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Do Reports of Age and Circumstances of First Intercourse Differ in a Birth Cohort When Asked Seventeen Years Apart?

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Conclusions about temporal changes in age and circumstances of first intercourse are generally derived from retrospective reports by people of various ages in cross-sectional studies, with an inherent assumption of no bias stemming from time since the event. We examined this assumption through repeated questions on age and circumstances of first heterosexual intercourse (FHI) at ages 21 and 38 in a birth cohort. Despite considerable movement in individual reports, there was no bias in reported age of FHI. However, a greater proportion of both men and women stated at the later assessment both partners had been equally willing (versus persuading or persuaded). The distribution of current views of the appropriateness of the timing did not differ markedly between assessments, although there were many individual changes. Reports of contraceptive usage were similar at the two assessments for men but differed among women, mainly through more reporting that they could not remember. These findings imply that among cohorts born in the 1970s, there is no bias in reports of age of FHI many years after the event, and views on the appropriateness of timing persist. However, time biases reports in favor of a more mutual willingness.

For most people sexual debut is a highly salient event (Mitchell & Wellings, 1998). Data on timing of first heterosexual intercourse (FHI), an important indicator of sexual health risks, have been used extensively in research to examine shifts over time in normative sexual behaviors within and between countries (Mercer et al., 2013; O'Donnell, O'Donnell, & Stueve, 2001; Rissel, Richters, Grulich, Visser, & Smith, 2003; Sandfort, Orr, Hirsch, & Santelli, 2008). The circumstances of first intercourse may also be an indicator of later behavior (Shafii, Stovel, Davis, & Holmes, 2004).

As studying sexual behavior in representative samples was rare before the 1990s, conclusions about temporal changes in the timing of first intercourse are generally based on retrospective reports by people of different ages in cross-sectional studies. However, the collection of these data has a number of challenges (Fenton, Johnson, McManus, & Erens, 2001). It is believed that incident events will be recalled more accurately than measures of frequency (Schroder, Carey, & Venable, 2003), and as FHI is considered a salient event it should be remembered well (Catania, Gibson, Marin, Coates, & Greenblatt, 1990). However, while some recall errors in

reports can be anticipated, systematic bias is a potential problem that could have a greater impact on the validity of the findings. Social desirability bias is of particular concern when asking about sexual activity, as it is subject to many social, moral, and legal controls. If reporting biases differ by time after sexual debut, a cross-sectional study might spuriously suggest temporal changes relating to the event that have not occurred, or hide ones that have.

While it is not possible to directly confirm the validity of any responses, longitudinal studies that ask people the same questions on two or more occasions allow consistency of reports to be examined and quantified to investigate possible systematic bias. Among adolescents, there have been a few studies conducted over one- or two-year periods that contained repeated questioning about age at first sexual intercourse (Alexander, Somerfield, Ensminger, Johnson, & Kim, 1993; Lauritsen & Swicegood, 1997; McFarlane & St Lawrence, 1999; Upchurch, Lillard, Aneshensel, & Li, 2002). In general, these studies found quite marked inconsistency in the reporting of age of first intercourse, particularly among males, who had a tendency to subsequently report an older age. In adulthood only two studies have been undertaken, both over a longer period, and both found moderate consistency of reported age and no detectable bias (Dunne et al., 1997; Goldberg, Haydon, Herring, & Halpern, 2014).

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As well as age at first intercourse, a range of circumstances, such as contraceptive use, relative willingness between partners, and the relationship with the first partner, have been asked about in recent population-based surveys of sexual behavior. While differences by age groups in these studies suggest changes in circumstances over time have occurred, such conclusions assume unbiased reporting (Wellings et al., 2001). Some of the aspects of sexual debut on which information has been sought, such as the relative willingness of an individual and his or her partner, are more subjective, so they not only are potentially subject to poorer recall but may also be reinterpreted over time. Studies have also sought retrospective views about the appropriateness of the timing of first intercourse, which can quite legitimately change as a person reflects on his or her earlier behavior. Thus, we could anticipate more changes in the reporting of circumstances and of the appropriateness of timing compared with age of first intercourse.

The Dunedin Multidisciplinary Health and Development Study (DMHDS) is uniquely positioned to elucidate the extent of changes in reporting because it a longitudinal study of a population-based birth cohort with information on FHI collected at two ages. We have previously described the age and circumstances of FHI from reports given at age 21 and found marked gender differences in reported circumstances, with more women than men reporting they had been persuaded or forced, and in retrospect wishing they had waited longer; both of these negative circumstances were associated with earlier age at FHI (Dickson, Paul, Herbison, & Silva, 1998). At the age 38 assessment, similar questions on the age, circumstances, and the current view on the appropriateness of the timing of FHI were asked, allowing direct comparison of reports over a 17-year period.

The aims of this analysis were, first, to examine the pattern of reported age and circumstances of FHI among the same men and women questioned at age 21 and 38 in this birth cohort, and, second, to determine the extent that reports of age and circumstances of FHI persist or change among individual men and women between these ages.

Method

Participants were enrolled in the DMHDS, a cohort of all children born between April 1972 and March 1973 in Dunedin, New Zealand, who lived in the province and participated in the first follow-up assessment at age three ($N = 1,037$, 91.0% of those eligible). Overall, 926 men and women (90.8% of the surviving cohort), answered the questions on age of FHI at the age 21 assessment; 911 did so at the age 38 assessment (90.5% of those surviving to that age); and 860 (85.4% of those surviving to age 38) did so at both assessments.

The early history of the sample has been described (Poulton, Moffitt, & Silva, 2015). At age 21, many demographic features were similar to their age group in the country overall, but the sample had a slightly higher level of educational achievement and fewer people of Māori ethnicity (Dickson, Paul, Herbison, McNoe, & Silva, 1996). Ethical approval was given by the Otago and the Southern Regional Ethics Committee as relevant for each stage of the study.

Information on sexual and reproductive health and behavior was collected in a 20- to 30-minute module within a whole day of assessment. This component was first introduced at age 18 and was subsequently more comprehensive at ages 21, 26, 32, and 38 years. On all occasions data collection was undertaken through a computer questionnaire during an afternoon session. Similar questions on FHI were included at the age 21 assessment in 1993/1994 and at the age 38 assessment in 2010/2012. The median at the age 21 assessment was 21.0 years, and at the age 38 assessment was 38.4 years.

At each assessment, those who reported heterosexual intercourse were asked their age when this first occurred, followed by questions on circumstances and their current views on the timing (see Box). These were based on those used in the first British National Surveys of Sexual Attitudes and Lifestyles (Natsal) study (Johnson, Wadsworth, Wellings, & Field, 1994). Age of FHI was grouped as 13 years or less, 14 to 15, 16 to 17, 18 to 20, and not before 21 years. At the age 38 assessment, additional subgroups of not before 21 (21 to 26, 27 to 32, 33 to 37, and not before 38 years) were described, though not used in analytical comparisons. Those who

Box	Questions on age and circumstances asked of first heterosexual intercourse
	How old were you when you first had sexual intercourse with a women/man*?
	Would you say that you were both equally willing to have intercourse that first time, or was one of you more willing than the other?
	<input type="radio"/> Both equally willing <input type="radio"/> I was more willing than my partner <input type="radio"/> My partner was more willing <input type="radio"/> Can't remember
	On the occasion you first had intercourse, you said your partner was more willing. Would you say that...?
	<input type="radio"/> You were also willing <input type="radio"/> You had to be persuaded <input type="radio"/> You were forced
	Did you or your partner use any form of contraception that first time? <i>More than one answer can be given.</i>
	<input type="radio"/> Condom <input type="radio"/> Other contraceptive <input type="radio"/> I/He* withdrew <input type="radio"/> Made sure it was the "safe period" <input type="radio"/> No precautions by me, I don't know about my partner <input type="radio"/> No precautions by either of us <input type="radio"/> Can't remember
	Looking back now at the first time you had sexual intercourse, do you think...?
	<input type="radio"/> You should have waited longer before having sex with anyone <input type="radio"/> You should not have waited so long <input type="radio"/> It was about the right time <input type="radio"/> Don't know/no opinion
	* As appropriate for men and women

reported being forced were not asked subsequent questions; however, they were assumed to consider the timing as too early and classified as such; this includes two men at both the age 21 and 38 assessments, and 60 and 18 women at the age 21 and 38 assessments respectively. The three optimal responses for the circumstances of FHI were considered to be equally willing, timing was about right, and contraception was used.

Statistical Analysis

All analyses were conducted in Stata 12.1/SE. The pattern of age and circumstances of FHI by all respondents provided at age 21 and age 38 assessments are shown.

Among those who reported an age of FHI at both assessments, individual differences in the reported age were calculated and compared between men and women using Pearson’s chi-squared test. Among these people, the number falling into the same and different age groups at the two assessments was tabulated, and the marginal distribution compared by the Stuart-Maxwell test for homogeneity and Bowker’s test for symmetry.

The frequency of responses to questions on relative willingness, views on timing, and contraceptive use by assessment age and gender for all those who reported FHI prior to age 21 at each assessment are presented and compared between men and women using the Pearson’s chi-squared test. The circumstances reported at the two assessments, among those who reported these at both assessments, were tabulated; the proportion providing the same response at both assessments was calculated. The marginal distributions of the reported circumstances at the two assessments were compared by the Stuart-Maxwell test for homogeneity and Bowker’s test for symmetry.

The proportion reporting each of the optimal circumstances was calculated by age at FHI for men and women at each assessment age and shown graphically. Poisson regression was used to assess the associations with age at FHI and each of these optimal responses.

Interactions between assessment age and age of FHI were investigated for each of these, and their possible inclusion was assessed using the likelihood ratio test.

Results

Distribution of Age of FHI at Two Assessments

The overall distribution of grouped age at FHI reported at age 21 and age 38 assessments were similar for men or women (Table 1). The proportions of those reporting FHI before age 16 were also similar at the two assessments: 27.5% and 26.2% for men at each assessment respectively, and 31.7% and 33.5% for women. While fewer men than women reported FHI before age 16 at both assessments, this gender difference was only statistically significant at the later assessment ($p = 0.16$ and $p = 0.02$ at age 21 and 38 assessments, respectively).

Distribution of Circumstances of FHI at Two Assessments

Among all who reported FHI before age 21, the pattern of relative willingness differed markedly between assessments for both men and women (Table 2). For men, the proportion saying they and their partner were equally willing rose from 76.5% at the earlier assessment to 91.6% at the later one, with fewer men in all other categories at the later assessment, including those who reported not remembering. For women, the proportion reporting being equally willing increased from 52.9% to 70.1%, with fewer reporting at the later assessment their partner was more willing, with this dropping from 42.3% to 25.3%; similar proportions of women at both assessments reported being more willing or could not remember. Men and women differed strikingly in their reported willingness at both assessments ($p < 0.001$ at each assessment), with significantly fewer women reporting being equally willing at either assessment. Furthermore, only 10.4% of men at the age 21 assessment

Table 1. Age of First Heterosexual Intercourse Reported at Age 21 and Age 38 Assessments for Men and Women

	Men		Women	
	Age 21 Assessment	Age 38 Assessment	Age 21 Assessment	Age 38 Assessment
	<i>N</i> = 469	<i>N</i> = 457	<i>N</i> = 457	<i>N</i> = 454
Age of FHI (Years)	%	%	%	%
13 or less	7.5	7.2	6.1	5.7
14–15	20.0	19.0	25.6	27.8
16–17	33.9	31.5	38.5	35.7
18–20	26.4	28.5	21.4	21.2
Not before 21	12.2	13.8	8.3	9.7
21–26	—	10.9	—	7.1
27–32	—	1.8	—	1.1
33–37	—	0.2	—	0.2
Not before 38	—	0.9	—	1.3

Note. FHI = first heterosexual intercourse.

Table 2. *Relative Willingness, View on Timing, and Contraceptive Use at FHI for Those Who Reported FHI Before Age 21 at Age 21 Assessment; FHI Before Age 21 at Age 38 Assessment; and Any FHI Age at Age 38 Assessment*

	Men			Women		
	Age 21 Assessment	Age 38 Assessment		Age 21 Assessment	Age 38 Assessment	
	FHI < 21 %	FHI < 21 %	All %	FHI < 21 %	FHI < 21 %	All %
Relative Willingness	<i>N</i> = 412	<i>N</i> = 393	<i>N</i> = 457	<i>N</i> = 418	<i>N</i> = 408	<i>N</i> = 452
Both equally willing	76.5	91.6	90.8	52.9	70.1	70.4
Self more willing	7.8	3.1	3.5	1.2	1.2	1.3
Partner more willing	10.4	3.6	3.7	42.3	25.3	24.6
Can't remember	5.3	1.8	2.0	3.6	3.4	3.8
View on Timing	<i>N</i> = 411	<i>N</i> = 393	<i>N</i> = 458	<i>N</i> = 416	<i>N</i> = 408	<i>N</i> = 452
Too early [†]	15.8	14.3	12.9	57.7	52.9	50.4
Right time	48.4	54.7	53.5	35.6	39.2	40.7
Preferred earlier	10.5	10.4	14.0	0.7	1.2	1.8
Don't know	25.3	20.6	19.7	6.0	6.6	7.1
Contraceptive Use	<i>N</i> = 410	<i>N</i> = 392	<i>N</i> = 456	<i>N</i> = 388	<i>N</i> = 399	<i>N</i> = 442
Contraception [‡]	59.5	57.7	59.4	72.2	65.9	65.6
No contraception	26.8	24.5	23.3	22.4	22.8	22.9
Can't remember	13.7	17.9	17.3	5.4	11.3	11.5

Note. FHI = first heterosexual intercourse.

[†]Includes those who reported they were forced and not actually asked this question.

[‡]Excludes withdrawal and rhythm. Contraception data were not sought from those who reported they were forced.

reported their partner was more willing, while 42.3% of women did so; at the age 38 assessment, 3.6% of men and 25.3% of women reported this. The pattern of reports from the age 38 assessment was similar when all, not just those reporting FHI before age 21, were included.

In contrast to reports of willingness, the distribution of views on the appropriateness of timing of FHI did not differ significantly between assessments for men or women (Table 2). There was, however, a very strong gender difference at both assessments ($p < 0.001$ at each assessment): Over half the women who reported FHI before 21 years at either assessment believed it had occurred too early (57.7% at the age 21 and 52.9% at the age 38 assessment), whereas among the men only 15.8% did so at the earlier and 14.3% at the later assessment. The pattern of reports from the age 38 assessment did not differ greatly when all reports, not just those reporting FHI before age 21, were included.

The pattern of contraceptive use was similar between assessments for men, but less so for women (Table 2). Fewer women reported contraceptive use at the age 38 assessment than earlier, due to an increase in those saying they could not remember. At both assessments, the pattern varied between men and women; at the earlier assessment fewer men (59.5%) than women (72.2%) reported contraceptive use ($p < 0.001$); at the later one this gender difference was less marked but still statistically significant ($p = 0.017$). More men than women could not remember at each assessment.

Association Between Reported Age and Circumstances of FHI

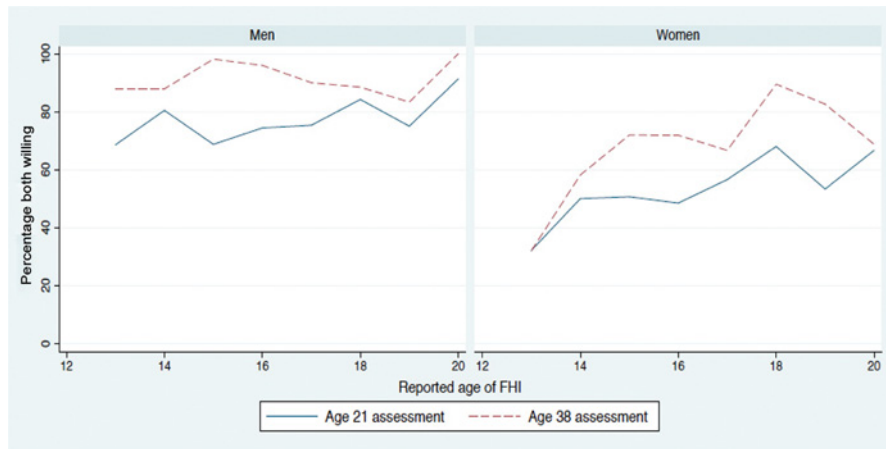
The relationships between age of FHI (up to age 20) and the positive circumstances of both partners being equally willing, the timing being right, and contraception being used, as reported at the two assessments, are shown in Figure 1.

Overall, the proportions reporting each of these circumstances increased significantly with age of FHI, except for reports of both partners being equally willing by the men ($p = 0.62$) and contraceptive use by the women ($p = 0.18$). This was very pronounced for both partners being equally willing and right timing, with an extremely low proportion of women with very early FHI reporting these circumstances at either assessment; in addition, very few men with very early FHI reported contraceptive use at either assessment. There was no evidence that the associations between age and circumstances were modified by assessment age, with the interaction term being nonsignificant ($p > 0.40$) for all circumstances measures.

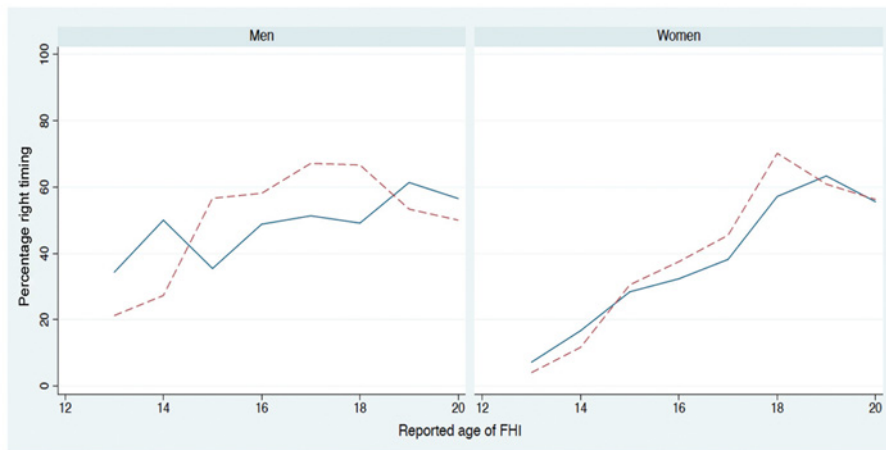
Consistency of Reported Age of FHI for Individuals

Examining age of FHI given by individuals at each assessment revealed the proportion of men (44.4%) giving the exact same age was significantly ($p < 0.001$) lower than of women (57.6%). The extent of change is summarized and compared between men and women in

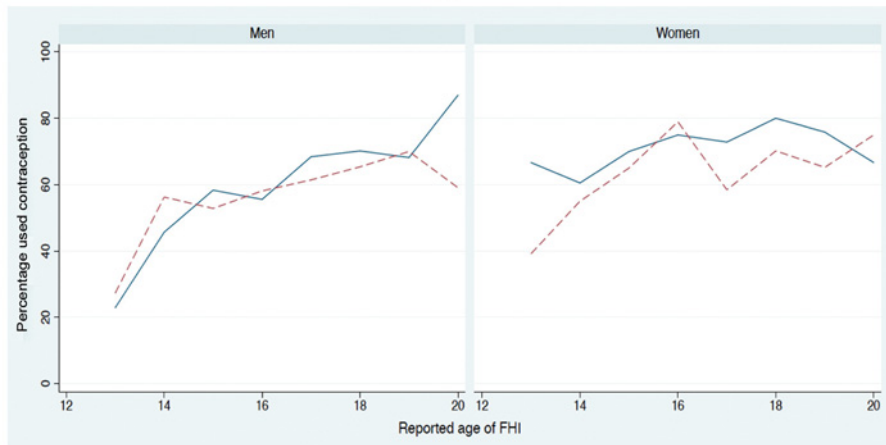
PATTERNS OF FIRST INTERCOURSE REPORTED 17 YEARS APART



(a)



(b)



(c)

Figure 1. (a) Association between the percentages reporting they and their partner were equally willing by age of first heterosexual intercourse (FHI) reported at age 21 and age 38 assessments. (b) Association between the proportions reporting the timing was right by age of FHI reported at age 21 and age 38 assessments. (c) Association between the proportions reporting contraception was used by age of FHI reported at age 21 and age 38 assessments.

Table 3; 84.8% reported either the same or a one-year difference, again with significantly fewer men (81.0%) than women (88.3%) doing so ($p = 0.005$). The grouped ages of FHI reported at age 21 and age 38 assessments among those who reported an age at both assessments (which precludes those who at the age 21 assessment

reported not having FHI by that time) are shown in Table 4. When age of FHI was grouped, overall agreement was 68.6% for the men and 76.9% for the women. Comparison of the marginal distributions showed no significant difference for the men ($p = 0.30$) or the women ($p = 0.51$), and no significant asymmetry in the

Table 3. Summarized Difference in Age of First Heterosexual Intercourse Reported at Age 38 Assessment Compared to That Reported at Age 21 Assessment Among Those Who Provided an Age at Both Assessments

Age Difference Reported at Later Compared to Earlier Assessment	Men (N = 374)		Women (N = 394)	
	n	%	n	%
5 or more years younger	0	0.0	4	1.0
3-4 years younger	11	2.9	4	1.0
2 years younger	17	4.6	12	3.1
1 year younger	67	17.9	75	19.0
The same age	166	44.4	227	57.6
1 year older	70	18.7	46	11.7
2 years older	22	5.9	14	3.6
3-4 years older	12	3.2	8	2.0
5 or more years older	9	2.4	4	1.0

direction of change was found for the men ($p = 0.44$) or the women ($p = 0.72$).

Consistency of Reported Circumstances of FHI for Individuals

Table 5 shows the reported circumstances of FHI at the two assessments, among those who reported FHI before age 21 at the age 21 assessment and subsequently provided information on their FHI at the age 38 assessment. Consistency of reporting willingness at the two assessments was higher for men (74.0%) than women (64.2%). For both men and women the marginal proportions were significantly different ($p < 0.001$) and movements were asymmetrical ($p < 0.01$). Among the men, the majority (92.8%) who reported they and their partner were equally willing at the earlier assessment also reported this at the later assessment. In all other initial categories consistency was extremely low (between

10.0% and 11.1%), with most (80.6% to 90.0%) subsequently saying they were equally willing. Similarly for women, consistency was also highest among those initially reporting being equally willing (83.9%), with considerable movement to this response from the other initial categories (50.0% to 80.0%). Just under half (44.6%) who previously said their partner was more willing reported this, while 11.4% who initially reported being equally willing subsequently reported that their partner had been more willing.

Current views on timing of FHI were less consistent among the men (46.5%) than the women (66.8%). The marginal proportions were not significantly different for men ($p = 0.096$) or women ($p = 0.45$), and there was no asymmetry for men ($p = 0.31$) or women ($p = 0.33$). For men, consistency was highest for those who initially reported the timing had been right (63.1%), with similar proportions who reported this initially, subsequently saying it had been too early

Table 4. Comparison of Reports of Age of FHI at Age 21 and Age 38 Assessments Among Those Who Answered at Both Assessments

Age Group of FHI Reported at Age 21 Assessment	Age Group of FHI Reported at Age 38 Assessment					Total
	<14 n (%)	14-15 n (%)	16-17 n (%)	18-20 n (%)	Not Before 21 n (%)	
Men						
<14	18 (56.3)	9 (28.1)	3 (9.4)	0 (0.0)	2 (6.3)	32 (7.5)
14-15	8 (9.5)	52 (61.9)	19 (22.6)	3 (3.6)	2 (2.4)	84 (19.7)
16-17	2 (1.4)	21 (14.5)	96 (66.2)	23 (15.9)	3 (2.1)	145 (34.0)
18-20	0 (0.0)	0 (0.0)	18 (15.8)	86 (75.4)	10 (8.8)	114 (26.7)
Not before 21	0 (0.0)	0 (0.0)	1 (1.9)	10 (19.2)	41 (78.9)	52 (12.2)
Total	28 (6.6)	82 (19.2)	137 (32.1)	122 (28.6)	58 (13.6)	427 (100.0)
Agreement = 68.6%. Test for marginal homogeneity $p = 0.30$. Test for symmetry $p = 0.44$.						
Women						
<14	15 (60.0)	8 (32.0)	1 (4.0)	0 (0.0)	1 (4.0)	25 (5.8)
14-15	9 (8.1)	86 (77.4)	14 (12.6)	0 (0.0)	2 (1.8)	111 (25.6)
16-17	2 (1.2)	22 (13.3)	128 (77.6)	12 (7.3)	1 (0.6)	165 (38.1)
18-20	0 (0.0)	1 (1.0)	12 (12.5)	75 (78.1)	8 (8.3)	96 (22.2)
Not before 21	0 (0.0)	1 (2.8)	2 (5.6)	4 (11.1)	29 (80.6)	36 (8.3)
Total	26 (6.0)	118 (27.3)	157 (36.3)	91 (21.0)	41 (9.5)	433 (100.0)
Agreement = 76.9%. Test for marginal homogeneity $p = 0.51$. Test for symmetry $p = 0.72$.						

Note. The numbers in the shaded cells are those that are consistent. FHI = first heterosexual intercourse.

PATTERNS OF FIRST INTERCOURSE REPORTED 17 YEARS APART

Table 5. Reports of Relative Willingness, View on Timing, and Contraceptive Use Among Men and Women Who Reported FHI Less Than Age 21 at Age 21 Assessment and Answered the Same Questions at Age 38 Assessment

Age 21 Assessment	Age 38 Assessment				Total
	Self More Willing n (%)	Both Equally Willing n (%)	Partner More Willing n (%)	Can't Remember n (%)	
(a) Relative Willingness					
Men					
Self more willing	3 (10.0)	27 (90.0)	0 (0.0)	0 (0.0)	30 (8.0)
Both equally willing	9 (3.1)	270 (92.8)	8 (2.7)	4 (1.4)	291 (77.2)
Partner more willing	1 (2.8)	29 (80.6)	4 (11.1)	2 (5.6)	36 (9.5)
Can't remember	0 (0.0)	343 (91.0)	1 (5.0)	2 (10.0)	20 (5.3)
Total	13 (3.4)	343 (91.0)	13 (3.4)	8 (2.1)	377 (100.0)
Agreement = 74.0%. Test for marginal homogeneity $p < 0.001$. Test for symmetry $p < 0.001$.					
Women					
Self more willing	1 (2.0)	4 (80.0)	0 (0.0)	0 (0.0)	5 (1.3)
Both equally willing	3 (1.4)	177 (83.9)	24 (11.4)	7 (4.2)	211 (53.1)
Partner more willing	2 (1.2)	83 (50.0)	74 (44.6)	7 (4.2)	166 (41.8)
Can't remember	0 (0.0)	11 (73.3)	1 (6.7)	3 (20.0)	15 (3.8)
Total	6 (1.5)	275 (69.3)	99 (24.9)	17 (4.5)	397 (100.0)
Agreement = 64.2%. Test for marginal homogeneity $p < 0.001$. Test for symmetry $p < 0.001$.					
(b) View on Timing					
	Too early n (%)	Right time n (%)	Preferred earlier n (%)	Don't know n (%)	Total
Men					
Too early	16 (27.6)	24 (41.4)	4 (6.9)	14 (24.1)	58 (15.4)
Right time	18 (9.6)	118 (63.1)	24 (12.8)	27 (14.4)	187 (49.7)
Preferred earlier	3 (8.3)	19 (52.8)	9 (25.0)	5 (13.9)	36 (9.6)
Don't know	11 (11.6)	41 (43.2)	11 (11.6)	32 (33.7)	95 (25.3)
Total	48 (12.8)	202 (53.7)	48 (12.8)	78 (20.7)	376 (100.0)
Agreement = 46.7%. Test for marginal homogeneity $p = 0.096$. Test for symmetry $p = 0.31$.					
Women					
Too early	141 (70.9)	42 (21.1)	0 (0.0)	16 (8.0)	199 (54.2)
Right time	37 (26.1)	96 (67.6)	3 (2.1)	6 (4.2)	142 (38.7)
Preferred earlier	1 (33.3)	2 (66.7)	0 (0.0)	0 (0.0)	3 (0.8)
Don't know	9 (39.1)	7 (30.4)	1 (4.3)	6 (26.1)	23 (6.3)
Total	188 (51.2%)	147 (40.1%)	4 (1.1%)	28 (7.6%)	367 (100.0)
Agreement = 66.6%. Test for marginal homogeneity $p = 0.45$. Test for symmetry $p = 0.33$.					
(c) Contraceptive Use					
	Yes n (%)	No n (%)	Can't remember n (%)	Total	
Men					
Contraception	178 (78.1)	25 (11.0)	25 (11.0)	228 (61.0)	
No contraception	31 (32.6)	46 (48.4)	18 (18.9)	95 (25.4)	
Can't remember	13 (25.5)	16 (31.4)	22 (43.1)	51 (13.6)	
Total	222 (59.4%)	87 (23.3%)	5 (17.4%)	374 (100.0)	
Agreement = 65.8%. Test for marginal homogeneity $p = 0.25$. Test for symmetry $p = 0.21$.					
Women					
Contraception	211 (81.8)	29 (11.2)	18 (7.0)	258 (71.1)	
No contraception	28 (32.6)	45 (52.3)	13 (15.1)	86 (23.7)	
Can't remember	6 (31.6)	5 (26.3)	8 (42.1)	19 (5.2)	
Total	245 (67.5%)	79 (21.8%)	39 (10.7%)	363 (100.0)	
Agreement = 72.7%. Test for marginal homogeneity $p = 0.008$. Test for symmetry $p = 0.023$.					

Note. The numbers in the shaded cells are those that are consistent. FHI = first heterosexual intercourse.

(9.6%) or not soon enough (12.8%). Consistency for the other initial categories was comparatively much lower (25.0% to 33.7%), with considerable movement from all other initial categories to the response that it was the right time (41.4% to 52.8%). For women, consistency was highest for those who initially reported that it had been too early (70.9%) or the right time (67.6%). Of those who initially reported it was too early, 21.1% subsequently said it had been the right time; 26.1% of those who initially reported it was the

right time subsequently reported that it had been too early.

Somewhat fewer men (65.8%) than women (72.7%) were consistent in their reports of contraceptive use at the two assessments. The marginal proportions were not significantly different for men ($p = 0.25$), but they were for women ($p = 0.008$); and there was no evidence of asymmetry for men ($p = 0.21$), but there was for women ($p = 0.023$). Consistency was highest for men who initially reported that contraception had been used

(78.1%) but lower for other initial categories, with 32.6% of those initially reporting nonuse and 25.4% who initially could not remember subsequently reporting use. Similarly for women, consistency was highest among women reporting contraceptive use (81.8%) and was lower for other initial categories with 32.6% of those initially reporting nonuse and 31.6% who initially could not remember later reporting use.

Discussion

This analysis found substantial changes in individual reports of FHI in a birth cohort when asked the same questions on age and circumstances of the event 17 years apart but with variable impact on the conclusions. There was less agreement in reporting of the exact age among men than women, most of the disagreement being of just one year; changes were not asymmetrical so did not result in a different distribution when grouped. There were also some marked changes in individual reports of circumstances of FHI. At both assessments more men than women reported they and their partner were equally willing, more women felt it had occurred too early, and more women reported using contraception. There was moderate agreement of reports of mutual willingness at the two assessments; asymmetry in the responses resulted in a greater proportion of both men and women reporting they and their partners were equally willing at the later assessment. Despite there being agreement among only half of the men and two-thirds of the women on their views of the appropriateness of timing, the changes were not asymmetrical, hence the overall pattern of reports did not differ between assessments. Consistency of reports of contraceptive use was moderate for men and women. These reports were symmetrical for men but not for women; at the later assessment more women reported they could not remember and fewer reported that they had used contraception. The association between age at FHI and positive circumstances did not differ between assessments: a greater proportion reported these with increasing age (up to age 20) at FHI, except for men's reports of willingness and women's of contraceptive use.

The major strength of this study was that men and women were asked the same questions 17 years apart in a population-based birth cohort with very low attrition, providing an ideal opportunity to test consistency of reporting. On both occasions questions were those used in the Natsal studies, allowing comparability with these studies, and were computer presented, a method found to result in more complete disclosure (Turner et al., 1998). In addition, the trust in the study built up over many years is likely to have encouraged honest disclosure. A limitation is the relatively small size of the cohort. While this allowed analysis of consistency among the whole cohort, there was inadequate power to

explore whether factors such as child sexual abuse might have affected consistency, as other studies have done (Goldberg et al., 2014). We were unable to explore consistency of reported age of first same-sex experience, as this information was not sought at the earlier assessment.

In interpreting the findings it is important to appreciate that we are able to examine only consistency and not validity, and that this is an open cohort whose members are not having sexual relations only with each other; hence exact comparability between the reports of men and women would not be expected. Also, it is possible, especially when there was quite marked discordance in reported age, that the respondents might have been describing a different episode of intercourse at the two assessments. It is worth bearing in mind that the extended time period between assessments and that the participants were of all the same age means they would all fit into two age groups commonly used in cross-sectional studies: 20 to 24 years and 35 to 39 years at the earlier and later assessments, respectively. We could therefore examine the possibility of biased recall complicating the cross-sectional comparison of reports of sexual debut from these age groups.

Even though we asked about age of FHI 17 years apart, our finding that 84.8% reported the same or a one-year difference in the age of FHI at the two assessments is very similar to the findings of the only other two adult longitudinal studies investigating this question over shorter periods. The first was a sample of Australians initially aged between 28 and 73 years who were questioned 15 months apart in which 84.1% were consistent by this measure (Dunne et al., 1997). In the only other adult study, the U.S. National Longitudinal Study of Adolescent Health found such agreement in 85.4% of participants first asked when aged 18 to 26, and again seven years later (Goldberg et al., 2014). The similarity of agreement in these studies, in spite of the different age ranges and time between assessments, suggests that discrepant results may arise not only due to poor recall, which would be expected to worsen with age, but for other unknown reasons. This consistency of reported age of FHI is remarkably similar to that of age of menarche among women in a birth cohort asked this in adolescence and again more than three decades later; 43.6% reported exactly the same age and 85.2% within one year (Cooper et al., 2006). One explanation is that the age of salient events, such as FHI and menarche, is derived indirectly through other circumstances that provide a contextual clue to the timing rather than exact age (Bradburn, Rips, & Shevell, 1987).

Consistency in reporting age at FHI has also been examined indirectly through a common cohort approach in the British Natsal studies. Responses among those aged 16 to 34 in the first of these studies in 1990–1991 were compared with those aged 26 to 44 in the second study 10 years later (Copas et al., 2002),

and a similar comparison was undertaken between the second study and third study in 2010–2012 (Prah et al., 2013). In women, 50% more reported FHI before age 16 in the second compared to the first survey, with a non-significant drop of 12% between the second and third survey. In men, there was a 15% increase between the first and second studies and no change between the second and third studies. The authors argued the overall rise in prevalence of early FHI among women in the second compared to the first survey was likely underreporting of young age due to social desirability bias in the first survey. Our finding of no bias between the first reports (in 1993/1994) and the second (in 2010/2011) supports an alternative possibility for the Natsal findings that the first and second survey samples were not truly comparable.

In contrast to reports of age, those of reported willingness in our study are clearly systematically different between assessments, with a greater proportion of both men and women on the later occasion reporting they and their partners were equally willing. For the men, the marked migration from all other categories to this is probably a reflection of poorer recall of the event and/or not bothering to analyze this aspect of their sexual debut and reporting the most normative option. This explanation seems more plausible than true social desirability bias, as movement also occurred among those who at the earlier assessment reported they could not remember, and fewer chose the option that they could not remember at the later assessment. In addition, the proven confidentiality of answering in this study would make bias due to concern about what others think of their responses less plausible. Among the women, while overall the proportion saying they and their partners were equally willing also increased, the movement into this category was not as marked as for the men; in particular, women who earlier reported their partners were more willing were more likely than the men to still report this. It seems likely that the emotional circumstances are more salient for women, as was suggested by a study of the recollection of sexual stories in which women tended to recall the relationship-orientated aspects and men the explicitly sexual material (McCall, Rellini, Seal, & Meston, 2007). In the common cohort analyses undertaken using the three Natsal studies (Copas et al., 2002; Prah et al., 2013), there was no change in the reports of their partners being more willing between the first two studies for men or women. However, between the second and third studies there was a drop in the proportion of women reporting this. Our findings suggest that biased recall should be considered as a possible explanation.

The distribution of current views at age 38 about the appropriateness of timing of FHI surprisingly did not differ from views held at age 21, though there were changes in individual responses. This is an important finding. It does not represent consistency of responses,

as retrospective views would not be expected to be consistent in the same way as descriptors of the event but instead represents a persistence of views. Even by age 38, around half of all women still viewed the timing of their FHI as too early; for men around half still viewed it as the right time. The results imply that having first intercourse “too early” has long-term salience for many.

In spite of the considerable variation between individuals' reports in all the areas examined, and the systematic difference in reports in mutually willingness at the two assessments, this analysis did not alter the conclusions of the findings from the age 21 assessment, which was that the earlier in the teenage years FHI occurred, the less likely it was to be associated with equal willingness, with the retrospective view of the timing being right, and with contraceptive use (Dickson et al., 1998).

Conclusions and Implications

While explanations for the findings will remain hypothetical, the empirical findings have implications for those using cross-sectional studies to explore temporal change in age and circumstances of FHI from their data. Our findings suggest that contemporary cross-sectional studies of representative samples of young adults answering confidentially can provide temporal comparisons of age of FHI and views on its timing in spite of only moderate absolute agreement; information on contraception can also provide an indication of true changes, although some loss of recall of this can be expected. On the other hand, temporal changes in the psychosocial circumstances of FHI should be interpreted more cautiously from such studies in view of possible biased recall.

While we have concentrated on changes in reporting, it is important not to lose sight of the consistent finding that many women reported their partners were more willing at FHI, that the timing of first intercourse was too early, and that at age 38 there remains a marked pattern with both mutual willingness and right timing being infrequently reported by those with earliest FHI. Further research should be aimed at exploring what young people feel is the most appropriate circumstance to start full sexual relations and how this can be promoted.

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