the choreography of condom use:

how, not just if, young people use condoms

A report prepared for Brook by

The Centre for Sexual Health Research, University of Southampton

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Research Team
Bethan Hatherall, Nicole Stone, Roger Ingham, Juliet McEachran

Researchers
Berekhet B. Berakhy, Beccy Bundock, Sam Ingham, Rachel Partridge, Helen Taylor, Nazarius M. Tumwesigye, Sarah Williams

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1.0 Introduction

Sexually transmitted infections (STIs) are a major public health problem in the UK. STI rates have risen steeply since the mid-1990s, with those for acute bacterial STIs, such as gonorrhoea and chlamydia, more than doubling since 1995 [1;2]. Among young people the rise has been particularly large. Between 1995 and 2003 amongst young men and women aged 16-19 years respectively, diagnoses of new episodes of gonorrhoea increased by 197 and 174 percent and new episodes of chlamydia increased by 409 and 252 percent. Likewise, cases of new episodes of genital warts, the most common viral STI, increased by 92 and 33 percent among men and women aged 16-19 years respectively [3]. Complicating the situation is the fact that those who are infected often have few or no symptoms and, if left untreated, STIs can have long-term effects on health. These include pelvic inflammatory diseases and fertility problems and, in the case of the human papillomavirus (genital warts), cervical cancer [4].

The UK also has the highest rate of teenage pregnancies in Western Europe [5]. Every year around 95,000 women below the age of 20 become pregnant in England and Wales with around 40 percent of these young women choosing to terminate the pregnancy [6].

In light of these trends, the UK Government has identified young people's sexual health as a key area in which improvements should be targeted. For England, targets for improving the sexual health of young people have been presented in two key reports:

- In 1999 the Social Exclusion Unit published its report into Teenage Pregnancy with the objective to reduce the 1998 rate of pregnancies amongst women aged between 15 and 17 years in England by 15 percent by 2004, and to halve it by 2010 [5] .

- In 2001 the Sexual Health and HIV Strategy was launched, directed towards, amongst other targets, a reduction in the prevalence of HIV and other sexually transmitted infections [4].

A central strategy in achieving these targets is an increase in the use of condoms by young people. Much research to date has centred around ways of increasing the prevalence of condom use with studies focusing on whether a condom was used or not. However, despite the highly effective contraceptive and prophylactic properties of condoms, both prospective and serodiscordant studies suggest that, even when consistent condom use is reported, pregnancy and the transmission of STIs can still occur [7;8]. So, why is this?

To be effective against pregnancy and the transmission of many STIs a condom must be put on prior to any intimate skin contact and should remain intact and in place throughout the duration of a sexual act. Therefore, in order to deliver appropriate health promotion messages that will lead to an increase in effective condom use, we need to understand not only inconsistent, but also incorrect, condom use practices during *all* potentially risky sexual acts (i.e. condom use during oral, vaginal and anal sex, with or without ejaculation).

This report explores young people's sources of information and their knowledge of sexual health, before going on to describe their sexual behaviour and contraceptive and condom use, including factors which predict their condom use. The report then examines young people's risk perceptions of STIs and pregnancy before finally exploring how, not just if, condoms are used by young people in the UK.

Before moving on to describe the design of the research project, the report briefly outlines current knowledge in regard to young people's sexual behaviour, condom use and quality of condom use.

2.0 Background

It is well documented that the condom is a reliable form of contraception and can provide an effective barrier to the transmission of HIV and other sexually transmitted infections (STIs) [8-11].

Vaginal sex and condom use

Although the UK has seen an increase in condom use at first vaginal intercourse among successively younger cohorts – 83 percent of 16-19 year olds participating in the second National Survey of Sexual Attitudes and Lifestyles reported use at first intercourse compared to 77 percent of 20-24 year olds and 57 percent of those aged 25-29 [12] – survey estimates suggest that approximately one quarter of sexually active young people aged 16-19 years have 'never' or only 'rarely' used condoms with their current partner [13]. Furthermore, findings published by Durex show that 19 percent of 16-17 year olds have had unprotected sex with a new sexual partner on at least one occasion [14].

To date, much research into young people's condom use has focused on means of increasing the incidence and consistency of use during acts of vaginal intercourse. STIs can, however, be passed between partners through a variety of routes including secondary contact; for example, via hands or sex toys, intimate skin contact including genital-to-genital contact, oral-genital contact[1], as well as via bodily fluids including blood, sperm, vaginal secretions and pre-ejaculatory fluid [15-17]. Therefore, in order to maximise their effectiveness against the transmission of STIs, condoms must be put on prior to *any* intimate genital contact and most critically for oral-genital, anal-genital and genital-to-genital contact.

[1] Fellatio and cunnilingus

Oral sex and condom use

Oral transmission of both viral and non-viral STIs has been extensively reported [18;19] and it is widely recognised among experts that dental dams and condoms should be used during cunnilingus and fellatio to prevent the transmission of STIs [20;21].

The practice of oral sex is highly prevalent among young people, regardless of whether they have previously engaged in penetrative intercourse. For example, over 80 percent of sexually active university students in Australia claimed to have engaged in oral sex at least once [22], while a study examining precoital sexual activities in the USA found that over 50 percent of college students reported engaging in either cunnilingus or fellatio on at least one occasion prior to first penetrative sex [23].

Findings from the UK National Surveys of Sexual Attitudes and Lifestyles (Natsal) have also shown that the practice of oral sex is common in both heterosexual and homosexual partnerships. In Natsal 1990, 67 and 62 percent of men and women aged 16-44 years interviewed respectively reported engaging in cunnilingus in the previous 12 months, whilst 63 percent of men and 60 percent of women had experience of fellatio [24]. During Natsal 2000, 78 percent of men and 77 percent of women aged 16-44 years reported oral-genital contact with a partner of the opposite sex during the previous 12 months [25].

Literature on the use of condoms during acts of fellatio remains limited and centres mainly on the practice among high risk groups such as men who have sex with men [26] and commercial sex workers [27;28]. However, one study investigating the sexual practices of USA high-school 'virgins' found that nine percent had experience of fellatio with ejaculation, and 10 percent had engaged in heterosexual cunnilingus. Of those who had engaged in fellatio with ejaculation, 86 percent had never used a condom and a further eight percent used them sporadically [29]. The authors of this study concluded that the use of dental dams during cunnilingus was likely to be even less than the use of condoms. More recently, analyses from the third in-home wave of the National Longitudinal Study of Adolescent Health, found condom use to be almost completely absent with only four percent of respondents reporting use at first oral sex [30].

Anal sex and condom use

The 1990 National Survey of Sexual Attitudes and Lifestyles found that nine percent of young men and ten percent of young women aged 16-21 years reported having ever had anal sex [24]. Similarly, the National Survey of Adolescent Males conducted in 1995 in the USA found that 11 percent of men aged 15-19 years had engaged in anal sex. Much of the research on condom use for anal sex has focussed on men who have sex with men [31]. However, a household probability sample of adults in California found that 60 percent of heterosexual respondents who reported having had anal sex at least once a month during the past year reported never using condoms for anal sex [32]. Amongst a sample of 300 young men attending a genito-urinary clinic in Sweden, 98 percent of whom were heterosexual, half had had anal sex. Of these, only 17 percent had always used a condom for anal sex [33].

Quality of condom use

A few studies have investigated sexual encounters in which a condom is used for vaginal intercourse, but in which the effectiveness of the condom is compromised through 'incorrect' use. During interviews with injecting drug users in London, Quirk and colleagues found that respondents who use condoms may at times be at risk of STIs or unwanted pregnancy through having 'unsafe protected sex' [16]. The study highlighted three forms of 'unsafe protected sex' that fail to minimise or eliminate the risk of pregnancy and STI transmission during sexual encounters. These were a) condom failure, specifically breakage and slippage, b) condoms used for ejaculation only, and c) condoms used after limited unprotected penetration. Other possible condom use errors include continuing penetration after condom removal.

Condom breakage and slippage

Although studies have examined the risk of pregnancy and STI transmission associated with condom breakage and/or slippage among the general population [34-36], young people's experiences are less well documented [37;38]. An analysis of the USA National Survey of Adolescent Males found that, among young men aged 17 to 22 years, just under a quarter of those using condoms had experienced a breakage in the previous 12

months and, of all condoms used, 2.5 percent were reported to have broken [35]. A study conducted in the USA of college women who put condoms on their male partners found that 28 percent reported experiencing a condom breakage, slippage or both in the previous three months [39].

Timing of condom use

A cross-sectional survey on condom behaviour in the previous month among male students attending university in the USA found that, of the 270 condoms used, eight percent were put on after initial vaginal penetration, with a further three percent starting intercourse with a condom and then removing it and resuming intercourse [40]. Furthermore, a study of 158 male college students in the USA found 43 percent reported putting on a condom after starting penetrative sex (during the previous three months), with 15 percent reporting that they had removed a condom before ending sex [41]. Among female college students who had put condoms on their male partners, 51 percent reported applying a condom after starting sex and 15 percent reporting having removed a condom before ending sex, at least once during the previous three months [39]. A similar study, involving 260 male and female undergraduate students, found that 38 percent reported applying a condom after initial penetration and 14 percent removed a condom before sex was concluded, at some point during the previous three months [42].

De Visser and colleagues used a diary technique to assess the prevalence of condoms being put on after initial penetration among Australian students. Their findings showed that, of the 72 respondents who used condoms during the study period, 27 (38 percent) reported that at least one condom was applied after initial penetration, and nine (13 percent) reported that every condom was used after initial penetration. They also report that, of the 464 condoms used by participants during the course of the study, 13 percent were put on after initial penetration [43]. A similar prevalence rate was found among a representative sample of Australian adults aged 16-59 years in the Australian Study of Health and Relationships. This study found that one in eight condoms used at last vaginal intercourse was put on after genital contact [44].

Finally, a study of ineffective condom use amongst 779 young women in managed care aged between 18-24 years in the USA found that 44 percent had delayed applying a condom during the previous three months [45].

The findings of the American and Australian studies clearly show that the use of a binary 'condom used or not' variable to examine the effectiveness of condoms in protecting individuals from STIs (and possibly pregnancy) may lead to misleading or inexplicable results. If the late application or early removal of condoms is common among young people in the UK, then self-reported condom use will lead to underestimates of risk and condom efficacy.

A study by Shlay and colleagues found an association between condom errors and the prevalence of STIs. This cross-sectional study looked at condom errors among consistent condom users attending an STI clinic in the USA. The most common condom errors occurring at least once during the previous four months, as reported by women and heterosexual men, were found to be breakage (34 and 31 percent respectively), slippage (20 and 12 percent respectively) and penetration prior to condom application (13 and nine percent respectively), with a much lower rate of continued penetration after condom removal (five and three percent). For both men and women, rates of STIs were found to decline with increasing consistency and correctness of condom use [46].

In addition to there being a lack of research in the UK pertaining to precisely how young people use condoms, limited study has been made into young people's knowledge of sexual health and perceived relative risks of pregnancy and STIs during vaginal intercourse. The research of de Visser and colleagues and Quirk and colleagues suggests that there is a relationship between perceived risk and how a condom is used [16;43]. For example, de Visser and Smith found that 20 percent of condoms that were used for the sole purpose of contraception were applied late, compared to only seven percent that were used for both contraception and protection against STIs, and five percent that were used only as protection against STIs [43]. Quirk *et al.* also found that in contrast to the respondents who reported applying a condom after limited unprotected penetration,

respondents who applied a condom for the purpose of ejaculation only tended to perceive risk primarily in terms of pregnancy and so were less likely to perceive unprotected penetration as unsafe [16].

Given that research has shown ‘unsafe protected sex’ to be prevalent in the US and Australia, and among certain subpopulations in the UK (e.g. injecting drug users), it is likely to be prevalent among young people in the UK as well.

3.0 Methodology

The objectives of the research were:

1. to explore young people's knowledge and sources of information regarding the transmission of sexually transmitted infections (STIs);

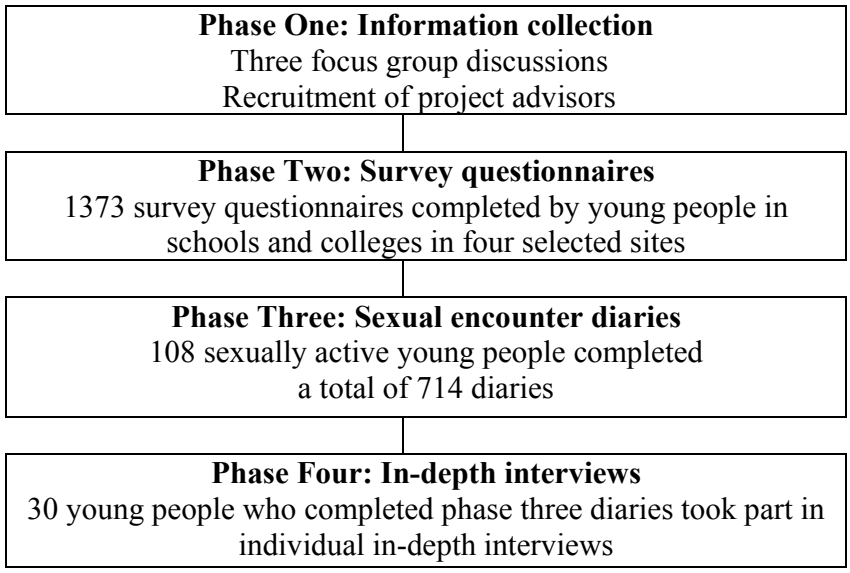
2. to assess the prevalence of condom use that fails to minimise or eliminate the risk of STI transmission and pregnancy among young people;

3. to examine young people's perceived risk of STI transmission and pregnancy;

4. to explore the relationship between young people's perceived risk and how condoms are used;

5. to identify the relationship and/or event specific-factors/processes which affect the quality of condom use.

The research consisted of four phases involving both qualitative and quantitative components:



All four phases of the research study were approved by the University of Southampton, School of Psychology Ethics Committee. The conceptual framework for the study is presented in Appendix 1.

Phase One: Information collection

The aim of the first phase of the study was to collect information from young people on the issues and terminology relating to sexual behaviour and condom use, in order to inform the design of the study and the phase two survey questionnaire.

Three focus group discussions (one mixed sex, one single sex male, and one single sex female) were held with young people in Southampton, an area not included in phase two of the study. All the participants were aged 18-21 years and were students at the University of Southampton.

The discussions explored issues relating to sexual behaviour, condom use and risk perceptions for sexually transmitted infections and pregnancy. A moderator and a note-taker were present and discussions were tape-recorded and later transcribed.

At the end of each of the discussions, participants were invited to continue their involvement in the study as *project advisors.* Twelve participants expressed interest and were consulted at various points during the study in order to ensure that the design of each stage was appropriate, relevant and acceptable to young people.

In addition, with the help of teenage pregnancy coordinators, sexual health workers and youth workers, young people from the four areas covered by the phase two survey were recruited as *on-site project advisors*. These *on-site project advisors* assisted with the piloting of research tools throughout the study and, in particular, the appropriateness and acceptability of the wording, format, content and methods of administration of the phase two survey questionnaire and phase three diary questionnaire.

Phase Two: Survey questionnaires

The purpose of the second phase of the research was to collect quantitative data from a large sample of young people in various parts of England, in order to assess the prevalence of, and factors associated with, 'unsafe protected sex' amongst those reporting condom use.

Four areas were selected for inclusion in the study. In order to provide some variability, site selection was based on rates of first episode genital warts among 15-19 year old women [47] and rates of teenage conception [48], with two sites being high on these indicators and two being low. Genital warts, the most common STI diagnosed in genito-urinary medicine clinics in England and Wales, are symptomatic, so rates of diagnoses are less affected by awareness campaigns than is the case for often asymptomatic STIs such as gonorrhoea or chlamydia. The selected study sites were:

High Rates	Low Rates
Wigan & Bolton	Wiltshire
Rotherham	Bromley

In each of these sites, a cluster sampling method was used to select survey respondents as simple random sampling was financially and logistically unfeasible. The clusters in this case were educational establishments[2]. To ensure wide coverage, a minimum of five different schools or colleges were sampled per study site.

A list of all higher educational establishments was compiled for each of the study sites and a letter was sent to each one informing them of the study. With the help of local teenage pregnancy coordinators, healthy schools coordinators and PSHE advisors, twenty-eight of the educational establishments were invited to participate in the study. Of these, twenty-two agreed and six declined. In the twenty-two participating schools and colleges a total of 1373 young people aged 16-21 years completed the survey questionnaire.

Whilst this method of sampling excludes those not currently in formal education, figures published by DfEE and OFSTED [49] indicate that 78 percent of young people aged 17

[2] Whilst rates of conception and genital warts were obtained by health authority, educational establishments were based on education authority boundaries. In the case of Wiltshire, Swindon fell within the boundary of its health authority, but had its own separate education authority. Consequently, for the purposes of this study, the Swindon and Wiltshire education authorities have been combined, and educational establishments from both areas included under 'Wiltshire'.

and 60 percent aged 18 years are in full-time education or training[3]. Moreover, previous studies have shown an association between educational attainment and condom or contraceptive use[4]. As this study focuses on *how*, not just if, condoms are used, obtaining a slightly higher proportion of condom users than would be obtained through random sampling is advantageous.

The questionnaire design drew from and built upon questionnaires used for previous studies and included questions relating to background factors, such as age, ethnicity and relationship with parents during early adolescence, and questions on sources of advice and information relating to sex, contraception and STIs, knowledge and attitudes relating to contraception and sexual health, perceptions of risk of STIs and pregnancy, communication and self-efficacy, intentions to use condoms, and information about past sexual experiences.

Respondents were also asked a series of questions about the last time they had vaginal intercourse. Information collected about this sexual event related to contraceptive and condom use, negotiation of condom use, timing of condom use, occurrence of condom breakage and slippage, reasons for condom use and non-use, and influences on whether and how a condom was used.

The data collected from the questionnaires were entered into and analysed using SPSS version 12.0.

Phase Three: Sexual encounter diaries

As each method of collecting data on sexual behaviour has its strengths and biases, this study has combined multiple methods in order to ascertain an accurate picture of young people's sexual behaviour and condom use. In addition to the survey questionnaire, young people's sexual behaviour was explored through the use of diary questionnaires.

[3] Full-time education includes study in school and publicly funded institutions of further and higher education. Training includes government supported and employer funded training.

[4] The second National Survey of Sexual Attitudes and Lifestyles shows the odds of using contraception at first intercourse increase with educational level [12]. A study looking at trends in condom use in the USA found similar associations between educational level and condom use [50].

Each respondent who completed the phase two survey questionnaire was invited, by means of a detachable sheet, to take part in the completion of sexual encounter diaries – phase three of the study. Each diary was a short quantitative questionnaire, completed as soon as possible after a sexual encounter, defined as an encounter featuring oral and/or vaginal and/or anal sex. Because each diary was completed shortly after a sexual encounter occurs, the diary method has the advantage of reducing retrospective bias (i.e. the problem of respondents having to think back to an encounter that may no longer be fresh in their memories).

Two hundred and ninety-seven respondents (22%) from phase two expressed interest in participating in the diary phase of the study. This sub-sample was similar to the sample of survey respondents as a whole in terms of age, ethnicity and levels of deprivation, but contained a higher proportion of females (66% vs. 53%) and a higher proportion of young people who had experienced oral and/or vaginal and/or anal sex (78% vs. 58%). Of those who expressed interest in the diary phase, 193 were selected based on the criterion that they had had vaginal or oral sex within the past six months[5]. The selected young people were contacted, mostly by letter, informing them of the next stage of the research and giving them the opportunity to opt out. Diary questionnaires were then sent to the 147 young people who had not requested withdrawal from the study and for whom valid addresses were available.

Each diary participant initially received five sexual encounter diaries and five freepost envelopes. Participants were requested to complete each diary as soon as possible after a sexual encounter and to return it using the freepost envelope. Once the first four diaries had been returned, participants were sent a further five diaries. Each participant completed up to a maximum of ten diaries over a period of up to six months. The data from phases two and three (the survey and diaries) could be matched, as each participant's diary and survey questionnaires shared a unique code.

[5] Experience of anal sex within the past six months was not included as a selection criterion, as information regarding the length of time since most recent anal sex was not collected through the survey questionnaire in order to keep the questionnaire to an acceptable length.

Initially, sixty-one participants returned diary questionnaires. As this number was lower than predicted, additional young people were recruited in order to increase the sample size of diaries, and especially diaries featuring condom use. Students aged 18-21 years were recruited from the University of Southampton and Brunel University, an older age group (with a higher level of education) not very well represented in the original diary sample[6]. Recruitment was via email and posters and the participation criterion was having used a condom within the past month. An additional forty-seven participants were recruited in this way.

In total, 108 young people (24 male, 84 female) completed 714 diaries. The diaries were entered into SPSS version 12.0. Analysis was conducted using SPSS and MLwiN.

In addition, diary responses were manually coded and the respondents grouped into eight different categories according to their patterns of contraceptive and condom use for vaginal sex over the course of their diaries. The categories were used both in the analysis of the diary data and for the selection of participants for phase four, the final stage of the research study.

Phase Four: In-depth interviews

Thirty in-depth interviews were conducted with young men and women who took part in the diary stage of the study in order to explore issues which had arisen from the previous phases of the study in more depth, complementing the quantitative data with a qualitative component. Participants were selected for the interviews based on their patterns of contraceptive and condom use for vaginal sex over the course of their diaries. As the study focuses on condom use and the risk of both STIs and pregnancy, participants for these interviews were selected who, during their diaries, had used a condom on at least one occasion.

[6] None of the four study sites had a university, and, although colleges were included in the sample, many of these were attended mainly by under 19 year olds.

The in-depth interviews explored risk perception, sexual histories, decision-making processes in relation to contraceptive and condom use, intentions to use condoms, communication with sexual partners, timing of condom application and removal, condom breakage and condom slippage. The interviews were conducted by female interviewers and each interview, which lasted approximately an hour, was tape-recorded and later transcribed for thematic analysis.

An advisory committee provided guidance throughout the research process, and advised on the implications of the research findings. In addition, young people from each of the four phase one study sites were consulted on their views regarding the policy and programme implications of the research (see Chapter 6.0).

4.0 Description of Samples

Findings presented from this study are based on the phase two survey questionnaire, the phase three diaries and the phase four in-depth interviews. The samples for each of these phases are described below.

4.1 Phase two: Survey questionnaires

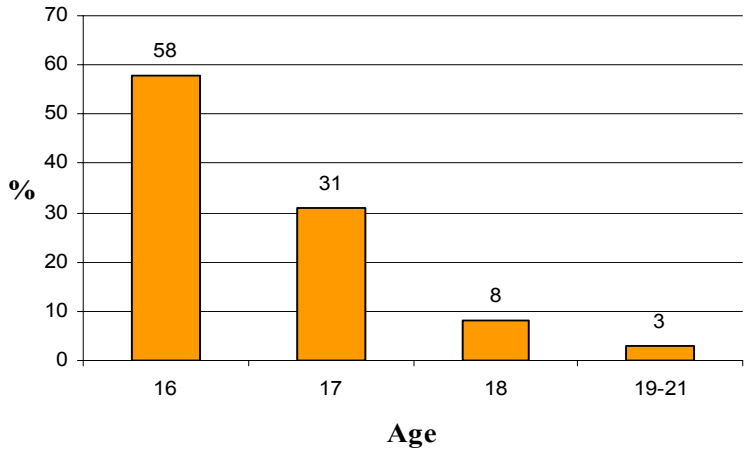
In total, 1373 students aged 16-21 years completed a questionnaire about sexual behaviour, contraception and condom use. Forty-four percent were male and 56 percent were female. The students were drawn from 21 different educational establishments in four different areas of England:

Area	Number
Bolton & Wigan	243
Bromley	377
Rotherham	344
Wiltshire	409
Total	1373

Age

The vast majority (97%) of survey respondents were aged 16-18 years. The median age for both male and female respondents was 16 years.

Figure 1: Ages of survey respondents (in years)



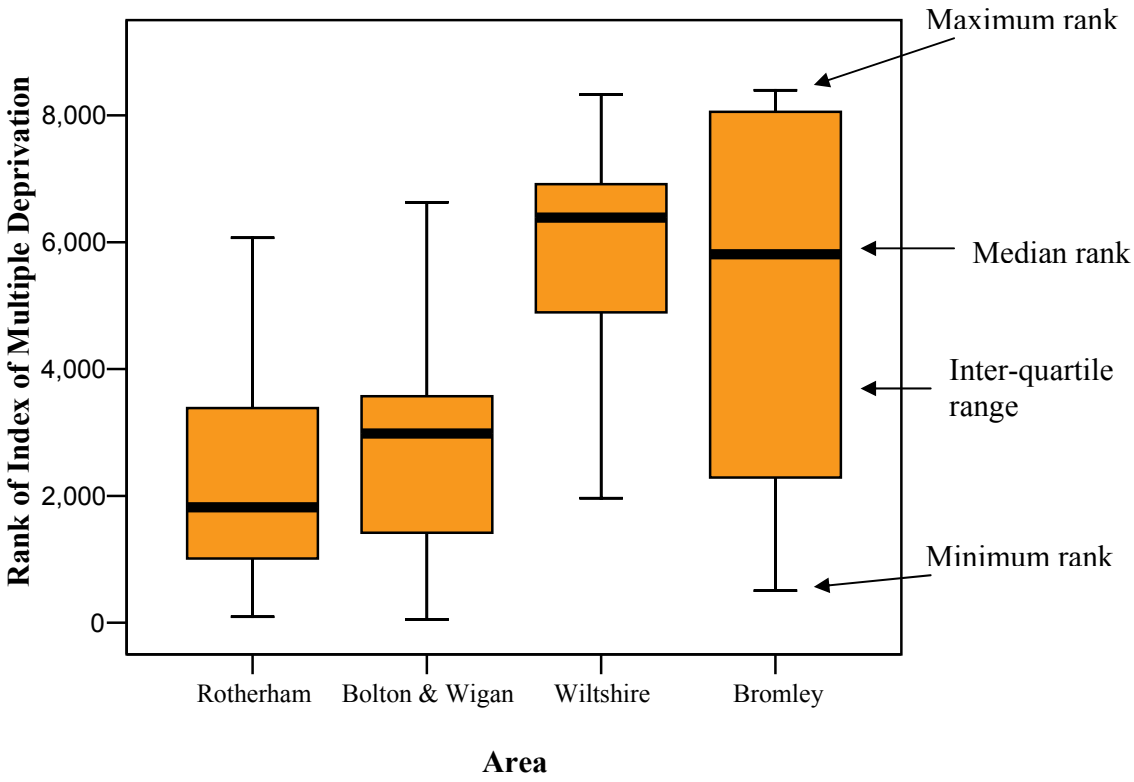
Social deprivation

Respondents were asked for their full postcodes. These were used to identify the census wards in which they live and the multiple deprivation scores assigned to those wards. The scores are derived from the Department of the Environment, Transport and the Regions IMD 2000 index, which allocates deprivation scores to wards based on income, housing, health deprivation and disability, education, skills and training, housing, and geographical access to services.

Of the 1373 respondents, 1157 provided a valid postcode that could be matched with a census ward and a deprivation score and ranking. All 8414 wards in England have been ranked by level of social deprivation, with the most deprived ward being given a rank of 1 and the least deprived ward a rank of 8414. Among the respondents in our sample these social deprivation rankings ranged from 51 to 8394. These have been grouped into five categories based on which fifth of the country's 8414 ranked wards they fall. Those falling into the bottom fifth (i.e. 1 to 1683) have been grouped as *very high* deprivation, those falling into the next fifth (i.e. 1684 to 3366) are grouped as *high* deprivation, and so on.

Significant variation was found in the distribution of respondents over the deprivation groups in each of the four study sites (χ^2= 622.849, df=12, p=0.000). This variation was expected, as the four study sites were selected based on rates of teenage conceptions (and genital warts), and the strong association between social deprivation and teenage conception rates is well established. The majority of respondents in Bolton & Wigan (71%) and in Rotherham (70%) were living in wards with *high* or *very high* levels of deprivation; by contrast, the majority of those in Wiltshire (73%) and Bromley (62%) were living in wards with *low* or *very low* levels of deprivation. As shown by the size of the boxes in Figure 2, levels of deprivation were most variable among the respondents in Bromley. Whilst the median rank of multiple deprivation was 5809, the range of social deprivation rankings for respondents within Bromley was wide (505-8394).

Figure 2: Box plot of social deprivation ranking of wards of residence of survey respondents (based on postcode data) by area



As respondents were recruited through educational establishments, it was expected that their deprivation rankings would be higher (i.e. less deprived) than if the population had been sampled randomly. For each area, the average (or mean) ranking was calculated and compared with the average rankings for each area as a whole using National Statistics data (see Table 1). Note that the National Statistics data separates Wiltshire into three districts and gives data for Swindon, Bolton and Wigan separately. Average rankings of deprivation were, as expected, slightly higher in our sample than in the overall population for Rotherham, Bolton and Wigan, but were slightly lower for Bromley.

Table 1: Deprivation rankings of the sample and population by area
(Rankings are out of 8414, with 1 being the most deprived)

	Indices of deprivation, 2000[1]	Sample	
Area	**Mean deprivation rank[2]**	**Mean deprivation rank**	**Range**
Bromley	5982	5290	505-8394
Rotherham	1592	1998	94-6070
Bolton	2347	2542	51-6809
Wigan	1934		
West Wilts	5241	5955	1770-8327
North Wiltshire	6241		
Salisbury	5380		
Swindon	4750		

[1] Data obtained from the "Indices of Deprivation for Districts in England" dataset, 2000, National Statistics (www.statistics.gov.uk)
[2] Population weighted average of the combined ranks for the wards in a district.

Ethnicity

In total, 90 percent of all survey respondents described themselves as White, two percent as Mixed, two percent as Black Afro-Caribbean and one percent as Black African. The ethnic diversity among respondents did vary by area, with Wiltshire having the highest proportion of white respondents (98%), followed by Bolton & Wigan (95%), Rotherham (93%) and Bromley (73%). Among the respondents in Bromley, higher proportions were Mixed (7%), Black Afro-Caribbean (6%) and Black African (4%) than in the other areas; the second largest ethnic group represented in Rotherham was Pakistani (3%).

Whilst 40 percent of white respondents lived in areas characterised by high or very high levels of social deprivation, a significantly higher proportion (68%) of those from other ethnic groups did so (χ^2= 32.261, df=2, p=0.000).

Sexual orientation

The vast majority of respondents (94%) defined themselves as heterosexual, whilst five percent of men and six percent of women defined themselves as either bisexual, homosexual or were unsure of their sexual orientation[7].

[7] The numbers of bisexual and homosexual respondents in the sample were too few to allow for separate analysis.

Table 2: Sexual orientation of survey respondents by sex[8] (in percentages)

	Male	Female	Total
Heterosexual	95.3	93.9	94.5
Bisexual	1.2	3.6	2.5
Homosexual	1.5	0.7	1.0
Unsure	2.0	1.9	1.9
Total (N)	*100 (590)*	*100 (749)*	*100 (1339)*

4.2 Phase three: Sexual encounter diaries

Of those who completed survey questionnaires, 108 went on to participate in the diary stage of the research study. Twenty-two percent of the diary participants were male and 78 percent were female. The lower ratio of male to female respondents is typical of other similar research studies[9].

Fifty-six percent of participants were drawn from the original four study sites, whilst the remaining 44 percent were recruited from the University of Southampton and Brunel University.

Table 3: Diary respondents by area

Area	Number	%
Bolton & Wigan	9	8.3
Bromley	22	20.4
Rotherham	10	9.3
Wiltshire	20	18.5
Brunel/Southampton Universities	47	43.5
Total	108	100

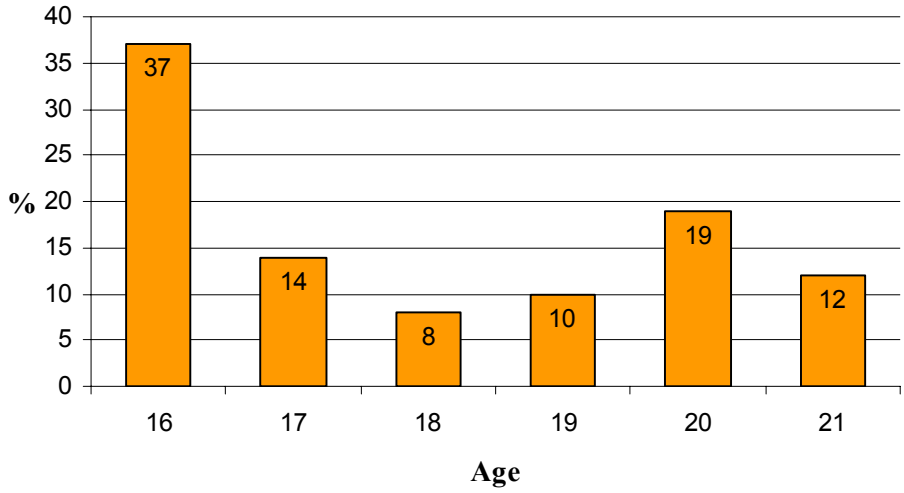
[8] The second National Survey of Sexual Attitudes and Lifestyles [51], found that among 16-24 year olds, 4.3 percent of men and 9.1 percent of women reported having had a sexual experience with someone of the same sex, whilst 2.6 percent of men and 4.5 percent of women reported having had intercourse/genital contact with someone of the same sex. Whilst the age group is slightly broader, and the measure was sexual experience rather than self-defined sexual orientation, the proportions are fairly similar to those found in this study.

[9] In a similar study by de Visser and Smith, 36 percent of diary respondents were male [43]. In a study by Morrison *et al.* [52] which used the diary method to collect information on adolescent drinking and sex, 30 percent of respondents were male.

Age

Because of the additional sample of participants recruited from the University of Southampton and Brunel University, the age distribution of respondents was broader than for the phase two survey. Whilst still within the range of 16-21 years, 16-18 year olds accounted for just 59 percent of diary respondents, with the remaining 41 percent being aged 19-21 years.

Figure 3: Ages of diary participants (in years)



Social deprivation

Ninety of the 108 diary participants provided valid postcodes which could be matched with census wards and deprivation scores and rankings. Deprivation rankings ranged from 85 to 8387, out of a possible total of 8414. The average ranking for diary participants was 3890, slightly higher (and therefore less deprived) than the average ranking of the survey participants (3600).

Ethnicity

Eighty-three percent of diary respondents described themselves as White, five percent as Mixed, four percent as Black Afro-Caribbean and the remaining eight percent fell into several other ethnic categories.

Sexual orientation

A slightly lower proportion of diary respondents (91%) than survey respondents (94%) described themselves as heterosexual. Six percent of diary respondents categorised themselves as bisexual, three percent as homosexual and one percent were unsure of their sexual orientation.

4.3 Phase four: In-depth interviews

Of the 30 young people who participated in individual in-depth interviews, 26 were female and four were male. The low number of male interviewees was a consequence of the much lower proportion of male than female survey respondents expressing interest, and then participating, in the diary stage of the research[10], resulting in the qualitative component of this study presenting a predominantly female-oriented view of the dynamics of condom use.

Around half (n=16) the interviewees were students at either Brunel University or the University of Southampton, and the other half (n=14) were from the original study sites. Respondents were spread relatively evenly over the age range of 16-21 years, with eight 16 years olds, five 19 years olds, and four 17, 18, 20 and 21 years olds.

Twenty-two of the interviewees described themselves as White and the remaining eight as Mixed (n=3), Black Afro-Caribbean (n=1), Black African (n=1), Indian (n=1) or of another ethnic group (i.e. 'Other', n=2). Almost all described themselves as heterosexual, with just one being unsure of her sexual orientation.

[10] Of the 24 men who participated in the diary stage of the research, 11 had not used a condom at all during their diaries and were therefore not eligible to participate in the in-depth interviews. Of the remaining 13, five could not be contacted and four declined to be interviewed.

5.0 Findings

5.1 Sources of Information and Knowledge of Sexual Health

SUMMARY

- Young people receive information on STIs from a range of sources, the most important of which is school. Together with friends and parents or guardians, school is also an important source of information for young people on sex, relationships and contraception.
- Whilst young people's knowledge of sexual health and contraception is good in some areas, other areas need attention. These include knowledge that most STIs can be cured, that chlamydia affects both men and women, and that emergency contraception can be taken up to 72 hours after unprotected vaginal intercourse.
- There is some confusion as to how STIs can be transmitted. Almost a third of young men and women thought that STIs can be transmitted by sharing a toilet, and a quarter of young men and women did not know that STIs can be transmitted via oral sex.

5.1.1 Sources of information for young men and women

In the phase two survey questionnaire, pupils were asked to name their most important sources of advice and information on a) sex and relationships, b) contraception, and c) sexually transmitted infections.

School was cited most commonly as the main source of information on both contraception and STIs by both young men and women, whilst friends were reported most frequently as the main source of information on sex and relationships (for more details, see Table A2a, Appendix 2).

As well as being asked about their most important source of information, respondents were also asked to cite their second and third most important sources. These have been aggregated to show those sources which most often fell within respondents' top three most important sources. The results have been presented in Table 4 and the tests of

significance (χ^2) of the differences between young men's and women's responses are presented in Tables A2b-d of Appendix 2.

Table 4: Most important sources of information reported by young men and women on a) sex and relationships, b) contraception, and c) STIs (aggregation of 1st, 2nd and 3rd choices)

	Sex & Relationships		Contraception		STIs	
	Male %	Female %	Male %	Female %	Male %	Female %
Friends	64.5 [1]	80.3 [1]	33.3 [3]	46.8 [3]	24.7 [4]	29.8 [4]
Parents/Guardians	38.3 [3]	54.1 [2]	36.7 [2]	47.8 [2]	27.9 [3]	32.5 [3]
School	48.9 [2]	44.1 [3]	68.5 [1]	64.7 [1]	70.8 [1]	67.1 [1]
Magazines/books	24.9 [5]	35.4 [4]	17.9	35.3 [4]	21.9	44.4 [2]
Boy/Girlfriend(s)	27.9 [4]	25.2 [5]	10.3	10.2	4.1	4.4
TV/radio/films	22.7	11.2	21.4 [4]	7.3	28.5 [2]	17.4
Brothers/Sisters	11.6	17.5	8.5	7.8	5.0	4.7
Leaflets/posters	6.3	3.9	20.2 [5]	11.0	23.1 [5]	22.7
Sexual health clinic	1.5	6.9	10.4	22.2 [5]	13.1	23.8 [5]
Internet	7.1	0.9	3.6	1.2	4.8	2.0
Youth workers/services	3.0	3.5	8.6	6.5	8.1	7.8
GP/Doctor	2.7	3.5	10.9	14.1	20.4	21.4
Number	*603*	*765*	*603*	*765*	*603*	*765*

Note: Superscripts indicate ranking

Friends, parents/guardians and school were consistently quoted among the top three most important sources of information for both men and women on sex and relationships and contraception. Other important sources on sex and relationships included magazines/books and boyfriends or girlfriends, and on contraception included TV/radio/films and leaflets/posters for men and magazines/books and sexual health clinics for women.

Over two-thirds of both young men and women included school among their top three most important sources of information on STIs. Although friends and parents or guardians were once again cited as central resources, other key sources of information on

STIs included magazines and books (44% of women), TV, radio and films (29% of men) and leaflets and posters (23% of both men and women). Furthermore, sexual health services and GPs were also important, with almost a quarter of young women and just over a fifth of young men citing this source as one of their most important.

There were significant differences in the responses of men and women, with significantly more women than men citing friends, magazines and books, and sexual health or family planning clinics as among their most important sources of information on all three topics (sex and relationships, contraception and STIs). Likewise, significantly higher proportions of men than women cited TV, radio and films and the internet as among their most important sources of information on all three topics. In regard to sources of information on sex and relationships and contraception, women cited parents or guardians more often than did men, and the men cited leaflets and posters more often than did women.

5.1.2 Sources of information and sexual experience

The *relative* importance of various sources of information, such as boyfriends and girlfriends, is likely to differ for those who are and are not yet sexually experienced. Aggregations of the first, second and third most important sources of information on sex and relationships, contraception and STIs were analysed separately for those who reported having ever experienced oral, vaginal or anal sex and those who had not (see Appendix 3).

Whilst school was found to be an important source of information for both those who are and are not yet sexually experienced (i.e. had experienced oral, vaginal or anal sex), the proportion of men and women who are sexually experienced citing school was significantly lower than that of their sexually inexperienced counterparts. This does not necessarily mean that school as a source of information becomes less important as young people become sexually experienced, just that other sources are viewed as being *relatively* more important by sexually experienced young people. These findings do not

indicate *how* important different sources are *per se*; rather, they indicate young people's perspectives on how important sources are *relative* to one another.

Significantly higher proportions of young men and women who had had oral, vaginal or anal sex, compared with those who had not, reported boyfriends and girlfriends as among their top three most important sources of information.

Sexual health services and professionals were also cited as among the top three most important sources by significantly more men and women who had had oral, vaginal or anal sex than those who had not, especially as sources of information on contraception and STIs.

Among those who were not sexually experienced, media sources such as TV, radio and films, leaflets and posters, and magazines and books were among the three most important sources of information on either sex and relationships, contraception or STIs for significantly larger proportions than among those who were sexually experienced.

5.1.3 Knowledge of sexual health and contraception

Survey respondents were asked a number of questions regarding their knowledge on sexual health and contraception. Overall, knowledge was relatively good, with a few notable exceptions. Almost 40 percent of respondents did not know that most STIs can be cured, over half did not know that chlamydia can affect men as well as women and over half did not know that emergency contraception can be taken up to 72 hours after unprotected vaginal intercourse.

Table 5: Percentages of young men and women correctly responding to each statement

		Male	Female	Total
Apart from HIV, most STIs can be cured	True	57.4	63.8	61.0
Withdrawal is an effective method of preventing STIs	False	88.0	89.4	88.1
A girl cannot get pregnant the first time she has sexual intercourse	False	96.5	97.9	97.3
A man can have an STI without any obvious symptoms	True	83.7	88.2	86.2
A woman can have an STI without any obvious symptoms	True	82.7	88.7	86.1
Chlamydia is an STI that affects only women	False	45.6	49.9	48.0
There are times of the month when a woman definitely cannot get pregnant	False	48.1	75.0	63.1
Emergency contraception only works if taken within 24 hours	False	30.8	58.3	46.2
No. of cases		*601*	*763*	*1364*

Respondents were also asked whether STIs can be transmitted through various behaviours. The table below shows the proportions of men and women answering correctly.

Table 6: Percentages of young men and women correctly responding to each statement regarding modes of transmission of STIs

		Male	Female	Total
Kissing (with tongues)	No	75.9	78.4	77.3
Holding hands	No	96.2	98.2	97.3
Sharing a toilet	No	66.2	70.4	68.6
Vaginal intercourse with ejaculation	Yes	97.5	97.6	97.6
Vaginal intercourse without ejaculation	Yes	88.0	87.4	87.7
Touching each other's genitals	Yes	33.4	39.2	36.6
Oral sex to a man	Yes	70.0	79.9	75.6
Oral sex to a woman	Yes	70.2	78.4	74.8
Anal sex	Yes	81.0	78.6	79.7
No. of cases		*601*	*761*	*1362*

Almost a third of young men and women thought that STIs can be transmitted by sharing a toilet and a quarter did not know that STIs can be transmitted via oral sex. Whilst 98 percent knew that STIs can be transmitted via vaginal intercourse with ejaculation, a slightly lower proportion believed this to be the case in the absence of ejaculation.

Knowledge scores out of 17 were calculated for each respondent, based on the number of knowledge questions answered correctly. Mean knowledge scores were compared by sex, sexual experience, area, age and ethnicity. The mean score of women was significantly higher than that of men (p=0.000, t-test), with women scoring an average of 13.28 and men scoring an average of 12.19. This difference was obtained regardless of sexual experience. Sexually experienced young people (in other words, those who had experienced oral, vaginal or anal sex) had a higher mean score than those who were sexually inexperienced (13.28 vs. 11.99, p=0.000, t-test); of course, it is likely that those who are sexually experienced will have consequently learned more.

There was no difference in mean knowledge scores between social deprivation groups, or between respondents of different ages.

Whilst the mean knowledge scores for men in Rotherham, Bolton and Wigan, and Wiltshire were all similar (12.77, 12.50 and 12.35 respectively), that for Bromley was significantly lower (11.29, p=0.000, ANOVA). Likewise, the mean knowledge score for women in Bromley (12.66) was significantly lower than those for women in Rotherham, Bolton and Wigan, and Wiltshire (13.77, 13.49 and 13.31 respectively, p=0.000, ANOVA).

Ethnicity was also correlated with knowledge scores, with those from black and minority ethnic groups scoring lower (mean=11.06) than their white counterparts (mean=13.00, p=0.000, t-test). As Bromley was the most ethnically diverse of the samples from the four sites, differences among white respondents from the four sites were examined separately. However, even among the white respondents, those in Bromley had significantly lower mean knowledge scores than their counterparts in the other three sites (p=0.000, ANOVA).

5.2 Young People's Sexual Behaviour

SUMMARY

Oral sex

- Almost three quarters of young people who had experienced at least one of the three sexual acts (oral, vaginal and anal sex) report experience of oral sex before experiencing vaginal sex, viewing it as less serious, intimate and risky.

- Condom use for fellatio is uncommon, with only around a fifth having ever used a condom, and less than two percent using condoms consistently. Most young people have not heard of using dental dams for cunnilingus.

- Reasons for condom use centre on the possibility of STI transmission and anxiety about ejaculate and cleanliness. Reasons for not using condoms relate to fellatio feeling better without a condom, an association of condoms with prevention of pregnancy, and the perception of oral sex as not 'proper' sex.

Anal sex

- Eight percent of survey respondents had had anal sex. The majority of these were heterosexual.

Vaginal sex

- Most young people who have had vaginal sex have used a condom at least once. Overall, condoms are the most commonly used form of contraception at most recent occasion of vaginal sex across all partner types and was most common amongst those reporting on first sex with a partner with whom they were going out.

- Lack of any contraception at all was most common amongst those who had had vaginal sex with someone they had only just met or someone they knew but had not had sex with before and were not dating.

- Young people's tendency to use condoms primarily for contraception was reflected in the fact that those using other forms of contraception were unlikely to simultaneously use condoms.

- Young people were also less likely to have used a condom i) with a regular partner, ii) if they felt condoms are difficult to use consistently with a well known partner, iii) if they had personally known someone with an STI, and iv) if they or their partner did not have a definite desire to use a condom.

- Young people were more likely to have used a condom if i) a condom had been used with a partner previously, ii) if condom use had been discussed, iii) if there was a prior agreement with the partner to use a condom, iv) if sexually active friends were thought to use condoms, and v) if sex was very much wanted, rather than a little or not at all.

Whilst defining sexually active young people as those who have ever had vaginal sex may be useful when focussing on the risk of pregnancy, it is clearly inadequate when considering sexually transmitted infections (STIs). STIs can be transmitted via several routes, including genital touching, oral sex and anal sex. In this study, we have focussed primarily, though not exclusively, on those sexual acts which can be made safer through the use of a condom or dental dam. In other words, vaginal sex, oral sex and anal sex.

Out of the 1373 16-21 year olds who completed survey questionnaires, 42 percent of men and a significantly higher 52 percent of women had ever had vaginal intercourse (χ^2= 12.318, df=1, p=0.000). Significantly more women (55%) than men (45%) had also given oral sex (χ^2= 13.419, df=1, p=0.000). By contrast, similar proportions of men and women reported ever having received oral sex (50% men, 52% women) and ever having had anal sex (7% men, 9% women).

Table 7: Ever having experienced various sexual acts by sex (in percentages)

	Male (n)	Female (n)	Total (n)
Ever had vaginal intercourse	41.8 (240)	51.5 (384)	47.3 (624)
Ever given oral sex	44.6 (250)	54.9 (401)	50.5 (651)
Ever received oral sex	50.4 (287)	51.9 (374)	51.2 (661)
Ever had anal sex	7.4 (41)	9.3 (67)	8.5 (108)

As Tables 8 and 9 show, most young people have engaged in sexual activities other than vaginal sex in addition to, prior to, or instead, of vaginal sex. Among 16 year old men, 49 percent (or 48.7% in Table 8) had not engaged in any sexual act (i.e. oral, vaginal or anal sex), 15 percent (14.8%) had had oral and/or anal sex, but not vaginal sex, and whilst 36 percent had had vaginal sex, just two percent had *only* had vaginal sex – the remaining 34 percent having experienced vaginal sex in addition to oral and/or anal sex. As expected, the proportion of those having experienced no sexual acts reduces with age. Amongst the 18-21 year olds, only a quarter had experienced none of the sexual acts, two-thirds had experienced vaginal sex, mostly in addition to oral sex, and ten percent had experienced just oral and/or anal sex.

Table 8: Percentages of men having ever experienced oral, vaginal and/or anal sex (in no particular order) by age

	Sexual acts ever experienced	Age (in years) 16	17	18-21
	None	48.7	43.6	24.3
Sexual experiences with no vaginal sex	Received oral only	3.6	2.3	1.4
	Given oral only	1.3	1.7	1.4
	Given oral, received oral	8.6	7.0	5.7
	Given oral, received oral, anal	1.0	1.2	1.4
	Other (without vaginal)[11]	0.3	0.0	0.0
	Sub-total	14.8	12.2	9.9
Sexual experiences which include vaginal sex	Vaginal only	2.0	2.3	5.7
	Given oral, vaginal	0.3	1.7	2.9
	Received oral, vaginal	6.3	4.7	7.1
	Given oral, received oral, vaginal	22.5	30.2	37.1
	Given oral, received oral, vaginal, anal	5.0	4.7	12.9
	Other (inc. vaginal)[12]	0.3	0.6	0.0
	Sub-total	36.4	44.2	65.7
	Total	100	100	100
	No. of cases	*302*	*172*	*70*

The proportion of women having experienced vaginal sex was higher than that of men in every age group, with over half of 17 year olds having done so (59.5% in Table 9). As with men, most women who had experienced vaginal sex, had also experienced oral, and to a lesser extent anal sex, and around a tenth had experienced oral and/or anal sex without having ever experienced vaginal sex.

[11] *Other* includes anal sex only, anal sex and received oral sex, and anal sex and given oral sex (i.e. combinations not already listed above)
[12] *Other* includes combinations of vaginal sex, received oral sex, given oral sex and anal sex not already listed above (e.g. anal sex and vaginal sex)

Table 9: Percentages of women having ever experienced oral, vaginal and/or anal sex (in no particular order) by age

	Sexual acts ever experienced	Age (in years)		
		16	17	18-21
	None	47.0	27.2	22.7
Sexual experiences with no vaginal sex	Given oral only	2.4	2.8	1.5
	Received oral only	1.2	2.8	0.0
	Given oral, received oral	5.2	7.4	6.1
	Given oral, received oral, anal	0.0	0.0	0.0
	Other (without vaginal)[13]	0.2	0.5	0.0
	Sub-total	9.0	13.5	7.6
Sexual experiences which include vaginal sex	Vaginal only	4.0	2.8	1.5
	Given oral, vaginal	4.0	3.2	1.5
	Received oral, vaginal	1.9	0.9	1.5
	Given oral, received oral, vaginal	27.8	41.0	47.0
	Given oral, received oral, vaginal, anal	6.2	10.6	16.7
	Other (inc. vaginal)[14]	0.0	1.0	1.5
	Sub-total	43.9	59.5	69.7
	Total	100	100	100
	No. of cases	*421*	*217*	*66*

5.2.1 Oral sex

Whilst unprotected oral sex is a much lower risk activity than unprotected vaginal or anal intercourse, there is still a possibility of STI transmission. Both viral and bacterial STIs can be transmitted via this route, including herpes, gonorrhoea and genital warts. Whilst oral sex is a far less efficient means of transmission than unprotected vaginal or anal sex, the Department of Health states in its review of the evidence of HIV transmission associated with oral sex that, as a route of transmission, the relative importance of oral sex is likely to increase as other, higher risk sexual exposures are avoided [53].

[13] *Other* includes anal sex only, anal sex and received oral sex, and anal sex and given oral sex (i.e. combinations not already listed above)
[14] *Other* includes combinations of vaginal sex, received oral sex, given oral sex and anal sex not already listed above (e.g. anal sex and vaginal sex)

Of all the young people who completed survey questionnaires, 45 percent of men and 55 percent of women had ever performed oral sex and 50 percent of men and 53 percent of women had ever received oral sex.

Oral sex is often experienced earlier than vaginal sex. Thirty-two percent of young men and 34 percent of young women reported that their first experience of fellatio was below the age of 16 years, whilst lower proportions of young men (23%) and women (28%) reported that their first experience of vaginal sex had been below the age of 16 years. Indeed, of those who had never had vaginal sex, 24 percent of men and 21 percent of women had given and/or received oral sex.

Table 10: Prevalence of oral sex amongst those who have never had vaginal intercourse by sex (in percentages)

	Male	Female	Total
Ever given oral sex only	2.5	4.9	3.7
Ever received oral sex only	5.6	3.4	4.5
Ever given and received oral sex	15.8	12.6	14.1
No. of cases	*322*	*350*	*674*

Almost half the men (48%) who had ever experienced at least one of the four sexual acts (i.e. vaginal sex, anal sex, received oral sex or given oral sex) had first received oral sex and 24 percent had first given oral sex. Forty percent of women first gave oral sex and 31 percent first received oral sex. This means that almost three-quarters of men (72%) and women (71%) who had experienced at least one of the four sexual acts experienced oral sex, either given or received, before experiencing either vaginal sex or anal sex.

Table 11: First sexual act experienced by young men and women who have ever had either oral, vaginal sex or anal sex (in percentages)

	Male	Female	Total
Performed oral sex first	23.6	39.8	33.4
Received oral sex first	48.5	31.3	38.1
Vaginal sex first	25.7	27.7	27.0
Anal sex first	2.1	1.1	1.5
Total (N)	*100 (237)*	*100 (364)*	*100 (601)*

Note: χ^2= 23.618, df=3, p=0.000

The phase four in-depth interviews found that young people have different perceptions of oral and vaginal sex and that these may explain why oral sex experiences often precede any experience of vaginal or anal sex. Oral sex was not regarded as 'proper' sex in terms of seriousness and intimacy and was not felt to attract the threats associated with vaginal sex. The young people interviewed spoke of a period of sexual experimentation which includes oral sex, occurring at a younger age than first vaginal sex.

"…People don't know enough until they try things, I think they put the actual sex off until the last minute, sort of like to the end… yeah so I think again it's just getting experience and learning what it's all about and then saving the main thing 'til last I think." (Female, 17 years)

"…You can sort of give each other pleasure as it were but there's not the 'having sex' thing, and by that I mean like vaginal intercourse or something so you don't have the worries of STIs and pregnancy and that sort of thing, that's a bit more serious. That's a bit more of an older thing." (Female, 16 years)

"*When someone asks you how many sexual partners you've had, I think you just go for the actual vaginal intercourse and sort of skip over the oral sex. 'Cause to me oral sex is the equivalent of sort of just mucking around, foreplay sort of thing."* (Male, 21 years)

"Sexual intercourse is just like totally different to the oral sex, it's just, you don't lose your virginity if you do that and I think it, I felt personally that oral sex was not as much of a big deal as, you know, having sex." (Female, 18 years)

Cunnilingus

Cunnilingus, or oral sex to a woman, can be made safer in terms of STI risk through the use of a dental dam or latex square. Focus group discussions conducted with young people at the very beginning of the research project indicated that few young people had ever heard of dental dams. As a result, the survey and diaries focussed on condom use for fellatio (oral sex to a man) only. In-depth interviews conducted at the final stage of the study further confirmed that very few young people knew of any way of making cunnilingus safer. Whilst none of the interviewees reported ever having used anything for cunnilingus, two interviewees mentioned that they had heard of clingfilm being used, and a few had heard of dental dams, but had never personally seen one.

"It wouldn't bother me particularly if she wanted to [use a condom for fellatio], but […] I couldn't think of anything that I could use for her." (Male, 17 years)

"…My friend is homosexual and he talks about when he goes to his, 'cause he goes to a lesbian/gay meeting and they hand out like the condoms and then these [dental] dam things for lesbian couples and I've never even heard anything like that. He said, 'Oh no lesbians use it when they perform oral sex on each other' and I was just like 'I've never heard of that at all', like a stretchy plastic thing……So I said like 'Are heterosexual couples supposed to do that as well?' and he said 'Yeah, everyone'." (Female, 21 years)

Fellatio

In the survey, detailed questions were asked about experiences of fellatio (i.e. oral sex to a man). Those who had ever received or performed fellatio reported having a wide range of numbers of partners so far over the course of their lifetimes, ranging from one to forty. However, just under half had only ever experienced fellatio with one partner (44% of both men and women).

Table 12: Number of lifetime fellatio partners among those who had ever experienced fellatio by sex (in percentages)

		Male	Female	Total
No. of lifetime fellatio partners:	1	43.8	43.9	43.9
	2	18.2	22.6	20.8
	3	12.4	12.7	12.6
	4	7.3	7.6	7.5
	5+	18.2	13.2	15.5
	Total (N)	*100 (274)*	*100 (394)*	*100 (668)*

Of those who had experienced both vaginal sex and fellatio, a large proportion (45%) had had an equal number of lifetime partners for both, although this does not necessarily mean that they had vaginal sex with the same people with whom they experienced fellatio. Sizable proportions reported having had more fellatio partners than vaginal sex partners (32%) or more vaginal sex partners than fellatio partners (23%).

The frequency of lifetime experiences of fellatio was similar between men and women, with the majority of respondents who had experienced fellatio having done so more than twice in their lifetimes.

Table 13: Number of lifetime experiences of fellatio among those who had ever experienced fellatio by sex (in percentages)

		Male	Female	Total
Number of lifetime experiences of fellatio	Once	14.2	10.7	12.2
	2-10 times	44.5	43.6	44.0
	More than 10 times	41.2	45.7	43.8
	Total (N)	*100 (274)*	*100 (392)*	*100 (666)*

The sexual encounter diaries show that oral sex and vaginal sex often occur together, during the same sexual encounter, with 69 percent of diary encounters featuring both. However, a sixth of diary encounters (16%) featured oral sex only.

5.2.2 Condom use for fellatio

Of all those who had ever given or received fellatio, 17 percent of men and 23 percent of women reported having ever used a condom for fellatio.

Table 14: Ever having used a condom for fellatio among those who reported ever having given or received fellatio by sex (in percentages)

		Male	Female	Total
Ever used a condom for fellatio	Yes	16.5	22.9	20.2
	No	83.5	77.1	79.8
	Total (N)	*100 (285)*	*100 (402)*	*100 (687)*

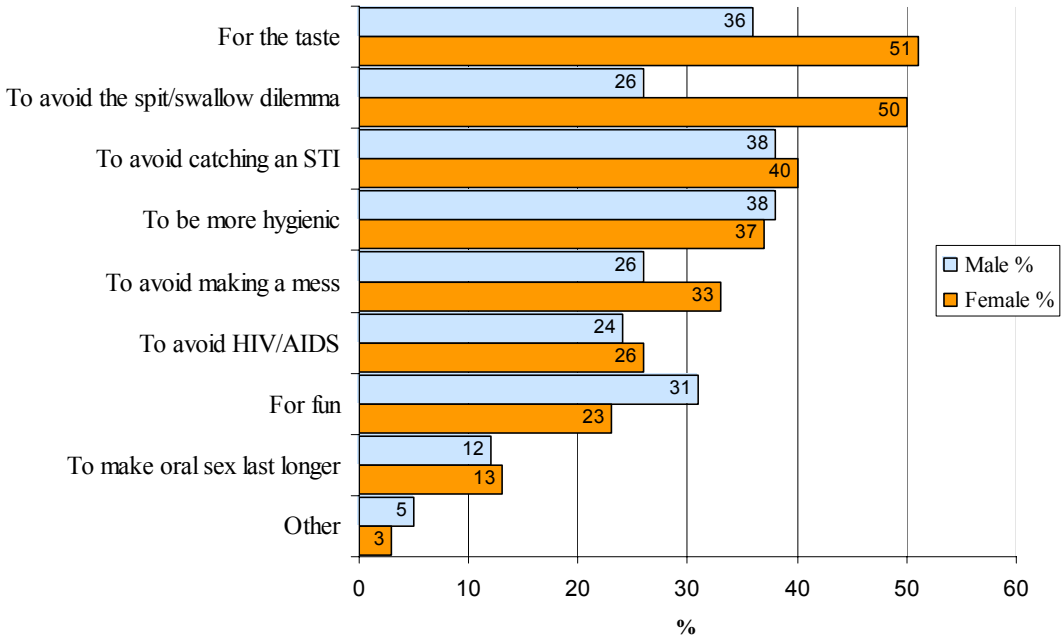
Of those who had only ever given or received fellatio once (N=82), just 17 percent had used a condom. Of those who had experienced fellatio twice or more, less than two percent reported using a condom every single time.

Table 15: Consistency of condom use for fellatio among those who reported having experienced fellatio more than once by sex (in percentages)

		Male	Female	Total
Consistency of condom use for fellatio	Never	82.8	77.5	79.6
	Inconsistently	15.6	21.1	18.9
	Always	1.6	1.4	1.5
	No. of cases	*244*	*355*	*599*

The 139 respondents who had ever used a condom for fellatio were asked to state their reasons for using a condom. Six respondents did not give any reason. The most common reasons given by men (N=42) *were to avoid catching an STI* and *to be more hygienic*, whilst for women (N=92) condoms were most commonly used *for the taste*[15] or *to avoid the dilemma of whether to spit or swallow the ejaculate*.

Figure 4: Reasons for using a condom for fellatio by sex (amongst those who reported ever having used a condom for fellatio). *Note:* Multiple responses permitted



As well as asking respondents to give their reasons for using a condom for fellatio, they were also asked to give their one main reason (see Table 16). *To avoid catching an STI* and *for the taste* were two of the main reasons cited by both men and women for using a condom for fellatio, whilst for women *avoiding the spit or swallow dilemma* was also very important. It is worth noting that just three out of the fifty-four respondents who gave the avoidance of STIs as a reason for using a condom for fellatio reported this to be their only reason.

[15] Either to avoid the taste of fellatio without a condom, or *for* the taste of the condom.

Table 16: Main reason for using a condom for fellatio among those who reported ever having used a condom for fellatio by sex (in percentages)

		Male	Female	Total
Main reason for using a condom for fellatio (One response only)	To avoid catching an STI	30.8	20.2	23.4
	For the taste	20.5	23.6	22.7
	To avoid the spit/swallow dilemma	5.1	21.3	16.4
	To avoid HIV/AIDS	12.8	7.9	9.4
	To be more hygienic	7.7	7.9	7.8
	To avoid making a mess	7.7	6.7	7.0
	For fun	5.1	5.6	5.5
	To make oral sex last longer	5.1	4.5	4.7
	Other	5.1	2.2	3.1
	Total (No. of cases)	*100 (39)*	*100 (89)*	*100 (128)*

Interestingly, there were no significant differences in condom use for fellatio between those who believe fellatio poses a risk of STIs and those who do not believe this. Eighty-two percent of those who had experienced fellatio but never with a condom reported that fellatio is a method of STI transmission.

In the phase four in-depth interviews, young people were asked whether they had ever used a condom for fellatio and, if so, why. Condom use was informed by awareness of the possibility of transmission of STIs and anxiety about ejaculate and cleanliness.

"Obviously you don't have to worry about pregnancy or anything like that with the oral sex, apart from that, I don't know, it's just, it's just the whole clean thing of it as well, it's the whole spit or swallow, you don't have to worry about it if you use a condom."
(Female, 18 years)

Interviewee: *"Some of it was for fun, the flavoured ones and it was because I'd heard that you can get diseases from oral sex as well, like if you have a cut in your mouth and I think it's rarer, but just wanted to make sure."*
Interviewer: "*But you haven't used condoms every single time you had oral sex?"*
Interviewee: *"No not every single time. It would be, it would be sort of, sometimes I'd be thinking about it and sometimes I wouldn't worry about it so that's the inconsistency on my part."* (Female, 19 years)

Reasons for not using a condom for fellatio were not explored in the survey questionnaire but were covered in the sexual encounter diaries (see Table 17). Sixty-three percent of the 714 diary encounters featured oral sex (given, received or both). As expected, condom

use for fellatio was low. In 99 percent of the diary encounters submitted by male participants who reported receiving oral sex, no condom was used for fellatio. Similarly, no condom was used for fellatio in 96 percent of diary encounters submitted by female participants who reported giving oral sex to a male partner.

Table 17: Most common reasons given for <u>not</u> using a condom for fellatio by male diary participants who received oral sex and by female diary participants who gave oral sex to a male partner (in percentages). *Note:* Multiple responses permitted.

Reasons	Male	Female
It feels better without a condom	47.9	31.9
I didn't even think about it	42.3	24.4
No/little risk of pregnancy	35.2	21.7
My partner didn't want to use one	29.6	17.3
No/little risk of STIs	26.8	30.7
No/little risk of HIV	23.9	24.8
I didn't want to use one	22.5	39.4
To make it more intimate	16.9	17.3
No. of encounters	*71*	*254*

The most common reasons for not using a condom for fellatio as reported in diary encounters submitted by male participants were that fellatio *feels better without a condom* and that they simply had *not thought about using a condom*. In the diary encounters submitted by women which featured fellatio without the use of a condom, similar reasons were given, with *not wanting to use a condom* being the most common.

In the in-depth interviews, diary participants elaborated on their reasons for not using a condom for oral sex. Reasons for not using a condom for oral sex related to an association of condoms with the prevention of pregnancy, and the perception of oral sex as foreplay or not 'proper' sex, especially if ejaculation does not occur.

"If I was going to come or something as a result of oral sex then I probably would, but it's just a part of foreplay which it's always been for me really. I don't really think about it because it's a bit arduous to put a condom on for foreplay and off again, on again." (Male, 21 years)

"It just seems really odd. Condoms just seem mostly for like anti-pregnancy I'd say." (Female, 20 years)

5.2.3 Anal sex

Eighty percent of all survey respondents knew that STIs can be transmitted via anal sex. A further five percent believed STIs cannot be transmitted in this way, and 15 percent were not sure. There was no significant difference in knowledge between those who had ever had anal sex and those who had not.

One hundred and eight survey respondents (8%) reported ever having had anal sex. The majority of these (90%) described themselves as heterosexual, whilst five percent were bisexual, four percent homosexual and two percent were unsure.

Of the 714 sexual encounters reported in the phase three diaries, four percent (n=25) featured anal sex. These 25 incidents of anal sex were reported by 12 different people, or 11 percent of all diary participants, five of whom were male and seven of whom were female. Four of these respondents described themselves as homosexual or bisexual and their sexual encounters featuring anal sex were experienced with same sex partners. The remaining eight diary respondents all reported being heterosexual and having anal sex with partners of the opposite sex.

A condom was used for 72 percent (n=18) of events of anal sex and by seven people. All those who used a condom applied it before any anal penetration and did not have any further anal intercourse after the condom was removed.

Table 18: Reasons for using a condom for anal sex given by the seven diary respondents who used a condom for anal sex during a total of 18 diary encounters

		No. of encounters
Reasons for using a condom for anal sex (Multiple responses permitted)	To make entry smoother	15
	To avoid HIV/AIDS	9
	To be more hygienic	8
	To avoid catching an STI	7
	My partner wanted to	4
	To avoid making a mess	2
	To make sex last longer	1
	N	*18*

The dominant reasons for using a condom for anal sex were *to make entry smoother*, *to avoid HIV/AIDS* and *to be more hygienic*.

5.2.4 Vaginal sex

Of those who completed survey questionnaires, 42 percent of men and 52 percent reported having had vaginal sex; 23 percent of young men and 28 percent of young women had first had vaginal sex under the age of 16 years[16].

There were significant differences in numbers of lifetime vaginal sex partners by area, even when age was taken into account. As each area had an equal proportion of men and women, results have not been presented for men and women separately.

Table 19: Number of lifetime vaginal sex partners among young men and women aged 16-17 years by area (in percentages)

		Rotherham	Bolton & Wigan	Wiltshire	Bromley	Total
No. of lifetime partners	0	57.7	43.9	56.5	61.4	56.2
	1	18.1	20.2	28.0	18.4	21.6
	2-3	14.9	22.0	11.0	9.7	13.3
	4+	9.3	13.9	4.5	10.6	8.9
Total (N)		*100 (281)*	*100 (173)*	*100 (354)*	*100 (321)*	*100 (1129)*

Note: χ^2= 44.661, df=9, p=0.000

Over half (56%) the 16-17 year olds in Bolton and Wigan had already had vaginal sex, compared with a significantly lower 44 percent in Wiltshire, 42 percent in Rotherham and 39 percent in Bromley. In addition, over a third (36%) of 16-17 year olds in Bolton and Wigan reported having had vaginal sex with more than one partner. Second to Bolton and Wigan in this respect was Rotherham, with 24 percent of young people having had vaginal sex with more than one person. In each area, a substantial minority had had vaginal sex with four or more different people.

[16] The Natsal 2000 study similarly found that 30 percent of men and 26 percent of women aged 16-19 years had first had vaginal sex before the age of 16 years [12].

Many young people, irrespective of how many lifetime partners they have had, have had vaginal sex infrequently.

Table 20: Lifetime number of vaginal sex partners among those who have ever had vaginal sex by number of events of vaginal sex (in percentages)

		No. events of vaginal sex over lifetime			
		Once	2-10 times	>10 times	*Total (N)*
No. vaginal sex partners	1	9.9	10.8	25.4	*46.1*
	2-3		12.8	18.7	*31.4*
	4+		3.7	18.8	*22.5*
	Total (N)	*9.9*	*27.2*	*62.9*	*100 (595)*

One tenth (9.9% in Table 20) of those who have ever had vaginal sex have experienced it just once with one partner. A similar proportion (10.8% in the table) have had sex two to ten times with a single partner and 13 percent (12.8% in the table) of the sample have had vaginal sex just two to ten times, but with two or three different people. Likewise four percent have had vaginal sex just two to ten times, but with four or more different people. In other words, they have had multiple partners, but have had vaginal sex with each partner infrequently and possibly only once. Almost a fifth of those who have ever had vaginal sex (18.8%) reported having had vaginal sex over ten times with four or more different partners.

Most recent vaginal sex

A series of questions focused specifically on the respondent's most recent experience of vaginal sex and most respondents had to think back no more than a month to recall the experience.

Table 21: Length of time since most recent vaginal intercourse among those who had ever had vaginal intercourse by sex (in percentages)

		Male	Female	Total
Length of time since most recent vaginal sex	Less than 1 week	30.6	47.2	40.9
	Between 1 week and 1 month	19.4	23.5	21.9
	More than 1, but less than 6 months	35.8	23.0	27.8
	More than 6 months	14.2	6.3	9.3
	Total (N)	*100 (232)*	*100 (379)*	*100 (611)*

The majority of respondents (54%) reported on a sexual encounter involving vaginal intercourse with someone they had had sex with before and with whom they were going out.

Table 22: Most recent sexual partner type for those who reported ever having had vaginal intercourse by sex (in percentages)

		Male	Female	Total
Most recent sexual partner type	Going out with & had sex with before	45.2	59.2	53.9
	Going out with & first sex together	20.2	17.6	18.6
	Not going out with & had sex with before	11.4	9.6	10.3
	Not going out with & first sex together	11.0	8.5	9.5
	Only just met – first night sex	11.8	4.3	7.1
	Other	0.4	0.8	0.7
	Total (N)	*100 (228)*	*100 (375)*	*100 (603)*

Thirty-four percent of men and 22 percent of women most recently had vaginal sex with someone with whom they were not going out, whilst 65 percent of men and 77 percent of women had vaginal sex with someone they were going out with or were dating.

For 43 percent of men and 30 percent of women, their most recent experience of vaginal sex was with a new partner, someone with whom they had not had vaginal sex previously.

There were significant differences in the relative ages of respondents' last sexual partner according to whether the respondent was male or female (χ^2= 86.690, df=4, p=0.000), with a higher proportion of females reporting partners older than them.

Table 23: Age difference with most recent sexual partner among those who had ever had vaginal intercourse by sex (in percentages)

		Male	Female	Total
Age difference with most recent sexual partner	>4 years younger	0.4	0.3	0.3
	2-4 years younger	5.3	1.6	3.0
	About the same age	84.1	51.9	64.0
	2-4 years older	6.2	33.0	22.9
	>4 years older	4.0	13.3	9.8
	Total (N)	*100 (227)*	*100 (376)*	*100 (603)*

Men were significantly more likely than women to report having drunk alcohol the last time they had vaginal sex (χ^2= 7.829, df=3, p=0.050).

Table 24: Respondents' alcohol consumption at most recent vaginal intercourse among those who had ever had vaginal intercourse by sex (in percentages)

	Alcohol consumption at most recent vaginal sex		
	Male	Female	Total
None	61.8	71.1	67.6
A little	15.1	14.4	14.7
A moderate amount	11.6	7.2	8.8
A lot	11.6	7.2	8.8
Total (N)	*100 (225)*	*100 (374)*	*100 (599)*

Significantly more men (13%) than women (6%) reported having taken drugs at last vaginal intercourse (χ^2= 7.003, df=1, p=0.008).

Communication prior to most recent vaginal sex[17]

Significantly more women (78%) than men (64%) reported ever having discussed contraception with the partner with whom they last had vaginal sex (χ^2= 14.607, df=1, p=0.000). Similarly, more women (80%) than men (65%) reported ever having discussed condom use with this partner (χ^2= 15.554, df=1, p=0.000). This difference remained significant, even after partner type had been taken into account.

Contraceptive use at most recent vaginal sex

From a list of contraceptive methods, respondents were asked to tick which methods they or their partners had used the last time they had vaginal sex (see Table 25).

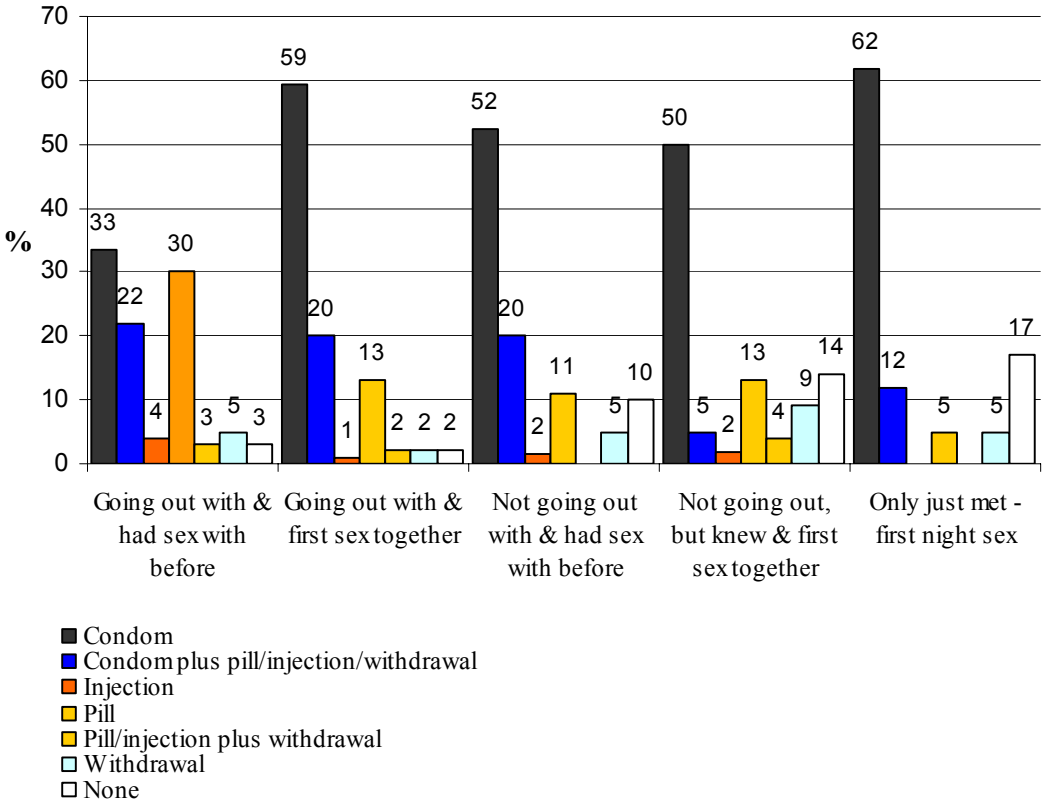
[17] This study has found a strong association between condom use and communication regarding condom use prior to vaginal sex (see Section 5.2.6). Similarly, in a previous study by Stone and Ingham [54] examining the factors affecting young people's contraceptive use at first vaginal intercourse, prior discussion regarding contraception was significantly associated with the odds of using contraception.

Table 25: Contraceptive method used at most recent vaginal intercourse by sex (in percentages)

	Male	Female	Total
Pill	32.4	45.5	40.6
Condom	73.0	57.8	63.5
Injection	2.7	3.8	3.4
Withdrawal	9.9	7.1	8.1
Other	0.9	0.8	0.8
None	4.5	5.7	5.3
Total (N)	*100 (222)*	*100 (367)*	*100 (589)*

Seventy-three percent of young men and a much lower proportion of women (58%), reported having used a condom. This is due to the fact that far more women reported being in a regular relationship and, indeed, when partner type is taken into account, any significant difference between men and women disappears.

Figure 5: Contraceptive use at most recent vaginal intercourse by partner type



Overall, condoms were the most commonly used form of contraception across all partner types. Those whose most recent episode of vaginal sex was with a new partner with whom they were 'going out' were most likely to have used a condom, with 59 percent using a condom only and a further 20 percent using condoms in combination with another contraceptive method. Of those with regular partners with whom they had had vaginal sex previously, a third used condoms only, a third used the oral contraceptive pill only, and an additional quarter combined methods.

Whilst a large proportion of those who most recently had vaginal sex with someone they had only just met used a condom (74%), 17 percent did not use any form of contraception at all. Similarly, 14 percent of those who reported on vaginal sex with someone they knew, but were not dating and had not had sex with before, had not used any form of contraception. For both these partner types, the unexpectedness of sex may have been an important factor[18].

5.2.5 Condom use for vaginal sex

Of all those in the sample who had ever had vaginal sex, 93 percent of young people had, at least once in their lifetimes, used a condom and 62 percent had used a condom the last time they had vaginal sex.

Of those who had only ever had vaginal sex once in their lifetimes (N=57), 83 percent had used a condom, whilst 18 percent had not[19]. Similarly, among those who had had between two and ten experiences of vaginal sex in their lifetimes, 81 percent had used a condom the last time they had sex, and 19 percent had not. However, among the more sexually active – those who had had vaginal sex more than ten times in their lifetimes – just 60 percent of males and significantly less females (45%) had used a condom the last time they had vaginal sex (χ^2= 7.467, df=1, p=0.006). Indeed, of all those who had

[18] A study by Stone and Ingham has shown lack of contraceptive use to be significantly associated with unexpectedness of sex [54].
[19] Similarly, in Natsal 2000, 82.5% of men and 80.3% of women aged 16-19 years reported having used a condom at first vaginal intercourse [12].

experienced vaginal sex more than once, only 37 percent of men and 30 percent of women reported using condoms consistently.

Table 26: Reasons for using a condom given by those who had used a condom for the most recent occasion of vaginal intercourse by sex (in percentages)

		Male	Female	Total
Reasons for using a condom for last vaginal sex (Multiple responses permitted)	To avoid pregnancy	96.8	97.6	97.2
	To avoid catching an STI	69.5	78.0	74.4
	To avoid HIV/AIDS	62.3	66.0	64.5
	To be more hygienic	26.6	27.8	27.3
	To avoid making a mess	14.3	18.2	16.5
	To make sex last longer	13.0	11.0	11.8
	To make entry smoother	12.3	11.0	11.6
	For fun	7.1	7.2	7.2
	No. of cases	*154*	*209*	*363*

The most common reason given for using a condom at last vaginal sex was pregnancy prevention. Respondents were also asked to give their *main* reason for condom use. Not surprisingly, pregnancy prevention came top again with 72 percent of young men and 78 percent of young women stating this as their main reason. STI prevention and HIV prevention were given as main reasons by only 15 percent and eight percent of young men respectively and nine percent and seven percent of young women respectively.

Of those who had ever had vaginal sex, 29 percent of young men (n=65) and 44 percent of young women (n=163) reported not using a condom on the last occasion. Amongst those who were using another form of contraception, the top three reasons for not using a condom were that *another method of contraception had been used*, there was *no or little risk of pregnancy*, and that *it feels better without a condom* (see Table 27). However, amongst those who were not using another form of contraception[20], the main reasons for not using a condom included *not having even thought about it*, that *it feels better without a condom* and that they were *too drunk or drugged up* (see Table 28).

[20] N=30 (too few to allow for separate analyses of males and females)

Table 27: Most common reasons for not using a condom among young men and women who did not use a condom for most recent vaginal sex but who *were* using another form of contraception (in percentages)

		Male	Female	Total
Reasons for not using a condom for most recent vaginal sex (Multiple responses permitted)	Used other methods of contraception	42.9	75.2	66.5
	There was no/little risk of pregnancy	30.6	30.2	30.2
	It feels better without a condom	34.7	27.1	29.1
	I didn't want to use one	24.5	19.4	20.7
	I didn't even think about it	14.3	18.6	17.9
	My partner didn't want to use one	20.4	16.3	17.3
	There was no/little risk of STIs	16.3	17.1	16.8
	There wasn't one available	18.4	14.7	16.2
	To make it more intimate	16.3	14.7	15.1
	We agreed not to use condoms	12.2	12.4	12.3
	I didn't want to spoil the moment	14.3	7.0	8.9
	Too drunk/drugged up	12.2	5.4	7.8
	No. of cases	*49*	*129*	*179*

Table 28: Most common reasons for not using a condom among young people who did not use a condom for most recent vaginal sex and who were *not* using another form of contraception

		%
Reasons for not using a condom for most recent vaginal sex (Multiple responses permitted)	I didn't even think about it	46.7
	It feels better without a condom	30.0
	Too drunk/drugged up	30.0
	There wasn't one available	23.3
	I didn't want to spoil the moment	20.0
	My partner didn't want to use one	16.7
	I didn't want to use one	10.0
	No. of cases	*30*

5.2.6 Predictors of condom use for vaginal sex

Logistic regression analyses were performed on both the phase two survey data and the phase three diary data to identify the factors predictive of condom use at most recent vaginal sex. Whilst the survey data cover background factors (such as age, ethnicity and social deprivation), intermediate factors (such as knowledge and attitudes) and event-specific factors (such as partner type), the diary data focuses in greater detail on the event-specific factors (see Appendix 4).

The logistic regression models were built using forward conditional stepwise selection procedures, using SPSS and MLwiN software. All factors which were significantly ($p<0.1$) associated with condom use were entered into the models.

Phase two survey

The following factors were found to be predictive of condom use at most recent vaginal sex among either men or women or both: a) Use of other contraception, b) Previous condom use with partner, c) Having ever discussed condom use with partner, d) Partner type, e) Personally knowing someone who has had an STI, f) Belief that sexually active friends use condoms, and g) Perceived difficulty using a condom consistently with a well known partner (see Appendix 5).

- *Use of other contraception*

Use of other contraceptive methods was a highly significant predictor of condom use at most recent vaginal sex. Men were 36 times more likely and women were 18 times more likely to have used a condom at most recent vaginal sex if they were not using any other method of contraception than if they were.

- *Previous condom use with partner*

Excluding those who were having vaginal sex with their partner for the first time, both men and women were far more likely to have used a condom with an existing sexual partner if they had used a condom with this partner previously than if they had not.

- *Having ever discussed condom use with partner*

Women who had discussed condom use with their partners were almost three and a half times more likely to have used a condom the last time they had vaginal sex.

- *Partner type*

Women were over five times more likely to have used a condom at most recent vaginal sex if they were having sex with either a new partner or a partner with whom they were

not 'going out' than if they were having sex with a 'regular' partner (i.e. someone with whom they were going out and had sex with before).

Two additional factors, both relating to peer behaviour or perceptions of peer behaviour, were predictive of condom use:

- *Belief that sexually active friends use condoms*

Women who believed that their sexually active friends use condoms were much more likely to have used a condom themselves at most recent vaginal sex.

- *Personally knowing someone who has had an STI*

Men who had personally known someone with an STI were much less likely to have used a condom at most recent vaginal sex. On face value this finding appears counter-intuitive, as one might assume that those who have known someone with an STI would be more likely to perceive themselves at risk and therefore use condoms. However, perception of risk is only one of many factors which influence condom use and, with reinfection of STIs among young people being a particular cause for concern[21], even personal experience of an STI is clearly not enough to guarantee subsequent condom use.

Interviewer: *"Based on your past experiences, you've had two pregnancies and an STI, so some people might think that would make you even more determined to use condoms consistently."*
Interviewee: *"Yeah, I know, but I know it's a bit odd, isn't it? I think maybe that's why I have more resolve and talk about it and am really kind of gung-ho for it, but then when the situation occurs it's just different and it doesn't pan out the way I expect it."* (Female, 21 years)

The phase four in-depth interviews suggest that knowing someone with an STI may encourage STI testing, rather than condom use (See section 5.3.2).

[21] Health Protection Agency, 2004 [55].

Finally, for women, a factor relating to condom competence was also found to be predictive:

- *Perceived difficulty using a condom every time with someone you know well*

Women who felt it would be difficult to use a condom consistently with a partner well known to them were less likely to have used a condom at most recent vaginal sex than those who perceived no difficulty at all.

Phase three diaries

Analysis of the diary data revealed a number of additional event-specific predictors of condom use. As diary participants did not all submit the same number of diaries, the multilevel multivariate logistic regression analyses was adjusted for clustering of events at the individual level (see Table A5c, Appendix 5).

Logistic regression analysis for males and females separately was not possible with the diary data, as the number of male participants was not large enough to allow for statistically meaningful results. However, sex of respondent was included, and therefore controlled for, in the model[22].

- *Use of other contraception*

Consistent with the phase two analyses, the logistic regression analyses of the phase three sexual encounter diary data show use of other contraception to be an extremely strong predictor of condom use. Those diary events in which another form of contraception was used (usually hormonal) were 95 percent less likely to feature condom use.

- *Prior agreement to use a condom*

The sexual encounters experienced by those with a prior agreement to use a condom were almost 12 times more likely to feature condom use.

[22] Logistic regression analysis of female respondents was carried out, but because the same predictive factors as in the analysis for both sexes combined were identified the results have not been presented for females separately.

- *Desire to use a condom*

If either the respondent or their partner did not want to use a condom, or only 'sort of' wanted to use a condom, condom use was significantly less likely than if either party definitely wanted to use a condom. The phase four in-depth interviews elaborated upon this finding, indicating that lack of desire to use a condom can interfere with the intention to use a condom.

Interviewee: *"[In my diaries] I probably intended to [use condoms], but then wouldn't if you know what I mean."*
Interviewer: *"So you don't really want to use a condom?"*
Interviewee: *"No, but I know I should."* (Female, 20 years)

- *Desire to have sex*

Diary encounters in which the respondent very much wanted to have sex were almost five times as likely to feature condom use as those in which the respondent wanted sex less or not at all.

5.2.7 Experiences of STIs and pregnancy

Of all the young people in the survey sample who had experienced oral and/or vaginal and/or anal sex, eight percent of the men and a significantly higher 15 percent of women reported having been tested for STIs (χ^2= 9.156, df=1, p=0.002). A quarter of sexually experienced[23] women in Bromley had been tested, compared with 16 percent in Bolton and Wigan, 12 percent in Rotherham and nine percent in Wiltshire (χ^2= 14.738, df=3, p=0.002). No significant differences were found between the men in the four study sites.

Rates of reported STI diagnoses in this sample, however, were similar across all four areas, with just one percent of all sexually experienced men and three percent of all sexually experienced women reporting that they had actually been diagnosed with an STI.

[23] *Sexually experienced* is defined as having experienced oral and/or vaginal and/or anal sex.

Whilst reported rates of diagnoses appear low, by contrast the proportions of young people reporting that they had personally known someone with an STI were considerably higher. Twenty-nine percent of sexually experienced men (or 21% of *all* men) and 40 percent of sexually experienced women (30% of *all* women) reported personally knowing someone who has had an STI (χ^2= 10.299, df=1, p=0.001). Far fewer young people personally knew someone with HIV or AIDS.

Of those who have had vaginal sex, six percent of men (6.3% in Table 29) reported having unintentionally made someone pregnant and nine percent (8.7%) of women reported having unintentionally become pregnant.

Table 29: Personal experiences of STIs and pregnancy by sex of respondent for i) all survey respondents, ii) those who had experienced vaginal sex, and iii) those who had experienced oral and/or vaginal and/or anal sex (in percentages)

	All		Vaginal sex		Oral/vaginal/anal	
	Male	Female	Male	Female	Male	Female
Tested for STIs	5.3	10.8	8.0	17.3	7.5	14.6
Diagnosed with an STI	1.5	1.9	1.7	3.4	1.4	2.9
Personally known someone with an STI	20.4	30.6	32.1	42.0	28.7	39.9
Personally known someone with HIV/AIDS	4.3	5.5	5.9	6.6	4.6	6.9
Ever unintentionally been or made someone pregnant	2.9	4.7	6.3	8.7	4.6	7.1
No. of cases	*587*	*752*	*237*	*381*	*345*	*481*

5.3 Risk Perception of STIs and Pregnancy

SUMMARY

- Whilst most young people are worried about STIs and HIV, many do not feel they are personally at risk. For most, pregnancy is the greater concern.
- The majority of the young people interviewed referred first and foremost to their sexual partners when explaining why they do not feel at risk of STIs. Perceived risk of STIs lessens if a sexual partner is 'known' and as the sexual relationship progresses.
- Other factors young people consider when assessing their personal risk of STIs include the overall prevalence of STIs, the transmissibility of STIs, their use of, and confidence in, condoms, STI tests and the outcome of exposure to an STI.
- Personally knowing someone who has had an STI was related to an increased likelihood of being tested for STIs.
- When assessing their personal risk of pregnancy, young people consider their use of, and confidence in, contraception. Other factors which may be considered include their ability to conceive, protection at the point of ejaculation, and the outcome of a potential pregnancy.

Whilst risk behaviour is often defined in terms of condom use and number of sexual partners, it is useful to understand how young people themselves assess their risk of STIs and pregnancy and how these assessments may reflect sexual behaviour.

This section examines young people's perceived risk of STIs and pregnancy and is based primarily on qualitative data obtained from in-depth interviews conducted with thirty young people. To complement the qualitative findings, where appropriate, occasional reference has been made to data from the survey and diary stages of the research study.

5.3.1 Concerns about STIs and HIV

In the survey, the majority of young people who had had vaginal sex reported *being worried* about STIs and HIV (89% and 83% respectively). However, much lower

proportions reported *feeling at risk* of STIs or HIV (61% and 50% respectively), suggesting that worry and risk perception do not always go hand in hand.

Amongst the young people interviewed who did not feel at risk of STIs, some were not worried about them *because* they did not feel at risk, whilst others were worried *despite* not feeling at risk. However, for this last group worry tended to be general rather than personal, with an emphasis on the overall high prevalence of STIs amongst young people and the severity of STIs.

"I'm worried like as a sort of national concern, but I'm not worried for myself because I always take precautions." (Female, 18 years)

"Yeah, [I'm worried] definitely. I don't want to catch them and stop being able to get, like have children later on in life just because I've done one stupid thing." (Female, 17 years)

All of those interviewed who felt at risk of STIs also reported being worried about them. These young people again referred to the increasing prevalence of STIs putting everyone at risk, an element of risk being constant regardless of any precautions taken, and, less often, their own risky behaviour, such as sporadic condom use.

Few interviewees felt themselves to be at risk of HIV, with most seeing it as a serious yet distant concern. None of the thirty interviewed had personally known anyone with HIV and, indeed, only five percent of all 1373 young people who completed survey questionnaires reported personally knowing anyone with HIV. This compares with 26 percent of survey respondents having personally known someone with an STI.

Interviewer: "*Do you worry about HIV?"*
Interviewee: "*Yeah, 'cause that's like one thing that you're taught to be most worried about. […] But I don't think I'm at risk."* (Female, 19 years)

"It's just one of those big, scary things, like now apparently there's a cure for it, isn't there? Is there? They can treat it. But like, you know, it is, it used to be, didn't it, like a big killer, HIV, it sounds like really scary, but the other ones, you don't really, they seem less so because you think oh they're treatable so they're not so worried about it, but I think whereas HIV is like a big thing." (Female, 20 years)

5.3.2 Perceived risk of STIs

The interviews identified a number of factors which young people consider when they assess their personal risk of STIs. These include:

- sexual partners (i.e. the chances of a partner having an STI to transmit)
- the overall prevalence of STIs
- the transmissibility of STIs
- their use of, and confidence in, condoms
- STI testing
- the outcome of exposure to an STI

It should be noted that not everyone considers all of these factors, and an assessment of just one may cancel the need to consider the others. For example, if a sexual partner is considered to be risk-free, then an individual's use of condoms or their confidence in condoms for STI prevention will make little difference to their perceived risk of STIs with that partner.

Sexual partners

Most of the young people interviewed referred first and foremost to their sexual partners when explaining why they did not feel at risk of STIs. A partner's perceived chances of having an STI appear to influence risk perceptions the most.

"I have a single partner so…. And my single partner doesn't have any diseases. And I trust that she doesn't have any other partners." (Male, 19 years)

<u>Progression of sexual relationships</u>

Concerns and perceived risk regarding STIs lessen as a sexual relationship progresses. Referring to her diary encounters, one interviewee explained why she reported being worried about STIs in an earlier encounter with her boyfriend, but not in a later encounter.

"Maybe towards the beginning I would have worried more but now I don't think about it really 'cause you've got that trust and you know more about each other and everything. I suppose it's not something I want to think about, I don't want to think about him with other people, so it's not something I consider as much, probably should do, but I just sort of over time don't." (Female, 19 years)

Many of the interviewees spoke of condom use being taken for granted at first vaginal sex with a new partner. Indeed, in the survey data condom use at most recent vaginal sex was 70 percent with a new sexual partner but only 57 percent with an existing sexual partner (χ^2= 9.295, df=2, p=0.010).

"I just think it was expected really [to use a condom]. I'd have been surprised if we hadn't taken it for granted really, especially for the first time we'd had sex." (Male, 21 years)

'Knowing' a partner

However, even among those survey respondents whose most recent episode of vaginal sex was with a new sexual partner with whom they were not 'going out', the prevalence of condom use was 76 percent if they had only just met the person, but only 56 percent if the person was already known to them (χ^2= 40622, df=1, p=0.032). In discussions about personal risk of STIs in the in-depth interviews, a recurring theme was that of 'knowing' a sexual partner, regardless of whether the encounter was casual or regular[24].

"I think when you don't know someone it's easy to use a condom and also I feel like I should when I don't know someone. But when you know someone for quite a while, and you know, you get on with them and stuff, you just think, oh no, they'll be all right, they won't have any diseases. You know, you tell yourself that it'll be all right." (Female, 20 years)

Interviewees described what it means to 'know' a sexual partner in varied, and often vague, terms. Some contrasted a known partner with a complete stranger, whilst others spoke about knowing something of their partner's past and character or knowing a partner well enough to be open and talk about sexual matters.

[24] These findings are very similar to those of Ingham *et al.* in 1992 [56].

"All the people I've slept with I've known, and I know that doesn't make a difference at all, but I have known them and I feel I know them well. I know a lot of other people who know them, and I know that's a silly thing to say really 'cause we could have got them anywhere, but like now I don't feel too worried, it's not like it's been someone off the street." (Female, 19 years)

"He said to me that it was the first time he'd had sort of a one night stand as it were and, as far as I'm aware, well 'cause I know he had a long-term girlfriend before he went to uni, so as far as I'm aware that's like more than a year or so, and so because of that I was, I suppose I don't know how many people he'd had sex with, but I think I knew enough about him as a person […]. Sometimes you sort of know whether people are sort of putting it about, so with him I thought there wasn't really that much risk of sexually transmitted diseases […]. So if [the condom] had come off or something like that then, […] the first thing I'd be worried about is pregnancy, I think [STIs] would actually be the last thing on my mind." (Female, 18 years)

One interviewee spoke of how her increasing closeness or attachment to a sexual partner lessens her desire to use condoms.

"I suppose the more I like them, the less I want to use condoms if you know what I mean. It's easier when you don't know someone as you don't have any attachment to them – they don't care. I suppose that's it." (Female, 20 years)

Sexual histories

The young people interviewed were asked whether they had asked their sexual partners about their previous sexual experiences, and whether they had told their partners about their own. Whilst many had, these discussions were used to get to know their partners rather than to assess their partners' risk of STI infection. For example, one interviewee described how knowing that her partner had in the past been in long-term relationships gave her confidence that he was not viewing their relationship as casual. As a result, partners' responses were not thought to influence the decisions made by interviewees regarding choice of contraception. A few who had already decided to use condoms reported that knowing that their partner had had previous partners strengthened their resolve to use condoms. However, generally, decisions regarding contraceptive methods appear to be unrelated to knowledge of a partner's sexual history.

"I'm not going to change like what I think I should do because of what she's done before." (Male, 17 years)

"'Cause we use condoms anyway, you know, I would have done that regardless and I think I would have gone on the pill at that time 'cause it felt right […]. And at this point, 'cause we've been together so long then using condoms as we do now[25] I would have done the same as well, 'cause we've been together for so long." (Female, 18 years)

Several interviewees talked about how the older they or their partners are, the less of an issue past sexual history is, as everyone is assumed to have one. At a younger age, on the other hand, questions regarding past sexual experiences are used to establish whether a partner has had any previous experiences (i.e. whether or not they are a virgin), rather than how risky those experiences may have been.

"I thought that it might be his first time and because of that I wanted to make sure he was really sure about it and also like tell him about all my different partners. […] I don't think he really liked the fact just because I think it would have been nice if I hadn't had any other partners before, […] but it might have been a masculine thing where like I'd had more experience and […] he just felt a bit inexperienced or something." (Female, 18 years)

"I told [the second boyfriend I'd had vaginal sex with], but he already knew there was only one[26] before him and no one else has really asked. I think it's because, I suppose I just think that it's because as you get older it's more of a given that you're going to have more than one sexual partner anyway, so I think you stop asking, don't want a list from anyone, I get scared by it, so does everyone else." (Female, 17 years)

The overall prevalence of STIs

The few young people who perceived themselves to be at risk of STIs, tended to refer to the high prevalence of, and increase in, STIs, rather than their own personal behaviour.

"Yes, because everything's on the rise isn't it, it's like, kind of spreading and urgh, horrible." (Female, 17 years)

[25] Uses condoms for ejaculation only

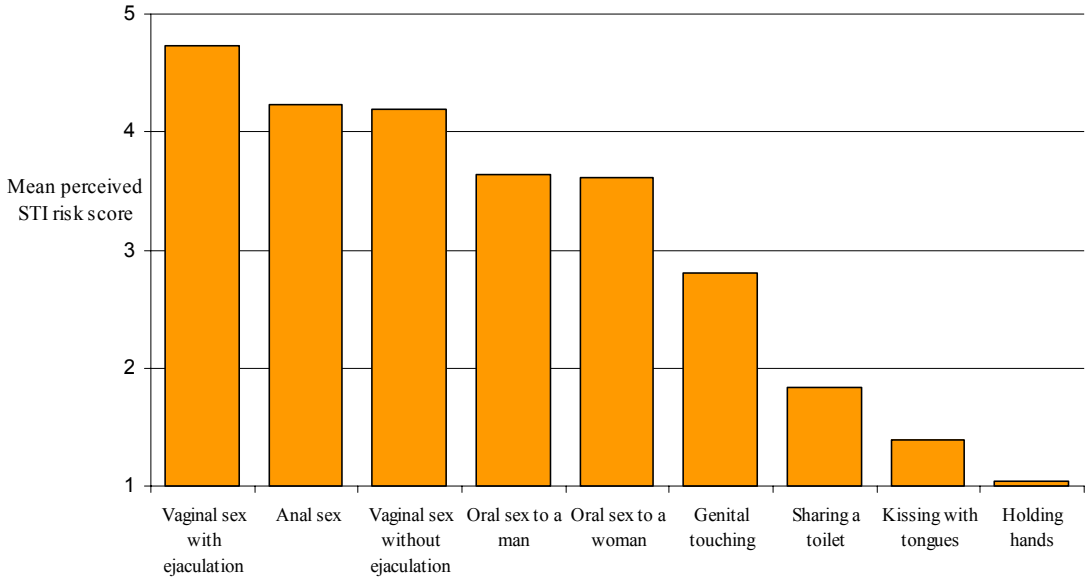
[26] There was only one other vaginal sex partner previously, but there was also an additional oral sex partner. Many of those interviewed only counted those with whom they had had vaginal sex as 'sexual partners' and if they did discuss their sexual histories with their current partners, they only mentioned vaginal sex partners.

"I did know him for a period of time and we'd spoken […] about it and we did use a condom, you just never quite know, do you? And I don't know how much, unless you physically go with someone and watch them have a test, how can you really be sure? And so that is a kind of life risk, I feel. […] I don't think you can ever completely get rid of the risk." (Female, 21 years)

Transmissibility

Whilst the chances of a sexual partner having an STI is perhaps the main influence on risk perception, how and how easily STIs can be transmitted are also considerations. In the survey questionnaire, respondents were asked to rate on a scale from one to five, with one being the lowest and five being the highest, the risk of STI transmission of various activities. The mean perceived STI risk score was calculated for each of the activities. These have been presented for all respondents combined, as the mean scores for men and women were similar.

Figure 6: Mean perceived STI risk scores for various behaviours for all survey respondents



Based on the survey data, young people appear to have a relatively accurate understanding of the degree of risk involved in various activities, and this finding was supported by the in-depth interviews. Most of the young people interviewed knew that

STIs can be transmitted through penetration alone, without the need for ejaculation, and none reported intentionally applying a condom late or using the withdrawal method as an STI prevention strategy.

"Like the first time [the penis] goes in without [a condom] then that's a risk straightaway." (Female, 18 years)

Interviewer: "*What do you think about STIs and withdrawal, do you think it helps?"*
Interviewee: "*No, not at all. I don't think it, no, doesn't at all. You have to have contact don't you, they don't have to ejaculate for you to catch it – and vice versa, they can catch it off me if I had it."* (Female, 20 years)

Whilst young people have a relatively good understanding of how STIs can be transmitted, the interviews suggest their understanding of how *easily* STIs can be transmitted may be an important factor in their assessment of their personal risk. For example, one interviewee whose sexual history featured multiple partners and inconsistent condom use, rather than simply underestimating the risk of her encounters, possibly overestimated the risk of one sexual encounter, and underestimated the additional risk of each subsequent unprotected sexual encounter with the same partner.

"I don't know – with someone I didn't know I'd never start having sex with them without a condom but with… I don't know… No, I just use withdrawal now, I don't think to use condoms. Because I think condoms are more designed for preventing STDs and once you've had unprotected sex with them anyway, you know there's no point in using one because you've done it, if you know what I mean." (Female, 20 years)

Along a similar vein, another interviewee explained that she was not worried about STIs when she and her partner experienced a condom breakage, as she had already exposed herself to the risk through, for example, touching.

"I wasn't considering anything like HIV and AIDS, I was probably more thinking about stuff like chlamydia and that so if we'd been touching and stuff then I would have thought that we'd already taken the risks that far and [the condom] splitting wouldn't mean there was a massive… much more contact, so probably a bit of mental arithmetic there." (Female, 21 years)

Likewise, another interviewee felt that her chances of being infected with an STI were reduced as she was already infected with the genital herpes virus.

"With STIs, there are lots of them about and stuff, but there's probably more chance of getting pregnant than having an STI, and seeing as I've already got one, chances are down a bit hopefully." (Female, 17 years, with genital herpes)

Condom use and efficacy

Some interviewees did not feel at risk of STIs because they used condoms and because they felt confident that their condom use protects them from STIs and HIV.

"[HIV] can be transmitted so easily, but again 'cause I use condoms, I don't worry too much about it. That's the only thing I can really do to stop myself from getting it, so I take that precaution." (Female, 16 years)

Whether condoms are used, how consistently they are used, how easy they are to use and how effective they are as a barrier to STI transmission, all influence young people's risk perception of STIs. Whilst some of the young people interviewed did not feel at risk of STIs because they use condoms, others lacked confidence in their ability to use condoms correctly and consistently or questioned the effectiveness of condoms in protecting against STIs, given that vaginal sex is not the only route of transmission.

"I suppose condoms work if you use them correctly then obviously they're a lot more effective, but…. If you include pressure when you're in a relationship for using and not using them, then yeah, it would be incredibly difficult to stay in a long-term relationship with someone and carry on using them." (Female, 21 years)

"I don't think [condoms are] very effective against STIs really, because you can still touch people without, you know what I mean, so you can still catch a lot of things. I mainly use it for pregnancy really. Although if you were like out sleeping around or whatever, which I don't do, but some people do, it's important you use something. It's not ideal, but it's better than nothing, definitely. If you don't know the person it's better than nothing." (Female, 20 years)

STI testing

Half of those interviewed had been tested for STIs at least once. Most had sought STI testing on their own initiative, usually for peace of mind or self-assurance, rather than because they suspected STI infection.

"I don't know, just thought I might get checked. I hadn't done it before so I thought I might as well do it for the first time, see that I'm ok. If not then I'll have to sort everything out, better to be safe than sorry, so I just went down and got it done." (Male, 16 years)

One of the female interviewees explained that when she and her partner got tested it meant they could continue their sexual relationship with *"a clean slate"*, their past sexual histories being wiped out.

Another reason for getting tested was that a friend or a partner had been diagnosed with an STI.

"*A friend of mine said she had [chlamydia] and she said that, because I didn't realise how common it is, and she said […] she didn't know how she'd caught it because the first person she slept with, they were both virgins and somehow she'd caught it, so I was really terrified after that so I went for a check and found out that I had it, but I'd only slept with one person*." (Female, 20 years)

"I sort of said what had happened to me, and actually it had an effect on other people who went and got tested and a couple of them had [chlamydia]." (Female, 21 years)

Supporting this finding, data from the phase two survey found a strong correlation between personally knowing someone with an STI and getting tested for STIs. Of survey respondents who had ever had vaginal sex, only nine percent of those who had not personally known anyone with an STI had been tested themselves, compared with 23 percent of those who had personally known someone (χ^2= 25.173, df=1, p=0.000).

Five of the young people interviewed had sought STI testing because they were symptomatic or had been advised by their GPs to be tested for STIs after presenting with

symptoms. In total, five of the fifteen interviewees who had been tested for an STI had also been diagnosed with an STI.

In some cases, getting tested for STIs lead to a cessation of condom use as the use of a barrier method was no longer seen as necessary in the confirmed absence for both partners of any risk of STIs.

"When we got the all clear we was like well we don't really need to use condoms, I'm on the pill so that's an effective contraception." (Female, 16 years)

The outcome of exposure to an STI

The risks of an unsafe sexual encounter lessen if STIs are thought to have low severity and if options for dealing with a potential subsequent infection are perceived.

"I don't know why, but I'd see [HIV] as separate [from STIs]. I guess it's because it's more sort of fatal really. I can't see anybody dying from chlamydia, but it's sort of a bigger risk, HIV, 'cause it can affect the rest of your life." (female, 16 years)

"STDs, with the exception of AIDS, I mean they're, hopefully they'd be a kind of short term problem whereas having a child is not really." (Female, 17 years)

5.3.3 Concerns about pregnancy

As shown earlier (section 5.2.5), 76 percent of survey respondents who had used a condom the last time they had vaginal sex, did so primarily for pregnancy prevention purposes. Most of the young people interviewed were worried about pregnancy, and over half felt that they were at risk of becoming or making someone pregnant, often in spite of using contraception.

"There's always something in the back of your mind, always waiting for the next period […], even if it was completely safe." (Female, 17 years)

Many of the female interviewees spoke about their level of worry increasing when their periods are late, and often described experiences of pregnancy scares in terms of late periods, rather than unprotected, or insufficiently protected, sexual encounters.

"I was late with my period and I was really scared, but it was all right afterwards. I wasn't pregnant so… I didn't take a test, I just waited and hoped for the best and I got my period so I was all right, but it was quite scary." (Female, 17 years)

5.3.4 Perceived risk of pregnancy

Unlike with risk perception of STIs, which seems largely determined by consideration of sexual partners, risk perception of pregnancy is largely determined by the use of, and confidence in, contraception. Factors revealed through the interviews which young people consider when they assess their risk of pregnancy, either generally or after a specific sexual encounter, included:

- the ability to conceive
- use of contraception
- confidence in contraception
- protection at the point of ejaculation
- outcome of exposure to the risk of pregnancy

The ability to conceive

Whilst only some sexual partners have the potential to transmit STIs (i.e. those who are infected), all sexual partners are assumed to have the potential to become or make someone pregnant.

Most interviewees did not question their own fertility. Just one interviewee felt she was at no risk of pregnancy at all, despite inconsistent use of contraception, because she had not resumed her menstrual periods since coming off the oral contraceptive pill a year ago.

Of the survey respondents, a quarter believed there are times of the month when a woman definitely cannot get pregnant. Whilst none of the young people interviewed had followed the rhythm method as a pregnancy prevention strategy, several of the young women interviewed took their menstrual cycle into account when assessing their risk of pregnancy following a sexual encounter in which either no contraception was used or they had doubts over the effectiveness of the contraception (for example, if a condom broke or a pill was missed).

"And I probably did consider where I was in my cycle as well, you know you sort of tally everything up, and sort of .... I thought it would be all right." (Female, 21 years)

Use of contraception

The use or non-use of contraception unsurprisingly influences perceived risk of pregnancy. Several of the young people interviewed perceived themselves to be at risk of pregnancy because they had not, or had inconsistently, used, contraception.

For the young people interviewed, their contraceptive options often seemed limited to either the condom or the oral contraceptive pill and, occasionally, the contraceptive injection.

"From what I've been told [the pill] is supposed to be quite good, but I still prefer to know that I've done something to prevent anything happening, so I still use a condom anyway." (Male, 16 years)

Concerns about the side-effects of hormonal contraceptive methods seemed to limit the options even further for some, with a common theme among female interviewees being that of hormonal methods being 'unnatural'.

"I wouldn't want to go on the pill 'cause I think it really messes up your body, from what I know of other people and although I know it's sort of, it's all hormones and stuff, so yes it is a natural sort of thing, to me it doesn't seem natural to go messing yourself about." (Female, 16 years)

Whilst other concerns regarding the pill included weight gain, the perceived benefits of the pill included regular periods and reduced acne and, indeed, a number of female interviewees began taking the pill for these reasons.

Confidence in contraception

Interviewer: *"Are you worried about making someone pregnant?"*
Interviewee: *"Yeah, even with condoms. I don't know, it's just I don't really trust condoms, slipping, falling off, whatever. Just too easy to do I think. 'Cause it doesn't take much to... it takes one sperm to like… and it would be a disaster as a university student making someone pregnant."* (Male, 21 years)

Out of every 100 women using the male condom consistently and correctly over a period of one year, two (or 2%) are likely to fall pregnant. This percentage is 0.3 percent for both the combined oral contraceptive pill and the injection (depo-provera) and four percent for the withdrawal method. However, in reality, many people do not use contraception perfectly and rates of unintended pregnancy for typical use are much higher, especially for the withdrawal method (27%). The rate for typical use of the male condom is 15 percent, for the combined oral contraceptive pill eight percent, and for the injection three percent[27].

Interviewees spoke of their confidence in condoms and other contraceptive methods, both in terms of their biological effectiveness and in terms of their ability to use the method effectively. Some had greater confidence in hormonal methods, as the protection they confer is constant rather than event-specific. Female interviewees in particular felt they had greater control over the pill and, if they forgot to take a pill prior to a sexual encounter, they knew in advance that the method would not protect them and could therefore take additional precautions. With a condom, failure of the method, such as breakage, could not be prepared for and was often seen as random and out of their control.

"I feel more confident about the pill 'cause I have more control over it. If I want to stop taking it I can, or if I've forgotten I know I've forgotten so I can take other precautions, whereas with condoms you don't know they're going to snap, so if it snaps then, all right

[27] World Health Organisation, 2004 [57].

you can take other precautions, but it still leaves you in quite a pickle because you've got to think about STDs and stuff like that, whereas if you're on the pill you know what you're getting yourself into." (Female, 16 years)

Reduced confidence in condoms as a form of contraception was sometimes based on personal experiences of problems with condoms (e.g. breakage, slippage, difficulties negotiating condom use), but was also for some based on hearsay.

"I've heard people say 'Oh the condom split', I think 'Oh God, I hope that doesn't happen to me'." (Female, 17 years)

By contrast, some of the young people interviewed had greater confidence in condoms because of their own experiences, because of what they had heard from others, because they confer dual protection (against pregnancy *and* STIs) or because, if the method fails, failure is immediately obvious whereas, with the pill, failure can only be detected with pregnancy.

"[A] condom is just a barrier, a thin piece of rubber, but it's still like live. But if you're on the pill then it's like some kind of biological thing which you can't… […] even if the condom breaks you just feel safer." (Male, 21 years)

"You just hear about, you know, people, women getting pregnant while they're on the pill and, I don't know, I think with condoms I just know that I'm more protected than the pill for some reason." (Female, 16 years)

"I have quite a lot of confidence in [condoms], 'cause I've never had any trouble with them, I've never had one that's ever come off or broken or anything. […] I know that they're not always 100 percent effective and that there can be accidents and things, when they do ever split or break or come off, but I personally haven't had any trouble with that yet, so I'm still quite happy using them." (Female, 16 years)

Confidence in, and choice of, contraception was sometimes based on interpretation of efficacy statistics. Many felt they had a small and ever present risk of unintended pregnancy, despite their use of contraception, as no method is 100 percent effective.

"I don't like the idea of the pill, like putting drugs into your body every day, but it's just that that's the only kind of really reliable one I think that would suit me. I don't know what else, I mean condoms are all well and good but 97 percent, that's all they are, three percent you can get pregnant every time, that's too scary for me." (Female, 18 years)

"I think it's a habit really, you just get into a habit of using [condoms] and well you never know if something could have gone wrong. And they say the pill's only 99 point whatever percent, well I mean out of 100 people half a person's going to get pregnant or something, so I mean it makes you wonder sometimes, but we just use them." (Female, 18 years, on the pill and often uses condoms as well)

Protection at the point of ejaculation

As well as the more general assessment of risk of pregnancy based on ability to conceive and use of and confidence in contraceptive methods, the interviews also shed light on how young people assess the risk of a specific sexual encounter. For example, not every episode of unprotected vaginal sex is seen as equally risky, and much of the risk calculation focuses on ejaculate. Indeed, half of those interviewed had practised the withdrawal method at some point in their lives.

"I'm quite sure that if something did go in he'd tell me or he wouldn't keep it from me, you know, […] sometimes you think maybe a bit of it has gone inside, or maybe not." (Female, 19 years, referring to withdrawal)

"I think ejaculation is the point at which you get pregnant. […] I just think that the chance of getting pregnant when you ejaculate, when they ejaculate, is a lot higher." (Female, 21 years, referring to late condom application)

One interviewee explains why she took emergency contraception following one of her diary encounters but not following another, even though she had had unprotected vaginal sex in both.

"It was because it wasn't, I don't think it was full, I mean he was in but I don't think he finished in, I know that's a stupid thing because you can get pregnant still, but I was like on the right time of my period I think that wasn't going to, it's least likely." (Female, 17 years)

A few explained how even if another form of contraception was being used, the use of a condom at the point of ejaculation or the use of the withdrawal method sometimes *feels* safer.

"It just feels more safe without sperm inside you" (Female, 18 years, on the pill and uses either the withdrawal method or a condom for ejaculation purposes)

Most interviewees did know about pre-ejaculate but were also aware that, whilst withdrawal or late condom application both pose a risk for pregnancy, the risk is reduced.

"I heard that a boy can still leak before he comes and you can still get pregnant from that and that's what we've been told at school, but I think I, I am a bit worried about that sometimes. It still can be quite risky, but it's better than going the full way and being pregnant." (Female, 16 years)

Similarly, from seven focus group discussions with 18-25 year old men and women in Australia, de Visser also found parallels between withdrawal and condom use for ejaculation purposes, finding both more likely to occur in regular relationships and when there is no perceived risk of STIs[28].

Outcome of exposure to the risk of pregnancy

As with STIs, the gamble of an unprotected sexual encounter is seen to be greater, the worse the perceived outcome of a potential pregnancy. For example, the risk of two episodes of unprotected vaginal sex with two different partners is perceived differently if one partner is casual and the other regular, or if one partner is likely to keep the baby and the other to abort, or if one partner is likely to be supportive and the other not.

"If we're going to take risks, then I need to know I'm not by myself." (Female, 21 years)

"If I told my parents I was pregnant with my boyfriend, it was an accident, [they'd be] much more understanding than if I was single and I told my parents I was pregnant because it's like, it doesn't just worry them but it, it kind of, I wouldn't like to tell them because it would lower their opinion of me and they've never really been too tolerant of,

[28] de Visser, 2004 [58].

well not tolerant, but accepting of how things are now and people do have like one night stands and stuff." (Female, 17 years)

"I'd be devastated if it was a casual fling, but if it's my boyfriend I don't think it would be so, I think I'd be happy, it would be nice the fact that, you know, we're having a baby together, but at the same time I'd be a bit upset because obviously I don't want a baby at 17 years old." (Female, 17 years)

"I think his previous girlfriend, she always told him that if she got pregnant she'd keep the baby. I know that that freaked him out, he didn't want the responsibility of it as well, you know he couldn't take care of a child either." (Female, 19 years)

"[Pregnancy] doesn't worry me as much as [STIs and HIV] because there is emergency contraception and there's also abortion." (Male, 19 years)

5.4 Quality of Condom Use

SUMMARY

- Survey and diary respondents were asked about their experiences of condom breakage and slippage and their timing of condom use.

	% Survey*	% Diaries§	% Diary respondents†
Breakage (at any point)	10	3	12
Breakage *during* vaginal sex	7	-	-
Slippage (any)	17	7	19
Condom slipped right off	2	3	-
Late condom application	6	7	31
Early condom removal	6	2	9

* Survey respondents who had used a condom on the occasion of most recent vaginal sex
§ Diary encounters in which a condom was used for vaginal sex
† Diary respondents experiencing condom errors at least once in their sexual encounter diaries

- The odds of experiencing a *condom breakage or slippage* were found to increase if 'a lot' of alcohol had been consumed and if there was a lack of desire to use a condom, and to decrease with age and the belief that condoms are easy to use properly.
- The odds of *late application or early removal of a condom* amongst young people were found to increase with inconsistent condom use, with the use of other contraception, with a lack of definite desire to use a condom and a lack of confidence in their ability to use a condom properly.
- Young people generally know that late condom application reduces the risk of pregnancy but is still risky for STIs. In the absence of any other contraception, the risks of pregnancy are thought to be similar to those of the withdrawal method. Experiences of late condom application in such circumstances can be the impetus for starting the use of hormonal methods of contraception.
- Most often, late condom application occurs when another form of contraception is being used, and the condom is seen as an additional protective measure against pregnancy or a means of avoiding mess.
- Early condom removal is generally known not to be effective against STIs or pregnancy. Those who had experienced removing a condom early tended to be using an additional contraceptive method at the time, or else withdrew before ejaculation. The reasons for early condom removal often relate to problems with a condom, such as slippage or discomfort.

Latex condoms are highly effective in preventing the transmission of STIs and HIV, as well as conception, when used consistently and correctly. The manufacturer's instructions are quite explicit in this regard:

> *"The condom should be put on when the penis is erect and before any contact between the penis and partner's body. Soon after ejaculation while the penis is still erect, and has been totally withdrawn, the condom should be removed."*
> (Durex packet instructions)

The effectiveness of condoms in preventing STIs is seriously reduced if the condom does not remain on the penis and intact throughout the sexual act. In the survey, diaries and in-depth interviews, young people were asked about their experiences of using condoms, in particular their experiences of breakage and slippage and their timing of condom application and removal. The in-depth interviews also explored young people's perceived risk of STIs and pregnancy in relation to how condoms were used.

5.4.1 Breakage

Among survey respondents who had ever had vaginal sex, 29 percent of women and 19 percent of men agreed that condoms *often break*. Ten percent of young men and women who used a condom the last time they had vaginal sex reported that it had broken. In terms of the risk of pregnancy and STIs, condom breakage is most critical when it occurs during vaginal intercourse (rather than, for example, whilst being taken out of the packet – provided another one is used). Seven percent of young people who used a condom the last time they had vaginal sex reported that it had broken *during* vaginal sex.

In three percent (n=10) of the diary encounters in which a condom was used, the condom broke. These ten diary encounters belonged to nine different respondents (one respondent experienced breakage during two encounters). In eight of the ten encounters, the condom broke *during* vaginal intercourse. Respondents were asked to write why they thought the condom had broken and responses were varied:

- Put condom on incorrectly
- Lack of lubrication

- Condom felt dry and brittle
- Condom was too small
- Vigorous sex
- Sexual position
- A fingernail may have torn the condom

In three of these encounters, respondents took emergency contraception as a result of the breakage; in all three, the condom either broke during ejaculation or the breakage was not discovered until after ejaculation. In three further encounters, nothing was done, even though in two of these unprotected ejaculation did occur. As one respondent wrote, *"[I did] nothing, apart from prayed nothing would come of it"*. In a further three encounters, the broken condoms were replaced with new ones and, in the remaining one event, the vaginal sex did not continue after the condom had broken.

Experiences of condom breakages were discussed in the phase four in-depth interviews. Among those interviewed who said they had experienced a condom breakage at least once in their lifetimes was a view that condom breakages were simply down to chance or bad luck:

"I don't think that we did anything differently from any other time so I don't really think there was any reason for it to have not worked, but it's just, I don't know, one of those things." (Female, 18 years)

"I assume that more things can go wrong with condoms, like it can be a bit random, if it breaks, I mean a lot of the time it can just happen, I don't know why." (Female, 18 years)

However, others felt the cause to be poor quality condoms and the way condoms are used:

"I suppose because of the way you put it on. I don't know, if you're rushing or something then it's not, not the kind of thing you sort of sit there and really, really concentrate on. So I think that way it would break." (Female, 19 years)

"I just think he had dodgy condoms to be quite honest 'cause he didn't really care. And I'm sure the other girls he was having sex with he wasn't using condoms with them so I was the only one." (Female, 16 years)

Some interviewees didn't consider condom breakage to be a major concern, even though they had experienced it personally. However, for others the experience of a condom breakage affected their confidence in condoms as a form of contraception and a number of interviewees spoke about the experience being the catalyst for changing to a hormonal method.

"Well at the time I just thought 'ok, I'll go and check if I am [pregnant] or not' and then after that I was like right, I don't trust condoms any more'." (Female, 18 years)

"I would have been quite happy probably when I started sleeping with him to just carry on with the condoms, but after that [a condom slippage and breakage] I thought 'God, I'm going to have to go on the pill really because it's just too risky'." (Female, 21 years)

Following a condom breakage, the first and foremost concern for the young people interviewed was pregnancy. Perceived risk of acquiring or transmitting an STI was low, as most did not feel they or their partners were likely to be infected. In some cases, it was felt that the risk of STIs from a condom breakage is not substantially greater than the risk already incurred through, for example, genital touching. Whether a breakage occurred before, during or after ejaculation made little difference to risk perceptions for STIs.

The perceived risk of pregnancy resulting from a condom breakage depends to a large extent on when the breakage occurs in relation to the point of ejaculation.

"It did [break] once, but that was before anything, like he'd ejaculated or anything, it was just like it split and he like realised and we like put another one on. So luckily he caught it in time." (Female, 17 years)

Assessments of the risk of pregnancy based on whether a condom broke during or following ejaculation were sometimes used to decide whether or not to seek emergency contraception.

"I probably was quite worried and probably considered taking the emergency pill, but I don't think I did though. I think because there was no cum with the condom which split and because we had two condoms I probably just thought that if there was anything, that it would have been all right." (Female, 21 years)

5.4.2 Slippage

Among all survey respondents who had ever had vaginal sex, 17 percent of young men and women who used a condom the last time they had vaginal sex reported that it had slipped. Overall, 35 percent of women and 26 percent of men who had ever had vaginal sex agreed with the statement that *condoms often slip*. In terms of the risk of pregnancy and STIs, condom slippage during vaginal sex is most critical when the condom slips right off, rather than just partially. Two percent reported that the condom had slipped right off.

Condom slippage occurred in seven percent (n=25) of diary encounters in which a condom was used for vaginal sex. These 25 diary encounters belonged to 14 different diary respondents. In most encounters, the condom slipped during vaginal intercourse but in a few, it occurred during withdrawal. In nine of the 25 diary encounters, the condom slipped off completely. When this happened, respondents either used another condom, used emergency contraception (or said they were planning to), reapplied the condom or continued vaginal sex without a condom. In the majority of encounters where slippage occurred, the condom only partially slipped and was simply reapplied.

Diary participants were asked why they thought the condom may have slipped. The reasons given were:

- Sexual position/angle
- Vigorous sex (too much friction, too fast/rough)
- Penis not hard enough
- Condom was the wrong size
- Lots of sweat
- Condom was not put on correctly

Among those who took part in the phase four in-depth interviews, experiences of a condom slipping either completely or, more commonly, partially were widespread. As with the diaries, the reasons for condom slippage given by interviewees were varied, and included not applying the condom correctly, the condom being either too big or too small,

the penis not being completely erect, the effect of alcohol, the sexual position or angle, friction, being in a rush, too much lubricant and inexperience.

How worried interviewees were on the occasions when they had experienced condom slippage depended on how far the condom had slipped and the chances of semen being present.

"I think [the risk of pregnancy] depends on how far [the condom] rolls down and if there's sperm on the inside of the condom." (Female, 16 years)

Those who had experienced a condom slipping off completely were generally worried about the risk of pregnancy but reported that this had only ever occurred once or, at most, a few times. For most, partial slippage occurred more frequently but was not considered a big concern, just a rather annoying aspect of condom use.

"When I used to use condoms in the past they used to roll back up, I don't know why, they just used to roll back up a little bit. It used to get irritating sometimes 'cause you keep stopping and starting and rolling…" (Female, 16 years)

5.4.3 Predictors of condom breakage and slippage

Further statistical analysis, using binary logistic regression, was undertaken on the survey data to identify predictors of condom breakage and slippage at last vaginal sex among young men and women who reported having used a condom the last time they had vaginal sex. The logistic regression model was built using forward conditional stepwise selection procedures. All factors that were significantly ($p<0.1$) associated with condom breakage/slippage were entered into the model as well as key background and event-specific factors, and factors relating to previous sexual experiences (see Appendix 4).

The analysis identified two factors predictive of condom breakage or slippage at most recent vaginal sex (see Appendix 6):

- *The view that condoms are easy to use properly*

Survey respondents were asked whether they agreed or disagreed with the statement that condoms are easy to use properly. Logistic regression shows that the response to this statement is significantly associated with the odds of condom breakage/slippage at most recent vaginal sex, with those *not* in agreement with the statement being almost three times more likely than those in agreement to have experienced a condom breakage/slippage at last vaginal sex. It is important to note that respondents' views on the statement may predict condom breakage and slippage, but also that their recent experience of breakage and slippage is likely to influence their views, the two factors being possible predictors of each other and, therefore, their sequence being difficult to determine.

- *Alcohol consumption*

Respondents who had consumed *a lot* of alcohol the last time they had vaginal sex were four times more likely to have experienced a condom breakage/slippage than those who had not been drinking at all. There appears to be no significant difference between those who drank *a little* or a *moderate* amount and those who did not drink at all.

Whilst the logistic regression identified two important predictors of condom breakage/slippage, unexplained variation between those who did and did not experience a condom breakage/slippage at most recent vaginal sex remains. This variation was further investigated through the phase three diaries.

Multilevel multivariate logistic regression analysis was run on the diary data to determine predictors of condom breakage/slippage, with a particular focus on event-specific factors (see Table A6b, Appendix 6).

- *Desire to use a condom*

Interestingly, whilst condom breakage and slippage is generally unintentional, those diaries in which the respondent did not want to use a condom or, more commonly, only *sort of* wanted to use a condom, were almost nine times more likely to feature a condom breakage or slippage. The in-depth interviews conducted with thirty of the diary participants shed some light on why this may be the case, suggesting that those with a definite desire to use condoms take more care in applying them correctly.

"[I've had condoms break], I don't know, quite often. But you can sort of make a special effort to make sure that it doesn't happen I suppose." (Female, 19 years)

"I spend quite a lot of time putting them on […], like making sure it's right down at the bottom. I think especially if you didn't put it on quite right, or if you didn't roll, unroll it all the way, just like left it half rolled up or something perhaps that would happen." (Female, 21 years)

- *Age*

Respondents aged 20-21 years were significantly less likely than those aged 16-17 years to report having experienced a condom breakage or slippage the last time they had vaginal sex.

5.4.4 Timing of condom application

In the phase two survey, 376 young people had used a condom the last time they had vaginal sex. The questionnaire asked about the timing of condom application and condom removal on this occasion. Six percent (n=21) of all those who used a condom the last time they had vaginal sex put the condom on after some initial penetration.

A similar proportion of late condom applications was found in the diary encounters. Out of 322 diary encounters in which vaginal sex with a condom took place, seven percent of condoms were applied after some penetration. The 322 diary encounters were submitted by 74 young people, 31 percent of whom applied the condom late on at least one occasion during their participation in the diary stage of the research.

Diary respondents who applied the condom after some penetration were asked for their reasons for using a condom as well as their reasons for not using a condom throughout the entire sexual act. Reasons for using a condom were given for 24 of the encounters in which late application of a condom occurred.

Table 30: Reasons for using a condom given for sexual encounters in which a condom was applied late for vaginal sex (N=24). *Note:* Multiple responses permitted.

	No. of sexual encounters
To avoid pregnancy	18
To avoid making a mess	13
To make sex last longer	8
To be more hygienic	6
To make entry smoother	5
My partner wanted to	4
For fun	4
To avoid HIV/AIDS	2
To avoid catching an STI	1
Total no of encounters	*24*

To avoid pregnancy and *to avoid making a mess* were the most commonly cited reasons for using a condom which was applied late, whilst very few gave reasons relating to HIV and STI protection.

"Sometimes you don't really mind but other times I just think, you know, I can't be bothered with the mess. Sometimes I want to use one for that reason, well the majority of the time." (Female, 18 years)

Table 31: The most common reasons for <u>not</u> using a condom for the entirety of vaginal penetration for sexual encounters in which a condom was applied late (N=22).

	No. of sexual encounters
To make it more intimate	15
It feels better without a condom	11
Used other methods of contraception	11
Got carried away	10
There was no/little risk of pregnancy	8
There was no/little risk of STIs	5
There was no/little risk of HIV/AIDS	5
Total no of encounters	*22*

The most common reasons for late condom application were *to make the sexual encounter more intimate*, that *another method of contraception was being used*, that *it feels better without a condom,* and that they simply *got carried away*.

"I've always been on the pill anyway so I know that it's not desperate to use one, it's not that I'm going to get pregnant, but it's just nice, convenient." (Female, 18 years)

Many of the young people interviewed had experienced applying a condom late at some time in their lives, usually with a regular partner and often whilst using another method of contraception. They had used condoms either as an additional protective method, or for reasons such as cleanliness, perceiving little risk of pregnancy in their use of condoms as condoms were not their primary means of pregnancy prevention. Indeed, these young people considered late condom application without the use of another means of pregnancy prevention to be very risky.

Interviewer: *"How great do you think the risks would be, say if you weren't on the pill and you used a condom the way you're using it at the moment? How great do you think the risk of pregnancy would be?"*
Interviewee: "*A lot, I think so, yeah. 'Cause like when they, a bit comes out sort of during, before they properly ejaculate, but it's still sperm, even though it's a small bit and I think it would be really risky doing it like that."* (Female, 18 years)

Some of the young people interviewed had experience of applying a condom late without the intention to and they felt that this had put them at risk of pregnancy, usually because no other form of contraception was being used. Assessment of how great the risk of pregnancy focused on ejaculate and pre-ejaculate.

"Like the first couple of times it happened I'd be like 'oh God' and I'd ask him sort of like 'Did you come at all? Was there anything that happened?'. […] Even though it was in for sort of a few seconds really, I'd be like 'ahhh my God'." (Female, 16 years)

In addition to the risk posed by pre-ejaculate, some spoke of an additional risk of late condom application – the risk of ejaculation occurring before the condom is applied. Following from this, in a regular relationship the risk of penetration prior to condom

application resulting in no condom use at all was perceived to be less than in a new or casual relationship as it is easier, especially for women, to interrupt sex in order to ensure a condom is used at the crucial point of ejaculation.

"I think when you're in a relationship and you know each other it's all right to sort of stop and then, do you know what I mean? It's more comfortable whereas someone you don't really know, it's not quite as easy to say stop." (Female, 20 years)

Late condom application, especially when it first occurs with a partner, was found to be not so much a decision or intention, as a development – something that happens as a relationship progresses. Confidence in terms of condom use, communication and sex made some feel more relaxed about limited penetration prior to condom application.

"I think after a period of time it happened, it was just what we did, but it didn't happen for a good six months, after that it just sort of happens…. You just get a bit more relaxed." (Female, 20 years)

"He had one in his hand so I knew it was going to be put on so I kind of let it flow for a bit and then I said." (Female, 17 years)

"When I started firstly, first having sex and then having sex with different people [the condom] was always put on before anything happened so I was probably a little bit nervy, but as I got confident with the whole act, I guess I was a little bit more relaxed about it so it has got progressively like, I guess I've let a little bit happen before, so I suspect it's just a confidence thing." (Female, 17 years)

For some, the occurrence of late condom application was the impetus for starting to use a hormonal method of contraception, as late application was seen to reduce the risk of pregnancy, but was still seen to be risky.

"I think it started off probably with my first serious boyfriend, you'd slip into…sometimes. Once you sort of perhaps take that step of perhaps not using it for a couple of minutes or whatever, it becomes harder and harder sort of not to. I wanted [the pill] as a safety […]. Because I know that once you get in the mood you know, it gets a bit more difficult to say no, so it was just to sort of reassure myself." (Female, 21 years)

Most of those who had experienced applying a condom late felt that they were not at risk of STIs, not because they felt that late condom application still protected them, but because they felt their partners were unlikely to have an STI.

5.4.5 Timing of condom removal

Further vaginal intercourse after the condom had been removed was found to be prevalent among six percent of survey respondents who had used a condom on the most recent occasion of vaginal sex. This may be an underestimate, as the question was phrased in such a way that only those who reported removing the condom before ejaculation were required to answer it.

Out of 322 diary encounters in which vaginal sex with a condom took place, two percent of condoms were removed early (i.e. penetration continued after the condom was removed). The 322 diary encounters were submitted by 74 young people, nine percent of whom removed the condom early on at least one occasion during their participation in the diary stage of the research.

Of the thirty young people who took part in the in-depth interviews, seven had removed a condom early at some point in their lives. Most of those interviewed had not, and were surprised at the question and considered the practice rather pointless.

Interviewee: "*I don't see the point of putting the condom on if you're going to do that.*"
Interviewer: "*Does that make less sense to you than the other scenario of putting it on late?*"
Interviewee: "*Yeah.*"
Interviewer: "*Why is that?*"
Interviewee: "*You ejaculate at the end.*"
(Male, 17 years)

Those who had experienced removing a condom early reported doing so because the condom had slipped, the condom was too tight or uncomfortable, because the moment was heated, and to speed up ejaculation. Generally, respondents were either using an additional form of contraception, such as the pill, or withdrew prior to ejaculation.

Because of this, those who had removed a condom early perceived no or little risk of pregnancy and, as partners were most often 'known', perceived no or little risk of STIs (see Section 5.3.2).

5.4.6 Predictors of the timing of condom application and removal

Logistic regression analysis was performed on both the survey and diary data in order to ascertain those factors predictive of late condom application and early condom removal. The logistic regression models were built using forward conditional stepwise selection procedures and included all factors that were significantly ($p<0.1$) associated with late application/early removal of a condom. In the analysis of the survey data, key background and event-specific factors and factors relating to previous sexual experiences were also included (see Appendix 4).

Logistic regression analyses for males and females separately was not possible with the survey data, as the numbers of those applying a condom late and removing a condom early would have become too small to have allowed for statistically meaningful results. However, sex of respondent was included, and therefore controlled for, in the model. Likewise, with the diary data, the number of male participants was too small to allow for separate analysis by sex[29].

From the analysis of the survey data (see Table A7a, Appendix 7), the following factors were found to be predictive of late application and/or early removal of a condom:

- *Consistency of condom use*

Survey respondents who reported having used condoms consistently for vaginal sex throughout their lives were much more likely than their inconsistent counterparts to have used a condom correctly (i.e. not applied it late or removed it early). Those who use condoms inconsistently, when they do use a condom are more likely to do so incorrectly.

[29] Logistic regression analysis of female respondents was carried out, but because the same predictive factors as in the analysis for both sexes combined were identified, the results have not been presented for females separately.

- *Confidence in correct condom use*

Those who did not feel confident that they knew how to use a condom properly were over three times as likely to have applied a condom late or removed a condom early the last time they had vaginal sex.

- *Relationship with mother during early adolescent years*

In the survey questionnaire, respondents were asked about their relationships with their parents during their early adolescence (11-15 years) and whether their parents portrayed sex positively, previous studies having suggested these factors may influence young people's sexual behaviour and condom use[30]. Poor timing of condom use was found to be strongly associated with a person's reported relationship with their mother during their early adolescent years (11-15 years). Those who did not feel they had a close or warm relationship with their mother, and/or did not feel that their mother was available when they needed her, were much more likely to have applied a condom late or removed a condom early at last vaginal sex. This is likely to be a stronger predictor amongst young men than amongst young women as, at the bivariate level (i.e when just two variables are compared: relationship with mother and timing of condom use), relationship with mother was highly significant for men, but not for women.

The multilevel multivariate logistic regression analysis of the diary data focuses on event-specific factors, as the diaries explored in greater detail the factors surrounding a sexual event or encounter. The analysis identified two additional factors predictive of late application and/or early removal of a condom (see Table A7b, Appendix 7).

- *Use of other contraception*

Respondents using another form of contraception in addition to a condom were over three times more likely to apply the condom late or remove the condom early than respondents

[30] Markham *et al.*'s study suggests family connectedness may be a protective factor related to sexual risk-taking [59]. DiIorio *et al.* found an association between general communication with parents and safe sex communication with a partner [60]. Stone and Ingham found parents' openness, warmth and availability during their children's primary school years and early teenage years to be a key predictor of young people's future contraceptive behaviour [54].

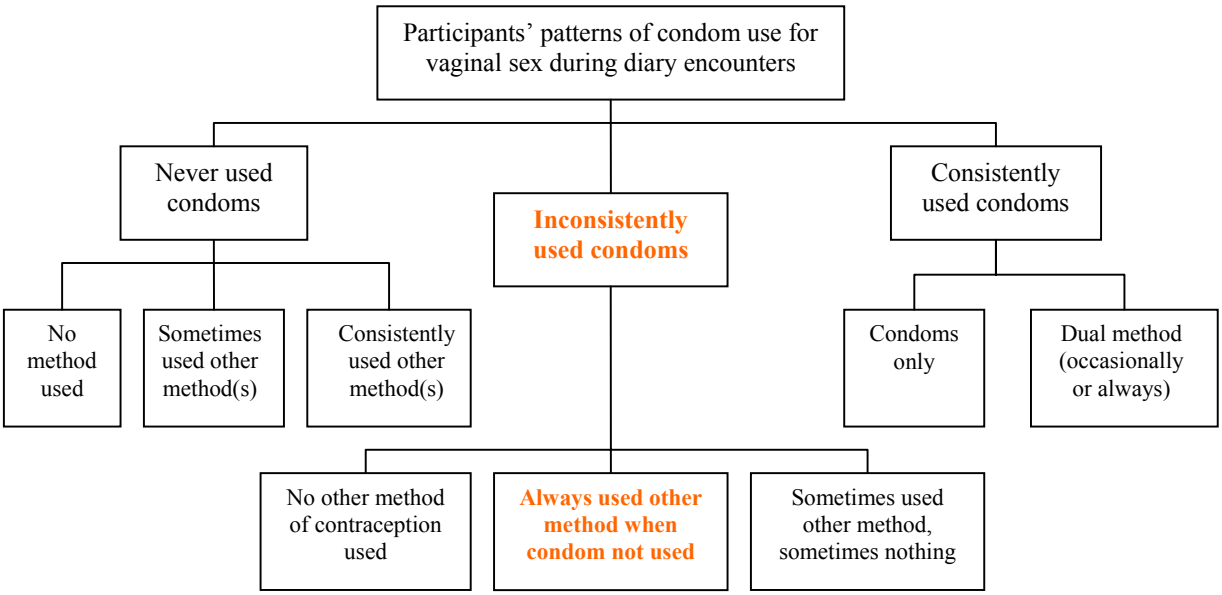
relying on the condom as their sole form of contraception. As previously shown, those applying a condom late are often using a condom for reasons other than pregnancy prevention (e.g. to avoid making a mess) and this is likely to be because many are also using another form of contraception.

- *Desire to use a condom*

Finally, respondents who did not have a definite desire to use a condom were much more likely to apply a condom late or remove a condom early.

Given that, from the analyses of the survey data, *inconsistency of condom use* was found to be a strong predictor of poor timing of condom use (i.e. late application and/or early removal) at most recent vaginal sex, patterns of condom use and quality of condom use over time were examined more closely from the diaries. The 108 diary participants were grouped into three according to their patterns of condom and contraceptive use for vaginal sex across their sexual encounter diaries (see Figure 7). The three groups (i.e. those who never, inconsistently and consistently used condoms) were further divided into sub-groups.

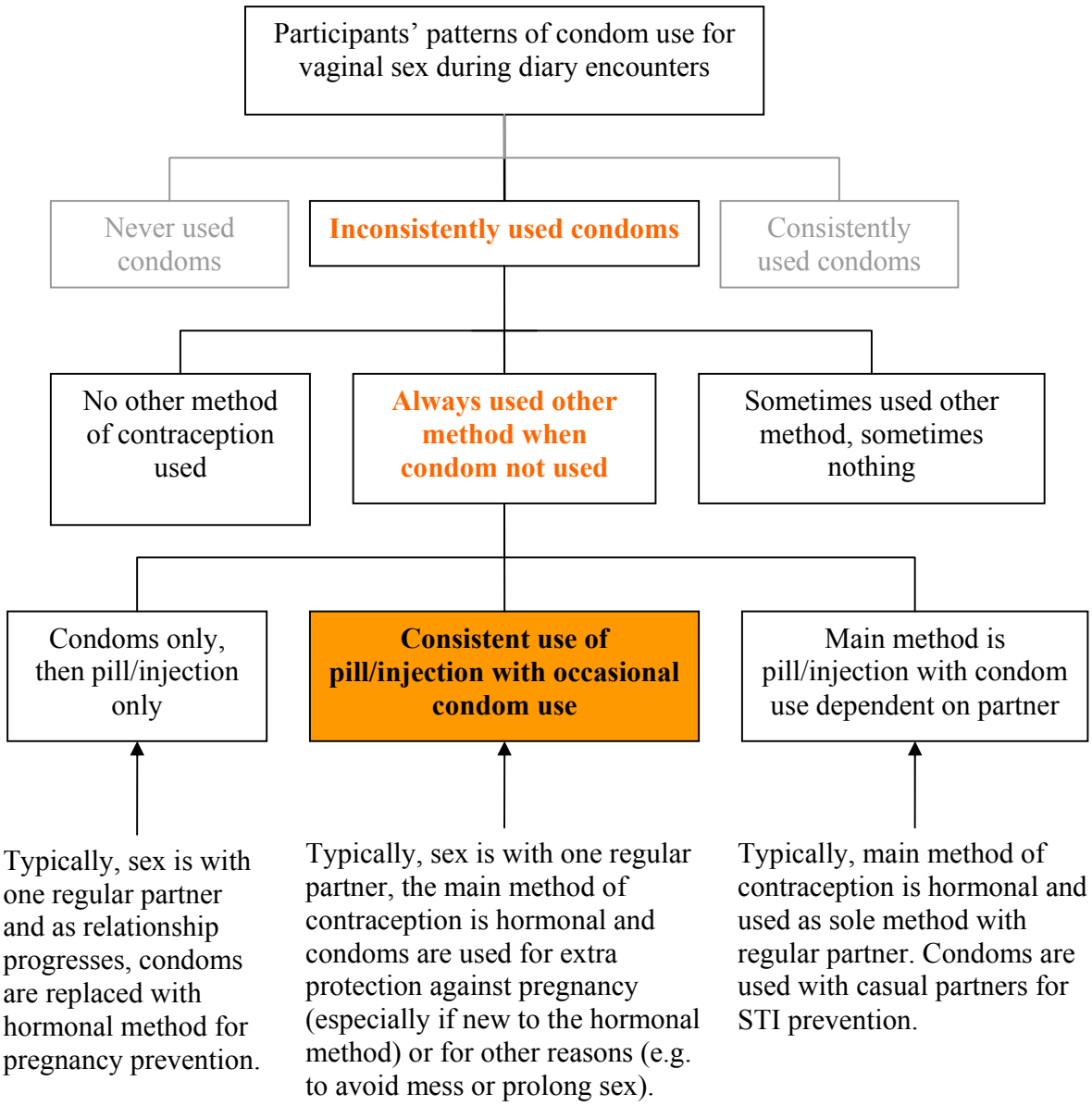
Figure 7: Patterns of condom and contraceptive use for vaginal sex among diary participants (N=108)



Whilst there were no obvious concentrations of condom breakages and slippages across the groups, as expected, poor timing of condom use was clearly concentrated among the inconsistent condom users. Whilst those who used condoms inconsistently during their diaries (N=40) used 43 percent of all condoms used, they account for 88 percent of all condoms applied late or removed early.

One sub-group in particular – those who occasionally used condoms, but consistently used another form of contraception throughout their diaries – merits attention (see shaded box, Figure 8). This group accounts for just 15 percent of all condoms used, but 60 percent of all condoms applied late or removed early.

Figure 8: Patterns of inconsistent condom use for vaginal sex among diary respondents



Both inconsistency of condom use and the use of other contraception were earlier shown to be highly predictive of late application/early removal of a condom. It is therefore unsurprising that, amongst diary respondents, late application/early removal is most common among those using another form of contraception combined with occasional condom use. Among this sub-group, condoms may be effective for the purposes for which condoms are being used (e.g. to avoid mess, as additional protection against

pregnancy). However, in the event that one partner is infected with an STI, the use of condoms in this way places the other partner at increased risk.

5.4.7 Other aspects of quality condom use

Whilst condom breakage and slippage and the timing of condom use are clearly important aspects of the quality of condom use, they are not the only aspects. Other errors include semen spillage, putting a condom on inside out and re-using a condom.

Whilst these aspects were not examined in the survey or diary phases, the thirty young people interviewed were specifically asked whether they had experienced two of these (namely, spillage and re-use).

None of those interviewed said they had experienced semen spilling from a condom during withdrawal. Two had experienced semen spilling as a condom was being taken off, but this was after complete withdrawal. Likewise, no one reported ever using the same condom more than once.

STIs can be transmitted via secondary contact through, for example, the sharing of sex toys. Whilst young people's use of sex toys was beyond the scope of this research, in order to get some indication of how common the use of sex toys is amongst young people, young people participating in the in-depth interviews were asked whether they had ever used a sex toy with a partner. Seven of the thirty interviewees reported having used (although not necessarily shared) a sex toy with a partner, and in most cases specified vibrators.

5.4.8 The implications of the findings for measuring condom use

Given the contraceptive and prophylactic properties of condoms it is critical that valid measures of condom use are available for the evaluation of activities aimed at increasing effective (consistent and correct) usage. Selecting the appropriate survey measure of condom use has provided researchers with a number of methodological challenges over

the last few decades, with many opting simply for a binary response question, such as "the most recent time you had vaginal sex, did you use a condom?", requiring a response of either yes or no. Those young people who participated in the in-depth interviews were asked how they would respond to this question if they had applied the condom late or removed the condom early. Overall, most respondents would have answered *yes* if they had applied the condom late and *no* if they had removed the condom early, the determining factor being whether the condom had been used at the point of ejaculation.

"I would have said no because you can't really – obviously you have used a condom but not really for its purpose." (Female, 17 years, referring to early condom removal)

A respondent who removed the condom early, but whose partner then withdrew prior to ejaculation, stated that she would have said *yes* when asked whether she had used a condom.

In view of this, and the findings presented in this report, it is clear that the use of a binary 'condom used or not' variable to examine quality condom use and the effectiveness of condoms in protecting individuals from STIs and pregnancy may lead to misleading or inexplicable results. Given that the late application of condoms, the premature removal of condoms and condom breakage and slippage are prevalent amongst young people in the UK, self-reported condom use measures which fail to take such practices into account will lead to underestimates of risk and condom efficacy.

6.0 Conclusions and Policy Implications

Conclusions

This study used a variety of methods to explore young people's sexual health knowledge and behaviour and most importantly the factors influencing condom use and the quality of condom use among young people aged 16-21 years. The findings of the study can be summarised as follows:

- Whilst the findings suggest that the vast majority of young people who have ever had vaginal sex have used a condom on at least one occasion, many reported not using condoms consistently. Young people were more likely to have used a condom the last time they had vaginal sex if they were not using any other form of contraception, if condom use had been previously discussed and agreed upon, if they had used a condom with their partner previously, if sexually active friends were thought to use condoms and if sex was very much wanted, rather than just a little or not at all. They were *less* likely to have used a condom with a regular partner, if they felt condoms are difficult to use consistently with a partner well known to them, and if they or their partner did not have a definite desire to use a condom.

- Condoms are used primarily for contraceptive purposes rather than STI prevention, and their effectiveness in preventing the transmission of STIs is sometimes compromised by the inconsistency and poor quality of their use.

- Six percent of condom users in the survey reported applying a condom after initial penetration the last time they had vaginal sex, and six percent reported continued unprotected penetration after the condom had been removed. Late condom application in particular, was found to have been experienced by almost a third of diary participants during the course of their diaries. The odds of late application or early removal of a condom amongst young people were found to increase with inconsistent condom use, with the use of other contraception, with a lack of definite

desire to use a condom and a lack of confidence in their ability to use a condom properly.

- Young people generally recognise that whilst late condom application can, to an extent, reduce the risk of pregnancy, it is still risky for STIs. However, most young people's primary concern is pregnancy and many do not consider themselves to be personally at risk of STIs, especially if their sexual partners have been 'known' to them.

- Although many young people do not consider themselves to be at risk of STIs, most are worried about STIs in general, suggesting that increasing concern or fear over STIs may not lead to an increase in personal risk perception.

- Of those in the survey who used a condom the last time they had vaginal sex, seven percent reported that during intercourse the condom broke and two percent reported that the condom had slipped right off. The odds of experiencing a condom breakage or slippage were found to increase if 'a lot' of alcohol had been consumed, if there was a lack of desire to use a condom and if there was a lack of confidence in the ability to use a condom properly and were found to decrease with age.

- Oral sex amongst young people is not only very common, but often occurs prior to first vaginal sex and is generally perceived as less serious, intimate and risky. Whilst unprotected oral sex is a much lower risk activity than unprotected vaginal or anal intercourse, some STIs can still be transmitted via this route. However, condom use for fellatio is rare and the use of dental dams for cunnilingus is expected to be even more so.

- Young people receive information on STIs from a range of sources, the most important of which is perceived to be school. School is also seen as an important source of information for young people on sex, relationships and contraception, together with friends and parents or guardians. Whilst young people's knowledge of

sexual health and contraception was generally found to be good, there are some areas that need attention. These include knowledge that most STIs can be cured, that chlamydia affects both men and women, and that emergency contraception can be taken up to 72 hours after unprotected vaginal intercourse. In addition, there was found to be some confusion as to how STIs can be transmitted.

Policy and programme implications

The findings from this study raise a number of issues which have implications for sexual health policies and programmes:

- Condoms can provide an effective barrier to the transmission of STIs if they are used correctly and consistently for *all* 'risky' sexual acts. Given that STIs are a major public health problem and that services for testing and treatment are struggling to cope with the steep increases in rates of STIs seen over the past ten years, the promotion of condoms for STI prevention is crucial.

- Although young people are at risk of both STIs and pregnancy, it is their concern over the latter which appears to drive both condom use and the quality of condom use. Consequently, even though condoms may be used, they are not always used effectively for STI prevention. Policies and programmes aimed at promoting effective condom use for the prevention of STIs need to help young people develop the motivation and skills to use condoms correctly and consistently, presenting such condom use within the context of STI prevention as well as pregnancy prevention, and recognising that how condoms are used for these two purposes is not always the same.

- Many young people do not perceive themselves to be at risk of STIs, often because they 'know' their sexual partners and believe them not to be infected. Consequently, there is a necessity to convey to young people an understanding of how STIs can be transmitted through sexual partner networks, without creating fear or over sensationalising the risk of STIs. As this study has shown, many young people are

worried about STIs, but do not feel personally at risk, so increasing their worry may not have the intended effect on their personal risk perception and subsequent behaviour.

- Personally knowing someone who has had an STI was not found to be associated with subsequent condom use, but does appear to encourage STI testing. Whilst STI testing is clearly an important part of any strategy to reduce rates of STIs, it is essential that young people use condoms consistently and correctly after they have been tested and treated, as a test reflects past behaviour but does not offer any protection against future infection. Young people should be made aware of the need to get tested following unprotected sex, even if asymptomatic, but must not interpret this as an alternative to condom use.

- The likelihood of using a condom was found to be strongly associated with communication with a partner about condom use prior to a sexual event. Strategies to increase condom use by equipping young people with the skills and confidence to discuss the matter are likely to be beneficial. This flags up the need for school-based sex and relationships education to include areas such as negotiation, assertiveness and relationship skills. Youth services, parents and the media could also make an important contribution in this regard.

- Condom use was found to be strongly associated with the belief that friends use condoms. In addition, friends were seen to be an important source of information on, in particular, sex and relationships. These findings point towards a need for messages to present carrying and using condoms as a normal part of young people's lives – a social norm – and to peer education projects as a possible way forward. Indeed the groups of young people consulted about the implications of the research findings in each of the four study sites all reacted positively to the idea of learning from other young people's experiences.

- In order to encourage condom use, young people must feel confident that they can use condoms effectively. The belief that condom breakage and slippage are common can affect confidence in condoms, whether or not this is based on personal experience. However, the actual risk of STIs and pregnancy incurred when no condom is used at all is substantially greater than the risk of using a condom which has a small chance of failing. The factors found to be associated with condom breakage and slippage in this study – alcohol consumption, lack of definite desire to use a condom, lack of confidence in ability to use a condom properly and age – point to the importance of:
  - Ensuring young people have the opportunity to participate in condom demonstrations and are encouraged to familiarise themselves with condoms before they first have penetrative intercourse.
  - Warning young people that condom breakage and slippage are more likely to occur when they have been drinking and alerting them to the extra care needed when applying and removing condoms in such circumstances.
  - Informing young people of the necessary precautions to take (i.e. emergency contraception and STI testing) in the event of a condom breaking or slipping off.

- Despite the fact that oral sex is highly prevalent amongst young people, the use of condoms for oral sex was found to be low. Whilst the considerably higher risks of vaginal (and anal sex) need to be prioritised, it is vital to inform young people of the risks of other behaviours such as unprotected oral sex and not to limit the issue of safer sex to one of safer *vaginal* sex. In addition, as oral sex often occurs prior to first vaginal sex, and is often not considered to be 'proper' sex, sexual health messages aimed at younger age groups require greater clarity and depth in order to convey a better understanding of what safer sex entails. Oral sex is a sexual act between two people and, therefore, as with vaginal sex, involves issues relating to, amongst others, self worth, pressure, communication and negotiation. Policies and programmes should be mindful of the fact that oral sex is highly prevalent amongst young people and is first experienced by many at an early age.

- The young people in this study considered school to be the most important source of information on STIs and an important source of information on sex, relationships and contraception. However, significant differences in knowledge of sexual health were associated with ethnicity and study site, indicating the need to ensure that good quality, comprehensive sex and relationships education is available for all students in all schools.

- In addition to school, young people obtain information from a wide range of sources, both formal (e.g. sexual health clinics) and informal (e.g. the media and parents). Consistency in the information obtained from various sources is crucial in order to ensure messages are clear and reinforced and to guarantee a significant and sustained impact.

Overall, whilst the majority of sexually active young people report having used condoms, this study has raised significant issues around the consistency and quality of condom use by this age group. It points to a need to promote condom use more vigorously as a mechanism for STI prevention and to ensure that young people are equipped to use condoms effectively.

References

[1] The UK Collaborative Group for HIV and STI Surveillance. *HIV and other Sexually Transmitted Infections in the United Kingdom in 2003. An update: November 2004.* 2004. London, Health Protection Agency Centre for Infections.

[2] PHLS. *Sexual health in Britain: Recent changes in high-risk sexual behaviours and the epidemiology of sexually transmitted infections including HIV.* 2002. PHLS.

[3] HIV and Sexually Transmitted Infections Department. *Diagnoses of selected STIs, by region, age and sex seen at GUM clinics. Updated July 2004. National Level summary tables, 1995-2003.* 2004. London, Health Protection Agency.

[4] Department of Health. *The national strategy for sexual health and HIV. Better prevention, better services, better sexual health.* 2001. London, Department of Health.

[5] Social Exclusion Unit. *Teenage Pregnancy.* 1999. London, HMSO.

[6] Office for National Statistics. *Health Statistics Quarterly 24.* 2004. London, HMSO.

[7] Zenilman JM, Weisman CS, Rompalo AM, Ellish N, Upchurch DM, Hook EW, Celentano III D. Condom use to prevent incident STDs: the validity of self-reported condom use. *Sex Transm. Dis.* 1995; 22: 15-21.

[8] Darrow WW. Condom use and use-effectiveness in high-risk populations. *Sex. Transm. Dis.* 1989; 16: 157-160.

[9] Adler M. *ABC of Sexually Transmitted Diseases.* 4th edition. 1998. London, BMJ Publishing Group.

[10] Roper WL. Condoms and HIV/STD prevention — clarifying the message. *Am. J. of Public Health* 1993; 83[4]: 501-503.

[11] Feldblum PJ, Fortney JA. Condoms, spermicides, and the transmission of human immunodeficiency virus: a review of the literature. *Am. J. Public Health* 1988; 78: 52-54.

[12] Wellings K, Nanchahal K, MacDowall W, McManus S, Erens B, Mercer CH, Johnson AM, Copas AJ, Korovessis C, Fenton KA, Field J. Sexual behaviour in Britain: early heterosexual experience. *Lancet* 2001; 358: 1843-1850.

[13] Ingham R, Stone N, McEachran J, Cheesbrough S. *The Pillarbox / Channel 4 survey of young people's sexual conduct.* 2000. University of Southampton, Centre for Sexual Health Research.

[14] Durex. *Report 2000. Spotlight on sex and sexual attitudes in Britain.* 2000. Cheshire, SSL International plc.

[15] http://www.hpa.org.uk/infections/topics_az/hiv_and_sti/default.htm. 2004.

[16] Quirk A, Rhodes T, Stimson GV. 'Unsafe protected sex': qualitative insights on measures of sexual risk. *AIDS Care* 1998; 10: 105-114.

[17] Pudney J, Oneta M, Mayer K, Seage G, III, Anderson D. Pre-ejaculatory fluid as potential vector for sexual transmission of HIV-1. *Lancet* 1992; 340: 1470.

[18] Edwards S, Carne C. Oral sex and transmission of non-viral STIs. *Sex Transm. Infect.* 1998; 74: 95-100.

[19] Edwards S, Carne C. Oral sex and the transmission of viral STIs. *Sex Transm. Infect.* 1998; 74: 6-10.

[20] Cohen MS, Miller WC. Sexually transmitted diseases and human immunodeficiency virus infection: cause, effect, or both? *Int. J. Infect. Dis.* 1998; 3: 1-4.

[21] Cohen J. SIV data raise concern on oral-sex risk. *Science* 1996; 272: 1421-1422.

[22] Kippax S. *HIV education and prevention — what's happening and what works: changes in sexual behaviour.* 1992. Paper presented at the 4th Annual NSW HIV/AIDS Education and Prevention Conference (June), Sydney.

[23] Schwartz IM. Sexual activity prior to coital initiation: a comparison between males and females. *Arch. Sex Behav.* 1999; 28: 63-69.

[24] Johnson A M, Wadsworth J, Wellings K, Field J. *Sexual attitudes and lifestyles.* 1994. Oxford, Blackwell Scientific.

[25] Johnson AM, Mercer CH, Erens B, Copas AJ, McManus S, Wellings K, Fenton KA, Korovessis C, MacDowall W, Nanchahal K, Purdon S, Field J. Sexual behaviour in Britain: partnerships, practices, and HIV risk behaviours. *Lancet* 2001; 358: 1835-1842.

[26] Hunt AJ, Weatherburn P, Hickson FC, Davies PM, McManus TJ, Coxon AP. Changes in condom use by gay men. *AIDS Care* 1993; 5: 439-448.

[27] Wong ML, Chan RK, Koh D, Wee S. Factors associated with condom use for oral sex among female brothel-based sex workers in Singapore. *Sex. Transm. Dis.* 2000; 27: 39-45.

[28] Wong ML, Chan R. Sex workers' perspectives on condom use for oral sex with clients: a qualitative study. *Health Education and Behaviour* 2000; 27[4], 502-516.

[29] Schuster MA, Bell RM, Nakajima GA, Kanouse DE. The sexual practices of Asian and Pacific Islander high school students. *J. Adolesc. Health* 1998; 23: 221-231.

[30] Bruckner H, Bearman P. After the promise: the STD consequences of adolescent virginity pledges. *J. Adolesc. Health 2005;* 36[4], 271-278.

[31] Gates GJ, Sonenstein FL. Heterosexual genital sexual activity among adolescent males: 1988 and 1995. *Fam. Plann. Perspect.* 2000; 32: 295-7, 304.

[32] Erickson PI, Bastani R, Maxwell AE, Marcus AC, Capell FJ, Yan KX. Prevalence of anal sex among heterosexuals in California and its relationship to other AIDS risk behaviors. *AIDS Educ. Prev.* 1995; 7[6], 477-493.

[33] Tyden T, Rogala C. Sexual behaviour among young men in Sweden and the impact of pornography. *Int J STD AIDS* 2004; 15[9], 590-593.

[34] Trussell J, Warner DL, Hatcher RA. Condom slippage and breakage rates. *Fam. Plann. Perspect.* 1992; 24: 20-23.

[35] Grady WR, Tanfer K. Condom breakage and slippage among men in the United States. *Fam. Plann. Perspect.* 1994; 26: 107-112.

[36] Hatcher RA, Trussell J, Stewart F, Cates W, Stewart GK, Guest F, Kowal D. *Contraceptive Technology.* 17th revised edition. 1998. Ardent Media Inc., New York.

[37] Lindberg LD, Sonenstein FL, Ku L, Levine G. Young men's experience with condom breakage. *Fam. Plann. Perspect.* 1997; 29: 128-31, 140.

[38] Joffe A. Adolescents and condom use. *Am. J. Dis. Child* 1993; 147: 746-754.

[39] Sanders SA, Graham CA, Yarber WL, Crosby R.A. Condom use errors and problems among young women who put condoms on their male partners. *Journal of the American Medical Women's Association* 2003; 58[2], 95-98.

[40] Warner L, Clay-Warner J, Boles J, Williamson J. Assessing condom use practices. Implications for evaluating method and user effectiveness. *Sex. Transm. Dis.* 1998; 25: 273-277.

[41] Crosby RA, Sanders SA, Yarber WL, Graham CA, Dodge B. Condom use errors and problems among college men. *Sex. Transm. Dis.* 2002; 29: 552-557.

[42] Crosby R, Sanders S, Yarber WL, Graham CA. Condom-use errors and problems: A neglected aspect of studies assessing condom effectiveness. *American Journal of Preventative Medicine* 2003; 24[4], 367-370. Elsevier Inc.

[43] de Visser RO, Smith AM. When always isn't enough: implications of the late application of condoms for the validity and reliability of self-reported condom use. *AIDS Care* 2000; 12: 221-224.

[44] de Visser RO, Smith AMA, Rissel CE, Richters J, Grulich AE. Sex in Australia: Safer sex and condom use among a representative sample of adults. *Australian and New Zealand Journal of Public Health* 2003; 27[2], 223-229.

[45] Civic D, Scholes D, Ichikawa L, Grothaus L, McBride CM, Yarnall KS, Fish L. Ineffective use of condoms among young women in managed care. *AIDS Care* 2002; 14: 779-788.

[46] Shlay JC, McClung MW, Patnaik JL, Douglas, JM Jr. Comparison of sexually transmitted disease prevalence by reported condom use: errors among consistent condom users at an urban sexually transmitted disease clinic. *Sex. Transm. Dis.* 2004; 31[9], 526-532. Lippincott Williams & Wilkins.

[47] PHLS. *Rates of first attack anogenital warts among young women aged 16-19 years by Health Authority, 2001.* 2002. Personal communication.

[48] Office for National Statistics. *Population Trends 103.* 2001. London, HMSO.

[49] DfEE, OFSTED. *Departmental Report: The Government's Expenditure Plans 2000-01 to 2002-03.* 2000. London, DfEE.

[50] Bankole A, Darroch JE, Singh S. Determinants of Trends in Condom Use In the United States, 1988-1995. *Fam. Plann. Perspect.* 1999; 31[6], 264-271.

[51] Erens B, McManus S, Prescott A, Field J, Johnson A, Wellings K, Fenton K, Mercer C, MacDowell W, Copas A, Nanchahal K. *National Survey of Sexual Attitudes and Lifestyles II: Reference Tables and Summary Report.* 2003. National Centre for Social Research.

[52] Morrison DM, Rogers Gillmore M, Hoppe MJ, Gaylord J, Leigh B.C., Rainey D. Adolescent Drinking and Sex. *Perspectives on Sexual and Reproductive Health* 2003; 35[4].

[53] Department of Health. *Review of the evidence on risk of HIV transmission associated with oral sex.* 2000.

[54] Stone N, Ingham R. Factors affecting British teenagers contraceptive use at first intercourse: The importance of partner communication. *Perspectives on Sexual and Reproductive Health* 2002; 34[4], 191-197.

[55] Health Protection Agency. *HIV and other Sexually Transmitted Infections in the United Kingdom in 2003, Annual Report.* 2004. HPA.

[56] Ingham R, Woodcock A, Stenner K. Getting to know you... Young people's knowledge of partners at first intercourse. *Journal of Community and Applied Social Psychology* 1992; 2[1], 117-132.

[57] World Health Organization. *Selected practice recommendations for contraceptive use.* 2004. WHO.

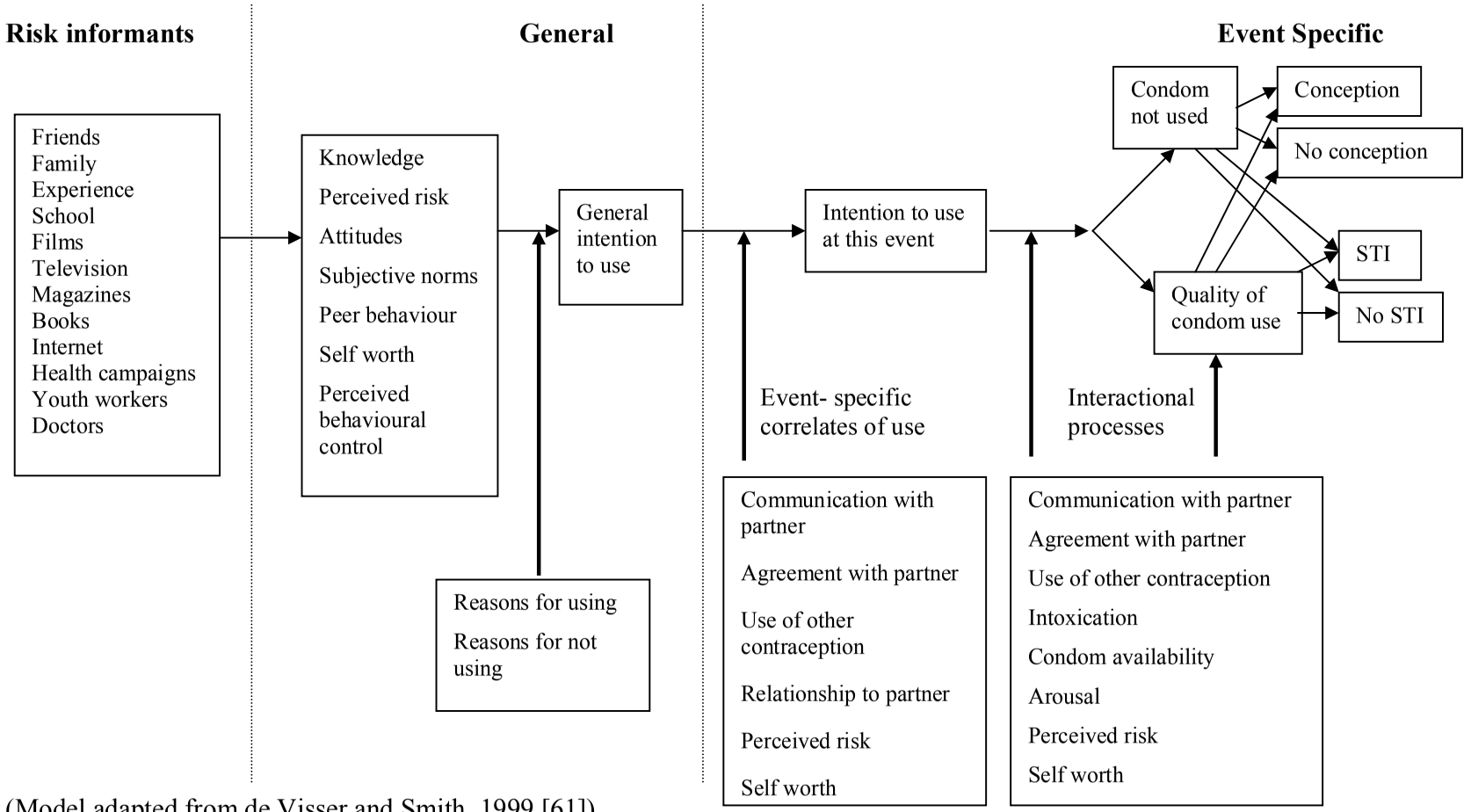
[58] de Visser R. Delayed application of condoms, withdrawal and negotiation of safer sex among heterosexual young adults. *AIDS Care* 2004; 16[3], 315-322. Taylor & Francis Ltd.

[59] Markham CM, Tortolero SR, Escobar-Chaves SL, Parcel GS, Harrist R, Addy RC. Family connectedness and sexual risk-taking among urban youth attending alternative high schools. *Perspectives on Sexual and Reproductive Health* 2003; 35[4], 174-179.

[60] DiIorio C, Dudley WN, Lehr S., Soet JE. Correlates of safer sex communication among college students. *Journal of Advanced Nursing* 2000; 32[3], 658-665.

[61] de Visser RO, Smith AMA. Predictors of heterosexual condom use: characteristics of the situation are more important than characteristics of the individual. *Psychology, Health & Medicine* 1999; 4[3], 265-279. Routledge.

Appendix 1: Model of factors affecting condom use



(Model adapted from de Visser and Smith, 1999 [61])

Appendix 2: Sources of information for young men and women

Table A2a: Main (or number one) source of information for young men and women on sex & relationships, contraception and sexually transmitted infections

	Sex & Relationships	Contraception	STIs
Males	Friends (35%) Parents/Guardians (19%) School (18%) *N=570*	School (50%) Parents/Guardians (15%) Friends (8%) *N=571*	School (57%) Parents/Guardians (8%) GP/Doctor (6%) *N=569*
Females	Friends (38%) Parents/Guardians (29%) School (12%) *N=758*	School (37%) Parents/Guardians (21%) Friends (11%) *N=754*	School (48%) Parents/Guardians (12%) Sexual health clinic (10%) *N=752*

Note: The total number of respondents is not always identical as some respondents did not answer all questions.

Table A2b: Most important sources of information on sex & relationships reported by young men and women (aggregation of 1st, 2nd and 3rd choices)

	Male %	Female %	Significance of difference between males and females
Friends	64.5	80.3	χ^2= 42.763, df=1, p=0.000
Parents/Guardians	38.3	54.1	χ^2= 33.821, df=1, p=0.000
School	48.9	44.1	N/A
Magazines/Books	24.9	35.4	χ^2= 17.615, df=1, p=0.000
Boy/Girlfriend(s)	27.9	25.2	N/A
TV/Radio/Films	22.7	11.2	χ^2= 32.560, df=1, p=0.000
Brothers/Sisters	11.6	17.5	χ^2= 9.275, df=1, p=0.002
Leaflets/Posters	6.3	3.9	χ^2= 4.044, df=1, p=0.044
Sexual health/Family planning clinic	1.5	6.9	χ^2= 23.026, df=1, p=0.000
Internet	7.1	.9	χ^2= 37.000, df=1, p=0.000
Youth workers/Services	3.0	3.5	N/A
GP/Doctor	2.7	3.5	N/A
Number	*603*	*765*	

Table A2c: Most important sources of information on contraception reported by young men and women (aggregation of 1st, 2nd and 3rd choices)

	Male %	Female %	Significance of difference between males and females
Friends	33.3	46.8	χ^2= 25.296, df=1, p=0.000
Parents/Guardians	36.7	47.8	χ^2= 17.245, df=1, p=0.000
School	68.5	64.7	N/A
Magazines/Books	17.9	35.3	χ^2= 50.959, df=1, p=0.000
Boy/Girlfriend(s)	10.3	10.2	N/A
TV/Radio/Films	21.4	7.3	χ^2= 57.104, df=1, p=0.000
Brothers/Sisters	8.5	7.8	N/A
Leaflets/Posters	20.2	11.0	χ^2= 22.565, df=1, p=0.000
Sexual health/Family planning clinic	10.4	22.2	χ^2= 33.082, df=1, p=0.000
Internet	3.6	1.2	χ^2= 9.304, df=1, p=0.000
Youth workers/Services	8.6	6.5	N/A
GP/Doctor	10.9	14.1	N/A
Number	*603*	*765*	

Table A2d: Most important sources of information on sexually transmitted infections reported by young men and women (aggregation of 1st, 2nd and 3rd choices)

	Male %	Female %	Significance of difference between males and females
Friends	24.7	29.8	χ^2= 4.383, df=1, p=0.036
Parents/Guardians	27.9	32.5	N/A
School	70.8	67.1	N/A
Magazines/Books	21.9	44.4	χ^2= 75.903, df=1, p=0.000
Boy/Girlfriend(s)	4.1	4.4	N/A
TV/Radio/Films	28.5	17.4	χ^2= 24.148, df=1, p=0.000
Brothers/Sisters	5.0	4.7	N/A
Leaflets/Posters	23.1	22.7	N/A
Sexual health/Family planning clinic	13.1	23.8	χ^2= 24.958, df=1, p=0.000
Internet	4.8	2.0	χ^2= 8.789, df=1, p=0.003
Youth workers/Services	8.1	7.8	N/A
GP/Doctor	20.4	21.4	N/A
Number	*603*	*765*	

Appendix 3: Sources of information and sexual experience

Table A3a: Most important sources of information on sex & relationships reported by young men and women who had and had not ever had sex (vaginal, oral or anal) (aggregation of 1st, 2nd and 3rd choices).

	Men		Women	
	Ever had sex		Ever had sex	
	Yes %	No %	Yes %	No %
School[mf]	42.8	58.0	36.0	58.3
Parents/Guardians[f]	37.5	39.5	50.9	59.8
Brothers/Sisters[m]	14.2	7.8	18.4	15.9
Friends[m]	68.6	58.4	82.0	77.2
Boy/Girlfriend(s) [mf]	38.1	12.8	33.1	11.2
Magazines/Books	24.7	25.1	34.2	37.7
Leaflets/Posters	4.7	8.6	4.3	3.3
TV/Radio/Films[f]	22.8	22.6	8.6	15.9
Internet[m]	5.0	10.3	0.6	1.4
Youth workers/Services	1.9	4.5	3.1	4.3
Sexual health/Family planning clinic[f]	2.2	0.4	9.0	3.3
GP/Doctor	2.2	3.3	4.5	1.8
Number	*360*	*243*	*489*	*276*

[m] = Significant difference between men who had and had not ever had sex ($p<0.05$)
[f] = Significant difference between women who had and had not ever had sex ($p<0.05$)

Men:
School (χ^2= 13.496, df=1, p=0.000)
Brothers/Sisters (χ^2= 5.697, df=1, p=0.017)
Friends (χ^2= 6.560, df=1, p=0.010)
Boy/Girlfriends (χ^2= 46.197, df=1, p=0.000)
Internet (χ^2= 6.126, df=1, p=0.013)

Women:
School (χ^2= 35.730, df=1, p=0.000)
Parents/Guardians (χ^2= 5.580, df=1, p=0.018)
Boy/Girlfriends (χ^2= 44.843, df=1, p=0.000)
TV/Radio/Films (χ^2= 9.560, df=1, p=0.002)
Sexual health/FP clinics (χ^2= 9.005, df=1, p=0.003)

Table A3b: Most important sources of information on <u>contraception</u> reported by young men and women who had and had not ever had sex (vaginal, oral or anal) (aggregation of 1st, 2nd and 3rd choices)

	Men Ever had sex		Women Ever had sex	
	Yes %	No %	Yes %	No %
School[mf]	63.9	75.3	58.1	76.4
Parents/Guardians	38.3	34.2	47.0	49.3
Brothers/Sisters	9.7	6.6	7.4	8.7
Friends[m]	37.8	26.7	46.0	48.2
Boy/Girlfriend(s) [mf]	15.0	3.3	13.9	3.6
Magazines/Books [f]	17.5	18.5	32.3	40.6
Leaflets/Posters [m]	17.2	24.7	10.0	12.7
TV/Radio/Films [mf]	17.8	26.7	5.9	9.8
Internet	3.1	4.5	1.6	0.4
Youth workers/Services	8.1	9.5	6.3	6.9
Sexual health/Family planning clinic [mf]	12.8	7.0	27.8	12.3
GP/Doctor [f]	11.4	10.3	17.2	8.7
Number	*360*	*243*	*489*	*276*

[m] = Significant difference between men who had and had not ever had sex ($p<0.05$)

[f] = Significant difference between women who had and had not ever had sex ($p<0.05$)

Men:

School (χ^2= 8.767, df=1, p=0.003)

Friends (χ^2= 7.941, df=1, p=0.005)

Boy/Girlfriends (χ^2= 21.557, df=1, p=0.000)

Leaflets/Posters (χ^2= 5.015, df=1, p=0.025)

TV/Radio/Films (χ^2= 6.943, df=1, p=0.018)

Sexual health clinics (χ^2= 5.184, df=1, p=0.023)

Women:

School (χ^2= 26.074, df=1, p=0.000)

Boy/Girlfriends (χ^2= 20.373, df=1, p=0.000)

Magazines/Books (χ^2= 5.282, df=1, p=0.022)

TV/Radio/Films (χ^2= 3.859, df=1, p=0.049)

Sexual health clinics (χ^2= 24.501, df=1, p=0.000)

GP/Doctor (χ^2= 10.469, df=1, p=0.001)

Table A3c: Most important sources of information on sexually transmitted infections reported by young men and women who had and had not ever had sex (vaginal, oral or anal) (aggregation of 1st, 2nd and 3rd choices).

	Men		Women	
	Ever had sex		Ever had sex	
	Yes %	No %	Yes %	No %
School[mf]	66.9	76.5	61.8	76.4
Parents/Guardians	28.3	27.2	31.9	33.7
Brothers/Sisters	6.4	2.9	4.3	5.4
Friends[m]	28.3	19.3	28.6	31.9
Boy/Girlfriend(s) [mf]	5.8	1.6	6.7	0.4
Magazines/Books	23.6	19.3	42.5	47.8
Leaflets/Posters [m]	18.6	19.6	24.1	20.3
TV/Radio/Films[f]	27.2	30.5	15.1	21.4
Internet	4.7	4.9	2.0	1.8
Youth workers/Services	8.1	8.2	8.6	6.5
Sexual health/Family planning clinic[f]	14.2	11.5	29.7	13.4
GP/Doctor [f]	22.8	16.9	24.3	16.3
Number	*360*	*243*	*489*	*276*

[m] = Significant difference between men who had and had not ever had sex ($p<0.05$)

[f] = Significant difference between women who had and had not ever had sex ($p<0.05$)

Men:

School (χ^2= 6.467, df=1, p=0.011)

Friends (χ^2= 6.305, df=1, p=0.012)

Boy/Girlfriends (χ^2= 6.401, df=1, p=0.011)

Leaflets/Posters (χ^2= 9.930, df=1, p=0.002)

Women:

School (χ^2= 17.236, df=1, p=0.000)

Boy/Girlfriends (χ^2= 16.942, df=1, p=0.000)

TV/Radio/Films (χ^2= 4.789, df=1, p=0.029)

Sexual health/FP clinics (χ^2= 25.684, df=1, p=0.000)

GP/Doctor (χ^2= 6.756, df=1, p=0.009)

Appendix 4: Factors used in logistic regression analyses

Phase two survey data variables:

Background factors: sex, study site, social deprivation ranking, age, ethnicity, availability/closeness of mother and father during secondary school years, parental openness in discussing sexual issues during secondary school years, positive portrayal of sex by parents during secondary school years, closeness of friendships with members of the same and opposite sex during secondary school years.

Intermediate factors: respondents' knowledge of and attitudes towards sexual matters, whether the respondent had been tested for STIs or had personally known anyone with an STI, age at first vaginal sex, number of lifetime vaginal sex partners, lifetime number of events of vaginal sex, lifetime consistency of condom use, perceived difficulty using or communicating about condoms and perceived likelihood of unintended pregnancy or becoming infected with an STI.

Event-specific factors: length of time since most recent occasion of vaginal sex, respondents' consumption of drugs and alcohol at most recent vaginal sex, sexual partner type, relative age of partner, communication with partner about contraception and condom use, previous condom use with partner, use of contraception other than condoms and current sexual relationship status.

Phase three diary data variables:

Event-specific factors: age of partner, partner type, order of event, location of event, expectedness of sex, alcohol consumption, discussion of contraception and condom use, prior agreement to use a condom, prior condom use with partner, desire to have sex, desire to use a condom, condom availability, confidence in condom use and communication, worry about pregnancy, HIV and STIs, use of method of contraception other than condom.

The following background variables from the survey data were matched with the diaries: Sex, ethnicity, nationality, study site, closeness/availability of mother and father during secondary school.

Appendix 5: Logistic regression (condom use)

Condom use at most recent vaginal sex

All phase two survey respondents who had ever had vaginal sex were assigned a value of one if they had used a condom on the most recent occasion of vaginal sex and a value of zero if they had not.

Table A5a: Odds ratios from logistic regression analyses of survey data showing factors which predict the likelihood of having used a condom at last vaginal intercourse among 16-21 year old men who had ever had vaginal sex (N=189)

Characteristic	% (n) reporting condom use at last vaginal sex	Odds ratio	95% CI
Other contraception used			
No (ref)	92.9 (118)	1.00	
Yes	45.7 (43)	0.028***	0.008-0.092
Ever used a condom with this partner before			
Yes (ref)	76.9 (80)	1.00	
No	21.1 (4)	0.015***	0.002-0.103
First sex with partner	73.1 (68)	0.414†	0.156-10.96
Personally known anyone with an STI			
No (ref)	79.5 (120)	1.00	
Yes	54.1 (40)	0.204**	0.082-0.507
-2 Log likelihood: 127.279			
Nagelkerke R^2: 0.589			

†p<0.1, *p<0.05, **p<0.01, ***p<0.001, *Note:* ref = reference category

Table A5b: Odds ratios from logistic regression analyses of survey data showing factors which predict the likelihood of having used a condom at last vaginal intercourse among 16-21 year old women who had ever had vaginal sex (N=297)

Characteristic	% (n) reporting condom use at last vaginal sex	Odds ratio	95% CI
Other contraception used			
No (ref)	33.3 (67)	1.00	
Yes	87.9 (145)	0.059***	0.027-0.127
Most of my friends who have had sex, use condoms			
Agree (ref)	70.3 (156)	1.00	
Neither agree nor disagree	39.2 (38)	0.390*	0.184-0.826
Disagree	32.7 (18)	0.167**	0.057-0.490
Ever used a condom with this partner before			
No (ref)	58.5 (121)	1.00	
Yes	13.6 (6)	8.106**	2.227-29.501
First sex with partner	67.2 (78)	2.552	0.558-11.681
Ever discussed condom use with this partner			
Yes (ref)	60.2 (180)	1.00	
No	42.1 (32)	0.294**	0.119-0.728
Partner type			
Regular partner (going out with, and had sex with before) (ref)	47.9 (104)	1.00	
All other partner types	67.7 (105)	5.320*	1.229-23.023
Perceived difficulty using a condom every time with someone you know well			
Not at all difficult (ref)	68.3 (153)	1.00	
A little/quite difficult	41.5 (27)	0.409*	0.179-0.934
Very/extremely difficult	36.1 (30)	0.422*	0.180-0.990
-2 Log likelihood: 247.082			
Nagelkerke R^2: 0.561			

*p<0.05, **p<0.01, ***p<0.001, *Note:* ref = reference category

Table A5c: Odds ratios from multilevel multivariate logistic regression analyses of diary data showing factors which predict condom use for vaginal intercourse at each sexual event after adjusting for clustering of events at the individual level (N=587)

Characteristic	% (n) reporting condom use at last vaginal sex	Odds ratio	95% CI
Other contraception used			
No (ref)	84.1 (206)	1.00	
Yes	33.9 (116)	0.05***	0.02-0.14
Prior agreement to use a condom			
No (ref)	25.5 (84)	1.00	
Yes	92.3 (238)	11.60***	4.58-29.37
Partner wanted to use a condom			
Yes (ref)	94.3 (249)	1.00	
No	4.6 (10)	0.005***	0.001-0.02
Sort of	60.0 (63)	0.09***	0.03-0.29
Respondent wanted to use a condom			
Yes (ref)	89.7 (270)	1.00	
No	4.1 (8)	0.18*	0.05-0.70
Sort of	48.4 (44)	0.25**	0.09-0.68
Respondent wanted to have sex			
Not at all/a little/quite (ref)	55.4 (46)	1.00	
Very	62.5 (110)	4.91*	1.38-17.48
Extremely	50.8 (166)	2.10	0.68-6.46

-2 Log likelihood: 1197
Log likelihood ratio test: χ^2= 1871, df=10, p<0.001
Clustering effect: p=1.36

*p<0.05, **p<0.01, ***p<0.001, *Note:* ref = reference category

Appendix 6: Logistic regression (breakage/slippage)

Condom breakage/slippage

All phase two survey respondents who had used a condom at most recent vaginal sex were assigned a value of one if they had experienced a condom breakage and/or slippage at any point during the event and a value of zero if they had not.

Table A6a: Odds ratios from logistic regression analyses of survey data predicting the effects of various characteristics on the likelihood of having experienced a condom breakage or slippage at last vaginal intercourse among 16-21 year olds who used a condom at last vaginal sex (N=303)

Characteristic	% (n) reporting a condom broke /slipped at last vaginal sex	Odds ratio	95% CI
Condoms are easy to use properly			
Agree (ref)	20 (64)	1.00	
No opinion or Disagree	40 (15)	2.709*	1.210-6.063
Had you been drinking?			
No (ref)	21 (49)	1.00	
Yes, a little	22 (13)	0.980	
Yes, a moderate amount	18 (5)	0.950	
Yes, a lot	46 (12)	4.054**	1.628-10.094
-2 Log likelihood: 308.390			
Nagelkerke R^2: 0.070			

*p<0.05, **p<0.01, ***p<0.001, *Note:* ref = reference category

Table A6b: Odds ratios from multilevel multivariate logistic regression analyses of diary data showing factors which predict condom breakage/slippage at each sexual event after adjusting for clustering of events at the individual level (N=302)

Characteristic	% (n) reporting condom breakage/slippage	Odds ratio	95% CI
Respondent wanted to use a condom			
Yes (ref)	6.3 (17)	1.00	
No / Sort of	26.9 (14)	5.64***	2.22-14.30
Age of respondent (in years)			
16-17	13.0 (16)	1.00	
18-19	9.7 (9)	0.50	0.17-1.43
20-21	5.0 (5)	0.25*	0.07-0.85
-2 Log likelihood = 29.32			
Log likelihood ratio test: χ^2 = 678.2 df=4 p <0.001			
Clustering effect: p>0.05			

*p<0.05, **p<0.01, ***p<0.001, *Note:* ref = reference category

Appendix 7: Logistic regression (timing of condom use)

Condom late application/early removal

All phase two survey respondents who had used a condom at most recent vaginal sex were assigned a value of one if they had applied a condom late or removed a condom early on the occasion of most recent vaginal sex and a value of zero if they had not.

Table A7a: Odds ratios from logistic regression analyses of survey data predicting the effects of various characteristics on the likelihood of having applied a condom late or removed a condom early at most recent vaginal sex among 16-21 year olds who had used a condom (N=294)

Characteristic	% (n) late application/early removal	Odds ratio	95% CI
Consistency of condom use			
Inconsistent user (ref)	19.7 (29)	1.00	
Always user	5.2 (10)	0.273**	0.114-0.657
Close/available mother (from 11-15 years)			
Agree (ref)	9.1 (23)	1.00	
Neither agree nor disagree	13.8 (8)	2.657*	1.010-6.984
Disagree	24.2 (8)	3.222*	1.044-9.944
I feel confident I know how to use a condom properly			
Agree (ref)	9.4 (29)	1.00	
No opinion / Disagree	24.2 (8)	3.328*	1.073-10.325
-2 Log likelihood: 160.667			
Nagelkerke R^2: 0.221			

*p<0.05, **p<0.01, ***p<0.001, *Note:* ref = reference category

Table A7b: Odds ratios from multilevel multivariate logistic regression analyses of diary data showing factors which predict late application and/or early removal of a condom at each sexual event after adjusting for clustering of events at the individual level (N=315)

Characteristic	% (n) late application/early removal	Odds ratio	95% CI
Other contraception used			
No (ref)	5.3 (11)	1.00	
Yes	15.5 (18)	3.46*	1.32-9.05
Respondent wanted to use a condom			
Yes (ref)	7.6 (19)	1.00	
No / Sort of	13.7 (10)	2.81*	1.06-7.44
-2 Log likelihood: 30.15			
Log likelihood ratio test: χ^2= 56.62, df=3, p<0.001			
Clustering effect: p>0.05			

*p<0.05, **p<0.01, ***p<0.001, *Note:* ref = reference category