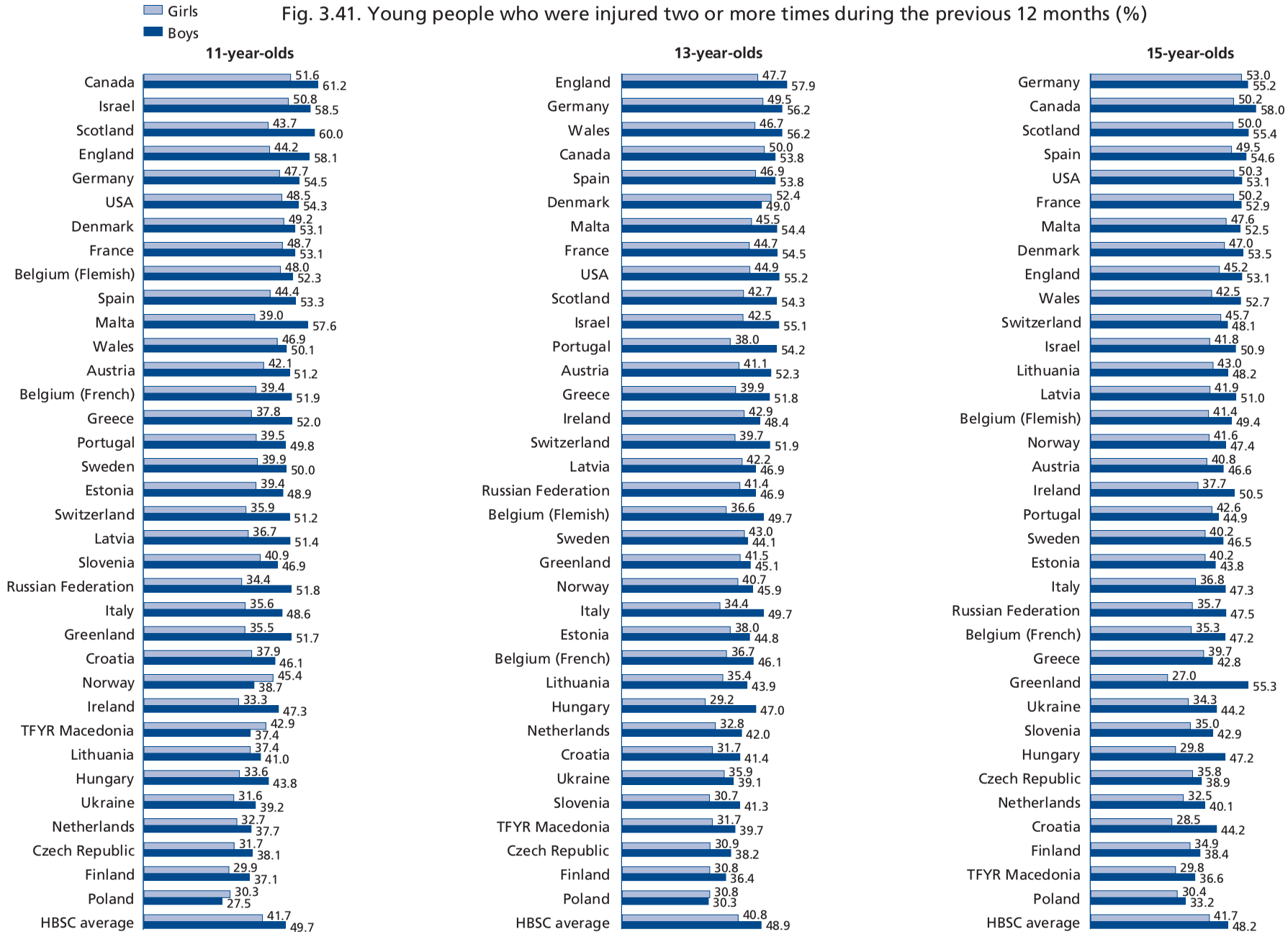


Fig. 3.41. Young people who were injured two or more times during the previous 12 months (%)



as admissions to hospitals. Surgery is not uncommon. Most reported injuries result in the loss of one or more days in school or in usual activities, and the cumulative impact of these events on the victims and society as a whole is very large indeed. Injuries contribute to major losses in productivity and in the ability to participate in life to the full.

Variations in the reported rates of injury may be attributable to variations in countries' health care systems. Access to health care has well known and obvious effects on rates of injury. At the extreme, a lack of health care coverage substantially decreases rates of serious, medically attended injury (up to 30%), simply because injuries do not receive necessary treatment *(13)*. The provision of adequate health services is an important determinant of health. Untreated injuries may lead to unnecessary pain and suffering. The long-term consequences of untreated injuries are likely to include unnecessary disability.

A great deal of interest has been shown in the social etiology of injury: the social conditions and other factors that lead to an elevated risk of injury. One of the most intriguing of these is socioeconomic status; poverty is thought to place many young people at especially high risk *(14)*. This social trend has been observed in general population studies on traumatic deaths *(14),* hospitalization *(15)* and medically treated injuries *(16*). Some *(17)* but not all *(7)* HBSC-based studies on socioeconomic status and injury have observed the same trend. A failure to find such a relationship may be due to the predominance of injuries from organized sports in young people aged 11–15.

Finally, during their teenage years, young people often start to engage in behaviour that may harm their health, such as smoking, drinking, social drug use and overtly aggressive behaviour, such as bullying and fighting (see previous sections in this chapter). Also, they may ignore accepted safety practices, such as the use of seatbelts in vehicles. Social research suggests that groups of young people often engage in multiple forms of risk taking, or multiple risk behaviour. This behaviour has been observed in groups of young people throughout the world *(18)*. Its full impact is not well understood, although the risk of injury in adolescence has been demonstrated to rise in accordance with the number of risk behaviours. Pickett et al. *(19)* used the 1997/1998 HBSC survey data to show that gradients in multiple risk behaviour and injury can be observed cross-nationally in young people of all ages and both genders, and that they are especially pronounced in relation to the most serious forms of injury. The risk of experiencing a traumatic injury is 10 times higher in young people who report multiple risk behaviour than in those who do not. This is a social trend of emerging global importance.

Policy implications

The study findings have four important implications for the establishment of health policy. First, they clearly demonstrate the importance of injury as a leading health issue in young people. This suggests a need to establish injury-control policies at the national and international levels: policies that address injury as a leading public health problem and targeted resources to provide innovative and effective solutions are needed.

Second, the recognition of injury as a leading health problem is new, as reflected in the state of the literature on injury-control research. The science of injury control needs to mature. This will require dedicated investment in research funding and educational initiatives to increase the number and organization of the professionals involved.

Third, the vast majority of injuries reported by young people occur in one of four environments: the home, the school, organized sports facilities or fields, and the streets or roads. Some of these are more modifiable than others. In general, the environments associated with injury to young people clearly need to be made as safe as possible. Innovative policies are required that promote the improvement of home, school and sports-related environments to make them as injury-proof as possible. Such policies should include programmes to raise awareness and give guidance to those responsible for the maintenance and safety of these environments.

Finally, various primary prevention strategies have been developed to tackle adolescent injury. These include educational strategies to reduce risk taking and promote safe behaviour. Other strategies include

enforcing laws and procedures intended to protect children and young people, and engineering strategies that involve making the environments in which young people live as safe as possible. While all of these can be effective, the development of public policy requires basic information about the size and distribution of the problem. This would assist the planning and prioritization of interventions. Monitoring the problem over time could be helpful to evaluation efforts.

Conclusion

Injury is one of the most serious health problems facing young people throughout the world. Up to 60% of the respondents in the 2001/2002 HBSC survey had injuries requiring medical attention during the previous 12 months. Rates are higher for boys than girls, but in general the problem is substantial in all age groups. This analysis does not address questions about the external causes of these injuries and whether they were intentional.

The HBSC study results help to establish the importance of injury as a leading health problem for young people, but are less helpful in providing a direction and targets for injury-control efforts. Further, the science of injury control is immature and additional information is greatly needed for prevention. For example, societies' willingness to accept injury as an important public health problem varies, and there is a great deal to learn about how best to change public opinion. This part of injury-control work is a science in itself – one that cannot be ignored if prevention strategies are to be effectively developed and implemented.

The importance of injury as a leading health issue should be recognized in the development of national and international policies to protect young people. Credible research programmes need to be fostered to understand the causes and consequences of injury and develop optimal methods of prevention. Young people should be involved in these efforts. Finally, there is a continuous need to improve the safety of the home, school, sports and other environments, where young people are exposed to risks. All of these actions can contribute to reducing the enormous toll that injuries take on the lives of young people and on society.

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Sexual health – *Jim Ross, Emmanuelle Godeau and Sonia Dias*

Introduction

Sexual health is a substantial part of adolescents' general, social and personal well-being *(1)*. It can be described as the positive integration of the physical, emotional, intellectual and social aspects of sexuality. One of the primary developmental aspects of adolescence is the consolidation of identity in general, and sexual identity in particular. The development of sexuality in adolescence involves physical changes associated with puberty, psychological changes and interpersonal events. Adolescents need to learn how to be comfortable with themselves, how to deal with their sexual feelings and how to relate in a healthy way to other people.

Adolescence is both a period of opportunity, when new options and ideas are explored, and a time of vulnerability and risk. Fortunately, most adolescents emerge from these changes with positive outcomes. Nevertheless, some of the behaviour associated with adolescence – spontaneity, social immaturity, risk taking and volatility – may affect many issues relating to sexual health.

The key public health concerns around teenage sexual health include pregnancy and sexually transmitted infections (STI). These cause significant health, social, and economic problems among young people, and are largely preventable through the coordinated efforts of families, schools, health and education agencies, and community organizations. The development of effective, school- and community-based programmes depends in part on gaining information about the nature and extent of sexual behaviour among adolescents. Current information on issues related to young people's sexual health is urgently needed to help develop policies and programmes. A better understanding is needed of the social and cultural determinants of sexual risk taking, as well as corresponding protective factors, so that interventions can both be comprehensive and effectively targeted.

Methods

Few cross-national data have been available about the sexual health of adolescents. The 2001/2002 HBSC survey was the first to include a minimal set of standardized items on sexual health, designed to be used with 15-year-olds. Previously, such items were optional. The 1989/1990 HBSC protocol included optional packages of questions about relationships and sexual behaviour, and about HIV knowledge and attitudes. Countries and regions that used them mainly used the data for their own purposes, and cross-national comparisons were not published. In the 1997/1998 HBSC survey, a number of countries and regions included questions about sexual health, but these varied in scope and content. This lack of comparability enabled only limited cross-national comparison *(2)*. The clear need for more extensive, comparable, cross-national data resulted in the inclusion of a set of mandatory questions on sexual health in the 2001/2002 survey.

The sexual health items detailed below were adopted from the Youth Risk Behavior Survey (YRBS) in the United States *(3)*. Although these items have undergone extensive cognitive testing, having been used for more than a decade, and are known to have produced reliable data in the United States *(4,5)*, reliability testing was not undertaken in European countries. Only the 15-year-olds surveyed were asked to respond to the sexual health items, because the overwhelming majority of younger adolescents have not yet experienced sexual intercourse and such questions are considered too sensitive for the younger age groups. Four items were used.

- *Have you ever had sexual intercourse? (Sometimes this is called "making love", "having sex", or "going all the way".)* The response options were: *Yes, No.*
- *How old were you when you had sexual intercourse for the first time?* The response options were: *I have never had sexual intercourse, 11 years or younger, 12 years old, 13 years old, 14 years old, 15 years old.*

- *The last time you had sexual intercourse, did you or your partner use a condom?* The response options were: *I have never had sexual intercourse, Yes, No.*
- *The last time you had sexual intercourse, what method(s) did you or your partner use to prevent pregnancy?* The response options were: *I have never had sexual intercourse; No method was used to prevent pregnancy; Birth control pills; Condoms; Spermicidal spray or foam; Withdrawal;* [*National choice option* – questionnaires could include additional country- or region-specific options where desired]*; Some other method; Not sure.*

The first question includes cues to assist the young person to understand the meaning of the term sexual intercourse. Validity studies have shown that such self-reports are accurate *(6)* and that most young people interpret the cues as indicative of vaginal intercourse. The risk of contracting STI through other forms of sexual behaviour is therefore not captured. Another limitation of the data is that, by asking only whether young people had ever had sexual intercourse, the question did not identify those who were currently sexually active and therefore at risk of pregnancy and STI.

Age at first sexual intercourse was investigated because early first intercourse is thought to be linked to unplanned, unprotected sex and therefore to a greater risk of unintended pregnancy and STI. Moreover, early first intercourse correlates with other modes of risk taking. Alcohol and drug use have a clear association with early first intercourse, which is likely to be unintended and unprotected *(7–9)*.

Research has shown that adolescents have difficulty in summarizing their use of contraceptives, even for short time periods, because their use is not consistent *(10)*. Adolescents may use condoms, contraceptive pills or other methods sporadically, depending on the situation and the sexual partner. In addition, if asked about typical behaviour, respondents (both adults and young people) are more likely to bias their answers by describing socially desirable behaviour. Responses about the last encounter have higher reliability and validity than those on typical behaviour. In the analyses of the data reported in response to these two questions, young people who responded to either question by saying that they or their partners used a condom during the last intercourse were regarded analytically as having used a condom in both cases: that is, to prevent both pregnancy and transmission of STI.

For these analyses, responses to the fourth question were combined to provide a summary measure of the proportion of 15-year-olds reporting use of at least one mode of contraception. The pre-coded response for withdrawal was excluded because this method offers little or no protection from pregnancy. National choice options and other write-in responses were included. Future analyses of the data on the use of condoms and other means of contraception will pay particular attention to such responses.

Exclusions of sexual health data

In the 2001/2002 HBSC survey, 31 out of 35 countries and regions included 1 or more of the 4 sexual health questions in their questionnaires. Four countries – Denmark, Ireland, Norway and the United States – did not include any sexual health questions on the grounds that doing so would most likely have a negative impact on school participation rates. Data from Malta were excluded from the analyses, as different wording had been used and therefore the data were not comparable. Two countries asked fewer than four questions but the data collected were included in the analyses. The Czech Republic included only the question about ever having had sexual intercourse, and the Russian Federation, only the questions about ever having had sexual intercourse and age at first intercourse. Italy asked all four questions but worded the question on contraception differently, so that these data were excluded from the analysis. In two countries, less than a full national sample was asked the sexual health questions. Israel asked all the sexual health questions but, in accordance with past practice, not in religious schools. Similarly, Germany used the full set of questions but only in two *Länder* (Saxony and Berlin).

Results

The four sexual health questions allow the investigation of four research questions.

- What proportion of the population has experienced sexual intercourse?
- What proportion of the sexually active population experienced early intercourse?
- How many in the sexually active population protect themselves and their partners by using condoms?
- How many in the sexually active population protect themselves and their partners against pregnancy by using some type of contraception?

As mentioned, for these analyses, responses to the question on contraceptive methods were combined to provide a summary measure.

Experience of sexual intercourse

Thirty of the countries and regions included in this analysis asked 15-year-olds whether they had ever had sexual intercourse. The differences in responses are striking (Fig. 3.42).

The percentages of 15-year-olds who report having had sexual intercourse range from 15% in Poland to 75% in Greenland. In nine countries and regions, mainly in eastern and central Europe, plus Spain, fewer than a fifth of young people report ever having had sexual intercourse. At the upper end of the spectrum, in England, Greenland, Scotland, Ukraine and Wales, a third or more have had sexual intercourse.

The gender differences are wide. Among boys, positive responses range from 18% in Spain to 71% in Greenland. The Czech Republic, Estonia, Poland and Spain cluster at the low end with rates of about 20%. At the opposite end of the spectrum, in nine countries and regions, about a third or more of boys have had sexual intercourse. Among girls, positive responses ranged from 4% in The former Yugoslav Republic of Macedonia to 79% in Greenland. Rates are below 20% in 15 countries and regions but about 33% or more in 6 others.

Interestingly, in the latter group, more girls than boys declared having had sexual intercourse. The largest differences are found in Germany and Wales. In eight countries, a more traditional pattern prevails with at least twice as many boys as girls having had sexual intercourse. Over 3 times as many boys as girls gave positive answers in Greece and Israel, and over 10 times as many in The former Yugoslav Republic of Macedonia.

Age at first sexual intercourse

The mean age at first sexual intercourse for 15-year-olds ranges from 13.5 years in Lithuania to 14.6 years in Ukraine (Fig. 3.43). In most countries and regions, it is slightly lower for boys than for girls, 13.5–14.5 years and 13.6–14.9 years, respectively, in Lithuania and Ukraine. The largest gender difference, about 1 year, is found in Portugal.

Use of condoms

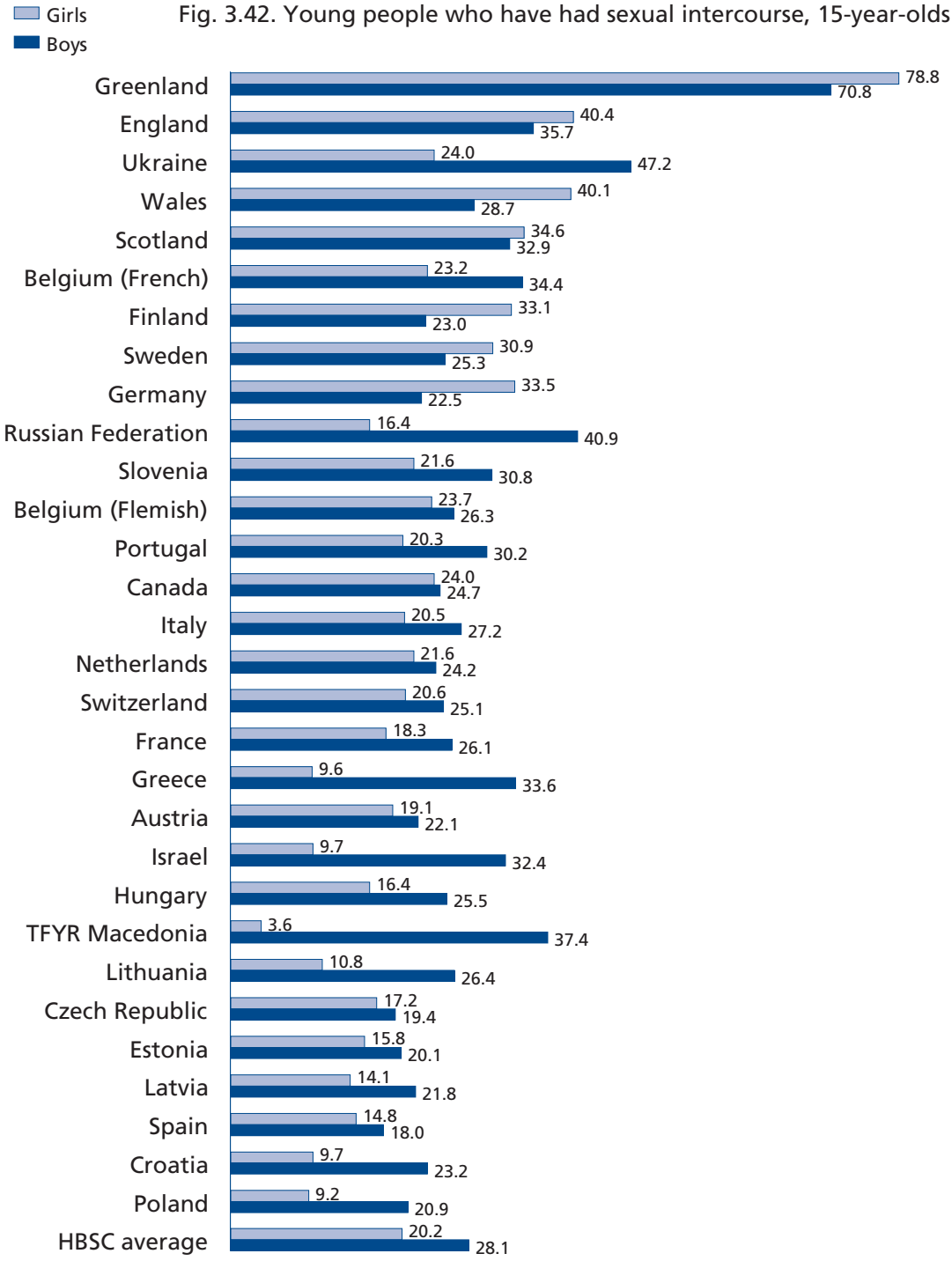
The proportion of sexually active young people who report using a condom the last time they had sexual intercourse ranges from 64% in Finland to 89% in Greece (Fig. 3.44). The proportions are 70% or less in six countries and regions, with Finland and Sweden at the low end, and 80% to nearly 90% in seven others, with the highest levels in Greece and Spain.

In almost all countries and regions, boys are more likely than girls to report condom use the last time they had sexual intercourse. The gender difference can sometimes be quite large, as in Belgium (Flemish) and Ukraine. The proportions reporting condom use ranges from 68.5% in Portugal to 91% in Greece for boys, and from 58% in Sweden to 89% in Spain for girls.

Use of contraception

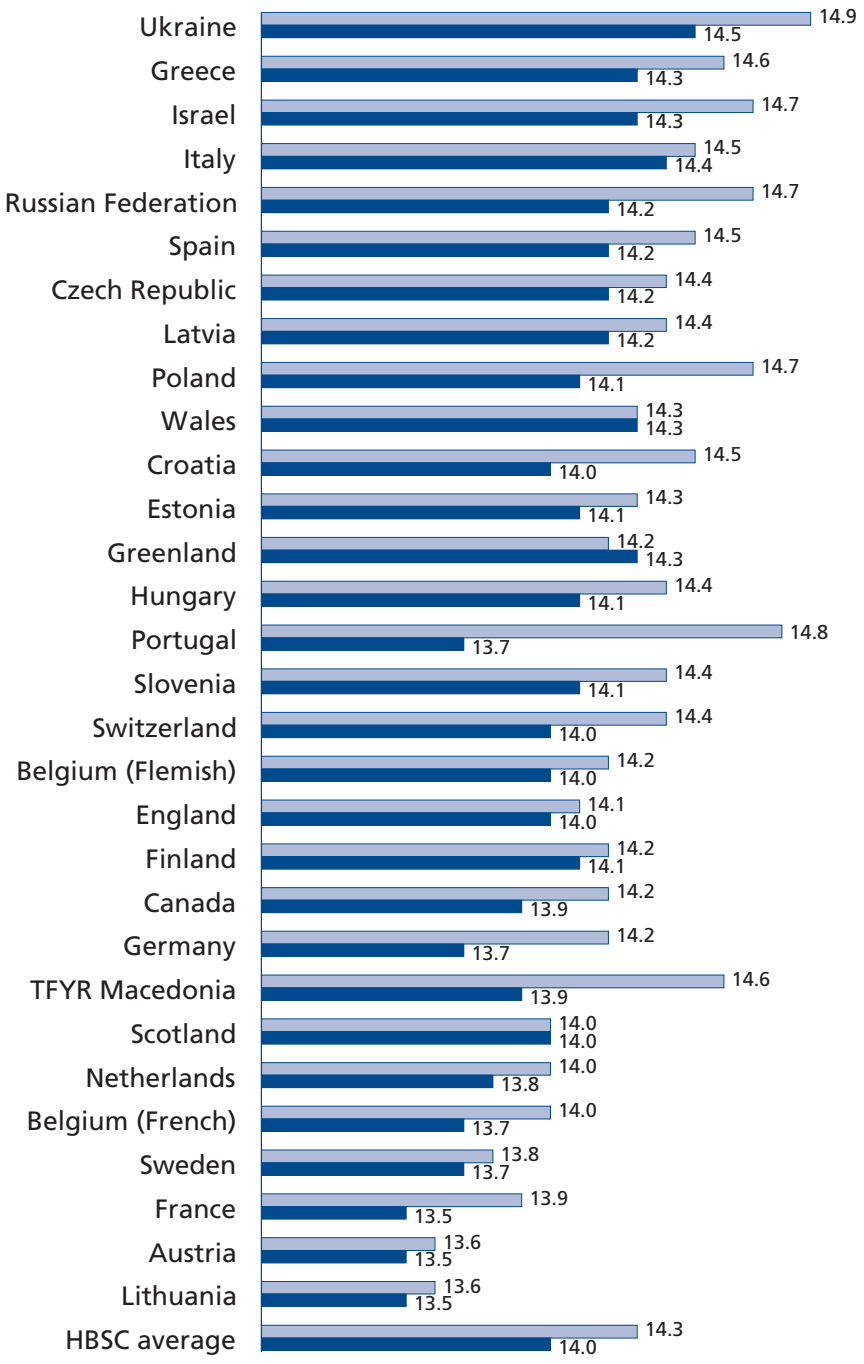
The proportions of sexually active young people reporting the use of at least one method of contraception (including but not limited to condoms and birth control pills) during their most recent intercourse

Fig. 3.42. Young people who have had sexual intercourse, 15-year-olds (%)



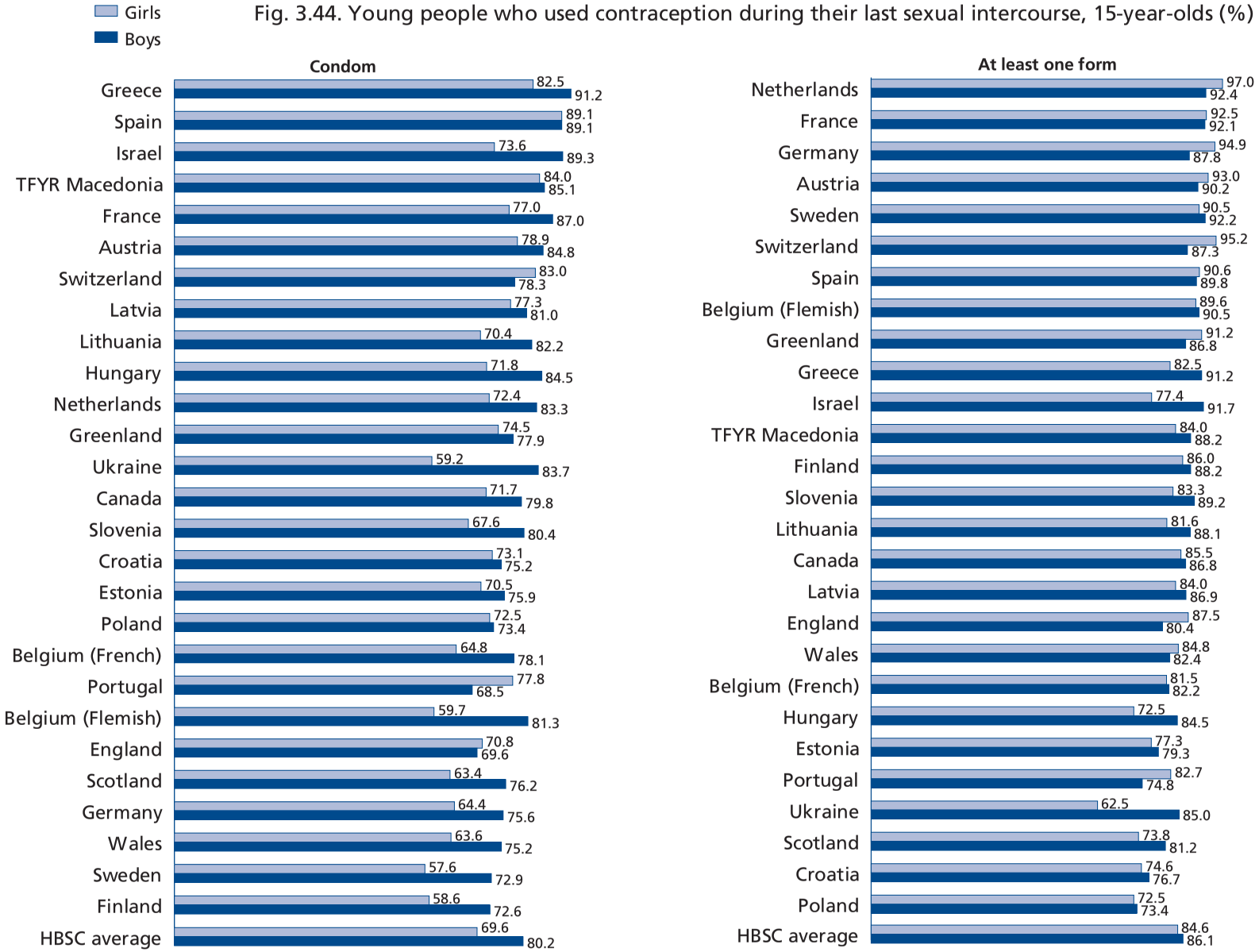
Note: Data are unavailable for Denmark, Ireland, Malta, Norway and the United States.

Fig. 3.43. Mean age at first sexual intercourse, 15-year-olds (years)



Note: Data are unavailable for Denmark, Ireland, Malta, Norway and the United States.

Fig. 3.44. Young people who used contraception during their last sexual intercourse, 15-year-olds (%)



Note: Data are unavailable for the Czech Republic, Denmark, Ireland, Italy, Malta, Norway, the Russian Federation and the United States.

ranges from 73% in Poland to 95% in the Netherlands (Fig. 3.44). Proportions are below 80% in seven countries and at or above 90% in eight others.

The proportions reporting use of contraception range from 73% in Poland to 92% in the Netherlands for boys and from 68% in Ukraine to 97% in the Netherlands for girls. The countries and regions are almost evenly split as to whether boys or girls have a higher rate of contraception use; in many, the gender rates are nearly identical. Boys are far more likely than girls to use contraceptives in Greece, Hungary, Israel and Ukraine. Girls are more likely to use contraceptives in England, Germany, Greenland, Portugal and Switzerland.

Discussion

The responses to the four questions relating to sexual health demonstrate noteworthy differences across the HBSC countries and regions in the proportions of 15-year-olds having had sexual intercourse, the mean age at first intercourse and the use of contraceptives during the most recent intercourse. Cross-national differences undoubtedly reflect fundamental cultural, social, religious and educational differences across countries, as well as differences in public policy. The most important findings demonstrate variations across countries and regions in the use of condoms. While no more than 70% of sexually active young people used a condom the last time they had sexual intercourse in six countries, 80–90% of sexually active young people did so in seven others. These findings have important policy implications. In the context of HBSC, however, further analysis will give an opportunity to explore the determinants of condom use within and across countries in relation to other risk behaviours (especially drug and alcohol use), school and community bonding, school performance and parental relations.

Examination of the gender differences shows that, in many countries and regions, the traditional expectations tied to gender are eroding. For example, while boys are twice as likely as girls to have experienced sexual intercourse in nearly a third of HBSC countries and regions, the genders are almost equal in this experience in many more, and girls are more likely than boys to have experienced intercourse in six (England, Finland, Germany, Greenland, Scotland and Wales). In almost all countries and regions, boys are more likely than girls to report that a condom was used during their last intercourse. The gender difference can sometimes be quite large, as in Belgium (Flemish) and Ukraine. These gender discrepancies raise complex questions related to cultural context, public policy and the content of health education programmes.

The HBSC study is not the ideal means of providing a complete picture of age at initiation of sexual activity because even the oldest participants are only in their sixteenth year of life, when the majority of young people have not yet started to be sexually active. Nevertheless, the population identified as sexually active in the study consists largely of early initiators who by definition are seen to be at higher risk of unplanned, unprotected intercourse and other risk behaviours associated with impulsiveness. On the other hand, with some noteworthy exceptions, a high percentage of these early initiators in many countries and regions reports using condoms. This suggests that young people not only have received the various messages on safe sex but also seem largely to have accepted and acted on them. Minimal data are available on trends in sexual behaviour, especially in condom use, because this was the first cycle of the HBSC study in which standard questions on sexual behaviour were mandatory *(11)*.

Further analyses of contraceptive methods are planned to gain understanding of the differences in specific contraceptive practices across HBSC countries and regions and to develop an efficient, age-group measure of these practices. Further analysis will also be conducted to explore the differences in risk and protective factors connected with sexual behaviour among individuals and across countries.

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Summary – *Saoirse Nic Gabhainn*

This chapter represents the most comprehensive presentation of cross-national data on health behaviour in adolescence to date. The search for generalizable patterns across such a substantial data set clearly leads to the consideration of the role of individual characteristics, such as age and gender, where patterns are in general clearest. Nevertheless, the substantial variations within countries and indeed within subsamples within countries must not be ignored. In addition, variations in the timing of data collection should be considered when interpreting the data relevant to physical activity, eating behaviour and injury.

The striking gender differences across countries and regions and age groups and, in some cases, the increase in gender difference with age, illustrate the importance of gender in research and practice in public health and health promotion. In general, boys are clearly more physical: more likely to exercise, to be involved in fighting and bullying and to be injured. Nevertheless, they are also more likely to report that they are overweight or obese, eat fruit and vegetables less often, consume soft drinks more often and spend more time watching television or at the computer. Boys are also more likely to drink alcohol and use cannabis. Girls in general report lower levels of self-rated health and life or body satisfaction, and higher levels of subjective health complaints. They are more likely to skip breakfast and to report that they are dieting.

The general decrease in health-sustaining behaviour and increase in potentially health-damaging behaviour across age groups, when considered with the data on age of onset, suggest that the critical period for primary prevention is early adolescence. This is clearest for smoking. These broad patterns do not hold for every subsample, and therein is the potential to identify the most influential contextual factors that deserve further attention. For example, the rates for injury and condom use vary substantially across countries and regions; physical activity does not decrease with age in all, and the gender differences for physical exercise are minimal in some.

All the authors of this chapter have made important observations that should be followed up. This includes raising the following questions.

- Is there an epidemic curve in female smoking and, if so, what might be the implications?
- Why do those who drink more beer and wine also drink more spirits, rather than substituting the consumption of one form of alcohol for another?
- Why do boys appear to spend so much less time on their homework than girls?
- Why do girls report that they are dieting even when they do not report that they are overweight?
- Why are children in some countries less likely to be able to report their own height and weight?
- What factors influence the associations between physical and sedentary activities?

All the authors indicate the complex interplay of factors that are associated and interact with health behaviour. Successful intervention is crucial and, although it cannot be one-dimensional, it can be targeted. Addressing multiple risks and the clustering of health behaviours requires strong leadership, steely political will and integration at the international, national and regional levels. Not only is a greater awareness of the consequences of specific health behaviour required but also attention to the quality and accessibility of research findings. Chapter 3 is a serious attempt to address one aspect of this jigsaw puzzle.

Chapter 4

Explaining the health and health-related behaviour of young people

Introduction – *Oddrun Samdal and Leslie Alexander*

Chapter 2 presents the four main contextual components of young people's lives studied in the 2001/2002 HBSC survey: socioeconomic status, the family, peers and school. Why is it important to examine these contexts in relation to the health and health-related behaviour of young people? For those whose work does not include a contextual component, this is an important question.

Although Chapter 4 does not address diet, it can provide a useful example. While measuring sugar intake among adolescents and presenting the resulting data by age and gender are valuable, the usefulness of such data in practice may be limited. If the aim is to improve well-being and promote healthier, more balanced diets through targeted intervention strategies, the absence of contextual variables makes such action far more difficult.

Food preferences vary geographically, culturally and according to socioeconomic opportunity and food availability. The structural and social contexts of the school environment, family and peers can further reinforce or challenge these nutritional patterns. Thus, an understanding of the context, as in the example of sugar intake, may help to ensure a more sensitive, appropriate and efficacious intervention. It may also help to reduce overgeneralization in reporting on a particular health outcome. Indeed, many would argue that context itself can have far more impact than individual behaviours.

Chapter 4 presents some preliminary investigations into how context may shape young people's health and health behaviour. In addition to the four contextual settings, it introduces pubertal timing for girls as a developmental context that can influence health and health behaviour.

While this chapter looks at each context separately in terms of its relationship to selected health outcomes, subsequent analyses of the HBSC data are planned to examine a multiplicity of contextual variables. The future challenge for HBSC will be to build models that take account of a complex array of social and developmental contexts and to describe through analyses how these interact and influence young people's health.

Chapter 4 highlights the unique feature of the HBSC study, which distinguishes it from surveys whose main purpose is, for example, to monitor risk behaviour and health problems. HBSC's major strength – in addition to providing the opportunity for trend and cross-national analyses of risk and health promoting behaviour, and indicators of health and well-being – is the attention it pays to the different contexts for young people's lives. An understanding of context is vital to efforts to improve health, as argued in Chapter 2 (see pp. 9–12).

This work is underway; many papers have already been published on the basis of previous HBSC data sets. A comprehensive overview is available on the Internet.[3] In-depth analyses of the 2001/2002 survey data, however, are just beginning.

In Chapter 4, each section covers a single contextual element – socioeconomic inequality, family, peers, school and the developmental context of puberty – and analyses it in relation to selected health and health behavioural outcomes. Each section takes a slightly different analytical approach, according to the conceptual or theoretical questions posed.

[3] HBSC: Health Behaviour in School-aged Children: a World Health Organization collaborative cross-national study [web site]. Edinburgh, Child and Adolescent Health Research Unit, University of Edinburgh, 2002 (http://www.hbsc.org/publications.html, accessed 27 January 2004).

Socioeconomic inequality and health – *Bjørn Holstein, Nina Parry-Langdon, Alessio Zambon, Candace Currie and Chris Roberts*

Introduction

Chapter 2 (see pp. 13–25) highlights the impact of social inequality on young people's health as an issue that should receive priority in both research and policy-making. To facilitate research that will increase understanding of the influence of socioeconomic status on the health and health behaviour of adolescents, indicators of this status need to be developed that can be used cross-nationally. HBSC research has contributed to the type of methodological developments described in Chapter 2. This section aims to extend the understanding of social inequalities in the health of young people by examining the associations between family affluence (using FAS (the family affluence scale), as described in Chapter 2) and selected measures of health and health behaviour.

Previous HBSC research found that the relationship between socioeconomic status and health outcomes varies according to the indicator used and the outcomes measured *(1,2)*. The wider literature in this area has also reported such heterogeneity in findings, with variations across health outcome, gender, age group and country.

Many studies of children and adolescents have shown that those from families of low socioeconomic position have more health problems than those of high socioeconomic position *(3–6)*. This is the case for mortality *(4,6–8)*, injury *(9)*, the prevalence of diagnosed illness *(10–12)*, height and BMI *(6)*, self-rated health and subjective health complaints *(2,13–16)* and risk behaviour *(8,17,18)*. In the United Kingdom, Reading *(3)* concludes that almost all aspects of health are worse among children living in poverty than among those from affluent families. A review of the international literature and analyses of new data from the United States have revealed social-class gradients in relation to: satisfaction with own health, resilience to health threats and being in the best health overall *(5)*. Studies in some other countries have found a lack of evidence for health inequalities in mid-adolescence *(19,20)*. As a result, a hypothesis on health equalization in young people in postmodern society has been proposed, arguing that subcultural influences in young people are more important to some health outcomes than family socioeconomic status *(21)*.

Clearly, further empirical evidence is needed in this area. The information in this section may contribute to a deeper understanding of the nature of health inequalities in adolescence by using a standard measure of socioeconomic status across the 35 countries and regions in the 2001/2002 HBSC survey and examining several different health and health behavioural outcomes.

Methods

This section presents bivariate associations between FAS composite scores and four health and behavioural outcomes for 11-, 13- and 15-year-old boys and girls in each country and region. As in Chapter 2, a three-point ordinal scale for FAS is used, where FAS 1 (score = 0, 1, 2, 3) indicates low affluence; FAS 2 (score = 4, 5) indicates middle affluence, and FAS 3 (score = 6, 7) indicates high affluence.

The outcome measures include two indicators of health: self-rated health and subjective health complaints, as described in Chapter 3 (see pp. 55–56). The eight subjective health complaints that are rather common in this age group include: headache, stomach-ache, back-ache, feeling low, irritability or bad temper, feeling nervous, difficulty in falling asleep and feeling dizzy *(22)*. The two health behaviours considered are: physical activity, as an indicator of health protective behaviour (as described in Chapter 3, pp. 90–97), and smoking, as an indicator of health-damaging behaviour (as described in Chapter 3, pp. 63–72).

For each of the indicators, the statistical significance of the gradient in FAS scores by country and region and gender is assessed using a Chi-square test for trend, this test being appropriate when one of the variables being tabulated has a distinct order (that is, low through high FAS scores). Footnotes show where the FAS gradient for the indicator in question is not statistically significant at the $P < 0.05$ level.

Results

Fig. 4.1 describes the percentage of young people who rate their health as poor or fair (in contrast to good or excellent) by country and region, gender and FAS score. Among both boys and girls, there is a relatively clear gradient for most countries and regions, showing a decreasing proportion reporting poorer self-rated health as family affluence increases. There is no statistically significant gradient in a small number of cases: Greenland, Norway, Spain, Switzerland and The former Yugoslav Republic of Macedonia for boys, and Denmark, Greenland and Latvia for girls. Girls report higher levels of poorer self-rated health than boys in all countries, as described in Chapter 3.

Fig. 4.2 shows the percentages of young people who report having had at least one subjective health complaint daily, by country, gender and FAS. The prevalence of daily health complaints is associated with FAS among boys and girls in many, but not all, of the countries and regions. This association is statistically significant in most countries and regions for girls, but in only half for boys. In Austria, Malta, the Russian Federation and The former Yugoslav Republic of Macedonia, there is no clear gradient of a reduction in daily health complaints as family affluence increases, for either boys or girls.

Fig. 4.3 shows the association between FAS and physical activity: being physically active for at least an hour on four or more days during a normal week. In most countries and regions, the proportion of young people who reach this level increases with increasing FAS for both genders, but particularly girls. In some cases, however, the gradient is not statistically significant, including Austria, Malta and Poland for boys, and Greenland and Switzerland for girls. Overall, girls appear to be less active than boys, as described in Chapter 3.

Finally, Fig. 4.4 shows the percentage of weekly smokers by country and region, gender and FAS. The association between FAS and weekly smoking is less consistent than those presented in Fig. 4.1–4.3. For girls, weekly smoking is clearly associated with FAS in 13 countries and regions. Similarly, the pattern of declining smoking prevalence and higher FAS scores can be seen for boys, although the association is statistically significant only in seven countries and regions.

Discussion

Consistent gradients are found for self-rated health in association with FAS across most countries and regions, confirming findings from earlier HBSC research *(23)*. With few exceptions, poorer health is therefore associated with lower family affluence. In contrast, for subjective health complaints, a consistent FAS gradient is found in most countries and regions for girls but in only about half for boys.

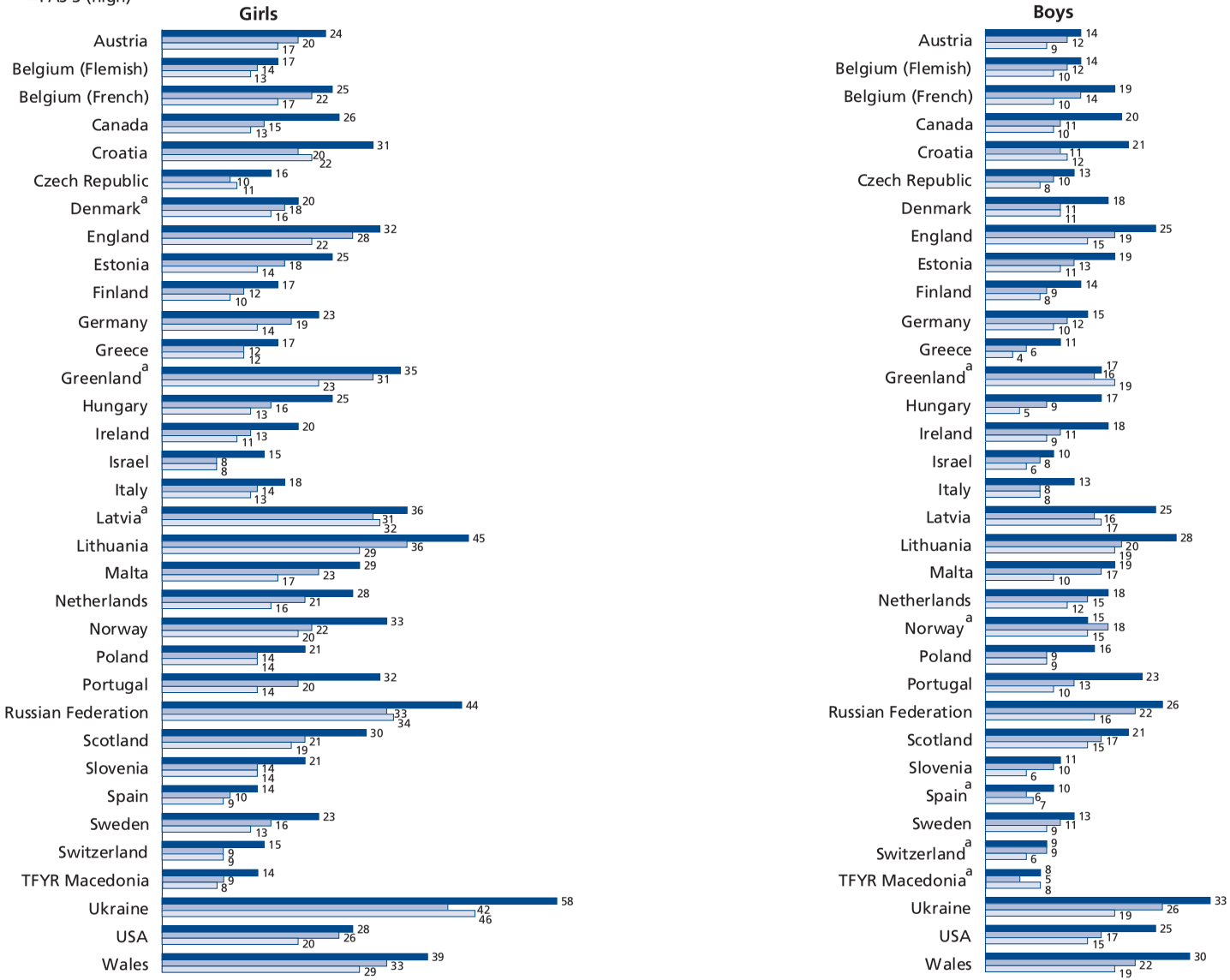
Most countries and regions show consistent gradients for physical activity in association with FAS scores for both boys and girls, with higher affluence associated with greater participation. The findings on smoking in association with FAS, however, show very little consistency.

To sum up, the findings presented here confirm the main observation from existing research on social inequalities in health among young people: that the relationship between socioeconomic status and health varies according to the health outcomes measured, gender and country. Although causal relationships cannot be inferred from cross-sectional data, some measures of health and health behaviour (such as self-rated health and physical activity) seem to be more sensitive to the socioeconomic circumstances of the family than others. Social and individual factors other than family affluence appear to have more influence on smoking for both boys and girls in many countries and regions. For example, previous HBSC research has shown that smoking is strongly correlated to the amount of available spending money, which could come from a number of sources outside the family *(17)*.

This section allows cross-gender and cross-country comparisons of socioeconomic gradients in health to be made, using a common indicator of socioeconomic status. It argues that FAS is a useful tool in the study of social inequalities in health outcomes across countries that show major variations in general affluence and occupational structure.

The mechanisms behind social inequalities in health are complex and likely to result from several interwoven processes. Some strongly argue that material wealth plays a key role in shaping health

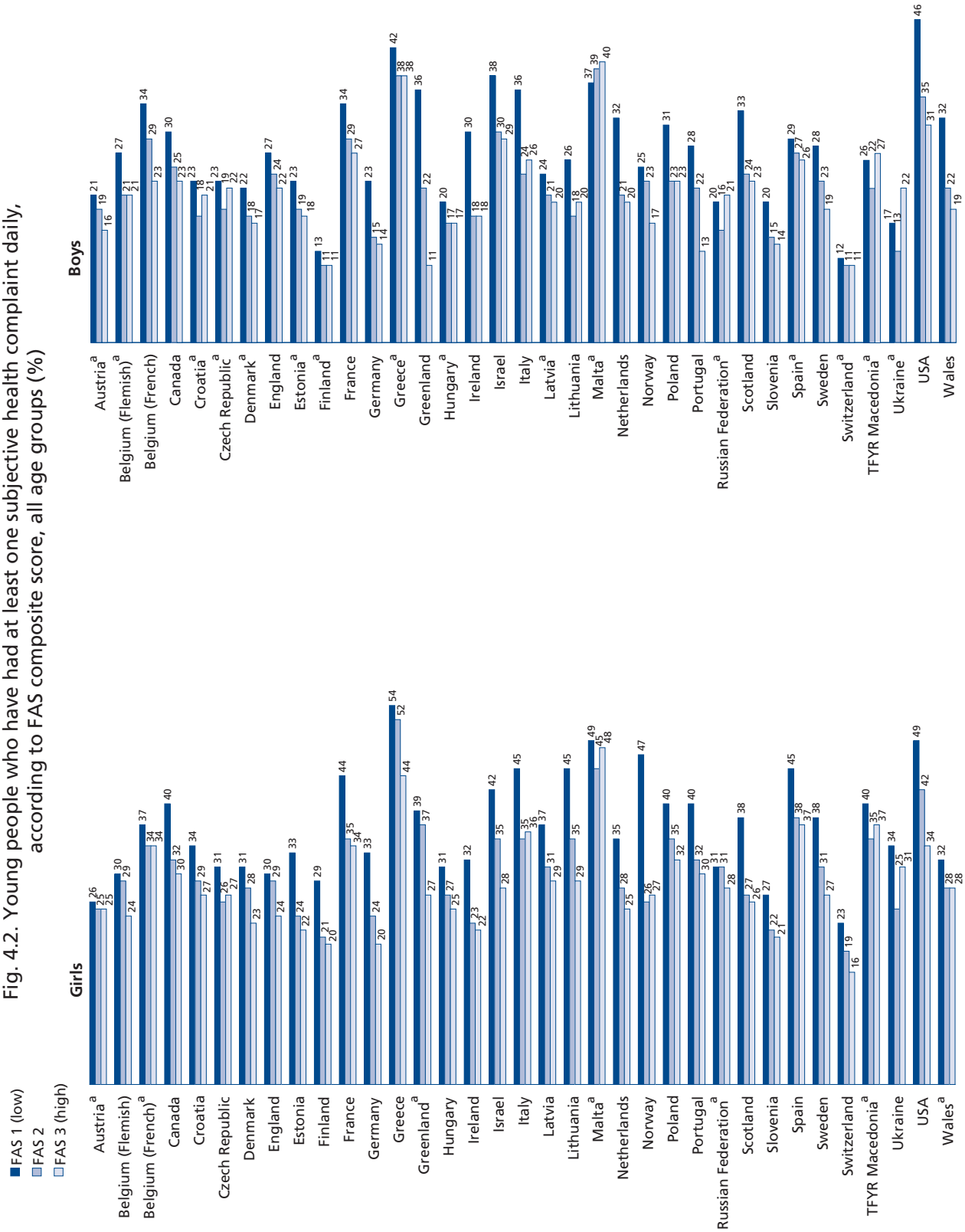
Fig. 4.1. Young people who report poorer self-rated health, according to FAS composite score, all age groups (%)



[a] FAS gradient is not statistically significant at the $P < 0.05$ level.

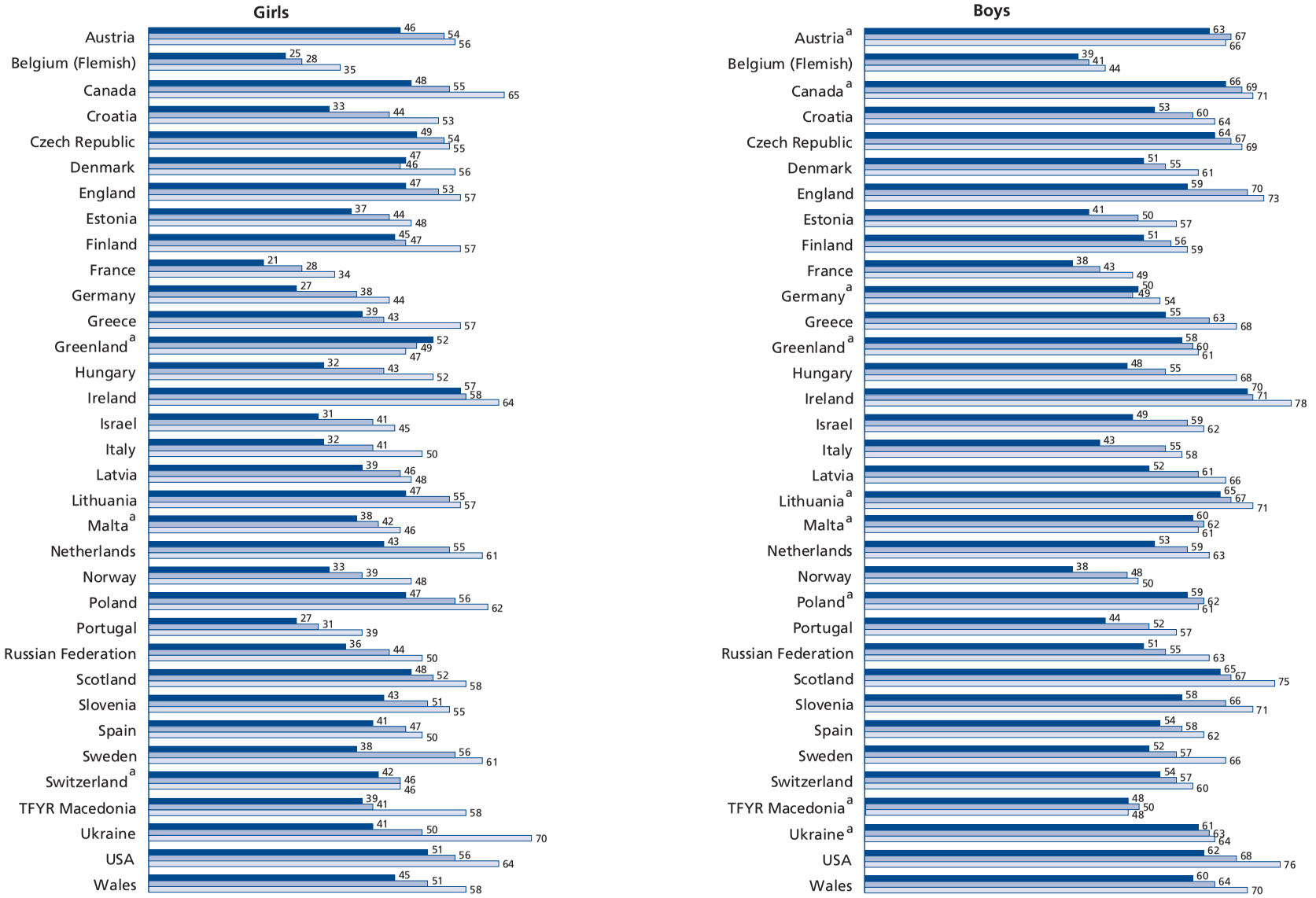
Note: Data are unavailable for France.

Fig. 4.2. Young people who have had at least one subjective health complaint daily, according to FAS composite score, all age groups (%)



[a] FAS gradient is not statistically significant at the $P < 0.05$ level.

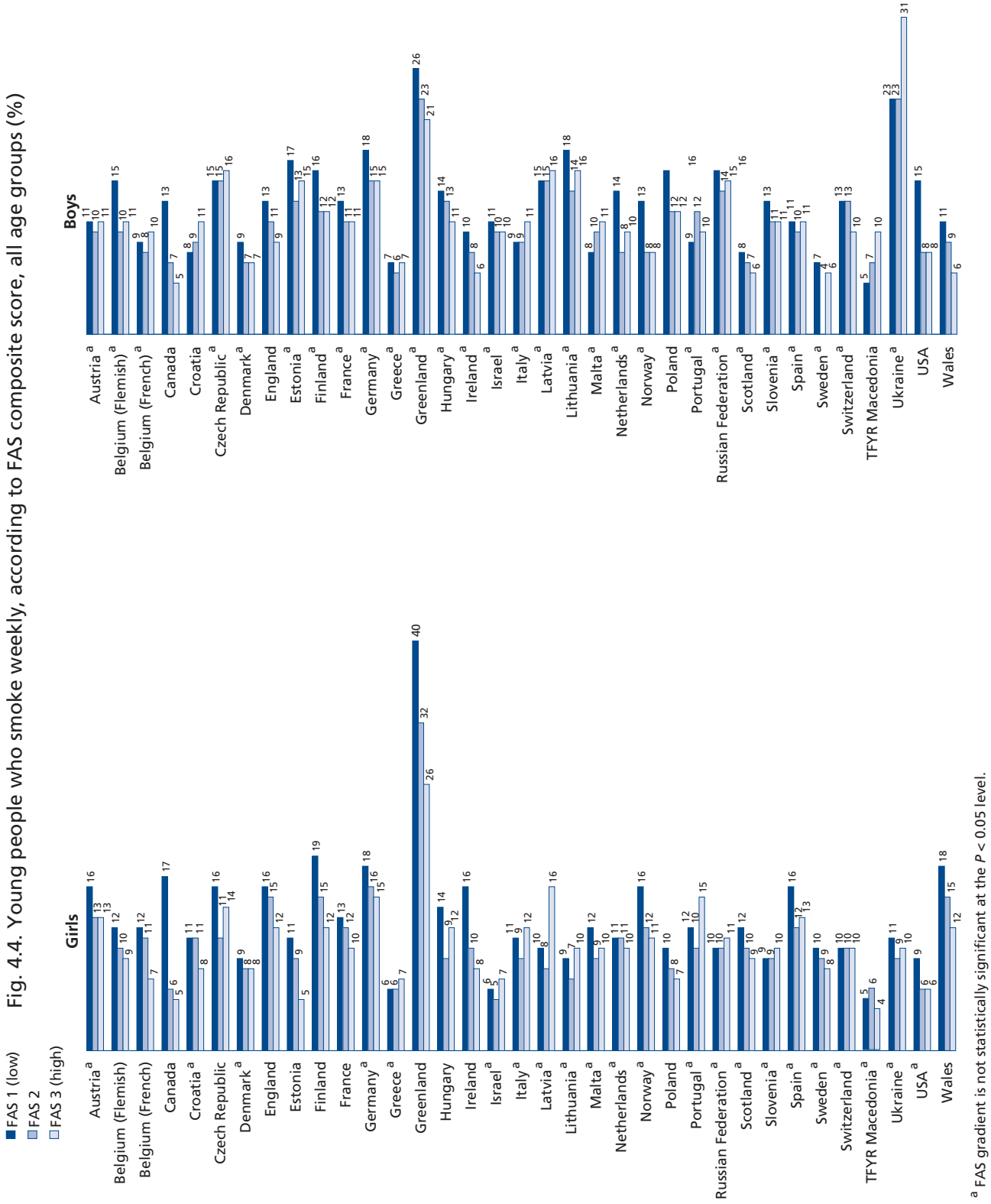
Fig. 4.3. Young people who are physically active for at least 60 minutes 4–7 days a week, according to FAS composite score, all age groups (%)



[a] FAS gradient is not statistically significant at the $P < 0.05$ level.

Note: Data are unavailable for Belgium (French).

Fig. 4.4. Young people who smoke weekly, according to FAS composite score, all age groups (%)



[a] FAS gradient is not statistically significant at the $P < 0.05$ level.

inequality *(4,15)*, and FAS attempts to address this issue by providing data on wealth. Another hypothesis suggests that psychosocial processes may also be important and perceptions of inequality may play a role in adolescent health and behaviour. Rahkonen and Lahelma *(19)* suggest that young people's aspirations are an important psychosocial factor. West *(20)* suggests that peer culture is a social factor important to health. Finally, young people from families with low socioeconomic position may have weaker social connections with school *(21,24)*, which may mediate the effect of socioeconomic position on health.

The HBSC study provides an opportunity to examine the levels of social inequalities in health in relation to contextual factors such as health promotion, economic and welfare policies and economic macro-factors. The latter may include general affluence, income inequality, and investment in health and education. More about the impact of these factors can potentially be learned from studies of countries with a relatively low degree of social inequality in health among young people.

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Family and health – *Michael Pedersen, Maria Carmen Granado Alcón and Carmen Moreno Rodriguez*

Introduction

The HBSC study provides extensive opportunity to begin an examination of health-related outcomes in the light of both family relationships and family structures. Despite a continuing shift in the definition of family and an increasing acceptance of alternative family structures within some cultures, the significance of the quality of relationships within the family unit is now recognized to be as important, if not more so, than its structure. How a family functions, rather than how its membership is defined, is integral to young people's healthy development.

Positive relationships with parents have been suggested to decrease the likelihood of young people engaging in risk behaviour, such as smoking *(1)*, and have been associated with positive health outcomes, such as perceived well-being *(2–4)*. Further, open communication between parent and child has been identified as one aspect of an effective relationship *(2,5)*.

This section investigates the different types of family structures and living environments presented in Chapter 2 (pp. 26–33). Many people working in health research and social policy, for example, are concerned with the possible effect of changes in the structure of the family on the well-being of its members, particularly young people. For example, family structure may affect patterns of communication, although any effect is likely to be multidimensional. Other researchers are more concerned with the health-related outcomes associated with different types of home environment *(2,6)*. For example, living in a home in which communication is easy may reduce the likelihood of risk behaviour.

This section examines self-rated health and smoking behaviour in relation to perceived ease of communication with parents and to family structure.

Methods

Ease of communication with both mothers and fathers was examined as one aspect of a supportive parental relationship, which may have a positive effect on the lives of young people. Self-rated health focuses on the proportions of 11-, 13- and 15-year-olds who perceive their health to be good or excellent. We chose these response categories to represent positive health outcomes. In addition, we examined the young people who report that they do not smoke and thereby avoid this risk behaviour.

We also investigated family structure. Owing to the variations across countries, we chose a subgroup of countries and regions for the analyses presented here: Denmark, England, Norway, Sweden, the United States and Wales. Here, at least 10% of the respondents report living in a family structure consisting of either both parents or a single parent or stepparent. Subsequent analyses focus on these young people, for whom a consistent data set was available (n = 24 153). For illustrative purposes and in some instances due to the small number of respondents in each category, we collapsed the response categories the for single-parent and stepfamily categories.

Chapters 2 (p. 27) and 3 (pp. 56, 63–64) give full descriptions of the variables examined.

Results

Communication and self-rated health

Chapter 2 reports young people's greater perceived ease of communication with mothers, and the marked differences between boys and girls in ease of communication with fathers.

An aggregate analysis of the data (using the Chi-square test and testing for differences in proportions) from the six countries of the subgroup (not shown) and the separate analyses by gender and country (Tables 4.1 and 4.2) reveal that ease of communication with both mothers and fathers is significantly associated with good or excellent self-rated health.

Table 4.1. Boys with good or excellent self-rated health, by country and perceived ease of parental communication (%)

Country	Boys with good health (%)			
	Communication with mother		Communication with father	
	Easy	Difficult	Easy	Difficult
Denmark	90.5	81.9	91.3	83.4
England	83.6	74.1	84.9	74.7
Norway	86.7	76.6	88.3	76.3
Sweden	91.2	80.0	91.7	82.5
United States	86.6	78.0	87.9	77.7
Wales	81.5	70.3	81.6	74.2

Table 4.2. Girls with good or excellent self-rated health, by country and perceived ease of parental communication (%)

Country	Girls with good health (%)			
	Communication with mother		Communication with father	
	Easy	Difficult	Easy	Difficult
Denmark	86.1	74.2	88.4	78.3
England	75.9	65.2	77.8	70.2
Norway	81.6	67.3	84.1	73.5
Sweden	87.0	69.9	90.1	75.8
United States	80.8	67.7	84.4	71.9
Wales	72.2	58.3	75.3	64.0

Looking at the countries and regions individually, Table 4.1 shows very similar ranges of values (percentages with good or excellent health) for boys who find communication with mothers and fathers to be easy or very easy. There is only a slight overlap for those who find communication with parents difficult. Girls who communicate easily with both parents show very similar ranges of values for self-rated health (Table 4.2). These values overlap with those for girls who find communication with mothers and fathers to be difficult.

In summary, the countries and regions show a consistent pattern of better health associated with better lines of communication.

Communication and nonsmoking

An aggregate analysis of the data from the six members of the subgroup (not shown) and the separate analyses by gender and country (Tables 4.3 and 4.4) reveal that ease of communication with both parents is significantly associated with non-smoking.

Tables 4.3 and 4.4 show that, as with self-rated health, very similar ranges of values (percentages of nonsmokers) are observed for boys who communicate easily or very easily with their parents. No overlap in values is observed for those who find such communication difficult. For girls, ease of communication with both parents gives results in similar ranges of values. These overlap slightly with those who find communication with mothers and fathers difficult.

Table 4.3. Boys who do not smoke, by country and perceived ease of parental communication (%)

Country	Nonsmoking boys (%)			
	Communication with mother		Communication with father	
	Easy	Difficult	Easy	Difficult
Denmark	89.1	82.4	89.9	83.4
England	87.1	76.5	86.9	81.4
Norway	88.0	75.8	88.6	79.0
Sweden	92.4	77.5	93.4	79.5
United States	87.7	82.7	88.2	82.9
Wales	90.9	80.5	90.7	84.7

Table 4.4. Girls who do not smoke, by country and perceived ease of parental communication (%)

Country	Nonsmoking girls (%)			
	Communication with mother		Communication with father	
	Easy	Difficult	Easy	Difficult
Denmark	88.8	82.3	90.1	84.6
England	83.1	66.6	85.4	75.1
Norway	84.4	68.2	88.4	73.3
Sweden	89.4	77.0	91.1	82.3
United States	92.2	83.8	94.1	86.9
Wales	86.8	69.3	89.2	77.9

Family structure

As noted in Chapter 3, many factors can affect young people's health, and family structure may be just one of those to consider when investigating differences.

In the six countries and regions of the subgroup, 74% of young people (n = 17 105) report living with both parents and 26% (n = 5964) report living with either a single parent or a stepparent.

Communication

There are small though statistically significant differences in ease of communication with mothers according to family structure. Young people in two-parent families have slightly easier patterns of communication (83%) than those in the combined category of single-parent families or stepfamilies (79%). We can say the same about communication with fathers (64% in two-parent families versus 59% in single-parent families or stepfamilies).

Family structure and self-rated health

Boys are more likely than girls to report their health as good or excellent, regardless of family structure.

Overall, self-rated health is significantly associated with family structure, as more young people with good or excellent self-rated health live with both parents than with a single parent or stepfamily (83% and 78%, respectively). This relationship also holds true for analyses by gender (Table 4.5). The exceptions are

Table 4.5. Young people with good or excellent self-rated health, according to country and family structure (%)

Country	Boys with good health (%)		Girls with good health (%)	
	Both parents	Single parent or stepfamily	Both parents	Single parent or stepfamily
Sweden	90.8	87.4	86.0	82.3
Denmark	89.3	86.0	84.9	79.8
Norway	86.4	82.2	80.8	77.0
United States	85.8	81.8	79.6	72.1
England	83.4	78.9	76.1	69.0
Wales	81.5	73.5	70.9	64.3

boys in Denmark and girls in Sweden and Norway. Nevertheless, differences in the percentages of those in good or excellent health are relatively small with respect to family structure, and consistently less than 10% for both genders.

Family structure and nonsmoking

Girls are more likely to smoke, regardless of family structure.

Overall, nonsmoking is significantly associated with family structure, as fewer nonsmoking young people live with a single parent or stepfamily than with both parents (88% and 81%, respectively). For both genders, associations between family structure and nonsmoking are significant, with the exceptions of girls in Denmark and boys in Sweden (Table 4.6).

Table 4.6. Young people who do not smoke, according to country and family structure (%)

Country	Nonsmoking boys (%)		Nonsmoking girls (%)	
	Both parents	Single parent or stepfamily	Both parents	Single parent or stepfamily
Denmark	89.4	82.6	87.9	85.1
England	87.5	79.6	84.2	71.1
Norway	87.9	81.3	83.9	75.7
Sweden	91.5	89.1	90.7	81.3
United States	88.0	83.2	92.0	85.3
Wales	90.2	84.0	86.3	74.2

Discussion

In this section, a preliminary investigation of a subset of data shows that the context of the family is linked to both self-rated health and smoking status. One can argue, however, that these results raise more questions than answers.

One of the strengths of the HBSC study is that it aims to examine behaviour as it relates to a number of factors that affect the health and well-being of children and adolescents. This section highlights the protective aspects of both communication and family structure. This is not to say that, in families where communication is perceived to be poor, children are destined to smoke. Neither do we imply that all young people from either single-parent families or stepfamilies will have poor health. Indeed, what can be gleaned from these results is that both communication and structure seem to affect health. They are

by no means the sole determinants of health-related outcomes, however, and moreover other social and individual factors are known to moderate their effects.

Elsewhere in this book, authors have made convincing arguments that socioeconomic status, the school environment and established nutrition and physical activity patterns, for example, all contribute to the health and well-being of young people. Subsequent analyses of both family structure and communication will take a broader approach.

One of the limitations of the analyses presented in this section is that they relate only to a subset of respondents. As explained, this was because they included family structure. In some countries, family structure has yet to vary markedly and two-parent families predominate. Another limitation is that the mandatory HBSC questionnaire contains very few items that focus on the family and its potential influence on health-related outcome variables. Nevertheless, many HBSC countries and regions have expanded their focus on the family, and subsequent publications will explore these relationships and interactions more fully.

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Peers and health – *Wolfgang Settertobulte and Margarida Gaspar de Matos*

Introduction

Chapter 2 (pp. 34–41) introduces the importance of the peer group in adolescence; this section further explores its relevance to health.

The peer group is seen as one of the mechanisms by which the health-related behaviour of young people can be influenced. The process of peer influence has been explained in different ways. One view is that peer group pressure is responsible for the initiation and maintenance of risk behaviour *(1,2)*. It is not always clear, however, whether adolescents seek friends with patterns of behaviour similar to their own, or if conformity is one of the effects of the peer group, which results in similar patterns of behaviour among its members. Some theories emphasize the importance of pressure to conform as part of the communication process within the group *(3)*, which may lead to a decrease or increase in risk behaviour. For example, predictors of smoking among girls include higher sociability scores and having friends who smoke *(4,5)*. Risk behaviour, particularly cigarette smoking, can be an overt manifestation of the values held by some peer groups. Such risk behaviour also helps to maintain group cohesion by providing a medium of intimate exchange through shared rituals. This conceptual model proposes that taking health risks is a collective behaviour, defined by certain peer group norms, and that values derive from the need for social integration and group distinction *(6)*.

Young people with a high degree of social competence are likely to have a larger number of close friends and to be better socially attached *(7,8)*. Those with social skills are equipped to improve their social competence and problem-solving skills through interaction in the peer group. The effects may be seen in decision-making, priority setting, resistance to group pressure and leadership *(9)*. Indeed, good communication skills and a high degree of social attachment have been shown to have a protective effect against adverse influences of the peer group, for example, on alcohol and drug use *(10,11)*.

Most research concerning peer influence focuses on risks resulting from engagement in peer groups, but peer contact is also important for the development of protective factors. Berndt *(12)* concludes that both types of influence exist, depending on the personal and social needs of the young person, and should be taken into consideration to understand the complex dynamics of peer influences. Young people exercise and improve their social skills and ability to cope with stressful events through interaction with friends *(13)*. Having a number of close friends marks the ability to engage in close relations with others. Significant social support is related to perceived health and health behaviour *(14–16)*.

This section presents some preliminary analyses of relationships between measures of peer group affiliation (numbers of close friends and frequency of meeting them) and several measures of health risk and health promoting behaviour.

Methods

For illustrative purposes, data are presented on one age group only, 13-year-olds. For the analyses of the relationships between the number of close friends and health outcomes, the sample was divided into two groups: boys and girls with two or fewer close friends and those with three or more close friends. The effect of gender was also considered.

The frequencies of meetings with friends (two or fewer times a week and three or more times) were investigated. Chapter 2 (p. 34) describes the relevant survey questions.

The following variables were selected as typical risk behaviour: daily smoking, drinking alcohol more than twice a week and having been drunk two or more times. Chapter 3 (pp. 63–64,73–74,) gives details on the relevant questions.

Physical activity (see Chapter 3, p. 91) was selected as an example of health promoting behaviour. Both the number and the gender of friends of those reporting that they are physically active were analysed.

Results

Size of peer group

Earlier HBSC findings show that regular smoking is strongly associated with peer contact and with other risk behaviours *(2,17)*.

Among boys and girls aged 13, the proportion of daily smokers is small. Nevertheless, Fig. 4.5 shows that both boys and girls who report having three or more close friends are also more likely to report that they are daily smokers This association also appears to be affected by the gender of friends. For 13-year-old girls with three or more friends, the probability of being a daily smoker more than doubles if their friends include boys.

The influence of friends on physical activity patterns was also investigated. Physical activity is reported more frequently by respondents with greater numbers of friends (Fig. 4.6). For 13-year-old boys, the rate of physical activity is about 10% higher if they have three or more friends, whether male or female. Girls with three or more friends also report more physical activity.

Amount and timing of peer contact

The 2001/2002 HBSC survey confirms the findings of previous HBSC surveys: that the frequency of meetings with friends is associated with risk behaviour *(1,2)*. All kinds of meetings – whether in the afternoon after school, in the evenings or by means of electronic media – may influence risk behaviour. While the effect of afternoon meetings and contact by phone or e-mail is comparably weak (data not shown), frequent evening meetings are more strongly associated with substance use. Fig. 4.7 illustrates daily smoking rates in relation to the frequency of evening meetings with friends. The risk of daily smoking is higher among both boys and girls who meet friends in the evening three times or more a week.

Similar effects can be found for alcohol consumption (Table 4.7). The frequency of evening meetings with friends is strongly associated with the risk of regular alcohol consumption. Among boys aged 13,

Fig. 4.5. Young people who smoke daily, according to the number and sex of friends, 13-year-olds (%)

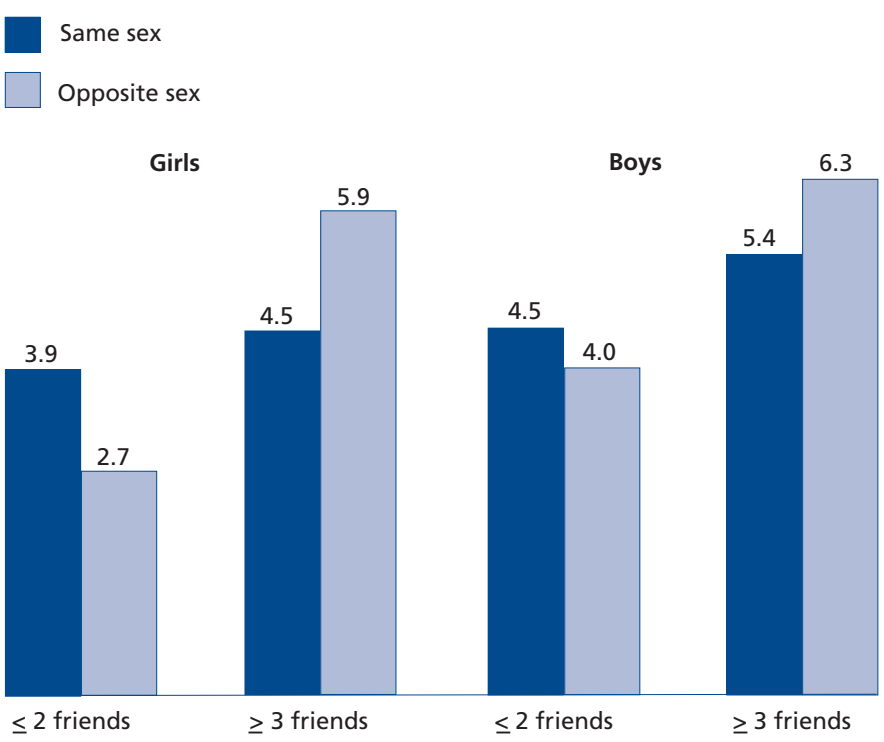


Fig. 4.6. Young people who are physically active for at least 60 minutes 4–7 days per week, according to the number and sex of friends, 13-year-olds (%)

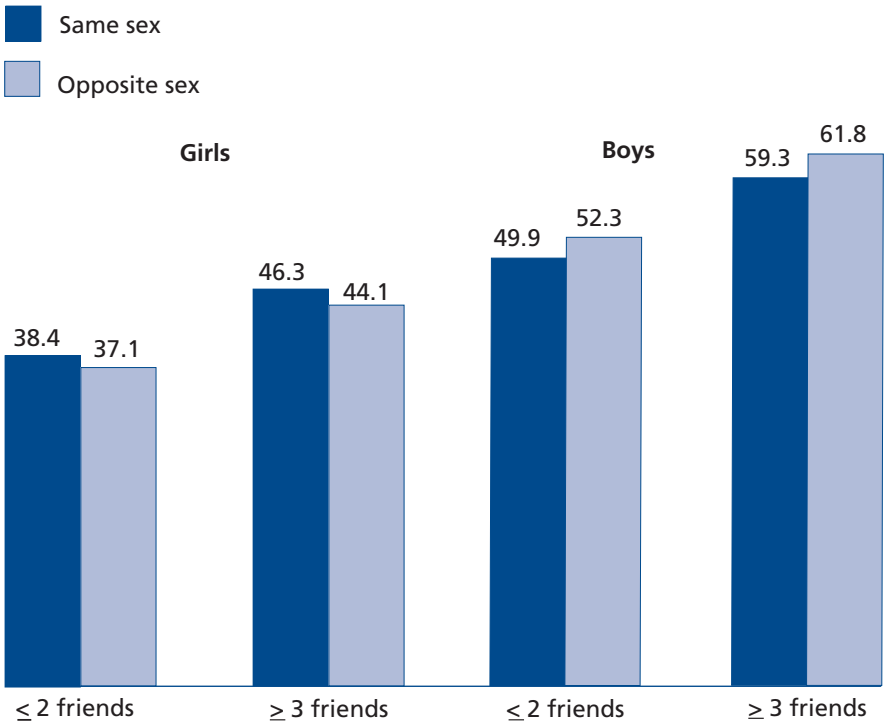
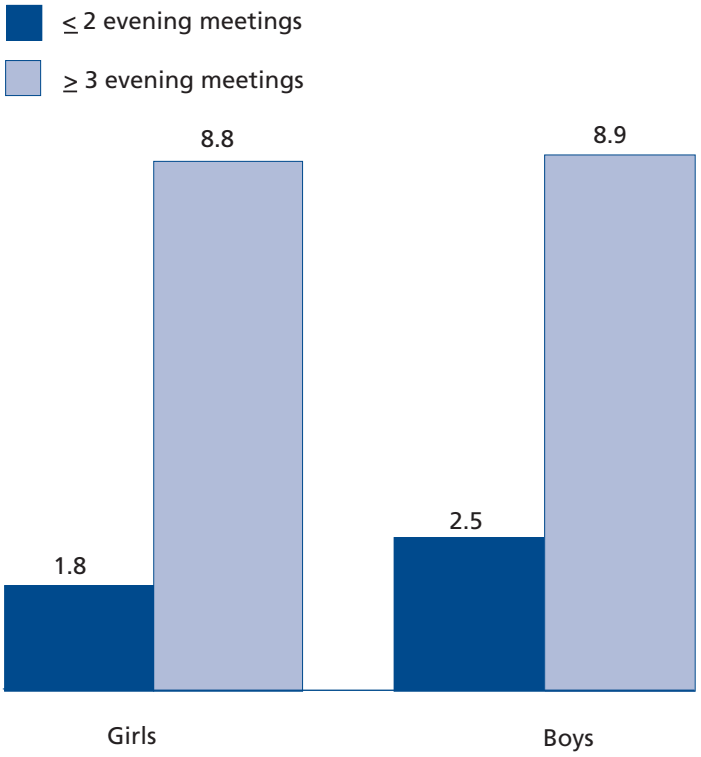


Fig. 4.7. Young people who smoke daily, according to the number of evening meetings with friends, 13-year-olds (%)



the probability of drinking alcohol more than twice a week increases 2.6 times with a frequency of ≥ 3 evening meetings with friends. For girls, the relative risk is 3.9. The frequency of being drunk is only weakly correlated with regular alcohol consumption on the individual level, but they show similar patterns of association with frequency of peer contact: the probability of adolescents experiencing drunkenness triples or quadruples if they meet with friends three or more times a week in the evenings.

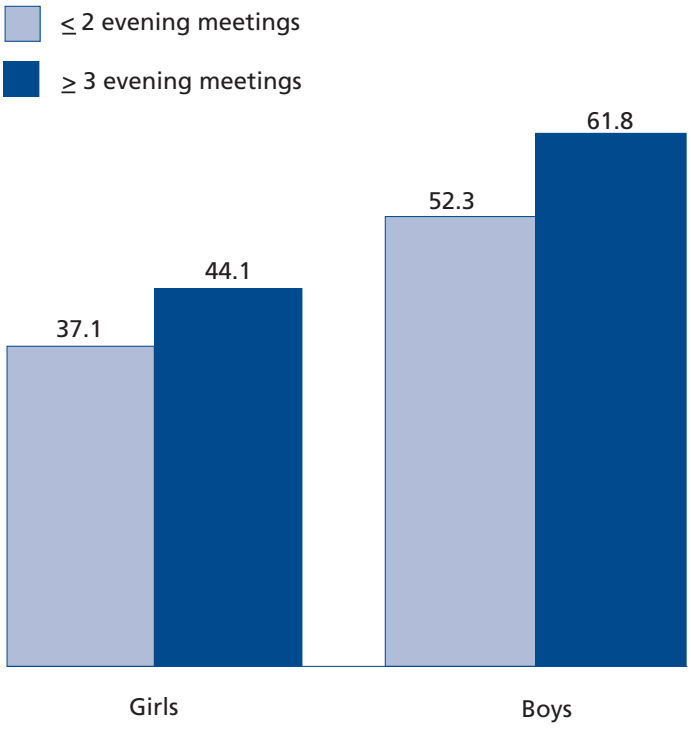
The frequency of peer contact in the evenings is also associated with physical activity (Fig. 4.8). Thirteen-year-old girls who report meeting their peers on more than three evenings a week, also report a 7% higher rate of physical activity on more than four days a week. Among 13-year-old boys, the difference is about 10%. These data indicate that peer contact of this frequency may be an occasion for risk behaviour but also for sports and other physical activity beneficial to healthy development.

Table 4.7. Associations between alcohol use and meeting friends ≥ 3 evenings per week, 13-year-olds

Alcohol use	Odds ratios	
	Boys	Girls
Regular consumption (> 2 times a week)	2.6	3.9
Having been drunk > 2 times	3.4	4.0

Note: Odds ratios were calculated using logistic regression. All associations are statistically significant ($P \geq 0.001$).

Fig. 4.8. Young people who are physically active for at least 60 minutes 4–7 days per week, according to the number of evening meetings with friends, 13-year-olds (%)



Discussion

Some evidence indicates that girls who have contact with male peers are more likely to smoke. Although all meetings with friends, regardless of the mode, may provide the opportunity and incentive to experiment with risk behaviour, meetings in the evenings are associated with higher risk. Previous HBSC surveys also found this result.

The findings show that peer meetings are not only associated with risk behaviour (such as substance use) but also with health-protective behaviours (such as physical activity), underlining the fact that, during adolescence, these behaviours mainly take the form of social activities undertaken in groups. Adolescents seldom drink or smoke alone, and usually engage in physical activity, such as sport, in company with others. Peer group characteristics other than group size and frequency of contact determine preferences for shared activity. Although no data on these topics are presented here, future data analyses will address optional questions covering them.

Prevention strategies focusing on risk behaviour and resistance to peer group pressure need to take account of the developmental needs of young people. Adolescence is perhaps not the most appropriate period in which to introduce preventive efforts aimed simply at avoiding risk behaviour by reducing peer group contact. Focusing on promoting social competence – including issues such as interpersonal communication, problem solving, emotional awareness and perspectives for the future of the individual, through discussion and role playing – seems to be a much more promising strategy *(18,19)*.

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School and health – *Ulrike Ravens-Sieberer, Gyöngyi Kökönyei and Christiane Thomas*

Introduction

Chapter 2 (pp. 42–51) analyses the school as a workplace for young people and considers how they perceive aspects of school, such as support and strain, according to age and gender. This section focuses on the health effects of school, primarily to investigate the relationship between young people's perceptions of their school environment, adjustment to school and health outcomes.

Young people's experiences in school can be seen as a crucial period of development of their self-esteem, self-perception and health behaviour. These factors influence their perceived general health and life satisfaction, both present and future. In adolescence, young people experience changes not only in their bodies but also in the operation of their social support systems, such as family, school and peers *(1)*. As people develop self-worth and competence in academic and social domains, they establish their identities *(2)*. Achievement is one of the most important determinants of self-concept in the academic domain, while peer acceptance and support – especially from classmates – influence the developing self-concept in the social domain. Thus, as school is the context in which most peer interactions occur and in which academic achievement is evaluated, this environment is of central importance to development during adolescence.

A positive school environment (for example, an inclusive social climate with supportive peers) and good school adjustment (as shown by academic achievement and low levels of school-related stress) can increase the sense of success and competence; this in turn leads to greater well-being and life satisfaction and fewer subjective health complaints. In contrast, lack of academic achievement and poor peer acceptance can result in a decrease in positive health outcomes and an increase in risk behaviour *(3)*. Accordingly, the school context seems to be both a risk factor and a resource for physical, emotional and social well-being *(4–6)*. The results of a longitudinal study carried out by Jessor et al. *(7)* show that factors such as good school performance (as indicated by grade point average) and a positive attitude to school and friends (neither bullying nor accepting being bullied) protect against the development of problem behaviour. Indeed, both bullies and victims of bullying are rejected in the classroom, have poorer health and are likely to be involved in risk behaviour. In addition, bullying and victimization have been correlated with poor psychosocial adjustment *(8,9)*. Peer victimization leads to internalized problems (such as depression, anxiety and somatic complaints) and externalized problems (such as aggression) and undermines the self-esteem of the victims *(10)*.

Age and gender also play a role in determining which factors of the school environment have a negative effect on health. The focus on future plans that depend on academic achievement can cause stress among students at secondary school, while a factor such as peer rejection can strongly affect the health of those attending elementary or middle school *(11)*. Older students also seem to be less satisfied with school than younger ones *(12)*.

As to gender differences, throughout their lives females seem to rely more than males on their social networks in times of stress *(13)*; thus, a perceived lack of this support in females could result in poorer perceived health and less life satisfaction during adolescence *(11)*. Further, the main determinants of self-esteem in girls during adolescence are physical attractiveness and social acceptance. Perceived failure in either domain can also have negative effects on overall health *(14,15)*. In addition, girls are likely to be more vulnerable to both emotional disorders and subjective health complaints than boys *(16,17)*. Apparently, these gender differences start developing at an early age *(18)*.

Subjective health complaints are theorized to be a response to stress. One potential source of stress in children and adolescents is the school environment: that is, schoolwork and social climate (teachers, peers). Dissatisfaction with the school environment and related poor life satisfaction may partially reflect the problems in adapting to school demands, such as those for academic achievement *(19,20)*. In

contrast, positive perceptions of the social climate of classrooms or the school as a whole are associated with having fewer emotional and behavioural problems *(21)*. According to previous HBSC studies, young people who report a higher quality of life and who feel healthier are satisfied with school, feel supported by classmates and evaluate expectations as not being too high *(12)*. Persistent psychosomatic symptoms during childhood can result from low academic and social competence *(22)* and can increase the possibility of problems in adulthood. For example, suffering from unexplained recurrent abdominal pain as a child predicts anxiety and poor social functioning in adulthood *(23)*.

In addition, self-esteem plays a significant role in health outcomes. Low self-esteem predicts adverse outcomes, while high scores predict favourable ones, such as good mood and lack of somatic and psychological symptoms *(24)*.

In summary, a wealth of evidence indicates that the strength and supportive style of relationships developed in the social context of school may at least partially determine an individual's health status.

Chapter 2 shows that older students – and boys in general – tend to like school less and rate their academic performance lower. Discussions and analyses of the relationship between school factors and health should therefore take account of the differences in young people's experiences of school and the role of age and gender in these differences. The analyses in Chapter 3 (pp. 55–62) conclude that 15-year-old girls are at particular risk of poor subjective health. For this reason, two sets of data are presented here: one on the entire population of young people surveyed and the other on 15-year-olds only. Again, with cross-sectional data such as those of HBSC, associations between school factors and health outcomes can be described, but causal mechanisms cannot be deduced.

Methods

Four items were used in the analyses presented in this section: liking school, academic achievement, peer support and school pressure (described in Chapter 2, p. 43). They are used both individually and as part of a composite measure of school experience. A school experience score was calculated for each young person according to his or her responses to the four items. They were classified as having positive, middle or negative school experiences.

Young people with positive school experiences like school a lot, have good or very good academic achievement, feel no pressure about their schoolwork and agree or strongly agree with three statements about their classmates:

- that most of their classmates are kind and helpful
- that their classmates accept them as they are
- that most members of the class enjoy being together.

Young people with predominantly negative school experiences do not like school, have below-average academic achievement, feel pressured a lot by their schoolwork and do not agree with at least two of the three statements about their classmates. Those in the middle group rate their academic achievement as average, feel some pressure about their schoolwork and do not agree with one of the statements about classmates.

This section examines bullying in school in terms of its relationship to health outcomes. A frequency of bullying others or being bullied twice a month or more was used. Chapter 3 (see pp. 133–134) describes the items on bullying in more detail.

The health outcomes selected for analysis in this section are: self-rated health (good or excellent health), life satisfaction (a score of 6 or above on the Cantril ladder), subjective health complaints (two or more symptoms either daily or several times a week) and smoking (at least once a week). Chapter 3 gives the three items on subjective health (p. 56) and the item on smoking (p. 63).

The analyses presented in this section use both aggregated data for each gender from all 35 HBSC countries and regions and data from individual countries. Tables 4.8–4.10 present the aggregated data

analyses on 15-year-olds, as well as Spearman correlation coefficients. Fig. 4.9–4.12 present individual country data collectively for young people aged 11, 13 and 15 years, again separately for each gender.

Results

School determinants and health outcomes

First, the data on 15-year-olds from all countries and regions were analysed and computed. The analyses were conducted separately for boys and girls, as previous literature strongly suggests that the associations between school variables and health outcomes are gender related. For example, girls are more prone than boys to developing subjective health complaints as a result of stress in school. Table 4.8 shows the health outcome factors and their associations with the school environment and school adjustment variables, using aggregated data from all countries and regions.

The determinants are modestly correlated with the selected health outcomes, with little evidence of gender differences in the patterns of association found. Academic achievement is associated with fewer subjective health complaints, good self-rated general health, greater overall life satisfaction and a lower risk of smoking. The same pattern can be found for young people who report liking school. Young people who do not feel greatly pressured by schoolwork are much more satisfied with their lives and have fewer subjective health complaints. Social support from peers also seems moderately to influence young people's subjective health.

Perceived school experiences and health outcomes

The following analyses are based on individual country data on young people aged 11–15 years.

In the 2001/2002 HBSC survey, life satisfaction was measured by the Cantril ladder, which has 10 steps, rising from the worst possible life to the best. A score of step 6 or above was used to indicate life satisfaction. Young people with a positive experience of school show higher life satisfaction, with levels ranging from 87% in Croatia, Latvia and Poland to 98% in Sweden and the Netherlands (Fig. 4.9). In contrast, those with a negative school experience are less satisfied with their lives, with percentages ranging from 40% in Croatia and Sweden to 83% in Germany. All the countries and regions show this pattern.

The 2001/2002 survey asked young people to rate their health as excellent, good, fair or poor. The analysis presented here focused on the data from those rating their health as excellent or good. As shown in Fig. 4.10, self-rated health takes the same pattern as that for life satisfaction. From 60% (Ukraine) to 100% (Estonia, Finland, Greenland, Portugal and Sweden) of the young people with positive school experiences rate their health as good or excellent: up to twice the levels for the group with negative school experiences (from 28% in Ukraine to 80% in Israel). This profile is found in all the HBSC countries and regions, although they vary in levels of self-rated health, as noted in Chapter 3.

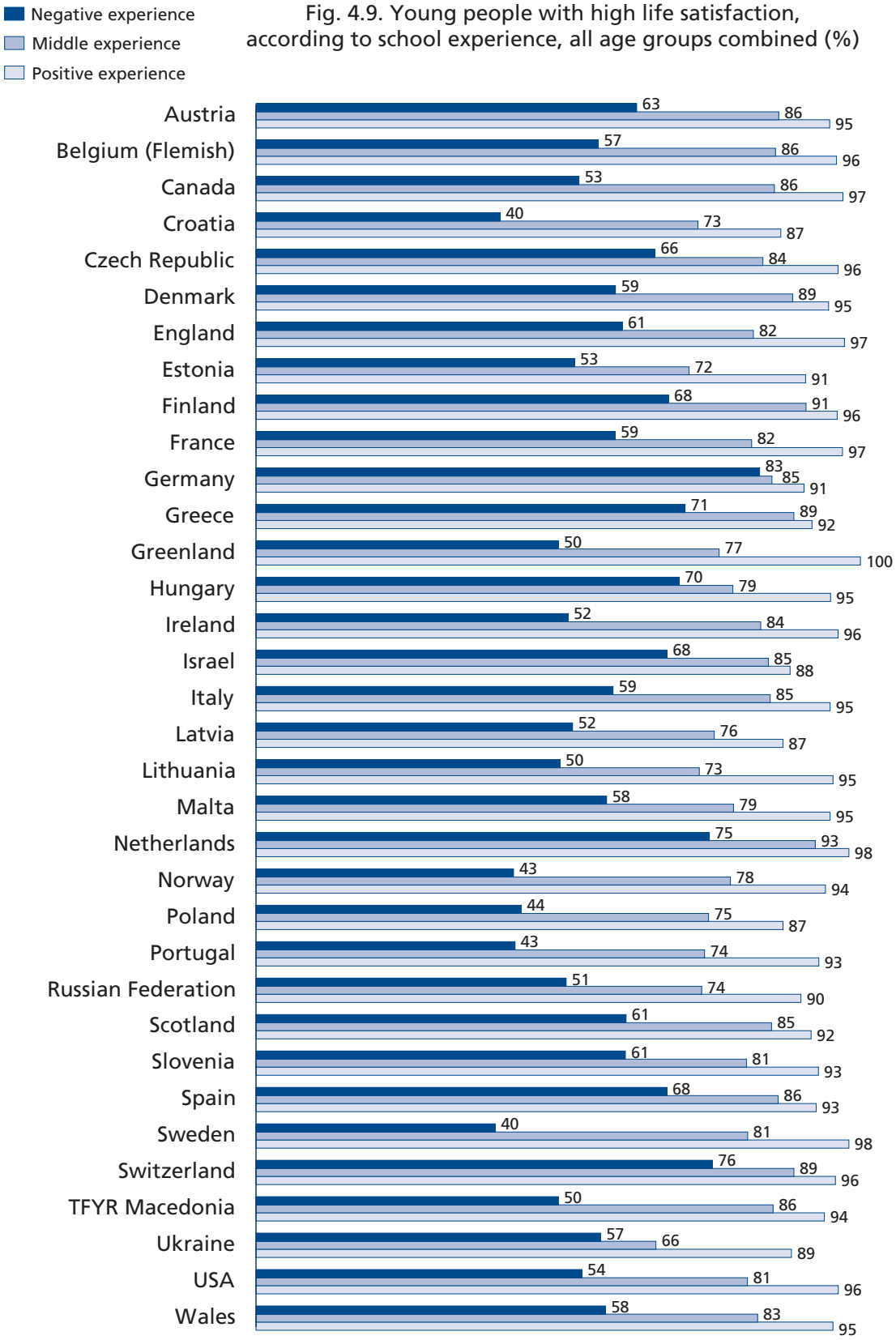
Table 4.8. Associations between school variables and health outcomes, 15-year-olds

Health outcomes	High academic achievement		Liking school a lot		High pressure from schoolwork		High student support	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Multiple subjective health complaints	–0.13	–0.10	–0.22	–0.18	0.25	0.21	–0.16	–0.16
Good or excellent self-rated health	0.21	0.18	0.18	0.15	–0.13	–0.11	0.20	0.20
High life satisfaction	0.23	0.19	0.25	0.19	–0.16	–0.15	0.24	0.21
Frequent smoking	–0.25	–0.22	–0.18	–0.16	0.02	0.02	–0.01	–0.04

Strength of statistical association[a]		
Weak (< 0.1)	Medium (0.1–0.25)	Strong (> 0.25)

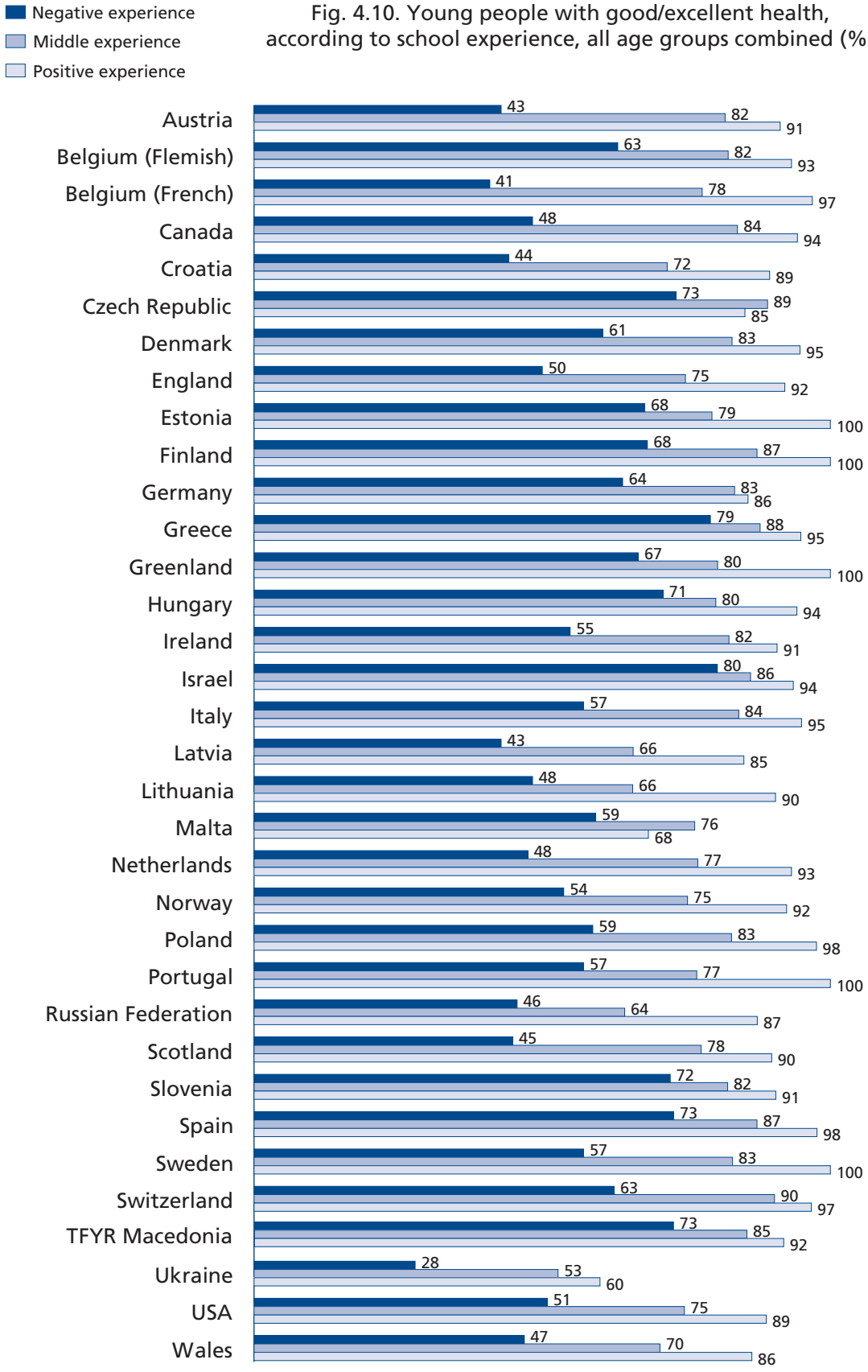
[a] Spearman's rho.

Fig. 4.9. Young people with high life satisfaction, according to school experience, all age groups combined (%)



Note: Data are unavailable for Belgium (French).

Fig. 4.10. Young people with good/excellent health, according to school experience, all age groups combined (%)



Note: Data are unavailable for France.

Subjective health complaints include headache, back-ache, stomach-ache, feeling low, irritability, nervousness, sleeping difficulties and dizziness. The young people with positive school experiences suffer less from multiple recurrent health complaints than those with negative school experiences (Fig. 4.11). The levels for the former range from 8% (Finland) to 64% (Estonia) and those for the latter, from 68% (Austria and Denmark) to 93% (Belgium (French) and Italy). This disparity can be observed in all countries and regions, regardless of their differences in the average percentage of young people reporting multiple recurrent health complaints.

The same pattern of relationship was found between frequent smoking and perceived school experiences in all countries and regions except Portugal and Greenland, although the average percentage of frequent smokers varies widely. Young people with negative school experiences are more likely to smoke frequently than those with positive experiences (Fig. 4.12). Levels for the former (ranging from 21% in Greece to 64 % in Hungary) are up to six times those for the latter (ranging from 3% in England to 27% in Finland). Only Greenland shows the opposite pattern: more of those in the group with positive school experiences smoke at least weekly. In Portugal, both groups show the same percentage of frequent smokers.

Gender differences in school experiences and health outcomes

To investigate how life satisfaction, self-rated health, recurrent subjective health complaints and frequent smoking are rated by the two genders in relation to their school experience, analyses of the associations were carried out separately for girls and boys using data from 15-year-olds only.

More than 90% of the total HBSC sample of 15-year-olds who report positive school experiences also report high life satisfaction and very good self-rated health (Table 4.9). Nearly 80% of all who report negative school experiences report multiple recurrent subjective health complaints and 37% report smoking frequently. Splitting the sample by gender, girls with negative school experiences report high life satisfaction and good or excellent health significantly less often than girls with positive experiences. They also report a significantly higher level of multiple recurrent subjective health complaints. For boys, however, the differences in the frequency of these reported health outcomes are not so marked between the groups with positive and negative school experiences.[4] Further, girls report lower levels of positive health outcomes than boys across all age groups. These findings strongly support the view that 15-year-old girls are a risk group for poor subjective health in association with negative experiences at school.

Bullying and health outcomes

As discussed in Chapter 3, bullying is a serious risk factor for negative health outcomes. To analyse its impact, correlations were calculated based on the total aggregated data on 15-year-olds, split by gender.

Table 4.9. Gender differences in health outcomes in relation to school experience, 15-year-olds (%)

Health outcomes	Positive (%)			Middle (%)			Negative (%)		
	Girls	Boys	Total	Girls	Boys	Total	Girls	Boys	Total
High life satisfaction	93.4	94.7	94.0	78.2	85.4	81.6	53.0	63.4	57.6
Good or excellent self-rated health	89.3	95.0	91.8	73.4	84.6	78.6	49.1	65.1	56.3
Multiple recurrent health complaints	45.7	30.3	38.9	68.1	49.1	59.1	86.5	71.7	79.9
Frequent smoking	12.9	12.2	12.6	22.8	23.5	23.1	35.6	38.0	36.7

[4] A statistically significant interaction between gender and school experience groups was examined using analysis of variance (ANOVA). Results of a "gender by school experience" analysis (gender * school experience) are as follows: subjective health complaints: $P = 0.019$; self-rated health: $P < 0.001$; life satisfaction: $P < 0.001$; smoking: $P = 0.428$.

Fig. 4.11. Young people with two or more subjective health complaints per week, according to school experience, all age groups combined (%)

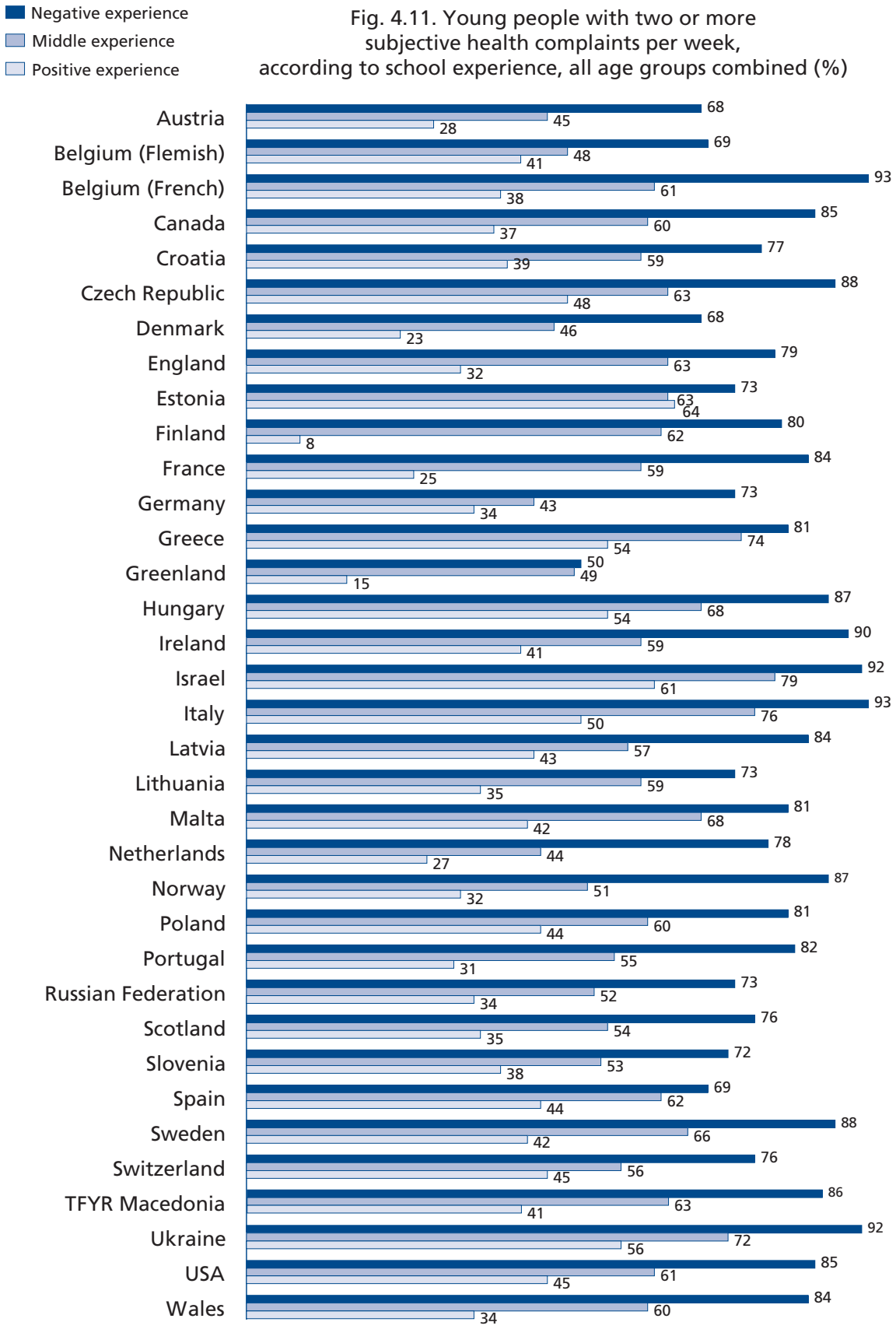


Fig. 4.12. Young people who smoke at least once a week, according to school experience, all age groups combined (%)

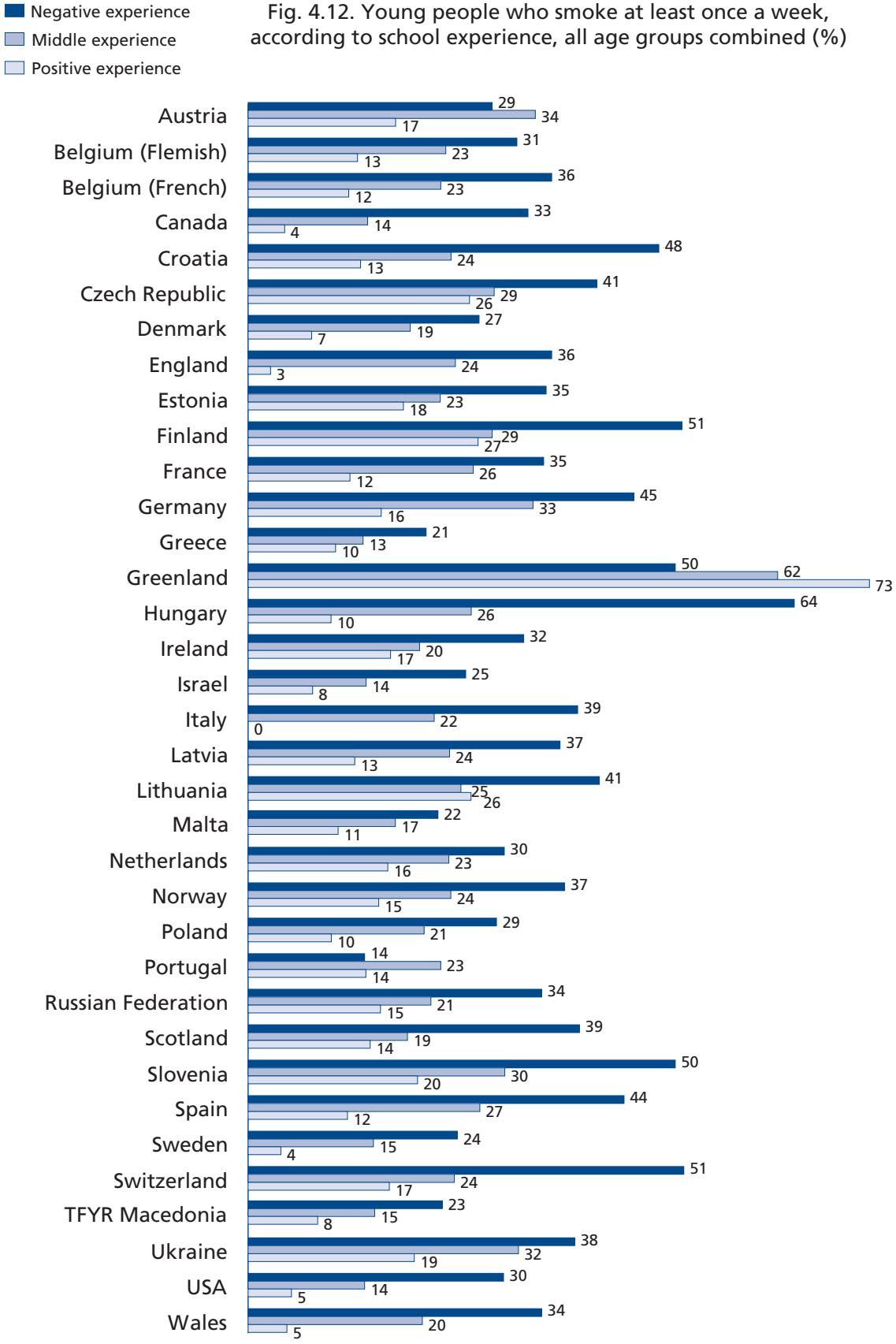


Table 4.10 represents the strengths of associations between the determinants (being bullied or bullying others) and the outcomes (subjective health complaints, self-rated health, life satisfaction and smoking). Both determinants are moderately associated with subjective health complaints in both girls and boys. Being bullied is somewhat more strongly associated with a reduction in life satisfaction than bullying others, while bullying others is more strongly associated with smoking. These relationships show no gender difference.

Because social relationships and support play a major role in the development of self-esteem, the feeling of being accepted and respected by peers therefore contributes substantially to good overall subjective health in both boys and girls.

Discussion

The consistent cross-country relationships demonstrated between the school environment and school adjustment on the one hand and health-related outcomes on the other indicate this environment's importance in influencing young people's health. The direction of causality, however, is unclear. Satisfaction with school and its social components may increase life satisfaction and perceived health status, or high life satisfaction and good perceived health may increase satisfaction with the school environment. Indeed, dynamic interactions among the studied phenomena are likely. To present a clear argument, we consider school as the determinant and health as the outcome while acknowledging that the relationships are likely to be more complex and dynamic.

Subjective health and school experience

Examining relationships between different elements of school life and health outcomes shows effects for both boys and girls, with better outcomes on all health measures for those who like school, feel they perform well, have a high measure of student support and do not feel pressured by schoolwork. When the composite measure school experience is used, the school environment seems to affects general self-rated health, life satisfaction and subjective health complaints more strongly in girls than boys.

In adolescence, social support from classmates influences health and well-being. Social relationships and support may be seen as components crucial to human life, giving a global sense of belonging or providing situational or task-specific support. Schoolwork and other school-related demands should be adjusted to students' levels of development and functioning, to prevent health-related problems such as subjective health complaints and dissatisfaction with life. Academic achievement has an immediate effect on self-esteem and general well-being. Young people who succeed academically tend to enjoy school, while those who fail tend to feel alienated from it. We argue that perceived social support and achievement influence the development of young people's self-esteem, self-perception and health behaviour, which in

Table 4.10. Associations between being bullied/bullying others and negative health outcomes,15-year-olds

Health outcomes	Being bullied		Bullying	
	Girls	Boys	Girls	Boys
Multiple subjective health complaints	0.18	0.17	0.14	0.16
Good or excellent self-rated health	–0.09	–0.12	–0.07	–0.05
High life satisfaction	–0.13	–0.15	–0.08	–0.07
Frequent smoking	0.01	0.01	0.17	0.17
Strength of statistical association[a]				
Weak (< 0.1)	Medium (0.1–0.25)	Strong (> 0.25)		

[a] Spearman's rho.

turn affect their current and future health and life satisfaction. The planning of any health or school intervention programme requires careful examination of the complex interaction of these factors and the involvement of other significant factors.

Subjective health and bullying

Our findings suggest that bullying is associated with negative health outcomes and that the victims are more affected than the bullies. Victims experience subjective health complaints more often, and report poorer self-rated health and lower levels of life satisfaction. Although there are statistical differences between those who bully and those who do not, they are of small magnitude and no practical importance for practitioners and policy-makers. Bullies and victims, however, can be at risk of developing negative health outcomes.

Awareness of bullying at school therefore needs to be increased to protect young people from violence and enhance their quality of life, and some prevention programmes have been implemented in some countries *(25–27)*. Chapter 3 (see pp. 142–143) presents further discussion of the prevention of bullying.

Results across countries

The descriptions of associations between aspects of school experience and various health outcomes across countries and regions illustrate clear and consistent patterns. These will be subjected to more detailed analysis for future reports.

The analysis presented here supports the relationship between better perception of school and better subjective health in most countries and regions. The observed pattern indicates that this perspective has much to offer in explaining differences in self-rated health, life satisfaction, health complaints and risk behaviour. To account for these differences, it may be necessary to focus on variations in schools and school environments between countries.

Policy implications

How relevant are the associations between subjective health and school experience for policy-makers and practitioners? Should there be much more focus on girls throughout their school career? Given the modest strength of the associations and the magnitude of their impact on young people's health, this is not warranted. Despite the gender differences observed, feeling pressured by schoolwork, failing academically, disliking school and having inadequate peer support are of fairly equal practical concern to both genders. They can lead to lower quality of life, poorer self-rated health, more subjective health complaints and a higher risk of smoking.

Conclusion

A healthy school environment should be seen as beneficial to health, and every effort should be made further to improve school conditions for all young people, regardless of their age and gender. Acknowledging the importance of a healthy school environment in the Ottawa Charter for Health Promotion *(28)* was a first step. The European Network of Health Promoting Schools *(29)* is committed to promoting health in schools by making them safe and health-enhancing social and physical environments.

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Puberty and health – *Candace Currie and Ágnes Németh*

Introduction

An individual's personal characteristics and experiences, in combination with the influence of environmental factors, shape development during adolescence, including health development. While the previous sections in Chapter 4 study the influence of social factors, this section considers the process of puberty and how it may affect young people's health and health behaviour. The period of puberty – the phase of human development during which accelerated physical growth and sexual maturation occur – marks the age group of young people studied in HBSC.

During puberty, underlying biological processes result in physical changes that have clear intellectual, emotional, social and behavioural implications, many of which result in health-related outcomes. The onset of puberty varies between individuals, as does the pace of physical changes. Some reach puberty well before others, and this has been attributed to the influence of a wide range of factors: genetic and biological influences, stress, socioeconomic status, environmental toxins, nutrition and diet, exercise, amount of body fat, body weight and chronic illness *(1)*. This section explores how the timing of puberty relates to health outcomes in girls in particular, and argues that an understanding of this issue should inform health promotion programmes and policies.

Young people's capacity to adapt to the changes of puberty seems to depend at least in part on the timing of puberty in relation to the majority of their peers of the same age *(2)*. In general, being in synchrony with this majority seems to facilitate adjustment to change in girls. Deviation from the norm, especially early puberty, seems to put girls at particular risk of certain health outcomes. These health risks may stem from both psychological and social responses to early maturation.

The changes in bodily appearance that occur during puberty can present a major challenge of adjustment. As illustrated in Chapter 3 (pp. 120–129), young people become increasingly body conscious during puberty *(3)*. This can affect how they feel about themselves and relate to others, and ultimately influence their social and health-related behaviour. Earlier HBSC research found that satisfaction with appearance contributes to happiness and confidence in both boys and girls *(4)*, but is especially important to self-esteem in girls *(5)*.

Early onset of puberty can represent a health risk for girls in terms of negative body image. Since they have a greater proportion of body fat than their later maturing peers, they may be more likely to consider themselves too fat and in need of losing weight *(6)*. This can result in a preoccupation with weight control and an unhealthy relationship with food, common among many young women *(7,8)*. Early maturation has also been associated with other forms of risk behaviour, including earlier initiation of sexual activity and substance use *(9,10)*.

While a great deal of research has examined the effect of pubertal timing on health-related outcomes in adolescence in the United States and some European countries, little cross-national research has been carried out *(11)*. HBSC therefore provides a unique opportunity to study aspects of the impact of puberty on health and behavioural outcomes across a large number of countries in the WHO European Region, as well as Canada and the United States. One limitation, however, is that only data on puberty among girls were collected for reasons explained below.

Methods

Finding suitable measures of puberty for use in the cross-national surveys is a challenge for the HBSC study. Questions about physical development need to be culturally appropriate, understandable, sensitive and acceptable not only to young people but also to their schools and parents.

Taking these issues into account, the onset of menstruation (menarche) was selected as a reliable indicator of puberty in girls *(11)*. No suitable indicator was established for boys for the 2001/2002 survey, so this section does not address them. Some countries and regions included indicators for male puberty

used in other studies, however, and their findings will be used in developing indicators for boys in future HBSC surveys.

The group selected for examination in this section comprises 15-year-old girls, the vast majority of whom (97%) had reached menarche. The analyses focus on the relationship between reported age at menarche and a range of health-related outcomes that previous research has implicated as sensitive to pubertal timing. The groups compared are made up of girls classified as early maturing (reaching menarche at the age of 9–11 years), on time (reaching menarche at age 12 or 13) and late maturing (reaching menarche at age 14 or older). Those reporting having reached menarche at age 8 or younger (n = 24) were discounted. The analyses do not include Greenland, owing to the small number of 15-year-old girls in the sample.

Examinations of the results should take account of the fact that some analyses were based on small numbers of respondents, depending on the health-related outcomes investigated.

Results

Timing of menarche and health-related outcomes

Of the 15-year-olds who report having reached menarche (97%, n = 23 287), 16% were classified as early maturing, 64% as on time and 20% as late maturing.

Data on the variables menarche and dissatisfaction with body weight were available for 32 countries and regions; in all but 2, girls who reached menarche at 11 or younger are more likely to report that they are too fat than girls who were on time or matured late (Fig. 4.13). In 30 countries and regions, this association is statistically significant.

Trying to lose weight through dieting or other means is a common feature of the lives of adolescent girls, as reported in Chapter 3. Data were available on dieting and menarche for 32 countries and regions; in all but 5, dieting is most common among the girls who matured early (Fig. 4.14). In 16 countries and regions, this association is statistically significant.

Data were available on daily smoking and menarche for 32 countries and regions. In 27, daily smoking is more common among the girls who matured early than those had matured late (Fig. 4.15). The association is statistically significant in 16 countries and regions.

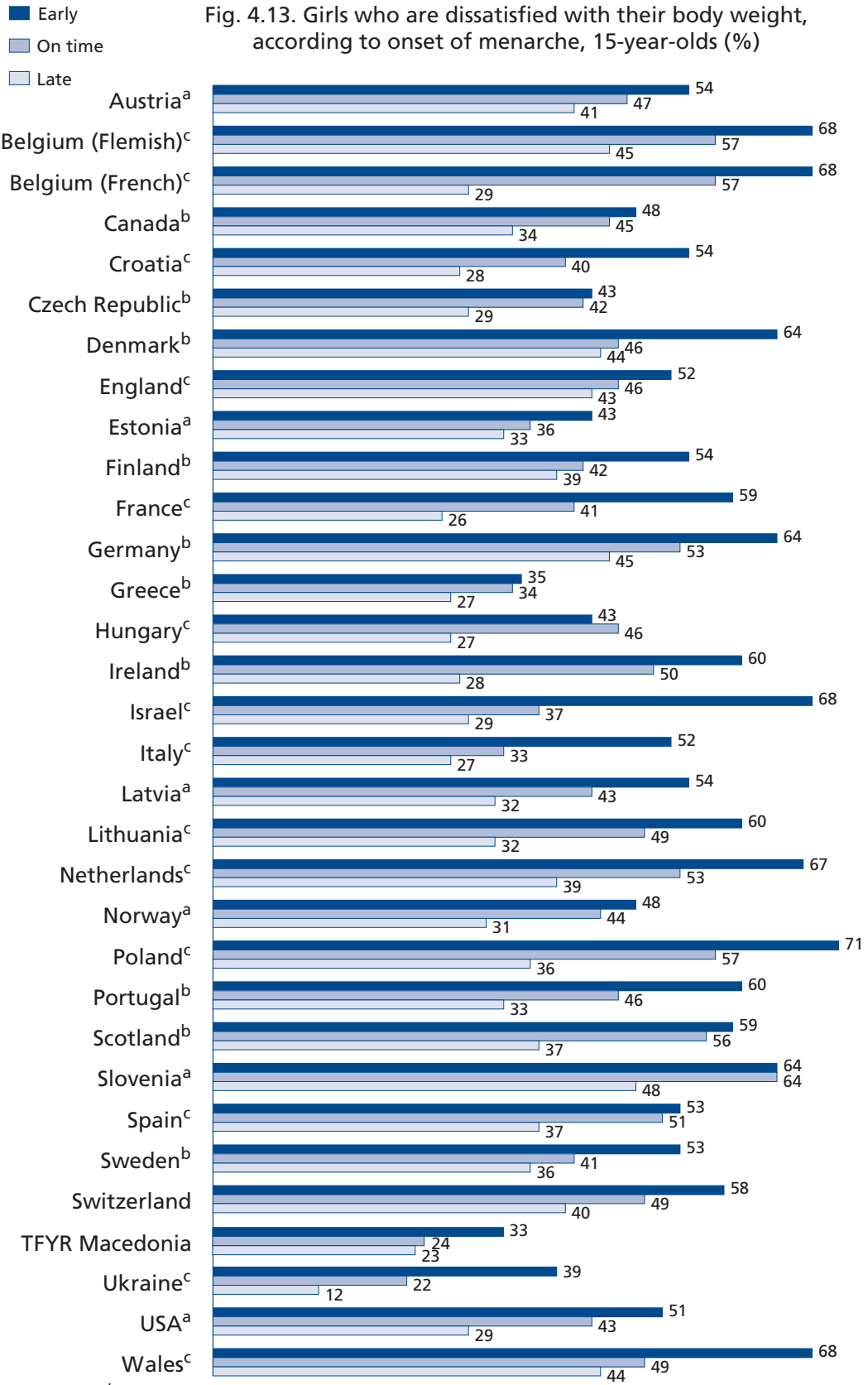
Data were available on the variables experience of sexual intercourse and age at menarche for 28 countries and regions. Analysis showed that, in all but four, the younger the age at menarche, the greater the likelihood that girls report having had sexual intercourse (Fig. 4.16). In 22 countries and regions, the association between early menarche and early sexual intercourse was statistically significant.

Discussion

The timing of puberty in girls varies considerably; any attempt to understand their health, health behaviour and well-being should take this factor into account. Early menarche affects a small but significant proportion of girls – in this survey, about one in six – and appears to place them at particular risk of negative health outcomes. These include smoking, dissatisfaction with body weight, unhealthy dieting and early sexual intercourse, confirming findings from other recent studies *(9,10,12–15)*. Interestingly, the effects of menarche at age 11 or younger are seen 4 or more years later, among the 15-year-olds studied here. Previously published HBSC research *(6)* found that early puberty affected body image and self-esteem in girls aged 11 and 13, but these new analyses indicate that the effects of early puberty are somewhat long lasting. Indeed, recent studies have identified effects of early puberty in girls that extend into middle age *(16)*.

What the analyses do not say is why early maturation is risky for girls. Psychological influences related to body image and perceptions of attractiveness provide some explanation. The prevailing view in western culture is that being thin is the most desirable body shape for girls and women, a view that is reinforced by media images *(17)*. Early puberty is likely to be associated with a greater proportion of body fat and a more rounded figure. Young girls experiencing this may feel unhappy about the shape of their bodies

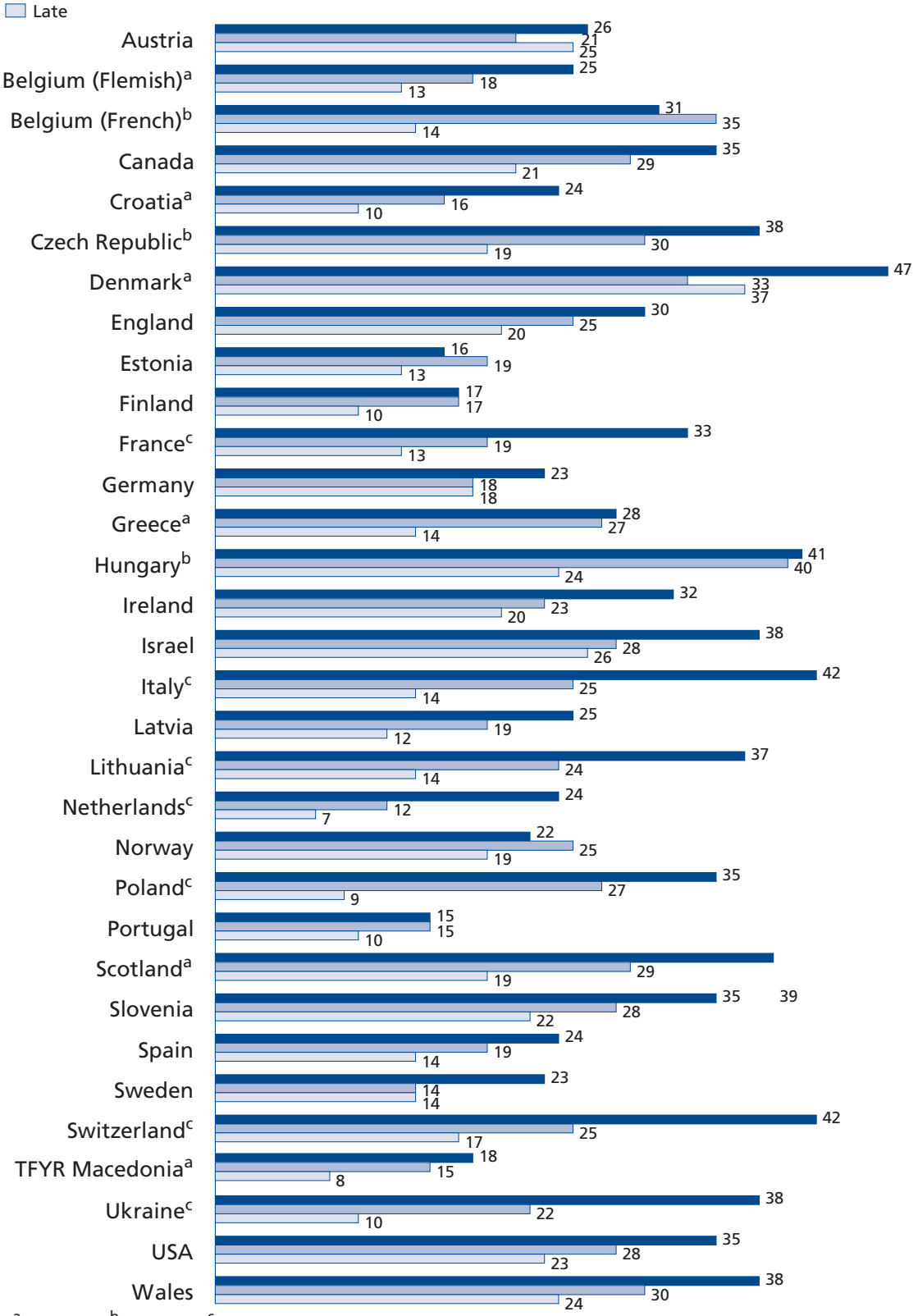
Fig. 4.13. Girls who are dissatisfied with their body weight, according to onset of menarche, 15-year-olds (%)



[a] $P < 0.05$. [b] $P < 0.01$. [c] $P < 0.001$.

Note: Data are not available for Greenland, Malta and the Russian Federation.

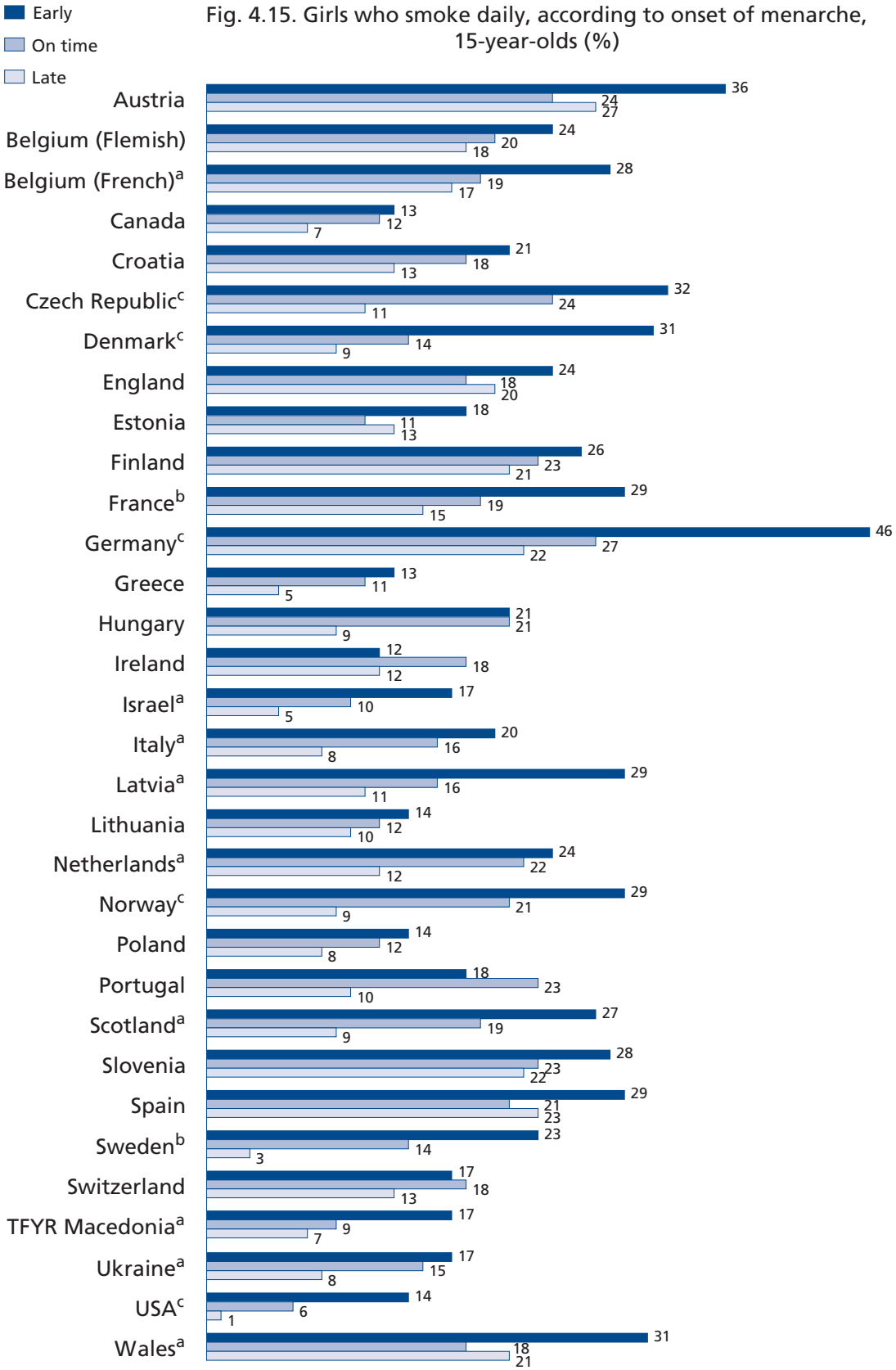
Fig. 4.14. Girls engaged in dieting and weight control behaviour, according to onset of menarche, 15-year-olds (%)



[a] $P < 0.05$. [b] $P < 0.01$. [c] $P < 0.001$.

Note: Data are not available for Greenland, Malta and the Russian Federation.

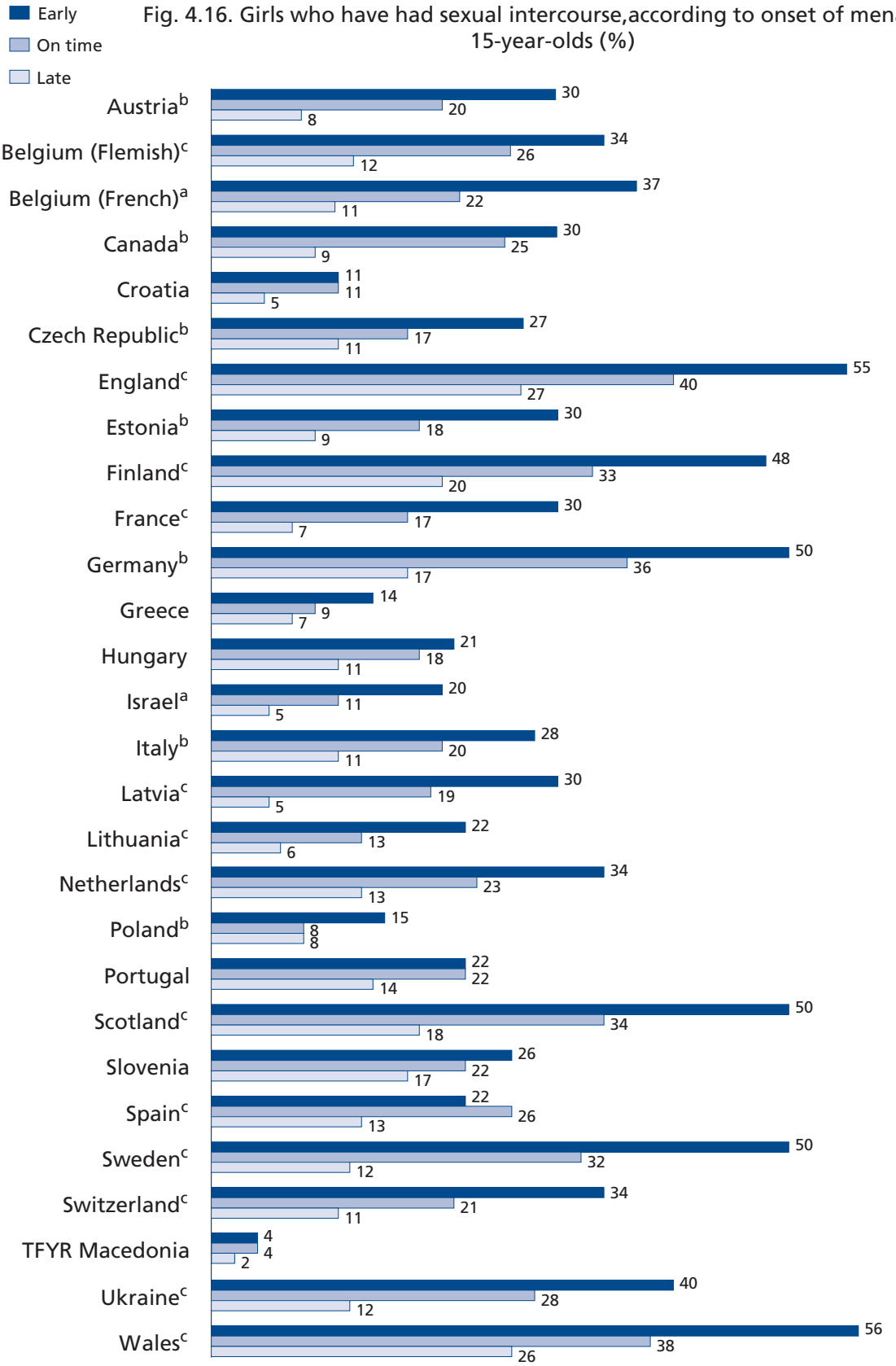
Fig. 4.15. Girls who smoke daily, according to onset of menarche, 15-year-olds (%)



[a] $P < 0.05$. [b] $P < 0.01$. [c] $P < 0.001$.

Note: Data are not available for Greenland, Malta and the Russian Federation.

Fig. 4.16. Girls who have had sexual intercourse,according to onset of menarche, 15-year-olds (%)



[a] $P < 0.05$. [b] $P < 0.01$. [c] $P < 0.001$.

Note: Data are not available for Denmark, Greenland, Ireland, Malta, Norway, the Russian Federation and the United States.

when they compare themselves with peers who are later maturing and therefore leaner. Adolescent girls are thought to be particularly sensitive and responsive to media presentations of the so-called perfect female body as slim and very often bordering on excessively thin. Girls' consumption of media in the form of magazines, television and films results in saturation with these images and increases the likelihood of their being dissatisfied with the shapes and sizes of their own bodies. Other studies have noted adolescent girls' increasing concerns with weight and thinness *(15,18)*.

Differences between eastern and western HBSC countries and regions in relation to the association between early puberty and body dissatisfaction might be expected, given that media images of slimness have been pervasive in North America and western Europe for longer. The consistent pattern across almost all countries and regions in the survey, however, suggests that the preference for a thin body shape in young females has been transmitted to cultures across the European Region. The desire for slimness may also explain the early onset of smoking among some girls, since some considered smoking to be an effective method of weight control *(19)*.

Peer socialization may be another factor to explain the effects of pubertal timing on health outcomes in adolescent girls *(9)*. Some have suggested that girls who mature early are often perceived as older and more mature than other girls of the same age. They may therefore socialize with older peers and consequently have more opportunity to engage in substance use; they may even come under more pressure to do so. Being younger, they may also be more sensitive and susceptible to conforming to the ideas of peers *(20)*. The earlier sexual behaviour reported for early maturing girls in the HBSC and other studies *(9)* could also result from their mixing socially with older peers. In addition, the hormonal changes associated with puberty enhance sexual interest and could be associated with the early initiation of sexual activity in early maturing girls *(20)*. Puberty also renders females sexually attractive to males and opposite-sex friendships are more common after maturation *(9)*.

This section presents early maturation as a risk factor for negative health outcomes in girls, while previous sections have identified a range of social risk factors, such as poor family communication, low family affluence and disliking school. What is the effect of an accumulation of these risks? Some researchers have begun to take a biosocial approach and examine the interaction of pubertal and social factors. For example, a study of eating problems in girls in the United States *(8)* found pubertal timing and parental relationships to have significant interactive effects. In this case, closer and friendlier relationships between daughters and both mothers and fathers were found to enhance the positive effects of on-time pubertal development and reduce the likelihood of developing eating problems. A study carried out in Germany *(21)*, examined the influences of pubertal timing, family processes and leisure activities on the timing of first sexual experience. A model that included parental monitoring, risky leisure activities and early puberty was found significantly to predict sexual initiation for girls and boys.

Taking the biosocial approach with the HBSC data involves developing questions to investigate the interaction between pubertal timing and peer, family and school influences. For example, are early maturing girls more likely to socialize with peers in the evenings and have more friends of the opposite gender? (These social patterns have been implicated in early substance use and early sexual initiation in this report and in other studies.) Does poor parental communication add to the risk associated with early puberty in girls? Further analyses of the data are needed to answer these questions. At this point, however, in many countries across the European Region and North America, early maturation places girls at greater risk of a range of negative health outcomes that may be compounded by other risks stemming from the social environment in which they are growing up.

Conclusions

Parents and schools need to be aware of the issues reported here and in related studies if the problems that can stem from early maturation are to be minimized. To be able to deal with issues of body image and healthy weight management, and with the social and sexual pressures that can arise from early physical development, girls need the support and advice of parents and schools.

Schools have a special role to play: for example, demonstrating sensitivity when discussing issues of body weight and size in the classroom, creating policies and practices to deal with bullying in school and ensuring that those in charge of sport and physical education classes are conscious of the embarrassment that some girls feel when having to use communal changing areas and to perform in front of others. A whole-school approach to raising awareness of the issue is needed. In Scotland, a training programme for teachers, Growing through Adolescence *(22)*, has been developed to give guidance on the eating habits of adolescents, body image and puberty.

Similarly, in designing health promotion programmes for this age group, countries need to take account of the risks of early initiation of smoking and sexual activity in girls who mature early. Most importantly, health education needs to meet the developmental requirements of young people and take account of the varying levels of maturity in the same age group.

Future HBSC research

Using the data collected in the 2001/2002 survey, HBSC has the potential to make a significant contribution to the understanding of the effects of pubertal timing on the health, health behaviour and well-being of girls in the WHO European Region and North America. No comparable cross-national surveys have attempted to investigate this issue. The data will be further examined to investigate the range of health and health behavioural outcomes influenced by pubertal timing, since only four examples are presented here: body image, weight control, smoking and sexual behaviour. Differences among countries and regions will be explored to reveal any patterning of these effects that can be linked to variation in cultural responses to puberty, such as degree of parental monitoring.

While raising many interesting questions, the data on puberty collected in the 2001/2002 HBSC survey are limited. Research indicates that menarche is a relatively salient and memorable event in girls' lives, so recall is accurate, although it becomes less so as the interval between menarche and recall increases *(23)*. In the HBSC study, the gap is only a few years; future HBSC surveys, however, should include a range of indicators of puberty in girls, as some measures are more robust than others.

As mentioned, this survey included no measures of puberty in boys because of the difficulty in selecting suitable indicators for cross-national use. Owing to the paucity of research on health outcomes related to puberty in boys, future HBSC surveys should include appropriate measures. A newly published review of the measurement of puberty *(24)* will be taken into account when selecting items for the 2005/2006 HBSC cross-national survey, along with the experiences of the countries and regions that included their own questions when conducting their surveys in 2001/2002.

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Comment – *Oddrun Samdal and Leslie Alexander*

Each section of Chapter 4 shows that young people with positive experiences – who feel that they have support and adequate resources – report higher levels of life satisfaction, fewer health complaints and more health-enhancing behaviour than those with more negative experiences.

In the family setting, young people who report that they communicate easily with their mothers and/or fathers also report better health and lower levels of smoking than those who find such communication difficult. An examination of aspects of the family structure in a subgroup of six countries and regions showed marked variations. Young people living with both their parents report better health and lower levels of smoking than those living in single-parent families or stepfamilies. Child–parent communication, however, is only slightly less easy in the latter, so other factors relating to family structure that may influence the health and health behaviour of young people need to be explored further within the HBSC data, including socioeconomic status and the quality of young people's relationships with both family and peers.

Socioeconomic status is consistently related to health and health behaviour in most of HBSC countries and regions. The general trend is that young people who perceive their socioeconomic position to be high also report better health, fewer subjective health complaints and higher levels of physical activity. A similar relationship is observed for smoking, but it is less consistent than those with health status, health complaints and physical activity. This indicates that other social, cultural and developmental factors may be more important in determining this behaviour.

In the school context, all countries and regions show a very strong and consistent pattern supporting the risk and resource perspectives. Young people who report liking school and receiving peer support also report less school-related stress. They further report not being bullied, being in better health, having higher levels of life satisfaction, having fewer recurrent health complaints and smoking less than peers with more negative school experiences.

Peer contact also affects young people's health. Those who report having many friends also report adopting more health-enhancing and health-compromising behaviour than their peers with fewer friends: for example, higher levels of both physical activity and smoking. Gender distribution within a circle of friends may have a bearing on whether the health behaviours adopted enhance or compromise health, as shown with respect to smoking in 13-year-old girls. The effects of socialization in conjunction with the maturation process warrant further examination. Spending a lot of time with friends in the evenings also seems to be more strongly related to health-compromising behaviour than frequent meetings after school. Various other factors influence these health-related outcomes, however, not least when and with whom time is spent.

The role of pubertal timing in girls' health and health behaviour highlights the need to consider developmental as well as social contexts, and future work must address the interplay between them. The risk of smoking, dieting and early sexual initiation can all be predicted from pubertal timing in girls. Further data analyses should investigate the extent to which the social support of parents, peers and school can mitigate these outcomes, and the role of peer socialization, particularly in terms of opposite gender relationships.

The exploratory nature of this section highlights HBSC's potential to make a major contribution to a better understanding of how contexts shape the health of adolescents, thus guiding policy and practice efforts to help improve their health.

Chapter 5

Discussion and implications –

Antony Morgan

Introduction[5]

This book presents the preliminary findings of the sixth HBSC survey. It provides a wealth of information about the health, well-being, health-related behaviour and life circumstances of over 162 000 young people aged 11–15 years, living in 35 countries and regions in the WHO European Region and North America.

The report demonstrates the study's capacity to examine the health and health behaviour of young people across a wide range of cultures and contexts. Chapter 2 introduces the reader to a number of key contexts (peer relationships, school environment, family and socioeconomic status) and how they relate to young people's health. Chapter 3 presents key indicators of health and health behaviour and describes their geographical, age and gender patterns. Chapter 4 illustrates how HBSC data can be used to investigate

[5] Special thanks to Lina Kostarova Unkovska, Centre for Psychosocial and Crises Action, Skopje, The former Yugoslav Republic of Macedonia, and Ilze Kalnins, University of Toronto, Canada, for their valuable contribution to this chapter.

relationships between a new set of social and developmental indicators representing the life circumstances of young people, as well as the indicators of health and health behaviour presented in Chapter 3.

Chapter 5 aims to introduce a policy context relevant to the HBSC study, to summarize the main findings presented in Chapters 2–4, and to discuss their implications for the future development of policies and programmes to improve the health and well-being of young people in the European Region and North America.

Policy context for HBSC in 2001/2002

Globally, new public health agendas increasingly recognize that health experience is shaped not only by genetic factors and individual lifestyles but also by a wide range of social, cultural, economic, political and environmental factors *(1–3)*. Through the Health21 policy framework *(1)*, the Member States in the WHO European Region have made a commitment to designing, implementing, monitoring and evaluating innovative policies that integrate current efforts to promote healthy lifestyles and take account of physical, economic, social and cultural perspectives.

These agendas have been developed on the basis of a growing body of evidence accumulated over the last 20 years, which demonstrates that people who live in disadvantageous social circumstances are more prone to illness, distress and disability, and die sooner than the more affluent *(4–7)*. Moreover, evidence from around the world points to an increase in the gaps in health status and health care by socioeconomic status, geographical location, gender, race, ethnicity and age group *(8,9)*.

Although the scientific literature continues to debate the existence of health inequality during adolescence *(10,11)*, Call et al. *(12)* argue that health experience during this critical period has long-term implications for both the individual and for society as a whole. In other words, whether or not inequalities exist during this period, adolescence is an opportune time to invest in young people and to help them make the most of their teenage years, while laying strong foundations for their future health.

While much evidence exists on the many types and causes of health inequality, the growing consensus in the literature *(13,14)* is that much less is known about what to do about it. At both national and international levels, much effort is therefore being made to develop an evidence base on the most effective initiatives and interventions to reduce health inequalities *(6,7,15)*. The HBSC study is uniquely placed to contribute to this endeavour with respect to adolescents, in terms of both establishing the extent of the health inequalities that may exist in this age group and in providing insight into the type of action required to promote health for all both now and in the future.

There is still much to learn about how best to tackle health inequalities. Gillies *(14)* has shown that effective interventions to improve health, particularly among the most disadvantaged, are characterized by and work best when the people targeted by the interventions are involved in all aspects of their design and implementation. Current national and international policies *(1,2)* place renewed emphasis on community-based approaches to health promotion, in an effort to empower the groups at particular risk and ensure the appropriate participation of target groups.

Gillies argues that effective health promotion strategies must ensure such participation in setting local and national agendas and collaboration between the public and key protagonists, whether they be professionals, employers, health service providers, organizations or policy-makers. The notion of children as stakeholders, whose views need to be taken into account, has been rather slower to take hold, but the United Nations Declaration of the Rights of the Child has provided a rallying point for advocates of children's participation. The need for such involvement is embedded in the goals of UNICEF *(16)*, which encourage civil-society organizations and the private sector to promote the authentic involvement of children in decisions that affect their lives.

Earls and Carlson *(17)* note that the success of child health promotion depends on a fundamental shift in attitude towards improving the environments in which children grow up while respecting their

capabilities as citizens. Call et al. *(12)* warn that failure to keep adolescents as an integral, rather than an alienated, part of society may at the very least mean the loss of a generation and a crucial opportunity for the advancement of society.

Notions of participation in and promotion of civic life in policy development and implementation have stimulated debate among academics, policy-makers and practitioners about the potential contribution of social capital to reducing health inequalities. This concept recognizes that social networks and levels of participation and trust in a community are important influences on the health of individual members and on local capacity to address health problems *(18)*. Some authors *(14,19)* have put forward social capital as one means of building an evidence base that demonstrates the success of community-based approaches. While a fast growing body of research reveals much about the relevance of social capital to adult health, much less is known about its relevance to the health of young people. In the 2001/2002 HBSC survey, a unique module of questions was developed to explore the concept of social capital as it relates to young people, and many countries and regions included these questions as optional items in their questionnaires. Although this report presents no data on social capital because of the optional status of the items, further analysis of the data received has much to offer in developing the understanding of the role that social capital could play in young people's health development.

In summary, growing numbers of countries around the world have made health inequality a key feature of their health strategies. Much is already being done to reduce inequality in some, but there is still much to be learned about how best to approach the challenge of improving the health of the most vulnerable. An evidence base on inequalities in young people therefore needs to be developed urgently as a step towards providing solutions to these problems. The HBSC study is ideally placed to contribute to this evidence base.

Building an evidence base on young people's health and well-being

This section presents key information from the 35 countries and regions on over 50 indicators covered in Chapters 2 and 4, and an up-to-date picture of the health, health-related behaviour and life circumstances of young people in the European Region and North America. It also provides evidence of the importance of the social context of young people's lives through findings from a number of secondary analyses that aim to establish the links between life circumstances and a range of health and health-related outcomes.

Self-rated health and well-being

Overall, the health and well-being of the young people surveyed is good, as measured by three indicators of subjective health and well-being. Most are satisfied with their lives, perceive their health to be good and do not regularly suffer from health complaints, such as headaches or stomach-aches.

A sizeable minority, however, report either fair or poor health and experience a number of recurring health complaints. These negative health indicators are more common among older than younger respondents and among girls than boys; 15-year-old girls appear to be particularly vulnerable, with over 25% reporting either fair or poor health and 44%, one or more health complaints more than once a week. These patterns are consistent across most of the HBSC countries and regions, although in general eastern countries in the European Region tend to have higher rates of poorer health and lower rates of life satisfaction. Southern European countries tend to have higher rates of health complaints, across all age groups.

Smoking, drinking and drug use

Experimentation with tobacco and alcohol is common, and a substantial number of young people go on to regular smoking and drinking. Use increases with age and, by the age of 15, 23% smoke and 29%

drink on a weekly basis. The use of cannabis is also common among 15-year-olds; 22% have tried it and 8% report using it regularly (3–39 times during the previous year). Nevertheless, these figures mask important differences among countries and regions.

Overall, boys are more likely to report using tobacco, alcohol and cannabis, although this generalization masks a number of interesting and significant geographical differences. For example, smoking rates among 15-year-old girls either equal or exceed those for boys in about half of the countries and regions; in one country, this difference approximates 10%. Rates of smoking tend to be lower in eastern countries in the European Region, where more boys smoke than girls.

Consumption of alcohol varies considerably across countries and regions in terms of both amount and types of drink. For example, the highest percentages of 15-year-olds reporting weekly drinking were three-and-half times the lowest percentages. The considerable geographical differences in patterns of drinking among young people reflect different drinking cultures. In Israel and Italy, for example, young people report a relatively late onset of both drinking alcohol and drunkenness. Regular drinking, however, is very common in these countries. Finland has high rates of drunkenness and low rates of weekly drinking, while Italy has low rates of drunkenness and high rates of regular beer, wine and spirits intake.

Cannabis use shows the greatest variations among countries and regions; young people in Canada are more than 13 times more likely to report using cannabis in the previous year than those in The former Yugoslav Republic of Macedonia. In spite of this wide variation, however, at least 20% of young people used cannabis in the previous year in more than half of the countries and regions.

Physical activity and sedentary behaviour

This report demonstrates that, despite the importance of physical activity in promoting health and well-being, substantial numbers of young people in all countries and regions do not meet the current recommended guidelines: less than 50% across all age groups in almost all countries and regions. Activity levels decline steadily with age, and more steeply among girls. These figures may mask specific patterns of physical activity in some countries and regions; patterns show wide geographical differences. For example, among 15-year-olds, the proportions of young people meeting the guidelines range from around 50% in the highest-ranking country (the United States) to less than 20% in the lowest-ranking (Portugal).

While the young people surveyed spend a significant amount of time watching television, using a computer and doing homework, only weak positive associations are found between levels of sedentary behaviour and levels of physical inactivity. Nevertheless, time spent on such sedentary behaviour reduces the time available for more active pursuits.

Overall, over a quarter of the young people are high-level television viewers (four or more hours a day), a seventh spend more than three hours a day using a computer and almost a fifth spend more than three hours a day doing homework on weekdays. Patterns of sedentary behaviour also show considerable geographical differences. For example, among 11-year-olds, there was an almost seven-fold difference in high-level television viewing, a six-fold difference in high-level computer usage and a seventeen-fold difference in spending long hours on homework on weekdays. All countries and regions, however, show a consistent gender difference in high-level computer use and doing homework on weekdays. While watching television and videos is universally popular among both genders, high-level computer is more likely among boys and spending long hours on homework, among girls.

Eating habits, body image and obesity

Evidence from this survey suggests that a significant number of young people do not follow current nutritional advice. Fruit and vegetable consumption across the HBSC sample is relatively low and decreases with age. For example, the percentage that report eating fruit on a daily basis falls from 38% among 11-year-olds to 33% among 13-year-olds to 29% among 15-year-olds. Across age groups, girls consistently report eating fruit more often than boys. Vegetable consumption shows a similar pattern.

The largest differences across countries and regions are found in 15-year-olds: three-fold and five-fold differences in daily consumption of fruit and vegetables, respectively.

Dissatisfaction with body weight is common in both boys and girls, although many more girls perceive their bodies as being too fat (over 33% of girls and just over 20% of boys) and are on a diet or using other measures to lose weight (17.5% of girls and 8.2% of boys). Both behaviours increase greatly with age among girls, but not boys. The survey shows that while dissatisfaction with body weight shows substantial geographical differences, 23% of girls aged 15 report trying to lose weight.

Self-reported height and weight measurements were used to calculate BMI (body mass index), from which levels of pre-obesity and obesity were determined. Although the figures should be used with caution, a number of important observations were made. Boys are significantly more likely to be overweight than girls in all countries and regions. Overall, about one in seven 15-year-old boys is overweight (pre-obese or obese), and this figure rises to over one in three in the highest-ranking country (the United States).

Oral health

In general, the vast majority of young people brush their teeth more than once a day, complying with the recommended frequency of twice daily; girls are more likely to do so than boys. Here, too, geographical differences are substantial, with the lowest proportion for frequent brushing in 15-year-olds being less than one in five.

Injuries, bullying and physical fighting

Injuries requiring medical attention are common among the young people surveyed. Overall, 45% of all age groups report at least one injury in the previous year; about 50% of these report two or more, and 5% report four or more. In all countries and regions and all age groups, boys are consistently injured more than girls, with remarkably similar rates for 11-, 13- and 15-year-olds in the main. Nevertheless, there are important geographical differences: for example, the rate of injury (at least 1 in the previous 12 months) among 15-year-olds in the highest-ranking country was almost twice that in the lowest-ranking country. Across all three age groups, injury rates tend to be lower in Estonia, Hungary, Poland and The former Yugoslav Republic of Macedonia, and higher in Austria, Germany, Spain and Wales.

Considerable evidence shows that being involved in bullying and physical fighting and being victimized are common in the three age groups. One in three young people reports involvement in at least one of these during the previous year, although rates vary substantially across countries and regions. For example, the rates of bullying among 13-year-olds range from 17% to 71%. Boys report bullying and fighting more frequently than girls in all countries and regions, with three quarters showing rates for boys double or more those for girls. The gender difference is less consistent for victimization, however.

Sexual health

Overall, over a fifth of 15-year-olds report having had sexual intercourse, although the highest rates are 2.5 times the lowest ones. There are also gender differences. For example, in nearly a third of the countries and regions, boys are twice as likely as girls to have experienced sexual intercourse. In many more, the genders are close to parity, and in five (England, Finland, Germany, Scotland and Wales) girls are more likely than boys to have experienced intercourse.

As to the use of contraception, 75% of 15-year-olds report using condoms the last time they had sexual intercourse, with rates ranging from 64% to 89%. Boys are in general more likely to report the use of a condom, and the gender difference in condom use is as much as 20% in a few countries and regions.

Life circumstances and their influence on health

To understand the patterns of behaviour reported above, one needs an understanding of the social environment in which young people grow up. Chapter 2 presents a range of social indicators that could

be used to describe young people's life circumstances in terms of social position and experience within the family, at school and among peers. Key data from Chapters 2 and 4 are presented here, describing geographical, age and gender differences in life circumstances. They illustrate, through example, some of the early findings, which establish the links between the context of young people's lives and a number of health outcomes measured in the survey.

The 2001/2002 survey study has shown, as might be expected, that higher proportions of affluent families live in northern and western Europe and North America. Conversely, central and eastern European countries are much more likely to have families with low affluence.

Of the young people surveyed, over three quarters report living with both parents; just over a tenth live with a single parent and just under a tenth live in a stepfamily. While most young people across countries and regions live with both parents, single-parent families show considerable geographical differences. For example, there is a four-fold difference between the countries and regions with the highest and lowest rates. Differences in cultural contexts and societal norms clearly influence family structure patterns.

In general, young people in all age groups and all countries and regions communicate more easily with their mothers than their fathers. Girls find it harder to talk to their fathers than boys: at age 15, over half of the girls in two thirds of the countries and regions.

Having three or more close friends is fairly common across all age groups and all countries and regions. Despite the geographical differences, at least half the young people in the lowest-ranking country (Spain) report having a network of close friends. Frequency of contact with friends, however, varies substantially across countries and regions. For example, among 15-year-olds, although just under a third report spending four or more evenings a week with friends, percentages range from over 50% in the highest-ranking countries and regions to under 15% in the lowest.

Young people's experiences of school show considerable geographical, age and gender differences. Older children tend to like school less, perceive their performance to be poorer and feel more pressured by schoolwork, although peer social support is similar across age groups and good in general. Girls are more likely than boys to like school and have a strong sense of achievement, but feel more pressured by schoolwork. While these patterns are similar across countries and regions, overall proportions vary substantially. For example, there are:

- over an eight-fold difference between the lowest- and highest-ranking countries and regions in the proportions of 13-year-olds liking school;
- almost a three-fold difference among 15-year-old girls reporting good school performance; and
- a four-fold difference in 15-year-old boys feeling pressured at school.

This chapter presents preliminary analyses of the relationships between social and developmental contexts and health outcomes. They illustrate the importance of these relationships in shaping health experience and health-related behaviour. A range of health and behavioural outcomes demonstrates that support in the family and at school is important to well-being. Positive school experience is associated with better self-rated health and life satisfaction, fewer health complaints and a lower risk of smoking.

Young people from less affluent families are more likely to report poorer self-rated health, less frequent physical activity and more subjective health complaints (especially girls). The relationship between family affluence and smoking is less clear.

Chapter 4 (see pp. 196–204) also illustrates the importance of pubertal maturation as a developmental context. Early menarche affects a small but significant proportion (about a sixth) of girls in this study. It appears to place them at particular risk of negative outcomes, such as smoking, dissatisfaction with body weight, unhealthy dieting and early onset of sexual intercourse. This confirms findings from other studies. The effects of early menarche (at 11 years or younger) could be seen four or more years later, among the 15-year-old girls surveyed. Indeed, the literature suggests that the effects of early menarche can last

through the life-course *(20)*. In future surveys, HBSC needs also to consider the role of pubertal timing on boys' health, on which there is a gap in the literature, especially from a cross-national perspective.

Peer groups can be important predictors of health behaviour and their effects may be positive, negative or both. The survey found that the size of the peer group, as well as its gender mix, has some effect on smoking and physical activity patterns. Spending more evenings with friends during the course of a week is associated with higher levels of not only physical activity but also smoking and alcohol consumption, including drunkenness. Future HBSC work will enable a greater understanding of peer group features that promote protective rather than risk behaviour.

Family structure and ease of communication with both mothers and fathers are associated with self-rated health and smoking status. In general, the results are consistent for both genders and all countries and regions, showing the value of supportive family relations. They also highlight the need for further work on the role of the relationship between parents and their teenage children in shaping future health.

Implications for policy and practice

As mentioned. the findings presented here are based on preliminary analyses of the data from the 2001/2002 HBSC survey. They facilitate the continuing monitoring of young people's health and health behaviour across the WHO European Region and North America and contribute to a further understanding of the underlying determinants of health in young people aged 11–15 years. This report aims to provide the evidence required to convince international, national, regional and local communities that continued investment in the development of young people's health would help to sustain their health in the future and to improve health in society as a whole. While further work needs to be done towards fully utilizing the data to this end, a number of key issues emerging are worthy of immediate attention.

1. While evidence suggests that most young people perceive themselves as healthy and satisfied with life, significant proportions, both within and across countries and regions, are engaged in lifestyle behaviour that can harm their health. This means that health promotion, particularly among those in vulnerable circumstances, remains a priority for international and national policies.
2. The health experience of the young people surveyed varies substantially across a number of the indicators described in this report. Further analyses should therefore be made to ensure maximal use of the data to elicit why and how these differences occur. Policy-oriented analyses can provide an insight into why some countries and regions lag behind in certain health indicators and what can be learned from those that are doing well. More importantly, at the international level, capacity building is needed to ensure that countries and regions with poor health and health behaviour can learn from the experience of those in which improvements have been made through healthy public policy.
3. The survey demonstrates a number of gender and age differences in health experience. Health promotion programmes should be sensitive to the differences in the pace of development in young people aged 11–15 years and to the resulting variations in their needs. Age- and gender-specific policies and programmes would enhance the possibility of promoting equal opportunities for young people to secure and maintain health and well-being.
4. The analyses presented in this report confirm the importance of the context of young people's lives in determining their health and health behaviour. Life circumstances – including the wealth and structure of the family and social support from the family, peers and the school environment – influence health. Over 70% of what determines health is estimated to lie outside the scope of health services and can be attributed to demographic, social, economic and environmental conditions *(21)*. Policies and partnerships between government departments and various health sectors are therefore more likely to be effective if they take account of these multiple influences. The European Network

of Health Promoting Schools *(22)*, working through both departments of health and departments of education, provides a good example of crosscutting policy-making at the international level.

5. The improvement of health and the reduction of health inequalities can only be brought about by concerted effort at a number of levels. It is important, therefore, that policy-makers understand the different kinds of action required by specific groups at specific times to bring about improvement in the health of young people. Whitehead et al. *(23)* classify policies according to purpose and rationale. Zollner's scheme *(9)* proposes action to be taken at the international, national, regional and local levels.[6] An evidence base on young people's health needs to be constructed with these frameworks in mind.
6. Much is already known about the determinants of young people's health, but some gaps in information and understanding prevent progress being made, particularly in tackling health inequalities. There is therefore an urgent need to build an evidence base, which can help increase the understanding of the interrelationships among the complex array of health determinants. This will provide insight into how best to bring about the changes that would benefit health development. Again, HBSC is uniquely placed to contribute to building this evidence base, particularly through collecting data on the social determinants of health.

Active involvement of young people

Further, there is an urgent need to place more importance on the experience of young people themselves in decision-making on the most appropriate and effective means of action. As shown by the foregoing discussion of the policy implications of the HBSC study, much needs to be done at an individual and a societal level to improve the health of young people.

Research increasingly demonstrates that young people do not just react passively to the decisions and actions of adults. As Kalnins et al. *(24)* have noted, they are and must be seen as active in the construction and determination of their own lives, the lives of those around them and the societies in which they live. Jensen and Jensen *(25)*, for example, have shown that children and adolescents have well defined attitudes and clear views about health and social inequality, and concrete ideas regarding the improvement of conditions that affect their health. They see themselves as actors in working for change, and say that they are ready to invest effort in health promotion on a number of levels, including the individual, family, school and wider world.

As Moore *(26)* remarks, in developing new indicators for young people's health development, researchers need to think about whether and how some of these can be developed in partnership with young people themselves.

A shift in thinking is needed, so that policy-making prioritizes garnering the views of young people and involving them in the policy process. In the context of new conceptions of adolescents as social actors, the recommendations made here should result in the active participation of young people in promoting health for themselves, their families, schools and communities. Again, while some evidence from the literature on adult health *(14)* demonstrates links between participatory approaches and measurable health outcomes, little attention has been paid to the potential benefits for young people. Data available from the HBSC optional question items, yet to be analysed, has the potential to fill this gap. McNeish *(27)* urges those working in health promotion to develop participatory approaches that are not prescriptive but appropriate to context and that seek to maximize choice. At the international level, existing knowledge on the most effective ways to involve young people should be gathered, using qualitative and quantitative approaches.

[6] The international level is important to counter macro influences and foster solidarity. The national level is the key for setting policies' frameworks for action, social justice and accountability. The regional level has the potential to streamline public administration and bring together sectors for social and economic development. Action in the local community is the most important for achieving decent levels of living, work, education and leisure.

Conclusion

In summary, while the 2001/2002 HBSC survey offers much good news on the health of young people, much clearly remains to be done, particularly in providing young people from disadvantaged backgrounds with an equal chance of good health and well-being. Work is needed to create new knowledge, to maximize the use of existing information from different countries and to develop approaches that involve young people fully in all aspects of the health development process.

This report aims to provide the starting point for the next stage of development in promoting young people's health.

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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 ± 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:

$$se(p) = \sqrt{\frac{pq}{n}}$$ 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% ± 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[a]	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[b]	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

[a] MVPA score of 5 or more (see Chapter 3, pp. 90–97).

[b] 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[a]	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[b]	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

[a] MVPA score of 5 or more (see Chapter 3, pp. 90–97).

[b] 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[a]	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[b]	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

[a] MVPA score of 5 or more (see Chapter 3, pp. 90–97).

[b] 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 ± 4.2%, for both 70% and 30%, ± 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 ± 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	± 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

(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.

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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 ≥ 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 (%)						
11year 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) ≥ 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) ≥ 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

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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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