

# Gendered trends in early and very early sex and condom use in 20 European countries from 2002 to 2010

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**Background:** Sexual activity is often initiated during the adolescent period, and previous research suggests that the age of first sexual intercourse and condom use are crucial determinants of later sexual health. This study examined trends in adolescent sexual behaviours from 2002 to 2010 in 20 countries across four geographical regions of Europe. **Methods:** Data were collected by self-report questionnaires from 15-year-olds in classrooms during 2002, 2006 and 2010. Linear time trends were determined through logistic regression models, stratified for gender. **Results:** No linear trend over time was documented for most countries for sexual intercourse at the age of 13 or younger. Increased initiation among girls in Eastern Europe and decreased very early initiation among girls in Northern Europe emerged, along with a general increase in condom use in boys and most notably in girls. **Conclusion:** Overall prevalence of early and very early sexual intercourse initiation was quite stable in Europe between 2002 and 2010, while condom use increased. More detailed research and policy attention to the antecedents of non-condom use among young people is warranted; and further study of the relationships between age of sexual initiation and condom or pill use would be particularly valuable.

## Introduction

Sexual activity is commonly initiated during adolescence,<sup>1,2</sup> but while generally accepted as a normative part of the transition into adulthood, it can have negative consequences like sexually transmitted infections (STIs) and unwanted pregnancy. Youth are at a higher risk of negative outcomes than adults due to their relative physical, emotional and cognitive immaturity,<sup>3</sup> and tendency towards more frequent risky behaviours such as unprotected intercourse.<sup>2</sup> Recent data suggest that among adolescents in Western, Central and Eastern Europe<sup>1</sup> that have had intercourse, up to 40% had not used condoms during their last sexual intercourse. Thus, many sexually active adolescents remain at risk of infection by STIs. Although there has been a recent decline in HIV infection among adolescents in industrialized countries, rates of other STIs have increased.<sup>1</sup> Rates of adolescent pregnancy and abortion have decreased in Europe overall while in Eastern European countries rates remain moderate to high.<sup>2</sup>

Age of sexual intercourse initiation has decreased in several industrialized countries.<sup>1</sup> According to recent data, most sexually active 15-year-olds reported having had their first sexual intercourse at 14 years or older.<sup>4</sup> The earlier the first sexual intercourse occurs the more risky it potentially is,<sup>5,6</sup> and early intercourse initiation, relative to individual country norms, is a negative indicator of sexual health.<sup>3</sup> Addressing sexual behaviour among young adolescents is therefore of significance to public health.<sup>6</sup> Although there are data on sexual behaviour among adolescents worldwide, relatively little is known about those who initiate sex at a very early age (13 or younger)<sup>2</sup> and trend data are scarce, particularly in Europe.

This article aimed to (1) describe trends in sexual intercourse, very early sexual intercourse initiation and condom use during the last intercourse among 15-year-olds from 2002 to 10 in 20 countries; and (2) describe variations in these trends over time by gender at country and European regional level.

## Methods

Data presented are from the HBSC studies undertaken in 2002, 2006 and 2010. Countries that participated in all three studies and asked sexual behaviour questions were included. Regional allocation was according to the UN Statistical Classification.<sup>7</sup> Adopting politico-historical criteria, the Baltic countries were reallocated from the Northern to Eastern region as were Hungary and Ukraine, representing east European post-communist countries.

Details on the development of the questions and methods can be found elsewhere.<sup>7</sup>

The total sample was 91 297, 3628 (4.0%) were excluded for missing or inconsistent answers. The net dataset comprised 87 669 (51.8% girls, mean age = 15.60 years; SD = 0.34). In some countries weights were used to improve representativeness. To minimize the effects of sample size variation across countries/studies, samples were reweighted so that each country within a region had the same weight, the total weighted *n* being equal to its unweighted *n*, and country-level weights were recalibrated accordingly.

## Measures

### Sexual behaviours

Experience of sexual intercourse was assessed by the question 'Have you ever had sexual intercourse?' (Yes/No); age of sexual initiation 'How old were you when you had sexual intercourse for the first time?' (11 or younger/12/13/14/15/16/17 or older). Responses were dichotomized into '13 or younger' and '14 or older'. This dichotomy was adopted because 13 is the commencement of 'teenagehood', and provided sufficient numbers in each group for analyses. Condom use during last intercourse was assessed by combining answers to a question about contraceptive use during last intercourse that included condom as a choice, and a separate question: 'The last time you had sexual intercourse, did you or your partner use a

**Table 1** Ever had sexual intercourse and first sexual intercourse at age 13 or younger among 15-year-olds, by gender, year of study and country

	<i>n</i> <sub>boys</sub> <sup>c</sup>	<i>n</i> <sub>girls</sub> <sup>c</sup>	Ever had sexual intercourse								Had first sexual intercourse at age 13 or younger							
			Boys				Girls				Boys				Girls			
			2002 (%)	2006 (%)	2010 (%)	Trend	2002 (%)	2006 (%)	2010 (%)	Trend	2002 (%)	2006 (%)	2010 (%)	Trend	2002 (%)	2006 (%)	2010 (%)	Trend
Estonia	1911	2005	19.1	25.6	21.4	→	14.5	23.0	22.6	→	4.1	5.8	2.80	→	0.7	1.9	3.1	↗ **
Hungary	1618	2147	26.0	24.3	35.7	↗ **	17.2	20.5	23.8	↗ *	4.3	4.6	9.8	↗ **	2.2	1.9	2.8	→
Latvia	1565	1889	20.1	20.5	26.9	↗ *	12.9	17.6	17.7	→	3.2	2.5	6.8	↗ **	1.2	2.3	2.1	→
Lithuania	2694	2570	25.0	24.5	25.7	→	10.8	12.1	12.1	→	10.3	4.2	6.5	↘ *	3.6	1.6	1.2	↘ **
Ukraine	2301	2761	46.8	40.0	39.0	→	23.5	18.3	17.3	→	7.0	9.1	6.4	→	1.3	1.1	0.6	→
<i>E. Europe</i>	<i>10089</i>	<i>11372</i>	<i>27.4</i>	<i>27.0</i>	<i>29.8</i>	→	<i>15.8</i>	<i>18.3</i>	<i>18.7</i>	↗ *	<i>5.8</i>	<i>5.2</i>	<i>6.5</i>	→	<i>1.8</i>	<i>1.8</i>	<i>2.0</i>	→
Croatia	2453	2777	21.7	28.4	26.2	→	8.5	16.6	12.6	→	4.4	8.4	5.4	→	0.8	2.1	1.8	→
Greece	1918	2100	33.4	44.5	38.2	→	9.6	17.7	17.6	→	4.8	15.9	5.2	→	1.4	4.0	0.7	→
Macedonia <sup>a</sup>	2226	2235	36.7	32.8	28.4	↘ *	3.4	4.4	2.7	→	10.7	8.2	6.2	↘ *	0.1	0.3	0.2	→
Portugal	1527	1966	30.1	25.8	25.9	→	19.6	20.2	17.5	→	11.0	8.3	6.9	→	1.2	2.8	3.0	→
Slovenia	2072	2119	28.6	27.2	30.0	→	20.8	16.7	23.2	→	6.5	4.7	6.3	→	2.2	1.3	3.2	→
<i>S. Europe</i>	<i>10196</i>	<i>11197</i>	<i>30.1</i>	<i>31.8</i>	<i>29.8</i>	→	<i>12.4</i>	<i>15.1</i>	<i>14.7</i>	↗ **	<i>7.5</i>	<i>9.1</i>	<i>6.0</i>	↘ *	<i>1.1</i>	<i>2.1</i>	<i>1.8</i>	→
Austria	1372	1508	27.0	31.7	35.2	→	25.5	27.8	28.4	→	6.2	9.3	10.4	→	4.7	6.6	6.7	→
Belgium <sup>b</sup>	2354	2209	26.1	21.3	24.3	→	23.6	23.5	28.5	→	5.2	5.8	5.0	→	4.8	6.2	6.3	→
France	2741	2847	27.5	32.9	31.5	→	19.7	22.9	23.3	→	8.4	8.6	10.0	→	4.1	3.5	2.9	→
Netherlands	1898	1952	23.6	25.6	19.1	→	21.3	26.6	21.8	→	7.7	6.6	4.6	→	5.6	6.7	3.8	→
Switzerland	2276	2334	24.9	23.1	23.8	→	20.6	17.4	16.4	→	6.1	4.8	5.8	→	2.6	3.1	2.5	→
<i>W. Europe</i>	<i>10641</i>	<i>10850</i>	<i>25.8</i>	<i>26.9</i>	<i>26.8</i>	→	<i>22.2</i>	<i>23.6</i>	<i>23.7</i>	→	<i>6.7</i>	<i>7.0</i>	<i>7.1</i>	→	<i>4.3</i>	<i>5.2</i>	<i>4.4</i>	→
England	1873	2210	35.3	25.5	24.2	↘ *	40.2	30.6	33.2	→	10.1	6.8	6.7	→	8.9	6.1	5.1	↘ **
Finland	2495	2742	22.9	24.4	19.8	→	33.1	29.2	24.2	↘ ***	5.1	5.2	3.1	↘ **	6.1	4.6	2.8	↘ ***
Scotland	2667	2751	32.7	29.4	26.6	↘ *	34.6	33.6	35.3	→	7.6	6.2	8.6	→	10.1	8.3	7.4	→
Sweden	2287	2295	24.9	24.7	31.2	↗ **	31.3	32.1	32.5	→	8.0	6.6	9.0	→	8.2	5.8	8.5	→
Wales	2036	1968	28.2	30.1	28.9	→	39.7	40.7	38.8	→	5.2	5.4	7.0	→	8.0	6.8	6.6	→
<i>N. Europe</i>	<i>11358</i>	<i>11966</i>	<i>28.8</i>	<i>26.8</i>	<i>26.1</i>	→	<i>35.8</i>	<i>33.2</i>	<i>32.8</i>	→	<i>7.2</i>	<i>6.1</i>	<i>6.9</i>	→	<i>8.3</i>	<i>6.3</i>	<i>6.1</i>	↘ ***

*n*, percentages and linear time trends between 2002 and 2010 (HBSC 2002, 2006 and 2010).

Note: <sup>a</sup>Former Yugoslav Republic of Macedonia; <sup>b</sup>Flemish Community only; <sup>c</sup>Total unweighted *n* across the three studies; → no significant linear in- or decrease between 2002 and 2010; ↗ increasing trend between 2002 and 2010; ↘ decreasing trend between 2002 and 2010; \**P* ≤ .05; \*\**P* ≤ .01; \*\*\**P* ≤ .001. Percentages for European regions were calculated as means of the included countries and the data were reweighted accordingly for testing linear time trends.

condom?' (Yes/No). Those who answered yes to *either* of these questions were coded as having used a condom during last intercourse.

## Time

Time was operationalized in years beginning from 2002 (2002 = 0, 2006 = 4, 2010 = 8).

## Statistical analyses

Descriptive analyses examined sexual behaviours by gender and year. Condom use data were only drawn from sexually initiated adolescents. Linear time trends were determined through logistic regression models, with age as a control variable, while adjusting for the design effects inherent in the clustered sample. Descriptive data analyses and calculation of weights were carried out in PASW/SPSS 18.0 and logistic regressions in STATA 12.0. As sexual behaviour is gender-specific, results are stratified by gender.

## Results

### Have had sex

The rates of 15-year-olds who reported having experienced sexual intercourse ranged from 2.7 in Macedonia (girls, 2010) to 46.8% in Ukraine (boys, 2002). In most countries, boys were more likely than girls to have had intercourse, with differences generally larger in Southern and Eastern Europe, compared with Western. In Northern European countries, this gender pattern was reversed (i.e., generally higher rates among girls). No significant linear trend

over time 2002–06–10 was observed for most countries, apart from Hungary, Latvia and Sweden (increasing) and Macedonia, England, Scotland and Finland (decreasing). Regionally, there were no significant linear time trends for boys, but increasing trends for girls in Eastern and Southern European regions (see table 1).

### Early sexual intercourse initiation

The rates of 15-year-olds who reported having had sexual intercourse for the first time before age 14 ranged from 0.1% in Macedonia (girls, 2002) to 15.9% in Greece (boys, 2006). In most countries, boys were more likely than girls to report very early first sexual intercourse, with gender differences tending to be larger in southern and eastern countries. In four northern countries this gender pattern was reversed in at least one year. No significant linear trend 2002–06–10 was found for most countries, but some decreasing trends were observed in countries of the Northern (Finland and England) and Southern regions (Macedonia), while in Eastern Europe both increasing (Hungary, Latvia and Estonia) and decreasing (Lithuania) trends were observed. Regionally, a linear decrease was found for boys in Southern and for girls in Northern Europe (table 1).

### Condom use

Rates of condom use at last intercourse ranged from 49.5% in Sweden (girls, 2002) to 91.6% in Estonia (boys, 2010). Condom use was more frequently reported by boys, especially in Northern and Western regions. In three countries in the Southern region (Croatia, Portugal and Slovenia) reported condom use was higher

**Table 2** Condom use at last sexual intercourse among sexually initiated 15-year-olds, by gender, year of study and country

	Boys					Girls				
	<i>n</i> <sup>c</sup>	2002 (%)	2006 (%)	2010 (%)	Trend	<i>n</i> <sup>c</sup>	2002 (%)	2006 (%)	2010 (%)	Trend
Estonia	429	75.7	88.7	91.6	↗**	412	72.2	81.3	90.7	↗***
Hungary	470	85.0	82.1	81.7	→	437	71.0	77.8	76.7	→
Latvia	356	78.2	88.6	79.4	→	306	77.6	80.7	83.6	→
Lithuania	676	79.6	85.2	78.3	→	300	65.6	76.6	84.5	↗***
Ukraine	969	83.5	88.4	83.6	→	539	57.6	75.9	78.9	↗***
<i>E. Europe</i>	2900	80.4	86.6	82.9	→	1994	68.8	78.5	82.9	↗***
Croatia	634	74.8	82.4	84.7	↗*	353	71.9	84.3	81.9	→
Greece	738	91.3	88.1	88.8	→	314	82.5	65.6	87.0	→
Macedonia <sup>a</sup>	721	85.0	83.5	82.8	→	80	(82.6) <sup>d</sup>	79.9	(83.3%) <sup>d</sup>	→
Portugal	411	68.8	85.4	80.9	→	372	77.8	84.4	84.7	→
Slovenia	595	78.1	77.1	87.9	↗*	431	68.6	85.6	86.1	↗**
<i>S. Europe</i>	3099	79.6	83.3	85.0	↗*	1550	76.7	79.3	84.6	↗**
Austria	450	80.7	86.3	86.2	→	419	75.5	76.8	77.6	→
Belgium <sup>b</sup>	568	79.5	78.3	77.6	→	545	59.7	66.7	68.8	→
France	845	86.2	87.6	89.4	→	627	70.3	79.9	81.5	↗*
Netherlands	431	81.0	85.5	77.0	→	456	71.6	73.6	77.9	→
Switzerland	545	77.2	88.5	85.0	↗*	419	83.3	77.9	81.0	→
<i>W. Europe</i>	2839	80.9	85.3	83.1	→	2466	72.1	75.0	77.4	↗*
England	540	69.2	87.4	78.5	→	749	70.6	82.7	73.5	→
Finland	553	71.4	81.5	76.6	→	782	58.7	64.3	63.5	→
Scotland	772	75.1	83.3	72.8	→	945	63.4	74.0	70.5	→
Sweden	631	62.9	68.2	69.2	→	736	49.5	62.2	57.3	→
Wales	592	74.7	82.0	83.9	→	781	63.6	72.0	78.0	↗**
<i>N. Europe</i>	3088	70.7	80.5	76.2	↗*	3993	61.1	71.1	68.6	↗***

*n*, percentages and linear time trends between 2002 and 10 (HBSC 2002, 2006 and 2010).

Note: <sup>a</sup>Former Yugoslav Republic of Macedonia; <sup>b</sup>Flemish Community only; <sup>c</sup>Total unweighted *n* across the three studies; <sup>d</sup>*n* < 30, thus statistical inference not possible; → no significant linear in- or decrease between 2002 and 2010; ↗ increasing trend between 2002 and 2010; ↘ decreasing trend between 2002 and 2010; \**P* ≤ .05; \*\**P* ≤ .01; \*\*\**P* ≤ .001. Percentages for European regions were calculated as means of the included countries and the data were reweighted accordingly for testing linear time trends.

among girls. A significant overall trend revealed an increase in condom use 2002–06–10, largely explained by an increase in the Southern and Northern regions for both boys and girls and an increase for girls in the Eastern and Western regions (table 2).

## Discussion

No significant linear trend was documented for most countries for having experienced sexual intercourse by age 15 or for sexual initiation before age 14. Regionally, increasing trends in sexual intercourse emerged among Eastern and Southern European girls, regions where girls had a lower prevalence than boys in the same regions and than girls in the Western and Northern regions. The maintenance of these substantial differences between the rates of girls and boys reporting sexual initiation may reflect the preservation of traditional gender norms, that promote and allow more sexual permissiveness for boys than for girls.<sup>8</sup> The gender gap has narrowed somewhat in these regions, suggesting that traditional gender norms may be eroding. As for the prevalence of very early initiation (before age 14), a decrease was found for boys in Southern Europe—the region where the largest gender gap was found, and for girls in Northern Europe—the region with the highest prevalence for girls.

The highest prevalence of sexual intercourse initiation among 15-year-olds and very early initiation among those aged 13 or younger was found in Northern European countries. Traditionally, these countries have had extensive sexual education programmes, yet their sustainability has been jeopardized by reductions in commitment (e.g., at policy level, driven by both financial restraints, and in some cases by political and moral objections by interest groups).<sup>9</sup> It may also be that previous successes in reducing sexual risk behaviours has resulted in sex education now being of lower priority in some countries.<sup>9</sup>

There was an increase in condom use in all regions among girls, and in half of them for boys. The increase was notable among Eastern European girls, from <70% (2002) to >80% (2010). This may be due to wider contraceptive access since the transition from communist to market economies, but further investigation is warranted.

A significant minority of adolescents are involved in risky behaviours such as not using a condom during their last intercourse and having had sex before age 14, behaviours related to major negative outcomes individually and in terms of public health.<sup>5</sup> It is therefore crucial to understand why prevention initiatives have not been successful with these adolescents.

These findings must be considered in the light of the study's strengths and limitations. While the study samples are nationally representative and of sufficient size for analysis, the mode of data collection—in classrooms—may have influenced the responses of students. The HBSC questionnaire employed did not include questions on partner gender. Such data could help provide a better understanding of the way condom use behaviour evolves in individual terms. Analysing the relationship between condom use and early sexual intercourse initiation would be of particular interest for future research. While the data presented here have not been subject to external validity assessments, the guidelines on question presentation and translation across countries are very specific and refer only to vaginal intercourse with penile penetration. Country level results should be examined at a national level so that Sexual Health policy can meet the specific needs of the population.<sup>10</sup> Adolescent sexual behaviour is complex and culturally dependent and should consider factors that influence adolescent sexual behaviours at an individual (education, developmental stage), family (parenting, economic factors), school (school attachment and achievement) and community level (media exposure, access to services), as well as national policy and strategy.

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*Conflicts of interest:* None declared.

## Key points

- Early (at or before age 15) and very early (at or before age 13) sexual initiation was relatively stable in Europe between 2002 and 2010, especially for boys; though there was an increase in early initiation among girls in the Eastern region and a decrease in very early initiation among girls in Northern Europe.

- Condom use at last intercourse increased in both boys and girls across Europe between 2002 and 2010, especially for girls.
- Efforts to improve consistent condom use are essential, especially for the minority of children engaging in sexual intercourse who report non-condom use.

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