

**Sexual intercourse and recourse  
to contraception  
during early adolescence  
in France and England and Wales:**

**Findings from the 2009/10 Health Behaviour in  
School-Aged Children (HBSC) study**

**John Tomkinson**

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**Sexual intercourse and recourse to contraception during early adolescence in France and England and Wales: Findings from the 2009/10 Health Behaviour in School-Aged Children (HBSC) study**

John Tomkinson \*

**Abstract**

Using data from the international Health Behaviour in School-aged Children study, this article examines the sociodemographic factors associated with sexual intercourse and recourse to contraception in early adolescence in France and England and Wales. Logistic regressions report that these factors are subject to both gender and setting differences. As a result, girls in England and Wales are more likely to experience pregnancy in early adolescence than their French counterparts. These differing behaviours help to explain the higher pregnancy rates in early adolescence observed in England and Wales compared to France.

**Keywords:** Sexual and contraceptive behaviours, adolescent pregnancy, France, England and Wales, Health Behaviour in School-aged Children, international comparison.

**Résumé**

À partir des données de l'enquête internationale *Health Behaviour in School-aged Children*, cet article examine les facteurs sociodémographiques associés aux rapports sexuels et au recours à la contraception durant la primoadolescence en France et en Angleterre-Galles. Des régressions logistiques montrent que les différences de genre et de contexte influencent

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\* Institut de Démographie de l'Université de Strasbourg (IDUS), 22 rue René Descartes, Patio - Bâtiment 5, 67084 Strasbourg Cedex.

ces facteurs. Il en résulte que les filles adolescentes en Angleterre-Galles sont plus probables à connaître une grossesse durant la primoadolescence que leurs homologues françaises. Ces comportements différents pourraient expliquer le taux de conception à l'adolescence plus élevé observé en Angleterre-Galles qu'en France.

**Mots-clés :** Comportements sexuels et contraceptifs, grossesses adolescentes, France, Angleterre-Galles, *Health Behaviour in School-aged Children*, comparaison internationale.

# 1 Introduction

If France and England and Wales share certain similarities in both economic and sociodemographic contexts, in the context of European fertility, the fertility regimes in the two countries distinguish themselves by their atypical characteristics: a high intensity in France, and atypical timing in England and Wales.

Specifically, England and Wales is well known for having the highest rate of adolescent fertility in Western Europe. If recent trends show a decline in adolescent fertility in England and Wales, the level observed remains superior to that of other countries, and especially to that of France (in 2015, 100 live births per ten thousand women aged 15-18 years in England and Wales versus 49 in France).

The probability of entering into maternity during adolescence can be thought of as a product of three probabilities: the probability of being sexually active, the probability of having (non-) recourse to contraception during sexual intercourse, and the probability of (non-) recourse to abortion in the case of pregnancy.

Recourse to abortion differs significantly for adolescent women in England and Wales and in France with a greater proportion of adolescent pregnancies ending in abortion in France (Tomkinson, 2016). If we thus observe conception rates during adolescence, the difference between the two countries is reduced slightly: in 2012, there were respectively 342 and 229 conceptions<sup>1</sup> per ten thousand women aged 15-18 years in England and Wales and in France.

In light of the differing rates of adolescent conceptions observed in England and Wales and in France, we hypothesise that adolescents in these two countries exhibit different sexual behaviours and that the factors influencing these behaviours may be linked to national differences, as well as their individual and family characteristics.

In this paper, we concentrate upon sexual and contraceptive practices in early adolescence (until the age of 15 years old) which are good indicators of behaviours which will be

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<sup>1</sup> Live births plus abortions.

adopted later (Manning *et al.*, 2000; Beltzer *et al.*, 2011). A focus upon early adolescence also allows to identify first sexual encounters which are associated with a lesser recourse to contraception (Godeau *et al.*, 2008b) and lead intrinsically to a longer duration of exposure to risk of pregnancy, and thus potentially, an adolescent maternity. We focus upon the debut of sexual activity – defined here as first sexual intercourse. Does there already exist, from the start of sexual activity, differences in the behaviours of adolescents in France and in England and Wales?

We will examine two aspects of first sexual intercourse, the moment at which it takes place and the use of contraception at this first sexual experience. Thanks to the Health Behaviour in School-aged Children survey – common to both countries – we investigate the factors associated with an early sexual debut and a poor, indeed absent, recourse to contraception. We will underline gender differences with respect to sexual debut, by studying the behaviours of boys as well as girls and also show that these gender differences vary according to the country setting.

## **2 Literature review**

### **2.1 Sexual activity during adolescence: a time of exploration and initiation**

“*Sexual exploration is part of the normal lifecycle experience*” (Smith, 1997: 335) and, in the context of the development of emotional and romantic relationships (Maillochon *et al.*, 2012), adolescence can be considered as a period of sexual apprenticeship (Bozon, 2008) often leading to first sexual intercourse, event which marks the debut of sexual life (Bozon, 1993).

Amongst young people, even if sexual activity is part of the norms in western countries (Madkour *et al.*, 2010), there remain preoccupations, notably concerning an “early” entry into sexuality – defined as first sexual intercourse aged 15 years old or younger (Madkour *et al.*, 2014). These worries stem from the fact that an early entry into sexuality is associated with a greater risk of adolescent pregnancy for girls (Maillochon *et al.*, 2012) and a higher risk of contracting a sexually transmitted infection for both sexes (Godeau *et al.*, 2008b).

Adolescent girls having sexual intercourse at very young ages have a longer exposition to the risk of experiencing pregnancy during this stage in their lives (Garriguet, 2005). An early entry into sexuality is also related to a higher number of sexual partners during adolescence (Paul *et al.*, 2000) which can be associated with a less efficient recourse to contraception: less stable unions are often associated with a lesser communication about contraceptive methods between partners from which comes a lower level of protection (Godeau *et al.*, 2008b).

Adolescent sexual activity is subject to gender differences, not only by the fact that it is girls who face the immediate consequences of an adolescent pregnancy, but also due to the fact that early sexuality is subject to different judgements based upon gender. Sexually active adolescent girls are perceived more negatively, whereas boys are considered more positively by their peers (Shoveller *et al.*, 2004). These inequalities are today, to a certain extent, less apparent in England and Wales and France. We observe that the median age at first intercourse is equivalent for both sexes in England and Wales (considered as a good indicator of sexual equality (Bozon and Kontula, 1997)) for those born in the second half of the twentieth century – 17 years old for men and women of the 1955-84 birth cohorts, and 16 years old for those born between 1990 and 1995 (Wellings *et al.*, 2013). In France, the age gap at first sexual intercourse has reduced over time to almost reach equality. Median age at first sexual intercourse has decreased for those born since 1950, from respectively 19.1 years old for women and 18.1 years old for men to 17.6 and 17.2 years old for the 1986-1987 birth cohorts (Bozon, 2008).

Important cultural differences remain from one country to another (Godeau *et al.*, 2008a). Concerning attitudes regarding the sexuality of young people, they remain more “moralistic” in the UK where “underage sex” is often evoked as a problem, whereas no equivalent term exists in the French language (Daguerre, 2010). In France, there are no campaigns which seek to delay the age of entry into sexuality (Bozon, 2008) whilst in the UK, if the debate does not go so far as the campaigns observed in the United States which promote virginity and abstinence before marriage (Aspy *et al.*, 2007; Andro, 2008), the question of adolescent sexuality is more often present in the public domain.

## **2.2 Recourse to contraception during adolescence: overcoming biological, technical and accessibility barriers**

Paradoxically, if adolescent maternities are not among the norms of maternity in western societies, it is during adolescence that women are most fertile (Nisand *et al.*, 2012). “*Most pregnancies in adolescents are due to contraceptive non-use or failure*” (Godeau *et al.*, 2008a: 66). Even if recourse to contraception during the initial period of sexual activity is improving both in England and Wales (Stone and Ingham, 2002) and in France (Godeau *et al.*, 2008b), efficient contraceptive practices remain complicated. Firstly, first sexual intercourse is often unplanned and thus suffers from a lack of anticipation concerning contraception leading to unprotected intercourse (Henderson *et al.*, 2002). Subsequently, contraceptive usage can confront young people with technical difficulties such as forgetting to take the contraceptive pill or a poor usage of condoms (Godeau *et al.*, 2008b). The latter method remains the most used by adolescents, in spite of its failure rate being the highest amongst reliable contraceptive methods: 15% of women using only condoms experience pregnancy during the first year of use, compared to 8% of pill users and 3% of women using intrauterine devices (Ranjit *et al.*, 2001). For these reasons, the simultaneous use of condoms and contraceptive pill assuring a “double protection” is proposed as being the most effective method for avoiding adolescent pregnancy in the Netherlands (Beltzer and Bajos, 2008) as well as in France (*cf.* Nisand and Toulemon, 2006).

Access to contraception for adolescents can be problematic both in terms of physical access and the cost of access. In France, both condoms (since 1999) and the morning-after pill (since 2001) can be supplied by school nurses present in secondary education establishments, facilitating an easy and free access to contraception for adolescents. School nurses do not exist in the UK and thus British adolescents are denied a source of free contraception (and advice). Emergency contraception is however freely available from a variety of sexual and contraceptive health centres including services specially conceived for young people, family planning centres and sexually transmitted infection clinics. If, following the liberalisation of contraception in 1967, the morning-after pill was accessible to all women having reached the age of sexual majority (16 years old), it would not be made available from health professionals without parental accord until 1974 (DHSS, 1974).



Emergency contraception constitutes an indispensable “safeguard” following unprotected sex or contraceptive failure (Gaudineau *et al.*, 2010). Although in France it can be obtained from school nurses, the most favoured access point for adolescents remains the pharmacy (Moreau *et al.*, 2006), a trend which is also observed in the UK (Marston *et al.*, 2005) as well as in Canada (Soon *et al.*, 2005). That French adolescents prefer to buy the morning-after pill from a pharmacy, rather than obtain it freely from a school nurse hints at a desire for anonymity on their part and a feeling of stigmatisation due to being sexually active, having had unprotected intercourse, having experienced contraceptive failure, or a combination of these factors. These indications underline the necessity for spaces adapted to the needs of young people to provide advice, access to free contraception and guaranteeing confidentiality. British adolescents are, once again, disadvantaged in this area compared to young people in France. They face a higher cost of emergency contraception, the price of buying the morning-after pill from a pharmacy being around 28 euros in the UK, compared to less than 10 euros in France (Gaudineau *et al.*, 2010).

### **2.3 Determinants of early sexual activity and contraceptive behaviours in adolescence**

Family environment is seen as playing a key role among determinants of early sexual debut and contraceptive practices. Several studies have shown a link between family type and early sexual debut, with adolescents living in step- or single-parent families being more likely to experience early sexual debut (Paul *et al.*, 2000; Henderson *et al.*, 2002; Stone and Ingham, 2002; Godeau *et al.*, 2008b; Madkour *et al.*, 2010). It is proposed that this could be a result of either less parental supervision or more liberal attitudes towards sexuality and its place vis-à-vis marriage/cohabitation in these families (Miller *et al.*, 1997; Bozon, 2008).

Apart from family structure, there is a debate to how the quality of family relations may affect adolescents’ sexual behaviour. Whilst a positive parent-adolescent communication is associated with later sexual debut (Madkour *et al.*, 2010), very few adolescents cite their parents as a source of sexual education/information (Wight *et al.*, 2004). As a consequence, any potential impacts of good parent-adolescent communication may be limited.

Concerning other factors, in the UK adolescent pregnancy is strongly associated with a lower socio-professional background (Smith, 1993; Bradshaw *et al.*, 2005), a possible reflection of differing sexual behaviours and usage of contraception among social groups.

Elsewhere, retrospective studies have shown a higher rate of sexual debut before the age of 16 among those without any qualifications/diplomas (Mercer *et al.*, 2013). Depression and low self-esteem have also been linked to early sexual activity, especially amongst girls (Smith, 1997), as well as to more frequent unprotected sex (Godeau *et al.*, 2008b).

### 3 Data and methods

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

We use in this paper the 2009/10 edition of the Health Behaviour in School-aged children (HBSC) study<sup>2</sup>. This study surveys school children aged 11, 13 and 15 years old and concerns their well-being and general health. Strong points of this study are the common methodology and questions asked in each participating country which allow for direct cross-country comparisons to be made (Madkour *et al.*, 2010). It has also the advantage, compared to sexual health surveys such as FECOND (*Fécondité - Contraception - Dysfonctions sexuelles*) and Natsal (The National Survey of Sexual Attitudes and Lifestyles), of being focused upon adolescents during their adolescence.

Undertaken for the first time in 1983/84 in just five countries, more than 40 countries participated in the 2009/10 edition, and the HBSC survey has been regularly undertaken in Wales since 1985/86, in France since 1993/94, and in England since 1997/98 (Currie *et al.*, 2012). If the survey is undertaken with the collaboration of the WHO, it is independently financed in each country: in France by the *Institut national de prévention et d'éducation pour la santé* (Inpes) and the *Observatoire français des drogues et des toxicomanies* (OFDT) (Godeau *et al.*, 2012); in

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<sup>2</sup> Since our analysis, an edition of the survey was undertaken in 2013/2014. However, access to this data will not be available until mid-2018.

England and Wales by the Department of Health, the Department of Education and the Welsh government (Brooks *et al.*, 2011; Welsh Assembly Government Social Research, 2011).

In both countries a sampling plan was conceived to survey a representative sample of students aged 15.5 years old on average. The clusters are schools within which two classes were randomly selected. In France, the probability that a school is selected is proportional to its size and controlled for the type of town in which it is located, its public/private status and its level of schooling (Godeau *et al.*, 2012). In England and Wales, the sample is composed of schools stratified geographically (by region in England and local authority in Wales) and by type (Brooks *et al.*, 2011). In each country, the consent of the schools and of the parents of the respondents was obtained in advance of the survey. In total, 1,406 girls and 1,233 boys in England and Wales and 1,002 girls and 872 boys in France answered the self-administered questionnaire of HBSC 2009/10.

One part of the survey, asked uniquely to the students aged 15 years old, offers a valuable insight into sexual behaviour during early adolescence, normally only available through retrospective studies (Henderson *et al.*, 2002). In order to obtain information upon the sexual behaviours of adolescents in France and in England and Wales we will focus upon the responses to the following questions:

1. Have you ever had sexual intercourse (sometimes this is called ‘making love’, ‘having sex’ or ‘going all the way’)?
2. The last time you had sexual intercourse, what method(s) did you or your partner use to prevent pregnancy?
3. The last time you had sexual intercourse, did you use a condom?

### **3.2 Measures**

The first outcome is measured using the first of the three questions outlined above where respondents either answered “yes” or “no” to having already had sexual intercourse. Responses

were checked for consistency with inconsistent responses being excluded from the analysis<sup>3</sup>. These exclusions were applied to a small minority of cases, non-response being more prevalent. Overall the rates of exploitable response were respectively 96.4% and 96.9% for girls in England and Wales and in France, 96.5% for boys in France, whilst being lowest for boys in England and Wales at 91.4%<sup>4</sup>.

For those having provided a consistent response and declared to having already had sexual intercourse, the second outcome measure is that of level of contraceptive protection at last intercourse. According to their responses, the level of protection has been defined in three categories: “Double protection”, “Well protected” and “Poorly/unprotected”. The first category corresponds to the simultaneous use of condom and contraceptive pill outlined by health professionals as the best form of protection for adolescents. The other categories follow the definitions proposed by Godeau *et al.* (2008a). “Well protected” corresponds to the use of at least one of the condom or contraceptive pill, “poorly protected” to the use of a method other than a condom or contraceptive pill, and “unprotected” to no method of contraception being used (including only the use of the morning-after pill and those having replied to be unsure of any methods used). Amongst adolescents having declared having already had sexual intercourse, the rate of exploitable responses concerning contraception was lower amongst

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<sup>3</sup> E.g. respondents having answered “yes” to having had sexual intercourse but having then replied to the second question upon contraception “I have never had sexual intercourse”, or respondents having answered “no” to the former but then having given age at first intercourse and details of contraception use at last intercourse. Regarding responses given to the question concerning recourse to contraception, incoherent responses were also excluded from our analysis.

<sup>4</sup> An analysis of non-respondents (not presented here) shows no significant difference in the rates of non-response according to the modalities of explanatory variables retained in our analysis in this paper. Equally, respondents having failed to answer the question “Have you already had sexual intercourse [...]?” were significantly more likely to have failed to answer other questions in the survey. It thus seems that these non-responses form part of a “general” non-response. Furthermore, the English and Welsh boys who have a higher rate of non-response to the question on sexual intercourse were also significantly more to not answer other questions.

adolescents in England and Wales, 85.9% of girls and 84.3% of boys having provided an exploitable response, compared to 89.2% and 88.0% respectively in France<sup>5</sup>.

### 3.3 Analyses and hypotheses

#### *Multivariate analysis*

Firstly, in addition to descriptive statistics, binary logistic regressions are performed to model the outcomes of (i) having had sexual intercourse and (ii) having been poorly or unprotected in terms of contraception at last intercourse. Sex and country of residence are used as control variables in each of the models.

Covariates can be grouped into three categories: those concerning family and home environment; those linked to the school environment; and those concerning health and well-being (Table 1, p. 12, summary statistics for each of the populations studied are reported in Appendices 1 and 2.)<sup>6</sup>. Age at first intercourse is used as a further explanatory variable in the second regression.

Concerning the family environment of adolescents, we hypothesise that if parental communication has any effect upon their sexual and contraceptive behaviours it is likely to be only

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<sup>5</sup> Non-exploitable responses concerning this second theme were in the majority of cases a result of incoherent replies. These incoherencies were grouped into two categories: those having replied to having not used a condom at last sexual intercourse when asked directly but having ticked the condom option in the list of methods used at last intercourse (46.5% of incoherent responses); those having declared to have used no method of contraception at last intercourse but having ticked at least one option in the list of contraceptive methods (30.2%). Again, no specific profiles were associated with non-exploitable responses, apart from for French girls and boys in England and Wales where the rate of non-response was higher for those from a family of “low/medium” socioeconomic status (respectively 15.9% versus 7.2% and 18.3% compared to 10.4%; p-value corresponding to the  $\chi^2$  test equal to 0.04 in both cases).

<sup>6</sup> When values for explanatory values were missing, we imputed using a probabilistic approach based upon the distribution of responses given in the same country by respondents of the same sex.

positive in nature. Thus, adolescents who do not have or see a parent<sup>7</sup> would not be able to benefit from such a relationship. We also seek to find if a positive relationship with an older sibling has any effect, specifically, and especially for girls, with an older sister, as they can provide a more pertinent source of advice through sharing their own experiences and being more sympathetic than parents.

**Table 1 : List of explanatory variables used for binary logistic regression**

Variable	Question(s)	Modalites of response
<b>Home and family environment</b>		
Family type	[...] for the home where you live all or most of the time [...] tick the people who live there.	Mother / Father / Stepmother (or father's/mother's girlfriend) / Stepfather (or mother's/father's boyfriend) / Grandmother / Grandfather / I live in a foster home or children's home / Someone or somewhere else
Family socioeconomic status (FAS)	How many computers do your family own?	None / One / Two / More than two
	Does your family own a car, van or truck?	No / Yes, one / Yes, two or more
	Do you have your own bedroom for yourself?	No / Yes
	During the past 12 months, how many times did you travel away on holiday with your family?	Not at all / Once / Twice / More than twice
Communication with mother	How easy is it for you to talk to [your mother] about things that really bother you?	Very easy / Easy / Difficult / Very difficult / Don't have or see this person
Communication with father	How easy is it for you to talk to [your father] about things that really bother you?	Very easy / Easy / Difficult / Very difficult / Don't have or see this person
Communication with elder sister	How easy is it for you to talk to [your elder sister] about things that really bother you?	Very easy / Easy / Difficult / Very difficult / Don't have or see this person
<b>School environment</b>		
Academic performance	In your opinion, what does your class teacher(s) think about your school performance compared to your classmates?	Very good / Good / Average / Below average
Appreciation of school	How do you feel about school at present?	I like it a lot / I like it a bit / I don't like it very much / I don't like it at all
<b>Health and well-being</b>		
Life satisfaction	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 that you stand at the moment?	0 - 10
Health	Would you say your health is...?	Excellent / Good / Fair / Poor

Source: HBSC 2009/10.

<sup>7</sup> For example, following the death of a parent or in the case of never having known a parent.

In order to assess the socioeconomic status of an adolescent's family via HBSC, we use the Family Affluence Scale (FAS) developed by Currie *et al.* (1997). The FAS uses proxy determinants of household income to create a measure of affluence, closely linked to the socioeconomic status of parents. This information is otherwise difficult to obtain directly as adolescents are not always fully aware of their parents' position and response levels are often low when asking for parents' occupation, especially among those whose parents have lower income (Currie *et al.*, 2008). Using an additive scale<sup>8</sup>, FAS regroups families into three socioeconomic levels: "high", "medium" and "low".

The second group of covariates correspond to the adolescents' school environment and relates to their appreciation of school and to their academic performance. We thus hypothesise children aged 15 who have a relatively poorer academic performance than their classmates to have a higher probability of having already had sexual intercourse.

Finally, covariates related to the health and well-being of adolescents are based upon questions which ask about the general health perception and life satisfaction of the adolescents surveyed. The latter uses the "Cantril scale" which asks students to evaluate their quality of life on a scale from 0 ("worst possible life") to 10 ("best possible life") and considers those having declared a quality of life of 6 out of 10 or higher as having "good" life satisfaction and those below as having "poor" life satisfaction.

#### *Risk of experiencing pregnancy in early adolescence*

Secondly, predicted probabilities from both binary regressions are used to estimate a probability of being at risk of pregnancy in early adolescence (noted as  $\varphi_g^k$ ) for the adolescent women surveyed. From our notion presented in the introduction, this can be ascertained as the product of the predicted probabilities of having experienced sexual debut ( $\varphi_s^k$ ) and that of not

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<sup>8</sup> The indicator is calculated by adding the number of cars (in three modalities, 0/1/ $\geq 2$ ), the number of family holidays over the past 12 months (0/1/2/ $> 2$ ), the number of computers in the household (0/1/2/ $> 2$ ), and adding one point if the respondent has a bedroom to themselves (*cf.* Currie *et al.*, 2008).

having had recourse to a reliable contraceptive method ( $1 - \phi_c^k$ ). We examine the distributions of these probabilities in each country to help explain the differing conception rates observed.

## 4 Results

### 4.1 Sexual debut: earlier in England and Wales and an inverted gender gap

The proportion of adolescent girls and boys having had sexual intercourse varies significantly according to the country of residence. Amongst girls, almost a third (33.4%) of those surveyed in England and Wales had already had sex, 10% more than in France (22.9%) and 6 percentage points more than boys in England and Wales<sup>9</sup> (Table 2). In France, the gap is inverted, a smaller proportion of girls having had sexual intercourse than boys (22.9% and 31.4% respectively)<sup>10</sup>.

**Table 2 : Proportion of adolescent girls and boys having already had sexual intercourse**

<b>Sex</b>	<b>France</b>	<b>England &amp; Wales</b>
Girls	22.9 [20.2 - 25.5]	33.4 [30.9 - 35.9]
Boys	31.4 [28.3 - 34.5]	27.3 [24.8 - 29.8]

Source: HBSC 2009/10.

Scope: Students aged 15 years old on average at the time of survey.

Note: The figures in square brackets correspond to the 95% confidence interval.

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<sup>9</sup> P-values associated with the  $\chi^2$  test of less than 0.0001 and 0.0008 respectively.

<sup>10</sup> The results from the HBSC survey are similar to those from the retrospective surveys FECOND in France and Natsal in England and Wales. In the latter, for respondents born 1990-1993, all being aged 16 years old or above at the time of survey, 16.2% of women and 32.5% of men in France declared to having had first sexual intercourse before the age of 16. Respectively 33.2% of women and 30.0% of men in England and Wales experienced first intercourse before this age. These proportions are similar to those resulting from HBSC, even if we would have expected slightly smaller proportions from HBSC, as the students were aged 15.5 years old on average at the time of survey.



## 4.2 Yet the associated factors are similar

The results of a logistic regression upon the factors influencing an early sexual debut show gendered differences between adolescents in England and Wales and in France. Without the introduction of country of residence as an interaction term, we would observe no significant difference between girls and boys in their probability of having already had sexual intercourse (Table 3). However upon introducing this interaction term, the responses of girls and boys are significantly different: all other things being equal, boys in England and Wales have a lower probability than girls of having declared having already experienced sexual intercourse, whilst the opposite is true in France (odds ratios (OR) of 0.6 and 1.3 respectively).

**Table 3 : Odds ratios associated with having already had sexual intercourse with significant interactions (country and sex) – comparison of models with and without interactions**

Variable	Modality	Model without interactions		Model with interactions								
				Country				Sex				
		Odds ratio	P > $\chi^2$	France		England & Wales		Boys		Girls		
Sex	Girls	1		1		1						
	Boys	1.02	0.804	1.29	0.050	0.64	< 0.001					
Appreciation of school	Like a lot	0.86	0.142	1.14	0.370	0.67	0.005					
	Like a bit	1		1		1		<i>Interaction insignificant</i>				
	Don't like very much	1.40	< 0.001	1.25	0.139	1.50	< 0.001					
	Don't like at all	2.20	< 0.001	1.90	< 0.001	2.39	< 0.001					
Health	Excellent	1.02	0.805					1.36	0.007	0.60	< 0.001	
	Good	1		<i>Interaction insignificant</i>				1		1		
	Fair/poor	1.12	0.213					1.15	0.342	1.04	0.727	

Source: HBSC 2009/10.

Scope: Students aged 15 years old on average at the time of survey.

The country of residence also has an effect upon the influence of appreciation of school. There is a stronger relation between appreciation of school and sexual debut among English and Welsh students. Their responses show a clear gradient, with those students who like school “a lot” less likely to have had intercourse compared to students who like school “a bit”. Students not liking school “at all” are more than two times more likely to have declared to have already had sex (OR = 2.2). The association between liking school or not and sexual debut is less clear in France. Only a negative opinion of school is associated with early sexual debut:

those students not liking school at all being two times more likely to have already had sex than those liking school “a bit” (OR = 1.9)<sup>11</sup>. For girls not liking school at all, the proportion having already had sexual intercourse is 25 percentage points (58.8% compared to 33.8%) and 15 percentage points (37.8% versus 22.9%) higher respectively in England and Wales and in France compared to all girls (*cf.* Appendix 1).

*A priori*, students’ perception of their health appears to have no significant effect upon their declaration of having already had sex. However, amongst girls, 16.0% in England and Wales and 18.0% in France of those judging their health to be “excellent” had already had sexual intercourse compared to 42.3% and 28.5% respectively of those judging their health “fair/poor”. Thus, the introduction into the model of the variable “sex” as an interaction term reveals a gender specific association for those having declared that their general health is “excellent” compared to those having evaluated it as “good”. Girls having “excellent” health were less likely to have had sexual intercourse (OR = 0.6) whilst boys were more likely to have experienced sexual debut (OR = 1.4). In a Canadian study (Garriguet, 2005), a similar inversion was observed regarding self-esteem: girls with low self-esteem were more likely to have had sex at ages 14 and 15, whilst this was true for boys with strong self-esteem. It could be that adolescent boys and girls perceive the concept of “health” differently<sup>12</sup>. Boys may consider the physical aspects of health whilst girls focus more upon the mental aspects. Mental health and general well-being is more likely to lead to a positive self-image for girls and thus decrease their probability of having early sexual intercourse, whilst physical well-being for boys could be considered as attractive to the opposite sex and thus giving them more self-confidence especially with regard to girls and intimate relationships.

In both countries, and for each sex, even if the respondents are in the same school year with colleagues younger than themselves, all other things being equal, students aged 16 years

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<sup>11</sup> The contrast between calculated odds ratios for England and Wales and France for the modality “don’t like at all” is insignificant at the 5% level (p-value = 0.29).

<sup>12</sup> The question asked is the following: “Would you say your health is...? Excellent/Good/Fair/Poor”. The perception of what signifies the word “health” – mental health, physical health? – is thus left open to the interpretation of the individual.

old at the time of survey were more likely to have experienced sexual intercourse than those aged 15 (OR = 1.6).

Amongst the other explanatory variables not subject to interaction terms, the most significant effect on the probability of having had sexual intercourse is that of family type (Table 4, p. 18). The odds-ratios associated with adolescents in non-‘traditional’<sup>13</sup> families being higher than of those in ‘traditional’ families. Those in step-families have a higher probability of having had sexual intercourse (OR = 2.1) than adolescents living with both of their biological parents. This odds ratio is comparable for that associated with living in a single-parent family<sup>14</sup>, previously thought to be extremely penalising in collective representation. This equality could be the result that in these cases, it is neither single-parenthood nor the fact of living in a step-family which influences an early sexual debut, but the fact of having experienced a parental separation and the associated familial atmosphere (disputes, etc.).

Regarding other family orientated variables, all other things being equal, adolescents from families of low and medium socioeconomic levels have a lower probability of having already had sexual intercourse. If this result is somewhat unexpected, contrasting findings from previous studies, an analysis of the timing of first intercourse shows differences relative to family socioeconomic status. There exists a higher proportion of French boys (39.5% compared to 28.1%) and of English and Welsh girls (19.5% versus 14.8%) from families of low/medium socioeconomic status having had a “very early” sexual debut (aged 13 years old or younger, *cf.* Maillochon *et al.* (2012)) compared to those coming from a family of high socioeconomic status.

Contrary to our hypotheses, our results indicate that poor communication with parents appears to have a negative effect upon adolescent sexual behaviour, rather than good communication having a positive effect. Specifically, adolescents finding it difficult or very difficult to

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<sup>13</sup> The HBSC questionnaire distinguishes between parents and step-parents. Here, an adolescent living in a ‘traditional’ family lives with both his biological father and mother.

<sup>14</sup> The contrast between the odds ratios calculated for step-families and single-parent families is insignificant at the 5% level ( $p = 0.06$ ).

talk to their father have a higher probability of having had sexual intercourse. These negative connotations seem to be confirmed as those who do not have or do not see their fathers are less likely to have had sex than those who do not easily communicate with their father.

**Table 4 : Odds ratios associated with having already had sexual intercourse without significant interactions (country and sex)**

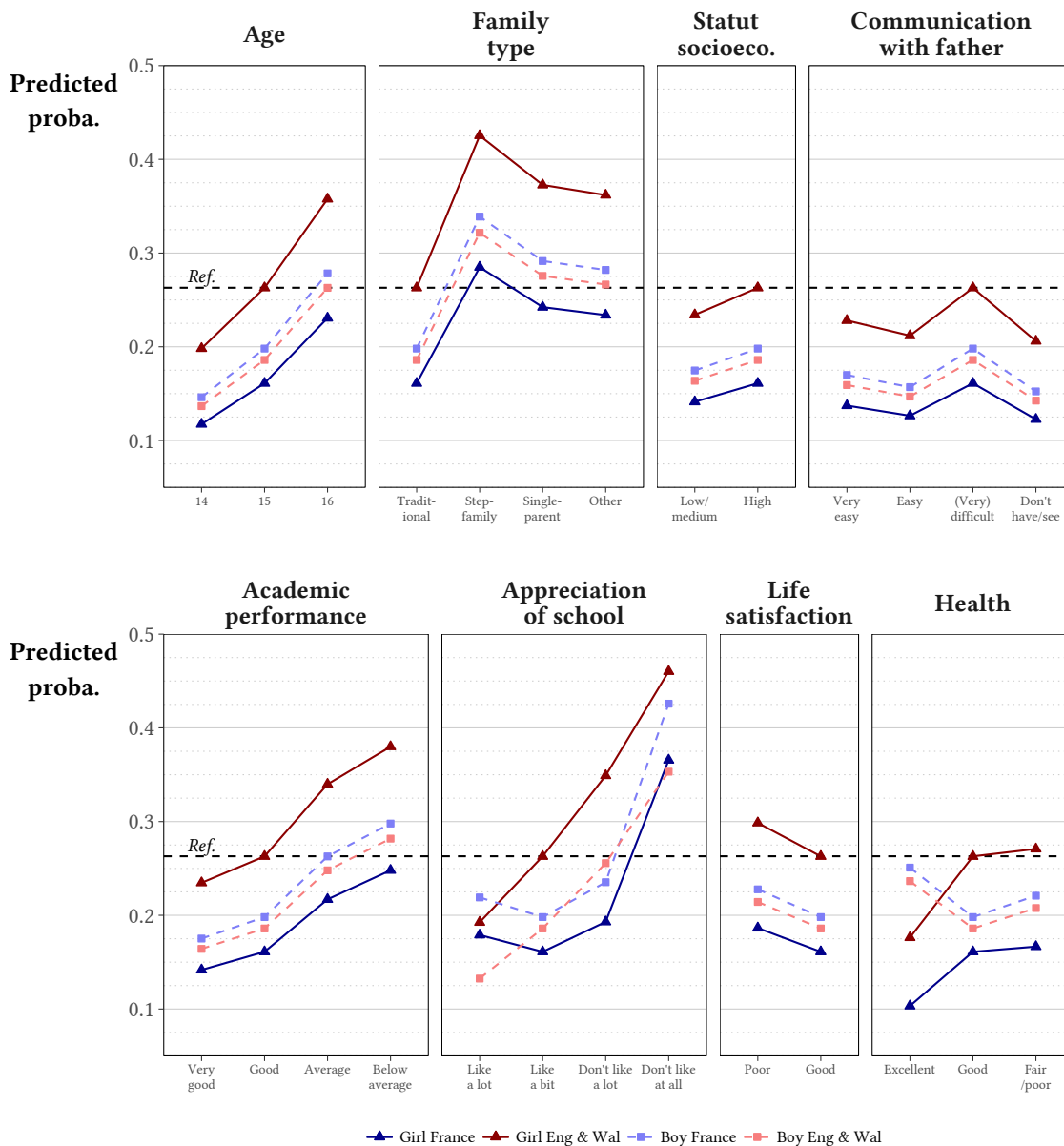
Variable	Modality	Odds ratio	P > $\chi^2$
Age	14	0.69	0.128
	15	1	
	16	1.56	< 0.001
Family type	'Traditional'	1	
	Step-family	2.08	< 0.001
	Single-parent family	1.67	< 0.001
	Other	1.59	0.019
Family socioeconomic status (FAS)	Low/medium	0.86	0.041
	High	1	
Communication with father	Very easy	0.83	0.081
	Easy	0.75	0.001
	(Very) difficult	1	
	Don't have/see	0.73	0.022
Academic performance	Very good	0.86	0.184
	Good	1	
	Average	1.44	< 0.001
	Below average	1.72	< 0.001
Life satisfaction	Poor	1.19	0.056
	Good	1	

Source: HBSC 2009/10.

Scope: Students aged 15 years old on average at the time of survey.

Furthermore, students having “poor” life satisfaction have a higher probability than those having “good” life satisfaction of having had sexual intercourse, although the level of significance is weak ( $p = 0.06$ ). The complete results of the regression model are summarised in Figure 1 (p. 19).

Figure 1 : Predicted probabilities of having already had sexual intercourse



Source: HBSC 2009/10.

Scope: Students aged 15 years old on average at the time of survey.

Note: The reference category corresponds to a girl aged 15 years old, living in England and Wales in a 'traditional' family, having good life satisfaction and being in good health, having good academic results, who likes school a bit and for whom it is difficult or very difficult to communicate with her father.

### **4.3 Adolescents in England and Wales less well protected at last intercourse compared to their French counterparts**

Amongst those sexually active, adolescents in England and Wales, of both sexes, were less protected at last intercourse than adolescents in France. Almost one girl in five (17.0%) in England and Wales was poorly or unprotected at last intercourse compared to 11.7% of French girls. For boys, this proportion is respectively 12.3% in England and Wales and 7.5% in France (Figure 2, p. 21). We thus observe a greater polarisation amongst girls in both countries, if they are proportionally more to have had a double contraceptive protection (condom combined with contraceptive pill) at last intercourse, they are also more frequent to have been poorly/unprotected<sup>15</sup>.

A binary logistic regression upon being poorly or unprotected at last sexual intercourse<sup>16</sup> showed that, all other things being equal, adolescents having experienced “very early” sexual debut have a greater probability of having used insufficient contraceptive methods at last intercourse (OR = 2.5) compared to adolescents having had first sexual intercourse aged 15 or above. Elsewhere, adolescents having judged their health as only “fair” or “poor” had also a significantly higher probability of having been poorly or unprotected at last intercourse compared to those having declared their health as good (OR = 1.6).

The effect of a good academic performance upon contraceptive coverage at last intercourse varied between countries. No significant effect was observed in France, whereas in England and Wales, adolescents having very good or good academic performance were less likely to have been poorly or unprotected at last intercourse compared to their fellow students with average or below average performance (OR = 0.5).

Figure 3 (p. 22), where only the significant variables are represented, shows predicted probabilities of having had a poor level or absence of contraception at last sexual intercourse

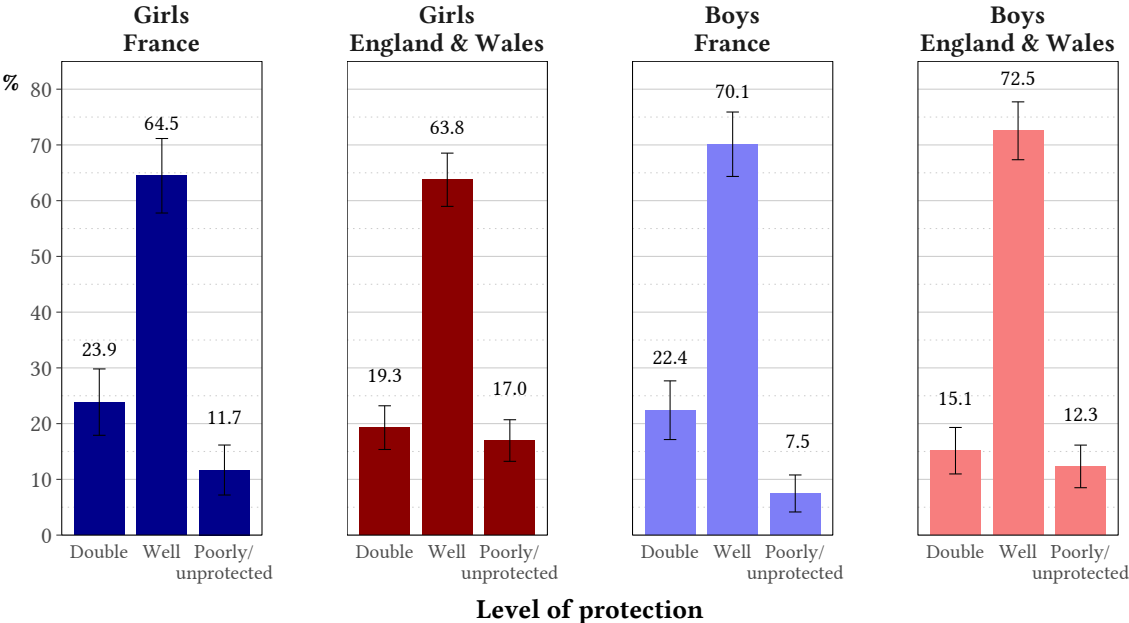
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<sup>15</sup> Due to the small sample sizes of boys and girls surveyed in early adolescence who have already had sexual intercourse, these results are to be interpreted with caution.

<sup>16</sup> Complete results are reported in Appendix 3.

for adolescents of both sexes in both countries. We observe that in this “nested” model (only students having already had sexual intercourse are included), the variables relative to family environment which had an influence upon sexual debut, have none upon the recourse to contraception. Furthermore, if age is a significant factor upon the fact of having had sexual intercourse, it is age at first intercourse which has the strongest influence upon level of contraceptive protection<sup>17</sup>. Finally, to not appreciate school, characteristic strongly associated with having already had sexual intercourse, is not associated with being poorly or unprotected at last intercourse, that which is also true for the variable “life satisfaction”.

**Figure 2 : Level of contraceptive protection at last sexual intercourse**



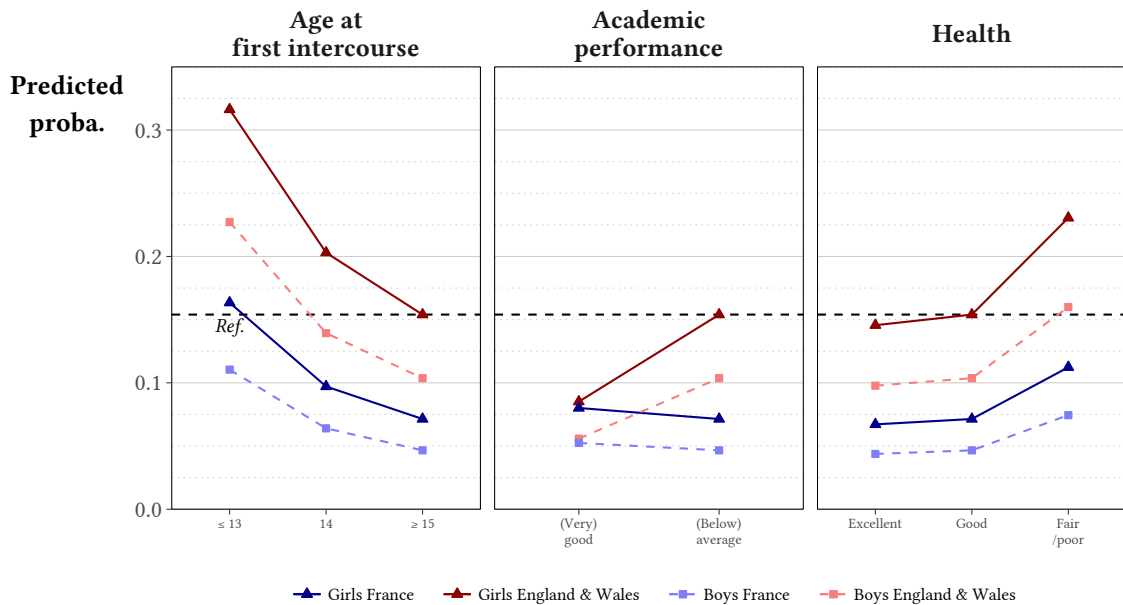
Source: HBSC 2009/10.

Scope: Students aged 15 years old on average at the time of survey having already had sexual intercourse.

Note: The error bars correspond to the 95% confidence interval.

<sup>17</sup> We do not know if, for certain students, their last sexual intercourse was also their first.

**Figure 3 : Predicted probabilities of having been poorly or unprotected at last sexual intercourse**



Source: HBSC 2009/10.

Scope: Students aged 15 years old on average at the time of survey having already had sexual intercourse.

Note: The reference category corresponds to a girl aged 15 years old, living in England and Wales, having had first intercourse aged 15 years old, having declared to be in good health and having average or below average academic results.

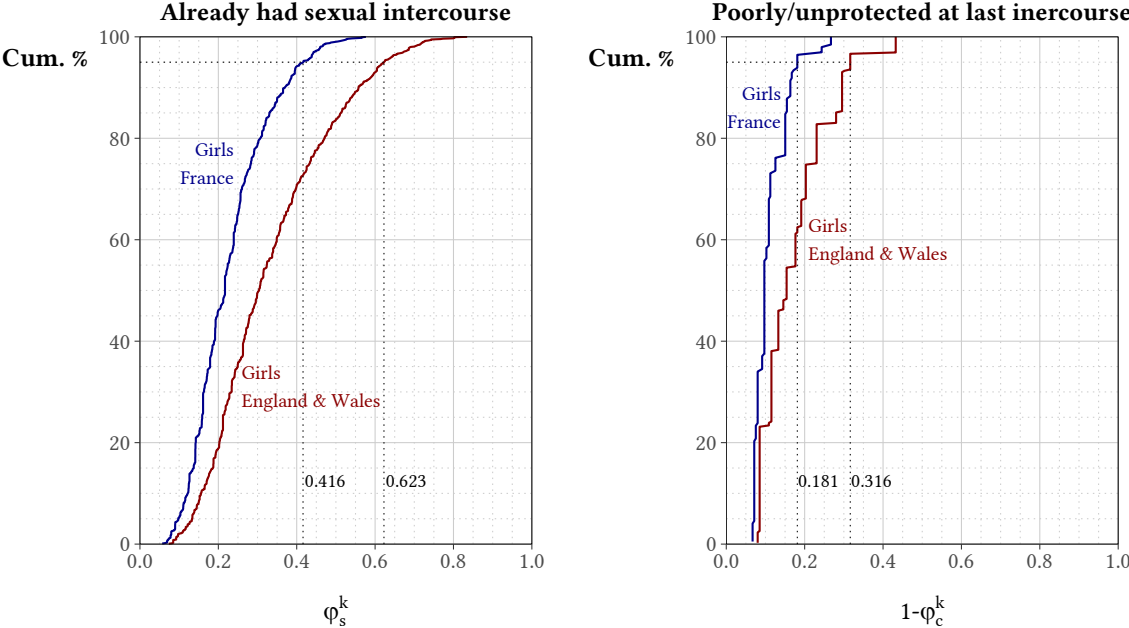
#### 4.4 Girls in England and Wales are more likely to experience a pregnancy in early adolescence

Figure 4 (p. 23) shows the distribution of the probabilities of having experienced sexual debut ( $\phi_s^k$ ) and that of not having had recourse to a reliable contraceptive method ( $1 - \phi_c^k$ ) according to our models of logistic regression for adolescents in France and in England and Wales. We observe diverging cumulative distributions, the gap between the two countries widens as the probabilities of having had sexual intercourse and having a poor or absence of contraceptive protection increase. Amongst adolescent girls having the highest probabilities (95<sup>th</sup>-100<sup>th</sup> percentiles), the probability of having had intercourse is 20% higher for those in



England and Wales (62% compared to 42% in France) and that of having a poor level or absence of contraception at last intercourse is 14 percentage points higher (32% versus 18% in France).

**Figure 4 : Cumulative distribution of predicted probabilities of having had sexual intercourse (left) and of having being poorly or unprotected at last sexual intercourse (right)**



Source: HBSC 2009/10.

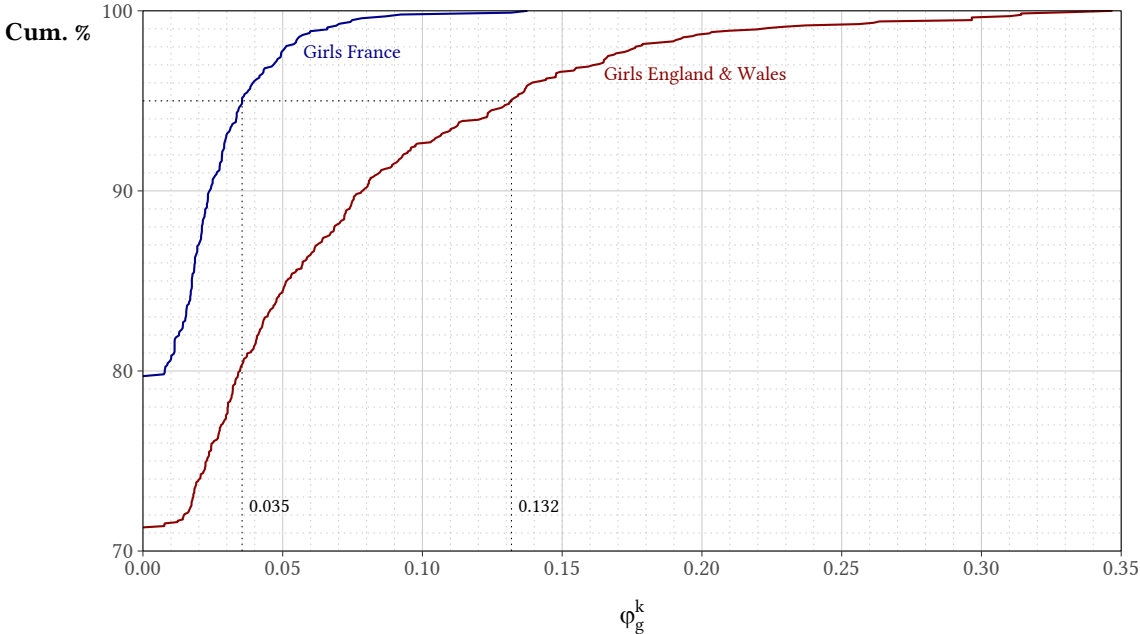
Scope: Students aged 15 years old on average at the time of survey (left); and having already had sexual intercourse (right).

Interpretation: 5% of adolescent girls in France have a probability of having had sexual intercourse greater than 0.416. The probability of having been poorly or unprotected at last sexual intercourse greater than 0.316 for 5% of adolescent girls in England and Wales.

According to our theoretical framework, multiplying these two probabilities allows to calculate a probability which resembles that of experiencing a pregnancy during adolescence. Studying the distribution of this probability (Figure 5, p. 24) for girls in France and in England and Wales, we first of all observe that the majority of girls in both countries have a zero probability of experiencing a pregnancy during early adolescence – 79.7% in France and 71.3% in England and Wales –, those who have not yet had sexual intercourse. In addition to the

higher proportion of girls having a non-zero probability of experiencing pregnancy, the maximum probability is almost three times higher in England and Wales – 34.7% compared to 13.8% – and with a greater variation. The 5% of girls the most “at risk” of experiencing a pregnancy have a higher probability in England and Wales than in France (13.2% and 3.5% respectively).

**Figure 5 : Cumulative distribution of predicted probabilities of experiencing pregnancy during early adolescence**



Source: HBSC 2009/10.

Scope: Students aged 15 years old on average at the time of survey.

Interpretation: 95% of adolescent girls in France have a probability of experiencing pregnancy less than or equal to 0.035. This probability is equal to zero for 79.9% of these girls, those not having had sexual intercourse.

These results serve to remind that in the early part of adolescence, the probability of experiencing pregnancy is zero for the majority of girls, as only a minority are sexually active. Elsewhere, if the probability of experiencing pregnancy is low for the vast majority of 15 year old girls, a minority are at a non-negligible risk of experiencing pregnancy, particularly in England and Wales.

## 5 Explaining the different sexual and contraceptive behaviours of adolescents in France and England and Wales

What can explain the differing probabilities of experiencing first intercourse during early adolescence and having a poor or absent recourse to contraception? Each survey has its own limitations. It is obviously impossible to identify the whole of the pertinent variables by a quantitative survey alone. For example, here, we do not know if first sexual intercourse occurred with someone of the same sex, which eliminates the risk of pregnancy<sup>18</sup>. Equally, penile-vaginal sex is not explicitly stated in the HBSC questionnaire. If anal sex, which would negate the risk of pregnancy, is a less frequent behaviour than penile-vaginal sex, it is reported more frequently among more recent cohorts (Mercer *et al.*, 2013). The above factors may lead to an overestimation of the proportion of adolescent women at risk of pregnancy.

It is possible that differences with regard to the partners with whom adolescents have their early sexual experiences can explain the higher proportion of girls in England and Wales who have had intercourse and display riskier contraceptive behaviours. The context of the relationship in which sexual intercourse takes place is a determinant of both sexual debut and contraceptive use. An adolescent girl having an older boyfriend is more likely to have sex earlier (VanOss, 2000), often due to the higher sexual expectations of an older, more experienced partner (VanOss, 2006). Similarly, contraceptive use can be shaped by an imbalance in both age and sexual experience between adolescent partners. Girls, younger and less experienced than their sexual partner are more likely to be subject to an imbalance of power in sexual decision making and at risk of having “choices” imposed upon them by their partners, for example the non-use of condoms. Amongst adolescent women, there exist accounts of “I did it so he’d be happy” (Skinner *et al.*, 2008), and this, notably amongst the youngest at first sexual intercourse, but also among those having older partners. This feeling of a lack of agency reflects an imbalance of power sometimes present in adolescent relationships. Equally,

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<sup>18</sup> The French version of the HBSC survey is the only one amongst participating countries to ask a question about the sex of the partner at first intercourse (Godeau *et al.*, 2012). However, this variable is not available in the public use file transmitted by the HBSC data management.

girls may be subject to pressure to accept unprotected sexual intercourse (Stone and Ingham, 2002): a lower usage of condoms has been observed in both French (Beltzer and Bajos, 2008) and American (Manning *et al.*, 2000) studies where adolescent girls are in a sexual relationship with an older partner. In the context of our analysis, it is regrettable that we do not have access to key data such as the presence of a boyfriend or girlfriend at the time of the survey and/or the age of the partner at first/last intercourse. A complementary exploitation of the retrospective surveys FECOND and Natsal seems however to confirm these hypotheses. For women born 1990-1994 in both countries, those who had first sexual intercourse during adolescence (aged 18 years or younger) did so in the majority of cases (6 out of 10 women) with an older partner, and one third with a man older by at least three years. Amongst the adolescent women with a partner older by at least three years at first intercourse, 14.8% in France and 17.6% in England and Wales used no method of contraception at this first sexual intercourse compared to 9.3% and 6.2% of women of a more similar age to their partner.

In England and Wales, our results from the HBSC study indicate a higher proportion of sexually active 15 year old girls than boys, the opposite of what is observed in France<sup>19</sup>. This result could be an indicator of differing age structures amongst adolescent couples in the two countries, with English and Welsh girls being more likely to have older partners. Little is known about the relationships and sex lives of younger adolescents. A greater understanding of the proportion of adolescents having a boyfriend/girlfriend, the stability and duration of their relationships, the frequency of their sexual activity (thought to be sporadic during adolescence (Santelli *et al.*, 2004)) could help to explain cross-country variations in levels of adolescent conceptions.

Factors of sociability, in both immediate (influence of pairs) and wider contexts (societal norms and attitudes), are also likely to explain some of the differing probabilities of having had sex, and poorly/unprotected sex, between countries and genders. Social factors,

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<sup>19</sup> Compared with other countries taking part in the HBSC survey, the proportion of girls having had sexual intercourse in England and Wales is among the five highest seen. The specificity of an earlier sexual debut amongst girls than boys is seen principally in Scandinavian countries (Currie *et al.*, 2012). Among these countries, girls in England and Wales surpass their male counterparts by the highest of margins.

of gender and geographical location, influence the behaviours of adolescents both consciously and unconsciously (Shoveller *et al.*, 2004). The effect of these factors is not negligible. In the Natsal survey, 3 out of 10 women in England and Wales born 1990-1994 who had sexual intercourse during adolescence mention peer pressure as the reason for their sexual debut. Amongst American high-school students, the proportion of sexually active individuals within a network of close friends, as well as the number of their sexual partners, increases the probability of having sexual intercourse (Ali and Dwyer, 2011). Qualitative interviews conducted amongst Australian adolescent girls underline a feeling of “everyone is doing it” and thus the fact of not having had intercourse is a barrier to inclusion in the social group, notably during conversations about intimate relationships (Skinner *et al.*, 2008).

With regard to the impact of norms and attitudes, amongst adolescents surveyed in the third wave of the European Social Survey (2006), 54.3% of French and 43.2% of British adolescents thought that sexual intercourse before the age of 16 years old was “too young”. Could this position explain the different proportions of younger adolescents having had sexual intercourse in both countries according to our results? Or at least, the fact that the oldest respondents (aged 16 years old) were more likely to have had intercourse? If in England and Wales, this difference corresponds to the age of sexual consent, it is improbable that the law is a major determinant upon the timing of first sexual intercourse – our results attest as such: in France where the age of sexual consent is younger (15 years old), a lower proportion of adolescents have had intercourse – and that the influence of social norms is more important. Furthermore, we can equally ask if, in England and Wales, the earlier entry into high school (at age 11 compared to 15 years old in France) does not facilitate a sexual socialisation due to mixing with older peers at a younger age?

The role of sexual education should probably not be underestimated as an influence upon adolescent sexual behaviour. Whether in a formal education setting or in family planning centres specially conceived for young people, the promotion of contraceptive use, preferably the combined use of condoms and contraceptive pill, is primordial as the vast majority of young people will have sex during their adolescence (Manning *et al.*, 2000), and as we have seen here, a significant proportion during early adolescence. For sex education to be success-

ful, it should focus not only upon the mechanics and potential negative impacts (unwanted pregnancy, sexually transmitted diseases) but also upon the relational and emotional aspects of sexuality (Shoveller *et al.*, 2004). It is also important to confront gender imbalances in sexual relations as adolescent women are still subjected to a “double standard”, those being sexually active being frowned upon compared to males.

Adolescent women are equally more disadvantaged with regard to health, a significant variable in our models. For girls in both countries, if an excellent perception of their health is negatively associated with the fact of already having had intercourse, and a fair/poor perception positively associated with a poor/absence of contraceptive protection (which is equally true for boys), we note the very large difference in the levels of health perceived by girls and boys in both countries. There is only a minority of girls (21.2% in France and 13.3% in England and Wales) who perceive their health as being excellent, significantly less than among boys (respectively 41.1% and 27.6% in France and in England and Wales). In the same manner, they declare more than boys a fair/poor perception of their health (17.0% compared to 9.8% in France and 29.3% versus 19.1% in England and Wales). They are thus subject to a double penalty with respect to gender differences in health during adolescence, and this vulnerability is associated with a higher risk of experiencing a pregnancy.

For successful education programs to be put in place, especially in England and Wales, conservative and moralistic attitudes sometimes present among decision makers should be reviewed. Examples of successful education can be learned from other countries. In Denmark, to give just one example, well-established sexual health services for young people, compulsory sexual education, accessible contraception and a climate of discussing sexuality openly without moral judgement have helped develop conditions where 95% of adolescents used a method of contraception at last intercourse (Wielandt *et al.*, 2002). However, even with adapted education programs, the challenge of reaching those most at risk will always be present (Magnusson, 2001).

## 6 Summary

Our results from the HBSC study reveal both a higher proportion of sexually active adolescent girls and a higher proportion of poorly or unprotected sexual activity amongst this population in England and Wales. Adolescent girls aged 15 years old in England and Wales are proportionally more to have had sexual intercourse than their French counterparts (33.8% versus 22.9%) and also compared to boys in England and Wales (33.8% compared to 27.4%). They are equally more to have had a poor level (indeed absence of) contraceptive protection at last intercourse, respectively 17.0% and 11.7%. In both countries, the level of contraceptive protection is lower amongst girls than boys.

Adolescent sexual behaviour is subject to influences from both family and school environments, as well as individual factors such as health and well-being. In both countries, girls and boys not living with both of their biological parents are more likely to have had sexual intercourse, the risk being highest among those living in step-families. Average and below average academic performance is also related to both early sexual debut and inadequate contraceptive coverage in early adolescence. Surprisingly, teenagers living in families of higher socioeconomic status were more likely to have had sexual intercourse than those from lower or medium socioeconomic status families. Appreciation of school seems to be an important influence in England and Wales, a clear gradient being observed between opinions upon school and having had sexual intercourse. This relationship is less evident among French adolescents although those not liking school at all are more likely to have had sex as is the case in England and Wales. In both countries, both boys and girls who had first sexual intercourse very early, aged 13 or younger, are more likely to have had poor contraceptive protection or have been unprotected at last intercourse. Despite the observed differences between the two settings, country specific influences are rare.

First sexual activity among adolescents is part of development during adolescence and the majority of adolescents use adequate contraceptive methods in order to prevent unwanted pregnancies and avoid the risk of sexually transmitted diseases. However, a small minority of adolescents remain at risk: those sexually active with an inadequate use of contraception.

Girls in this minority are exposed to the risk of adolescent pregnancy and are those that should be targeted by prevention campaigns.

In general, more research into young peoples' relationships is needed to help explain the vastly differing levels of teenage conceptions observed in France and in England and Wales.

## **7 Acknowledgements**

HBSC is an international study carried out in collaboration with WHO/EURO. The International Coordinator of the 2009/10 survey was Candace Currie and the Data Bank Manager was Oddrun Samdal. Principal investigators in the countries studied were Emmanuelle Godeau (France), Fiona Brooks (England) and Chris Roberts (Wales). For further details, see <http://www.hbsc.org>.

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## 8 Appendices

*Appendix 1 : Summary statistics: proportion of adolescent girls and boys having already had sexual intercourse by sociodemographic characteristic*

Variable	Modality	Girls			
		France		England & Wales	
		N	% having already had sexual intercourse	N	% having already had sexual intercourse
Age	14	48	16.7	23	8.7
	15	868	23.3	1093	31.6
	16	55	21.8	240	44.2
Family type	'Traditional'	672	19.0	841	27.5
	Step-family	119	33.6	169	47.9
	Single-parent family	162	28.4	302	40.7
	Other	18	44.4	44	40.9
Family socioeconomic status (FAS)	Low/medium	292	23.6	537	31.7
	High	679	22.5	819	34.6
Communication with mother	Very easy	218	19.7	475	29.3
	Easy	385	21.0	516	32.9
	(Very) difficult	353	26.6	337	40.1
	Don't have/see	15	26.7	28	32.1
Communication with father	Very easy	51	23.5	206	27.7
	Easy	205	17.1	420	27.6
	(Very) difficult	651	23.7	618	38.0
	Don't have/see	64	32.8	112	40.2
Communication with elder sister	Very easy	116	19.0	220	35.5
	Easy	156	25.0	226	35.4
	(Very) difficult	142	26.1	164	43.9
	Don't have/see	557	22.3	746	29.9
Academic performance	Very good	77	9.1	314	22.9
	Good	331	20.2	648	30.9
	Average	404	25.5	336	44.3
	Below average	159	28.3	58	55.2
Appreciation of school	Like a lot	276	19.2	238	18.5
	Like a bit	424	20.5	687	29.7
	Don't like very much	173	26.0	278	41.4
	Don't like at all	98	37.8	153	58.8
Life satisfaction	Poor	175	32.6	323	41.8
	Good	796	20.7	1033	30.8
Health	Excellent	206	18.0	181	16.0
	Good	600	23.0	778	32.9
	Fair/poor	165	28.5	397	42.3
Total		971	22.9	1 356	33.4

Source: HBSC 2009/10.

**Appendix 1 : Summary statistics: proportion of adolescent girls and boys having already had sexual intercourse by sociodemographic characteristic (continued)**

Variable	Modality	Boys			
		France		England & Wales	
		N	% having already had sexual intercourse	N	% having already had sexual intercourse
Age	14	40	27.5	6	50.0
	15	794	30.7	957	25.9
	16	38	50.0	270	31.9
Family type	'Traditional'	612	28.1	763	22.7
	Step-family	101	43.6	143	35.7
	Single-parent family	134	36.6	268	35.8
	Other	25	36.0	59	28.8
Family socioeconomic status (FAS)	Low/medium	245	31.4	429	30.1
	High	627	31.4	804	25.9
Communication with mother	Very easy	204	34.3	427	26.5
	Easy	354	26.3	510	24.9
	(Very) difficult	302	35.4	256	34.0
	Don't have/see	12	33.3	40	25.0
Communication with father	Very easy	122	35.2	309	23.6
	Easy	281	27.4	479	22.3
	(Very) difficult	400	33.3	331	36.6
Communication with elder sister	Don't have/see	69	30.4	114	31.6
	Very easy	110	40.0	163	28.2
	Easy	135	32.6	222	24.8
	(Very) difficult	163	34.4	165	23.0
Academic performance	Don't have/see	464	28.0	683	29.0
	Very good	79	13.9	229	24.0
	Good	271	22.9	585	22.9
	Average	354	35.0	355	33.2
Appreciation of school	Below average	168	45.8	64	46.9
	Like a lot	180	31.7	210	17.1
	Like a bit	367	26.7	652	23.0
	Don't like very much	187	30.5	251	37.8
Life satisfaction	Don't like at all	138	44.9	120	46.7
	Poor	116	41.4	187	38.5
	Good	756	29.9	1046	25.3
Health	Excellent	358	35.2	340	26.8
	Good	429	26.1	658	26.6
	Fair/poor	85	42.4	235	30.2
Total		872	31.4	1233	27.3

Source: HBSC 2009/10.

**Appendix 2 : Summary statistics: proportion of adolescent girls and boys having been poorly or unprotected at last sexual intercourse by sociodemographic characteristic**

Variable	Modality	Girls			
		France		England & Wales	
		N	% poorly/ unprotected at last sexual intercourse	N	% poorly/ unprotected at last sexual intercourse
Age at first sexual intercourse	≤ 13	27	11.1	61	24.6
	14	87	16.1	143	16.8
	≥ 15	83	7.2	185	14.6
Family type	'Traditional'	114	11.4	194	16.5
	Step / Single-parent family	77	11.7	180	17.2
	Other	6	16.7	15	20.0
Family socioeconomic status (FAS)	Low/medium	56	21.4	143	18.2
	High	141	7.8	246	16.3
Communication with mother	Very easy	37	8.1	122	11.5
	Easy	72	9.7	142	18.3
	Difficult	57	17.5	84	17.9
	Very difficult / Don't have/see	31	9.7	41	26.8
Communication with father	Very easy	11	18.2	51	13.7
	Easy	34	5.9	101	9.9
	Difficult	65	12.3	121	22.3
	Very difficult / Don't have/see	87	12.6	116	19.0
Communication with elder sister	Very easy	20	10.0	65	12.3
	Easy	35	20.0	61	26.2
	Difficult	34	11.8	61	18.0
	Very difficult / Don't have/see	108	9.3	202	15.3
Academic performance	(Very) good	71	14.1	239	12.6
	(Below) average	126	10.3	150	24.0
Appreciation of school	Like a lot / a bit	127	10.2	222	13.1
	Don't like very much	41	17.1	92	17.4
	Don't like at all	29	10.3	75	28.0
Life satisfaction	Poor	51	15.7	111	20.7
	Good	146	10.3	278	15.5
Health	Excellent	32	15.6	27	11.1
	Good	122	10.7	221	13.6
	Fair/poor	43	11.6	141	23.4
Total		197	11.7	389	17.0

Source: HBSC 2009/10.

**Appendix 2 : Summary statistics: proportion of adolescent girls and boys having been poorly or unprotected at last sexual intercourse by sociodemographic characteristic (continued)**

Variable	Modality	Boys			
		France		England & Wales	
		N	% poorly/ unprotected at last sexual intercourse	N	% poorly/ unprotected at last sexual intercourse
Age at first sexual intercourse	≤ 13	79	16.5	66	21.2
	14	85	4.7	87	11.5
	≥ 15	77	1.3	131	8.4
Family type	'Traditional'	145	5.5	145	13.8
	Step / Single-parent family	87	9.2	124	10.5
	Other	9	22.2	15	13.3
Family socioeconomic status (FAS)	Low/medium	64	7.8	103	11.7
	High	177	7.3	181	12.7
Communication with mother	Very easy	60	3.3	97	10.3
	Easy	86	7.0	106	10.4
	Difficult	44	15.9	54	16.7
	Very difficult / Don't have/see	51	5.9	27	18.5
Communication with father	Very easy	38	2.6	61	9.8
	Easy	68	7.4	88	9.1
	Difficult	59	6.8	69	15.9
	Very difficult / Don't have/see	76	10.5	66	15.2
Communication with elder sister	Very easy	42	4.8	37	16.2
	Easy	39	7.7	43	14.0
	Difficult	45	8.9	34	11.8
	Very difficult / Don't have/see	115	7.8	170	11.2
Academic performance	(Very) good	67	6.0	163	8.6
	(Below) average	174	8.0	121	17.4
Appreciation of school	Like a lot / a bit	131	9.9	161	8.1
	Don't like very much	57	3.5	75	13.3
	Don't like at all	53	5.7	48	25.0
Life satisfaction	Poor	42	14.3	56	19.6
	Good	199	6.0	228	10.5
Health	Excellent	109	5.5	77	10.4
	Good	102	6.9	148	10.1
	Fair/poor	30	16.7	59	20.3
Total		241	7.5	284	12.3

Source: HBSC 2009/10.

**Appendix 3 : Odds ratios associated with having been poorly or unprotected at last sexual intercourse**

Variable	Modality	Girls				Boys			
		France		England & Wales		France		England & Wales	
		Odds-ratio	P > $\chi^2$	Odds-ratio	P > $\chi^2$	Odds-ratio	P > $\chi^2$	Odds-ratio	P > $\chi^2$
Age at first sexual intercourse	≤ 13	2.54	< 0.001	2.54	< 0.001	2.54	< 0.001	2.54	< 0.001
	14	1.40	0.128	1.40	0.128	1.40	0.128	1.40	0.128
	≥ 15	1		1		1		1	
Academic performance	(Very) good	1.13	0.723	0.51	0.003	1.13	0.723	0.51	0.003
	(Below) average	1		1		1		1	
Santé	Excellent	0.94	0.811	0.94	0.811	0.94	0.811	0.94	0.811
	Good	1		1		1		1	
	Fair/poor	1.65	0.016	1.65	0.016	1.65	0.016	1.65	0.016
Constant		-1.70							
N		197		389		241		284	

Source: HBSC 2009/10.

Scope: Students aged 15 years old on average at the time of survey having already had sexual intercourse.

Note: The reference category corresponds to a girl aged 15 years old, living in England and Wales, having had first intercourse aged 15 years old, having declared to be in good health and having average or below average academic results.

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