

# Who has sex with whom? Characteristics of heterosexual partnerships reported in a national probability survey and implications for STI risk

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**Background** Sexually transmitted infection (STI) risk is determined both by partner numbers and partnership characteristics. Studies describing only recent partnership(s) overestimate long-term partnerships and underestimate the contribution of casual partnerships to STI transmission in populations. We describe all heterosexual partnerships in the past year in terms of partnership type, age and geographical mixing and how these characteristics relate to condom use.

**Methods** Probability sample survey of 11 161 men and women aged 16–44 resident in Britain, 1999–2001. Computer-assisted self-interviews asked respondents about partner numbers and detailed questions about their three most recent partnerships. We weight these data to represent partnerships for which detailed questions were not asked to present estimates for the population of partnerships.

**Results** Of 15 488 heterosexual partnerships, 39.1% (95% CI 36.6–41.7%) of men's partnerships were 'not (yet) regular' vs 20.0% (95% CI 18.2–21.9%) of women's partnerships. While condoms were used at last sex in 37.1% (95% CI 35.0–39.3%) of men's and 28.8% (95% CI 27.1–30.6%) of women's partnerships, and for 55.3% (95% CI 52.6–58.0%) of *first* sex with new partners, these proportions declined with age. When partnerships involved an age difference of 5+ years [26.2% (95% CI 23.0–29.6%) of men's and 36.5% (95% CI 33.0–40.1%) of women's partnerships], condoms were less commonly used at first sex than when partners were closer in age [44.1% (95% CI 39.1–48.4%) vs 60.8% (95% CI 57.3–64.2%)]. Sex occurred within 24 h in 23.4% (95% CI 19.7–27.5%) of men's and 10.7% (95% CI 8.3–13.6%) of women's partnerships.

**Conclusions** A substantial minority of partnerships in the population is casual. The proportion of partnerships not protected by condoms is high, especially for partnerships involving larger age differences and

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people in their 30s and 40s. Condom use with new partners needs to be promoted among all age-groups.

**Keywords** Sexual partners, condoms, sexual behaviour, health surveys

## Background

Sexually transmitted infection (STI) risk is determined both by numbers of sexual partners and the characteristics of those partnerships, in terms of the extent to which they facilitate or hinder safer sex and thus STI transmission.<sup>1–5</sup> For example, young women with older male partners are at increased risk because condoms are less likely to be used in such partnerships, relative to young women who form partnerships with males of a similar age.<sup>6–8</sup> At a population level, the prevalence of STIs is known to vary by gender, age and ethnic group,<sup>2,4,5,9</sup> which has implications for STI transmission risk when partnerships are formed between people from different prevalence groups. It is therefore important to understand the characteristics of partnerships to improve our understanding of STI transmission dynamics and to ensure that sexual health promotion messages are appropriately targeted and delivered. However, to date, limited evidence exists due to a paucity of population probability surveys, so inference is often made from studies using convenience sampling and/or studies that focus on specific population groups, which results in estimates that are not generalizable to the population as a whole.<sup>1,10,11</sup>

In most studies, data on sexual partnerships are sought by asking study participants detailed questions about their current or most recent partnership,<sup>12–14</sup> and/or their two or three previous partnerships in a specified time frame.<sup>15–17</sup> Of course, the more recent the time frame of interest, the larger the proportion of participants who will be invited to report detailed data for all their partnerships. Yet, even with a relatively recent focus, such as in the past year, there will be some participants who report many partners, for whom detailed partnership data will be collected only for a proportion of all their partnerships. However, an individual's most recent sexual encounter(s) at a specified interview date may be atypical for them, and for the population of all partnerships in the last year. In a sample of partnerships obtained in this way casual partnerships will be under-represented due to their brevity and episodic nature, which reduces their probability of being captured by a survey relative to longer term, more formal partnerships such as marriages and cohabitations. This is unfortunate since it is well established that individuals with larger numbers of partners contribute disproportionately to STI transmission in populations.<sup>4,18,19</sup>

In order to address this potential bias, we have developed statistical weights for partnerships so that partnerships reported in detail can be weighted to

account for partnerships lacking detailed data. A comprehensive description of the weighting strategies developed and how they compare, at least in terms of estimating the prevalence of condom use at last sex in all partnerships, is published elsewhere in a methodology paper.<sup>20</sup> Briefly, we concluded that the choice of weighting strategy adopted resulted only in small differences in the magnitude of estimates of condom use at last sex, and minimal differences in measures of association. Here, we report estimates derived from using the weighting approach to describe characteristics of *all* heterosexual partnerships in the last year experienced by men and women interviewed for the second British National Survey of Sexual Attitudes and Lifestyles ('Natsal 2'), including partnership type, age and geographical mixing and how these characteristics relate to condom use.

## Methods

Natsal 2 is a stratified probability sample survey of the general population aged 16–44 years, resident in Britain. Details of the methodology and question wording are published elsewhere.<sup>21,22</sup> Briefly, 11 161 people, of whom 6399 were women, were interviewed between May 1999 and February 2001, equating to a response rate of 65.4%, which is in line with other major surveys conducted in Britain.<sup>23,24</sup> Trained interviewers conducted face-to-face interviews in respondents' homes, followed by a computer-assisted self-interview ('CASI'). The face-to-face interview included less sensitive questions (e.g. sociodemographics), while the CASI asked more sensitive questions such as those on sexual practices, partner numbers and of relevance to this article, a module that asked detailed questions about the respondent's most recent partnership. This module included month and year of first and last sex with the partner, partner's gender, partner's age the first time they had sex together (from which the age difference between the respondent and their partner was calculated as the male's age minus the female's age), whether condoms were used at first and last sex with the partner, type of partnership at most recent sex, where the respondent met the partner, where the partner lived when they first met and the time between first meeting and first sex. Respondents reporting more than one partner in the past 5 years were also asked these questions about their second and third most recent partnerships.

As discussed above, to reduce the number of partnerships without detailed data available, we focus our analyses on partnerships in the past year. To compensate for not asking respondents about all partnerships in the past year in detail, we assign weights to the partnerships with detailed data according to whether they were ongoing at interview, termed the primary weighting approach.<sup>20</sup> Specifically, partnerships that have ended (in the past year) are weighted to represent the missing (and hence less recent) partnerships for each respondent, which are assumed to have also ended. A partnership is deduced to be ongoing if the participant was married/cohabiting and described their partnership as married/cohabiting, or, if the participant was not cohabiting at interview and they described their partnership as non-cohabiting and they reported one or more occasions of sex in the month before interview.<sup>20</sup> These partnership-level weights are applied in addition to respondent-level weights, used to correct for the respondents' unequal selection probabilities and to match the age/sex population profile.<sup>21,22</sup>

We used STATA version 8.0 to calculate descriptive statistics to summarize characteristics of all heterosexual partnerships in the past year, and used logistic regression to consider how these characteristics are associated with condom use, taking account of the stratification, clustering and weighting of the sample.<sup>25</sup> In addition to presenting estimates for the population of *all* partnerships, we also present estimates for the population of *new* partnerships, which we define as those in which first sex with the partner occurred in the year prior to interview. A further set of weights was defined for this analysis in an analogous way. This approach allows us to present a contemporary picture of partnership formation (e.g. where partners met, whether or not condoms were used at first sex), as some respondents will have first had sex with their most recent partner(s) several decades prior to interview.

Ethical approval for Natsal 2 study was obtained from University College Hospital, North Thames Multicentre, and all local research Ethics Committees in Britain.

## Results

Of the 11 161 Natsal 2 respondents, 9598 reported at least one heterosexual partner in the past year. The mean number of heterosexual partners in the past year reported by men was 1.75 (95% CI 1.67–1.82) and by women was 1.32 (95% CI 1.29–1.36), while the median for both genders was 1, which reflects the highly skewed partner number distributions. Indeed, 5.7% (95% CI 4.9–6.5%) of men and 2.2% (95% CI 1.8–2.6%) of women reported five or more partners in the past year. The 9598 respondents reported a total of 15 488 heterosexual partnerships in response to the question about partner numbers in the past year,

and detailed data on 12 128 of these partnerships. Thus, 78.5% of all partnerships were respondents' most recent, second most recent or third most recent partner(s) and reported in detail. The 12 128 partnerships reported in detail are hereon weighted to represent a total of 15 488 partnerships.

### Types of partnerships

There was a gender difference in the types of partnerships experienced in the past year (Table 1). A higher proportion of men's partnerships were 'not (yet) regular' (39.1% vs 20.0% of women's partnerships); while a higher proportion of women's partnerships were marriages or cohabitations (55.2% vs 38.9% of men's partnerships,  $P < 0.0001$  for gender difference).

### Condom use at last sex with partners

Gender differences in partnership type may partly explain why condoms were used at last sex in a larger proportion of men's partnerships than women's partnerships (37.1% vs 28.8%, Table 1). Relative to marriages, the ORs of reporting condom use at last sex were 3.18 and 2.53 for regular partnerships (reported by men and women, respectively), and  $>5$  for 'not (yet) regular' partnerships. Despite this increased likelihood, this corresponds to condom use at last sex in just half of 'not (yet) regular' partnerships.

### Age mixing within partnerships

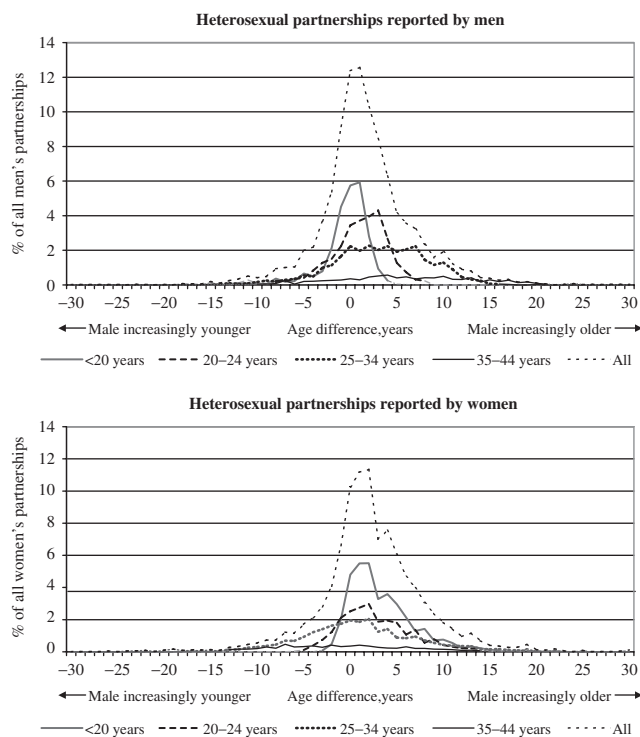
Gender differences in partnership type are likely to reflect differences in the age of respondents relative to their partners, with men typically a couple of years older than their female partners (mean age difference: 2.0 years, 95% CI 1.8–2.1). However, there is some variability in the age difference as three-quarters of partnerships involved an age difference of between  $-0.5$  years (i.e. men half a year *younger* than their female partners) and 4.9 years (i.e. men almost 5 years older than their female partners). Furthermore, this variability increases with increasing age at the start of the partnership as evident from Figure 1. For example, the inter-quartile range (IQR) increased from 2.0 years for men who began partnerships before age 20 to an IQR of 11.6 years for men aged 35–44 years when their partnership began, reflecting partnership formation with increasingly younger female partners with increasing age. This pattern of sexual mixing is also reflected in a larger IQR for women who started their partnerships before age 20 relative to their male counterparts (4 years vs 2 years).

### New partnerships

Of all men's partnerships, 46.6% (95% CI 44.1–49.1%) first involved sex in the year prior to interview, and are thus considered *new* partnerships, in comparison to 32.4% (95% CI 30.5–34.3%) of all women's partnerships. Over half of all new partnership formation was

**Table 1** Distribution of types of heterosexual partnerships in the past year and the association with condom use at last sex, by gender

Partnership type	Percentage (95% CI) of all partnerships	Percentage (95% CI) of partnerships involving condom use at last sex	OR (95% CI) of condom use at last sex
<b>Men's partnerships:</b>			$P < 0.0001$
Married	25.4 (23.8–27.1)	17.9 (15.9–20.0)	1.00
Cohabiting	13.5 (12.3–14.7)	21.8 (18.5–25.6)	1.28 (1.00–1.65)
Regular partners	22.0 (20.4–23.6)	40.9 (37.2–44.7)	3.18 (2.58–3.91)
Not (yet) regular partners	39.1 (36.6–41.7)	55.7 (48.7–56.8)	5.13 (4.14–6.35)
All	100.0	37.1 (35.0–39.3)	N/A
<b>Women's partnerships:</b>			$P < 0.0001$
Married	35.6 (34.0–37.2)	17.1 (15.4–18.8)	1.00
Cohabiting	19.6 (18.4–21.0)	20.4 (17.6–23.5)	1.24 (1.00–1.55)
Regular partners	24.8 (23.4–26.3)	34.3 (31.1–37.5)	2.53 (2.11–3.05)
Not (yet) regular partners	20.0 (18.2–21.9)	51.3 (46.7–55.8)	5.12 (4.12–6.37)
All	100.0	28.8 (27.1–30.6)	N/A

**Figure 1** Distribution of age differences between respondents and their sexual partner(s) by gender of respondent and their age at partnership formation

reported by those aged under 25 years, while one in six new partnerships were reported by respondents aged 35–44 years (Table 2).

### Meeting new partners

Table 3 presents data on where respondents first met their new partners. The most commonly cited place

was in a pub/café/restaurant (39.7% of men and 30.9% of women), followed by 'at/through work' and 'at a social event organized by friend(s)' cited by approximately one in six and one in eight respondents, respectively. Approximately one in eight respondents met their new partners at an educational establishment, with this proportion unsurprisingly declining with age at the start of the partnership: 24.6% (95% CI 20.3–29.4%) among those aged under 20 years vs 3.8% (95% CI 2.2–6.5%) among those aged 35–44 years. Of the men, 0.3% reported paying for sex with their most recent new partner. Approximately 1 in 20 men and women met their partners on holiday or while travelling. Furthermore, 3% of respondents' new partners usually lived in a different country when they first met, while the majority of men and women reported that their partner lived in the same town or city as they did when they first met. There was no variation in the geographical origin of partners by age at the start of the partnership, for either gender.

### Time between meeting and first sex with partners

On average, men reported having sex sooner after first meeting their partners than women, with one in five men reporting sex within 24 h of meeting their partner compared with 1 in 10 women ( $P < 0.0001$ , Table 3). Approximately one in eight men and one in six women first had sex more than a year after meeting their partner to first have sex. There was no variation in time between first meeting and first sex by age at the start of the partnership for either gender.

### Condom use at first sex with partners

Overall, half of all new partnerships involved condom use at first sex (Table 2). Condom use at first sex with new partners declined with increasing age at the start

**Table 2** Age at partnership formation, the age difference between partners and variations in condom use at first sex, by gender of respondent: new partnerships only

	Men's new partnerships <sup>a</sup>			Women's new partnerships <sup>a</sup>			
	Percentage (95% CI) of new partnerships	Percentage (95% CI) of new partnerships involving condom use at first sex	OR (95% CI) of condom use at first sex	Percentage (95% CI) of new partnerships	Percentage (95% CI) of new partnerships involving condom use at first sex:	OR (95% CI) of condom use at first sex	
<b>Age of respondent at partnership formation</b>			$P < 0.0001$				$P < 0.0001$
16–19	23.3 (20.0–27.1)	68.0 (60.0–75.0)	1.00	29.5 (26.0–33.3)	67.4 (61.0–73.2)	1.00	
20–24	32.3 (28.1–36.8)	61.7 (53.9–69.0)	0.76 (0.49–1.18)	25.0 (21.2–29.3)	61.3 (53.1–68.9)	0.77 (0.49–1.19)	
25–34	31.4 (28.1–35.0)	49.9 (44.2–55.5)	0.47 (0.31–0.71)	29.4 (26.7–32.4)	45.6 (40.6–50.6)	0.41 (0.29–0.57)	
35–44	13.0 (11.4–14.7)	38.1 (31.9–44.8)	0.29 (0.19–0.45)	16.1 (13.8–18.6)	28.8 (22.7–35.9)	0.20 (0.13–0.30)	
All	100.0	56.4 (52.7–60.0)	N/A	100.0	53.3 (49.8–56.7)	N/A	
<b>Age difference with partner</b>			$P = 0.0002$				$P < 0.0001$
Male 5+ years older than female	20.3 (17.4–23.5)	42.7 (35.3–50.4)	1.00	24.9 (21.6–28.6)	45.7 (37.5–54.2)	1.00	
Male within 5 years of female's age	73.4 (70.0–76.6)	61.7 (56.8–66.4)	2.17 (1.50–3.12)	62.8 (59.2–66.2)	58.9 (54.8–62.9)	1.70 (1.17–2.48)	
Male 5+ years younger than female	6.3 (4.9–8.1)	51.6 (38.5–64.4)	1.43 (0.78–2.62)	12.3 (10.3–14.6)	38.3 (30.5–46.9)	0.74 (0.45–1.20)	
All	100.0	56.4 (52.7–60.0)	N/A	100.0	53.3 (49.8–56.7)	N/A	

<sup>a</sup>New partnerships are defined as partnerships where first sex occurred in the 12 months prior to interview for Natsal 2.

of the partnership. For example, relative to respondents aged 16–19 years at first sex, men and women aged 35–44 years had ORs for using condoms at first sex with their new partners of 0.29 and 0.20 (respectively), corresponding to just 38.1% of men and 28.8% of women aged 35–44 years. New partnerships involving an age difference between the respondent and their partner of at least 5 years were also less likely to have used condoms at first sex than partnerships where the individuals were within 5 years of each others age. Furthermore, there was no difference in the magnitude of this 'effect' in terms of whether it was the male or female who was at least 5 years older than their partner. We also examined the interaction between having an age difference of at least 5 years and being relatively young (under 20) at first sex with the partner. This was not significant for reporting condom use at first sex for either gender, such that the 'effect' of having a relatively older partner on condom use was similar regardless of the respondent's age when they first had sex with their partner [adjusted ORs for interaction terms of 1.19 (95% CI 0.38–3.71),  $P = 0.763$  for males and 0.68 (95% CI 0.32–1.45),  $P = 0.313$  for females].

In terms of how partnership formation characteristics are associated with facilitating or hindering safer sex, we found that women who met their partner while travelling were more likely to report condom use at first sex than women who met their partners in

other ways (68.1% vs 47.9%,  $P = 0.049$ ), but this proportion again declined with age from 92.2% of those aged under 20 at the start of the partnership to 34.6% of those aged 35–44 years at the start of the partnership ( $P = 0.018$ ). Meanwhile, men who reported sex within 24 h of meeting their partner were more likely to report condom use on this occasion relative to men who waited at least a day to first have sex (OR of 1.60, 95% CI 1.04–2.45,  $P = 0.031$ ).

## Discussion

In this study of over 15 000 heterosexual partnerships reported in a large probability survey of the British general population, we found that men were more likely than women to report casual partnerships in the past year. This may, in part, reflect subjectivity regarding whether a partnership is considered 'regular' or 'not (yet) regular', at least relative to partnerships involving cohabitation, which provides a relatively objective measure of partnership status.<sup>10,17</sup> A more likely explanation for the observed gender differences in partnership type is age mixing. We found that men were more likely to report younger partners with whom casual partnerships and/or partnerships of shorter duration are more common, enabling men to accumulate a greater number of partnerships than women, as others have reported.<sup>2,10,26,27</sup> This may

**Table 3** Characteristics of partnership formation, by gender of respondent: new partnerships<sup>a</sup> only

	Percentage (95% CI) of new partnerships <sup>a</sup> reported by men	Percentage (95% CI) of new partnerships <sup>a</sup> reported by women
<b>Where respondent met their partner</b>		
School/college/university	12.2 (9.6–15.4)	12.6 (10.3–15.4)
At/through work	14.5 (11.1–18.7)	18.9 (15.4–23.0)
Pub/café/restaurant	39.7 (35.3–44.2)	30.9 (27.5–34.5)
Social event organized by friend(s)	13.9 (11.2–17.2)	13.2 (11.0–15.7)
Through a society/sports club	2.3 (1.5–3.6)	2.7 (1.9–3.8)
On holiday/while travelling	4.5 (3.2–6.2)	5.2 (3.6–7.5)
Public place (e.g. museum, park)	5.2 (3.9–6.9)	3.2 (2.3–4.5)
Dating agency/chat line	1.5 (0.9–2.6)	1.2 (0.7–2.0)
Always known each other	4.1 (3.0–5.7)	8.4 (6.7–10.4)
Neighbour/lived locally/shared a flat	0.2 (<0.1–0.9)	0.5 (0.2–1.3)
Church	<0.1 (<0.1–0.3)	0.3 (<0.1–0.9)
Arranged marriage	0.0	<0.1 (<0.1–0.3)
Through friends/relatives	1.5 (0.9–2.3)	2.2 (1.4–3.4)
Sex worker/red light district	0.3 (<0.1–1.0)	Not asked to women
Other	0.2 (<0.1–0.5)	0.8 (0.4–1.6)
All	100.0	100.0
<b>Origin of partner when they first met</b>		
Same city/town	62.8 (58.5–66.9)	64.5 (60.8–68.1)
Same region, different town	21.8 (18.5–25.5)	20.6 (17.7–23.8)
Same country, different region	10.2 (8.0–12.9)	10.9 (8.8–13.5)
Different country	2.8 (2.0–4.1)	3.7 (2.7–5.1)
Unknown	2.4 (1.2–4.6)	0.3 (<0.1–1.3)
All	100.0	100.0
<b>Time between first meeting the partner and first sex (with that partner)</b>		
<24 h	23.4 (19.7–27.5)	10.7 (8.3–13.6)
>24 h but <1 week	14.1 (10.7–18.4)	10.2 (8.0–12.9)
>1 week but <1 month	25.2 (21.6–29.1)	23.0 (20.0–26.3)
>1 month but <6 months	18.4 (15.4–21.9)	27.9 (24.1–32.1)
>6 months but <1 year	5.9 (4.1–8.3)	10.8 (8.7–13.2)
>1 year	13.1 (10.7–15.8)	17.5 (15.1–20.2)
All	100.0	100.0

<sup>a</sup>Among new partnerships that is partnerships where first sex occurred in the 12 months prior to interview for Natsal 2. Data for Table 3 refer only to the most recent (or current) partner as the corresponding questions were not asked of respondents if they were married to their second most recent partner or third most recent partner.

also explain why men were more likely than women to report condom use at last sex, as condom use was found to be more common in casual partnerships, as has been observed in other studies.<sup>10–12</sup>

Non-use of condoms in a partnership may be due to being, or trying to become, pregnant, or use of other more effective and/or long-acting contraceptive methods, especially if protection from STIs is not required due to mutual monogamy. For example, data from Natsal 2 show that over 80% of sexually active, never

married respondents reported their reason for using condoms was 'to protect against HIV and other STIs' in contrast to 1.8% of married respondents.<sup>28</sup> In this respect, it was interesting to observe that condoms were used at last sex in approximately one-sixth of marriages, although this is consistent with data from the Office for National Statistics *Contraception and sexual health surveys*, which report that condoms remain the second most commonly used contraceptive method by married women.<sup>29,30</sup>

The above explanations for condom non-use are less likely to apply to partnerships described as 'not (yet) regular', and it is therefore worrisome that condom use was reported at last sex in just half of such partnerships. This observation supports the hypothesis that condom use quickly wanes in new partnerships, as frequency of condom use after just 21 days has been found to be similar to condom use in established partnerships.<sup>31</sup> However, of greater concern was our finding that over half of new partnerships did not use condoms at *first sex*, even when this was with a non-regular partner, and condoms were not used in one-third of cases when first sex was within 24 h of first meeting. We acknowledge that some ambiguity surrounds the concept of when and where respondents *first* met their partners. The Natsal survey specifically asked respondents: 'How long was it between *FIRST* meeting the [2nd/3rd most recent] person you had sex with most recently and first having sex with him/her?'<sup>22</sup> Some respondents may have interpreted this question as the time between first knowing of someone and first sex with that person, while others may have interpreted this as the time between commencing an emotional relationship and first having sex. If the latter interpretation was employed by respondents, this may offer some explanation for the unexpectedly high proportions of heterosexual partnerships with a short lag time between first meeting and first sex. However, examination of the time to first sex reported by those who said that they had 'always known' their partners shows that these respondents (at least) were more likely to report a relatively long 'lag time' to first sex of at least 5 years (28.6% of these respondents vs 3.3% of respondents who reported meeting their partner in the other ways listed in Table 3).

While we observed no association between age and time to first sex, we found that condom use at first sex declined with increasing age. Although a disproportionate amount of partnership formation occurs among people in their teens and 20s, with 45% of marriages now expected to end in divorce and half of these occurring before couples reach their 10th anniversary, the 'population attributable risk' of partnership formation by those in their 30s and 40s will increase.<sup>32</sup> Indeed, increasing rates of STIs diagnosed among those in their 30s and 40s<sup>9</sup> suggest that interventions that promote consistent condom use with new partners are urgently required, not just for young people as has been the focus recently,<sup>33</sup> but for people in their 30s and 40s and older who are increasingly forming new partnerships.<sup>34,35</sup>

Increasing STI rates among older age-groups also reflect the tendency for greater age mixing at an older age of partnership formation, i.e. the mixing of low STI prevalence cohorts with high STI prevalence cohorts, as well as the reduced likelihood of condom use at first sex in partnerships with age asymmetry, relative to partnerships where individuals were similar in age. In turn, this may reflect hypotheses relating

the magnitude of the age difference between sexual partners to possible gender/power imbalances, at least in the context of young people's sexual unions.<sup>15,16</sup> In this respect, it is interesting that we found no difference in the likelihood of using condoms at first sex by *gender* of the older partner. Although we cannot assume causality because the data are from a cross-sectional survey, this finding may have implications for sex and relationship education and counselling. Improving negotiation skills for women *and* men may facilitate communication and in turn increase the likelihood of condom use in such partnerships.

In terms of the geographical distribution of sexual partners, our data suggest that the majority of new sexual partnerships are likely to involve individuals from the same locality, with many people reporting meeting their partners via their educational, work and/or social networks. In contrast, relatively few cited meeting partners while travelling, with less than 1 in 20 reporting that their partner lived in a different country to them when they first met. This is consistent with previously published data that estimated that, while 13.9% of men and 7.1% of women reported acquiring at least one partner while overseas in the past 5 years, 'geographical sexual mixing' accounted for a much smaller proportion of *all* partnerships reported in this time-frame.<sup>36</sup> In terms of ethnic mixing, Natsal 2 did not ask respondents about the ethnicity of their sexual partners, so we were not able to estimate this partnership characteristic with these data.

Our novel analyses of partnership data reported by respondents in a national probability survey help us to better understand who has sex with whom, and how partnership characteristics relate to condom use and thus STI risk. By using weights to take account of partnerships without detailed data, we have been able to consider the *population* of partnerships and not just respondents' current or most recent partner(s) as in other studies.<sup>12-17</sup> We would therefore encourage other studies to investigate and adopt similar approaches to maximize the utility of partnership data, thus improving our understanding of STI epidemiology.

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**KEY MESSAGES**

- Studies of STI risk need to take account of the characteristics as well as the numbers of sexual partnerships.
- Studies describing only recent partnership(s) overestimate long-term partnerships. Weighting partnerships enables estimates to be generated for the population of partnerships, a substantial minority of which is casual.
- The proportion of partnerships not protected by condoms is high, especially for partnerships involving larger age differences and people in their 30s and 40s.
- Condom use with new partners needs to be promoted among all age-groups.

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## Commentary: Learning to be creative with HIV/AIDS studies: looking for the variation—not only the average

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A paper in this edition of the *IJE* analysing heterosexual partnerships in the United Kingdom is an example of how innovative research can advance our understanding of an important area of study while also creating opportunity to address new questions that can chart a course for future research.<sup>1</sup> The authors do this by addressing a methodological problem described in the current article and in a companion article.<sup>2</sup> In brief, both papers assess duration of partnerships and condom use not only in the most recent partnership, but also in all partnerships in the past year. The results provide insight about variation between genders in the stability of their relationships. For example, men display a higher proportion of *not regular relations* while women have a

higher proportion of relations that were marriages or cohabitations. This gender difference may reflect age mixing taking place because men were more likely to have casual relationships with younger partners. As a result they accumulated a large number of relationships. This pattern may also explain why men reported more frequently than women that they used condoms during their last sexual contact—condom use being more frequent in casual relationships. While this result about condom use in casual relationships suggests that men are embracing a protective behaviour during a risky activity, it is nevertheless worrying that 45% of men in their last sexual casual contact did not use a condom—a result that still indicates the importance of promoting condom use.

Patterns of condom use among women, however, were also informative. Women's condom use diminished in longer duration relationships (12+ months) that were ongoing at the time of the interview.

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