BMJ Open

What factors are associated with reporting lacking interest in sex and how do these vary by gender? Findings from the third British national survey of sexual attitudes and lifestyles

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To cite: Graham CA, Mercer CH, Tanton C, *et al*. What factors are associated with reporting lacking interest in sex and how do these vary by gender? Findings from the third British national survey of sexual attitudes and lifestyles. *BMJ Open* 2017;**7**:e016942. doi:10.1136/bmjopen-2017-016942

► Prepublication history and additional material for this paper are available online. To view please visit the journal (http://dx.doi.org/10.1136/bmjopen-2017-0-016942).

Received 20 March 2017
Revised 19 July 2017
Accepted 25 July 2017

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ABSTRACT

Objectives To investigate factors associated with reporting lacking interest in sex and how these vary by gender.

Setting British general population.

Design Complex survey analyses of data collected for a cross-sectional probability sample survey, undertaken 2010–2012, specifically logistic regression to calculate age-adjusted OR (AOR) to identify associated factors.

Participants 4839 men and 6669 women aged 16–74 years who reported ≥1 sexual partner (opposite-sex or same-sex) in the past year for the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3).

Main outcome measure Lacking interest in sex for ≥3 months in the past year.

Results Overall, 15.0% (13.9–16.2) of men and 34.2% (32.8–35.5) of women reported lacking interest in sex. This was associated with age and physical and mental health for both men and women, including self-reported general health and current depression. Lacking interest in sex was more prevalent among men and women reporting sexually transmitted infection diagnoses (ever), non-volitional sex (ever) and holding sexual attitudes related to normative expectations about sex. Some gender similarities in associated relationship and family-related factors were evident, including partner having had sexual difficulties in the last year (men: AOR 1.41 (1.07–1.86); women: AOR 1.60 (1.32–1.94)), not feeling emotionally close to partner during sex (men: 3.74 (1.76–7.93); women: 4.80 (2.99–7.69) and ease of talking about sex (men: 1.53 (1.23–1.90);women: 2.06 (1.77–2.39)). Among women only, lack of interest in sex was higher among those in a relationship of >1 year in duration and those not sharing the same level of interest (4.57 (3.87–5.38)) or preferences (2.91 (2.22–3.83)) with a partner.

Conclusions Both gender similarities and differences were found in factors associated with lacking interest in sex, with the most marked differences in relation to some relationship variables. Findings highlight the need to assess, and if appropriate, treat lacking interest in sex in a holistic and relationship-specific way.

Strengths and limitations of this study

- This study used nationally representative data to investigate factors associated with reporting lacking interest in sex, and how these vary by gender, in the British population.
- Few previous population-based studies have obtained data on low sexual interest from men and women and made direct comparisons between them.
- The study included detailed assessment of a range of relationship context and attitudinal variables seldom included in previous population-based surveys.
- Information about lacking interest in sex was assessed with a single item, asking participants whether they had lacked interest in having sex for a period of ≥3 months in the past year. Those who reported this were also asked whether they experienced associated distress.
- The cross-sectional data do not allow us to establish the causal direction of associations between lacking interest in sex and variables of interest.

INTRODUCTION

In Britain's third National Survey of Sexual Attitudes and Lifestyles (Natsal-3), lacking interest in sex was the most common sexual difficulty reported by both men and women.[1] Lacking interest in sex for ≥3 months in the past year was twice as common in women compared with men. When duration and symptom severity criteria are considered (ie, that symptoms last ≥6 months and occur 'very often' or 'always'), these prevalence estimates are much lower,[2] but the gender difference is maintained.

Researchers have paid more attention to problems of low sexual interest in women than in men.[3–5] Among men the predominant focus has been on erectile functioning and on physiological causes of lacking interest in sex such as hormonal status, rather than on psychosocial

determinants. This lack of attention to male problems is reflected in recent revisions to the Diagnostic and Statistical Manual (DSM-5) classification of sexual disorders[6] which involved major changes to sexual arousal and desire disorder categories in women, but no substantive changes for male disorders.

Most but not all studies involving men have reported an association between low sexual interest and increasing age (for review, see ref. 7). However, there are conflicting findings on the association with physical and mental health.[8 9] Limited research suggests that psychosocial and relationship factors may also be associated with low sexual desire in men.[8 10–12]

Among women, factors that have been consistently associated with lacking interest in sex are relationship problems, relationship quality and partner's sexual functioning,[13–17] poor physical health[18] and negative mood states/depression.[13 18 19] There are inconsistent findings on the association between low sexual interest and both age and menopausal status.[14 18] Few large-scale surveys have examined possible links between lacking interest in sex and either sexual attitudes or sexual behaviour. In the second wave of the British National Survey of Sexual Attitudes and Lifestyles (Natsal-2), among women, lacking interest in sex was associated with lower frequency of sex and attitudes according sex low priority.[20]

Studies have, for the most part, used small, clinical samples of patients seeking treatment for low sexual desire problems. The potential for bias in such studies is revealed in previously reported findings from Natsal-3 that only around a third of men and women with one or more sexual function problems meeting DSM-5 morbidity criteria had sought professional help in the last year.[2] The few large-scale probability-based surveys involving both men and women have focused on associations between low sexual desire and sociodemographic factors.

In summary, the evidence on the factors associated with men's and women's reports of low sexual desire is drawn largely from non-representative samples, is somewhat equivocal and, in men, sparse. Given that most previous research has involved non-representative samples, it is important to explore how correlates might differ in a population-based sample. Understanding the correlates of lacking interest in sex is key to informing therapeutic options for this group.

The research questions addressed in this paper are[1]: What sociodemographic, relationship, sexual behaviour and sexual attitudinal factors are associated with lacking interest in sex in sexually active men and women?[2] To what extent do these factors vary by gender?[3] To what extent does lacking interest in sex coexist with other sexual function problems?

METHOD

Participants and procedure

Natsal-3 is a probability sample survey of 15 162 men and women aged 16–74 years in Britain, interviewed between September 2010 and August 2012. A multistage, clustered and stratified probability sample design was used and participants were interviewed in their homes by professional interviewers using a combination of computer-assisted personal interviews and computer-assisted self-interviews (CASIs) for the more sensitive questions (including, of relevance to this paper, those on sexual function). Interviewers were present in the room while participants completed the CASI, but did not view responses.[20] After weighting to adjust for unequal probabilities of selection and to match the British population in terms of age, gender and geographical region, the Natsal-3 sample was broadly representative, on key variables, of the British population as described by the 2011 Census.[21]

The estimated response rate was 57.7%, and the estimated cooperation rate (the number of interviews completed from eligible addresses for which contact was made) was 65.8% (of all eligible addressed contacted).[22] More extensive details of the survey methodology and sample characteristics are published elsewhere[21 22] and for demographic characteristics of the sample, see ref. 22. Participants provided oral informed consent for interviews and the survey was approved by the NRES Committee South-Central— Oxford A (ref.: 10/H0604/27).

Only respondents who reported ≥1 sexual partner (opposite-sex or same-sex) in the past year (4839 men and 6669 women) were asked whether they had lacked interest in sex for a period of ≥3 months in the past year (see below). These participants were the focus of the current analyses.

Outcome measures

Items were drawn from the Natsal-SF, a measure of sexual function, designed and validated for population surveys. The measure comprises items on problems with sexual response, relational aspects of sexual function and self-appraisal of sex life.[23 24] Participants who reported at least one sexual partner in the past year (hereon 'sexually active participants') were asked, *In the last year, have you experienced any of the following for a period of ≥3 months?* and were given a list of difficulties and asked to indicate which they had experienced. The list included *Lacked interest in having sex*. Those indicating this difficulty were defined as lacking interest in having sex for a period of ≥3 months in the past year (the outcome for this analysis). Individuals reporting lacking interest in sex for at least 3 months were then asked, *And how do you feel about this?* with response options: *not at all distressed, a little distressed, fairly distressed* and *very distressed*. Those answering a little, fairly or very distressed were defined as lacking interest in sex and having distress about this symptom (outcome for sensitivity analysis, see below).

Statistical analysis

All analyses were done using the complex survey functions of STATA V.14 to account for the weighting, clustering and stratification of the data. We used multivariable logistic regression to calculate age-adjusted ORs (AORs)

to examine the associations between reports of lacking interest in sex lasting ≥3 months in the past year, and sociodemographic, health, relationship, sexual behaviour and sexual attitude variables. For each variable, we also tested the interaction with gender to see if the magnitude of the associations between the above factors and reports of lacking interest in sex was the same for men and women. We conducted a sensitivity analysis for the outcome variable reporting lack of interest in sex lasting ≥3 months *and* distress about this symptom to assess whether similar associations were found. We also examined the association between reporting lacking interest in sex and the other sexual function problems asked about in Natsal-3 using AORs.

RESULTS

Overall, 15.0% (95% CI 13.9% to 16.2%) of sexually active men and 34.2% (95% CI 32.8% to 35.5%) of sexually active women reported lacking interest in sex for ≥3 months in the year prior to interview. Table 1 presents the associations between lacking interest in sex and sociodemographic, health, relationship, sexual behaviour and sexual attitudinal variables for men and women.

Age was significantly associated with lacking interest in sex. Prevalence increased with age, being lowest among younger participants (16–24 years; men: 11.5%; women: 24.8%) and peaking in men aged 35–44 years (17.2%) and in women aged 55–64 years (38.8%). Regarding demographic variables, after adjusting for age, lack of interest was associated with leaving school at 16 (men only; AOR 1.31), being unemployed (men only; AOR: men: 1.44) and less frequent religious practice (women only; AOR 0.79). In women, after adjusting for age, those who were students or retired were less likely to lack desire.

After adjusting for age, there were associations between all physical and mental health variables assessed and lacking interest in sex. Individuals in poorer health (AORs: men: 3.29; women: 1.93), those who had much difficulty walking upstairs (AOR: men: 2.68; women: 1.55), those with a long-standing medical condition (AOR: men: 1.76; women: 1.35), and those who had screened positive for current depression (AOR: men: 2.95; women: 2.79) or who had been treated for depression in the past year (AOR: men: 2.82; women: 2.32) were more likely to report lacking interest in sex. The magnitude of these associations was similar for men and women. A greater number of comorbid health conditions was significantly associated with lacking interest in sex among both men and women. Menopausal status in women and circumcision in men were not associated with the likelihood of lacking sexual interest.

Regarding sexual behaviour, among both men and women, lack of interest was associated with frequency of sexual activity (defined as vaginal, oral or anal intercourse) in the four weeks prior to interview; 12.4% of men and 33.8% of women who reported having engaged in 3–4 sexual acts reported lack of interest versus 20.7% of men and 42.9% of women who reported no sexual activity. Associations with recent masturbation differed by gender; lack of interest in sex was slightly *more* common among men who reported having recently masturbated but *less* common among women who did so. Women with three or more partners in the past year were less likely to report low sexual interest than those with only one partner (AOR 0.70) but there was no association between partner numbers and lacking interest in sex in men. Among men only, those who reported ever having taken drugs to assist sexual performance were more likely to report lacking interest in sex (AOR 1.36). A similar magnitude association was seen for women (AOR 1.39); however, fewer women reported ever having taken drugs and the 95% CI therefore crosses 1.

Associations were found between lacking interest in sex and several relationship contextual variables and for many of these variables associations were stronger for women than for men. For both men and women, lack of interest was associated with relationship status; women living with a partner were more likely to lack interest in sex than those in other relationship categories (see table 1). For women, all relationship categories had lower AORs than living with partner. Duration of most recent sexual relationship was significantly associated with lacking interest in sex only among women, being more common among those in longer relationships.

Among both men and women, there was an association between ease of communication and lacking interest in sex. Those who found it 'always easy to talk about sex' with their partner were less likely to report low interest. Lack of interest was more likely among those whose partner had sexual difficulties in the last year, and those who reported a lower assessment of happiness with the relationship, and not feeling emotionally close to partner during sex. Among women but not men, not sharing the same level of sexual interest with a partner, and not sharing the same sexual likes and dislikes, was also associated.

Having been pregnant in the last year was associated with lacking sexual interest as was having one or more young child(ren) (women only). Lack of interest in sex was significantly associated with sexual health indicators, including previous sexually transmitted infection (STI) diagnosis and ever having experienced non-volitional sex. The strength and direction of associations was similar for men and women, except for reporting another sexual function problem, which was significant for two or more problems in men, but one or more problems in women. Sexual competence at first sex was significantly associated with lack of interest in sex only among women.

Regarding attitudinal variables, both men and women who endorsed statements that 'people are under pressure to have sex' and 'people want less sex as they age' were more likely to report lacking interest in sex over the past year. The only attitudinal variable that showed a significant interaction with gender was that which related to men having a 'naturally higher sex drive than women'. Men who agreed with this statement were *less* likely than

Table 1 Factors associated with lacking interest in having sex for at least 3 months in the past year in sexually active men and women

	Men						Women						
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	p Value for interaction with sex*
All	4839, 5973	15.0	(13.9 to 16.2)				6669, 5755	34.2	(32.8 to 35.5)				
Sociodemographics													
Age group (years)						0.0471						<0.0001	0.6733
16–24	1279, 936	11.5	(9.4 to 14.0)	1	–		1662, 923	24.8	(22.5 to 27.1)	1	–		
25–34	1376, 1238	14.6	(12.7 to 16.6)	1.32	(1.00 to 1.73)		2236, 1246	31.9	(29.8 to 34.1)	1.42	(1.22 to 1.66)		
35–44	719, 1298	17.2	(14.5 to 20.4)	1.61	(1.19 to 2.18)		1050, 1290	36.8	(33.7 to 40.1)	1.77	(1.48 to 2.13)		
45–54	630, 1186	15.3	(12.5 to 18.7)	1.40	(1.01 to 1.95)		871, 1186	37.9	(34.5 to 41.5)	1.86	(1.53 to 2.25)		
55–64	512, 849	16.5	(13.4 to 20.2)	1.53	(1.10 to 2.13)		569, 755	38.8	(34.5 to 43.2)	1.92	(1.55 to 2.39)		
65–74	323, 467	13.9	(10.4 to 18.3)	1.22	(0.81 to 1.82)		281, 355	34.2	(28.4 to 40.5)	1.58	(1.18 to 2.12)		
Index of Multiple Deprivation (quintiles)†						0.093						0.0316	0.0111
1 (least deprived)	977, 1279	13.9	(11.6 to 16.6)	1	–		1248, 1208	35.7	(32.6 to 38.9)	1	–		
2	962, 1264	13.0	(10.8 to 15.6)	0.93	(0.69 to 1.25)		1290, 1208	33.6	(30.6 to 36.7)	0.92	(0.76 to 1.13)		
3	942, 1169	18.0	(15.2 to 21.2)	1.38	(1.04 to 1.85)		1299, 1116	30.1	(27.2 to 33.2)	0.81	(0.66 to 0.99)		
4	967, 1184	15.3	(12.8 to 18.3)	1.15	(0.86 to 1.55)		1384, 1137	35.9	(33.0 to 39.0)	1.08	(0.89 to 1.30)		
5 (most deprived)	991, 1077	15.1	(12.7 to 17.8)	1.14	(0.85 to 1.52)		1448, 1086	35.3	(32.4 to 38.3)	1.06	(0.87 to 1.28)		
Education level‡						0.0083						0.2453	0.2914
Left school aged 17+	2862, 3464	13.5	(12.1 to 15.1)	1	–		4150, 3406	32.7	(31.0 to 34.5)	1	–		
Left school at 16	1873, 2437	17.2	(15.3 to 19.4)	1.31	(1.07 to 1.60)		2409, 2287	36.6	(34.4 to 38.9)	1.08	(0.95 to 1.23)		
Employment status						0.0086						0.0003	0.0766
Employed	3211, 4254	14.7	(13.3 to 16.1)	1	–		3871, 3517	34.6	(32.9 to 36.4)	1	–		

Continued

Table 1 Continued

	Men						Women						p Value for interaction with sex*
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	
Full-time education	542, 431	12.6	(8.8 to 17.5)	0.98	(0.64 to 1.51)		693, 423	22.5	(19.0 to 26.4)	0.70	(0.55 to 0.89)		
Unemployed	707, 723	19.6	(16.3 to 23.4)	1.44	(1.12 to 1.86)		1681, 1282	36.1	(33.4 to 39.0)	1.11	(0.96 to 1.28)		
Retired	375, 562	13.6	(10.4 to 17.7)	0.75	(0.52 to 1.09)		415, 524	35.8	(31.0 to 40.9)	0.75	(0.57 to 0.99)		
Practises religion at least once a month						0.1687						0.0082	0.9966
No	4283, 5179	15.3	(14.1 to 16.6)	1	–		5659, 4754	34.8	(33.3 to 36.3)	1	–		
Yes	521, 748	12.9	(10.0 to 16.4)	0.81	(0.60 to 1.09)		956, 945	30.7	(27.5 to 34.2)	0.79	(0.67 to 0.94)		
Health													
Self-reported general health						<0.0001						<0.0001	0.1890
Very good/good	4123, 5055	13.4	(12.2 to 14.6)	1	–		5683, 4851	32.3	(30.9 to 33.8)	1	–		
Fair	580, 745	21.9	(18.3 to 25.8)	1.8	(1.41 to 2.30)		780, 709	42.2	(38.2 to 46.3)	1.45	(1.21 to 1.75)		
Bad/very bad	135, 171	33.9	(25.3 to 43.6)	3.29	(2.14 to 5.06)		206, 195	49.9	(42.2 to 57.7)	1.93	(1.40 to 2.67)		
Difficulty walking up stairs because of a health problem						<0.0001						0.0497	0.1179
No difficulty	4475, 5460	14.1	(12.9 to 15.3)	1	–		6062, 5107	33.3	(31.8 to 34.7)	1	–		
Some difficulty	278, 393	23.0	(18.1 to 28.8)	1.8	(1.30 to 2.49)		450, 482	39.2	(34.4 to 44.2)	1.15	(0.92 to 1.43)		
Much difficulty/ unable to do this	86, 120	30.9	(20.9 to 43.0)	2.68	(1.57 to 4.57)		157, 166	47.0	(38.0 to 56.1)	1.55	(1.06 to 2.25)		
Long-standing illness or disability						<0.0001						<0.0001	0.1348
No	3585, 4259	12.8	(11.6 to 14.2)	1	–		4843, 4026	31.6	(30.0 to 33.2)	1	–		
Yes	1253, 1713	20.5	(18.1 to 23.1)	1.76	(1.44 to 2.16)		1825, 1729	40.1	(37.5 to 42.8)	1.35	(1.17 to 1.55)		

Continued

Table 1 Continued

	Men						Women						
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	p Value for interaction with sex*
Number of comorbid conditions§						<0.0001						<0.0001	0.7951
0	3453, 3994	12.8	(11.5 to 14.1)	1	–		4357, 3536	29.9	(28.2 to 31.5)	1	–		
1	939, 1329	18.9	(16.2 to 21.9)	1.64	(1.30 to 2.06)		1555, 1416	38.6	(35.9 to 41.5)	1.42	(1.23 to 1.64)		
≥2	446, 650	21.0	(17.0 to 25.6)	1.91	(1.41 to 2.60)		755, 802	45.1	(41.2 to 49.1)	1.75	(1.45 to 2.13)		
Depressive symptoms¶						<0.0001						<0.0001	0.6249
No	4383, 5471	13.5	(12.4 to 14.8)	1	–		5885, 5149	31.7	(30.2 to 33.1)	1	–		
Yes	449, 495	31.3	(26.4 to 36.7)	2.95	(2.26 to 3.85)		780, 602	55.2	(51.0 to 59.5)	2.79	(2.32 to 3.37)		
Treated for depression, past year						<0.0001						<0.0001	0.2447
No	4524, 5630	14.0	(12.9 to 15.2)	1	–		5770, 5040	31.7	(30.2 to 33.2)	1	–		
Yes	313, 342	31.5	(25.7 to 38.0)	2.82	(2.08 to 3.83)		897, 713	51.4	(47.6 to 55.2)	2.32	(1.96 to 2.75)		
Menopausal status												0.9326	
Not menopausal							5485, 4187	32.3	(30.9 to 33.8)	1	–		
Menopausal							1167, 1548	38.9	(36.0 to 41.9)	0.99	(0.79 to 1.24)		
Circumcised						0.5951							
No	3909, 4728	15.1	(13.8 to 16.4)	1	–								
Yes	857, 1166	14.5	(12.0 to 17.4)	0.94	(0.73 to 1.20)								
Sexual behaviour													
Number of occasions of sex, past four weeks						<0.0001						<0.0001	0.4778
0	1013, 1163	20.7	(17.8 to 23.8)	1	–		1408, 1245	42.9	(39.9 to 45.9)	1	–		

Continued

Table 1 Continued

	Men						Women						p Value for interaction with sex*
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	
1–2	1160, 1566	18.7	(16.2 to 21.5)	0.89	(0.69 to 1.14)		1481, 1373	39.6	(36.7 to 42.5)	0.89	(0.75 to 1.05)		
3–4	870, 1168	12.4	(10.1 to 15.1)	0.54	(0.41 to 0.73)		1240, 1130	33.8	(30.7 to 37.0)	0.7	(0.58 to 0.85)		
5+	1617, 1869	9.2	(7.8 to 11.0)	0.39	(0.30 to 0.51)		2078, 1655	22.6	(20.5 to 24.8)	0.41	(0.34 to 0.49)		
Masturbation, past four weeks						0.0458						0.0038	0.0005
No	1297, 1828	13.7	(11.8 to 15.8)	1	–		4032, 3612	36.0	(34.3 to 37.7)	1	–		
Yes	3531, 4132	15.6	(14.2 to 17.0)	1.24	(1.00 to 1.52)		2615, 2114	30.8	(28.7 to 33.0)	0.83	(0.73 to 0.94)		
Number of sexual partners, past year**						0.5348						0.0038	0.0183
1	3573, 4824	15.0	(13.7 to 16.3)	1	–		5440, 5012	35.3	(33.8 to 36.8)	1	–		
2	539, 513	16.2	(12.9 to 20.3)	1.14	(0.86 to 1.52)		570, 364	28.2	(23.9 to 32.8)	0.80	(0.63 to 1.01)		
3+	718, 627	13.6	(11.1 to 16.6)	0.94	(0.72 to 1.22)		642, 366	24.8	(21.0 to 29.0)	0.70	(0.56 to 0.88)		
Paid for sex, past year						0.7167							
No	4774, 5896	15.0	(13.9 to 16.2)	1	–								
Yes	64, 75	13.4	(6.8 to 24.7)	0.87	(0.41 to 1.84)								
Ever taken drugs to assist sexual performance						0.0175						0.0666	0.8967
No	4188, 5180	14.4	(13.2 to 15.7)	1	–		6478, 5624	34.0	(32.6 to 35.4)	1	–		
Yes	636, 776	19.0	(15.7 to 22.8)	1.36	(1.06 to 1.76)		184, 124	40.0	(32.0 to 48.5)	1.39	(0.98 to 1.96)		
Relationship context													
Relationship status						0.0383						<0.0001	0.0001
Living with partner	2708, 4266	15.5	(14.1 to 17.1)	1	–		3967, 4168	37.9	(36.3 to 39.7)	1	–		

Continued

Table 1 Continued

	Men						Women						
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	p Value for interaction with sex*
In a steady relationship, not living together	947, 760	12.0	(9.6 to 14.8)	0.76	(0.57 to 1.00)		1360, 790	22.6	(20.2 to 25.2)	0.51	(0.43 to 0.60)		
Not in a steady relationship, but previously cohabited	446, 388	18.2	(14.6 to 22.5)	1.22	(0.91 to 1.62)		752, 462	28.9	(25.4 to 32.8)	0.68	(0.56 to 0.83)		
Not in a steady relationship, never cohabited	727, 551	12.4	(9.9 to 15.5)	0.8	(0.58 to 1.09)		580, 330	21.3	(17.6 to 25.5)	0.49	(0.38 to 0.63)		
Duration of most recent sexual relationship (years)						0.494						<0.0001	<0.0001
≤1	1462, 1260	13.0	(11.0 to 15.3)	1	–		1597, 998	21.5	(19.1 to 24.1)	1	–		
Between 1 and 5	1247, 1227	15.3	(13.2 to 17.7)	1.21	(0.94 to 1.55)		1758, 1148	28.5	(26.1 to 31.0)	1.45	(1.20 to 1.76)		
Between 5 and 15	1065, 1484	14.9	(12.6 to 17.5)	1.14	(0.86 to 1.50)		1774, 1458	39.8	(37.2 to 42.4)	2.37	(1.96 to 2.86)		
>15	1004, 1904	16.1	(13.9 to 18.7)	1.19	(0.87 to 1.63)		1445, 2036	40.0	(37.3 to 42.7)	2.31	(1.84 to 2.91)		
Always easy to talk about sex with partners††						0.0001						<0.0001	0.0182
Yes	1695, 1899	11.5	(9.7 to 13.5)	1	–		*1746, 1451*	22.6	(20.4 to 25.1)	1	–		
No/other	3122, 4048	16.7	(15.3 to 18.2)	1.53	(1.23 to 1.90)		*4907, 4289*	38.0	(36.4 to 39.6)	2.06	(1.77 to 2.39)		
Happy with relationship‡‡						<0.0001						<0.0001	0.8679
Yes	1951, 2791	12.6	(11.0 to 14.4)	1	–		2736, 2601	31.5	(29.5 to 33.6)	1	–		
Other	995, 1430	21.0	(18.4 to 23.9)	1.85	(1.47 to 2.32)		1640, 1617	45.4	(42.7 to 48.1)	1.79	(1.55 to 2.08)		
Participant does not share same level of interest in sex as partner						0.2339						<0.0001	<0.0001

Continued

Table 1 Continued

	Men						Women						p Value for interaction with sex*
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	
No/other	2270, 3233	15.0	(13.4 to 16.7)	1	–		3211, 3064	27.2	(25.4 to 29.0)	1	–		
Yes	676, 988	17.1	(14.2 to 20.4)	1.17	(0.90 to 1.51)		1166, 1155	62.5	(59.2 to 65.7)	4.57	(3.87 to 5.38)		
Participant does not share same sexual likes and dislikes as partner						0.4188						<0.0001	<0.0001
No/other	2650, 3803	15.3	(13.8 to 16.9)	1	–		4079, 3908	34.9	(33.3 to 36.6)	1	–		
Yes	296, 418	17.3	(13.0 to 22.5)	1.16	(0.81 to 1.66)		297, 310	61.0	(54.6 to 67.2)	2.91	(2.22 to 3.83)		
Partner experienced sexual difficulties in the past year						0.0136						<0.0001	0.4140
No/other	2431, 3454	14.6	(13.1 to 16.2)	1	–		3726, 3498	34.8	(33.1 to 36.6)	1	–		
Yes	513, 763	19.4	(15.8 to 23.6)	1.41	(1.07 to 1.86)		649, 719	46.8	(42.5 to 51.1)	1.60	(1.32 to 1.94)		
Does not feel emotionally close to partner when having sex						0.0006						<0.0001	0.5972
No/other	2904, 4165	15.1	(13.7 to 16.6)	1	–		4263, 4108	35.9	(34.3 to 37.6)	1	–		
Yes	42, 56	39.9	(23.6 to 58.8)	3.74	(1.76 to 7.93)		112, 109	73.0	(62.8 to 81.3)	4.80	(2.99 to 7.69)		
Lifestyle													
1+child(ren) aged <5 in household						0.9088						<0.0001	0.0216
No, none	4100, 5015	15.2	(13.9 to 16.5)	1	–		4997, 4671	33.1	(31.6 to 34.6)	1	–		
Yes, 1+	727, 941	14.5	(11.9 to 17.6)	0.98	(0.76 to 1.28)		1664, 1074	38.6	(36.0 to 41.4)	1.55	(1.34 to 1.79)		
Pregnant in the last year												0.0114	
No							4227, 4122	36.2	(34.6 to 37.9)	1	–		

Continued

Table 1 Continued

	Men						Women						
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	p Value for interaction with sex*
Yes							437, 273	41.7	(36.6 to 47.1)	1.36	(1.07 to 1.72)		
Used hormonal contraceptive, past year												0.05	
No							3759, 3838	34.8	(33.1 to 36.5)	1	–		
Yes							2806, 1831	33.0	(30.9 to 35.1)	1.15	(1.00 to 1.33)		
Sexual health indicators													
Ever diagnosed with a sexually transmitted infection						<0.0001						0.0004	0.0651
No (or only thrush)	4147, 5127	14.0	(12.8 to 15.3)	1	–		5455, 4861	33.4	(31.9 to 34.9)	1	–		
Yes (excluding thrush)	677, 830	21.4	(18.1 to 25.0)	1.67	(1.33 to 2.10)		1206, 888	38.2	(35.1 to 41.5)	1.32	(1.13 to 1.54)		
Ever experienced non-volitional sex						0.0010						<0.0001	0.3164
No	4705, 5824	14.7	(13.6 to 16.0)	1	–		5815, 5055	32.8	(31.4 to 34.2)	1	–		
Yes/don't know	133, 148	26.1	(18.9 to 34.9)	2.07	(1.34 to 3.18)		848, 695	44.3	(40.5 to 48.3)	1.66	(1.40 to 1.97)		
Sexual competence at first sex§§						0.0706						<0.0001	0.1797
Not competent	2407, 3037	16.2	(14.6 to 17.9)	1	–		3438, 2927	37.6	(35.7 to 39.5)	1	–		
Competent	2302, 2784	13.7	(12.1 to 15.4)	0.84	(0.69 to 1.01)		3097, 2716	30.3	(28.4 to 32.3)	0.73	(0.65 to 0.83)		
Number of other sexual response problems experienced¶¶						<0.0001						<0.0001	0.0015
0	3208, 3945	11.7	(10.5 to 13.1)	1	–		4377, 3759	25.3	(23.8 to 26.9)	1	–		
1	1061, 1350	10.9	(9.0 to 13.2)	0.91	(0.71 to 1.17)		1217, 1087	34.8	(31.7 to 38.0)	1.55	(1.32 to 1.82)		

Continued

Table 1 Continued

	Men						Women						
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	p Value for interaction with sex*
2+	570, 678	42.5	(37.9 to 47.2)	5.58	(4.41 to 7.04)		1075, 909	69.8	(66.5 to 72.9)	6.91	(5.82 to 8.21)		
Attitudes													
People are under pressure to have sex						0.0115						0.0001	0.7970
Else	1799, 2264	13.1	(11.4 to 15.0)	1	–		1851, 1570	29.3	(26.8 to 31.9)	1	–		
Strongly agree/agree	3038, 3707	16.2	(14.7 to 17.8)	1.29	(1.06 to 1.57)		4817, 4185	36.0	(34.4 to 37.6)	1.34	(1.16 to 1.54)		
People want less sex as they age						<0.0001						<0.0001	0.9443
Else	2943, 3472	11.4	(10.2 to 12.8)	1	–		4044, 3278	27.8	(26.2 to 29.4)	1	–		
Strongly agree/agree	1894, 2499	20.0	(18.0 to 22.2)	1.93	(1.61 to 2.32)		2624, 2477	42.6	(40.4 to 44.8)	1.85	(1.63 to 2.10)		
Men have a naturally higher sex drive than women						<0.0001						<0.0001	<0.0001
Else	2788, 3441	18.0	(16.4 to 19.7)	1	–		3351, 2830	26.0	(24.3 to 27.8)	1	–		
Strongly agree/agree	2049, 2530	10.9	(9.4 to 12.6)	0.56	(0.46 to 0.68)		3317, 2925	42.0	(40.0 to 44.1)	2.04	(1.80 to 2.31)		
Too much sex in the media						0.7069						0.1807	0.4835
Else	1986, 2296	14.6	(12.8 to 16.6)	1	–		2091, 1618	31.7	(29.3 to 34.2)	1	–		
Strongly agree/agree	2851, 3675	15.3	(13.8 to 16.9)	1.04	(0.85 to 1.26)		4577, 4137	35.1	(33.5 to 36.8)	1.10	(0.96 to 1.26)		

Continued

Table 1 Continued

	Men					Women					
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	p Value for interaction with sex*

Denominator is those aged 16–74 years with at least one partner in the past year.
*p Value for interaction to determine whether the magnitude of association between each variable and lack of interest in sex differs between men and women.
†Index of Multiple Deprivation (IMD) is a multidimensional measure of area (neighbourhood)-level deprivation based on the participant's postcode. IMD scores for England, Scotland and Wales were adjusted before being combined and assigned to quintiles, using a method by Payne and Abel.[50]
‡Participants aged≥17 years.
§Includes arthritis, heart attack, coronary heart disease, angina, other forms of heart disease, hypertension, stroke, diabetes, broken hip or pelvis, bone or hip replacement ever, backache lasting >3 months, any other muscle or bone disease lasting >3 months, depression, cancer and any thyroid condition treated in the past year.
¶Participants were asked whether they had often been bothered by feeling down, depressed or hopeless in the past two weeks and whether they had often been bothered by little interest or pleasure in doing things in the past two weeks, using a validated two-question patient health questionnaire (PHQ-2).
**Opposite and/or same-sex partners.
††Other means easy with a husband or wife or regular partner, but difficult with a new partner; easy with a new partner, but difficult with a husband or wife or regular partner; difficult with any partner; it depends, sometimes easy and sometimes difficult.
‡‡Participants were asked to rate how happy they were in their relationship from 1 (very happy) to 7 (very unhappy); responses of 1 or 2 were regarded as denoting participants who were happy with their relationship.
§§A constructed variable to measure readiness, combining consensuality, autonomy of decision-making, timing and use of effective contraception.
¶¶Sexual response problems (for at least 3 months in the past year): lacked enjoyment in sex, felt anxious during sex, felt physical pain as a result of sex, felt no excitement or arousal during sex, difficulty in reaching climax, reached a climax more quickly than you would like, trouble getting or keep an erection (men), uncomfortably dry vagina (women).
Unwt, unweighted; wt, weighted.

those who disagreed to lack interest in sex, while the reverse was true among women.

Table 2 presents the associations between lacking interest in sex and being distressed about this (as a measure/marker of severity), and the above sociodemographic, health and sexual relationship/behaviour variables. While prevalence was lower, the associations and the interactions with gender were generally similar; however, some of the previous gender-specific associations with variables (eg, masturbation, and pregnancy in women, and education in men) were no longer significant when the outcome variable was reported low sexual interest *and* associated distress. In addition, some associations became stronger when considering only those who reported a distressing lack of interest in sex (vs lack of interest without any reported distress). For example, the association between depressive symptoms and having been treated for depression in the past year was stronger in men than in women.

Regarding the association between reporting lacking interest in sex and the other sexual function problems asked about in Natsal-3, the strongest (positive) associations were for lacking enjoyment in sex (AOR 9.78 and 8.95 for men and women, respectively), followed by feeling no excitement or arousal during sex (AOR 9.21 and 9.16 for men and women, respectively) (see table 3).

DISCUSSION

We identified a broad range of factors, including some that have not been explored in previous large-scale surveys, that were associated with men's and women's reports of lacking interest in sex in a representative British population-based survey. Our findings, discussed below, revealed some gender similarities as well as some interesting gender differences. The strongest evidence for gender differences was for the relationship context variables, where associations with lacking interest in sex were much stronger for women than for men.

Interpretation of findings in context of previous research

Our finding relating to differences by age is consistent with some, but not all, results from previous research which has yielded generally inconsistent findings. Some studies have, like ours, shown a higher prevalence of sexual interest problems in older than in younger women.[25–27] Others have found no association between age and low sexual interest complaints[14 28] and yet more have shown lack of sexual interest to be more common among younger women.[18] Whereas we found a marginal relationship with age in men, some studies (though not all, eg, ref. 29) have found a stronger relationship.[12 30] It is possible that the varied findings might in part be a result of varied definitions of low sexual interest or differences in sampling.

The finding in this analysis that having young children appears to increase the likelihood of reporting lack of sexual interest for women, but not for men, remains

Table 2 Factors associated with lacking interest in having sex for at least 3 months in the past year and being distressed about it in sexually active men and women

	Men						Women						p Value for interaction with sex*
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	
All	4839, 5973	8.2	(7.4 to 9.1)				6669, 5755	20.8	(19.6 to 22.0)				
Sociodemographics													
Age group (years)						0.0011						<0.0001	0.8971
16–24	1279, 936	4.8	(3.7 to 6.4)	1	–		1662, 923	15.2	(13.4 to 17.3)	1	–		
25–34	1376, 1238	8.0	(6.7 to 9.5)	1.7	(1.19 to 2.41)		2236, 1246	20.9	(19.0 to 22.8)	1.47	(1.22 to 1.76)		
35–44	719, 1298	9.6	(7.5 to 12.3)	2.09	(1.40 to 3.13)		1050, 1290	22.9	(20.3 to 25.7)	1.65	(1.34 to 2.04)		
45–54	630, 1186	9.7	(7.4 to 12.6)	2.11	(1.38 to 3.22)		871, 1186	23.3	(20.4 to 26.6)	1.69	(1.35 to 2.13)		
55–64	512, 849	9.4	(7.0 to 12.6)	2.04	(1.30 to 3.21)		569, 755	21.8	(18.3 to 25.8)	1.55	(1.20 to 2.01)		
65–74	323, 467	5.5	(3.4 to 8.6)	1.13	(0.65 to 1.99)		281, 355	16.5	(12.4 to 21.7)	1.10	(0.76 to 1.59)		
Index of Multiple Deprivation (quintiles)†						0.8339						0.0938	0.4592
1 (least deprived)	977, 1279	8.1	(6.2 to 10.4)	1	–		1248, 1208	23.3	(20.7 to 26.1)	1	–		
2	962, 1264	7.4	(5.7 to 9.6)	0.92	(0.62 to 1.36)		1290, 1208	20.8	(18.2 to 23.5)	0.87	(0.69 to 1.09)		
3	942, 1169	8.3	(6.4 to 10.6)	1.05	(0.71 to 1.55)		1299, 1116	19.6	(17.1 to 22.4)	0.82	(0.65 to 1.03)		
4	967, 1184	8.8	(6.9 to 11.1)	1.14	(0.78 to 1.66)		1384, 1137	21.9	(19.3 to 24.7)	0.95	(0.76 to 1.18)		
5 (most deprived)	991, 1077	8.6	(6.7 to 10.9)	1.12	(0.75 to 1.65)		1448, 1086	18.2	(15.9 to 20.6)	0.75	(0.60 to 0.94)		
Education level‡						0.4958						0.7324	0.4496
Left school aged 17+	2862, 3464	7.9	(6.8 to 9.2)	1	–		4150, 3406	20.8	(19.4 to 22.4)	1	–		
Left school at 16	1873, 2437	8.8	(7.5 to 10.4)	1.09	(0.85 to 1.41)		2409, 2287	21.1	(19.3 to 23.1)	0.97	(0.83 to 1.14)		
Employment status						0.0001						0.0003	0.1244
Employed	3211, 4254	8.3	(7.3 to 9.5)	1	–		3871, 3517	21.6	(20.1 to 23.2)	1	–		
Full-time education	542, 431	4.9	(2.8 to 8.6)	0.74	(0.38 to 1.44)		693, 423	14.8	(11.8 to 18.4)	0.75	(0.56 to 1.01)		
Unemployed	707, 723	12.1	(9.5 to 15.3)	1.56	(1.14 to 2.13)		1681, 1282	22.3	(19.9 to 24.9)	1.07	(0.90 to 1.27)		
Retired	375, 562	4.9	(3.1 to 7.6)	0.41	(0.23 to 0.71)		415, 524	16.8	(13.4 to 20.8)	0.57	(0.41 to 0.79)		
Practises religion at least once a month						0.1638						0.0167	0.8143
No	4283, 5179	8.5	(7.5 to 9.5)	1	–		5659, 4754	21.5	(20.2 to 22.9)	1	–		
Yes	521, 748	6.4	(4.4 to 9.4)	0.73	(0.48 to 1.13)		956, 945	18.0	(15.3 to 20.9)	0.78	(0.63 to 0.96)		
Health													
Self-reported general health						<0.0001						<0.0001	0.0969
Very good/good	4123, 5055	7.0	(6.1 to 7.9)	1	–		5683, 4851	19.2	(18.0 to 20.5)	1	–		
Fair	580, 745	13.3	(10.5 to 16.8)	2.04	(1.50 to 2.78)		780, 709	27.9	(24.3 to 31.9)	1.60	(1.30 to 1.97)		
Bad/very bad	135, 171	22.6	(15.3 to 32.1)	3.85	(2.31 to 6.40)		206, 195	33.4	(26.3 to 41.4)	2.05	(1.45 to 2.91)		
Difficulty walking up stairs because of a health problem						0.0001						0.0085	0.1553
No difficulty	4475, 5460	7.6	(6.7 to 8.6)	1	–		6062, 5107	20.1	(18.9 to 21.4)	1	–		
Some difficulty	278, 393	12.3	(8.8 to 17.0)	1.67	(1.11 to 2.52)		450, 482	24.1	(20.0 to 28.7)	1.21	(0.93 to 1.59)		

Continued

Table 2 Continued

	Men						Women						p Value for interaction with sex*
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	
Much difficulty/unable to do this	86, 120	22.2	(13.5 to 34.2)	3.36	(1.79 to 6.32)		157, 166	32.3	(24.3 to 41.5)	1.81	(1.21 to 2.70)		
Long-standing illness or disability						<0.0001						<0.0001	0.0345
No	3585, 4259	6.5	(5.6 to 7.5)	1	–		4843, 4026	18.7	(17.4 to 20.0)	1	–		
Yes	1253, 1713	12.5	(10.6 to 14.8)	2.09	(1.60 to 2.74)		1825, 1729	25.7	(23.4 to 28.2)	1.48	(1.27 to 1.74)		
Number of comorbid conditions§						<0.0001						<0.0001	0.5779
0	3453, 3994	6.4	(5.5 to 7.5)	1	–		4357, 3536	17.3	(15.9 to 18.7)	1	–		
1	939, 1329	11.0	(9.0 to 13.4)	1.88	(1.37 to 2.57)		1555, 1416	24.1	(21.7 to 26.7)	1.54	(1.30 to 1.83)		
≥2	446, 650	13.3	(10.1 to 17.4)	2.40	(1.61 to 3.59)		755, 802	30.5	(26.8 to 34.4)	2.16	(1.74 to 2.69)		
Depressive symptoms¶						<0.0001						<0.0001	0.0370
No	4383, 5471	6.8	(6.0 to 7.7)	1	–		5885, 5149	18.6	(17.4 to 19.8)	1	–		
Yes	449, 495	23.7	(19.3 to 28.9)	4.36	(3.20 to 5.94)		780, 602	39.6	(35.4 to 44.0)	2.94	(2.41 to 3.59)		
Treated for depression, past year						<0.0001						<0.0001	0.0371
No	4524, 5630	7.3	(6.5 to 8.2)	1	–		5770, 5040	18.5	(17.3 to 19.8)	1	–		
Yes	313, 342	23.0	(17.9 to 29.1)	3.81	(2.71 to 5.36)		897, 713	36.4	(32.9 to 40.2)	2.54	(2.12 to 3.03)		
Menopausal status												0.9656	
Not menopausal							5485, 4187	20.2	(18.9 to 21.5)	1	–		
Menopausal							1167, 1548	22.5	(20.0 to 25.2)	1.01	(0.76 to 1.32)		
Circumcised						0.4097							
No	3909, 4728	8.3	(7.4 to 9.4)	1	–								
Yes	857, 1166	7.5	(5.7 to 9.9)	0.87	(0.62 to 1.22)								
Sexual behaviour													
Number of occasions of sex, past four weeks						<0.0001						<0.0001	0.5496
0	1013, 1163	10.3	(8.3 to 12.7)	1	–		1408, 1245	23.2	(20.7 to 26.0)	1	–		
1–2	1160, 1566	10.5	(8.6 to 12.8)	1.02	(0.74 to 1.42)		1481, 1373	24.2	(21.8 to 26.9)	1.06	(0.87 to 1.30)		
3–4	870, 1168	7.4	(5.6 to 9.8)	0.71	(0.48 to 1.04)		1240, 1130	21.3	(18.7 to 24.2)	0.91	(0.73 to 1.13)		
5+	1617, 1869	5.0	(3.9 to 6.4)	0.46	(0.33 to 0.66)		2078, 1655	14.7	(12.9 to 16.7)	0.58	(0.47 to 0.72)		
Masturbation, past four weeks						0.0164						0.7265	0.0309
No	1297, 1828	6.9	(5.5 to 8.6)	1	–		4032, 3612	21.1	(19.6 to 22.6)	1	–		
Yes	3531, 4132	8.8	(7.7 to 9.9)	1.42	(1.07 to 1.88)		2615, 2114	20.3	(18.4 to 22.2)	0.97	(0.84 to 1.13)		
Number of sexual partners, past year**						0.2466						0.0016	0.4744
1	3573, 4824	8.5	(7.5 to 9.6)	1	–		5440, 5012	21.6	(20.3 to 22.9)	1	–		
2	539, 513	6.3	(4.3 to 9.1)	0.75	(0.49 to 1.14)		570, 364	16.7	(13.3 to 20.6)	0.75	(0.57 to 0.99)		

Continued

Table 2 Continued

	Men						Women						p Value for interaction with sex*
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	
3+	718, 627	6.8	(5.1 to 9.0)	0.82	(0.59 to 1.15)		642, 366	14.1	(11.0 to 17.7)	0.62	(0.46 to 0.83)		
Paid for sex, past year						0.4865							
No	4774, 5896	8.2	(7.4 to 9.2)	1	–								
Yes	64, 75	5.6	(1.8 to 16.4)	0.66	(0.20 to 2.15)								
Ever taken drugs to assist sexual performance						0.0022						0.1055	0.5305
No	4188, 5180	7.6	(6.7 to 8.6)	1	–		6478, 5624	20.6	(19.5 to 21.8)	1	–		
Yes	636, 776	12.1	(9.5 to 15.4)	1.63	(1.19 to 2.23)		184, 124	25.9	(19.2 to 33.9)	1.38	(0.93 to 2.05)		
Relationship status						0.03						<0.0001	0.0307
Living with partner	2708, 4266	8.8	(7.7 to 10.1)	1	–		3967, 4168	23.4	(21.9 to 24.9)	1	–		
In a steady relationship, not living together	947, 760	6.9	(5.3 to 9.0)	0.78	(0.56 to 1.09)		1360, 790	15.4	(13.4 to 17.7)	0.59	(0.49 to 0.71)		
Not in a steady relationship, but previously cohabited	446, 388	8.8	(6.2 to 12.2)	1.00	(0.67 to 1.48)		752, 462	13.6	(11.1 to 16.6)	0.51	(0.40 to 0.66)		
Not in a steady relationship, never cohabited	727, 551	4.7	(3.3 to 6.8)	0.52	(0.34 to 0.81)		580, 330	11.0	(8.2 to 14.5)	0.39	(0.28 to 0.55)		
Duration of most recent sexual relationship (years)						0.0143						<0.0001	0.0719
≤1	1462, 1260	5.5	(4.3 to 7.1)	1	–		1597, 998	11.2	(9.4 to 13.2)	1	–		
Between 1 and 5	1247, 1227	9.0	(7.3 to 11.0)	1.67	(1.18 to 2.36)		1758, 1148	18.5	(16.5 to 20.7)	1.81	(1.44 to 2.29)		
Between 5 and 15	1065, 1484	9.3	(7.5 to 11.6)	1.68	(1.17 to 2.43)		1774, 1458	25.2	(23.0 to 27.6)	2.81	(2.23 to 3.55)		
>15	1004, 1904	8.8	(7.1 to 10.8)	1.47	(0.97 to 2.22)		1445, 2036	23.8	(21.5 to 26.2)	2.83	(2.13 to 3.75)		
Always easy to talk about sex with partners††						0						<0.0001	0.4854
Yes	1695, 1899	4.8	(3.8 to 6.0)	1	–		1746, 1451	11.4	(9.7 to 13.2)	1	–		
No/other	3122, 4048	9.8	(8.7 to 11.1)	2.15	(1.62 to 2.87)		4907, 4289	23.9	(22.5 to 25.3)	2.43	(2.02 to 2.93)		
Happy with relationship‡‡						<0.0001						<0.0001	0.9717
Yes	1951, 2791	7.1	(5.9 to 8.6)	1	–		2736, 2601	18.6	(16.9 to 20.4)	1	–		
Other	995, 1430	13.3	(11.2 to 15.8)	2.01	(1.51 to 2.66)		1640, 1617	31.4	(28.8 to 34.0)	2.00	(1.69 to 2.37)		
Participant does not share same level of interest in sex as partner							0.0311						<0.0001
No/other	2270, 3233	8.5	(7.2 to 10.0)	1	–		3211, 3064	15.0	(13.6 to 16.4)	1	–		
Yes	676, 988	11.6	(9.2 to 14.4)	1.41	(1.03 to 1.92)		1166, 1155	46.2	(42.9 to 49.6)	4.91	(4.13 to 5.83)		
Participant does not share same sexual likes and dislikes as partner						0.0975						<0.0001	0.0212
No/other	*2650, 3803*	8.9	(7.7 to 10.2)	1	–		4079, 3908	22.1	(20.6 to 23.6)	1	–		
Yes	*296, 418*	12.2	(8.6 to 17.0)	1.43	(0.94 to 2.18)		297, 310	41.9	(35.6 to 48.6)	2.55	(1.93 to 3.37)		
Partner experienced sexual difficulties in the past year						0.0027						<0.0001	0.6889

Continued

Table 2 Continued

	Men						Women						p Value for interaction with sex*
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	
No/other	2431, 3454	8.3	(7.2 to 9.6)	1	–		3726, 3498	22.1	(20.6 to 23.7)	1	–		
Yes	513, 763	13.2	(10.2 to 17.0)	1.68	(1.20 to 2.35)		649, 719	30.4	(26.5 to 34.6)	1.58	(1.27 to 1.95)		
Does not feel emotionally close to partner when having sex						0.0225						<0.0001	0.8228
No/other	2904, 4165	9.1	(7.9 to 10.3)	1	–		4263, 4108	22.9	(21.5 to 24.4)	1	–		
Yes	42, 56	21.0	(10.2 to 38.3)	2.69	(1.15 to 6.29)		112, 109	47.0	(36.4 to 57.8)	2.98	(1.92 to 4.63)		
Lifestyle													
1+child(ren) aged<5 in household						0.1047						0.0004	0.0042
No, none	4100, 5015	8.6	(7.6 to 9.6)	1	–		4997, 4671	20.2	(18.9 to 21.5)	1	–		
Yes, 1+	727, 941	6.3	(4.6 to 8.5)	0.75	(0.52 to 1.06)		1664, 1074	23.5	(21.2 to 25.9)	1.34	(1.14 to 1.58)		
Pregnant in the last year												0.5927	
No							4227, 4122	21.8	(20.4 to 23.4)	1	–		
Yes							437, 273	20.7	(16.6 to 25.6)	0.92	(0.69 to 1.24)		
Used hormonal contraceptive, past year												0.1141	
No							3759, 3838	20.7	(19.2 to 22.3)	1	–		
Yes							2806, 1831	20.9	(19.1 to 22.7)	1.14	(0.97 to 1.35)		
Sexual health indicators													
Ever diagnosed with a sexually transmitted infection						<0.0001						0.0002	0.0291
No (or only thrush)	4148, 5128	7.3	(6.5 to 8.3)	1	–		5455, 4861	20.0	(18.7 to 21.3)	1	–		
Yes (excluding thrush)	677, 830	13.7	(11.0 to 17.0)	2.02	(1.51 to 2.70)		1206, 888	25.1	(22.3 to 28.1)	1.39	(1.16 to 1.65)		
Ever experienced non-volitional sex						<0.0001						<0.0001	0.1143
No	4706, 5825	7.9	(7.1 to 8.9)	1	–		5815, 5055	19.4	(18.2 to 20.7)	1	–		
Yes/don't know	133, 148	19.4	(13.1 to 27.7)	2.83	(1.74 to 4.59)		848, 695	30.9	(27.3 to 34.6)	1.86	(1.55 to 2.25)		
Sexual competence at first sex§§						0.4876						<0.0001	0.0787
Not competent	2408, 3039	8.7	(7.5 to 10.0)	1	–		3438, 2927	23.6	(21.9 to 25.3)	1	–		
Competent	2302, 2784	7.8	(6.6 to 9.2)	0.91	(0.71 to 1.18)		3097, 2716	17.7	(16.1 to 19.3)	0.70	(0.61 to 0.81)		
Number of other sexual response problems experienced¶¶						<0.0001						<0.0001	0.0262
0	3209, 3947	5.3	(4.4 to 6.3)	1	–		4377, 3759	12.9	(11.7 to 14.1)	1	–		
1	1061, 1350	6.1	(4.7 to 7.8)	1.14	(0.81 to 1.59)		1217, 1087	21.7	(19.0 to 24.6)	1.86	(1.53 to 2.26)		
2+	570, 678	29.7	(25.4 to 34.4)	7.57	(5.68 to 10.10)		1075, 909	52.4	(48.9 to 56.0)	7.48	(6.25 to 8.94)		
Attitudes													
People are under pressure to have sex						0.1437						<0.0001	0.2192

Continued

Table 2 Continued

	Men						Women						p Value for interaction with sex*
	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	Denom. (unwt, wt)	%	(95% CI)	Age-adjusted OR	(95% CI)	p Value	
Else	1799, 2264	7.4	(6.0 to 9.0)	1	–		1851, 1570	16.4	(14.5 to 18.5)	1	–		
Strongly agree/agree	3038, 3707	8.7	(7.6 to 9.9)	1.21	(0.94 to 1.57)		4817, 4185	22.4	(21.0 to 23.9)	1.47	(1.24 to 1.74)		
People want less sex as they age						0.0005						<0.0001	0.8045
Else	2943, 3472	6.7	(5.7 to 7.8)	1	–		4044, 3278	17.1	(15.8 to 18.6)	1	–		
Strongly agree/agree	1894, 2499	10.3	(8.8 to 12.1)	1.58	(1.22 to 2.04)		2624, 2477	25.6	(23.7 to 27.6)	1.64	(1.43 to 1.90)		
Men have a naturally higher sex drive than women							<0.0001						<0.0001
Else	2788, 3441	10.2	(8.9 to 11.5)	1	–		3351, 2830	15.9	(14.4 to 17.4)	1	–		
Strongly agree/agree	2049, 2530	5.5	(4.4 to 6.9)	0.52	(0.39 to 0.68)		3317, 2925	25.5	(23.8 to 27.4)	1.81	(1.56 to 2.09)		
Too much sex in the media						0.3477						0.0693	0.8856
Else	1986, 2296	7.5	(6.3 to 9.0)	1	–		2091, 1618	18.8	(16.8 to 20.9)	1	–		
Strongly agree/agree	2851, 3675	8.6	(7.5 to 9.9)	1.13	(0.88 to 1.46)		4577, 4137	21.6	(20.2 to 23.0)	1.16	(0.99 to 1.36)		

Denominator is those aged 16–74 years with at least one partner in the past year.
*p Value for interaction to determine whether the magnitude of association between each variable and lack of interest in sex differs between men and women.
†Index of Multiple Deprivation (IMD) is a multidimensional measure of area (neighbourhood)-level deprivation based on the participant's postcode. IMD scores for England, Scotland and Wales were adjusted before being combined and assigned to quintiles, using a method by Payne and Abel.[50]
‡Participants aged≥17 years.
§Includes arthritis, heart attack, coronary heart disease, angina, other forms of heart disease, hypertension, stroke, diabetes, broken hip or pelvis, bone or hip replacement ever, backache lasting >3 months, any other muscle or bone disease lasting >3 months, depression, cancer and any thyroid condition treated in the past year.
¶Participants were asked whether they had often been bothered by feeling down, depressed or hopeless in the past two weeks and whether they had often been bothered by little interest or pleasure in doing things in the past two weeks, using a validated two-question patient health questionnaire (PHQ-2).
**Opposite and/or same-sex partners.
††Other means easy with a husband or wife or regular partner, but difficult with a new partner; easy with a new partner, but difficult with a husband or wife or regular partner; difficult with any partner; it depends, sometimes easy and sometimes difficult.
‡‡Participants were asked to rate how happy they were in their relationship from 1 (very happy) to 7 (very unhappy); responses of 1 or 2 were regarded as denoting participants who were happy with their relationship.
§§A constructed variable to measure readiness, combining consensuality, autonomy of decision-making, timing and use of effective contraception.
¶¶Sexual response problems (for at least 3 months in the past year): lacked enjoyment in sex, felt anxious during sex, felt physical pain as a result of sex, felt no excitement or arousal during sex, difficulty in reaching climax, reached a climax more quickly than you would like, trouble getting or keep an erection (men), uncomfortably dry vagina (women).
Unwt, unweighted; wt, weighted.

Table 3 Associations between reporting lack of interest in having sex for at least 3 months in the past year and other sexual response problems lasting ≥3 months in the past year, by sex

	Men							Women						
	Did not report a lack interest in sex		Reported a lack of interest in sex					Did not report a lack of interest in sex		Reported a lack of interest in sex				
Denominators (unwt, wt)	4126, 5077		713, 897		AOR*	(95% CI)	p Value	4540, 3790		2129, 1965		AOR*	(95% CI)	p Value
Lacked enjoyment in having sex							<0.0001							<0.0001
No	97.7%	(97.1 to 98.1)	81.5%	(78.2 to 84.4)	1	–		95.9%	(95.1 to 96.5)	72.5%	(70.2 to 74.7)	1	–	
Yes	2.3%	(1.9 to 2.9)	18.5%	(15.6 to 21.8)	9.78	(7.11 to 13.46)		4.1%	(3.5 to 4.9)	27.5%	(25.3 to 29.8)	8.95	(7.28 to 11.01)	
Felt anxious during sex							<0.0001							<0.0001
No	96.1%	(95.5 to 96.7)	85.8%	(82.6 to 88.5)	1	–		97.3%	(96.7 to 97.7)	89.9%	(88.4 to 91.3)	1	–	
Yes	3.9%	(3.3 to 4.5)	14.2%	(11.5 to 17.4)	4.16	(3.08 to 5.62)		2.7%	(2.3 to 3.3)	10.1%	(8.7 to 11.6)	4.4	(3.43 to 5.65)	
Felt physical pain as a result of sex							0.0213							<0.0001
No	98.4%	(97.9 to 98.8)	97.1%	(95.6 to 98.1)	1	–		95.7%	(95.0 to 96.3)	86.5%	(84.6 to 88.1)	1	–	
Yes	1.6%	(1.2 to 2.1)	2.9%	(1.9 to 4.4)	1.87	(1.10 to 3.19)		4.3%	(3.7 to 5.0)	13.5%	(11.9 to 15.4)	3.55	(2.83 to 4.45)	
Felt no excitement or arousal during sex							<0.0001							<0.0001
No	98.5%	(98.0 to 98.9)	87.7%	(85.0 to 90.0)	1	–		97.5%	(96.9 to 97.9)	80.9%	(79.0 to 82.7)	1	–	
Yes	1.5%	(1.1 to 2.0)	12.3%	(10.0 to 15.0)	9.21	(6.33 to 13.40)		2.5%	(2.1 to 3.1)	19.1%	(17.3 to 21.0)	9.16	(7.16 to 11.70)	
Difficulty in reaching climax							<0.0001							<0.0001
No	92.7%	(91.7 to 93.5)	80.5%	(76.6 to 83.8)	1	–		88.3%	(87.2 to 89.3)	74.9%	(72.7 to 76.9)	1	–	
Yes	7.3%	(6.5 to 8.3)	19.5%	(16.2 to 23.4)	3.08	(2.37 to 3.99)		11.7%	(10.7 to 12.8)	25.1%	(23.1 to 27.3)	2.6	(2.23 to 3.03)	

Continued

Table 3 Continued

Denominators (unwt, wt)	Men: Did not report a lack interest in sex 4126, 5077		Men: Reported a lack of interest in sex 713, 897		AOR*	(95% CI)	p Value	Women: Did not report a lack of interest in sex 4540, 3790		Women: Reported a lack of interest in sex 2129, 1965		AOR*	(95% CI)	p Value
Reached climax more quickly than you would like							0.0198							0.3658
No	85.6%	(84.3 to 86.9)	82.0%	(78.7 to 85.0)	1	–		97.8%	(97.2 to 98.2)	97.5%	(96.7 to 98.1)	1	–	
Yes	14.4%	(13.1 to 15.7)	18.0%	(15.0 to 21.3)	1.32	(1.05 to 1.68)		2.2%	(1.8 to 2.8)	2.5%	(1.9 to 3.3)	1.18	(0.82 to 1.69)	
Trouble getting or keeping an erection							<0.0001							
No	88.5%	(87.3 to 89.6)	79.4%	(75.9 to 82.6)	1	–								
Yes	11.5%	(10.4 to 12.7)	20.6%	(17.4 to 24.1)	1.97	(1.55 to 2.51)								
Uncomfortably dry vagina														<0.0001
No								90.7%	(89.5 to 91.7)	80.1%	(77.9 to 82.1)	1	–	
Yes								9.3%	(8.3 to 10.5)	19.9%	(17.9 to 22.1)	2.28	(1.89 to 2.76)	

Denominator is those aged 16–74 years with at least one partner in the past year.
*AOR comparing those reporting lacking interest to those who did not.
Unwt, unweighted; wt, weighted.

unchanged since the previous Natsal-2 survey.[31] This may be due to fatigue associated with a primary caring role,[32] the fact that daily stress appears to affect sexual functioning in women more than men[33] or possibly a shift in focus of attention attendant on bringing up small children.

The finding of a link between lacking interest in sex and lacking enjoyment in sex and/or feeling no excitement or arousal during sex is not surprising and has been shown in previous studies.[3] The strong associations between lack of interest in sex and physical and mental health indicators, which we observed for both men and women, are not entirely consistent with findings from other studies. While this link has been persuasively shown for women,[13 18 19] in men, the evidence is more equivocal. In a study of men attending an outpatient clinic for sexual problems, psychological symptoms such as anxiety and depression were more predictive of low sexual desire than hormonal or other physical markers.[11] In contrast, DeRogatis *et al*,[9] in their study of men with erectile dysfunction, observed no differences in depressive symptoms, concurrent illness or medication use between men with and without symptoms of low sexual desire.

The gender differences in associations between masturbation and a lack of sexual interest are interesting and have been explored in few previous population-based studies. Our observation that lack of interest was *more* commonly reported by men who had recently masturbated, but *less* commonly reported by women who had done so, may reflect a tendency among women for self-pleasuring to be, not a substitute for partnered sex but instead a part of a broader repertoire of sexual fulfilment; this possibility is worthy of further exploration. In contrast, for men frequency of masturbation reflects reduced frequency of partnered sex.[34] However, it is worth noting that in the U.S. National Health and Social Life Survey lifetime number of sexual partners and masturbation practices were unrelated to the likelihood of sexual desire difficulties for either men or women.[35]

Our observation that duration of most recent sexual relationship showed a strong association with lacking interest in sex in women is consistent with previous studies.[15 17] There has been little comparable research on men with which to corroborate the absence of such an association among men in our analysis.

Our data confirm the importance of the relational context in individuals' level of sexual interest. The strong associations between relationship and partner factors and sexual interest are consistent with those shown in many previous studies relating to women[13–17] and with a much smaller literature in men.[36 37] In particular, sexual dysfunction in a male partner has previously been associated with women's levels of sexual desire,[15 38 39] and sexual desire discrepancy in couples has been linked to lower reported relationship satisfaction and more couple conflict.[40]

The strong links found between several key sexual health outcomes and lack of interest in sex are interesting; among both men and women, reporting an STI diagnosis and non-volitional sex were associated with reporting lack of interest in sex. Our finding that lacking 'sexual competence' at first sexual intercourse was linked with subsequent lack of interest in sex among women but not men may reflect a greater salience of contextual aspects of first sex for women. More women than men report being pressured by a partner on the first occasion of heterosexual intercourse, and to have subsequently experienced regret about first sexual experiences.[41] These findings suggest that for women early sexual experiences may shape future sexual encounters/relationships to a greater extent than for men.

To our knowledge, no previous studies have assessed the association between attitudes towards sexual matters and lack of interest in sex. Endorsing the assumption that 'people want less sex as they age' was associated with lack of interest in both genders. It might be that this belief contributes to a decline in interest, or—equally plausible—that those who lack interest adopt this attitude to avoid viewing their experience as problematic. Interestingly, men who endorsed the view that 'men have a higher sex drive than women' were significantly *less* likely to report lacking interest in sex, whereas women who agreed with this statement were *more* likely to do so. If people responded to this statement with reference to their own relationship, these findings may be seen as making intuitive sense. The results suggest that endorsing stereotypical gender norms related to sex may adversely affect women more than men.

Strengths and limitations

Strengths of our study include the use of national probability sample survey data involving both men and women across a wide age range.[21 22] With a few exceptions (eg, refs.12 14 29 42), most surveys on sexual desire problems have sampled either men *or* women, precluding direct comparisons within the same sample. Another strength was the detailed and holistic examination of relationship context and attitudinal variables, which few previous studies have reported. Response rates for Natsal-3 were also similar to those of other major social surveys in Britain[43] and higher than many previous surveys of sexual problems.[35 44]

Limitations include the cross-sectional nature of the data, which mean that we are unable to infer temporality and causality. The sample is representative of those resident in private households in Britain, that is, not those living in institutions. We included only respondents who reported ≥1 sexual partner (opposite-sex or same-sex) in the past year, excluding those who had not had sex because of lack of interest. We only used a single item to assess lacking interest in sex, although we additionally took account of whether those who reported this also reported that it caused them distress, as a way of trying to capture more problematic lack of interest. This sensitivity analysis enabled us to demonstrate that for most variables similar associations exist regardless of whether or not distress was reported. It is important to acknowledge,

however, that these data do not necessarily correspond to clinical diagnoses. Finally, we have tested many associations within this study and some will have been significant by chance. These were exploratory and descriptive analyses of zero-order relationships and therefore some of the smaller effect sizes may not replicate and may not hold in multivariable analyses.

Implications for research and practice

The findings indicate that lack of interest in sex is associated with a broad range of factors across sociodemographic, relationship, sexual behaviour and sexual attitudinal domains. There are both research and clinical applications of our results.

First, our findings underscore the importance of the relational context in understanding low sexual interest in both men and women. For women in particular, the experience of sexual interest appears strongly linked with their perceptions of the quality of their relationships, their communication with partners and their expectations/attitudes about sex. Our findings support the view that transient (and often adaptive) reductions in sexual desire are not evidence of 'dysfunction'.[45]

In the context of the recent US Food and Drug Administration approval of flibanserin, the first drug to treat low sexual desire in women,[46] these findings are relevant to the current debate about whether striving for a pharmaceutical solution to women's sexual desire problems is an appropriate and feasible goal.[45 47] Some authors have suggested that women with complaints of low sexual interest might benefit most from integrative approaches that accord with a biopsychosocial model.[48]

Second, our findings on the strong association between open sexual communication (ie, 'finding it always easy to talk about sex') and a reduced likelihood of reporting lack of interest in sex, particularly for women, emphasise the importance of providing a broad sexual and relationships education, rather than limiting attention only to adverse consequences of sex and how to prevent them. Similarly, the important role of early sexual experiences, and sexual 'competence', especially for women, in shaping later experiences of sexual desire supports the need for comprehensive sex education.

In a clinical context, our findings emphasise the importance of healthcare professionals assessing psychological and interpersonal variables in individuals presenting with complaints of low sexual interest.[49] In couple therapy, it is important that therapists have an awareness of the differences between men and women in the factors associated with low sexual interest. For example, among the subgroup of participants reporting both lack of interest in sex and related distress, we found a stronger association between depressive symptoms and treatment for depression in the last year among men compared with women. Lastly, our findings support previous research on the critical role of physical and mental health in understanding low sexual interest problems experienced by men and women.[11 18]

CONCLUSIONS

This study extends our understanding of the factors associated with lack of interest in sex in men and women, the gender similarities and differences, and highlights the need to assess and—if necessary—treat sexual desire problems in a holistic and relationship, as well as gender-specific way.

Contributors The paper was conceived by CAG, CHM, AMJ, KW and KRM. CAG wrote the first draft, with further contributions from all authors. Statistical analyses were undertaken by CHM, CT and KGJ. CHM, AMJ (principal investigator) and KW, initial applicants on Natsal-3, wrote the study protocol and obtained funding. Natsal-3 questionnaire design, ethics applications and piloting were undertaken by CHM, CT, AMJ, KW and KRM. Data management was undertaken by NatCen Social Research, UCL and LSHTM. All authors contributed to data interpretation, reviewed successive drafts and approved the final version of the manuscript.

Funding Natsal-3 was supported by grants from the U.K. Medical Research Council (G0701757) and the Wellcome Trust (084840), with support from the Economic and Social Research Council and the Department of Health. KM has been supported by the United Kingdom Medical Research Council grant MC_UU_12017/11 and Scottish Government Chief Scientist Office grant SPHSU11.

Competing interests AMJ has been a governor of the Wellcome Trust since 2011.

Patient consent Obtained.

Ethics approval Natsal-3 was approved by the NRES Committee South Central-Oxford A (Ref: 10/H0604/27).

Provenance and peer review Not commissioned; externally peer reviewed.

Data sharing statement The Natsal-3 data set is publicly available from the UK Data Service: https://discover.ukdataservice.ac.uk/; SN: 7799; persistent identifier: 10.5255/UKDA-SN-77991-1.

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BMJ Open 2017 7:
doi: 10.1136/bmjopen-2017-016942