

Sexual behaviour in Britain: early heterosexual experience

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Summary

Background Relatively high rates of teenage conception and sexually transmitted infection among young people in Britain have focused attention on early sexual behaviour and its determinants. We report the results of the second National Survey of Sexual Attitudes and Lifestyles (Natsal 2000).

Methods We did a probability sample survey between 1999 and 2001, of men and women aged 16–44 years in Britain. Participants were interviewed using a combination of computer-assisted face-to-face and self-completion questionnaires, and asked questions regarding first heterosexual intercourse, communication about sex, pregnancy, and sexually transmitted infections (STIs).

Findings We recruited 11 161 men and women to the survey (4762 men, 6399 women). The proportion of those aged 16–19 years at interview reporting first heterosexual intercourse at younger than 16 years was 30% for men and 26% for women; median age was 16 years. The proportion of women reporting first intercourse before 16 years increased up to, but not after, the mid-1990s. There has been a sustained increase in condom use and a decline in the proportion of men and women reporting no contraceptive use at first intercourse with decreasing age at interview. Among 16–24 year olds, non-use of contraception increased with declining age at first intercourse; reported by 18% of men and 22% of women aged 13–14 years at occurrence. Early age at first intercourse was significantly associated with pregnancy under 18 years, but not with occurrence of STIs. Low educational attainment was associated with motherhood before 18 years, but not abortion.

Interpretation The increase in the proportion of women reporting first intercourse before age 16 years does not appear to have continued throughout the past decade. Only a small minority of teenagers have unprotected first intercourse, and early motherhood is more strongly associated with educational level than with family background. Factors most strongly associated with risk behaviour and adverse outcomes have considerable potential for preventive intervention.

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See *Commentary page 1828*

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Introduction

Interest in the sexual behaviour of young people increased in the second half of the 20th century, fuelled partly by concern for their sexual health. In the 1960s and 1970s, unease surrounding rates of conception among young unmarried people provided the impetus to research, whereas in the 1980s and 1990s, the focus shifted to the risk of HIV transmission among young people. By the end of the 20th century, the UK had the highest rate of teenage births in western Europe,¹ and an upward trend in rates of sexually transmitted infections (STIs) among young people.² Attention has now focused on risk behaviour in the context of both unplanned conception and sexually transmitted infection.³

The timing and conditions of sexual initiation are of substantial interest in the context of public health. Early age at first intercourse is associated with subsequent sexual health status.^{4,5} Following the steep decrease in age at first intercourse among women up to and including the 1970s, in many countries, there is evidence of subsequent stabilisation.⁶ In several European countries this stabilisation occurred in the early 1980s.⁶ In the USA, it occurred in the late 1980s.⁷ In Britain^{8,9} and New Zealand,¹⁰ however, heterosexual intercourse continued to occur at earlier ages throughout the 1980s.

Factors associated with early age at first intercourse are well documented and include early menarche,¹¹ early school leaving age, family disruption and disadvantage,¹² and poor educational attainment.^{6,13,14} Less attention has been paid to factors associated with the circumstances of first intercourse.

From analysis of the first National Survey of Sexual Attitudes and Lifestyles (Natsal 1990) we reported a decline in age at first intercourse in successive age-groups, and a significant increase in condom use among the youngest age cohort, born between 1971 and 1976.⁹ Here we report results from the second National Survey of Sexual Attitudes and Lifestyles done in 1999–2001 (Natsal 2000), focusing on early heterosexual intercourse and the circumstances surrounding that event, the extent of risk reduction practices, and the prevalence of those outcomes of sexual activity which, from a public-health perspective, may be regarded as adverse. We also explore factors associated with these outcomes.

Methods

Participants and procedure

We did a probability sample survey of men and women aged 16 to 44 years living in Britain. Details of the methods are described elsewhere.¹⁵ Participants were interviewed using a combination of computer-assisted face-to-face and self-completion questionnaires. Parental permission was requested for the participation of respondents aged 16–17 years.

We asked participants their age at first occurrence of heterosexual intercourse using a showcard in the face-to-face component of the questionnaire. Questions relating to the circumstances of first intercourse were confined to occurrence at age 13 years or older, to avoid probing early experiences that may have been non-consensual. We asked respondents to reflect on whether they or their partner was more willing, or whether they were both equally willing; their thoughts on the timing of the event;

	Age (years) at interview							p trend with age at interview
	16–19	20–24	25–29	30–34	35–39	40–44	All	
Men								
Age at first intercourse*								
Median age (10th,90th centiles) (years) †	16 (14–19)	17 (14–20)	17 (14–21)	17 (14–21)	17 (14–22)	17 (14–23)	17 (14–21)	
Aged <16 years	29.9% (25.7–34.5)	25.8% (22.0–30.1)	29.2% (25.7–32.9)	29.5% (26.5–32.7)	23.6% (20.7–26.7)	27.1% (23.8–30.8)	27.4% (26.0–28.9)	0.160
Number unweighted, weighted	578, 684	646, 820	808, 998	981, 1129	903, 1095	827, 935	4743, 5661	
Use of contraception‡								
Used a condom	82.5% (77.6–86.5)	76.6% (72.9–80.0)	57.3% (53.2–61.3)	40.3% (36.9–43.9)	29.6% (26.4–32.9)	29.8% (26.3–33.5)	48.2% (46.6–49.9)	<0.0001
Used nothing	7.4% (4.8–11.2)	10.0% (7.7–12.9)	19.0% (16.1–22.2)	25.8% (22.8–29.1)	29.5% (26.4–32.7)	34.7% (30.9–38.8)	23.0% (21.6–24.4)	<0.0001
Used pill	20.3% (16.0–25.3)	21.2% (17.9–25.0)	21.6% (18.4–25.1)	25.4% (22.5–28.5)	25.6% (22.7–28.7)	19.6% (16.7–22.8)	22.7% (21.3–24.1)	0.570
Number unweighted, weighted	381, 438	604, 768	761, 954	942, 1091	873, 1071	793, 905	4354, 5227	
Sexually competent								
	55.5% (49.8–61.2)	53.8% (49.4–58.2)	45.9% (41.9–50.0)	39.0% (35.6–42.4)	36.3% (32.9–39.9)	32.0% (28.4–35.8)	42.1% (40.4–43.7)	<0.0001
Number unweighted, weighted	372, 430	600, 764	753, 943	931, 1078	865, 1062	781, 888	4302, 5165	
Fatherhood before age 18 years§								
	1.3% (0.5–3.4)	1.0% (0.5–2.2)	1.1% (0.5–2.4)	0.5% (0.2–1.2)	0.6% (0.2–1.4)	1.1% (0.5–2.4)	0.8% (0.6–1.2)	0.822
Number unweighted, weighted	278, 312	649, 826	808, 999	983, 1130	901, 1094	828, 932	4447, 5293	
Women								
Age at first intercourse*								
Median age (10th,90th centiles) (years) †	16 (14–19)	16 (14–20)	17 (15–20)	17 (15–21)	17 (15–21)	17 (15–22)	17 (15–21)	
Aged <16 years	25.6% (22.0–29.5)	28.4% (25.1–32.1)	24.5% (21.8–27.5)	16.7% (14.6–19.0)	17.0% (14.8–19.3)	13.8% (11.6–16.4)	20.4% (19.3–21.5)	<0.0001
Number unweighted, weighted	613, 657	824, 783	1160, 953	1357, 1083	1279, 1057	1131, 920	6364, 5453	
Age at menarche								
<13 years	43.8% (38.6–49.1)	39.0% (35.3–42.9)	36.5% (33.6–39.6)	38.5% (35.6–41.4)	36.6% (33.8–39.6)	36.1% (32.9–39.4)	37.9% (36.6–39.3)	0.024
Number unweighted, weighted	448, 486	807, 767	1152, 947	1357, 1084	1278, 1058	1125, 919	6167, 5262	
Use of contraception‡								
Used condom	80.3% (75.7–84.2)	75.6% (71.8–79.0)	62.5% (59.3–65.6)	46.0% (43.1–49.0)	39.8% (36.8–42.8)	37.2% (34.2–40.3)	53.3% (52.0–54.7)	<0.0001
Used nothing	9.8% (7.2–13.3)	12.1% (9.6–15.0)	21.6% (19.2–24.2)	23.0% (20.6–25.5)	24.3% (21.7–27.0)	31.8% (28.8–34.9)	21.9% (20.8–23.0)	<0.0001
Used pill	24.8% (20.1–30.2)	25.4% (22.0–29.1)	22.7% (20.1–25.4)	28.5% (25.9–31.2)	29.5% (26.9–32.3)	24.4% (21.7–27.4)	26.1% (24.9–27.4)	0.255
Number unweighted, weighted	400, 434	773, 730	1143, 943	1339, 1073	1255, 1038	1103, 903	6013, 5122	
Sexually competent								
	42.5% (37.0–48.1)	45.4% (41.3–49.5)	43.5% (40.3–46.7)	43.3% (40.4–46.2)	38.6% (35.8–41.6)	36.5% (33.3–39.8)	41.4% (40.0–42.8)	0.001
Number unweighted, weighted	397, 430	763, 723	1133, 936	1334, 1069	1242, 1029	1094, 898	5963, 5085	
Motherhood before age 18 years§								
	5.7% (3.7–8.8)	5.7% (4.2–7.8)	5.3% (4.1–6.8)	3.2% (2.3–4.4)	5.4% (4.1–7.0)	5.2% (4.0–6.9)	4.9% (4.4–5.6)	0.820
Number unweighted, weighted	300, 314	827, 787	1162, 955	1363, 1089	1289, 1065	1140, 926	6081, 5137	
Abortion before age 18 years§								
	5.0% (2.8–8.9)	4.6% (3.2–6.4)	5.5% (4.2–7.2)	3.5% (2.6–4.7)	3.6% (2.6–4.8)	2.5% (1.7–3.8)	4.0% (3.5–4.6)	0.001
Number unweighted, weighted	300, 314	822, 783	1149, 947	1338, 1072	1260, 1043	1113, 907	5982, 5066	

Data are % respondents (95% CI) unless indicated. *All respondents aged 16–44 years. †Centiles for age at first intercourse are calculated using life table analysis. ‡Base excludes respondents who have not had heterosexual intercourse. §All respondents aged 18–44 years.

Table 1: Age, use of contraception, and sexual competence at first intercourse; parenthood and abortion before age 18 years

the nature of the relationship with their partner; and whether contraception was used. They were also asked what, at the time, was the main reason for first intercourse having occurred. Responses were retrospectively categorised as autonomous (for example, a natural follow on in the relationship, being in love, and curiosity) and non-autonomous (reporting being drunk at the time, and

peer pressure). On the assumption that first intercourse should, ideally, be characterised by absence of duress and regret, autonomy of decision, and use of a reliable method of contraception, these variables were used to construct a measure of sexual competence.

Participants were asked to report their main source of information about sexual matters and their

	First intercourse before age 16*			Non-use of contraception at first intercourse†			Sexual non-competence at first intercourse‡		
	Prevalence (%)	Adjusted odds ratio‡§ (95% CI)	Base unweighted, weighted	Prevalence (%)	Adjusted odds ratio‡§ (95% CI)	Base unweighted, weighted	Prevalence (%)	Adjusted odds ratio‡§ (95% CI)	Base unweighted, weighted
Men									
Socioeconomic status of parent 									
Non-manual	20.7%	1.00	583, 724	6.0%	1.00	456, 565	41.4%	1.00	452, 561
Manual	31.4%	1.42 (0.97–2.08)	463, 596	9.6%	1.23 (0.65–2.34)	381, 484	45.6%	1.10 (0.78–1.55)	376, 479
Communication with parents about sex 									
Discussed	27.8%	1.00	366, 448	3.8%	1.00	297, 362	45.8%	1.00	292, 359
Not discussed	26.3%	0.82 (0.56–1.22)	811, 1013	10.2%	2.27 (1.10–4.66)	647, 806	43.6%	0.73 (0.50–1.08)	639, 798
Family structure									
Lived with both natural parents to 16 years	23.0%	1.00	909, 1141	7.5%	1.00	717, 895	43.0%	1.00	709, 887
Lived with 0 or 1 parent to age 16 years	42.3%	2.29 (1.50–3.47)	315, 363	13.6%	1.11 (0.49–2.49)	268, 310	53.0%	0.99 (0.64–1.54)	263, 306
Educational level¶									
Left school 17+ years	18.6%	1.00	737, 891	5.9%	1.00	592, 719	41.5%	1.00	588, 715
Left school at 16 years with qualifications	41.3%	3.00 (1.99–4.53)	276, 357	11.8%	1.92 (0.96–3.85)	259, 331	45.9%	1.11 (0.74–1.65)	256, 328
Left school at 16 years no qualifications	60.1%	4.55 (2.32–8.94)	71, 74	27.8%	3.94 (1.31–11.87)	69, 73	71.9%	2.63 (1.24–5.56)	66, 70
Main source of information about sex									
Lessons at school	14.1%	1.00	380, 483	5.5%	1.00	248, 315	33.4%	1.00	247, 315
Parents	27.5%	2.11 (0.86–5.14)	85, 119	5.3%	3.14 (0.73–13.45)	69, 94	33.2%	0.73 (0.34–1.59)	69, 94
Friends and other	35.0%	3.11 (1.91–5.05)	759, 902	10.9%	2.78 (1.21–6.42)	668, 796	52.0%	2.14 (1.45–3.17)	656, 784
Women									
Age at menarche									
<13 years	39.7%	1.00	505, 508	11.9%	1.00	471, 464	61.7%	1.00	464, 458
≥13 years	25.3%	0.48 (0.35–0.66)	746, 739	10.8%	1.00 (0.62–1.62)	698, 697	51.8%	0.70 (0.51–0.95)	693, 692
Socioeconomic status of parent 									
Non-manual	20.8%	1.00	647, 646	10.6%	1.00	515, 512	53.9%	1.00	510, 507
Manual	32.6%	1.71 (1.23–2.36)	557, 585	9.6%	0.71 (0.44–1.15)	472, 488	56.4%	1.00 (0.74–1.36)	467, 484
Communication with parents about sex 									
Discussed	25.2%	1.00	708, 723	8.7%	1.00	569, 579	52.8%	1.00	561, 574
Not discussed	28.2%	0.90 (0.63–1.29)	692, 688	12.8%	1.13 (0.70–1.84)	570, 559	58.4%	0.94 (0.68–1.31)	566, 554
Family structure									
Lived with both natural parents to age 16	23.6%	1.00	1017, 1042	9.2%	1.00	819, 829	54.5%	1.00	811, 821
Lived with 0 or 1 parent to age 16 years	36.5%	1.65 (1.12–2.42)	420, 397	16.1%	1.23 (0.72–2.08)	354, 335	58.9%	0.99 (0.70–1.40)	349, 332
Educational level¶									
Left school 17+	20.2%	1.00	877, 886	8.4%	1.00	726, 734	50.1%	1.00	719, 728
Left school at 16 years with qualifications	45.8%	3.25 (2.19–4.82)	271, 256	11.3%	1.52 (0.85–2.72)	256, 244	61.0%	1.57 (1.09–2.27)	253, 242
Left school at 16 years no qualifications	46.6%	1.88 (1.06–3.34)	138, 116	33.9%	5.22 (2.76–9.88)	132, 109	82.2%	4.02 (2.15–7.55)	130, 108
Main source of information about sex									
Lessons at school	18.4%	1.00	389, 406	7.8%	1.00	277, 287	47.8%	1.00	273, 283
Parents	22.4%	0.72 (0.42–1.26)	288, 301	8.8%	1.17 (0.49–2.79)	240, 251	45.7%	0.91 (0.56–1.49)	237, 250
Friends and other	34.0%	1.97 (1.30–2.98)	760, 733	13.8%	2.49 (1.30–4.78)	656, 626	63.4%	1.91 (1.31–2.79)	650, 620

*All respondents aged 16–24 years. †All respondents 16–24 years who have had heterosexual intercourse. ‡Adjusted for all variables in the table. §All respondents aged 17–24 years with non-missing values for all variables. ||Respondents who did not live with at least one natural parent to 16 years were not asked this question and are excluded from this item. ¶Respondents aged 16 years at interview are excluded from this item.

Table 2: Prevalence and adjusted odds ratios for first intercourse before 16 years, non-use of contraception, and sexual non-competence at first intercourse (16–24 year olds)

experience of communication with parents about sex, during adolescence. Participants were asked whether they had had a child or an abortion, and at what age. Whether the participant had ever had an STI was also recorded; we report results for STIs excluding candida infection.

Other data used in this analysis include age at menarche (for women); educational level (leaving age and attainment of qualifications); structure of family of origin until age 16 years (whether brought up by both, one, or neither parent); and parental socioeconomic status (derived from the nature of the father's employment).

Statistical analysis

To explore trends in the outcomes of interest, we did univariate analyses by successive age-groups. Life table analysis was used to estimate the centiles for age at first intercourse.

Logistic regression was used to determine the factors that were associated with each outcome separately for men and women aged 16–24 years, the age-group of most policy relevance. All statistical analyses were done using the survey commands of Stata (version 6.0) which incorporate the weighting, clustering, and stratification of the data. Tests for trend were based on inclusion of the linear term for age in the model.

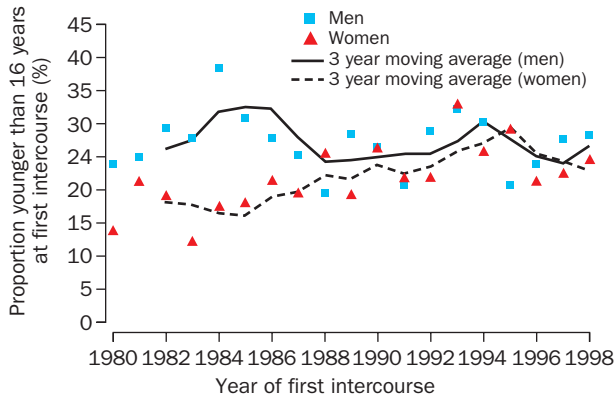


Figure 1: Proportion of participants younger than 16 years at first intercourse, by year of first intercourse

Results

Risk behaviour and risk reduction practice

We recruited 11 161 participants to the study (4762 men, 6399 women). The response rate was 65.4%. The median age at first intercourse was 17 (10th, 90th centile: 15, 21) years for women aged 25–44 years at interview, and 16

(14, 20) years for women aged 16–24 years at interview (becoming sexually active after 1990). For men, it was 17 years (14, 21) for those aged 20–44 years, and 16 years (14, 19) for those aged between 16 and 19 (table 1). 0.66% (34 of 5257) of men and 0.46% (24 of 5159) women were unable to recall their exact age at first intercourse.

An increase in the proportion of women for whom heterosexual intercourse occurred before the age of 16 years can be seen with decreasing age at interview (table 1). The proportion of women aged under 30 years at interview who reported intercourse before 16 years is higher than for women aged 30 years and over. The proportion of men having intercourse before age 16 years has remained fairly constant across all ages.

The proportion of respondents having intercourse before age 16 years, plotted by the year in which intercourse occurred (figure 1) shows secular trends more precisely, particularly the convergence of behaviour among young men and women in the mid to late-1980s, and what seems to be a stabilisation of age at first intercourse among women in the 1990s.

Four in five men and women aged 16–24 years at interview reported condom use at first intercourse (table 1). The significant increase in the prevalence of

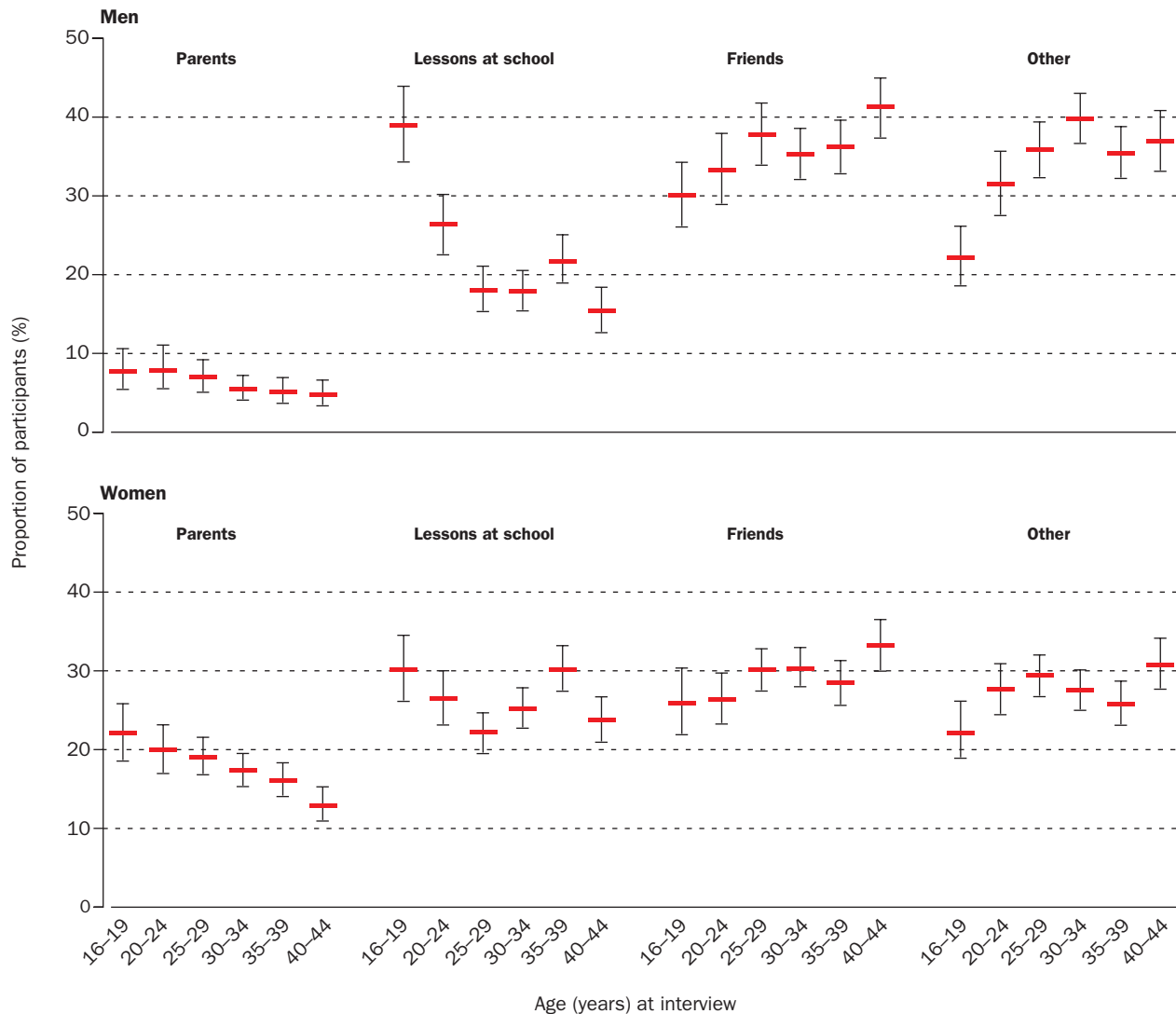


Figure 2: Main source of information about sexual matters
Bands indicate 95% CIs.

	Age (years) at first intercourse						p trend with age at first intercourse
	13 or 14	15	16	17	18 to 24	All	
Men*							
Regret							
Wish waited longer	41.8 (33.6–50.4)	26.3 (19.8–34.0)	19.0 (14.0–25.2)	11.8 (7.0–19.2)	8.2 (4.9–13.6)	20.4 (17.7–23.4)	<0.0001
Willingness							
Respondent more willing	5.7 (2.8–11.2)	2.5 (0.9–7.1)	3.2 (1.4–7.3)	2.5 (1.1–5.7)	1.7 (0.6–4.8)	3.0 (2.0–4.5)	0.022
Partner more willing	9.0 (5.2–15.1)	6.8 (3.8–11.7)	6.7 (3.7–12.0)	5.6 (2.7–11.2)	5.3 (3.0–9.2)	6.6 (5.0–8.7)	0.283
Contraception							
No condom	31.2 (23.8–39.7)	19.4 (13.6–26.9)	18.6 (13.9–24.5)	17.8 (12.1–25.4)	19.5 (14.2–26.3)	20.9 (18.3–23.8)	0.115
No contraception	17.9 (12.3–25.2)	9.8 (5.5–16.7)	7.7 (4.7–12.4)	3.0 (1.2–7.2)	7.1 (4.0–12.1)	8.8 (7.0–11.0)	0.016
Status of partner							
Met for first time	2.5 (1.0–6.4)	0.9 (0.3–2.5)	4.7 (2.6–8.3)	7.8 (3.9–15.1)	6.4 (3.4–11.8)	4.6 (3.3–6.4)	0.002
Main reason							
Peer pressure	9.2 (5.3–15.6)	9.9 (6.0–16.0)	8.1 (5.1–12.5)	8.8 (5.0–15.2)	4.8 (2.5–8.8)	8.0 (6.2–10.2)	0.086
Drunk	11.8 (7.0–19.1)	6.7 (3.3–13.1)	3.8 (2.0–7.1)	12.1 (7.1–19.7)	10.4 (6.3–16.8)	8.5 (6.6–10.8)	0.392
Not sexually competent							
	66.6 (58.0–74.2)	46.4 (38.2–54.8)	43.2 (36.3–50.4)	38.0 (30.1–46.6)	38.6 (31.8–45.9)	45.7 (42.2–49.2)	<0.0001
Number unweighted, weighted	165, 195	179, 212	262, 320	162, 195	201, 268	969, 1190	..
Women*							
Regret							
Wish waited longer	84.3 (77.4–89.4)	49.1 (42.1–56.2)	34.0 (28.7–39.9)	33.8 (26.4–42.1)	19.3 (14.2–25.7)	41.8 (38.5–45.2)	<0.0001
Willingness							
Respondent more willing	0.7 (0.1–4.8)	1.5 (0.4–5.6)	1.1 (0.2–4.8)	0	0	0.7 (0.3–1.9)	0.034
Partner more willing	32.9 (25.6–41.2)	26.0 (20.5–32.5)	19.9 (15.4–25.3)	16.4 (11.5–23.0)	18.1 (13.1–24.4)	22.1 (19.5–24.9)	<0.0001
Contraception							
No condom	33.6 (26.1–42.1)	16.5 (11.8–22.6)	19.5 (15.3–24.4)	21.2 (15.4–28.3)	21.1 (15.4–28.1)	21.5 (18.9–24.3)	0.060
No contraception	21.7 (15.7–29.2)	10.0 (6.4–15.2)	8.6 (5.9–12.3)	7.9 (4.5–13.5)	10.2 (6.2–16.5)	10.9 (9.1–13.1)	0.005
Status of partner							
Met for first time	5.3 (2.5–10.8)	3.1 (1.4–6.7)	2.3 (0.9–5.7)	0.8 (0.2–3.5)	4.1 (1.8–9.1)	2.9 (2.0–4.3)	0.440
Main reason							
Peer pressure	13.0 (8.3–19.8)	13.7 (9.5–19.3)	7.4 (4.9–11.1)	4.8 (2.1–10.2)	3.2 (1.4–7.0)	8.3 (6.6–10.4)	<0.0001
Drunk	6.9 (3.7–12.4)	7.4 (4.5–11.9)	5.5 (3.1–9.4)	4.7 (2.4–9.1)	5.3 (2.8–9.7)	5.9 (4.5–7.6)	0.218
Not sexually competent							
	91.1 (85.3–94.7)	62.4 (55.1–69.1)	49.7 (43.9–55.6)	48.6 (40.7–56.6)	36.6 (29.4–44.4)	55.8 (52.4–59.2)	<0.0001
Number unweighted, weighted	167, 164	229, 224	352, 362	195, 193	196, 188	1139, 1130	..

All data are % respondents (95% CI) unless indicated. *All respondents aged 16–24 years who have had heterosexual intercourse and with non-missing values for all variables.

Table 3: Prevalence of contextual factors surrounding first intercourse, 16–24 year olds

condom use has not occurred at the expense of use of other methods. The prevalence of oral contraceptive use at first intercourse remains largely unchanged across the age-groups. One in four women of all ages reported being on the pill at first intercourse (table 1). Overall, 0.93% of men and 0.83% of women reported using other methods, for example, choosing a safe time during the woman's monthly cycle and withdrawal.

There was a corresponding decline in the proportion of men and women using no contraception at first intercourse with decreasing age. First intercourse was unprotected for 7.4% of 16–19 year old men and 9.8% of 16–19 year old women (table 1).

School-based lessons are now, according to respondents' reports, the main source of information about sexual matters for young people (figure 2). There was an increase in the proportion of men aged 16 to 24 years reporting school lessons as their main source of sex education, and in the proportion of women across all age-groups reporting receipt of information from parents.

Among 16–24 year olds, the prevalence of first intercourse before age 16 years and non-use of contraception was higher among men and women who did not live with both parents until age 16 years and those who left school at age 16 years (table 2). Early intercourse

was also more commonly reported by women who were less than 13 years old at menarche, and by men and women whose parents were manual workers and those whose main source of information about sex was not lessons at school. The prevalence of non-use of contraception was higher among men and women who did not discuss sexual matters with parents and among those whose main source of information about sexual matters was friends and others.

After adjusting for other variables, family structure, educational level, and main source of information about sex remained independently associated with early age at first intercourse for both men and women (table 2). Among women, age at menarche and socioeconomic status of parent also remained significantly associated with early intercourse.

After adjusting for all variables, education level and source of information about sex remained significantly associated with non-use of contraception among both men and women as did discussion with parents about sexual matters for men.

Analysis for those aged 16–24 years at interview show that the earlier first intercourse occurred, the greater the likelihood that the respondent expressed regret relating to timing and reported being more or less (but not equally)

	Motherhood before age 18 years				Abortion before age 18 years*				Ever had an STI*†			
	Prevalence	Adjusted OR (95% CI)‡§	p	Base unweighted, weighted	Prevalence	Adjusted OR (95% CI)‡§	p	Base unweighted, weighted	Prevalence	Adjusted OR (95% CI)‡§	p	Base unweighted, weighted
Age at menarche												
<13 years	9.9%	1.00		341, 326	5.1%	1.00		341, 326	11.7%	1.00		341, 326
≥13 years	6.7%	0.58 (0.28–1.17)	0.126	464, 456	7.4%	2.45 (1.09–5.52)	0.030	460, 453	11.3%	1.00 (0.66–1.75)	0.781	462, 454
Socioeconomic status of parents 												
Non-manual	5.3%	1.00		335, 332	4.5%	1.00		334, 346	12.5%	1.00		334, 331
Manual	8.8%	0.94 (0.46–1.92)	0.873	346, 348	7.4%	1.49 (0.72–3.06)	0.281	343, 331	11.0%	0.98 (0.57–1.67)	0.935	344, 347
Communication with parents about sex 												
Discussed	5.9%	1.00		385, 392	6.2%	1.00		383, 391	10.3%	1.00		384, 392
Not discussed	9.7%	1.91 (0.87–4.20)	0.108	397, 371	6.4%	0.80 (0.37–1.73)	0.578	394, 369	12.5%	1.25 (0.70–2.24)	0.454	395, 370
Family structure												
Lived with both natural parents to 16 years	6.8%	1.00		551, 547	6.0%	1.00		548, 545	10.2%	1.00		549, 546
Lived with 0 or 1 parent to age 16 years	11.0%	1.67 (0.79–3.50)	0.176	256, 236	7.2%	0.71 (0.30–1.66)	0.425	254, 235	14.3%	1.53 (0.89–2.62)	0.121	255, 236
Educational level												
Left school 17+ years	1.1%	1.00		474, 482	4.4%	1.00		471, 480	13.1%	1.00		472, 480
Left school at 16 years with qualifications	14.1%	12.16 (3.66–40.36)		219, 207	8.5%	1.62 (0.79–3.31)		218, 206	8.2%	0.48 (0.25–0.90)		218, 206
Left school at 16 years no qualifications	29.1%	41.55 (12.26–140.90)	<0.0001	112, 93	12.1%	0.71 (0.18–2.81)	0.312	111, 92	10.6%	0.71 (0.32–1.60)	0.069	112, 93
Main source of information about sex												
Lessons at school	7.2%	1.00		184, 192	5.2%	1.00		180, 190	8.1%	1.00		181, 190
Parents	8.3%	1.12 (0.33–3.81)		158, 160	7.8%	1.61 (0.52–4.92)		157, 159	7.1%	1.11 (0.36–3.37)		158, 160
Friends and other	8.4%	0.89 (0.33–2.44)	0.862	464, 431	6.4%	1.11 (0.44–2.83)	0.67	465, 431	14.5%	1.97 (0.92–4.22)	0.084	465, 431
Age at first intercourse												
≥16 years	4.8%	1.00		490, 481	4.0%	1.00		487, 479	10.3%	1.00		488, 480
<16 years	13.3%	2.78 (1.32–5.88)	0.007	317, 302	10.2%	2.70 (1.23–5.92)	0.013	315, 301	13.2%	1.30 (0.78–2.18)	0.317	316, 302
Sexually competent at first intercourse												
Yes	5.7%	1.00		303, 302	4.5%	1.00		301, 300	9.4%	1.00		301, 300
No	9.7%	0.97 (0.45–2.10)	0.939	494, 472	7.7%	1.20 (0.50–2.86)	0.684	491, 470	12.9%	1.21 (0.71–2.04)	0.483	493, 472

*All respondents aged 18–24 years who had first heterosexual intercourse before 18 years. †Excludes candida. ‡Adjusted for all the variables in the table. §All respondents aged 18–24 years with non-missing values for all variables ||Respondents who did not live with at least one natural parent to age 16 years were not asked this question and are therefore excluded from this item. OR=Odds ratio.

Table 4a: Prevalence and adjusted ORs for motherhood and abortion before 18 years and for ever having had an STI (18–24 year olds), among women who had first intercourse before 18 years

willing compared with their partner (table 3). Women were more likely than men to say they wished they had waited longer and to report not having been equally willing. Negative factors were less frequently reported with increasing age at first intercourse for women. Apart from the extent of regret among women having intercourse at an early age, however, these were minority responses.

Four variables relating to circumstances: regret, willingness, autonomy, and contraception at first intercourse, were used as criteria in the construction of a measure of sexual competence. Lack of sexual competence, thus defined, increases with declining age at first intercourse. A strikingly high proportion, 91% of girls and 67% of boys aged 13 to 14 years at first intercourse, were not sexually competent (table 3).

Analysis by age-group shows that sexual competence at first intercourse has increased during the past three decades, despite decreasing age at intercourse (table 1).

Prevalence of sexual non-competence was much higher among men and women who left school at 16 years without qualifications and those whose main source of information about sex was not lessons at school or parents (table 2). Prevalence was also higher among men who did

not live with both parents to the age of 16 years, and women who were younger than 13 years at menarche.

After adjusting for other variables, education level and source of information about sex remained significantly associated with sexual non-competence for both men and women, as did age at menarche among women (table 2).

5% of women aged 18–44 years reported having a child, and 4% having had a termination of pregnancy, before the age of 18 years (table 1). Whereas the proportion of women having a child before age 18 years is broadly constant across age-groups ($p=0.82$), the proportion reporting termination of pregnancy before age 18 years increased with decreasing age at interview ($p=0.001$) and is twice as high for those aged 18–19 years at interview compared with those aged 40–44 years. Fatherhood before age 18 years was reported by 1% of men.

The analyses of factors associated with adverse outcomes were restricted to those reporting sexual intercourse before age 18 years (table 4a and 4b). The prevalence of pregnancy before 18 years was higher among women who had first intercourse before age 16 years and those who left school at 16 years. Prevalence of motherhood before 18 years was also higher among women who did not live with both parents to age 16 years.

	Ever had an STI*†			
	Prevalence	Adjusted OR (95% CI)‡§	p	Base unweighted, weighted
Socioeconomic status of parents 				
Non-manual	6.2%	1.00		276, 331
Manual	7.4%	1.25 (0.50–3.14)	0.640	240, 300
Communication with parents about sex 				
Discussed	7.3%	1.00		179, 220
Not discussed	6.7%	1.06 (0.44–2.57)	0.889	404, 486
Family structure				
Lived with both natural parents to 16 years	6.7%	1.00		438, 537
Lived with 0 or 1 parent to age 16 years	7.1%	1.07 (0.32–3.56)	0.913	175, 198
Educational level				
Left school 17+ years	6.7%	1.00		378, 455
Left school at 16 years with qualifications	7.1%	0.89 (0.37–2.18)		185, 230
Left school at 16 years no qualifications	7.0%	0.19 (0.02–1.67)	0.325	50, 49
Main source of information about sex				
Lessons at school	2.8%	1.00		149, 181
Parents	6.4%	4.46 (0.81–24.58)	0.02	43, 58
Friends and other	8.4%	4.58 (1.18–17.73)		421, 495
Age at first intercourse				
≥16 years	5.7%	1.00		359, 437
<16 years	8.5%	1.30 (0.50–3.41)	0.589	254, 297
Sexually competent at first intercourse				
Yes	5.1%	1.00		313, 384
No	8.9%	1.76 (0.72–4.35)	0.218	295, 346

*All respondents aged 18–24 years who had first heterosexual intercourse before 18 years. †Excludes candida. ‡Adjusted for all the variables in the table. §All respondents aged 18–24 years with non-missing values for all variables || Respondents who did not live with at least one natural parent to age 16 years were not asked this question and are therefore excluded from this item. OR=Odds ratio.

Table 4b: Prevalence and adjusted odds ratios for ever having had an STI (18–24 years olds), among men who had first intercourse before 18 years

After adjusting for all variables, early age at first intercourse was independently associated with both motherhood and abortion before age 18 years. Education level remained strongly associated with motherhood but not abortion before age 18 years.

The prevalence of reporting STIs was higher among men and women for whom first intercourse occurred before age 16 years; among those whose main source of information about sexual matters was friends and others; and those who were not sexually competent at first intercourse. After adjusting for other variables, these associations were not statistically significant.

Discussion

Several important trends have been identified in these data from Natsal 2000. There seems to have been a stabilisation of the proportion having first heterosexual intercourse before age 16 years among women; a continuation of the increase in condom use and in the decrease in the proportion using no contraceptive method at first intercourse; and an increase in the importance of school in the sexual education of the young, particularly men.

These data are based on reported behaviour and so are susceptible to biases associated with recall and veracity. With time, early experiences may be recast, with the wisdom of hindsight and subsequent experience, or forgotten. However, ability to recall an event is dependent not only on the time lapsed since its occurrence, but also its emotional salience. In the case of first intercourse, less than 1% of respondents were unable to remember, with accuracy, their age at first intercourse. We have therefore examined trends in age at first intercourse by comparing the experiences of successive age-groups within Natsal 2000, rather than between Natsal 1990 and Natsal 2000, in order to avoid possible bias resulting from the differences in methods used in the two surveys and from a change in the social climate facilitating reporting. This is further discussed elsewhere.¹⁶

Taking the decade of the 1990s as a whole, a higher proportion of young women in Britain reported heterosexual intercourse before age 16 years, compared with the previous decade, and the median age at first intercourse was lower for men and women. Looking within the decade, however, there are tentative early signs in these data that the trend towards earlier heterosexual intercourse may have stabilised for women, though a longer time series would be needed before this could be confirmed.

At the same time, there is evidence of increasing adoption of risk reduction practices. For only a minority of young people is first intercourse unprotected against infection and conception. The data show a striking increase in condom use at first intercourse. The increase in condom use has been sustained in Britain, despite predictions that the weaker impact of AIDS-linked safer sex messages might have brought about complacency.² A quarter of young women in this study were already using oral contraception at first intercourse.

With respect to the circumstances of first intercourse, the evidence is less positive. Despite the convergence in the behaviour of men and women with respect to the age at which first intercourse occurs, there remain gender differences in the experience of the event. The proportion of those who are sexually competent according to the criteria we used has increased with time particularly among men. Women are twice as likely as men to regret their first experience of intercourse and three times as likely to report being the less willing partner. These findings have also been reported by others.^{10,17}

26% of women aged 16–19 years in our study had intercourse before 16 years—the age sanctioned in English law. There is evidence here to suggest that a focus on absolute age at first intercourse may not take into account variations in individual development and social norms. Although sexual competence decreases substantially with age at intercourse, more than a third of young women for whom first intercourse occurred at age

15 years were sexually competent, and more than a third of those aged 18–24 years at occurrence were not.

We show early age at first intercourse to be significantly associated with early pregnancy but not experience of sexually transmitted infection. Although early menarche is independently associated with early age at first intercourse and with early motherhood, importantly, in terms of the potential for enhancing sexual health, the risk behaviours and outcomes described here are also associated with cultural and social factors. Of these, the association is stronger for education than for family background. Young people who leave school later, with qualifications, are less likely to have early intercourse, more likely to use contraception at first sex, be sexually competent, and (for women) less likely to become pregnant if they have sex. Family disruption and lower parental socioeconomic status are also associated with early sexual experience and pregnancy when younger than 18 years, but the effect is weaker.

The absence of a significant association between educational level and abortion, compared with the strong association with motherhood at younger than 18 years, supports the premise that educational prospects influence the outcome of pregnancy. We do not know to what extent poor educational aspirations themselves lead to early sexual experience and motherhood, and the extent to which having a child early in life thwarts academic expectations. Nevertheless, these data identify a vulnerable group of women in public-health terms; 29% of sexually active young women in this study who left school at age 16 years with no qualifications had a child at age 17 years or younger.

From the standpoint of prevention, there is much that is positive in these data: the sustained increase in risk reduction at early sexual experience; the increasing prominence of the school in the sexual education of the young; and the association between school sex education and risk reduction; and the fact that the variables which emerge as most strongly associated with reducing risk are those which are amenable to intervention. Of interest too, with respect to the possible stabilisation of the trend towards earlier intercourse, is the evidence from the USA of a reduction in the teenage pregnancy rate following their earlier experience of a similar trend.⁷ The strong association between educational attainment and early motherhood also supports the British government's current strategy to marshal the efforts of ministries concerned not only with health but also with education and social services, in a bid to reduce the incidence and adverse outcomes of early teenage pregnancy.¹⁸

Contributors

Kaye Wellings participated in the design and implementation of this study and drafted the paper. Kiran Nanchahal contributed to the drafting of the

paper and did the statistical analysis with contributions from Andrew Copas, Christos Korovessis, and Catherine Mercer. Wendy Macdowall contributed to drafting the paper and was responsible for data presentation. Bob Erens, Kevin Fenton, Julia Field, and Anne Johnson were co-investigators and participated in the design and management of the main study. Sally McManus assisted with all aspects of survey fieldwork. All investigators contributed to the writing of the paper.

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