NATIONAL UNIVERSITY OF IRELAND, GALWAY

An international comparison of sexual health behaviour among adolescents

Findings from the Health Behaviour in School-aged Children (HBSC) Ireland study

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INTRODUCTION

Background

The purpose of this report is to replicate, using data from HBSC Ireland, cross-national work on patterns of sexual behaviour and contraceptive use. The report will focus on family level indicators of socio-economic status (Godeau & Nic Gabhainn, 2008), dual contraception use (Godeau *et al.*, 2008), sexual behaviour as a 'problem' behaviour (Spriggs-Madkour *et al.*, 2010) and sexual initiation in relation to health complaints (Spriggs *et al.*, 2010).

RESEARCH QUESTION 1: Examine the relationship between family affluence and sexual behaviour

1.1 Introduction

The aim of this research question was to identify the relationship between family socio-economic status and sexual behaviour. The report compared HBSC Ireland 2010 data to cross-national findings (Godeau & Nic Gabhainn, 2008).

1.2 Method

1.2.1 Measures

Dependent variable

Respondents aged 15 years were asked whether they had ever had sexual intercourse. This was explained by additional terminology relating to 'making love, 'having sex' or 'going all the way.' Participants were not, however, provided with an anatomical definition of sexual intercourse.

Independent variable

The HBSC Family Affluence Scale (FAS) (Currie *et al*., 2008) measures young people's socio-economic status. It is based on a set of questions about the material conditions of the households in which participants live, including car ownership, bedroom occupancy, holidays and home computers. A composite score is calculated for each participant providing values of low, middle and high family affluence.

1.2.2 Analytic sample

Data were taken from the HBSC 2005/2006 study. Analyses relating to engagement in sexual intercourse were conducted on data from 36 countries; 31 countries in relation to contraceptive pill use at last intercourse and 34 countries relating to condom use at last intercourse (Godeau & Nic Gabhainn, 2008). Only participants in their 15th year were asked questions relating to

their sexual behaviour, therefore only those participants who were in their 15th year at the time of the survey were retained for analysis from the larger study. Data from HBSC Ireland (2010) consisted of 3688 participants in their 15th year; 53.2% male (n=1958) and 46.8% female (n=1719).

1.2.3 Analysis

Chi-square tests were conducted to identify the relationship between family affluence and sexual initiation and contraceptive use at last intercourse at α=5%. These tests are reported with chi-square values and p-values.

1.3 Results

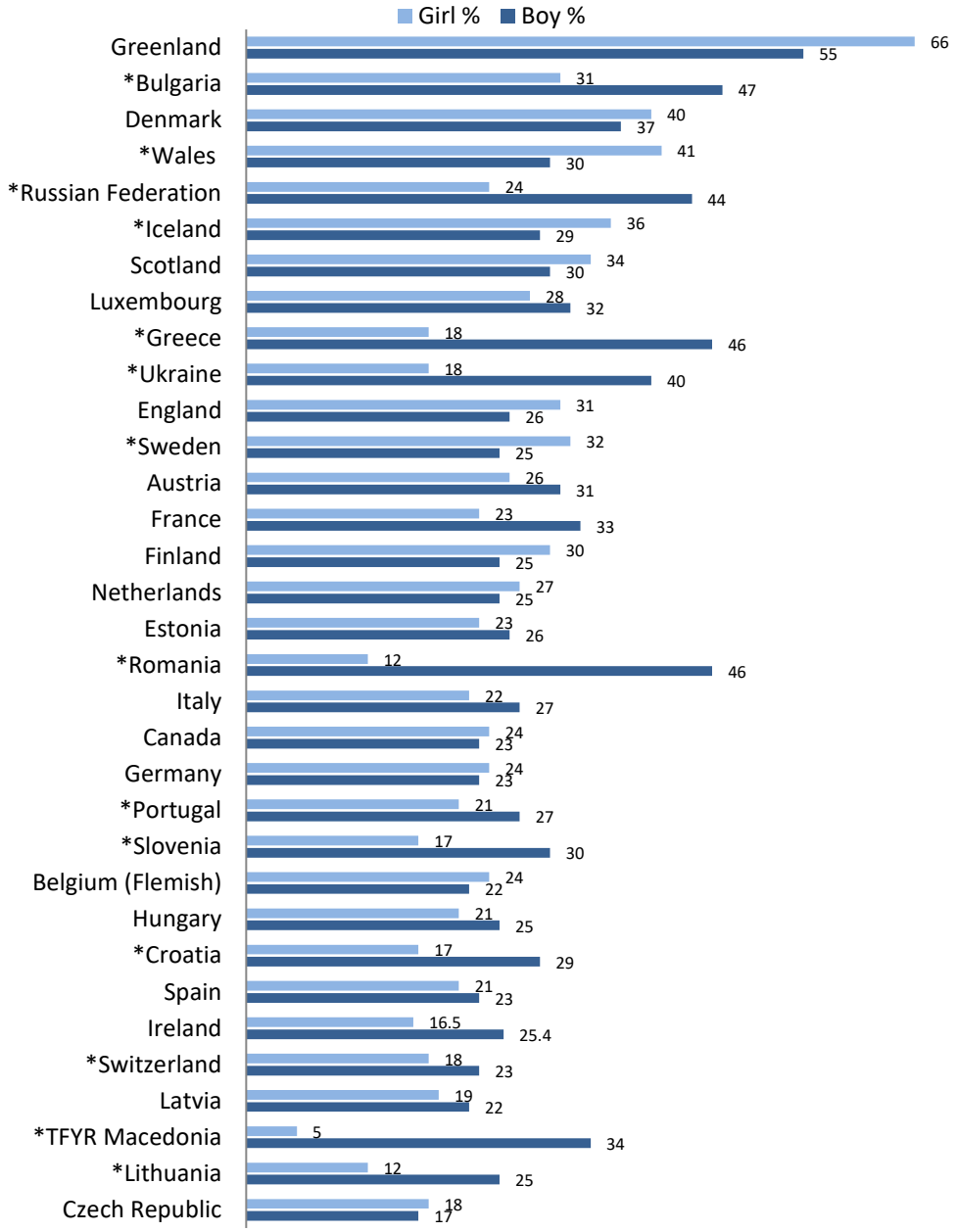
1.3.1 Sexual intercourse

Experience of sexual intercourse

Experience of sexual intercourse reported by 15 year olds varies across countries. In Slovakia 12% of 15 year old participants report ever having engaged in sexual intercourse whereas 61% of young people in Greenland report experience of sexual intercourse. Figures from HBSC Ireland indicate that 21.2% of 15 year olds report ever having had sexual intercourse.

Gender differences are identified cross-nationally in 15 year olds' reports of ever having sex. In general, boys are more likely to report experience of sexual intercourse, though in some countries this pattern is reversed. Reported experience of sexual intercourse ranged from 5% (TFYR Macedonia) to 66% (Greenland) for girls and from 13% (Slovakia) to 55% (Greenland) for boys. In Ireland, 25.4% of boys and 16.5% of girls reported ever having had sex (Figure 1.1).

Figure 1.1: 15 year olds who have had sexual intercourse



The relationship between family affluence and experience of sexual intercourse

International comparison suggests that a third of countries show a significant association between experience of sexual intercourse and family affluence for boys and fewer countries show a significant association for girls (Figure 1.2). In general, engagement in sexual intercourse is associated with low family affluence for girls and with high family affluence for boys (Godeau & Nic Gabhainn, 2008). The current results show that in Ireland, there was a significant association between family affluence and reported sexual intercourse for 15-year-old boys (χ^2=6.297, df=2, p<0.05). Boys from low affluent groups reported higher engagement

in sexual intercourse (32.3%) than those from middle (23.2%) or high affluent groups (23.9%). There was no significant association between family affluence and reported sexual intercourse for 15-year-old girls (χ^2=5.430, df=2, p>0.05).

Figure 1.2: Associations between family affluence and sexual intercourse by country and gender.

NORTH	**Boys**	**Girls**	**SOUTH**	**Boys**	**Girls**
Canada		-	Croatia	+	
Denmark			Greece		-
England			Israel		-
Estonia			Italy		
Finland			Malta		
Greenland			Portugal		
Iceland	-	-	Slovenia		
Latvia			Spain	+	-
Lithuania	+	-	TFYR Macedonia	+	
Scotland					
Sweden					
Wales					
Ireland	-				
WEST	**Boys**	**Girls**	**EAST**	**Boys**	**Girls**
Austria	+		Bulgaria	+	+
Belgium (Flemish)			Czech Republic	+	
Belgium (French)			Hungary	+	
France			Romania		
Germany			Russian Federation	+	
Luxembourg		-	Slovakia		
Netherlands			Ukraine		
Switzerland	-				

+ indicates that higher levels of having sex are significantly associated with higher family affluence
- indicates that higher levels of having sex are significantly associated with lower family affluence

1.3.2 Contraceptive pill use

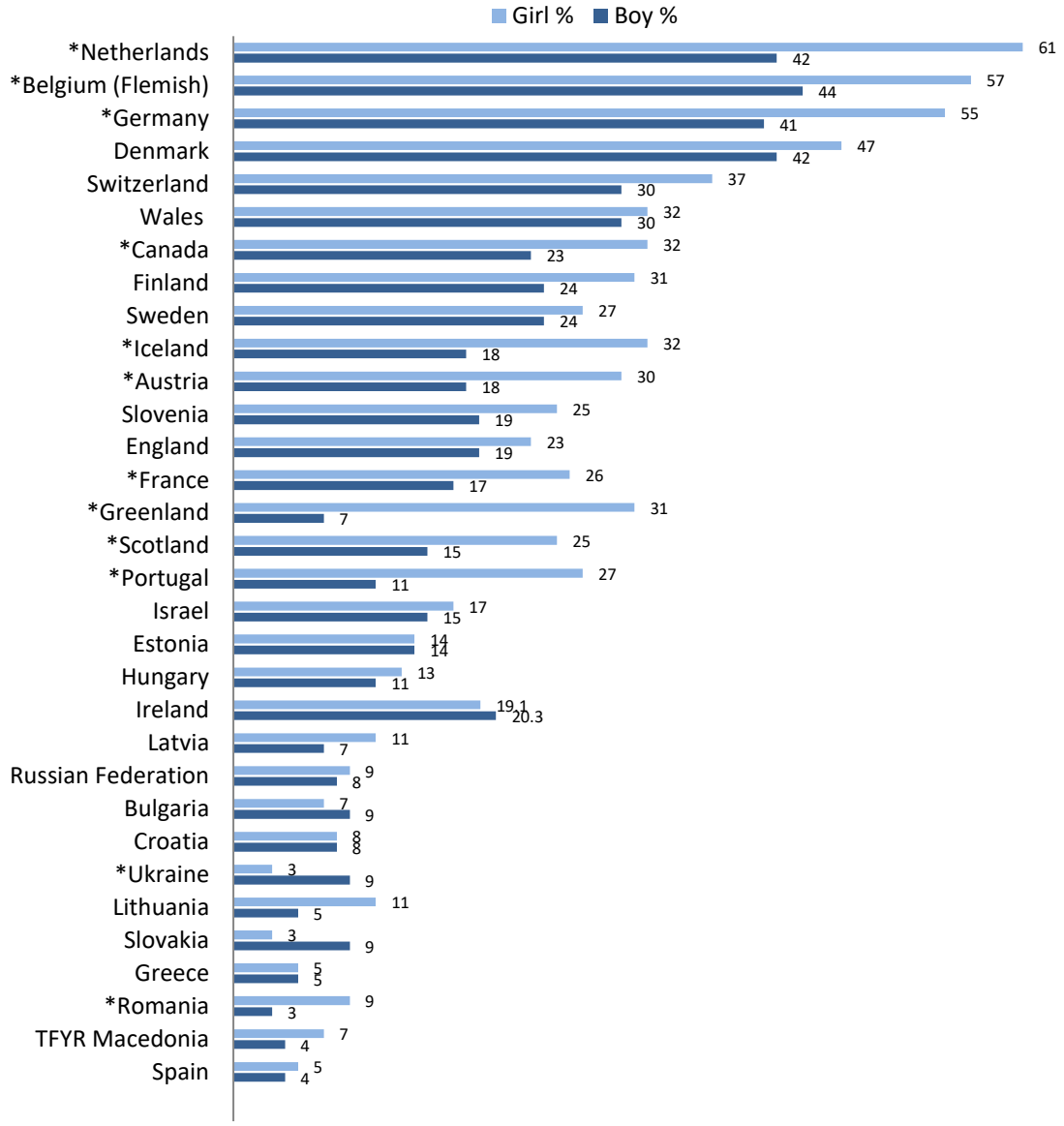
Contraceptive pill use at last intercourse

Contraceptive pill use at last intercourse varies cross-nationally. In Spain, 4% of 15 year olds report using the contraceptive pill compared to 52% in the Netherlands. In Ireland, 19.8% of 15 year olds report using the contraceptive pill at last intercourse.

Gender differences are also present cross-nationally in the reported use of contraceptive pills at last intercourse. Contraceptive pill use varies from 3% (Slovakia; Ukraine) to 61% (Netherlands) of girls and from 3% (Romania) to 44% (Belgium-Flemish) of boys. Cross-nationally, girls are more likely to report contraceptive pill use at last intercourse, particularly

in Western Europe. In Ireland, 20.3% of boys and 19.1% of girls report using the contraceptive pill at last sexual intercourse (Figure 1.3).

Figure 1.3: 15 year olds who used contraceptive pill at last sexual intercourse



The relationship between family affluence and contraceptive pill use at last intercourse

International comparison identified no significant association between family affluence and reported use of the contraceptive pill at last intercourse. The numbers of 15-year-old participants who reported using the contraceptive pill were too few to detect meaningful differences. Data from the HBSC Ireland sample revealed that there was no significant association between family affluence group and contraception pill use for either boys (χ^2=1.039, df=2, p>0.05) or girls (χ^2=3.677, df=2, p>0.05).

1.3.3 Condom use

Condom use at last intercourse

Condom use at last intercourse varies cross-nationally. In Sweden, 65% of 15-year-olds report using a condom at last intercourse whereas 89% of 15 year olds in Spain report condom use. In Ireland, 74.7% of 15 year olds report using a condom the last time they had sex.

Gender differences are present in the use of condoms at last intercourse cross-nationally. Condom use varies from 61% of girls in Romania to 95% of girls in Spain. Similarly 65% of boys in Slovakia report condom use at last intercourse whereas 91% of boys report the use of condoms in Greece. Cross-nationally, boys are more likely to report condom use at last intercourse compared to girls. Findings from HBSC Ireland identify that 78.5% of girls and 73.1% of boys report using a condom at last sexual intercourse.

The relationship between family affluence and condom use at last intercourse

Cross-national comparisons identify few countries showing a significant relationship between family affluence and condom use at last intercourse. In general, higher affluence was associated with higher levels of reported condom use. In HBSC Ireland, no significant association was identified between family affluence and reported condom use for boys (χ^2=0.290, df=2, p>0.05) or girls (χ^2=4.046, df=2, p>0.05).

What we know

Past research:

International research suggests that a third of countries surveyed show a significant association between experience of sexual intercourse and family affluence for boys and fewer countries for girls. In general, engagement in sexual intercourse is associated with low family affluence for girls and with high family affluence for boys. International comparison also identified no significant association between family affluence and contraceptive pill use at last intercourse and very few countries identify a relationship between family affluence and condom use. However, in general, higher affluence was associated with higher levels of reported condom use.

New findings:

The current research identifies that, in Ireland, there was a significant association between family affluence and reported sexual intercourse for 15-year-old boys. Boys from low affluent groups reported higher engagement in sexual intercourse than those from middle or high affluent groups. There was no significant association between family affluence group and contraceptive pill use for either boys or girls. Nor was there a significant association between family affluence group and condom use for either boys or girls.

RESEARCH QUESTION 2: Contraceptive use by 15-year-old students at last sexual intercourse

2.1 Introduction

The aim of this research question was to provide an overview of the contraceptive methods reported by students aged 15 years at their last sexual intercourse. The data is from 24 European and North American countries, with additional data from HBSC Ireland (Godeau et al., 2008).

2.2 Method

2.2.1 Measures

The HBSC study includes a section on adolescent sexual behaviours and contraceptive use. Four sexual behaviour questions have been mandatory for participants aged 15 years and older in the HBSC study since 2002. For practical, political and ethical reasons, these questions have only been included as mandatory in the Irish study since 2010. The questions were derived from the Youth Risk Behaviour Surveillance (YRBS) (Brener *et al.*, 2004; Grunbaum *et al.*, 2002; Kolbe, Kann, & Collins, 1993) and from reviews and analyses of sexual health optional packages from previous HBSC surveys. These sexual health items have, therefore, been used in previous adolescent sexual health research and have also been subjected to qualitative pilot tests in a number of HBSC countries including Ireland prior to inclusion in the mandatory questionnaire. These questions were designed to measure the proportion of students who had engaged in sexual intercourse, their age of sexual initiation and the extent to which students are protected against pregnancy and sexually transmitted infections (STIs). In order to address pregnancy prevention, participants were asked about the method(s) of contraception used at last intercourse. Possible response options included two reliable methods of contraception - 'birth control pills' and 'condoms' and one non-reliable but frequently reported method - 'withdrawal'. In addition, the response options 'other', 'no method was used to prevent pregnancy' and 'not sure' were offered. Participants were also provided with an open-ended space to report other methods of pregnancy prevention used at last intercourse. A second question designed to address condom use specifically for the purpose of STI prevention was also asked.

For the purpose of this analysis sexually active students were categorised according to the extent to which they were protected against pregnancy at their last sexual intercourse. This classification was based on the method(s) of contraception participants reported using at last intercourse and by the efficacy and developmental appropriateness of the contraceptive method(s) used. Sexual active participants were divided into well-protected, poorly protected and unprotected groups.

Well protected
The well-protected group comprised of those 15 year olds who reported using condoms and/or contraceptive pills. This group represents those well protected against pregnancy.

Poorly protected
The poorly protected group comprised those 15 year olds who did not report using either condoms or contraceptive pills but did report using one or more method of contraception not regarded as efficacious (e.g., withdrawal) or that may not be developmentally appropriate for adolescents (e.g., spermicides, natural methods). The range of other contraceptives provided as possible response options to participants varied across countries, so that in some countries they included spermicides, the cap, diaphragms and pessary. In Ireland, the only other possible response option for contraceptive method was withdrawal.

Unprotected
The unprotected group comprised of those 15 year olds who did not report using any method of contraception at last sexual intercourse.

Students who reported using other methods of contraception could not be classified into either well or poorly protected groups. The open-ended questions asked in some countries showed a range of responses varying in efficacy and appropriateness. This category was therefore eliminated from subsequent analyses.

2.2.2 Analytic sample
Since 2002, the sexual behaviour questions have been mandatory on the HBSC questionnaire. In the 2002 study 11 of the 35 participating countries were not able to ask all of the sexual behaviour questions, did not ask all of the participating students or had a sample size deemed too small for analysis. In total, 24 countries or regions were included in the analysis. Children aged 15 years old are the target for the international study and data collection is timed so that the mean sample are aged 15.5 years. Participants in their 15^{th} year were, therefore, eligible to complete the sexual behaviour questions. A cluster sample of 33,943 students from 24 countries was included in the analysis. Data from HBSC Ireland was also analysed, this included a further 3688 participants.

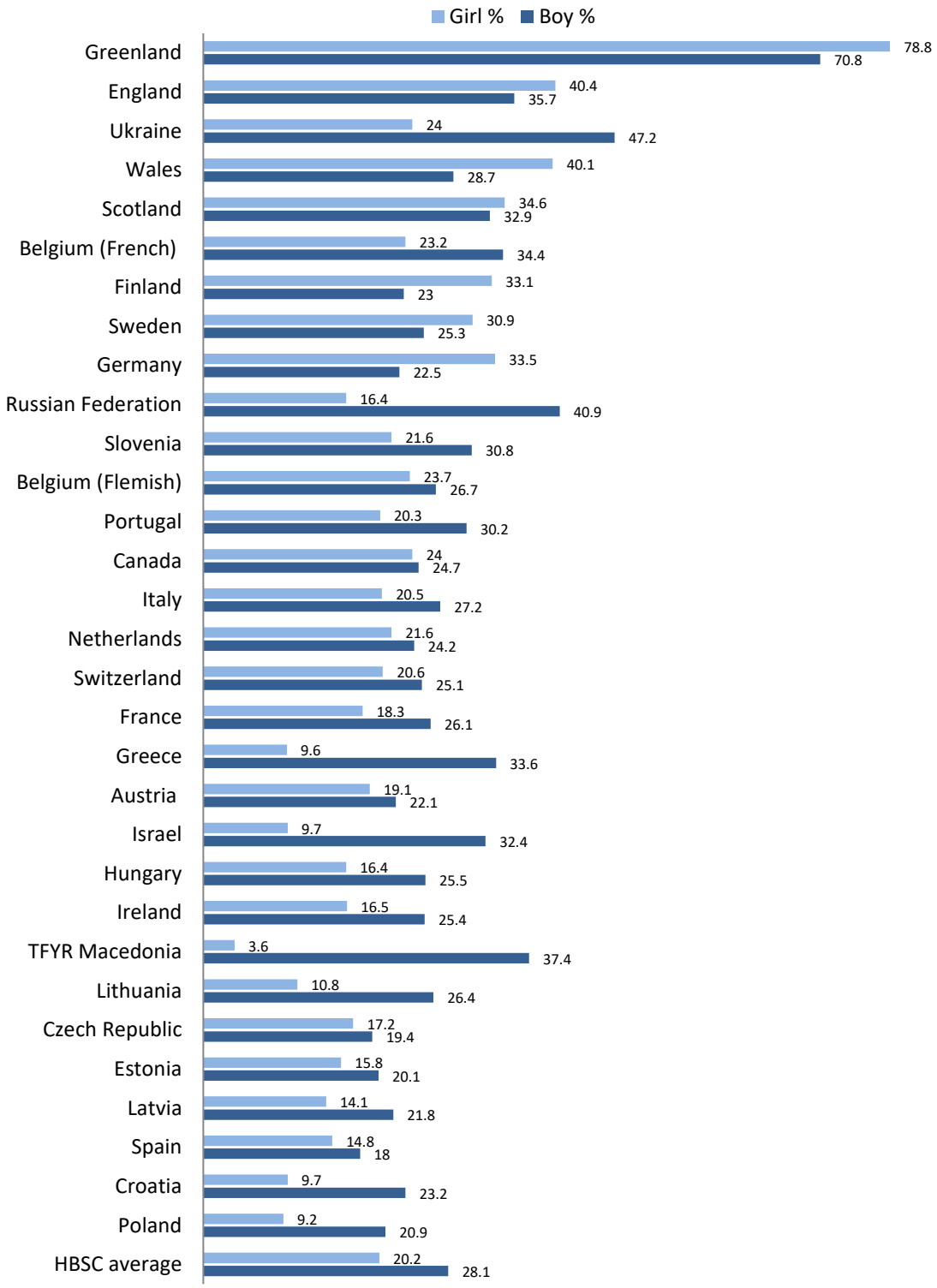
2.2.3 Analysis
Inconsistent or unfeasible responses result in exclusions from the analysis (i.e., if respondents inconsistently reported use of contraceptive methods, condom or sexual intercourse). Students who reported condom use on the condom question but not on the contraception question were credited with condom use. Only those students who reported that they had ever had sexual intercourse were included in the analyses.

2.3 Results

The HBSC Ireland sample consisted of 15-year-old students. The rate of non-response to the question on ever having had sexual intercourse was 14.1%, a higher non-response rate than the international findings of 1.9%. In Ireland, 78.4% of the 1762 students who responded reported they had not previously engaged in sexual intercourse.

The percentage of adolescents reporting they had engaged in sexual intercourse ranged cross-nationally from 14.1% in Croatia to 37.6% in England. In Ireland, 21.2% of 15 year olds reported ever having had sex; more boys (25.4%) than girls (16.5%) reported ever having had sexual intercourse. (χ^2=36.623, df=1, p<0.001). Cross-national differences are reported in Table 2.1.

Table 2.1: Prevalence of participants reporting ever having had sexual intercourse by country and gender according to the HBSC 2002 Study (Ireland HBSC 2010 study)

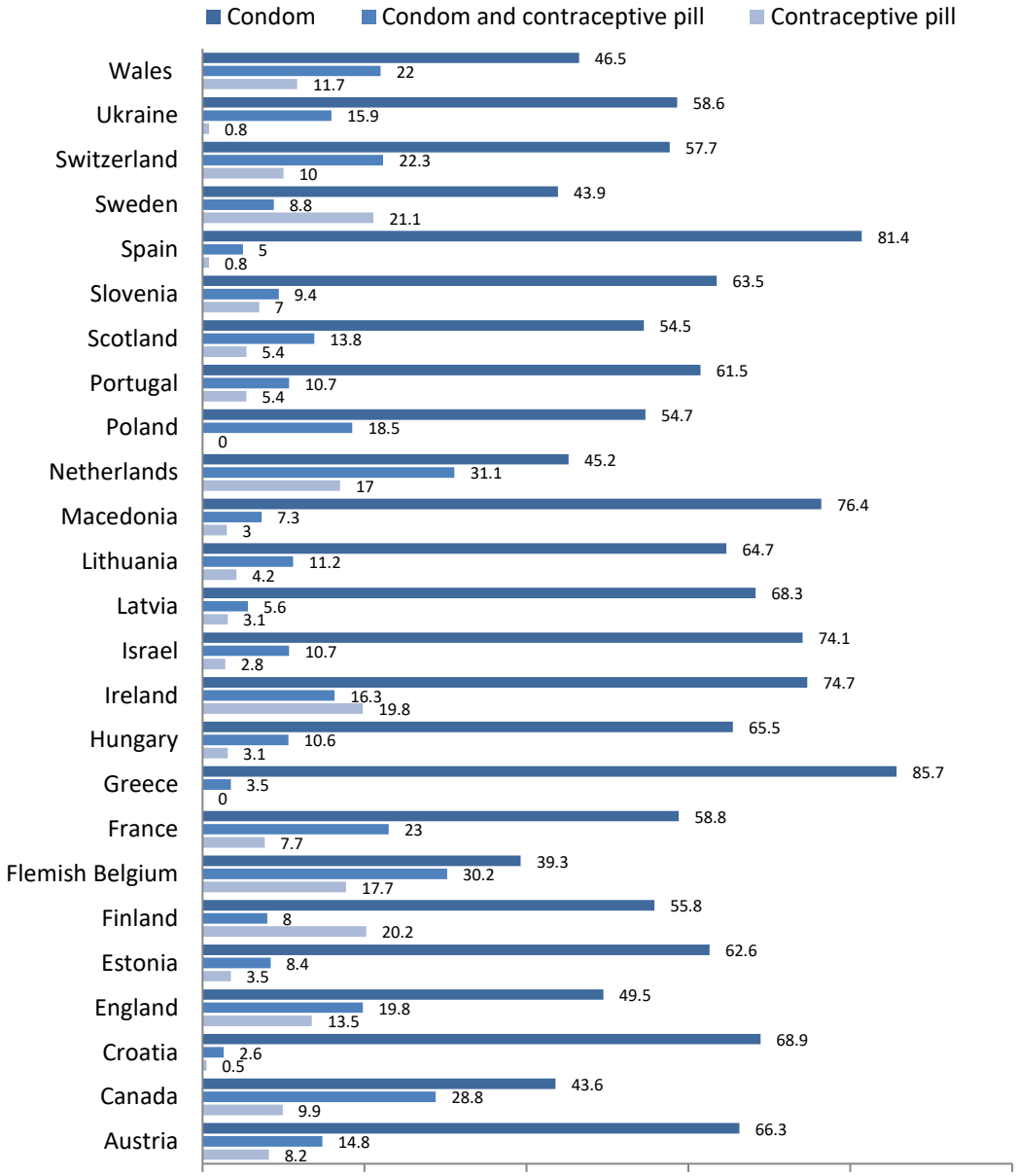


2.3.1 Contraceptive pills and condoms

In HBSC Ireland, 78.2% of the sexually active sample reported using condom and/or contraceptive pill at last intercourse. This is lower than the international reports where 82.3% of sexually active students reported condom and/or birth control pill use. Across all of the 24

countries, 58.1% of participants reported using condoms but not contraceptive pills. In Ireland, 58.4% of students reported using condoms but not contraceptive pills. Internationally, 8.4% of students reported using contraceptive pills but not condoms and, in Ireland, 3.4% of 15 year olds reported the use of contraceptive pills but not condoms. Internationally, the dual use of condoms and contraceptive pill was reported by 15.7% of participants. In Ireland, 16.3% of students reported dual use of condoms and contraceptive pills. International figures are reported in Table 2.2.

Table 2.2: Prevalence of reported condom use, contraceptive pill use and dual use of condoms and contraceptive pills at last intercourse by country according to the 2002 HBSC Study (Ireland HBSC, 2010)



Condom use ranged from 52.7% in Sweden to 89.2% in Greece. In Ireland, 74.7% of 15-year-old students reported using a condom at last intercourse. Internationally, more boys (78.4%) than girls (67.9%) reported using a condom at last intercourse. In Ireland, this pattern was

reversed with more girls (78.5%) than boys (73.1%) reporting the use of condoms at last intercourse. However, this finding was not statistically significant (χ^2=2.097, df=1, p>0.05).

Contraceptive pill use also differed internationally ranging from approximately 3% in Croatia and Greece to around 48% in Flemish-speaking Belgium and the Netherlands. In Ireland, 19.8% of 15-year-old students reported using the contraceptive pill at last intercourse. Internationally, more girls (29.0%) than boys (20.2%) reported using contraceptive pills at last intercourse. Hungary was the only country where more boys (18.7%) than girls (9.1%) significantly reported that the contraceptive pill was used at last intercourse (p=0.01). In Ireland slightly more boys (20.3%) than girls (19.1%) reported using the contraceptive pill at last intercourse. This finding was not statistically significant (χ^2=0.072, df=1, p>0.05).

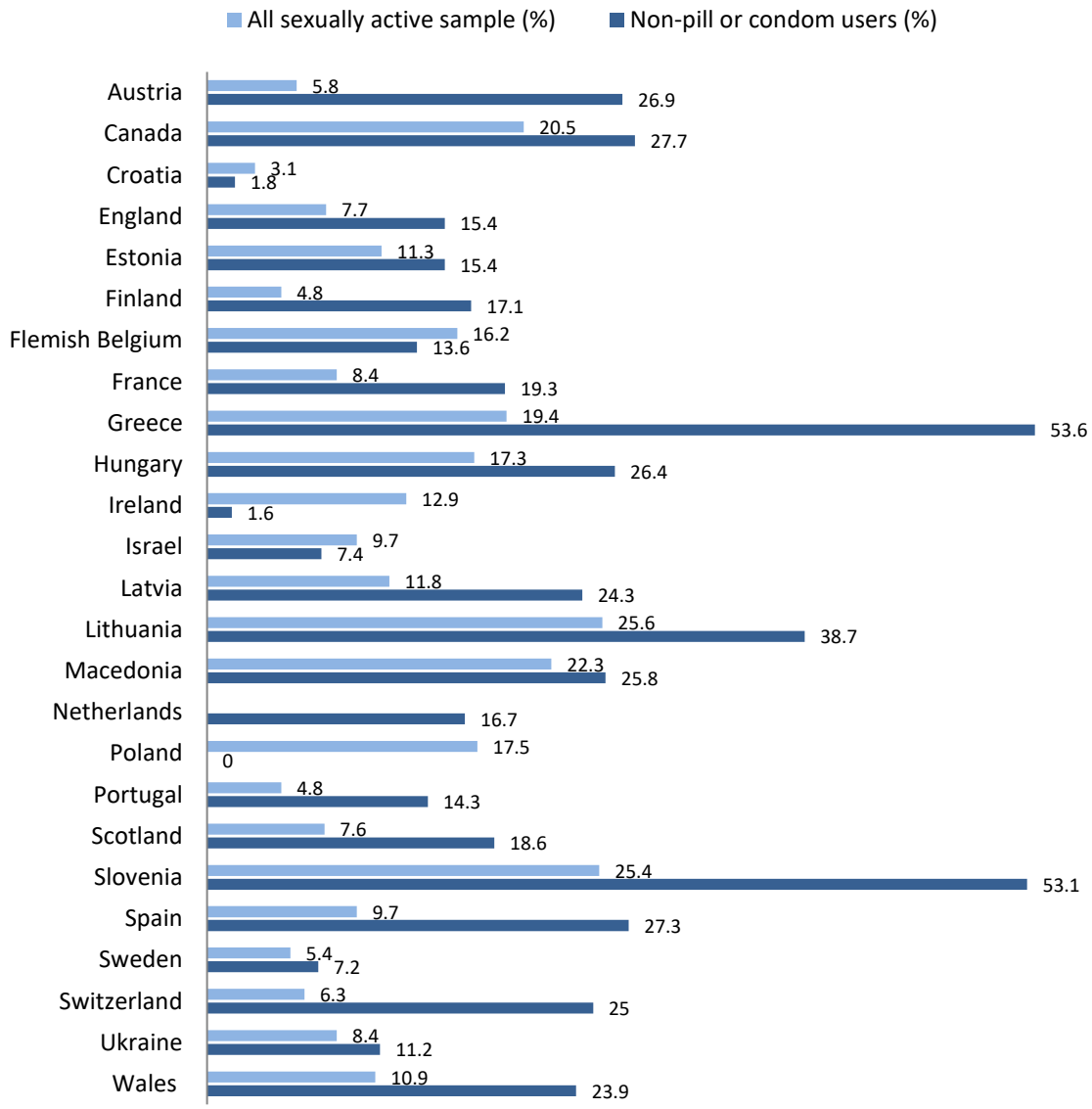
Internationally, the dual use of condoms and contraceptive pills was reported by 15.7% of participants. In Ireland 16.3% of students reported dual use of condoms and contraceptive pills. The reporting of dual contraceptive use was similar for both boys and girls in most countries. In Ireland, 16.3% of students reported dual use of condoms and contraceptive pills. In Ireland, boys (17.0%) reported higher dual contraceptive use than girls (15.4%), however, this was not statistically significant (χ^2=0.167, df=1, p>0.05).

2.3.2 Methods other than contraceptive pills and condoms

2.3.2.1 Withdrawal

Internationally, students are asked questions relating to forms of contraception other than condom and pill use. These include the morning-after pill, emergency contraception, withdrawal and natural or biological methods. In HBSC Ireland, students are only asked about withdrawal as an alternative method of contraception. Figure 2.3 presents the proportion of students using withdrawal as a contraceptive method. Proportions are shown both for all sexually active students and for those who were categorised as poorly protected (having reported neither condom use nor contraceptive pill use at last intercourse).

Figure 2.3: Prevalence of withdrawal as a method of contraception during last intercourse by all sexually active participants and by those who did not report either condom or contraceptive pill use according to the 2002 HBSC Study (Ireland HBSC 2010 study)



Of the sexually active population in the HBSC Ireland sample, 12.9% of students reported using withdrawal as a method of contraception. This is slightly higher than the international findings where 11.6% of the sample reported withdrawal. The percentage varied by country with 3.1% in Croatia and 25% in Slovenia and Lithuania reporting the use of withdrawal as a method of contraception.

Findings from the international data identified that withdrawal was reported by 19.4% of students who did not use condoms or contraceptive pills. Reliance on withdrawal exceeded 20% in 11 countries. In Ireland, 1.6% of 15-year-old students reported using withdrawal as a method of contraception and did not use supplementary methods of either condoms or contraceptive pills.

2.3.2.2 Use of single and multiple contraceptive methods at last intercourse

Among the sexually active international sample, use of a single method of contraception was most frequent. Among the 4704 students reporting only one method of contraception 81.1% reported using condoms at last intercourse and 12.0% reported using contraceptive pills. A similar pattern of results was identified among the Irish sample. Among the sexually active 15 year olds in the HBSC Ireland sample, 50.2% reported using only one method of contraception (including efficacious as well as non-efficacious). Of the 338 students who reported using one method of contraception 91.4% reported using condom only, 5.3% reported using the contraceptive pill only and 3.3% reported using withdrawal only

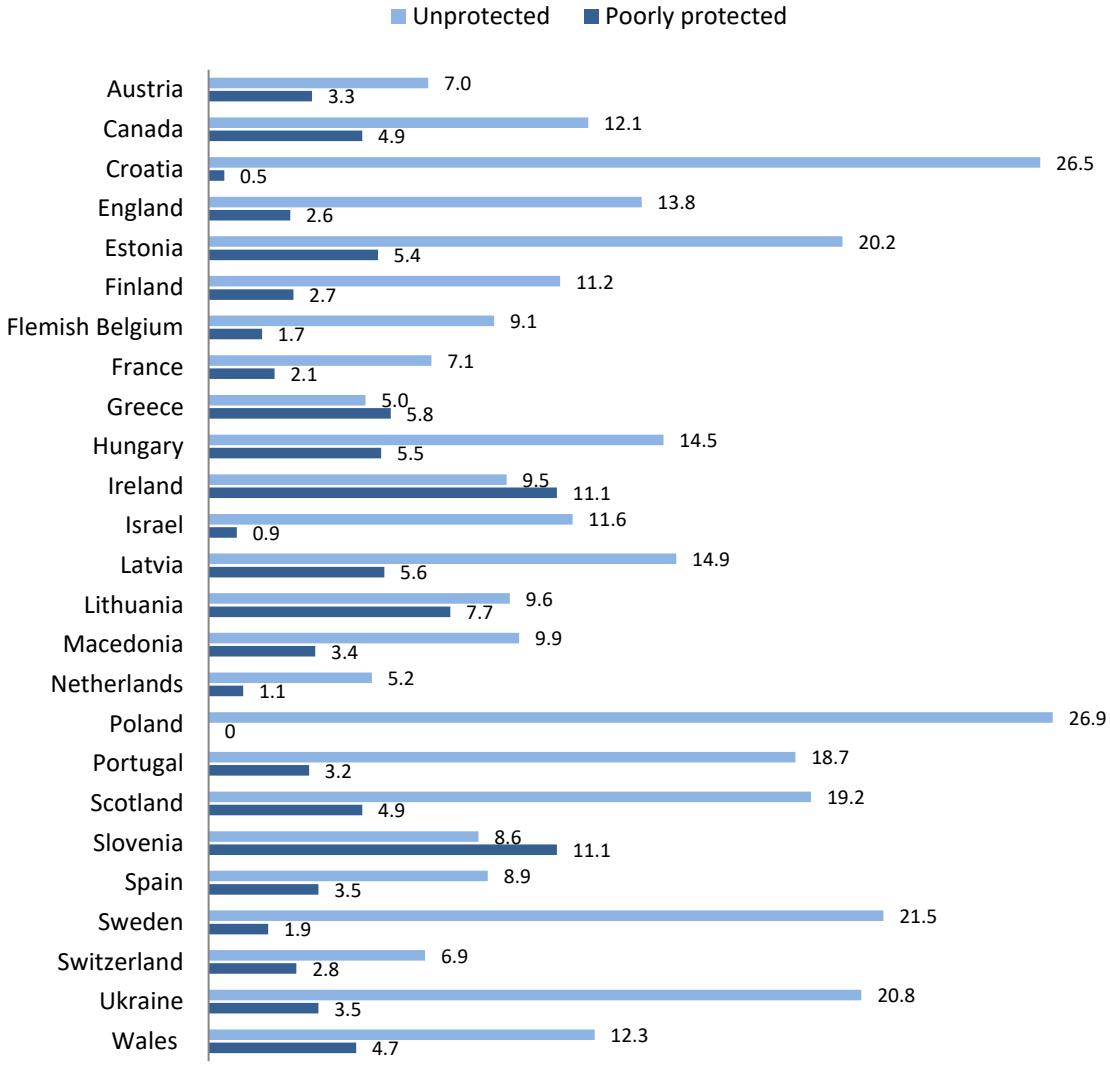
Among the international sample, the rankings for using only one method of contraception were similar for boys and girls, though rates of use of individual contraceptive methods were significantly different (condoms only: 88.5% of boys vs 71.7% of girls, $p<0.001$; contraceptive pills only: 6.8% of boys vs 17.7% of girls, $p<0.001$). In Ireland, the pattern of use of one method of contraception was similar for both boys and girls.

Among the 1967 students in the international sample who reported using more than one contraceptive method, the combination of contraceptive pills and condoms (dual method) was most popular (61.1%) for both sexes, followed by the use of condoms with something other than contraceptive pills (32.1%). The combination of contraceptive pills and something other than condoms was not as frequent (5.1%). Among the 113 students in the Irish sample who reported using more than one method of contraception, dual method of condom and contraceptive pill was most prevalent (64.6%), followed by pill and withdrawal combined (34.5%) and, finally, by condom and withdrawal (0.9%).

2.3.2.3 Unprotected and poorly protected students

In the international sample, 13.2% of students reported that no method of contraception was used at last sexual intercourse. This figure ranges from 5.0% in Greece to 26.9% in Poland. Along with 10 other countries, the percentage in Ireland was below 10% (Ireland 9.5%) (Figure 2.4).

Figure 2.4: Prevalence of reported unprotected sex (sexually active participants who reported no use of any contraception at last intercourse) and poorly protected sex (sexually active participants who reported use of withdrawal, the morning after pill or natural or biological methods of contraception but not contraceptive pills or condoms at last intercourse according to the 2002 HBSC study) (Ireland HBSC 2010 study).



International findings identified that, overall, no significant gender differences existed for reporting having used no method of contraception at last intercourse (boys 13.3%; girls 13.0%; p=0.07). However, in some countries large gender differences were identified, for example in the Ukraine 33.3% of girls but only 14.5% of boys reported unprotected sex at last intercourse (p<0.001). This gender differences was reversed in Canada (girls 8.0% vs boys 17.5%, p=0.09), Switzerland (girls 2.8% vs boys 10.2%, p=0.007), the Netherlands (girls 1.6% vs boys 8.4%, p=0.04) and England (girls 11.0% vs boys 17.6%, p=0.03). A similar significant gender difference was identified in Ireland where 11.3% of boys and 5.7% of girls reported using no method of contraception at last intercourse (χ^2=5.224, df=1, p<0.05).

Among the international sample the rate of suboptimal protection increases to 16.7% if unprotected and poorly protected groups are combined. The proportion of unprotected or poorly protected students ranges from 6.3% in the Netherlands to around 27% in Poland and

Croatia. In Ireland, the rate increases to 11.1%. Internationally, more girls than boys reported that they were poorly protected (4.6% vs 2.6%, $p<0.001$) whereas in the Irish sample more boys (12.7%) than girls (7.7%) reported suboptimal protection, however this figure was not statistically significant ($\chi^2=3.529$, df=1, $p>0.05$).

What we know

Past research: International research identified that the percentage of adolescents reporting having engaged in sexual intercourse ranged cross-nationally from 14.1% to 37.6%. Condom use ranged from 52.7% to 89.2% with more boys reporting condom use at last intercourse compared to girls. Contraceptive pill use ranged from 3% to 48% with more girls reporting contraceptive pill use than boys. Internationally, 82.3% of sexually active students reported using a condom and/or birth control pill at last intercourse. Across all 24 countries, 58.1% of participants reported using condoms but not contraceptive pills and 8.4% of students reported using contraceptive pills but not condoms. Dual contraceptive use was reported by 15.7% of the international sample. The reporting of dual contraceptive use was similar for both boys and girls in most countries.

The use of a single method of contraception was most frequently reported. Of those reporting single contraceptive use 81.1% reported using condoms and 12.0% reported contraceptive pills. Internationally, the rankings for one method of contraception were similar for boys and girls, though rates were significantly different. Among the students who reported using more than one contraceptive method, contraceptive pills and condoms (dual method) was most popular for both sexes, followed by the use of condoms with something other than contraceptive pills. Out of the sexually active population the use of withdrawal as a contraceptive method was reported by 11.6% of students internationally. Withdrawal was reported by 19.4% of students who did not use condoms or contraceptive pills. In the international sample, 13.2% of students reported that no method of contraception was used at last sexual intercourse. This figure ranges from 5.0% to 26.9%. Overall, no significant international gender differences existed for reporting having used no method of contraception at last intercourse, however in some countries large gender differences were identified. When unprotected and poorly protected groups are combined international figures for suboptimal protection range from 6.3% to 27%, with more girls than boys reporting suboptimal protection.

What we know

New findings: The current research identifies that in Ireland 21.2% of 15 year olds reported ever having had sex. In Ireland, 74.7% of 15-year-old students who had had sex reported using a condom at last intercourse. More girls than boys reported using condoms at last intercourse; however this finding was not statistically significant. In Ireland, 19.8% of 15-year-old students who had had sex reported using the contraceptive pill at last intercourse. Boys and girls reported similar levels of contraceptive pill use. In Ireland, 78.2% of the sexually active sample reported using condom and/or contraceptive pill at last intercourse. This was lower than the international average. In Ireland, 58.4% of students reported using condoms but not contraceptive pills and 3.4% of students reported using contraceptive pills but not condoms. Dual contraceptive use was reported by 16.3% of the Irish sample. Boys in Ireland reported significantly higher dual contraceptive use than girls.

The use of a single method of contraception was most frequently reported in the Irish sample. Of those reporting single contraceptive use 91.4% reported using condoms and 5.3% reported contraceptive pills. The pattern of use of one method of contraception was similar for both boys and girls. Among the students who reported using more than one method of contraception, dual method of condom and contraceptive pill was most prevalent, followed by pill and withdrawal combined. In Ireland, 12.9% of students reported using withdrawal as a method of contraception with 1.6% of students reporting the use of withdrawal without either condoms or contraceptive pills. In Ireland, 9.5% of students reported using no method of contraception at last intercourse. Boys reported significantly higher non-contraceptive use than girls. When unprotected and poorly protected groups are combined, 11.1% of the Irish sample was sub-optimally protected. More boys than girls report suboptimal protection; however this finding is not statistically significant.

RESEARCH QUESTION 3: Examine sexual behaviour as a 'problem behaviour'

3.1 Introduction

This report examines the association between psychosocial factors from Problem Behaviour Theory including substance use, parental communication and school attachment and early adolescent sexual initiation. The report compares HBSC Ireland 2010 data to cross-national findings from five developed countries (Finland, France, Poland, Scotland and the USA) (Spriggs-Madkour *et al.*, 2010).

3.2 Methods

3.2.1 Measures

Dependent variable

Sexual initiation: The main dependent variable was sexual initiation. This was based on a question inquiring whether the respondent had ever had sexual intercourse. Respondents were in their 15th year; therefore a positive response indicates relatively early sexual initiation.

Independent variables

Substance use: The analysis considered three substance use variables: tobacco use frequency, alcohol use frequency and ever drunk. Substance use variables were combined into an index using polychoric principal components analysis (PCA) (i.e., item loading on first principle component were used as weights).

Attachment to school: Attachment to school was based on a series of questions asking participants about their perceptions of the school environment. These included: I like school (a lot - a little), teachers treat students fairly (strongly agree – strongly disagree), teachers show an interest in me as a person (strongly agree – strongly disagree) and I feel like I belong at school (strongly agree - strongly disagree). Items were assessed on ordinal scales with four or five levels. Polychoric PCA was used to generate a summary score.

Positive parent communication: Positive parental communication was based on questions asking about participants' perceptions of communication with mothers and fathers. If respondents reported on two parents, the average of both parental communication variables was calculated. If the respondent reported one parent, their communication rating for that parent was used.

Controls and modifiers

Potential confounders and effect modifiers were identified. Gender (male/female) and country were treated as effect modifiers. Living arrangement (with both biological parents, stepfamily, single parent/other) and family socio-economic status (SES) were treated as potential

confounders. Family socio-economic status is measured using the HBSC Family Affluence Scale (FAS) (Currie *et al.*, 2008) which is a measure of household material wealth. It is based on a set of questions on the material conditions of the households in which participants live, including car ownership, bedroom occupancy, holidays and home computers. A composite score is calculated for each participant providing values of low, middle and high family affluence.

3.2.2 Analytic sample

Analyses drew upon data from three datasets: the National Longitudinal Study of Adolescent Health (ADD Health, 1996), the Health Behaviour in School-aged Children (HBSC) study (HBSC, 1997-1998) and the HBSC 2010 study. Only participants in their 15th year were asked questions relating to their sexual behaviour, therefore only those participants who were in their 15th year at the time of the survey were retained for analysis. HBSC Ireland 2010 data was used in comparison to HBSC 1997-1998 data from Finland, France, Poland and Scotland, and to U.S. data from the ADD Health study (1996). Samples were not weighted and the sample consisted of 1343 (USA), 1315 (Scotland), 798 (Finland), 922 (France), 1246 (Poland) and 3688 (Ireland).

3.2.3 Analysis

The analysis first examined the distribution of analytic variables by gender and nation. Bivariate relationships were then explored between the independent variables and sexual initiation. Multivariable logistic regression was then conducted separately by gender regressing sexual initiation on controls for living arrangement (two biological parents as referent), family SES (high as referent) and the independent variables (using separate models for each). These analyses tested the association between the independent variables and sexual initiation net of the control factors. Adjustment of standard errors for non-independence between individuals in the same school was accomplished by using the robust option in STATA, because identifiable clustering units (i.e., schools) were not available for all HBSC countries.

3.3 Results

Descriptive statistics of the sample, by gender and nation are presented in Table 3.1. Significant differences between countries were observed across all variables (United States, France, Finland, Scotland and Poland). The prevalence of sexual initiation among boys varied from a low of 18.0% in Finland to a high of 33.1% in Scotland. In Ireland, the prevalence of male sexual initiation was 25.4%. Among girls, the lowest observed prevalence of sexual initiation was in Poland (11.5%) and the highest in Scotland (36.9%). In Ireland, the prevalence of female sexual initiation was 16.5%. Generally adolescents in the U.S. reported lower substance use, more positive parent communication and greater school attachment than adolescents in the European countries (Table 3.1).

Table 3.1: Demographic characteristics, sexual initiation, substance abuse, attachment to school and positive parental communication among 15-year-olds: Prevalence and means by gender and nation.

	Boys (n=4680)							Girls (n=4621)						
	United states (n=625)	Scotland (n=616)	Finland (n=377)	France (n=431)	Poland (n=673)	*p* value[b]	Ireland (n=1958)	United states (n=718)	Scotland (n=699)	Finland (n=421)	France (n=491)	Poland (n=573)	*p* value[b]	Ireland (n=1719)
Prevalence														
Family SES						***							***	
Low (%)	42.1	50.7	46.7	31.3	63.6		10.4	43.2	51.2	57.0	37.3	73.3		10.5
Medium (%)	19.0	28.3	30.2	30.4	27.0		42.3	21.9	31.0	29.9	30.4	20.2		37.1
High (%)	38.9	21.1	23.1	38.8	9.4		47.3	35.0	17.7	13.1	32.4	6.5		52.4
Living arrangement						***							***	
Two biological parents (%)	58.9	77.1	75.1	76.8	86.5		74.3	56.0	70.7	71.0	79.6	86.9		75.4
Stepfamily (%)	17.4	6.8	9.3	8.4	3.0		5.1	15.6	9.4	9.5	8.4	4.4		6.3
Single parent (%)	21.3	14.3	14.6	13.7	10.3		12.4	26.0	18.6	19.2	11.4	8.4		14.1
Other (%)	2.4	1.8	1.1	1.2	0.3		8.2	2.4	1.3	0.2	0.6	0.4		4.2
Sexual initiation	29.6	33.1	18.0	29.9	28.2	***	25.4	30.4	36.9	26.6	20.2	11.5	***	16.5
Means (SE)														
Substance use (range -1.58-3.21)	-0.76	-0.36	-0.06	0.04	0.01	***	-0.08	-0.66	0.43	0.06	-0.12	-0.35	***	-0.16
School attachment (range -3.52-2.73)	0.41	-0.22	-0.72	-0.44	0.07	***	-0.21	0.40	-0.08	-0.65	-0.33	0.03	***	-0.04
Positive parent communication range (0-1)	0.84	0.68	0.64	0.65	0.71	***	0.67	0.72	0.62	0.52	0.50	0.60	***	0.58

*$p<0.05$, ** $p<0.01$, ***$p<0.001$

[a] France was represented by two regions only in the 1997-1998 HBSC

[b] Chi-square or ANOVA test for differences between countries within gender

Bivariate results were similar to the results from the multivariable models. Table 3.2 therefore, presents the adjusted odds ratio (AOR) estimates and statistical significance for each variable included in the model.

Having a family composition other than two biological parents was significantly positively associated with sexual initiation for both boys and girls across models, though the strength of this association varied across independent variables. In Ireland, the association between family composition and sexual initiation varied across models. Living in a stepfamily compared to living with two biological parents was significantly positively association with sexual initiation among girls across all models. Among boys, living in a stepfamily or a single parent home was significantly positively associated with sexual initiation across all models.

No significant association was consistently identified between family SES and sexual initiation among boys and girls across nations. In Ireland, being from a middle social class group was significantly positively associated with sexual initiation for girls across all models.

A significant positive association was identified between substance use and sexual initiation among both boys and girls across nations. Associations were significantly stronger in European countries than in the United States. In the U.S., males with a substance use scores one standard deviation above the mean had 1.6 times the odds of sexual initiation compared to males with a mean substance use score. In Finland, one standard deviation increase in substance use score was associated with 3.7 times the odds of sexual initiation. In Ireland, a similar significant positive association was also observed. Boys with a substance use score one standard deviation above the mean had 2.7 times the odds of sexual initiation compared to boys with a mean score. Similarly, girls with a substance use score one standard deviation above the mean had 3.1 times the odds of sexual initiation compared to girls with a mean substance use score.

School attachment was negatively related to sexual initiation among boys and girls across nations. Tests of the interaction did not support significant between-nation differences in the magnitude of the associations. In Ireland, school attachment was significantly negatively related to sexual initiation among boys and girls (Table 3.2).

Positive parental communication was significantly inversely related to sexual initiation only among girls in the United States. The same pattern was identified for girls in Ireland. Reporting high versus low positive parental communication is associated with lower odds of sexual initiation within this group (Table 3.2).

Table 3.2: Sexual initiation: association with substance use, school attachment and positive parent communication, controlling for demographics

	Dependent variable: Sexual initiation											
	Model 1: substance use				Model 2: School attachment				Model 3: Positive parental communication			
	International		Ireland		International		Ireland		International		Ireland	
	Boys (n=2722) AOR[a]	Girls (n=2902) AOR[a]	Boys (n=1958) AOR[a]	Girls (n=1719) AOR[a]	Boys (n=2722) AOR[a]	Girls (n=2902) AOR[a]	Boys (n=1958) AOR[a]	Girls (n=1719) AOR[a]	Boys (n=2722) AOR[a]	Girls (n=2902) AOR[a]	Boys (n=1958) AOR[a]	Girls (n=1719) AOR[a]
Family composition												
Two biological parents	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Stepfamily	2.08***	1.73***	1.82*	2.31**	2.11***	2.25***	2.20**	2.29**	2.16***	2.15***	2.16**	2.69***
Single parent	1.63***	1.61***	1.68**	1.17	1.52***	1.60***	1.82**	1.43	1.56***	1.67***	1.78**	1.56*
Other	2.28*	3.97***	1.68	1.53	2.14*	3.43**	1.79*	1.74	2.41**	3.37**	1.88*	1.72
Family SES												
Low	1.30*	1.56**	1.30	0.94	1.18	1.32*	1.33	0.93	1.23	1.38**	1.42	0.94
Middle	1.04	1.41*	0.87	1.42*	1.03	1.19	0.89	1.37*	1.03	1.20	0.95	1.45*
High	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Substance use	1.56***	2.02***	2.67***	3.15***	-	-	-	-	-	-	-	-
School attachment	-	-	-	-	0.81**	0.69***	0.78***	0.70***	-	-	-	-
Positive parental communication	-	-	-	-	-	-	-	-	0.84	0.50**	0.83	0.72*

**p<0.05, ** p<0.01, ***p<0.001*

What we know

Past research: International research identifies significant differences between countries across variables relating to family socio-economic status, family composition, sexual initiation, substance use, school attachment and positive parental communication. Family composition other than two biological parents significantly predicted male and female sexual initiation across nations. Early sexual initiation was also positively associated with substance use and negatively associated with school attachment across both gender and nations. Positive parental communication was significantly inversely related to sexual initiation among girls in the United States.

New findings: The current research identifies that in Ireland, living in a stepfamily compared to living with two biological parents, was significantly positively associated with sexual initiation among girls; and among boys, living in a stepfamily or a single parent home was significantly positively associated with sexual initiation. In line with international research, early sexual initiation was positively associated with substance use and negatively associated with school attachment across both genders in Ireland. Consistent with findings in the United States, positive parental communication was significantly inversely related to sexual initiation among girls in Ireland.

RESEARCH QUESTION 4: Examine the relationship between sexual behaviour and health complaints

4.1 Introduction

This study explored the cross-national consistency of the relationship between self-reported experience of early sexual intercourse and physical (headaches, trouble sleeping) and psychological (unhappiness, loneliness, sadness, moodiness) symptoms (Spriggs, Farhat, Halpern & Nic Gabhainn, 2010).

4.2 Method

Data were drawn from the US National Longitudinal Study of Adolescent Health (ADD Health, 1996) and the Health Behaviour in School-aged Children study conducted in 28, primarily European, countries.

4.2.1 Measures

Dependent variable

Sexual initiation: Sexual initiation data was based on a question inquiring whether the respondent had ever had sexual intercourse.

Demographic predictors of early sexual initiation

Physical and psychological symptoms were assessed through six items included in both the ADD Health and HBSC. These included: general happiness, feeling low/sad, feeling lonely, feeling moody or irritable, frequency of headaches and difficulty sleeping. Items were assessed on ordinal scales with four or five levels. Categorical variables violate the assumptions of traditional factor analysis/principle component analysis, therefore polychoric principle component analysis was conducted to assess the appropriateness of including the items in a single index and to generate a summary score.

4.2.2 Analytic sample

Analyses drew upon data from three datasets: the National Longitudinal Study of Adolescent Health (ADD Health, 1996), the Health Behaviour in School-aged Children (HBSC) study (HBSC, 1997-1998) and the HBSC 2010 study. Only participants in their 15th year were asked questions relating to their sexual behaviour, therefore only those participants who were in their 15th year at the time of the survey were retained for analysis. HBSC Ireland 2010 data was used in comparison to HBSC 1997-1998 data from Finland, France, Poland and Scotland, and to U.S. data from the ADD Health study (1996). Samples were not weighted and the sample consisted of 1621 (USA), 1340 (Scotland), 884 (Finland), 994 (France), 1272 (Poland) and 3688 (Ireland).

4.2.3 Analysis

The analysis first examined the distribution of analytic variables by gender and nation. Bivariate relationships between the analytic variables were then explored using chi-square and ANOVA analyses. Multivariable ordinary least squares (OLS) models stratified on gender were then conducted regressing physical/psychological symptoms on sexual initiation, living arrangement (two biological parental as referent) and family SES (high SES as referent). Adjustment of standard errors for non-independence between individuals in the same school was accomplished by using the robust option in STATA, because identified for clustering units (i.e. schools) were unavailable for all HBSC countries.

4.3 Results

Descriptive statistics of the sample, by gender and nation are presented in Table 4.1. Significant differences between countries were observed across all variables (United States, France, Finland, Scotland and Poland). For example, not living with two biological parents is significantly more common among US boys and girls than among youth from other countries. The figures from Ireland are similar to those of the other European countries. The prevalence of low socio-economic status is considerably higher in Poland and considerably lower in France than in other countries for both boys and girls. Analysis of the Irish data found that the proportion of boys and girls from low socio-economic status groups is lower than those of the other countries considered in the analysis. Among boys, sexual initiation by age 15 ranges from a low of 17.6% in Finland to a high of 32.7% in Scotland. In Ireland, the proportion of boys reporting sexual initiation is 25.4%. Among girls, early sexual initiation varies from 11.3% in Poland to 37.2% in Scotland. In Ireland, the proportion of girls reporting sexual initiation is 16.5%. Self-reported physical/psychological symptoms were significantly greater among females compared to males in each nation (United States, France, Finland, Scotland and Poland). For girls, physical/psychological symptoms were highest in France and lowest in the United States. For boys, symptoms were highest in Poland and Finland and lowest in the United States. In Ireland, the figures for both boys and girls were lower than those from other European countries.

International comparison identified that for boys, living in a blended family or with a single parent and having low socio-economic status was significantly positively associated with physical/psychological symptoms. Findings from the Irish data also identified that for boys, living in a stepfamily or with a single parent were significantly positively associated with experience of physical/psychological symptoms. Low or middle social class group status was also significantly positively associated with physical/psychological symptoms, compared to high social class groups. International comparison identified that there was no significant interaction between nation and having experience of sexual intercourse, suggesting that the relationship does not vary by country. In Ireland, a significant positive associated was identified between experience of sexual intercourse and physical/psychological symptoms (Table 4.2).

Table 4.1: Demographic characteristics, ever sexual intercourse and physical/psychological symptoms among 15 year olds: prevalence and means by gender and country.

	Boys (n=4680)						Girls (n=4621)						
	United states (n=760)	Scotland (n=624)	Finland (n=410)	France (n=461)	Poland (n=688)	*p* value[a]	Ireland (n=1958)	United states (n=861)	Scotland (n=716)	Finland (n=474)	France (n=533)	Poland (n=584)	*p* value[a]	Ireland (n=1719)
Prevalence														
Living arrangement						***							***	
Two biological parents (%)	58.2	76.8	73.2	74.8	86.1		74.3	56.6	70.4	70.5	78.2	86.1		75.4
Stepfamily (%)	17.9	6.6	10.0	9.1	2.9		5.1	15.7	9.6	9.7	8.4	4.5		6.3
Single parent (%)	21.7	14.4	15.6	14.8	10.8		12.4	26.5	18.6	19.4	12.0	8.7		14.1
Other (%)	2.2	2.2	1.2	1.3	0.3	***	8.2	3.3	1.4	0.4	1.3	0.7	***	4.2
Family SES														
Low (%)	41.8	50.5	48.5	33.0	63.9		10.4	44.0	51.4	56.5	38.3	73.1		10.5
Medium (%)	20.7	28.7	30.0	29.9	26.6		42.3	21.3	30.9	30.2	29.1	20.6		37.1
High (%)	37.5	20.8	21.5	37.1	9.5		47.3	34.7	17.7	13.3	32.7	6.3		52.4
Sexual initiation	30.7	32.7	17.6	30.4	28.3	***	25.4	30.7	37.2	26.6	20.6	11.3	***	16.5
Means (SE)														
Physical/psychological symptoms (range -1.93-4.27)	-0.79	-0.45	-0.18	-0.27	-0.18	***	-0.51	-0.23	0.33	0.35	0.70	0.56	***	-0.08

*$p<0.05$, ** $p<0.01$, ***$p<0.001$

[a] Chi-square or ANOVA test for differences between countries within gender

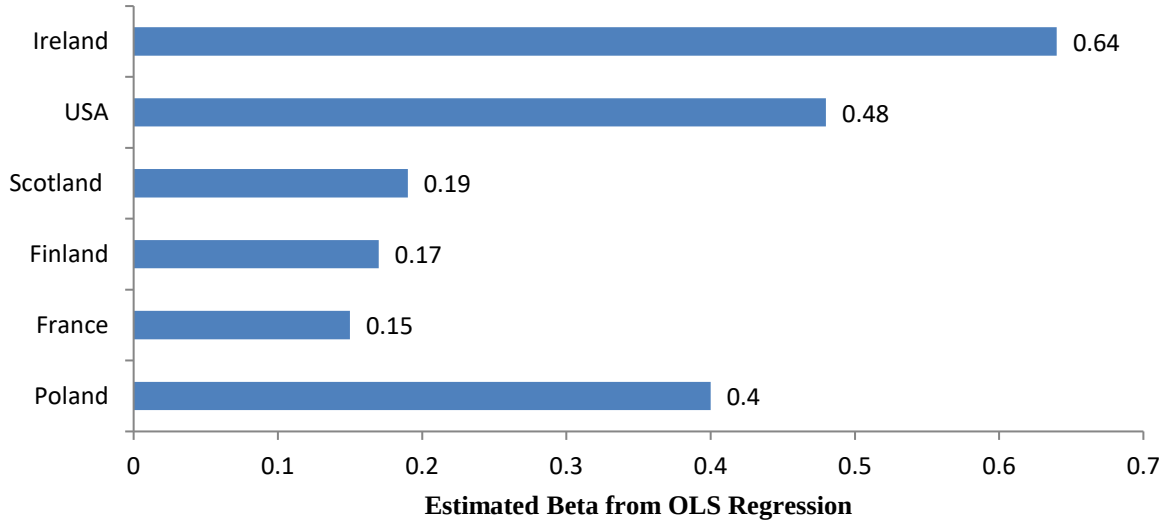
Table 4.2: Adjusted association between ever sexual intercourse and physical/psychological symptoms: by gender

	Dependent variable: Physical/psychological symptoms							
	International				Ireland			
	Boys (n=2943)		Girls (n=3168)		Boys		Girls	
	Est. β (95% CI)[a]	*p*-value [b]	Est. β (95% CI) [a]	*p*-value [b]	Est. β (95% CI) [a]	*p*-value	Est. β (95% CI) [a]	*p*-value
Family composition								
Two biological parents	Ref.	0.047	Ref.	<0.001	Ref.		Ref.	
Stepfamily	0.16 (0.01-0.31)		0.38 (0.23-0.54)		0.38 (0.12-0.64)	<0.01	0.38 (0.11-0.65)	<0.01
Single parent	0.23 (0.10-0.35)		0.23 (0.10-0.36)		0.31(0.11-0.51)	<0.01	0.18 (-0.01-0.37)	>0.05
Other	0.32 (-0.10-0.73)		0.31 (-0.03-0.66)		0.21 (-0.11-0.53)	>0.05	0.84 (0.37-1.32)	<0.001
Family SES		0.002		<0.001				
Low	0.17 (0.07-0.28)		0.21 (0.09-0.33)		0.25 (0.04-0.46)	<0.05	0.27 (0.04-0.50)	<0.05
Middle	0.03 (-0.08-0.14)		0.07 (-0.07-0.20)		0.15 (0.03-0.27)	<0.05	0.12 (-0.01-0.26)	>0.05
High	Ref.	0.148	Ref.	<0.001	Ref.		Ref.	
Ever sexual intercourse	0.12 (-0.04-0.28)		0.48 (0.30-0.66)		0.42 (0.27-0.57)	<0.001	0.64 (0.46-0.82)	<0.001
R^2	0.06		0.09		0.05		0.07	
F *(df)*	(14, 2928) 14.35	<.001	(14, 3153) 24.81	<.001	(6, 1445) 11.05	<.001	(6, 1330) 15.15	<.001

[a] Estimated beta coefficient from OLS regression
[b] *p*-value for joint test of significance with robust standard errors

International comparison identified that similarly to boys, for girls, living in a blended family or with a single parent and having low socioeconomic status was positively related to physical/psychological symptoms. For girls in Ireland, living in a stepfamily or other family set-up or single parent household was significantly positively associated with physical/psychological symptoms (Table 4.2). As with the cross-national comparison, low socio-economic status was significantly positively related to physical/psychological symptoms. A statistically significant positive relationship was identified between ever having sexual intercourse and symptoms for girls in the US and in Poland (Figure 4.1). In Ireland, a significant positive association was also identified between girls' engagement in sexual intercourse and physical/psychological symptoms (Figure 4.1).

Figure 4.1: Ever sexual intercourse and physical/psychological symptoms: international female multivariable model results and findings from Ireland. Model controls for family structure, family SES and country fixed effects.



What we know

Past research: Descriptive statistics suggest substantial variability between countries in the symptoms and prevalence of early sexual initiation for both boys and girls. Self-reported physical/psychological symptoms were significantly greater among females compared to males in each nation. Early sexual initiation was significantly positively related to negative physical/psychological symptoms within two countries (the US and Poland) among girls only.

New findings: In Ireland, the experience of symptoms and prevalence of early sexual initiation was similar to those of other European countries considered in the international comparison. In Ireland, self-reported experience of symptoms was significantly greater among females compared to males. The figures for both boys and girls were lower than those from other European countries, though these figures were not subjected to any statistical tests as the Irish data were explored independently of the other European countries. In Ireland, experience of early sexual intercourse was significantly positively related to negative symptoms for both boys and girls.

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