Patterns and trends in sources of information about sex among young people in Britain: evidence from three National Surveys of Sexual Attitudes and Lifestyles

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ABSTRACT

Objective: To assess progress in meeting young people’s sex education needs in Britain by examining the current situation and changes over the past 20 years in sources of information about sexual matters and unmet information needs.

Design: Cross-sectional probability sample surveys.

Setting: British general population.

Participants: 3869 men and women aged 16–24 years, interviewed 2010–2012 for the third National Survey of Sexual Attitudes & Lifestyles (Natsal-3), compared with 16–24 year-olds in Natsal-1 (1990–1991; 792 men and women) and Natsal-2 (1999–2001; 2673 men and women).

Main outcome measures: Reported source of information about sexual matters, unmet information needs and preferred source of additional information.

Results: Between 1990 and 2012, the proportion citing school lessons as their main source of information about sexual matters increased from 28.2% (95% CI 24.6 to 32.1) to 40.3% (95% CI 38.6 to 42.1). In 2010–2012, parents were reported as a main source by only 7.1% (95% CI 5.8 to 8.7) of men and 14.1% (95% CI 12.6 to 15.7) of women and, for women, were less commonly reported than in 1999–2001 (21.7%; 95% CI 19.6 to 24.0). Most young people reported not knowing enough when they first felt ready for sexual experience (68.1% men, 70.6% women), and this did not change substantially over time. They wanted more information about psychosexual matters (41.6% men, 46.8% women), as well as sexually transmitted infections (27.8% men, 29.8% women) and, for women, contraception (27.5%). Young people primarily wanted this information from school, parents or health professionals.

Conclusions: Over the past 20 years, young people have increasingly identified school lessons as their main source of information about sex, although they continue to report needing more information on a broad range of topics. The findings support the expressed need for improved sex and relationships education in schools alongside greater involvement of parents and health professionals.

INTRODUCTION

The role of schools in providing information about sexual matters is much debated, with some arguing that school-based sex and relationships education (SRE) may accelerate the onset of sexual activity and that parents should provide the information (giving them control over what is delivered and when).1 The biological elements of sex education (biological aspects of puberty, reproduction and sexually transmitted infections, including HIV/AIDS) must be taught to all pupils through National Curriculum Science, which is compulsory in state-maintained schools in England (although not in academies and...
free schools). State-maintained secondary schools must now, in addition, teach the wider personal and social aspects of sex and relationships and any state-funded school that provides SRE must have 'due regard' to the government guidance. However, there is no statutory curriculum so schools are encouraged to develop their own programmes of study. Personal, social, health and economic education (PSHE), which includes the broader aspects of relationships education, is not statutory. Relationships education has been compulsory since 2003 in Wales; there is no statutory requirement for schools in Scotland to teach SRE but guidance exists.57

There is evidence that receipt of SRE impacts positively on sexual behaviour and is associated with positive sexual health outcomes.6–10 Yet the quality of provision and coverage of topics is variable in Britain.11–15 In 2013, the Office for Standards in Education, Children’s Services and Skills (Ofsted) were of the view that SRE required improvement in over a third of English schools and in almost half of English secondary schools.16 However, young people learn about sex in a variety of ways17–19 and the landscape in which they are learning is changing. The range and relative importance of sources have changed over time. Most notably, in recent years there has been a rapid evolution in technology and internet access, which creates both opportunities and challenges for young people’s sexual well-being. Although it is now easy to access high-quality sexual health information online, young people are also increasingly able to access sexually-explicit material and there is concern that this may create unrealistic expectations about sex and relationships.13 20 Young people increasingly conduct much of their social lives online which raises concerns about online safety.21 Advice to supplement the government’s SRE Guidance2 attempts to address this,22 recommending that teaching should also include the impact of pornography, safe use of technology, sexual consent, exploitation and abuse and violence in relationships.

Up-to-date evidence is needed about the range and relative importance of different information sources for young people, how well these sources meet their information needs, as well as their preferred sources and knowledge deficits, to ensure that young people are equipped with the knowledge they need to experience a happy and healthy sex life. This paper seeks to address this evidence gap using data reported by young people (16–24 years), in the third British National Survey of Sexual Attitudes and Lifestyles (Natsal-3), a probability sample survey conducted in 2010–2012, as well as data from the previous two decennial Natsal surveys to examine how learning about sex has changed over the past 20 years.

METHODS
Participants and procedure
The Natsal probability sample surveys to date have been carried out approximately decennially in 1990–1991 (Natsal-1),23 24 1999–2001 (Natsal-2)25 26 and 2010–2012 (Natsal-3).27 In all three surveys, households were selected using stratified probability sampling, from which one eligible individual, resident in Britain, was selected at random and invited to participate.

Natsal-3 interviewed 15 162 men and women aged 16–74 years (1729 men and 2140 women aged 16–24 years). The overall response rate was 57.7%. Full details of the methodology have been published previously.27 28 Participants were interviewed using computer-assisted personal interviewing (CAPI) with computer-assisted self-interview for the more sensitive questions.

Measures
Questions on learning about sex were asked face-to-face in the CAPI section of the questionnaire, of all participants. Participants were asked ‘When you were growing up, in which of the ways listed on this card did you learn about sexual matters?’ and, subsequently, ‘From which did you learn most?’. For the first question multiple sources could be given but for the second question, one main source. Participants were then asked ‘Looking back to the time when you first felt ready to have some sexual experience yourself, is there anything on this list that you now feel you ought to have known more about?’. Those who had unmet information needs were asked ‘How, or from whom, would you have liked to learn more about those sexual matters, please choose just one or two from this list?’ For all of these questions participants were given showcards listing the answer options (box 1).

Similar measures and procedures were used in Natsal-1 and Natsal-2. While response options were largely consistent across all three surveys, sources of information about sex were updated to be relevant in the current social context, particularly bearing in mind the availability of the internet, and the list of topics on which additional information may have been needed were updated (box 1).

Statistical analysis
Complex survey analysis was carried out in Stata (V13.0) accounting for stratification, clustering and weighting of the data. Analysis of Natsal-3 data is restricted to participants aged 16–24 in order to provide a contemporary picture of how young people learn about sex. Specifically, we describe any, and main, reported sources of information about sexual matters, unmet information needs and the preferred source of this information, by gender. In addition, as young people’s access to pornography is currently of great interest,13 20 we compare men who reported pornography as one of their sources of information about sex with those who did not, both in terms of their other and main sources, and their unmet information needs using univariate logistic regression. The number of women reporting pornography as an information source (n=53) is too small to permit detailed exploration.
Finally, we use data from 16–24-year-olds in all 3 Natsal surveys (362 men and 430 women were asked these questions in Natsal-1; 1231 men and 1442 women in Natsal-2) to describe changes in the reporting of main sources of information about sexual matters and unmet information needs.

All p values for associations, with gender or survey number, were assessed using univariate logistic regressions.

RESULTS
All sources of information about sexual matters reported in Natsal-3
Table 1 shows the proportion of young people in Natsal-3 who reported different sources of information about sex, and, of these, their main source of information. School was most commonly reported as a source of information about sexual matters by around 80% of participants in Natsal-3 (table 1), followed by friends (of about their own age), reported by two-thirds of the sample. Except for friends, siblings and media, there were gender differences in the sources reported: women were more likely than men to cite a parent as their source (43.4% vs 27.2% of men; p<0.0001), most commonly their mother (42.7%), while among men, a similar proportion cited either their mother (19.8%) or their father (17.6%). Women were more likely than men to report health professionals (doctor/nurse/clinic), although few reported this source, and men were more likely than women to cite the internet (excluding pornography), their first sexual partner (first girlfriend/boyfriend/sexual partner) and pornography. In total, 29.3% of men compared with only 2.2% of women, cited pornography as a source (19.4% from internet-based pornography and 9.2% from pornographic magazines/films).

Main source of information about sexual matters
School was also the most common main source for both men (39.4% (36.8 to 42.0)) and women (41.3% (39.0 to 43.7); table 1), followed by friends (24.1%). Again, women were more likely than men to report a parent as their main source, usually their mother (15.5% (12.0 to 15.2)). Only 4.3% (3.3 to 5.5) of men reported their mother, and fewer still (2.8% (2.0 to 4.0)) their father. In total 11.5% (9.8 to 13.3) of men reported their first sexual partner as their main source, a higher proportion than among women (5.4% (4.4 to 6.6)). Men were more likely than women to cite the internet (excluding pornography) as their main source (41.1% (3.2 to 5.3) vs 1.9% (1.3 to 2.8)). A small minority of men (3.4% (2.6 to 4.5)) and very few women (0.2% (0.1 to 0.5)) reported pornography as their main source.

Unmet information needs
Most men (68.1% (65.4 to 70.7)) and women (70.6% (68.1 to 73.0)) felt that that they ought to have known more when they first felt ready to have some sexual experience (table 2). Almost half the respondents felt they ought to have known more about topics related to reducing health risks of sexual behaviour (46.0% of men and 49.1% of women; table 2) or psychosexual issues (41.6% of men and 46.8% of women). Among risk reduction topics, ‘sexually transmitted infections’ (41.1% (3.2 to 5.3) vs 1.9% (1.3 to 2.8)) and very few women (0.2% (0.1 to 0.5)) reported pornography as their main source.
women felt they ought to have known more about this aspect of sexual well-being.

Overall, 8.5% of both men and women wanted more information on same-sex relationships. This was higher in those who self-identified as gay/lesbian, bisexual or other: 39.7% (26.5 to 54.5) of 60 men, and 28% (18.0 to 40.8) of 94 women. Women self-identifying as gay/lesbian, bisexual or other were more likely to report they ought to have known more (85.4% (76.4 to 91.3) vs 69.8% (67.2 to 72.2) of women who identified as heterosexual). There was no substantial difference for men (72.6% (58.4 to 83.4) vs 67.9% (65.2 to 70.5), respectively), although numbers in the former group were small.

Information needs varied little by gender. Women were more likely to report having wanted to know more about ‘contraception/birth control’ (27.5% (25.3 to 29.8) vs 19.3% (17.2 to 21.6)) and ‘how to say no’ (16.6% (14.8 to 18.5) vs 10.7% (9.0 to 12.8)) than men. Men were more likely to report feeling they ought to have known more about ‘how to make sex more satisfying’ (19.7% (17.4 to 22.1) vs 15.4% (13.6 to 17.3)).

The proportion of young people who would have liked further information was lowest among those reporting school as their main source (62.0% for men and 62.7% for women; table 3).

### Preferred source of additional information
Among those who felt they ought to have known more, school was the most commonly-reported preferred source for both men and women (47.7%, no gender difference; figure 1), followed by mothers for women (40.0%) and fathers for men (22.7%). A sizable proportion of men also reported their mother (14.6%). Young people also commonly wanted information from health professionals (22.3% of men and 26.8% of women) and many mentioned media sources (17.2% of men and 12.2% of women). Other sources were reported by 10% or fewer participants.

### Range of sources of information about sex and unmet information needs in men reporting pornography as one of their information sources
The 23.9% of men for whom pornography was a source of information about sex reported a larger number of sources (a median of 5 vs 3 for men not reporting pornography as a source of information; p<0.0001) and

| Table 1 | Any and main sources of information about sex in individuals aged 16–24 years in Natsal-3, by gender |
|-------------------|-----------------------------------------------|
| **Men** | **Women** | **p Value for association with gender** |
| **Men** | **Women** | **Men** | **Women** | **p Value for association with gender** |
| **Any source** | **Lessons at school** | 78.5 (76.1 to 80.6) | 81.9 (79.9 to 83.7) | 0.0216 |
| **Friends of about own age** | 65.9 (63.3 to 68.5) | 66.2 (63.8 to 68.5) | 0.8822 |
| **First girlfriend/boyfriend/sexual partner** | 28.0 (25.6 to 30.5) | 20.7 (18.8 to 22.6) | <0.0001 |
| **Parents** | 27.2 (24.9 to 29.6) | 43.4 (41.0 to 45.8) | <0.0001 |
| **Mother** | 19.8 (17.8 to 22.0) | 42.7 (40.3 to 45.2) | <0.0001 |
| **Father** | 17.6 (15.7 to 19.7) | 6.9 (5.8 to 8.2) | <0.0001 |
| **Brother/sister** | 10.7 (9.0 to 12.7) | 11.3 (9.9 to 12.8) | 0.6336 |
| **Doctor/nurse/clinic** | 6.9 (5.7 to 8.4) | 15.2 (13.6 to 17.0) | <0.0001 |
| **Media** | 47.0 (44.4 to 49.7) | 49.0 (46.7 to 51.4) | 0.2426 |
| **Books/magazines/newspapers** | 20.1 (18.1 to 22.4) | 29.0 (26.8 to 31.3) | <0.0001 |
| **TV/radio/DVDs/videos** | 39.5 (36.9 to 42.1) | 35.4 (33.3 to 37.6) | 0.0136 |
| **Internet (excluding pornography)** | 28.6 (26.2 to 31.2) | 14.0 (12.4 to 15.7) | <0.0001 |
| **Internet-sexual advice websites** | 19.1 (17.1 to 21.3) | 9.5 (8.2 to 11.0) | <0.0001 |
| **Internet-other** | 14.1 (12.3 to 16.0) | 6.3 (5.2 to 7.6) | <0.0001 |
| **Any pornography** | 23.9 (21.6 to 26.4) | 2.2 (1.7 to 3.0) | <0.0001 |
| **Internet-pornographic websites** | 19.4 (17.3 to 21.8) | 1.8 (1.3 to 2.5) | <0.0001 |
| **Pornographic magazines/films** | 9.2 (7.8 to 10.9) | 0.9 (0.5 to 1.4) | <0.0001 |
| **Other** | 1.5 (1.0 to 2.2) | 1.7 (1.1 to 2.4) | 0.7092 |
| **Main sources** | **Lessons at school** | 39.4 (36.8 to 42.0) | 41.3 (39.0 to 43.7) | 0.2708 |
| **Friends of about own age** | 24.1 (21.9 to 26.5) | 24.1 (22.1 to 26.2) | 0.9944 |
| **First girlfriend/boyfriend/sexual partner** | 11.5 (9.8 to 13.3) | 5.4 (4.4 to 6.6) | <0.0001 |
| **Mother** | 4.3 (3.3 to 5.5) | 13.5 (12.0 to 15.2) | <0.0001 |
| **Father** | 2.8 (2.0 to 4.0) | 0.5 (0.3 to 0.9) | <0.0001 |
| **Brother/sister** | 2.1 (1.5 to 3.0) | 2.2 (1.6 to 2.9) | 0.8993 |
| **Doctor/nurse/clinic** | 0.9 (0.5 to 1.6) | 2.6 (1.9 to 3.6) | 0.0010 |
| **Media** | 6.6 (5.3 to 8.0) | 7.6 (6.4 to 9.0) | 0.3090 |
| **Internet (excluding pornography)** | 4.1 (3.2 to 5.3) | 1.9 (1.3 to 2.8) | 0.0009 |
| **Pornography** | 3.4 (2.6 to 4.5) | 0.2 (0.1 to 0.5) | <0.0001 |
| **Other** | 0.9 (0.5 to 1.6) | 0.8 (0.4 to 1.3) | 0.7310 |

| Unweighted, weighted denominators | 1729, 1238 | 2140, 1207 |
were more likely to report their friends, first sexual partner, siblings, media and the internet (excluding pornography) than men who did not report pornography as a source of information (table 4). These men were less likely to report lessons at school as one of their information sources. Men citing pornography as a source were less likely to report lessons at school or their mother as their main source of information and were more likely to cite their first sexual partner. They were also more likely to have unmet information needs (76.2% (71.1 to 80.6) vs 65.5% (62.4 to 68.4)), more frequently reporting needing biological (28.6% (23.8 to 34.0) vs 20.1% (17.5 to 22.9)) and psychosexual information (53.4% (47.7 to 59.1) vs 37.7% (34.7 to 40.9)) than men for whom pornography was not an information source.

**Change over time**

Since 1990–1991, there has been a large increase in the proportion of men and women citing school as their main source of information about sex (figure 2A), from around 30% in 1990–1991 to around 40% in 2010–2012. There

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**Table 2** Topics individuals aged 16–24 years in Natsal-3 felt they ought to have known more about when they first felt ready to have some sexual experience, by gender

| Topic                                      | Men Per cent 95% CI | Women Per cent 95% CI | p Value for association with gender |
|--------------------------------------------|---------------------|-----------------------|------------------------------------|
| Any topic                                  | 68.1 (65.4–70.6)    | 70.6 (68.1–73.0)      | 0.1467                             |
| Any biological topic                       | 22.1 (19.9–24.6)    | 22.6 (20.5–24.7)      | 0.8030                             |
| How girls' bodies develop                  | 11.6 (9.8–13.6)     | 10.7 (9.2–12.3)       | 0.4745                             |
| How boys' bodies develop                   | 8.2 (6.8–10.0)      | 7.5 (6.3–9.0)         | 0.5165                             |
| How a baby is born                         | 7.5 (6.1–9.2)       | 8.5 (7.2–9.9)         | 0.3726                             |
| Sexual intercourse                         | 12.6 (10.8–14.5)    | 13.8 (12.2–15.6)      | 0.3380                             |
| Any risk-reduction topic                   | 46.0 (43.2–48.9)    | 49.1 (46.5–51.7)      | 0.1119                             |
| Safer sex                                  | 19.1 (16.9–21.5)    | 17.4 (15.6–19.4)      | 0.2676                             |
| Contraception/birth control                | 19.3 (17.2–21.6)    | 27.5 (25.3–29.8)      | <0.0001                            |
| Correct condom use                         | 14.4 (12.5–16.5)    | 15.1 (13.4–17.0)      | 0.5961                             |
| Sexually transmitted infections            | 27.8 (25.3–30.4)    | 29.8 (27.6–32.2)      | 0.2341                             |
| Any psychosexual topic                     | 41.6 (38.8–44.3)    | 46.8 (44.2–49.4)      | 0.0055                             |
| How to make sex more satisfying            | 19.7 (17.4–22.1)    | 15.4 (13.6–17.3)      | 0.0054                             |
| How to be able to say 'no'                 | 10.7 (9.0–12.8)     | 16.6 (14.8–18.5)      | <0.0001                            |
| Sexual feelings, emotions, relationships   | 23.2 (21.0–25.6)    | 29.7 (27.3–32.1)      | 0.0002                             |
| Homosexuality/lesbianism                   | 8.5 (7.0–10.2)      | 8.5 (7.2–10.1)        | 0.9444                             |
| Other sexual practices                     | 9.0 (7.5–10.8)      | 9.7 (8.4–11.2)        | 0.5599                             |
| Masturbation                               | 6.6 (5.3–8.2)       | 8.3 (7.0–9.8)         | 0.1031                             |

| Unweighted, weighted denominators*         | 1546, 1115          | 1909, 1070            |          |

*176 (119 weighted) men and 222 (131 weighted) women did not feel ready for a sexual experience and did not answer this question. Further denominator changes are due to missing data. Bold typeface indicates grouped variables.

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**Table 3** Percentage of individuals aged 16–24 years in Natsal-3 reporting not knowing enough when they first felt ready to have some sexual experience, by main source of information and gender

| Main source of sex education | Men Per cent 95% CI | Denominators* | Women Per cent 95% CI | Denominators* | p Value for association with gender |
|-----------------------------|---------------------|---------------|-----------------------|---------------|------------------------------------|
| All                         | 68.1 (65.4 to 70.7) | 1729, 1238    | 70.6 (68.1 to 72.9)   | 2140, 1207    | 0.1467                             |
| Lessons at school           | 62.0 (57.3 to 66.4) | 583, 414      | 62.7 (58.5 to 66.7)   | 745, 417      | 0.8170                             |
| Friends of about own age    | 68.5 (62.9 to 73.5) | 381, 278      | 77.7 (73.1 to 81.7)   | 491, 268      | 0.0093                             |
| First girlfriend/boyfriend/sexual partner | 75.0 (67.0 to 81.6) | 185, 132      | 82.3 (73.5 to 88.7)   | 113, 62       | 0.1713                             |
| Mother/Father               | 78.0 (68.5 to 85.3) | 105, 78       | 68.3 (61.7 to 74.2)   | 280, 154      | 0.0854                             |
| Media                       | 70.7 (59.8 to 79.6) | 99, 75        | 77.9 (68.6 to 85.0)   | 127, 79       | 0.5031                             |
| Internet (excluding pornography) | 74.5 (61.5 to 84.3) | 65, 47        | 81.1 (60.1 to 92.4)   | 37, 23        | 0.2612                             |

*Denominators are presented as unweighted, weighted.

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has been a corresponding decrease in the proportion of young men reporting friends and in the proportion of young women reporting their first sexual partner as their main source of information. While there has been no change in the proportion of men reporting a parent, there has been a decrease in the proportion of women reporting their mother (but not their father) since 2000.

Between 1990–1991 and 2010–2012 there has only been a modest decrease in the proportion of men reporting needing more information about sex (figure 2B) and in women, no decrease. The proportion of men and women who reported needing biological information has increased but, since Natsal-2, undertaken in 1999–2001, there has been a decrease in the proportion reporting needing risk-reduction or psychosexual information.

DISCUSSION
Highlights
These data show a marked increase over recent decades in the proportion of young people citing school as their main source of information about sex, with a corresponding decrease in the proportion reporting friends (men) and first sexual partners and mothers (women). Despite this, there has been no major change in perceived adequacy of information and young people continue to feel they need more risk-reduction and psychosexual information, although there has been some decline in the proportion who would have liked additional risk-reduction information. Predominantly, young people wanted this additional information from school, parents and health professionals. Parents and health professionals were relatively rarely cited as a main source of information in spite of being commonly reported as a preferred source, particularly for men.

Strengths and weaknesses of the study
The major strength of this study is that it uses data from serially-conducted population-based surveys with nationally representative samples. We are able to examine change over time as these surveys employed the same methods and measures. The sample of young people is large, providing robust estimates from 3869 men and women in Natsal-3 and a total of 7334 young people from all three surveys in whom we have explored change over time. Using data from the three surveys to examine change over time (as opposed to looking at change across the life course in one survey) is likely to minimise recall and recasting biases. The response rate for the latest survey (Natsal-3) was 57.7%, which is comparable with other population-based surveys completed around the same time. After weighting our data to match the British population for age, gender and geographic region, the sample was comparable with the 2011 census data on other key demographic characteristics. Given the rapid evolution of technology, one limitation is that some of the Natsal-3 participants included in this analysis would have been learning about sex around the beginning of the 21st century and their experience will be different from those learning about sex today with respect to internet access, particularly through smart phones. Another limitation is that we used a predefined list of topics to determine further information needs, which may not have reflected adequately the range of topics of interest to young people today. We also do not know about the quality of the information that young people received.

Strengths and weaknesses with respect to other studies and important differences in results
A larger proportion of young people in our study reported school as their primary information source than reported school as one of their three main sources in an internet-based survey of young people in the UK. However, our findings are consistent with those from smaller studies of young people which report further information needs from school-based sex education.
and observations such as those from Ofsted that too much focus was placed on ‘the mechanics’ of reproduction with too little teaching about relationships and that large proportions of gay/lesbian, bisexual young people report inadequate SRE.

**Meaning of the study, possible explanations and implications for clinicians and policymakers**

According to our data, pornography is a source of information about sex for nearly one in four men as they are growing up. Concerns from young people, particularly women, about the negative effect of pornography on the way that young people are expected to look and behave highlight the importance of the recent supplementary SRE advice to enable those teaching SRE to challenge images and norms portrayed through pornography.

Nevertheless, pornography is a main source for only a small proportion of young men and a very small proportion of women, and, despite the availability of the internet, young people still most frequently report more traditional sources of information about sex (school, friends and parents). The increase in reporting of school as the principal source of information about sex is encouraging as school-based sex education has the potential to reduce inequalities in the provision of information. Respondents reporting school as their main source were less likely to report wanting further information. In other analysis we found that reporting school as

| Other sources of information about sex | Pornography mentioned as a source | Pornography not mentioned as a source | Logistic regression |
|----------------------------------------|----------------------------------|--------------------------------------|--------------------|
|                                        | Per cent 95% CI                   | Per cent 95% CI                      | OR* 95% CI p Value  |
| Lessons at school                     | 72.7 (67.9 to 77.0)               | 80.3 (77.6 to 82.7)                  | 0.65 (0.49 to 0.87) 0.0033 |
| Friends of about own age              | 75.3 (70.3 to 79.7)               | 63.0 (60.0 to 65.9)                  | 1.79 (1.36 to 2.36) <0.0001 |
| First girlfriend/boyfriend/sexual partner | 40.6 (35.2 to 46.3)              | 24.0 (21.5 to 26.7)                  | 2.16 (1.65 to 2.83) <0.0001 |
| Parents                               | 28.8 (24.4 to 33.7)               | 26.7 (24.0 to 29.5)                  | 1.11 (0.85 to 1.46) 0.4350 |
| Mother                                | 19.5 (15.8 to 23.8)               | 19.9 (17.6 to 22.5)                  | 0.97 (0.72 to 1.32) 0.8600 |
| Father                                | 20.0 (16.3 to 24.3)               | 16.8 (14.7 to 19.3)                  | 1.24 (0.92 to 1.67) 0.1602 |
| Brother/sister                        | 14.0 (10.4 to 18.7)               | 9.6 (7.8 to 11.8)                    | 1.53 (1.03 to 2.29) 0.0364 |
| Doctor/nurse/clinic                   | 8.2 (5.6 to 11.9)                 | 6.5 (5.3 to 8.1)                     | 1.27 (0.80 to 2.03) 0.0395 |
| Media                                 | 65.5 (59.6 to 71.0)               | 41.2 (38.2 to 44.3)                  | 2.71 (2.05 to 3.60) <0.0001 |
| Books/magazines/newspapers            | 31.2 (26.3 to 36.5)               | 16.7 (14.5 to 19.1)                  | 2.27 (1.70 to 3.03) <0.0001 |
| TV/radio/DVDs/videos                  | 57.7 (51.9 to 63.4)               | 33.7 (30.9 to 36.7)                  | 2.68 (2.05 to 3.52) <0.0001 |
| Internet (excluding pornography)      | 47.6 (41.9 to 53.3)               | 22.7 (20.0 to 25.6)                  | 3.09 (2.31 to 4.13) <0.0001 |
| Internet-sexual advice websites       | 32.0 (27.1 to 37.4)               | 15.0 (12.8 to 17.5)                  | 2.66 (1.94 to 3.66) <0.0001 |
| Internet-other                        | 26.7 (21.8 to 32.1)               | 10.1 (8.5 to 12.1)                   | 3.22 (2.30 to 4.53) <0.0001 |
| Other                                  | 0.8 (0.3 to 2.2)                  | 1.7 (1.1 to 2.6)                     | 0.49 (0.17 to 1.41) 0.1868 |

| Main source of information about sex   | Pornography mentioned as a source | Pornography not mentioned as a source | Logistic regression |
|----------------------------------------|----------------------------------|--------------------------------------|--------------------|
|                                        | Per cent 95% CI                   | Per cent 95% CI                      | OR* 95% CI p Value  |
| Lessons at school                     | 24.6 (19.9 to 30.1)               | 44.0 (41.0 to 47.0)                  | 0.42 (0.31 to 0.56) <0.0001 |
| Friends of about own age              | 26.1 (21.8 to 31.0)               | 23.5 (20.9 to 26.2)                  | 1.15 (0.87 to 1.53) 0.3147 |
| First girlfriend/boyfriend/sexual partner | 16.1 (12.3 to 20.8)              | 10.0 (8.3 to 12.0)                   | 1.73 (1.20 to 2.51) 0.0035 |
| Mother                                | 1.8 (1.0 to 3.2)                  | 5.1 (3.8 to 6.6)                     | 0.34 (0.17 to 0.67) 0.0021 |
| Father                                | 4.0 (2.3 to 7.0)                  | 2.5 (1.6 to 3.7)                     | 1.66 (0.82 to 3.39) 0.1614 |
| Brother/sister                        | 1.9 (1.0 to 3.8)                  | 2.2 (1.5 to 3.2)                     | 0.88 (0.40 to 1.97) 0.7641 |
| Doctor/nurse/clinic                   | 0.7 (0.2 to 2.1)                  | 1.0 (0.5 to 1.8)                     | 0.65 (0.17 to 2.47) 0.5284 |
| Media                                 | 5.5 (3.6 to 8.5)                  | 6.9 (5.4 to 8.7)                     | 0.79 (0.47 to 1.35) 0.3952 |
| Internet (excluding pornography)      | 4.9 (3.0 to 7.9)                  | 3.9 (2.9 to 5.1)                     | 1.27 (0.71 to 2.29) 0.4187 |
| Pornography                           | 14.2 (10.8 to 18.5)               | 0.0 —                               | NA —                 |
| Other                                  | 0.1 (<0.1 to 1.0)                 | 1.1 (0.6 to 2.0)                     | 0.13 (0.02 to 0.99) 0.0486 |

| Adequacy of information about sex      | Pornography mentioned as a source | Pornography not mentioned as a source | Logistic regression |
|----------------------------------------|----------------------------------|--------------------------------------|--------------------|
|                                        | Per cent 95% CI                   | Per cent 95% CI                      | OR* 95% CI p Value  |
| Needed more information                | 76.2 (71.1 to 80.6)               | 65.5 (62.4 to 68.4)                  | 1.69 (1.26 to 2.26) 0.0005 |
| Needed biological information          | 28.6 (23.8 to 34.0)               | 20.1 (17.5 to 22.9)                  | 1.60 (1.18 to 2.16) 0.0023 |
| Needed risk-reduction information      | 48.0 (41.9 to 54.1)               | 45.4 (42.3 to 48.6)                  | 1.11 (0.84 to 1.46) 0.4641 |
| Needed psychosexual information        | 53.4 (47.7 to 59.1)               | 37.7 (34.7 to 40.9)                  | 1.89 (1.45 to 2.47) <0.0001 |

*ORs compare odds of reporting each source/information need in those mentioning pornography to the odds of reporting each source/information need in those not mentioning pornography.

**Table 4** Other and main sources of information about sex and adequacy of information in men aged 16–24 years in Natsal-3 by whether they reported pornography as a source of information about sex or not

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a main source of information about sex was associated with lower reporting of a broad range of sexual health outcomes, particularly among women. However, despite this increase, there has been no substantial change in young people’s information needs. This should be considered in the context of the changing social climate of young people’s lives but our research suggests that a gap remains between what young people want to know about sex and what is covered by current requirements for SRE. Results of other studies and reports support this. This suggests that the quality and breadth of SRE in schools needs to be improved, particularly since young people in our survey most frequently reported wanting this additional information from school. Recent polls also suggest strong support for SRE among parents.

Having a parent as a main source of information is the experience of only a minority of young people. Yet second to school, young people reported parents as their preferred source of additional information and this finding echoes data from other research showing that many young people felt that responsibility for teaching about sex and relationships should be shared between parents and teachers. Furthermore, parental involvement in their children’s sexual learning remains strongly gendered. The gap between the proportion of young people preferring to receive information from their parents and the proportion actually doing so is particularly large for men, and particularly from fathers. Some researchers suggest that fathers may leave talking about sex to mothers believing that they have better interpersonal skills. An open dialogue about sex between parents and children may be difficult for many reasons. Yet most parents feel that home and school should both have a role in SRE.

The disparity between the proportion of young people wanting, and receiving, information about sex from health professionals also warrants attention. The school nursing service may play an important role in SRE. Government SRE guidelines also highlight the potential for health professionals to support SRE teaching and make links between schools and other health services (e.g., family planning or sexual health services). The move, in England, to placing responsibility for public health, including the commissioning of sexual health services, within local authorities may provide the opportunity for closer coordination between PSHE and sexual health services.

Unanswered questions and future research

Further research is needed to understand how communication about sexuality between parents/carers and children can be encouraged and supported, particularly for sons and fathers, and taking into account changes in family structure. Further research is also needed to understand how young people would like to receive information about sex from health professionals, for example, in a one-to-one setting or through school SRE. Many unanswered questions remain around the influence of pornography on young people.

It is unclear what impact the increase in academy and free schools, which do not have to follow the National Curriculum, will have on the provision of school-based SRE and whether gains made will be lost. The Healthy Schools Programme, which placed importance on good PSHE in schools, changed in 2010 with responsibility for...
implementation and monitoring now at school or locality level, with no requirement or national support for local implementation. This may lead to less focus on PSHE within schools. Finally, the outcome of the Education Select Committee inquiry on PSHE and SRE may impact on the role of schools in teaching about sex.

Conclusion

School lessons have, over the past 20 years, become the main source of information about sexual matters for increasing proportions of young people in Britain. Nevertheless, the majority continue to report needing more information on a broad range of topics, most of which are not covered by current requirements for SRE. Preferred sources of this information are school, parents and health professionals, despite the latter two being less frequently reported as information sources, particularly by men. These data support a broadening of the statutory requirements for SRE provision and suggest the need for additional support for parents in helping them to take an active role in teaching their children about sex and relationships.

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Contributors

CT, KGJ, WM, JD, RL, KW, AMJ and CHM conceived this Article. CT wrote the first draft, with further contributions from KGJ, WM, SC, KRJ, JD, RL, NF, PS, AS, KW, AMJ and CHM. KGJ performed the statistical analysis. WM, PS, KW, AMJ and CHM, initial applicants on Natsal-3, wrote the study protocol and obtained funding. CT, WM, SC, KRJ, JD, NF, PS, KW, AMJ and CHM designed the Natsal-3 questionnaire, applied for ethics approval and undertook piloting of the questionnaire. CT, SC, RL and CHM managed data. All authors interpreted data, reviewed successive drafts and approved the final version of the Article.

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Competing interests

AMJ has been a Governor of the Welcome Trust since 2011.

Ethics approval

Oxfordshire Research Ethics Committee A (Ref: 10/H0604/27) approved the Natsal-3 study.

Provenance and peer review

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Data sharing statement

The Natsal-3 data are due to be archived with the UK Data Archive in 2015, before then, researchers are welcome to contact the Natsal-3 team to seek advance access to the corresponding data, and are directed to the Natsal website for further information (www.natsal.ac.uk).

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