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Ethnic, Gender, and Length-of-Residency Influences on Sexual Knowledge and Attitudes

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We examined potential differences in sexual knowledge and attitudes between 702 Canadian undergraduates of Asian (n = 356) and European (n = 346) ancestry. We also examined potential influences of length of residency in Canada on these variables among Asians, and the role of gender both across and within ethnic groups. The primary purpose was to examine whether length of exposure to North American sexual values influences sexual knowledge or attitudes among Asians living in Canada. Results revealed that compared to Europeans, Asians held more conservative sexual attitudes and demonstrated significantly less sexual knowledge. Recent Asian immigrants were significantly more likely than Canadian-born or long-term Canadian residents to hold conservative sexual attitudes on a number of sexuality items. Among Asians and Non-Asians, males reported more negative attitudes toward homosexuals than did females; females held more conservative sexual attitudes toward uncommitted sexual relations than did males. The findings provide partial support for a cultural explanation of the frequently reported finding that, compared with North Americans, Asians are more restricted in their expression of sexuality.

In a recent study of sexual behavior among Canadian undergraduates, Meston, Trapnell, and Gorzalka (1996) reported significant differences in sexuality between persons of Asian and European ancestry. Among a wide variety of interpersonal (e.g., petting, oral sex, intercourse), intrapersonal (e.g., fantasies, masturbation), and unrestricted (e.g., lifetime number of partners, number of "one-night stands") sexual behavior items, Asians reported being much more sexually inexperienced or conservative than their Non-Asian counterparts. Consistent with Meston et al.'s (1996) findings, rates of premarital intercourse among Asian undergraduates in Hong Kong (i.e., 6% of men and 4% of women; Chan, 1990) are considerably lower than those reported by U.S. college students (i.e., 87% of students; DeBuono, Zinner, Daamen, & McCormach, 1990). Further, statistics on national rates of premarital coital experience reveal that Asian nations have the lowest rates of premarital intercourse (Hofmann, 1984).

Although a number of hypotheses have been proposed to explain sexual behavior differences between persons of Asian and European ancestry (for review, see Meston et

al., 1996), the most reasonable explanation is that they reflect differences in cultural norms. Compared with North American standards, Chinese culture places a greater emphasis on propriety and the observance of strict moral and social codes (e.g., Ng & Lau, 1990). Several authors have proposed that this social conservatism has led to the suppression of sexuality among the Chinese people (e.g., Suen, 1983; Tseng & Hsu, 1970). Others have suggested that the control of sexual gratification was instigated by philosophers as a means of ensuring the survival of Chinese cultural and family systems (Chun-Hoon, 1971; Hsu, 1970). In an effort to test whether sexual conservatism among Asian persons might be explained in terms of divergent cultures, Meston et al. (1996) examined whether differences in sexual behavior existed between Asian persons born in Canada and recent Asian immigrants. They expected that Asians born in Canada would be more assimilated to Western society than would recent Asian immigrants (Feagin & Fujitaki, 1972) and, therefore, would be more likely to have adopted, or to have been influenced by, North American sexual values. Meston et al. (1996), however, found no significant difference between Canadian-born Asians and either recent (post-1987) or long-term (pre-1987) immigrants on any of the interpersonal sexual behavior measures (27 items) or sociosexual restrictiveness measures (5 items), or on most of the intrapersonal sexual behavior items administered (on 22 of 25 items). Hence, length of exposure to North American values did not seem to influence the conservative expression of sexuality noted among Asian persons.

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Although Meston et al.'s (1996) findings do not support a cultural explanation for differences in sexual behavior between Asian and Non-Asian persons, interpretation of their findings is limited because the Asian sample was comprised primarily of first-generation immigrants. Perhaps culturally defined sexual norms are so highly ingrained that one would need to look at second- or third-generation Asian immigrants before changes in sexual behavior become apparent. As Meston et al. noted, it may be more reasonable to expect changes in sexual attitudes or knowledge than changes in overt expressions of sexuality to occur as a function of length of residency in Canada among first-generation Asians. Meston et al.'s (1996) finding that the only three measures influenced by length of residency in Canada were fantasy items as opposed to overt behavior items provides limited support for this hypothesis.

The notion that changes in Asian immigrants' sexual attitudes may precede changes in their overt sexual behavior necessarily rests on the assumption that attitudinal variables have predictive power over volitional behaviors. Fishbein and Ajzen (1975; Ajzen & Fishbein, 1980), in their well-articulated and well-researched theory of planned behavior, have provided convincing evidence for a temporal attitude-behavior relationship. According to their theory, behavioral performance can be predicted from one's intention to perform the behavior in question. Behavioral intentions can, in turn, be predicted from (a) the attitude toward the behavior, (b) the perceived social pressure to engage or not to engage in the behavior, and (c) the motivation to comply with the reference group's expectations (Ajzen & Fishbein, 1973). Numerous studies Fishbein and associates have conducted provide support for this theory's validity in predicting a variety of behaviors (for review, see Ajzen & Fishbein, 1973). With regard to sexual behavior, one early study (Fishbein, 1966) revealed, among female undergraduates, a significant correlation between intention to engage in premarital intercourse measured at the start of the semester and self-reported sexual behavior measured at the semester's end. Intention to engage in premarital intercourse was, in turn, significantly predicted by the attitude toward the behavior and the normative beliefs about the behavior, the former having more predictive power (Fishbein, 1966).

Our goal was, first, to examine potential differences in sexual attitudes between Asian and Non-Asian Canadian undergraduates, and to determine the extent to which length of residency in Canada may moderate these differences between Canadian-born Asians and Asian immigrants. Second, because information on sexuality has previously been shown to influence attitudes toward sexuality (e.g., Patton & Mannison, 1993), and because sexual knowledge has been modestly linked to sexual behavior among Asian undergraduates in Hong Kong (Chan, 1990), we also assessed ethnic and length-of-residency influences on sexual knowledge. If differences in sexual knowledge

and attitudes exist between Asian and Non-Asian persons, and these differences are minimized as the length of residency in Canada increases, the findings would support a cultural explanation for Asians' versus Europeans' more conservative expression of sexuality.

METHOD

Participants

Participants were 722 University of British Columbia undergraduate volunteers (285 were male) who were enrolled in introductory psychology courses during the 1992–1993 academic year. Participants were given course credit in exchange for their participation. Data from 20 participants were omitted from analyses because of missing gender or ethnicity information. The maximum final sample size was 702 (275 were male).

The sample comprised 49% Non-Asians and 51% Asians (of which approximately 70% were Chinese). Asians were defined as those persons who (1) listed their first language as East or Southeast Asian; or (2) listed their own or their parents' country of birth as East or Southeast Asia. All other persons, including a small number of South Asians (e.g., East Indian; Sri Lankan) and West Asians (e.g., Middle Eastern; Iranian), were classified as Non-Asian. For the purposes of simplicity and brevity, we refer to East and Southeast Asians as Asians; we refer to all other individuals as Non-Asians. For detailed information on participants' countries of birth, see Meston et al. (1996). The subsamples grouped by gender comprised 131 Asian males, 144 Non-Asian males, 224 Asian females, and 203 Non-Asian females. To examine the effects of length of Canadian residency on sexual knowledge and attitudes, we divided Asian individuals into three groups: those born in Canada and two groups of Asian immigrants divided at the median year of arrival (1987). In this sample, 32% were Asians born in Canada (Canadian Asian), 33% were Asians who immigrated to Canada before 1987 (Asian pre-1987), and 35% were Asians who immigrated to Canada during or after 1987 (Asian post-1987).

Participants were aged 17–55 (94% were 18–25 years old) with a mean age of 20 for men and 21 for women. The mean age was 21 for Non-Asians, 20 for Asians, 19 for Canadian-born Asians, 20 for pre-1987 Asian immigrants, and 21 for post-1987 Asian immigrants. When they completed the questionnaires, 43% of the women volunteers, compared with 39% of the men, were involved in relationships. Forty-three percent of female participants and 40% of male participants were virgins.

Measures

We assessed sexual knowledge using the Sexual Information subscale of the Derogatis Sexual Functioning Inventory (DSFI; Derogatis, 1978). The DSFI is a standardized self-report inventory designed to assess current levels of sexual functioning. The DSFI Sexual Information Scale

consists of 26 statements regarding sexual anatomy, physiology, psychology, and general hygiene. The majority of items are moderately difficult; the remaining items are minimally and maximally difficult. Participants indicated by a true or false response whether they agreed with the statements. We derived the Sexual Knowledge composite score by summing the number of correct endorsements (Derogatis, 1978).

We assessed sexual attitudes using the Sexual Attitudes subscale of the DSFI and the attitude items from the Sociosexual Orientation Inventory (SOI; Simpson and Gangestad, 1991). The DSFI Attitude subscales consist of 30 items: attitudes toward extramarital sex (2 items), homosexuality (3 items), masturbation (2 items), multiple sexual partners (2 items), oral sex (2 items), pornography (4 items), premarital sex (3 items), prudery (2 items), sex

roles (3 items), sexual variations (4 items), and sexual immorality (3 items). Participants indicated the degree to which they agreed or disagreed with each of the statements on a five-point scale from *strongly disagree* (1) to *strongly agree* (5). We used eight questions from the SOI to assess attitudes toward uncommitted sexual behavior. Participants indicated the degree to which they agreed or disagreed with each of the statements on a nine-point scale from *strongly disagree* (1) to *strongly agree* (9).

Procedure

Participants completed the DSFI and SOI questionnaires in groups of 5–10 individuals. Participants were separated in a large testing room, and visual barriers were placed between participants to provide maximum privacy for responding. During all sessions a same-sex researcher was

Table 1. Differences Between Asians' and Non-Asians' Sexual Knowledge

Item	Percentage Correct				F-Ratio	
	Males		Females			
	Non-Asians	Asians	Non-Asians	Asians	Gender	Ethnicity
Men usually achieve orgasm quicker than women.	87	82	84	85	0.03	0.05
Intercourse during menstruation is not healthy.	60	53	81	44	2.50	47.92*
The penis must be erect before ejaculation may occur.	33	28	22	15	14.56*	2.89
Simultaneous orgasm is not necessary for a good sexual relationship.	81	71	88	67	0.30	28.44*
Masturbation indicates poor marital adjustment.	85	82	91	76	0.00	14.54*
Hysterectomized women cannot have an orgasm.	90	85	98	89	6.20	11.09*
Men reach their peak sexual drive in their teens: women in their 30s.	72	61	76	51	0.97	28.30*
Women can become pregnant during menstruation.	43	47	57	49	5.77	1.80
Most people lose interest in sex after age 60.	68	54	80	60	5.77	23.10*
A male's orgasm is more satisfying than a female's orgasm.	90	76	92	77	0.11	27.83*
A condom protects against conception and venereal disease.	93	93	91	89	1.97	0.33
Female lubrication shows sexual excitement.	90	88	87	84	1.66	1.99
Oral-genital sex is unhealthy.	66	51	66	44	1.09	23.43*
Women who have fantasies during intercourse are dissatisfied with their sex lives.	80	79	89	73	0.29	12.26*
Frequency of intercourse indicates relationship success.	90	93	92	91	0.00	0.03
A woman may have an orgasm via manual genital stimulation.	97	96	95	91	4.63	2.96
Menopause causes a sharp decrease in sex drive.	60	44	59	44	0.15	14.35*
Women desire sex as frequently as men.	70	64	68	65	0.00	1.78
Douching after intercourse is an effective form of contraception.	94	86	98	82	0.00	34.17*
After intercourse there is a period when a man cannot respond to sexual stimulation.	83	88	81	76	4.40	0.27
Females can have multiple orgasms.	94	95	93	84	6.98	4.89
Most women are able to enjoy sex without experiencing orgasm.	85	78	86	78	0.01	7.67
The larger the penis the more satisfying to the female.	92	79	90	80	0.11	17.90*
A woman cannot become pregnant after menopause.	30	38	29	21	7.74	0.11
Erection in the male is via congestion of blood in the penis.	91	91	87	86	3.32	0.01
The clitoris is not a particularly sensitive area.	98	93	99	89	0.50	21.40*
n	142-144	130-131	200-202	224-227		

*p < .002.

available to provide instructions and to answer questions. A randomly selected identification number was placed on the questionnaire; no names were used in the investigation. After completing the questionnaires, each participant folded the questionnaires and sealed them in a blank envelope, which they deposited into a large box before leaving the study room. They were ensured anonymity and confidentiality and were informed of their right to withdraw from the study at any time without loss of credit. No participants withdrew from the study.

RESULTS

Because the mean age for Asians was significantly lower than that for Non-Asians, $F(1) = 12.72$, $p < .001$, and among Asians there were significant differences in age as a function of length of residency in Canada, $F(2) = 24.34$, $p < .001$, age of participants was statistically controlled in all analyses of mean differences. All F -ratios and associated p values reported in the tables refer to analyses with age covaried.

Table 2. Length-of-Residency Effects on Asian Canadian Immigrants' Sexual Knowledge

Item	Percentage Correct						F-Ratio	Length of Residency
	Males			Females				
	Canadian ^a	Pre-1987 ^b	Post-1987 ^c	Canadian ^a	Pre-1987 ^b	Post-1987 ^c		
Men usually achieve orgasm quicker than women.	85	82	82	85	83	87	0.23	0.16
Intercourse during menstruation is not healthy.	56	57	45	56	46	38	1.48	3.99
The penis must be erect before ejaculation may occur.	23	33	26	7	22	15	9.07	2.75
Simultaneous orgasm is not necessary for a good sexual relationship.	87	69	58	81	68	54	0.71	10.75*
Masturbation indicates poor marital adjustment.	90	84	71	88	83	65	0.43	7.48*
Hysterectomized women cannot have an orgasm.	89	86	82	93	88	88	1.15	0.83
Men reach their peak sexual drive in their teens: women in their 30s.	63	65	50	61	51	41	2.51	4.17
Women can become pregnant during menstruation.	55	47	39	63	54	32	0.22	5.23
Most people lose interest in sex after age 60.	58	57	42	69	62	50	1.96	3.82
A male's orgasm is more satisfying than a female's orgasm.	95	78	55	85	82	67	0.22	9.39*
A condom protects against conception and venereal disease.	95	96	87	94	95	79	0.79	7.70*
Female lubrication shows sexual excitement.	87	86	92	83	91	80	0.64	0.41
Oral-genital sex is unhealthy.	49	53	50	50	39	43	1.63	0.58
Women who have fantasies during intercourse are dissatisfied with their sex lives.	77	82	79	79	72	67	1.89	0.96
Frequency of intercourse indicates relationship success.	97	92	92	97	91	85	0.74	2.92
A woman may have an orgasm via manual genital stimulation.	100	96	92	99	89	85	0.30	4.37
Menopause causes a sharp decrease in sex drive.	46	43	42	41	52	40	.01	1.04
Women desire sex as frequently as men.	67	61	63	68	68	60	0.17	0.01
Douching after intercourse is an effective form of contraception.	92	94	74	99	84	66	0.91	14.54*
After intercourse there is a period when a man cannot respond to sexual stimulation.	87	84	92	82	76	73	5.79	0.57
Females can have multiple orgasms.	90	96	97	79	89	82	8.74	1.67
Most women are able to enjoy sex without experiencing orgasm.	79	86	66	86	83	66	0.05	8.22*
The larger the penis the more satisfying to the female.	79	84	74	85	85	71	0.02	4.72
A woman cannot become pregnant after menopause.	38	33	47	11	23	28	14.28*	2.22
Erection in the male is via congestion of blood in the penis.	90	90	95	85	88	87	1.99	0.06
The clitoris is not a particularly sensitive area.	97	92	89	97	91	83	0.57	3.40
<i>n</i>	38–39	49	38	71–72	63–65	82		

^aCanadian-born Asians. ^bAsians who immigrated to Canada before 1987. ^cAsians who immigrated to Canada during or after 1987.

* $p < .002$.

Sexual Knowledge

Differences between Asians and Non-Asians in the percentage of correct endorsements of sexual information variables are presented in columns 1–4 of Table 1. *F*-ratios for the effects of gender and ethnicity are reported in the final two columns of Table 1. The percentage of correct endorsements of these variables for Asians grouped by Canadian length of residency are presented in columns 1–6 of Table 2. *F*-ratios for the effects of gender and length of residency are reported in the final two columns of Table 2. Due to accumulating Type I error on mean comparisons across the 26 sexual information variables, only mean differences of $p < .002$ ($p < .05/26$) should be considered statistically reliable.

Across ethnicity, there were significant differences between males and females in the correct endorsement rate for only one information variable: "The penis must be erect before ejaculation may occur." As might be expected, males were more likely to endorse this item correctly. As shown in Table 2, among Asians, females were significantly less likely to endorse correctly the item "A woman cannot become pregnant after menopause." Across the 26 knowledge items, the mean percentage of correct item endorsements was 78% and 80% for Non-Asian males and females, and 73% and 69% for Asian males and females, respectively. Less than 50% of males and females correctly endorsed the items "The penis must be erect before ejaculation may occur" and "A woman cannot become pregnant after menopause"; less than 50% of males correctly endorsed the item "Women can become pregnant during menstruation." Whereas over 50% of male and female Non-Asians negatively endorsed the items "Oral-genital sex is unhealthy" and "Intercourse during menstruation is not healthy," less than 50% of female Asians and only slightly over 50% of male Asians disagreed with these statements. Among Asians only, less than 50% of males and females correctly endorsed the item "Menopause causes a sharp decrease in sex drive." There was a significant gender by ethnicity interactions for only one sexual information item: "Intercourse during menstruation is not healthy." Non-Asian females were more likely than Non-Asian males to endorse this item correctly.

Significant ethnic differences in the endorsement of sexual information variables were substantial and statistically reliable ($p < .002$) for 13 of the 26 items, and for the sexual knowledge composite score, $F(1) = 88.10$, $p < .002$. Non-Asian males and females were significantly more likely than their Asian counterparts to endorse half of the sexual information variables correctly. Means and standard deviations for the DSFI Sexual Information composite scores were 20.21 (2.79) and 20.80 (2.91) for Non-Asian males and females, and 19.04 (3.19) and 17.94 (3.45) for Asian males and females, respectively. Asians' length of residency on Canada was related to the correct endorsement of 4 of the 13 information items that were significantly different between ethnic groups: "Simultaneous or-

gasm is not necessary for a good sexual relationship"; "Masturbation [does not] indicate poor marital adjustment"; "A male's orgasm is [not] more satisfying than a female's orgasm"; and "Douching after intercourse is [not] an effective form of contraception." Length of residency was related to the correct endorsement of two additional items: "A condom protects against conception and venereal disease" and "Most women are able to enjoy sex without experiencing orgasm." Recent Asian immigrants were more likely than Canadian-born or long-term residents to disagree with these six statements. Results of a one-way ANOVA conducted across gender revealed a substantial difference in sexual knowledge between length of residency groups, $F(2) = 20.52$, $p < .001$. As was the case with individual items, Canadian-born Asians did not differ significantly from pre-1987 Asian immigrants in sexual knowledge scores, but were significantly more sexually knowledgeable than were post-1987 Asian immigrants. There were no significant gender by length-of-residency interactions for any of the sexual information items.

Sexual Attitudes

Asian versus Non-Asian mean endorsements of DSFI sexual attitude variables are presented in columns 1–4 of Table 3. *F*-ratios for the effects of gender and ethnicity are reported in the final two columns of Table 3. Mean endorsements of these variables for Asians grouped by length of residency in Canada are presented in columns 1–6 of Table 4. *F*-ratios for the effects of gender and length of residency are reported in the final two columns of Table 4. Due to accumulating Type I error on mean comparisons across the 30 sexual attitude variables, only mean differences of $p < .002$ ($p < .05/30$) should be considered statistically reliable.

Among Asians and Non-Asians, significant main effects for gender were found for all attitudes toward homosexuality and multiple sexual partners, three of the four pornography items, and the variable "Dressing in costumes to enhance sexual enjoyment should be viewed as creative sex." Among Asians there were also significant gender effects for the items "Masturbation fantasies are healthy forms of sexual release," "Oral sex can be as pleasurable as intercourse," "Prostitutes are immoral and degrading and have no place in society," and "It is unnatural for the female to be the initiator in sexual relations" (see Table 4). Males were more negative than females in their attitudes toward homosexuality, and females were more conservative than males on all the remaining attitude items. Substantial main effects of ethnicity were obtained for all attitudes regarding homosexuality, masturbation, multiple sexual partners, premarital sex, sex roles, the oral sex item "Oral-genital sex is not within the range of normal sexuality," and the items "Couples should experiment with positions of intercourse to enhance sexual experiences" and "Sex is morally right only when intended to produce children." Overall, Asians were significantly more conservative than were Non-Asians in these sexual attitudes. There were significant gender by ethnicity inter-

Table 3. Differences Between Asians' and Non-Asians' DSFI Sexual Attitudes

Item	Mean Score				F-Ratio	
	Males		Females		Gender	Ethnicity
	Non-Asians	Asians	Non-Asians	Asians		
Extramarital Sex						
Extramarital sex inevitably leads to serious problems in the marriage.	4.17	4.11	4.23	4.29	2.62	0.05
Extramarital sexual affairs can make people better marital partners. (R)	3.95	3.92	4.18	4.13	7.86	0.45
Homosexuality						
Homosexuality is perverse and unhealthy.	3.07	3.50	2.31	3.07	31.31*	37.34*
Most homosexuals are highly disturbed people and a danger to society.	2.19	2.58	1.59	2.27	27.61*	44.67*
Homosexuality is a question of sexual orientation and not good or bad. (R)	2.68	2.86	1.96	2.47	33.84*	17.34*
Masturbation						
Masturbation is a perfectly normal sexual behavior. (R)	2.03	2.15	2.00	2.41	2.35	13.64*
Masturbation fantasies are healthy forms of sexual release. (R)	2.17	2.24	2.21	2.54	5.15	9.26*
Multiple Partners						
Wife swapping is acceptable if all four partners agree. (R)	3.64	3.85	3.85	4.22	10.39*	11.78*
Group sex is a bizarre and disgusting idea.	2.92	3.48	3.37	4.06	29.63*	50.46*
Oral Sex						
Oral sex can be as pleasurable as intercourse. (R)	2.06	2.05	1.94	2.68	10.59*	27.95*
Oral-genital sex is not within the range of normal sexuality.	1.68	2.05	1.70	2.36	4.39	58.96*
Pornography						
Viewing erotic films is enjoyable and stimulating behavior. (R)	2.27	2.21	2.69	2.74	36.24*	0.01
A picture of a nude woman can be a beautiful and exciting thing to look at. (R)	1.63	1.69	2.49	2.69	172.80*	2.37
Pornography is perverse and disgusting in general and particularly harmful to youth.	2.88	3.14	3.42	3.62	36.83*	8.24
Books which contain passages explicitly describing sexual acts are usually trash.	2.70	2.67	2.35	2.64	5.84	4.34
Premarital Sex						
Premarital intercourse is beneficial to later marital adjustment. (R)	2.67	3.00	2.48	3.26	0.10	41.20*
Males lose respect for females who allow them to have premarital intercourse.	2.19	2.52	2.20	2.81	2.86	34.56*
Couples that have sex before marriage usually regret it later on.	2.06	2.52	1.92	2.44	1.75	37.58*
Prudery						
Human genitals are somewhat disgusting to look at.	2.09	2.12	2.21	2.81	26.66*	22.26*
Holding and touching my partner's body is exciting and thrilling. (R)	1.58	1.61	1.58	2.08	15.68*	28.09*
Sex Roles						
Women should not be consciously seductive; they should wait upon the attentions of the man.	1.59	2.21	1.45	2.32	0.03	119.56*
It is unnatural for the female to be the initiator in sexual relations.	1.54	1.69	1.47	2.07	3.99	34.28*
Males and females should assume both assertive and passive roles. (R)	1.66	1.84	1.68	2.11	4.92	28.22*
Sexual Variations						
Dressing in costumes to enhance sexual enjoyment should be viewed as creative sex. (R)	2.12	2.17	2.30	2.45	12.62*	4.25
Couples should experiment with positions of intercourse to enhance sexual experiences. (R)	1.53	1.62	1.53	1.89	4.85	24.66*
Mutual masturbation in a married couple is a poor substitute for intercourse.	2.59	2.68	2.33	2.60	3.51	5.05
Any sexual behavior between two consenting adults should be viewed as normal. (R)	2.28	2.15	2.23	2.29	0.17	0.04
Sexual Morality						
Prostitutes are immoral and degrading and have no place in society.	2.99	2.91	3.01	3.32	6.71	1.79
Sex is morally right only when intended to produce children.	1.57	1.92	1.34	1.80	6.40	35.79*
Morality should not be a consideration in sexual behavior. (R)	3.50	3.57	3.75	3.79	7.97	0.72
<i>n</i>	144-145	129-131	199-201	226-227		

Note. All items are scored in a conservative direction. Means shown in the table are based on an item response format of *strongly disagree* (1), *disagree* (2), *neither agree nor disagree* (3), *agree* (4), *strongly agree* (5). Theoretical midpoint of scale is 3.0. Reverse-keyed (liberal) items are indicated by (R). * $p < .002$.

Table 4. Length-of-Residency Effects on Asian Canadian Immigrants' Sexual Attitudes

Item	Mean Score						F-Ratio	
	Males			Females				
	Canadian ^a	Pre-1987 ^b	Post-1987 ^c	Canadian ^a	Pre-1987 ^b	Post-1987 ^c	Gender	Length of Residency
Extramarital Sex								
Extramarital sex inevitably leads to serious problems in the marriage. (R)	4.13	4.08	4.03	4.46	4.34	4.10	3.23	1.33
Extramarital sexual affairs can make people better marital partners.	4.24	3.96	3.53	4.15	4.29	3.96	3.98	5.13
Homosexuality								
Homosexuality is perverse and unhealthy.	3.03	3.41	4.11	2.57	2.89	3.57	11.36*	14.63*
Most homosexuals are highly disturbed people and a danger to society.	2.23	2.40	3.16	1.90	1.92	2.74	9.06*	17.66*
Homosexuality is a question of sexual orientation and not good or bad. (R)	2.66	2.61	3.37	1.99	2.34	2.91	11.78*	11.05*
Masturbation								
Masturbation is a perfectly normal sexual behavior. (R)	1.92	2.10	2.45	2.21	2.29	2.67	3.97	6.85*
Masturbation fantasies are healthy forms of sexual release. (R)	2.08	2.27	2.34	2.46	2.42	2.70	7.40*	2.25
Multiple Partners								
Wife swapping is acceptable if all four partners agree. (R)	4.03	3.67	3.89	4.19	4.40	4.12	9.92*	0.35
Group sex is a bizarre and disgusting idea.	3.39	3.27	3.82	3.75	4.02	4.33	17.59*	4.98
Oral Sex								
Oral sex can be as pleasurable as intercourse. (R)	1.92	1.92	2.26	2.50	2.54	2.91	28.16*	6.59*
Oral-genital sex is not within the range of normal sexuality.	1.87	2.02	2.32	2.15	2.23	2.59	5.57	7.44*
Pornography								
Viewing erotic films is enjoyable and stimulating behavior. (R)	2.10	2.08	2.45	2.96	2.51	2.73	23.08*	3.18
A picture of a nude woman can be a beautiful and exciting thing to look at. (R)	1.59	1.59	1.87	2.90	2.68	2.48	97.27*	0.83
Pornography is perverse and disgusting in general and particularly harmful to youth.	2.68	3.31	3.29	3.65	3.55	3.60	19.38*	1.30
Books which contain passages explicitly describing sexual acts are usually trash.	2.62	2.57	2.82	2.75	2.45	2.67	0.17	2.15
Premarital Sex								
Premarital intercourse is beneficial to later marital adjustment. (R)	3.03	2.94	3.05	3.06	3.34	3.27	2.78	0.59
Males lose respect for females who allow them to have premarital intercourse.	2.26	2.49	2.84	2.51	2.75	3.01	3.22	6.34*
Couples that have sex before marriage usually regret it later on.	2.32	2.43	2.84	2.29	2.34	2.60	0.88	6.50*
Prudery								
Human genitals are somewhat disgusting to look at.	2.08	2.06	2.21	2.64	2.83	2.93	35.11*	1.34
Holding and touching my partner's body is exciting and thrilling. (R)	1.68	1.49	1.71	1.96	2.20	2.07	28.39*	0.17
Sex Roles								
Women should not be consciously seductive; they should wait upon the attentions of the man.	2.13	2.18	2.37	1.99	2.25	2.63	0.39	8.57*
It is unnatural for the female to be the initiator in sexual relations.	1.72	1.45	2.05	1.68	2.02	2.45	8.38*	12.76*
Males and females should assume both assertive and passive roles. (R)	1.74	1.69	2.18	1.96	1.94	2.37	4.48	7.19*
Sexual Variations								
Dressing in costumes to enhance sexual enjoyment should be viewed as creative sex. (R)	2.15	2.00	2.29	2.36	2.54	2.49	12.20*	0.42
Couples should experiment with positions of intercourse to enhance sexual experiences. (R)	1.53	1.61	1.71	1.76	1.85	2.00	9.28*	1.88
Mutual masturbation in a married couple is a poor substitute for intercourse.	2.76	2.39	2.89	2.57	2.69	2.56	0.22	0.51
Any sexual behavior between two consenting adults should be viewed as normal. (R)	2.05	1.96	2.42	2.04	2.25	2.53	1.08	3.09

Table 4. continued.

Item	Mean Score						F-Ratio	
	Males			Females			Gender	Length of Residency
	Canadian ^a	Pre-1987 ^b	Post-1987 ^c	Canadian ^a	Pre-1987 ^b	Post-1987 ^c		
Sexual Morality								
Prostitutes are immoral and degrading and have no place in society.	2.95	2.88	2.82	3.29	3.55	3.11	12.86*	1.28
Sex is morally right only when intended to produce children.	2.28	1.73	1.82	1.71	1.77	1.83	2.63	0.92
Morality should not be a consideration in sexual behavior. (R)	3.59	3.27	3.87	3.69	3.78	3.87	3.19	1.47
n	37–39	48–49	38	72	65	81–82		

Note. All items are scored in a conservative direction. Means shown in the table are based on an item response format of *strongly disagree* (1), *disagree* (2), *neither agree nor disagree* (3), *agree* (4), *strongly agree* (5). Theoretical midpoint of the scale is 3.0. Reverse-keyed (liberal) items are indicated by (R).

^aCanadian-born Asians. ^bAsians who immigrated to Canada before 1987. ^cAsians who immigrated to Canada during or after 1987.

*p < .002.

actions for the two prudery items and for the item “Oral sex can be as pleasurable as intercourse.” Follow-up analyses revealed Asian females scored significantly more conservatively than did Non-Asian females ($p < .001$), and Asian females scored significantly more conservatively than did Asian males on these items ($p < .001$). There were no significant differences between Asian and Non-Asian males or between Non-Asian males and females on these items.

Among Asians, length of residency in Canada was related to all homosexuality, oral sex, and sex-role items, one masturbation item, and two premarital sex items. In

general, Canadian-born Asians did not significantly differ from pre-1987 Asian immigrants in their sexual attitudes; but significant differences were noted between these groups and post-1987 Asian immigrants. Compared with Canadian-born or long-term residents of Canada, recent immigrants were significantly more likely to hold negative attitudes toward homosexuals, to have conservative attitudes toward masturbation and oral sex, and to assign more passive or traditional sex roles to women. There were no significant gender by length-of-residency interactions for any of the DSFI sexual attitude variables.

Asian and Non-Asian mean responses to SOI sexual

Table 5. Differences Between Asians’ and Non-Asians’ Attitudes Toward Sociosexual Restrictiveness

Item	Mean Score				F-Ratio	
	Males		Females		Gender	Ethnicity
	Non-Asians	Asians	Non-Asians	Asians		
Sex without love is O.K.	5.01	3.57	3.99	2.47	30.40*	53.81*
I can imagine myself enjoying “casual” sex with different partners.	5.20	4.36	3.22	2.16	117.76*	29.76*
I would have to be closely attached to someone (both emotionally and psychologically) before I could feel comfortable and fully enjoy having sex with him or her. (R)	4.69	3.63	3.07	2.01	82.87*	36.15*
I would not have sex with someone unless I was totally and exclusively committed to that individual. (R)	5.33	4.27	4.08	2.56	53.87*	41.83*
For me having sex with someone does not necessarily imply I am committed to that individual.	5.00	4.12	3.65	2.84	41.11*	13.57*
Even if I found myself physically attached to a person I would not feel comfortable having sex with them without knowing him/her fairly well. (R)	4.60	3.74	3.07	2.21	70.56*	19.79*
I don’t necessarily have to be psychologically or emotionally close to someone to initiate sexual activity with him/her.	4.91	3.91	3.45	2.44	62.28*	22.39*
I would feel comfortable and at ease having sex with someone I was very much attracted to but didn’t know very well.	5.17	4.45	3.50	2.51	98.91*	16.15*
n	116	112	165	195		

Note. Means shown in the table are based on an item response format of *strongly disagree* (1) to *strongly agree* (9). Theoretical midpoint of the scale is 5.0. Reverse-keyed (conservative) items are indicated by (R).

*p < .006.

Table 6. Length-of-Residency Effects on Asian Canadians' Sociosexual Restrictiveness Attitudes

Item	Mean Score						F-Ratio	
	Males			Females			Gender	Length of Residency
	Canadian ^a	Pre-1987 ^b	Post-1987 ^c	Canadian ^a	Pre-1987 ^b	Post-1987 ^c		
Sex without love is O.K.	3.16	4.21	3.15	2.53	2.88	2.18	16.20*	5.29*
I can imagine myself enjoying “casual” sex with different partners.	3.91	5.00	3.94	2.60	1.95	2.05	69.04*	0.72
I would have to be closely attached to someone (both emotionally and psychologically) before I could feel comfortable and fully enjoy having sex with him or her. (R)	3.03	4.10	3.61	2.15	1.71	2.05	57.45*	0.33
I would not have sex with someone unless I was totally and exclusively committed to that individual. (R)	3.75	4.79	4.03	2.70	2.21	2.77	42.17*	0.09
For me having sex with someone does not necessarily imply I am committed to that individual.	3.78	4.36	4.15	2.64	3.00	2.99	16.36*	1.01
Even if I found myself physically attached to a person I would not feel comfortable without knowing him/her fairly well. (R)	3.03	4.21	3.76	2.47	2.05	2.11	37.83*	0.28
I don’t necessarily have to be psychologically or emotionally close to someone to initiate sexual activity with him/her.	3.25	4.33	3.88	2.58	2.38	2.40	29.75*	0.56
I would feel comfortable and at ease having sex with someone I was very much attracted to but didn’t know very well.	3.69	4.90	4.58	2.55	2.39	2.66	55.30*	0.66
<i>n</i>	32	42	33	59–60	56	72–73		

Note. Means shown in the table are based on an item response format of *strongly disagree* (1) to *strongly agree* (9). Theoretical midpoint of the scale is 5.0. Reverse-keyed (conservative) items are indicated by (R).

^aCanadian-born Asians. ^bAsians who immigrated to Canada before 1987. ^cAsians who immigrated to Canada during or after 1987.

* $p < .006$.

attitude variables are presented in columns 1-4 of Table 5. *F*-ratios for the effects of gender and Asian status are reported in the final two columns of Table 5. Mean endorsements of these variables for Asians grouped by length of residency in Canada are presented in columns 1-6 of Table 6. *F*-ratios for the effects of gender and length of residency are reported in the final two columns of Table 6. Due to accumulating Type I error on mean comparisons across the eight sexual attitude variables, only mean differences of $p < .006$ ($p < .05/8$) should be considered statistically reliable.

There were substantial and significant differences between gender and ethnicity on all sociosexual restrictiveness attitude items. Non-Asians were much more liberal than Asians, and males were much more liberal than females, in their attitudes toward engaging in uncommitted sex. There were no significant ethnicity by gender interactions for any of the sociosexual restrictiveness attitude items. Asians' length of residency in Canada was significantly related to only one sociosexual restrictiveness attitude item: "Sex without love is O.K." Long-term (pre-1987) Asian immigrants were more likely than recent (post-1987) Asian immigrants to agree with this item. There was a significant gender by length-of-residency interaction for only one sociosexual restrictiveness variable: "I would have to be closely attached to someone before I

could feel comfortable and fully enjoy having sex with him or her." Canadian-born males were less conservative than Asian immigrants in their endorsement of this item.

DISCUSSION

Gender Differences in Sexual Knowledge and Attitudes

Among Asians and Non-Asians there were no significant gender differences on attitudes toward extramarital sex, premarital sex, or on most of the sexual variations items. This is consistent with the viewpoint of many scholars that sexual attitudes and behaviors between males and females have been converging over the past two decades (e.g., DeLamater & MacCorquodale, 1979; Hopkins, 1977; Singh, 1980). Explanations offered for the apparent narrowing of gender differences include the liberalization of female premarital sexual behavior, which began in the early 1960s with the advent of highly effective birth control methods, and changes in social attitudes toward females as a consequence of feminist activism. With the exception of one variable, there were also no significant gender differences in sexual knowledge. Previous research has also noted no gender differences in sexual knowledge among Canadian medical students in Ontario (Fisher et al., 1988) or among Chinese medical students in Hong Kong (Chan, 1986).

Our results indicate significant gender differences on

DSFI attitudes toward homosexuality, multiple partners, pornography, certain of the sexual variations items, as well as significant differences on all of the SOI sociosexual restrictiveness items. These findings held true for Asian and Non-Asian students and across length of residency in Canada among Asians. Among Asians, gender differences were also found for some of the sexual morality, masturbation, prudery, oral sex, and sex role attitude items. With the exception of attitudes toward homosexuality, females held more conservative sexual attitudes than did men on these items. Consistent with previous research (Hendrick, Hendrick, Slapion-Foote, & Foote, 1985; Oliver & Hyde, 1993), gender differences in sexual attitudes were greatest in matters related to partner investment (partner exclusiveness, emotional involvement). Explanations for this persistent gender difference include sociocultural, feminist, and evolutionary hypotheses (Buss & Malamuth, 1996).

The magnitude of the gender difference in attitudes toward homosexuality is noteworthy, particularly because they were the only attitude items for which males were significantly less accepting or liberal than were females in their item endorsement. The results from a recent meta-analysis of gender differences in sexuality noted comparable gender differences in attitudes toward homosexuality (Whitley & Kite, 1995). These gender differences have been explained in terms of social role theory (for reviews, see Herek, 1986; Kite, 1994). Heterosexuality is assumed to be part of both male and female gender roles (Bem, 1981), and negative attitudes toward gay men and lesbians are thought to stem, at least in part, from their perceived sex role deviance (Laner & Laner, 1979). In domains such as heterosexuality in which gender-role violations are judged more extremely for men than for women (Herek, 1986; Oliver & Hyde, 1993), Herek (1986) suggested that men may be more likely than women to feel pressure to conform to appropriate roles and consequently to hold more negative attitudes toward homosexuals. When asked to rate their attitudes toward homosexuals or homosexuality as in the current study, respondents tend to assume the term *homosexual* refers to gay men rather than lesbians (Committee on Lesbian and Gay Concerns, 1991). To the extent that this is true, Herek's (1986) gender role hypothesis provides one explanation for the gender difference in negativity toward homosexuals we obtained.

Differences Between Asians and Non-Asians in Sexual Knowledge and Attitudes

Findings from this study reveal significant and substantial ethnic differences on half of the sexual knowledge items, on 16 of 30 DSFI sexual attitude items, and on all SOI unrestricted sexuality measures. In general, persons of Asian ancestry scored lower on the DSFI knowledge items and held more conservative sexual attitudes than did persons of European ancestry. A number of earlier studies have noted similar findings. Chan (1990) found scores on the knowledge portion of the Sexual Knowledge and Attitude Test (SKAT; Lief & Reed, 1972) were considerably lower

among Chinese undergraduate medical students in Hong Kong than for American medical students, as reported in the SKAT validation tests (*Preliminary Technical Manual, SKAT*, 1972). Tang and Whyte (1985) found Chinese medical students in Hong Kong were approximately two standard deviations lower than U.S. medical students in sexual knowledge, also measured using the SKAT. Studies that have examined sexual knowledge among Asians in North America (Moore & Erickson, 1985) have also found Asians to be less sexually informed than other ethnic groups. Directly relevant to the present study, Tang, Lai, Phil, and Chung (1997) reported mean scores of 17.73 (males) and 16.26 (females) among Chinese college students in Hong Kong, using a translated version of the DSFI Sexual Knowledge subscale. These scores are more than one standard deviation lower than both the U.S. normative data scores for the DSFI (Derogatis and Melisaratos, 1979) and the DSFI Sexual Knowledge composite scores obtained by Non-Asian respondents in the current study (i.e., 20.21 for males and 20.80 for females). The generality of this ethnic difference across a variety of knowledge items and subject populations suggests that potential cultural biases in the knowledge measures used in this study cannot fully account for the current findings. Nevertheless, the DSFI was developed and normed on a predominantly White American sample and, thus, is likely to reflect Western assumptions about the desirability or health of different sexual practices (e.g., "Oral-genital sex is unhealthy").

Although Asians in the current study demonstrated less sexual knowledge than did their Non-Asian counterparts, the proportion of correctly endorsed knowledge items by Asians was considerably higher than rates noted among Chinese persons living in Hong Kong. In the current study at least 50% of Asian males and females correctly endorsed 22 and 20 of 26 items, respectively. Among Chinese students in Hong Kong, only 2 of 18 items were correctly endorsed by at least 50% of either males or females (Chan, 1986). Composite scores on the DSFI Sexual Knowledge test for Asian persons in our study were also substantially higher than recent DSFI Sexual Knowledge scores obtained by Chinese college students in Hong Kong (i.e., 19.04 vs. 17.73 for males and 17.94 vs. 16.26 for females; Tang et al., 1997). Meston et al. (1996) reported that the Asian persons in the current study were also more sexually experienced than were Asian students in Hong Kong. Together, these findings may suggest that either some degree of assimilation to North American sexual norms occurs, even among recent immigrants, or that Asians who immigrate to North America are more sexually liberal than those who do not.

The finding that undergraduates of Asian versus European ancestry endorsed more conservative sexual attitudes is consistent with the findings of recent studies that have assessed sexual attitudes among Chinese students in Hong Kong (Chan, 1990; Tang et al., 1997). Compared with scores obtained by American medical students (*Prelimi-*

nary *Technical Manual, SKAT*, 1972), Chinese medical students in Hong Kong scored more conservatively across each of the attitude areas assessed by the SKAT (i.e., heterosexual relations, sexual myths, abortion, autoeroticism; Chan, 1990). Using a translated version of the DSFI Sexual Attitudes subscale, Tang et al. (1997) reported scores among Chinese college students in Hong Kong that were greater than one standard deviation in a more conservative direction than American normative data scores (Derogatis & Melisaratos, 1979).

The individual findings that Asians were more conservative in their endorsement of attitudes toward masturbation, homosexuality, and pornography may be compared with findings from a recent study of sexuality among a large sample (873 females; 1,317 males) of Chinese university students in Shanghai (Hong et al., 1994). In this study, 16% of females and 56% of males viewed masturbation as immoral, and 34% of females and 25% of males believed it to be harmful to one's health. With regard to homosexuality, only 3% of all students viewed homosexuality as acceptable; 85% of females and 83% of males viewed homosexuality as a disease or a personality deviation (Hong et al., 1994). Among these Chinese students, 74% of females and 50% of males reported that pornography should also be forbidden by the law (Hong et al., 1994).

One explanation for the ethnic differences in accuracy of sexual knowledge, and possibly for Asians' more conservative attitudes toward sex, is the often noted lack of sex education in Asian school systems and the taboo nature in Chinese culture of openly discussing sexuality. In his comment on sexuality in Hong Kong, Chan (1986) explained that sex education is minimal in the school systems, that parents are reluctant to discuss sexual information with their children, and that health professionals (including physicians) are inexperienced and uneasy discussing sexual problems with their patients. Chan suggested that this unavailability of sexual information might lead to an overall reluctance to seek sexual information.

The less accurate sexual knowledge and more conservative sexual attitudes noted among Asians in the current study might also be traced to beliefs and myths embedded in traditional Chinese philosophies. The earliest Chinese philosophy, the Yin-Yang doctrine, represented by the *I Ching* of 1150–249 B.C. (e.g., Wei, 1970) continues to be a widely observed doctrine by the Chinese (Ng & Lau, 1990). Although this dogma teaches that sexual intercourse is natural and essential, sex in certain forms is considered unhealthy or against the harmony of nature. For example, value is placed on the retention of semen (Lieh-Mak & Ng, 1981); nocturnal emission, masturbation, and intercourse at certain times or in certain locations are thought to result in a number of negative consequences (Eberhard, 1967); and homosexual practices are strictly forbidden (Ng & Lau, 1990). As Ng and Lau (1990) noted, many of the Chinese misconceptions and superstitions about sexuality may be traced to these early philosophies.

In the present study, Asians' affirmative endorsement of the two health-related items "Intercourse during menstruation is not healthy" and "Oral-genital sex is unhealthy" may reflect these traditional Chinese writings on sex. This may be particularly true for the former of these items which, of the knowledge items, showed the most substantial difference between Asians and Non-Asians. The belief that intercourse during menstruation is not healthy is congruent with the early parochial Chinese tradition of eliminating menstruating women from family rites and marking them with a red spot on their foreheads to indicate their unclean condition (Van Gulik, 1961). Similarly, Asians' negative view of masturbation in the current study and in previous studies (e.g., Chan, 1990, Hong et al., 1994) may be traced to the Chinese Taoist deemphasis on ejaculation as the ultimate goal of sex for a man (Hong, Yamamoto, Chang, & Lee, 1993): It was believed that semen, activated by the inhibition of ejaculation, would travel upward along the dorsal column to the *ni-huan* spot in the brain. This doctrine was interpreted to imply that "spilling of the semen" during masturbation or intercourse, would lead to a loss of strength and would be injurious to health (Chan, 1986). A recent study on sex-related folk beliefs in urban and rural areas of China and Taiwan (Tseng et al., 1992) revealed that a large percentage of Chinese men still adhere to the beliefs that controlled sexual activity protects one's health, that excessive masturbation weakens the body, that it is necessary to conserve semen, that menstruation is a dirty and unlucky thing, and that sex with a menstruating woman causes illness.

Length-of-Residency Influences on Sexual Knowledge and Attitudes

Of the items that showed significant ethnic differences, length of residency in Canada was related to 4 of the 13 sexual knowledge items, 10 of the 16 DSFI attitude items, and one of the eight SOI unrestricted sexuality attitude items. Canadian-born Asians held more liberal sexual attitudes and scored higher on the DSFI sexual knowledge test than did recent Asian immigrants. The findings with regard to attitudes toward premarital sex are consistent with the results of Huang and Uba's (1992) study of premarital sexual behavior among Chinese college students in the United States. The authors found that the more the respondents were acculturated, measured using Marmot's Acculturation Index (Marmot, 1975), the more permissive their attitudes were toward premarital sexual behavior.

The finding that length of residency in Canada was related to a number of DSFI sexual attitudes but to only one SOI attitude item suggests that attitudes toward uncommitted sexual experiences may be more restrained by Asian cultural norms and pressures than, for example, by attitudes toward homosexuality or sexual variations. This makes sense if one considers traditional value differences between individualist (e.g., Western) cultures in which priority is placed on individual goals and collectivist (e.g., Asian) societies in which emphasis is placed on in-group

gains and family sanctions (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). One would expect that, compared with engaging in sexual variations (e.g., oral sex, homosexuality), engaging in uncommitted sexual relations would be more likely to violate the values of a collectivist society because of its potential for creating competition and jealousies between in-group members (Bond, 1991).

In contrast to the length-of-residency influences on sexual attitudes noted in the current study, Meston et al. (1996) found no length-of-residency effects on sexual behaviors among the same student sample. This suggests that cultural influences on sexual behavior may be slower than influences on sexual attitudes to emerge among Asian immigrants. One possibility is that parental guidelines (e.g., curfew time) or family structure (e.g., job responsibilities) may be restraining behavioral changes from occurring among young Asian immigrants by limiting time and opportunity for sexual experience or by creating a fear of violating family values. As Triandis et al. (1988) noted, interdependence and group conformity are highly valued in collectivist cultures, and strict sanctions are often imposed for deviant behavior. Thus, Asian persons may learn and agree that cohabitation outside marriage is acceptable; but they may be unable to act in accordance with this viewpoint simply because of family constraints. Future research is needed to examine potential differences in constraints on sexual behavior between traditional Asian immigrants and Canadian-born families (e.g., parental discipline, religion).

In conclusion, undergraduates of Asian ancestry held more conservative sexual attitudes and demonstrated less sexual knowledge than did their Non-Asian counterparts. These differences diminished substantially as a function of length of residency. Because the majority of Asians in the current sample were either immigrants or second-generation Canadian, strong inferences about ethnic differences per se are clearly unwarranted. For example, uncertainty about local sex norms may dispose immigrants to respond conservatively or cautiously on sexual attitude surveys. On the other hand, we would anticipate similar ethnic effects from any culture having more conservative sexual norms than those in the United States and Canada. The findings of this study are limited by the usual difficulties associated with self-report sex research (e.g., response biases) and by the fact that the measures used to sample sexual attitudes (DSFI, SOI) are generally considered closely linked to liberal and conservative beliefs. Future research is needed to examine ethnic and length-of-residency influences on sexual attitudes outside this domain (e.g., sexual self-evaluation).

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