

Self-Reported Sexual Behavioral Interests and Polymorphisms in the Dopamine Receptor D4 (*DRD4*) Exon III VNTR in Heterosexual Young Adults

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Abstract Polymorphisms in the dopamine D4 receptor (*DRD4*) have previously been shown to associate with a variety of human behavioral phenotypes, including ADHD pathology, alcohol and tobacco craving, financial risk-taking in males, and broader personality traits such as novelty seeking. Recent research has linked the presence of a 7-repeat (7R) allele in a 48-bp variable number of tandem repeats (VNTR) along exon III of *DRD4* to age at first sexual intercourse, sexual desire, arousal and function, and infidelity and promiscuity. We hypothesized that carriers of longer *DRD4* alleles may report interest in a wider variety of sexual behaviors and experiences than noncarriers. Participants completed a 37-item questionnaire measuring sexual interests as well as Cloninger's Temperament and Character Inventory, and were genotyped for the 48-bp VNTR on exon III of *DRD4*. Based on our final genotyped sample of female ($n = 139$) and male ($n = 115$) participants, we found that 7R carriers reported interest in a wider variety of sexual behaviors ($r = 0.16$) within a young adult heterosexual sample of European descent. To our knowledge, this is the first reported association between *DRD4* exon III VNTR genotype and interest in a variety of sexual behaviors. We discuss these findings within the context of *DRD4* research and broader trends in human evolutionary history.

Keywords Dopamine · *DRD4* · Exon III VNTR · Neuroscience · Sexuality

Introduction

One of many distinguishing behavioral characteristics of our species, human sexuality is evolutionarily novel in a variety of ways: we exhibit concealed ovulation and menopause, and engage in a wider variety of sexual acts than nonhuman primates (Bancroft, 2009; Dixson, 2013), among others. Recent research has suggested that some variability in human sexuality can be explained by genetic polymorphisms affecting neuromodulation. The dopaminergic system regulates both endogenous reward (mesolimbic pathways) as well as cognitive control and behavioral inhibition (mesocortical pathways), processes central to sexual behavior. Genes involved in dopaminergic neurotransmission are known to be polymorphic in human populations, and may contribute to variation in human sexual behaviors.

The role of dopamine in regulating sexual desire and behavior in humans was first indicated when patients with Parkinson's disease reported increased sex drive during L-DOPA therapy (Bowers, Van Woert, & Davis, 1971). Since this discovery, polymorphisms along genes involved in transmembrane dopamine reception and transport have been implicated in a wide variety of human behavioral phenotypes, including sexuality. Research has largely focused on a 48-bp variable number of tandem repeats (VNTR) polymorphism along exon III of dopamine receptor D4 (*DRD4*), a transmembrane G-coupled protein receptor particularly expressed in human prefrontal cortex (De La Garza & Madras, 2000; Meador-Hoodruff, Damask, & Wang, 1996; Mulcrone & Kerwin, 1997). Humans exhibit considerable variation at this site, with polymorphisms between 2 and 11 tandem repeats identified in human populations (Chang, Kidd,

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Livak, Pakstis, & Kidd, 1996). In vitro studies suggest that longer *DRD4* alleles are hyposensitive to dopamine at the receptor site (Asghari et al., 1995; Swanson et al., 2000), although a full mechanistic explanation of how allele length alters neuromodulation remains incomplete.

The two most common alleles in human populations are 4 and 7 repeat sequences; while allele frequencies differ considerably across populations, global frequencies for the 4R (64.3 %) and 7R alleles (20.6 %) make up 85 % of the estimated total variation (Chang et al., 1996). The presence of a 7-repeat allele has been associated with a wide range of human phenotypes, most notably attention-deficit hyperactivity disorder (Rowe et al., 1998; Swanson et al., 1998) and novelty seeking (Benjamin et al., 1996; Ebstein et al., 1996), although the latter association has been weak and difficult to replicate (Kluger, Siegfried, & Ebstein, 2002; Mufanò, Yalcin, Willis-Owen, & Flint, 2008; Paterson, Sunohara, & Kennedy, 1999). The presence of a 7R allele has been linked to alcohol craving (Hutchison, McGeary, Smolen, & Bryan, 2002), heavy alcohol consumption (Ray et al., 2009), and functional MRI responses to alcohol cues (Filbey et al., 2008). Males exhibiting the 7R allele have also been found to take greater financial risks in economic games (Dreber et al., 2009).

Polymorphisms in dopamine receptor genes *DRD1*, *DRD2*, and *DRD4* have been correlated with age at first sexual intercourse (Eisenberg et al., 2007; Guo & Tong, 2006; Kogan et al., 2014; Miller, Pasta, MacMurray, Chiu, & Comings, 1999), while carriers of the 7R VNTR on *DRD4* have reported higher measures of sexual desire, arousal, and function (Ben Zion et al., 2006), as well as promiscuity and infidelity (Garcia et al., 2010). In addition, Eisenberg et al. (2010) reported a relationship between 7R carriers and individuals with multiple ancestries, a finding consistent with reports of 7R allele frequency in recently migratory and nomadic populations (Chen, Burton, Greengerger, & Dmitrieva, 1999; Eisenberg, Campbell, Gray, & Sorenson, 2008). However, like other behavioral phenotypes, associations between *DRD4* genotype and sexual life history have been inconsistent across studies; some studies have failed to find an association between 7R carriers and the number of sexual partners (Halpern, Kaestle, Guo, & Hallfors, 2007) or loving styles based on physical attraction (Emanuele, Brondino, Pesenti, Re, & Geroldi, 2007).

The sheer variety of human phenotypes related to *DRD4* polymorphisms, along with the many roles played by dopamine in the brain, suggests mediation via broader psychological or personality dispositions. Several such traits have been proposed and studied: novelty seeking (Benjamin et al., 1996; Ebstein et al., 1996), impulsivity and behavioral inhibition (Congdon & Canli, 2005; Eisenberg et al., 2007), and approach-related behavior (Munafò, Yalcin, Willis-Owen, & Flint, 2008). As *DRD4* has been associated with novelty-seeking and sexual behavioral phenotypes, we hypothesized that polymorphisms

along *DRD4* might correlate with interests and desires for novel sexual experiences.

Method

Protocols in this study related to the collection and storage of surveys and genetic material were approved by the Pennsylvania State University Institutional Review Board Office for Research Protections (IRB #24869).

Participants

Our study sample consisted of 254 individuals (139 females and 115 males, M age, 20.0 years \pm 1.52) primarily recruited from the Pennsylvania State University undergraduate student population. The remaining participants were recruited from previous research participant lists and on-campus advertisements. To minimize bias in sexual life experience, participants over 25 ($n = 120$) were removed from the present study. Participants self-identifying as homosexual, bisexual, or other ($n = 13$) were also removed due to low frequency (<4 %) and because preliminary analyses showed their sexual interests to be significantly different from heterosexual participants. As the exon III VNTR polymorphism has been shown to be population-stratified (Chang et al., 1996) and our sample consisted primarily (77.8 %) of individuals self-identifying as European-derived, we restricted our analysis to that group; subsamples of participants reporting ancestry other than European were too small to be analyzed individually, and were therefore removed ($n = 81$). Participants who gave no response to more than three questionnaire items were additionally removed; missing data were otherwise replaced by mean values.

Measures

Participants completed secure and confidential online surveys from their home computers to ensure privacy. Participant background information was collected on age, number of lifetime sexual partners, number of partners in the past year, sexual orientation, religiosity, race, and socioeconomic background.

Participants completed a 37-item questionnaire designed to evaluate interest in various sexual behaviors. Questions concerned preferred frequency of sexual contacts, masturbatory practices, pornography, sex toys, oral sex, anal sex, fantasies and role-playing, same-sex attraction, bondage and S&M, and multipartner sex. For most questions, participants could indicate that (a) they had already engaged in a behavior in the past, (b) they would be interested to do so, or (c) they had no interest in this behavior. Questions were later coded to simply distinguish interest in a behavior (a and b) from no interest (c). Under this alternative coding, two questions (#1 and #2) were removed

which measured actual behaviors rather than interests, and two questions (#25 and #33) were considered redundant. The remaining 33 binary responses indicating interest in particular behaviors were standardized so that items with greater variance did not have disproportionate effects on the composite; items were then summed to produce a total score for analysis. Frequencies of coded responses on each survey item, separated by sex, are shown in Table 1. A complete list of the questionnaire items and the response coding used is included as an Appendix.

Cloninger's (1999) Temperament and Character Inventory-Revised (TCI-R) was used to obtain measurements of personality characteristics. The TCI-R consists of 240 statements regarding the subject's temperament and personality, to which participants respond with "True" or "False" according to whether or not each statement applies to them. Responses are graded into subscales measuring the following seven traits: Novelty Seeking, Harm Avoidance, Reward Dependence, Persistence, Self-Directedness, Cooperativeness, and Self-Transcendence.

Genotyping

Samples were genotyped for the 48-bp VNTR on exon III of *DRD4*. Blood samples were collected on Whatman cards. Punches were washed in FTA purification reagent and low TE via the Whatman punch-washing protocol; the DNA on the punches was then amplified directly via polymerase chain reaction (PCR). The PCR amplification reaction used primers (Forward) GCCCGCT CATGCTGCTGCTC, (Reverse) CAGGAGGCGGCGTGCC AAGA, with a 5-min denaturation at 95 °C, followed by 35 cycles of 30-s at 95 °C, 1 min at 57 °C, and 1 min at 72 °C, with a final cycle of 5 min at 72 °C. PCR product was then run out on a 3 % agarose gel with EtBr and genotyped by length of resulting bands.

Statistical Analysis

VNTR genotypes were coded into a dichotomous variable distinguishing carriers from noncarriers of the 7R allele. We used least-squares regression models to test relationships between genotype and phenotypes. We first used separate simple linear regressions to predict standardized total scores on the sexual behavior survey from genotype and from sex. We then used a multiple regression model with genotype, sex, and their interaction to predict standardized total score on the sexual behavior survey, in order to test whether any relationship between *DRD4* genotype and sexual behavior interest differed by sex. Post-hoc analysis employed univariate and multivariate logistic regression models using genotype and sex to predict individual sexual behavior survey items. Simple linear regression was used to predict subscale scores on the TCI-R from genotype.

Table 1 Proportion of responses coded "1" (see text) in women ($n = 139$) and men ($n = 115$) on sexual questionnaire items (frequencies in parentheses)

Item No.	Description	Women	Men
3	Sex thoughts per day	0.27 (38)	0.70 (80)
4	Preferred frequency	0.76 (106)	0.92 (106)
5	Masturbation	0.58 (80)	0.97 (111)
6	Mastur. for partner	0.41 (57)	0.39 (45)
7	Pornography	0.40 (56)	0.91 (105)
8	Shower with partner	0.84 (116)	0.84 (97)
9	Sex toys	0.54 (75)	0.36 (41)
10	Videotape	0.27 (38)	0.39 (45)
11	>1 partner same day	0.12 (17)	0.34 (39)
12	Give oral sex	0.86 (120)	0.82 (94)
13	Anal sex	0.26 (36)	0.38 (44)
14	Anal fingering	0.30 (42)	0.20 (23)
15	Orally pleasure anus	0.12 (16)	0.17 (19)
16	Fantasy/role-playing	0.60 (83)	0.61 (70)
17	Phone sex	0.42 (58)	0.44 (50)
18	Cybersex	0.28 (39)	0.34 (39)
19	Webcam mastur.	0.06 (8)	0.05 (6)
20	Same-sex attraction	0.34 (47)	0.10 (11)
21	Same-sex oral	0.33 (46)	0.09 (10)
22	Sex on first date	0.40 (56)	0.62 (71)
23	Sex in public	0.63 (88)	0.64 (74)
24	Threesome	0.21 (29)	0.70 (81)
26	Let someone watch	0.08 (11)	0.17 (19)
27	Orgy	0.06 (8)	0.23 (26)
28	Spanking	0.43 (60)	0.40 (46)
29	Handcuff/restraint	0.52 (72)	0.47 (54)
30	Resistance play	0.41 (57)	0.30 (35)
31	Heavy S&M	0.05 (7)	0.06 (7)
32	Double penetration	0.09 (12)	0.10 (11)
34	Urination	0.01 (2)	0.03 (3)
35	Menstruation sex	0.50 (70)	0.35 (40)
36	Casual sex partner	0.55 (76)	0.76 (87)
37	Partner sharing	0.07 (9)	0.05 (6)

Results

Allele and genotype frequencies were similar to those previously reported for populations of European descent (Chang et al., 1996) (Table 2). Our sexual behavior survey displayed excellent internal consistency in both sexes (Cronbach's α ; male = 0.89; female = 0.91).

DRD4 exon III VNTR genotype positively predicted overall interest in a variety of sexual behaviors, with carriers of the 7R allele exhibiting higher total scores on the sexual behavior

Table 2 Allele and genotype frequencies for the *DRD4* exon 3 VNTR polymorphism

Allele	<i>n</i>	%
2	40	7.9
3	25	4.9
4	343	67.5
5	3	0.6
6	5	1.0
7	91	17.9
8	1	0.2
Genotype	<i>n</i>	%
2/2	8	3.1
2/3	1	0.4
2/4	22	8.7
2/7	1	0.4
3/3	4	1.6
3/4	10	3.9
3/7	6	2.4
4/4	122	48.0
4/5	3	1.2
4/6	3	1.2
4/7	60	23.6
4/8	1	0.4
6/7	2	0.8
7/7	11	4.3

survey (Fig. 1; Table 3). Sex also significantly predicted total scores, with males tending to exhibit higher scores overall; however, genotype and sex did not significantly interact in predicting total scores, indicating that male and female total scores were not differently affected by the presence of a 7R allele.

Post-hoc analysis indicated that the presence of a 7R allele positively predicted interest in several specific sexual behaviors (Table 4). In logistic regression models with genotype and sex as predictor variables, the relationship between the presence of a 7R allele and interest in a particular sexual behavior was positive (odds ratio > 1) for 30 of 33 behaviors (statistically significant in 11), whereas none of the three negative relationships (odds ratio < 1) approached statistical significance. The items significantly related to *DRD4* genotype included spanking, webcam masturbation, receiving oral sex from a same-sex partner (within a self-identified heterosexual sample), masturbation while a partner watches, cybersex, use of handcuffs or restraints, urination, videotaping, anal sex, phone sex, and interest in having sex with more than one partner in the same day. The effect of *DRD4* genotype was significantly different in men and women only for spanking (significant in men but not in women).

We did not find significant relationships between 7R carriers and any personality trait measured by the TCI-R (including

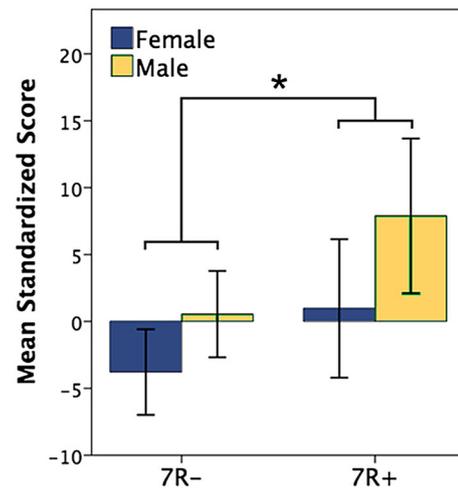


Fig. 1 Mean standardized score for sexual behavioral interest surveys according to sex and coded *DRD4* genotype. Error bars indicate 95 % confidence intervals. Men showed interest in a greater variety of sexual behaviors than did women, and individuals with 7R+ genotypes showed interest in a greater variety of sexual behaviors than did those with 7R– genotypes (contrast indicated by asterisk), but the effect of genotype did not differ by sex

novelty seeking) for either sex or in the combined sample (all $p > 0.262$).

Discussion

In order to further investigate associations between *DRD4* 48-bp VNTR 7R allele carriers and both novelty-seeking and sexual phenotypes, the present study examined the association between *DRD4* genotype and participants' interest in a variety of sexual behaviors. We hypothesized that 7R carriers would exhibit interests in a wider variety of sexual experiences compared with noncarriers. Our findings represent, to our knowledge, the first association found between 7R allele carriers of the exon III VNTR along *DRD4* and self-reported interest in novel kinds of sexual experience. These findings were consistent with previous studies connecting *DRD4* genotypes to a range of sexual behavioral phenotypes. While prior research had linked the 7R allele to sexual desire, arousal, and function (Ben Zion et al., 2006); infidelity and promiscuity (Garcia et al., 2010); and assortative pair-bonding (Eisenberg et al., 2010), our data suggest a link between the 7R allele and preference or interest in a wider array of sexual behaviors among heterosexual Caucasian young adults.

Several broad trends emerge from these results. First, the 7R allele appears to be associated with interest in a constellation of exhibitionist-type sexual behaviors [defined here as involving sexual behavior remotely (cybersex, phone sex, webcam masturbation), videotaping, and witnessed masturbation]. Second, both sexes associate the 7R allele with interest in some form of

Table 3 Linear regression models predicting standardized total score of sexual behavior questionnaire

Model	R^2	Df	F	β	T	p
<i>DRD4</i>	0.025	1	6.44	0.16	2.54	0.013
Sex	0.022	1	5.54	-0.15	-2.35	0.019
<i>DRD4</i>	0.051	3	4.51	0.17	2.77	0.006
Sex				-0.16	-2.58	0.010
<i>DRD4</i> × Sex				-0.04	-0.60	0.549

aggressive or restrictive sexual behavior (spanking and use of handcuffs/restraints). Third, within a self-identified heterosexual sample, 7R females reported interest in receiving oral sex from a same-sex partner; this association could reflect greater interest in homosexual behaviors among self-identifying heterosexuals, consistent with more fluid scales of sexual orientation (e.g., Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953). The majority of associations (30 of 33) were positive in the combined sample, and zero negative associations between genotype and survey items were significant.

Table 4 Odds ratios for multivariate logistic regression using *DRD4* genotype and sex to predict survey responses, as well as odds ratios of univariate logistic regression using genotype to predict responses within each sex's subsample

	Multivariate logistic regression odds ratios		Univariate logistic regression odds ratios for each sex	
	<i>DRD4</i>	Sex	Female	Male
Spanking (28) ^a	2.20**	1.08	1.34	4.43**
Mastur. for partner (6)	2.10**	1.03	1.76	2.67*
Cybersex (18)	2.07*	0.72	2.33*	1.80
Webcam mastur. (19)	4.29*	1.00	6.36*	2.76
Anal sex (13)	2.02*	0.53*	1.78	2.35*
Videotape (10)	2.00*	0.55*	1.34	3.20**
Phone sex (17)	1.83*	0.89	1.91	1.72
Handcuff/restraint (29)	1.83*	1.17	2.22*	1.41
Same-sex oral (21)	2.00*	5.08***	2.36*	1.12
>1 partner same day (11)	2.02*	0.25***	1.82	2.17
Urination (34)	9.74*	0.46	7.02E+07	5.47
Let someone watch (26)	1.95	0.41*	1.09	2.86*
Anal fingering (14)	1.61	1.68	1.25	2.45
Resistance play (30)	1.55	1.55	1.54	1.57
Sex toys (9)	1.54	2.07**	1.15	2.32*
Sex thoughts per day (3)	1.52	0.16***	1.57	1.45
Give oral sex (12)	1.67	1.37	1.56	1.80
Orally pleasure anus (15)	1.61	0.63	2.08	1.24
Orgy (27)	1.64	0.20***	1.15	1.90
Preferred frequency (4)	1.51	0.26**	1.29	3.31
Heavy S&M (31)	1.72	0.79	2.67	1.04
Double penetration (32)	1.47	0.87	0.93	2.38
Casual sex partner (36)	1.24	0.38**	0.97	2.07
Sex in public (23)	1.18	0.95	1.44	0.90
Masturbation (5)	1.19	0.05***	1.05	8.18E+07
Pornography (7)	1.17	0.06***	1.09	1.60
Menstruation sex (35)	0.91	1.92*	1.26	0.53
Sex on first date (22)	1.07	0.42**	1.09	1.05
Fantasy/role-playing (16)	1.07	0.95	1.05	1.10
Same-sex attraction (20)	1.08	4.81***	0.97	1.55
Threesome (24)	0.95	0.11	0.82	1.10
Partner sharing (37)	1.08	1.25	0.52	2.76
Shower with partner (8)	0.99	0.94	0.99	1.00

^a Logistic regression on this survey item alone returned a significant interaction term. The trivariate model produces the following odds ratios: *DRD4* (4.43; $p < .01$), Sex (1.59), *DRD4* × Sex (0.30; $p < .05$)

Our study failed to replicate previous findings that 7R carriers exhibit higher degrees of novelty seeking, as measured by Cloninger's TCI-R (Benjamin et al., 1996; Ebstein et al., 1996), despite associations between novelty-seeking and sexual behavioral interests. This reinforces the findings of a meta-analysis that the novelty-seeking association is weak, and apparently sensitive to as-yet unknown moderators across studies (Kluger et al., 2002). Our sample's failure to replicate a significant association between 7R carriers and novelty seeking underscores the probability that genetic polymorphisms along *DRD4* only partially contribute to observed variation in complex behavioral phenotypes.

Our sample was limited to heterosexual young adults of European descent, most of whom were university undergraduates. This sampling bias, while necessary to our analysis, means that our results likely reflect only a subset of broader sexual interests in human populations. Age in particular is positively correlated with an increase in interest in a wider variety of sexual practices. Similarly, cultural differences (e.g., gender roles, attitudes toward monogamy and promiscuity, religiosity, etc.) are likely central to shaping sexual interests and practices. Nevertheless, our findings suggest that genetic modulation of dopamine neurotransmission plays a role in sexual interests within our limited sample. Further research across broader populations and age groups would help to clarify the generalizability of our findings.

Analysis of the genetic architecture of the 7R allele suggests it first appeared in human populations approximately 40,000–50,000 years ago, around the dawn of the Upper Paleolithic Era (Wang et al., 2004). One adaptive hypothesis for the spread of the 48-bp VNTR 7R allele is that it facilitated migratory tendencies, as frequencies have been found to be higher in populations with recent migratory histories compared with sedentary ones (Chen et al., 1999). Within one nomadic population of

Ariial in northern Kenya, males carrying a 7R allele were found to have higher body mass indices, suggesting a link to nomadic success (Eisenberg et al., 2008). Particularly in periods of environmental change, mutations affecting exploratory dispositions may have been advantageous and could account for the rapid spread of the 7R allele. In combination with previous research on *DRD4* sexuality and novelty-seeking phenotypes, our data suggest that behaviors involved in seeking novel forms of sexual contact contributed to 7R selection, especially in conjunction with migratory tendencies. The pleiotropic suite of *DRD4* phenotypes may thereby have influenced interbreeding across ancestral populations of *Homo sapiens sapiens*, as well as with Neanderthal (Green et al., 2010) and Denisovan (Meyer et al., 2012) populations.

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Appendix: Sexual Behavior Survey Items

Binary coding is presented in parentheses after response options. Questions 1 and 2 were removed, as they pertain to actual behaviors rather than interests, and are particularly sensitive to age within our sample; questions 25 and 33 were removed, as binary coding rendered responses equivalent to other questionnaire items (#24 and #27, respectively).

1. On average, how many times a week do you have sexual intercourse (oral, genital, or anal)?
0 (0), 1-4 (1), 5-8 (1), 9 or more (1)
2. On average, how many times a week do you engage in other forms of sex play (e.g. heavy kissing, petting, phone or internet play, etc.)?
0 (0), 1-4 (1), 5-8 (1), 9 or more (1)
3. On average, how many times per day do you think about sex?
0 (0), 1-4 (0), 5-8 (1), 9 or more (1)
4. If you had a choice as to how often you would have sex, how often would it be?
Not too often, I have better things to do (0), A few times per month (0), A few times per week (1), Every day at least once (1)
5. Do you masturbate?
No (0), I've done it, but it's not my thing (0), Sometimes (1), Often (1)
6. Have you ever masturbated for your partner while they watched (or vice-versa)?
No (0), No, but interested (1), Yes (1)
7. If you watch pornography, when do you do it?
I don't watch pornography (0), Alone (1), With my partner (1), Both alone and with my partner (1)
8. Have you ever taken a shower with your partner?
No (0), No, but interested (1), Yes (1)
9. Have you ever used sex toys?
No (0), No, but interested (1), Yes (1)
10. Have you ever videotaped yourself having sex?
No (0), No, but interested (1), Yes (1)
11. Have you ever had sex with more than one partner in the same day?
No (0), No, but interested (1), Yes (1)
12. Do you give your partner oral sex?
No (0), No, but interested (1), Yes (1)
13. Have you ever had anal sex?
No (0), No, but interested (1), Yes (1)
14. While having sex, have you ever had your partner insert his/her finger into your anus (or vice versa)?
No (0), No, but interested (1), Yes (1)

15. Have you ever orally pleased your partner's anus (or vice versa)?
No (0), No, but interested (1), Yes (1)
16. Have you ever explored sexual fantasies or role-playing with your partner?
No (0), No, but interested (1), Yes (1)
17. Have you ever had phone sex?
No (0), No, but interested (1), Yes (1)
18. Have you ever had cybersex?
No (0), No, but interested (1), Yes (1)
19. Have you ever masturbated while on webcam for others to watch?
No (0), No, but interested (1), Yes (1)
20. Have you ever been attracted to someone of the same sex?
No (0), Occasionally (1), Yes, all the time (1)
21. Would you let someone of the same sex orally pleasure you if you didn't have to touch them or return the favor?
No (0), Yes (1), Already done it (1)
22. Have you ever had sex on the first date?
No (0), No, but interested (1), Yes (1)
23. Have you ever had sex in a public place?
No (0), No, but interested (1), Yes, but rarely (1), Yes, do it often (1)
24. Have you ever had a threesome?
No (0), No, but interested (1), Yes (1)
25. What kind of threesome would you prefer?
None (0), Two members of the opposite sex (1), Two members of the same sex (1), One member of each sex (1)
26. Have you ever let someone watch you have sex?
No (0), No, but interested (1), Yes (1)
27. Have you ever participated in an orgy (sex with more than two other people)?
No (0), No, but interested (1), Yes (1)
28. Do you like to spank or be spanked by your partner?
No (0), No, but interested (1), Yes (1)

29. Have you ever had sex in which you or your partner was handcuffed or restrained in some way?

No (0), No, but interested (1), Yes, but not often (1), Yes, often (1)

30. Do you like resistance play where you're holding or being held down and struggling to get free during sex?

No (0), No, but interested (1), Yes, but not often (1), Yes, often (1)

31. Have you ever done a heavy sadomasochistic (S&M) session with your partner?

No (0), No, but interested (1), Yes, but not often (1), Yes, often (1)

32. Have you ever participated in double penetration?

No (0), No, but interested (1), Yes, but not often (1), Yes, often (1)

33. What is the largest number of people you've had sex with in a single session?

0 (0), 1 (0), 2-3 (1), 4-5 (1), 6+ (1)

34. Have you ever urinated on or been urinated on by your partner?

No (0), No, but interested (1), Yes, but not often (1), Yes, often (1)

35. Have you ever had sex while you or your partner was having their period?

No (0), No, but interested (1), Yes, but not often (1), Yes, often (1)

36. Do you currently have or have you had in the past a "friend with benefits", or regular casual sex partner?

No (0), No, but interested (1), Yes (1), Yes, more than one (1)

37. Would you consider intimately sharing your mate with a friend?

No (0), Yes (1), Yes, I've done it (1)

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