

Ethnic Differences in Sexual Attitudes of U.S. College Students: Gender, Acculturation, and Religiosity Factors

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Abstract Although it has been hypothesized that culture and religion play an important role in sexuality, the relative roles of acculturation and religiosity on ethnic differences in sexual attitudes have not been often empirically explored. The present study assessed differences in sexual attitudes in Euro-American, Asian, and Hispanic American populations using measures of acculturation to analyze the relative effects of heritage and mainstream cultures, as well as religiosity, within each ethnic group. A total of 1,415 college students (67% Euro-American, 16% Hispanic, 17% Asian; 32% men, 68% women) completed questionnaires which assessed attitudes towards homosexuality, gender role traditionality, casual sex, and extramarital sex. In concordance with previous studies, Asians reported more conservative sexual attitudes than did their Hispanic and Euro-American peers. Hispanics reported sexual attitudes similar to that of Euro-Americans. For both Hispanic and Asians, higher acculturation predicted sexual attitudes similar to that of Euro-Americans. For Asian, Hispanic, and Euro-American women, there was a significant interaction between intrinsic religiosity and spirituality such that the relationship between conservatism of sexual attitudes and intrinsic religiosity was stronger at higher levels of spirituality. In Euro-Americans and Asians, intrinsic religiosity and religious fundamentalism strongly predicted conservative sexual attitudes; while still significant, these relationships were not as pronounced in the Hispanic sample, implying an ethnic-by-religious effect. Novel to this study, acculturation did not mediate the relationship between religiosity and sexual attitudes, indicating that ethnic differences in religiosity effects were distinct from acculturation.

Keywords Ethnic differences · Gender differences · Acculturation · Religiosity · Sexuality · Asian · Hispanic · Euro-American

Introduction

Given that the U.S. population is becoming increasingly diverse, with about 1 in 3 Americans identifying as a member of a minority ethnic or racial group (United States Census, 2007), it is surprising that many of the psychosocial aspects of sexuality, such as sexual attitudes, have been relatively unexplored in diverse ethnic groups. There is much reason to believe that ethnic groups differ in sexual values, considering the disparate cultural, political, historical, and socioeconomic factors that influence sexuality in each group (Amaro, Navarro, Conron, Raj, & On, 2002). Indeed, previous studies at the ethnographic group level indicate significant differences in sexual attitudes between ethnic groups. For example, there seems to be a spectrum of liberality in attitudes towards homosexuality, with African-American as relatively more conservative and Hispanics and Euro-Americans relatively more liberal (Bonilla & Porter, 1990). However, Hispanics may have more restrictive attitudes towards premarital and extramarital sex (Eisenman & Dantzker, 2006) than Euro-Americans. Asians tend to have relatively more conservative attitudes towards sexuality, including homosexuality, gender role traditionality in sexual relationships, and non-intercourse sexual behaviors (such as oral sex or masturbation) than do their Euro-American peers (Meston, Trapnell, & Gorzalka, 1998b).

These previous studies have been limited in their use of heterogeneous ethnic groups as there is as much variability in attitudes within an ethnic group as there is between them (Ramirez, 1984). Acculturation has emerged as a promising

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paradigm for studying such within-group variability. Acculturation refers to the process by which persons of a minority ethnic group incorporate two layers of culture—that of their heritage culture and that of the mainstream culture—into their self-identity to accommodate information about, and experiences within, the mainstream culture (Ryder, Alden, & Paulhus, 2000). While previous research has concentrated on the effects of acculturation on sexuality in immigrant populations, acculturation is similarly important for those born into a subculture that is not dominant (e.g., Hispanics in America), as the unit of acculturation is cultures, not countries (Ramirez, 1984).

Because acculturation shapes self-identity (from which attitudes are formed), it is an extremely pertinent variable in the study of sexual attitudes in diverse ethnic groups (La-Fromboise, Coleman, & Gerton, 1993). For example, Meston et al. (1998b) found that among a group of Asian college students, recent immigrants to Canada were significantly more conservative in ratings of sexual attitudes (such as attitudes towards homosexuality and gender role traditionality in sexual relationships) than those who had resided in Canada for a longer period of time, and thus were presumably more acculturated to the mainstream culture. Likewise, Marín, Tschann, Gomez, and Kegeles (1993) found that English-speaking Hispanics held more liberal attitudes towards using contraceptives than did Spanish-speaking Hispanics.

Nevertheless, acculturation can be difficult to measure. Commonly used proxy measures of acculturation such as length of residency or preferred language may not capture differences in the experiences of the individual (within the spectrum of actively engaging in the mainstream culture to actively ignoring the mainstream culture). To determine the relative *importance* of each culture—the heritage and the mainstream—one must use a dimensional self-report measure of engagement in each culture. Brotto, Chik, Ryder, Gorzalka, and Seal (2005) found that while length of residency in Canada did not explain variability in sexual attitudes within an East Asian female population, a dimensional measure assessing the individual's self-reported interest and participation in heritage and mainstream cultures did.

Secondly, most available measures of acculturation implicitly assume assimilation, or a linear process of integration by which members of one ethnic group are absorbed into another, slowly losing characteristics of their heritage culture while taking on characteristics of the mainstream culture (for an overview, see Berry, 1997). However, biculturalism, in which an individual integrates elements of mainstream culture into their self identity while maintaining ties to their heritage culture, has been identified as the major acculturation strategy of most ethnic minorities (Berry, Phinney, Sam, & Vedder, 2006). To capture both biculturalism and assimilation, one must use a bi-dimensional measure, testing both

the heritage and mainstream culture as separate dimensions. It has been found that, in East Asian Canadians, there is an interaction between measures of heritage acculturation and mainstream acculturation such that women with low heritage acculturation had increasingly liberal sexual attitudes with increasing mainstream acculturation but women with high heritage acculturation did not have such an increase (Brotto et al., 2005). Interestingly, in the case of East Asian men, there was a significant positive relationship between mainstream—but not heritage—acculturation and liberality of sexual attitudes (Brotto, Woo, & Ryder, 2007). Clearly, there are differential effects of both heritage and mainstream acculturation—effects that may be lost in a unidimensional measure.

Finally, there are few universal measures with which cross-group comparisons can be made; accordingly, most measures of acculturation capture differences between Euro-Americans and a specific ethnic group, and not between minority ethnic groups (Marin & Marin, 1992). For example, Leiblum, Wiegel, and Brickle (2003) demonstrated that acculturation has an attenuating effect on the sexual attitudes of medical students of eight distinct ethnic groups; however, as all comparisons were made between Euro-Americans and the relevant ethnic group, we cannot know what the relative impact of acculturation was among the non-Euro-American ethnic groups. The current study aims to bridge these gaps by exploring the effects of acculturation on sexual attitudes using a universal, bi-dimensional measure of acculturation to *directly compare* Asians to Hispanic Americans, as well as to Euro-Americans. Because, in North America, Asians typically show the least acculturation while Hispanics show the most (Wong-Rieger & Quintana, 1987), these two groups allowed for an examination of a range of acculturation effects on sexual attitudes.

As sexual attitudes are highly related to religiosity (Rostovsky, Wilcox, Wright, & Randall, 2004), we cannot properly assess the effects of ethnic differences without understanding the effects of religion. Indeed, significant ethnic-by-religiosity interactions have been found for a number of sexuality variables. For example, within African-American communities, religiosity has been found to be positively correlated with condom use intentions (McCree, Wingood, DiClemente, Davies, & Harrington 2003); however, Jemmott, Jemmott, and Villarruel (2002) found that, in the Latina population, higher religiosity did not predict condom use intentions. These findings suggest that the interactions between ethnicity and religiosity in sexual attitudes may be different between ethnic groups. The present study examined differential effects of several measures of religiosity on sexual attitudes in Asians, Hispanics, and Euro-Americans.

Previous studies of religiosity have often been limited to proxy measures such as religious service attendance; however, such measures implicitly assume multiple service

attendance denotes greater degree of religiosity, without taking into account different customs between religions. Islamic traditions include multiple formal daily prayers, while in contrast, Zen Buddhism does not require followers to attend explicitly defined services on a daily or weekly basis, concentrating more personal convocations and enlightenment (Welwood, 2000). Devotees of both may feel religion to be a similarly important aspect of their lives, but only the Muslim would register as “devout” on a proxy measure. To compare religiosity across the heritage religions of multiple ethnic groups, then, one must have a measure of the individual’s perceptions of the impact of religion in their life—that is, the individual’s *intrinsic religiosity* (Allport, 1950). Intrinsic religiosity seems to be negatively correlated with liberal sexual attitudes (Bassett, 1999), specifically attitudes towards homosexuality (Bassett, Smith, Newell, & Richards, 1999) and non-marital sex (Cochran & Beeghley, 1991). Interestingly, because women tend to rate higher on measures of intrinsic religiosity (Francis & Wilcox, 1998), there may be a relatively greater effect on sexual attitudes in women.

While intrinsic religiosity indicates the impact of religion on one’s daily life, *spirituality* connotes a personal relationship to a divine or sacred being or force; however, like intrinsic religiosity, spirituality is something that is not always captured by participation in group activities or rituals (Miller & Thorsen, 2003). Beckwith and Morrow (2005) found that like intrinsic religiosity, higher spirituality predicted more conservative attitudes towards specific sexual practices (e.g., oral sex) but unlike intrinsic religiosity, spirituality predicted more liberal attitudes towards contraception, sexual education, and gender role traditionality in sexual relationships. However, previous studies on spirituality have been conducted in predominantly Euro-American, Christian samples; those studies which do examine minority ethnic groups tend to focus on one group and not compare effects across groups. However, for Euro-Americans, spirituality often describes a character of religiosity that is distinctly *separate* from organized religion (Marler & Hadaway, 1993), while in Hispanics, spirituality may connote a *blend* of traditional or indigenous religious practices within an organized structure such as Catholicism (Musgrave, Allen, & Allen, 2002). As such, the present study used a non-denominational measure to examine the differential effects of spirituality on sexual attitudes in different ethnic groups.

Finally, religious fundamentalism describes the belief in absolute religious authority and strict adherence to religious texts and tradition (Altemeyer & Hunsberger, 1992). It has been found that fundamentalism is generally related to conservatism of sexual attitudes (Bassett et al., 1999). However, because fundamentalism has been described as a response to modern departures from heritage values (Coreno, 2002), it may have particular importance in the context of accul-

turation; different cultural groups may experience fundamentalism in different ways.

Cultural heritage in many ethnic groups is linked to religious communities and traditions (Mitchell, 2006); thus, religiosity may serve as a secondary measure of cultural differences both between and within ethnic groups. In fact, it has been proposed that due to the diverse range of races and historical backgrounds within the Hispanic population, religion may be a more commonly shared factor than national or cultural history or traditions (Massey, 1993). While religiosity and acculturation are both measures of culture, they may be essentially orthogonal. While it is clear that religion plays a major role in preserving cultural identity (Yang & Ebaugh, 2001), it has been argued that for members of ethnic minorities, religion also affects the rate and method of acculturation (Yang, 1999). The present study was designed to elucidate what, if any, interaction may exist between religiosity and acculturation in predicting sexual attitudes.

Four areas of sexual attitudes were considered in the present study: attitudes towards homosexuality, casual sex, gender role traditionality in sexual relationships, and extra-marital sex. Attitudes towards homosexuality were examined because they predict attitudes towards gender equality (Whitley, 2001), sexual knowledge (McKelvey, Webb, Baldassar, Robinson, & Riley, 1999), and sexual comfort (Leiblum et al., 2003). Attitudes towards casual sex constitute a construct that is highly relevant to public health discourse, as liberal attitudes towards casual sex may predict sexually transmitted disease risk (Levinson, Jaccard, & Bemer, 1995). Attitudes towards gender role traditionality in sexual relationships were examined as they predict not only larger concepts of gender role within that group, but also attitudes towards pregnancy and contraception (Whitley, 1988), marriage practices (Oropesa, 1996), and perceptions of the importance of sexual pleasure for women (Sanchez, Crocker, & Boike, 2005). Finally, attitudes towards extra-marital sex were examined as they outline the structure and function of marriage within a culture as well as the acceptability of sexuality outside the context of marriage.

In sum, we hypothesized that there would be a significant difference between ethnic groups and genders in sexual attitudes, and that higher levels of mainstream acculturation and lower levels of heritage acculturation would predict sexual attitudes that mimicked that of the mainstream population (i.e., Euro-Americans). As Hispanics tend to be more acculturated as a group, we expected that the effect of mainstream acculturation on Hispanics in our sample would be less pronounced than in Asians. Furthermore, we predicted that there would be a significant interaction between gender, ethnicity, and acculturation in predicting sexual attitudes. It was further hypothesized that three distinct elements of religiosity (intrinsic religiosity, spirituality, and

fundamentalism) would have different effects on sexual attitudes in Euro-Americans, Asians, and Hispanics and that religiosity would predict sexual attitudes in Asians and Hispanics above and beyond acculturation.

Method

Participants

A total of 1,555 University of Texas at Austin undergraduate volunteers (485 male, 1065 female) participated in this study for course credit in Introductory Psychology classes. The participants were enrolled during the fall semesters, 2000–2003 (August–December) or the Spring semesters, 2001–2004 (January–May). Cohorts varied in number of participants (2000–2001, $n = 571$; 2001–2002, $n = 345$; 2002–2003, $n = 341$; 2003–2004, $n = 298$). Data from 26 participants were excluded from analyses due to missing gender information and/or missing ethnicity information. Ethnicity was defined as per responses to the question, “What ethnicity do you most identify with?” which was classified as “Caucasian” (Euro-American) (939), South American (30), Central American (19), Mexican (184), South Asian (77), East Asian (166), African-American (67), Middle Eastern (2), Native American (2), or Other (43). Because the ethnic groups of interest were Asians (i.e., South and East Asians) and Hispanics (i.e., South American, Central American, and Mexican), the 114 participants who endorsed being of African American, Native American, Middle Eastern, or mixed ethnic descent were not included in the analyses. Final analyses were performed on 1,415 participants (443 men, 972 women), composed of 67% Euro-American, 16% Hispanic, and 17% Asian participants. Participants ranged from 18 to 43 years old with a mean age of 19 for men and 18 for women. Mean age of participants by ethnicity was Euro-American 18.9, Hispanic 18.8, and Asian 18.8. There was no significant age difference between ethnic groups, $F(2, 1415) < 1$. The age difference between men and women approached significance, $F(1, 1415) = 3.56, p = .08$.

Measures

Heritage/Mainstream Acculturation

Acculturation was assessed using the Heritage and Mainstream Subscales of the Vancouver Index of Acculturation (VIA; Ryder et al., 2000). This 20-item self-report scale reflects two coexisting dimensions of acculturation, including the extent to which an individual identifies with their heritage culture of origin (Heritage subscale) and the extent of identification with American mainstream culture (Mainstream subscale). Items have response formats of (1) disagree to (9)

agree. All odd-numbered questions reflect statements endorsing identity with heritage (e.g., “I often participate in my heritage cultural traditions”), and all even-numbered questions reflect mainstream culture identification (e.g., “I believe in mainstream North American values”). Items addressed several areas of cultural identification, including social activities, friendship, dating, humor, entertainment and cultural traditions; however, ethnic-specific religious practices were excluded from this measure. Means of heritage and mainstream items were obtained and entered into analyses, with higher means indicating greater identification with each domain. The VIA is internally consistent in cross-cultural samples for both the heritage domain (Cronbach’s $\alpha = .91-.92$) and the mainstream domain (Cronbach’s $\alpha = .87-.89$). Concurrent and factorial validity have also been demonstrated for the VIA. The VIA had acceptable reliability in this sample (heritage subscale, Cronbach’s $\alpha = .88$; mainstream subscale, Cronbach’s $\alpha = .85$).

Religiosity

Intrinsic Religiosity Intrinsic religiosity was measured using a modified version of the 8-item Intrinsic Scale (Gorsuch & Venable, 1983). Modifications included several reverse-scored items and re-writing to avoid biasing towards a Christian sample (e.g., changing “the Lord” to “a divine force”). The intrinsic religiosity scale had acceptable reliability within this sample (Cronbach’s $\alpha = .91$).

Spirituality Spirituality was measured with an 8-item index of spiritual beliefs that does not contain biased wording (e.g., “I am certain some intelligent force or being exists in the universe connecting all persons”) (Farmer, Trapnell, & Meston, 2008). This measure had acceptable reliability in this sample (Cronbach’s $\alpha = .80$).

Religious Fundamentalism Religious fundamentalism was measured using an abbreviated 10-item version of Altemeyer and Hunsberger’s (1992) Religious Fundamentalism scale. This scale also showed acceptable reliability in this sample (Cronbach’s $\alpha = .87$).

Sexual Attitudes

Sexual attitudes were assessed using nine items from the Sexual Attitude Scale of the Derogatis Sexual Functioning Inventory (DSFI; Derogatis, 1978). This self-report scale contains conservative and liberal sexual attitude statements which participants endorsed on a scale of strongly agree (1) to strongly disagree (5). Liberal items were reverse scored and questions were summed to obtain a total conservatism score. Higher conservatism scores reflect a greater degree of

conservative sexual attitudes. The nine items were extracted to reflect the attitudinal constructs of interest, including attitudes towards homosexuality (e.g., “homosexuality is perverse and unhealthy”), attitudes towards gender role traditionality (e.g., “it is unnatural for women to be the initiator of sexual relations”), attitudes towards extramarital sexuality (e.g., “extramarital sex leads to marital problems”) and attitudes towards casual sex (e.g., “sex without love is okay,” reverse scored).¹

Procedure

Participants completed questionnaires in groups of 5–10 individuals in large testing rooms. Adequate space was provided for each participant to maximize privacy. Participants who registered for these testing sessions were aware of the sexual nature of the research. Same-sex researchers obtained informed consent, gave instructions, and answered any questions during the testing sessions. To ensure confidentiality, each participant was randomly assigned a number associated with their data. Volunteers who felt uncomfortable with the sensitive nature of the questionnaires were provided neutral reading material and received full credit for attending the testing session. Two of 1,555 participants chose this option. Participants were informed that should they experience discomfort during the study, they could stop participation without any academic penalty or loss of credit. Completed questionnaire packets were placed in a large “drop box” as they left the testing room. Consent forms were stored separated from the questionnaires to ensure confidentiality. This research was approved annually by the Institutional Review Board during the 2000–2004 time periods.

Results

Because the difference in age between men and women approached significance, age was entered as a covariate in all analyses. Also, to check the internal coherence of the constructs “Asian” and “Hispanic” against possible subgroups (e.g., “East Asian”), all analyses were separately run at the subgroup level (with appropriate changes in Bonferroni corrections).

Ethnic and Gender Differences in Sexual Attitudes

To investigate ethnic and gender group level differences, a multivariate analysis of variance was conducted on sexual attitudes. To adjust for a large family-wise error rate, a

Bonferroni correction was applied by dividing the standard alpha level by the number of comparisons being made. Thus, ethnic group results were considered statistically reliable only if they had a significance of $p < .01$ (.05/3 ethnic group comparisons), gender group results if they had significance of $p < .025$ (.05/2 gender group comparisons), and interactions between ethnic and gender groups if they had a significance of $p < .008$ (.05/6 ethnic-by-gender group comparisons). These results are presented in Table 1 with corresponding means.

There were no significant ethnic-by-gender group interactions. Across ethnicities, women were significantly more liberal towards homosexuality than men, $F(1, 1415) = 39.86, p < .001, \eta_p^2 = .028$, while men were significantly more liberal towards casual sex, $F(1, 1415) = 142.14, p < .001, \eta_p^2 = .10$, and extramarital sex, $F(1, 1415) = 6.81, p < .01, \eta_p^2 = .05$, than were women. Between ethnicities, there were several noteworthy differences. Asians were significantly more conservative in attitudes towards homosexuality, $F(2, 1415) = 8.32, p < .001, \eta_p^2 = .12$, and casual sex, $F(2, 1415) = 6.75, p = .001, \eta_p^2 = .10$, than Hispanics or Euro-American. Euro-Americans were significantly more liberal towards gender role traditionality than Hispanic and Asian Americans, $F(2, 1415) = 11.87, p < .001, \eta_p^2 = .02$. Post-hoc analyses indicated that Asian and Hispanic Americans were not significantly different from each other on the gender role traditionality items (Bonferroni post-hoc test, $p = .084$). Hispanic-Americans were significantly more liberal towards extramarital sex than Asian and Euro-Americans, $F(2, 1415) = 5.57, p < .004, \eta_p^2 = .09$. Results from post-hoc analyses revealed that Asian and Euro-Americans were not significantly different from each other on the attitudes towards extramarital sex items. Using acculturation as a covariate, ethnic differences in attitudes towards extramarital sex, $F(2, 1415) = 3.89, p = .30, \eta_p^2 = .002$, and gender role traditionality, $F(2, 1415) = 2.73, p = .10, \eta_p^2 = .006$, were no longer significant. The ethnic group differences in the other two attitude measures remained significant after controlling for acculturation.

Effect of Acculturation on Sexual Attitudes

Means of acculturation and religiosity in each ethnic and gender group are presented in Table 2. To investigate the level to which acculturation predicted sexual attitudes, blocked multiple linear regressions were conducted between acculturation subscales and sexual attitude measures. Each acculturation subscale was entered as a main effect in the first block and the interaction of both subscales in the second block. Significant results are presented in Table 3.

There was a significant interaction between mainstream and heritage acculturation in Hispanic females in predicting

¹ A complete list of items used is available from the corresponding author upon request.

Table 1 Ethnic and gender differences in sexual attitudes

Attitude composite	Male						Female						F ratio		
	Euro-American		Hispanic		Asian		Euro-American		Hispanic		Asian		Gender	Ethnicity	E × G ^a
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD			
Homosexuality	3.10 ^b	1.35	2.97	1.47	3.31	1.33	2.45	1.35	2.92	1.18	2.98	1.30	39.86*	8.28*	<1
Casual sex	3.10	1.02	3.03	.98	3.29	.94	3.86	.94	3.81	1.02	4.18	.90	142.14*	7.04*	<1
Gender role traditionality	2.15	.91	2.25	.93	2.44	.84	2.15	.96	2.36	.89	2.56	.91	.93	11.14*	<1
Extramarital sex	4.21	.90	3.91	1.10	4.09	.88	4.33	.91	4.17	.92	4.20	.87	6.16*	6.16*	<1
n	209		47		49		578		123		123				

^a Ethnicity by Gender interaction^b Means range from liberal (1) to conservative (5)* *p* is significant after Bonferroni corrections: *p* < .01 for ethnic group comparisons, *p* < .025 for gender group comparisons, and *p* < .008 for ethnic-by-gender group comparisons**Table 2** Ethnic and gender differences in acculturation and religiosity measures

Religiosity measures ^a	Men						Women					
	Euro-American		Hispanic		Asian		Euro-American		Hispanic		Asian	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Intrinsic religiosity	2.87	1.05	3.10	.92	3.10	1.06	3.03	1.09	3.18	1.01	3.17	1.09
Spirituality	3.41	1.06	3.74	.81	3.68	.93	3.85	.88	3.94	.76	3.85	.79
Fundamentalism	2.40	.92	2.34	.77	2.63	.86	2.31	.88	2.34	.74	2.56	.94
Acculturation measures ^b												
Mainstream acculturation	N/A		7.03	1.40	7.02	1.14	N/A		7.49	1.12	7.10	1.10
Heritage acculturation	N/A		6.71	1.72	7.05	1.37	N/A		6.84	1.68	7.00	1.64
n	209		47		49		578		123		123	

^a Means range from low religiosity (1) to high religiosity (5) within each subscale^b Subscale means of the Vancouver Index of Acculturation (VIA). These scores reflect the extent to which individuals identify with their original heritage and the current mainstream cultures. Likert response format is based on (1) disagree to (9) agree, and higher scores denote more identification with the culture subcategory**Table 3** Prediction of sexual attitudes by acculturation measures, by ethnicity and gender

Attitude composite	Hispanic			Asian			Male ^c			Female		
	H ^a	M ^b	R ²	H ^a	M ^b	R ²	H ^a	M ^b	R ²	H	M	R ²
	β	β		β	β		β	β		β		
Homosexuality	.11	.05	.21	.11	-.16*	.31	.20*	.07	.06	.10	-.15*	.03
Casual sex	.08	.07	.02	.22*	-.19*	.07	.28*	-.20*	.09	.18*	-.12*	.04
Gender role traditionality	.12	-.08	.01	.14*	-.12	.03	.10	.01	.01	.16*	-.18*	.04
Extramarital sex	-.07	.28*	.06	.08	-.04	.01	-.07	.20*	.03	.08	.06	.01
n	232			227			316			156		

^{a,b} Subscale means of the Vancouver Index of Acculturation (VIA; H = Heritage, M = Mainstream). These scores reflect the extent to which individuals identify with their original heritage and the current mainstream cultures. Likert response format is based on (1) disagree to (9) agree, and higher scores denote more identification with the culture subcategory^c Euro-Americans were excluded in ethnic group analyses* *p* < .001 (significant predictor)

attitudes towards gender role traditionality such that the relationship between heritage acculturation and conservatism towards gender role traditionality was stronger at

lower levels of mainstream acculturation (see Fig. 1). Similarly, there was a significant interaction between mainstream and heritage acculturation in Asian females in predicting

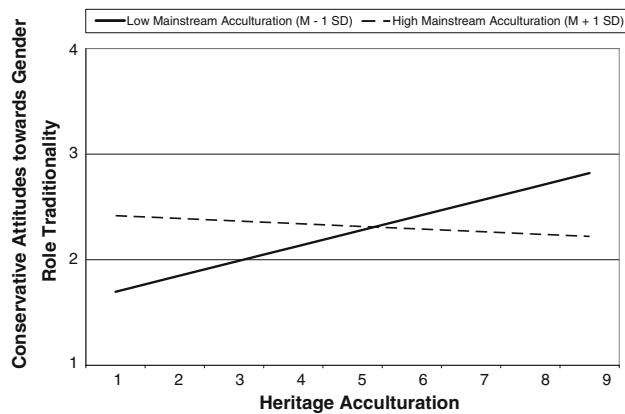


Fig. 1 Interaction between mainstream and heritage acculturation in Hispanic females in predicting attitudes towards gender role traditionalism

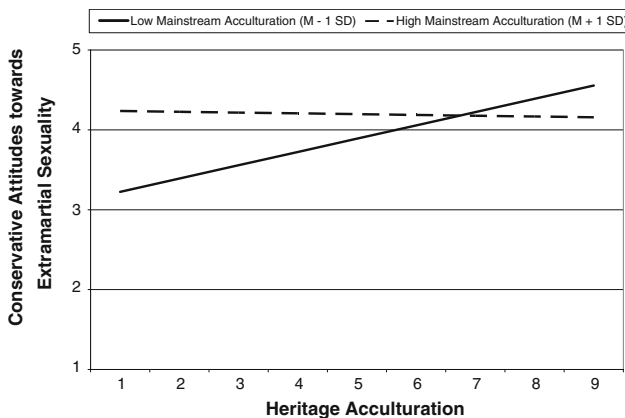


Fig. 2 Interaction between mainstream and heritage acculturation in Asian females in predicting attitudes towards extramarital sex

attitudes towards extramarital sex such that the relationship between heritage acculturation and conservatism towards gender role traditionalism was stronger at lower levels of mainstream acculturation (see Fig. 2).

In Asian men and women, heritage acculturation significantly predicted conservatism in attitudes towards casual sex and gender role traditionalism, while mainstream acculturation predicted liberality in attitudes towards homosexuality and casual sex. While significant in both groups, mainstream acculturation was a stronger predictor of attitudes towards homosexuality and casual sex for East Asians ($\beta = -.33, p = .01$ and $\beta = -.25, p = .04$, respectively) than South Asians ($\beta = -.25, p = .05$ and $\beta = -.16, p = .05$, respectively). In Hispanic men and women, there was only one common significant predictor: namely, mainstream acculturation predicted conservatism in attitudes towards extramarital sex. Mainstream acculturation was a stronger predictor of attitudes towards extramarital sex in South Americans ($\beta = .70, p = .02$) than in Mexican

Americans ($\beta = .35, p = .01$). Among Asian and Hispanic women, mainstream acculturation significantly predicted liberality in attitudes towards homosexuality, casual sex, and gender role traditionalism, while heritage acculturation predicted conservatism in attitudes towards casual sex and gender role traditionalism. Among Asian and Hispanic men, mainstream acculturation predicted liberality in attitudes towards casual sex but conservatism of attitudes towards extramarital sex. Also in Asian and Hispanic men, heritage acculturation was a significant predictor of conservatism in attitudes towards homosexuality and casual sex.

Interactive Effect of Acculturation and Religiosity on Sexual Attitudes

To investigate the level to which religiosity predicted sexual attitudes, multiple linear regressions were conducted between religiosity subscales and sexual attitude measures in each ethnic group. Significant findings are presented in Tables 3 and 4.

There was a significant interaction between intrinsic religiosity and spirituality in women in predicting attitudes towards homosexuality, casual sex, and extramarital sex, such that the relationship between intrinsic religiosity and conservatism in sexual attitudes was stronger at high levels of spirituality (see Fig. 3). In both Euro-American and Asian women, intrinsic religiosity was a significant predictor of conservatism in sexual attitudes. Fundamentalism also significantly predicted conservatism in three sexual attitudes in Euro-Americans and two sexual attitudes in Asians. Among Asian women, spirituality was also a significant predictor of liberality of attitudes towards homosexuality and casual sex. In Hispanic women, fundamentalism predicted conservatism in attitudes towards homosexuality and gender role traditionalism while intrinsic religiosity predicted conservatism in attitudes towards casual sex. Fundamentalism was a significant predictor of conservatism in three sexual attitudes in Asian men and two sexual attitudes in Euro-American men. In Hispanic-American men, intrinsic religiosity predicted conservatism in attitudes towards casual sex but liberality in attitudes towards extramarital sex. Also in Hispanic men, fundamentalism predicted conservatism in attitudes towards homosexuality and gender role traditionalism.

To examine the relationship between acculturation and religiosity on sexual attitudes, a regression was conducted on the cross-product between each acculturation and religiosity measure separately for each sexual attitude. None of the resultant interaction terms were significant, indicating that the relationships between religiosity and sexual attitudes, and that of acculturation and sexual attitudes, were orthogonal and not mediational in nature (Baron & Kenny, 1986).

Table 4 Prediction of sexual attitudes by religiosity measures, by ethnicity

Attitude composite	Euro-American				Hispanic				Asian			
	I ^a β	S ^b β	F ^c β	R ²	I β	S β	F β	R ²	I β	S β	F β	R ²
<i>Men</i>												
Homosexuality	.28*	-.05	.42*	.39	.16	.07	.44*	.33	.46*	-.25*	.31*	.33
Casual sex	.28*	.07	.19*	.23	.33*	-.02	.07	.13	.50*	-.24*	.07	.17
Gender role traditionality	.29*	-.09	.22*	.17	.11	.01	.23*	.09	.29*	-.15	.24*	.16
Extramarital sex	.14*	-.01	.01	.02	.15	-.08	-.01	.01	.27*	-.18	.04	.05
<i>Women</i>												
Homosexuality	.09	.12	.40*	.30	.25	-.01	.34*	.26	-.22	.20	.49*	.20
Casual sex	.44*	-.02	.07	.22	.44*	-.08	-.07	.12	-.16	.14	.52*	.23
Gender role traditionality	.09	-.05	.40*	.19	-.02	-.11	.36*	.10	-.20	-.08	.28*	.07
Extramarital sex	.06	.14	-.16	.03	-.38*	.62*	-.07	.17	-.02	.13	.17	.05
<i>n</i>	355				91				60			

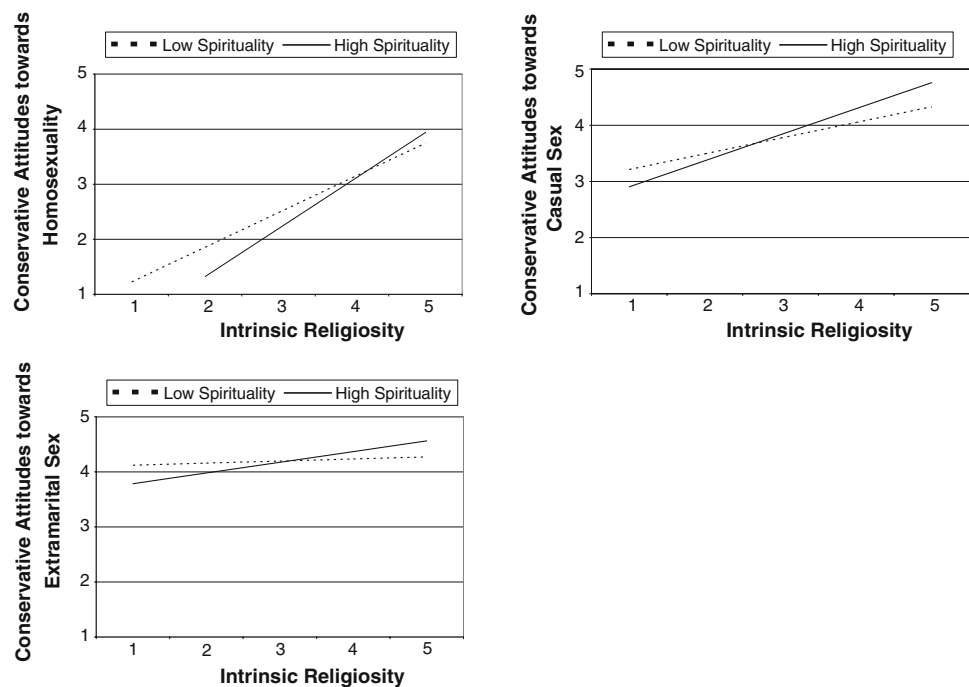
^a Intrinsic religiosity

^b Spirituality

^c Fundamentalism

* $p < .001$ (significant predictor)

Fig. 3 Interaction between intrinsic religiosity and spirituality in Asian, Hispanic, and Euro-American women in predicting attitudes towards homosexuality, casual sex, and extramarital sex



Discussion

This study was the first to examine the interaction of religiosity and acculturation on sexual attitudes in a large, ethnically diverse sample. Consistent with hypotheses, there were significant ethnic and gender differences in attitudes towards homosexuality, gender role traditionality in sexual relationships, casual sex, and extramarital sexuality; however, the effect sizes of these findings were small, indicating that

group-level differences were relatively modest. While acculturation did account for ethnic group differences in two sexual attitudes, it did not account for *all* ethnic differences in sexual attitudes, suggesting that some ethnic differences in sexual attitudes are not easily subject to change during cultural integration. Also consistent with hypotheses, there were ethnic differences in the effects of religiosity on sexual attitudes; namely, intrinsic religiosity and fundamentalism were significant main predictors in several sexual attitudes in

Asians and Euro-Americans, while spirituality was a significant main predictor only in Asians. In women, there was a significant interaction between spirituality and intrinsic religiosity in predicting attitudes towards homosexuality, casual sex, and extramarital sex, such that the relationship between intrinsic religiosity and conservatism of attitudes was stronger at higher levels of spirituality. Moreover, religiosity measures were more often a significant predictor of sexual attitudes in females than in males. Finally, there were no mediational relationships between acculturation and religiosity on any attitude items, suggesting that both acculturation and religiosity have distinct effects. Each of these findings is considered separately below.

Ethnic, Gender, and Acculturative Differences in Sexual Attitudes

While there were significant group-level differences in attitudinal measures, the estimated effect sizes were very small, indicating that a large sample is needed to be able to detect these differences. In fact, considering that the distributions of attitudes overlap significantly among ethnic groups, it is likely that differences in group means were only pertinent at the level of the population. These findings underscore the importance of using more fine-tuned measures of cultural differences than ethnographic group. Indeed, acculturation was a significant predictor in both Hispanics and Asians for several attitude measures.

Nevertheless, like previous studies (e.g., Brotto et al., 2005; Leiblum et al., 2003), we found that there were *some* ethnic differences in sexual attitude variables above and beyond that of acculturation. Specifically, acculturation did not account for the relative conservatism towards homosexuality or casual sex on the part of Asians. This finding highlights the fact that, although acculturation seems to have a tempering (or “Westernizing”) effect, certain elements of identity may be resistant to change. This may be due to the way that those who are highly invested in their heritage culture orient towards particular elements of the mainstream culture. For example, an Asian who is high in heritage acculturation may only consume mainstream media that supports sexual values systems that are similar to those found in their heritage culture. Thus, heritage acculturation acts as a lens through which the mainstream culture is experienced. Indeed, like Brotto et al. (2005), we found a significant interaction between heritage and mainstream acculturation such that mainstream acculturation was only a significant predictor when heritage acculturation was low. Interestingly, this was true for both Hispanic and Asian women, but not men, indicating that heritage and mainstream culture distinctions may be more consistent for women.

The finding that even after accounting for acculturation factors Asians tended to have more conservative attitudes towards casual sex reflects previous findings that suggest that Asians are less likely to have engaged in casual sex (Meston et al., 1998b). Whether Asians are less likely to engage in casual sex because they have strong attitudes against such behavior, or because they have strong attitudes against casual sex because it is infrequently practiced in Asian cultures, is an open question. Similarly, the finding that Asians tended to have more conservative attitudes towards homosexuality reflects the lower rates of reported homosexuality in Asian cultures (Meston, Trapnell, & Gorzalka, 1996).

At first glance, it is somewhat surprising that mainstream acculturation tended to predict liberality of attitudes, but predicted conservatism of attitudes towards extramarital sexuality in Hispanic and Asian men. However, this finding demonstrates that acculturation and conservatism (as defined by western standards) are different constructs and must be measured as such. In this case, the heritage cultures in question may be more liberal on the issue of extramarital sex than the mainstream (Euro-American) culture. For Hispanic men, the cultural value of machismo, which includes power to decide sexual and contraceptive behavior, has been associated with multiple sexual partners (Beck & Bergman, 1993), including those outside of marriage (Marin, Gomez, & Hearst, 1993). In fact, it has been found that compared to men of other ethnic groups, Hispanic men are more likely to engage in extramarital affairs (Choi, Catania, & Dolcini, 1994). Asians have far more explicitly defined roles and duties, both as members of a family and as members of a gender, than do Euro-Americans (Bulbeck, 2005). It has been posited that extramarital sex may be condoned for the men in such an explicitly defined system, so long as one’s sexual duties to one’s wife and family are properly fulfilled first (Penn, Hernandez, & Bermúdez, 1997). Thus, higher levels of mainstream acculturation would be expected to be associated with greater conservatism in Hispanic and Asian men.

There were several differences at the level of subgroups (e.g., South Asian vs. East Asian), indicating that while there was some commonality in the acculturative experience in each group, there were some cultural differences which may lead to slightly different strengths of acculturative effects. In particular, we found that mainstream acculturation tended to be a stronger predictor in East Asians than for South Asians. As South Asian countries tend to be more westernized than East Asian countries (Salant & Lauderdale, 2003), it is likely that South Asians had a lesser range in which to express mainstream acculturative effects. Similarly, by virtue of sharing a border, Mexico has far more exposure to American culture than South American countries and thus mainstream acculturation likely had a greater effect in our South American participants. Acculturation is not only an index of the

individual's experiences in the mainstream culture, but also the general interactions between cultures: thus, it is likely to be different for members of particularly intertwined cultures than for disparate, distinct cultures.

Liberality of sexual attitudes was, for the most part, related to mainstream acculturation among Hispanics (i.e., greater identification with the mainstream culture predicted liberal sexual attitudes). On the other hand, for Asians, liberality was generally associated with heritage acculturation (i.e., less identification with the heritage culture predicted liberal sexual attitudes). Thus, it seems that within these two groups, acculturation has different routes in changing sexual attitudes: in Hispanics, it is moving *towards* the mainstream culture, while for Asians, it is moving *away* from the heritage culture. Moreover, as reported above, Brotto et al. (2005) found that there was an interactive effect between heritage and mainstream acculturation in East Asians such that mainstream acculturation did not have a liberalizing effect unless there was concurrently low heritage acculturation. These findings, taken with the present study, indicate that heritage acculturation is an over-riding factor in Asian cultures; heritage culture may act as a lens, focusing the interactions with those elements of mainstream culture which preserve conservative sexual values. In the case of sexual attitudes, then, it seems as if there are two potential models of acculturation: either as a mixture of two distinctly different cultural perspectives, with elements of one culture and of the other (like oil and water, with two distinct elements forming a solution), or as a blend of the two, with elements that are neither wholly one nor the other (like tea, with one element blending into, and changing the original nature of the other). It is likely that in this sample, Asians represent the former model while Hispanics represent the latter. Indeed, it has been suggested that while Asians tend to acculturate orthogonally, with independent heritage and mainstream acculturation (Costigan & Su, 2004), Hispanics tend to engage in “ethnogenesis,” or creation of a third, unique identity that is not a function of either being Hispanic or being American (Roosens, 1989).

Acculturation tended to account for more of the variability in sexual attitudes in Asians than in Hispanics, which suggests that acculturative processes may be more important for determining sexuality in Asians than Hispanics. Because the parent population of the present study (i.e., Texas) has a larger population of Hispanics than Asians, Asians are a relatively more “visible” minority group; not only are pressures to acculturate to the mainstream relatively stronger for Asians, the mainstream culture is relatively skewed towards Hispanic heritage cultures. Thus, it is not surprising that the acculturative experience of a Hispanic individual in Texas is very different from that of an Asian individual in Texas (Ahrold, Woo, Meston, & Brotto, 2007).

Effects of Religiosity on Sexual Attitudes

In women, the interaction between intrinsic religiosity and spirituality was a predictor in three out of four sexual attitudes, indicating a stable effect across several attitudinal constructs. Although it has been suggested that the structural or social aspects of religion are chief in determining attitudes towards sexuality (Thornton & Camburn, 1989), these findings suggest that it was the combined force of participation in a religious community and a personal connection to the divine which drives these effects. Women tend to report greater involvement in religious institutions as well as greater spirituality (Miller & Hoffmann, 1995), which may explain why these interactions were more stable for women than for men.

It was shown that religiosity had distinct contributions in predicting sexual attitudes, that is, the difference in relationships between religiosity and attitudes between ethnic groups were unaccounted for by measures of acculturation. This seems to indicate that there are ethnic-specific elements of religion that are separate from those measured by acculturation scales and which have contributions in forming attitudes towards sexuality. Furthermore, these findings indicate a ceiling effect in religiosity contributions to sexual attitudes in Asians and Hispanics, but not Euro-Americans. That is, Asians and Hispanics tended to have more restricted ranges of religiosity, resulting in less statistically reliable relationships between religiosity and sexual attitudes for these groups. Rather than indicating a lack of relationship between religiosity and sexual attitudes, this indicates that there is a more limited range in which this relationship may play out. The present study provides further support for the theory that in the case of attitudes towards sexuality, the religious elements of culture are a strong uniting force for Hispanics and Asians, separate from, but equally important as other elements of culture such as language, traditions, and friendships. This finding strengthens recent arguments that religious identities make up a substantial portion of the culture within distinct ethnic groups (Demerath, 2003) and, as such, are sites of within-group differences.

Limitations

There were a few limitations that should be noted in the interpretation of these findings.

Firstly, our measure of acculturation (the VIA) has not been validated in Hispanic populations. However, the VIA was designed to be free from bias towards any particular heritage culture; namely, it allows the participant to define their own meaning of “heritage culture” and asks about identification with elements of culture that are common to all cultures (e.g., friends, humor, traditions). As such, there is no theoretical reason to believe that the VIA is not valid in

Hispanic populations. Nevertheless, these findings should be considered exploratory until the VIA has been fully validated in this population.

Secondly, the present sample was derived from a college population, with most participants in early adulthood, and thus may not be representative of older populations. Specifically, because many of the participants were unmarried, it is possible that attitudes towards extramarital sexuality may be different from those who have experienced marriage. Future studies will need to test these effects in older populations to extend the generalizability of these findings.

Ethnic-specific biasing may also limit the interpretation of these findings. Several studies have found that Asians are less likely to report liberal sexual attitudes and behavior than are Euro-Americans (Tang, Lai, & Chung, 1997); similar findings have been reported in Hispanics (Raffaelli & Green, 2003). However, there is evidence that the effects of social desirability on reports of sexuality in Asians are no more present than for Euro-Americans (Meston, Heiman, Trappnell, & Paulhus, 1998a). The present design accounted for potential sources of social desirability by administering completely anonymous surveys in a confidential, private setting. Nevertheless, it is possible that there were culturally-derived biases which could not be removed, regardless of setting or collection method. If this were the case, however, these biases would be ever-present and would estimate those found in other research or clinical settings.

Implications and Future Directions

These findings have both practical and theoretical implications. Practically, sexual attitudes are the site of much sexual education and public health discourse: both attempt to shape sexual behavior through changing sexual attitudes (such as attitudes towards casual sex). However, from the present study it is clear that these messages need to be carefully crafted to simultaneously support different cultural values and respect that some members of a culture may be more acculturated to mainstream. Clinically, although conservatism of attitudes towards sexuality is generally considered to be a risk factor for sexual dysfunction in Euro-Americans (Laumann, Paik, & Rosen, 1999), these assumptions may not reflect the experience of ethnic minorities who have different cultural values; moreover, current treatments which attempt to shift conservative sexual attitudes may be culturally insensitive as they place patients sexualities in contrast to their cultural heritage. However, from the present study, it is clear that acculturation is not a proxy for traditionalism, and we cannot assume that those more acculturated to the mainstream are necessarily more liberal in sexual attitudes. Finally, the findings that attitudes towards homosexuality and gender role traditionality differ significantly between

genders and ethnic groups, and are subject to change through acculturation, may offer insight to equal rights advocates in starting points for culturally targeted programs or activism.

Theoretically, these findings highlight the importance of studying the interaction of gender, ethnicity, acculturation and religiosity as related but distinct constructs. Asians and Hispanics had very different acculturative effects, indicating that the process of acculturation plays out in distinctly different ways in different ethnic groups. Also, considering the large number of gender differences in acculturation effects, we must consider the effects of culture separately for men and for women. Finally, it is clear that while religion plays an important part in determining the sexual attitudes of ethnic minorities, we cannot assume that the effects of religiosity are bound within acculturation.

While preliminary, these findings suggest that acculturation and religiosity are important measures of ethnic group differences in attitudes towards various forms of sexuality. As a framework, acculturation and religiosity offer two richer perspectives than group level differences in important sexual variables. These methods are important not only for researchers, who may use them to acquire information about ethnic sexuality, but also for clinicians and educators working in diverse populations. As it is the responsibility of scientist and practitioner alike to form culturally sensitive and accurate models of sexuality, the present findings on acculturation, religiosity, and ethnic group differences in sexual attitudes may inform the development of such models.

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