

# The Role of Sex Guilt in the Relationship Between Culture and Women's Sexual Desire

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**Abstract** A large body of literature demonstrates that East Asian women report lower sexual desire than Caucasian women. Although most studies have explained these differences by referring to general culture-linked differences in sexual conservatism, none have examined the potential role of specific constructs such as sex guilt. The goals of the current study were to examine the supposition that sexual conservatism mediates the relationship between culture and sexual desire, and to explore the potential mediating role of sex guilt in the link between culture and sexual desire. Caucasian ( $n = 105$ ) and East Asian ( $n = 137$ ) female university students completed questionnaires online. Caucasian women reported significantly higher levels of sexual desire, significantly lower levels of sexual conservatism, and significantly less sex guilt. In the entire sample, sexual conservatism and sex guilt separately mediated the relationship between ethnicity and sexual desire such that women with more sex guilt and those who were more sexually conservative reported lower sexual desire. Among the East Asian women, sex guilt, but not sexual conservatism, mediated the relationship between mainstream acculturation (degree of westernization) and sexual desire such that women with more sex guilt reported lower sexual desire. These findings suggest that sex guilt may be one mechanism by which ethnic groups differ in sexual desire.

**Keywords** Acculturation · Sexual desire · Sex guilt · Chinese

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## Introduction

Ethnic differences in female sexual function are well-documented in the literature, with East Asian women, defined in this study as women of Chinese, Japanese or Korean descent, consistently reporting poorer sexual function (e.g., sexual response or excitement) than women of European descent. In a study of university students, Brotto, Chik, Ryder, Gorzalka, and Seal (2005) found that Caucasian women reported significantly higher sexual desire, arousal, and pleasure with orgasm compared to East Asian women. Population-based studies of women have yielded similar results. For example, Cain et al. (2003) examined the sexual functioning of premenopausal midlife women and found that Caucasian women reported sexual desire and arousal more often than Chinese and Japanese women, and pain during intercourse less frequently than Chinese and Japanese women. Similarly, the Global Study of Sexual Attitudes and Behaviors (GSSAB), which included almost 14,000 women spanning 29 countries, found that the incidence of lack of sexual interest, inability to reach orgasm, reaching orgasm too quickly, pain during sex, finding sex not pleasurable, and lubrication difficulties was higher in East Asia than in Europe and North America (Laumann et al., 2005). Although ethnic differences in sexual functioning have been thoroughly delineated, the specific mechanisms by which ethnicity influences female sexual function have rarely been studied and remain poorly understood. The purpose of the current study was to address the paucity of research in this domain by examining the possible underlying role of sex guilt in cultural differences in sexual desire among Caucasian and East Asian women living in North America. In addition, the supposition that sexual conservatism mediates the relationship between culture and sexual desire was investigated.

Research has demonstrated that East Asian sexuality differs significantly from Western norms on dimensions ranging from

accuracy of sexual knowledge (e.g., Brotto et al., 2005; Chan, 1990; Meston, Trapnell, & Gorzalka, 1998) to sexual experience (e.g., Durex, 2005) and sexual attitudes (Ahrold & Meston, 2010; Higgins & Sun, 2007; Higgins, Zheng, Liu, & Sun, 2002; Kennedy & Gorzalka, 2002; Meston & Ahrold, 2010). The rapidly growing East Asian population in North America and the clear differences between East Asian and Western approaches to sexuality underscore the importance of improving the understanding of how ethnicity affects sexual functioning.

To date, studies comparing Caucasian and East Asian sexuality have referred to general culture-linked differences in sexual conservatism in efforts to explain disparities in sexual functioning. Sexual conservatism has been conceptualized as self-imposed constraints on various aspects of sexuality, including the appropriateness of sexual partners, sexual activities, and conditions under which sexual activity should occur (Burt, 1980). Indeed, research has consistently found that East Asian individuals are sexually conservative compared to Caucasian individuals in every domain of sexuality that has been studied. For example, Caucasian youth report initiating sexual activity at an earlier age (Baldwin, Whiteley, & Baldwin, 1992; Huang & Uba, 1992; Upchurch, Levy-Storms, Sucoff, & Aneshensel, 1998), having more sexual partners (Grunbaum, Lowy, Kann, & Pateman, 2000; Schuster, Bell, Nakajima, & Kanouse, 1998), and possessing a wider repertoire of sexual activities (Brotto et al., 2005; Meston, Trapnell, & Gorzalka, 1996; Tang, Lai, & Chung, 1997) compared to Asian individuals. Despite the frequency with which sexual conservatism has been cited as the reason for ethnic differences in various aspects of sexuality, this proposition has not been directly empirically tested nor have the mechanisms underlying such differences been thoroughly examined.

Differences in sex guilt may be one mechanism by which cultures differ on measures of sexuality. Sex guilt has been defined as “a generalized expectancy for self-mediated punishment for violating or for anticipating violating standards of proper sexual conduct. Such a disposition might be manifested by resistance to sexual temptation, by inhibited sexual behavior, or by the disruption of cognitive processes in sex-related situations” (Mosher & Cross, 1971, p. 27). Thus, although sex guilt and sexual conservatism may be correlated, the construct of sex guilt encompasses an affective component that may be absent or, at best, tangential to the concept of sexual conservatism.

Various studies have found a negative relationship between sex guilt and sexual functioning, such that higher sex guilt was associated with diminished sexual functioning (Cado & Leitenberg, 1990; Darling, Davidson, & Passarello, 1992; Galbraith, 1969). Nobre and Pinto-Gouveia (2006) compared emotional reactions to automatic thoughts that occur during sexual activity between sexually functional and dysfunctional men and women and found that sex guilt was one of the best discriminants between women with and without sexual dysfunction, with the former reporting more sex guilt, although

levels of sex guilt did not differentiate between sexually functional and dysfunctional men.

To the best of our knowledge, among the research that has examined sex guilt, the only study that has compared sex guilt in individuals of East Asian and European descent was published almost 30 years ago. Abramson and Imai-Marquez (1982) administered the Mosher Forced-Choice Guilt Inventory (Mosher, 1966) to three generations of Japanese-American men and women and age-matched Caucasian Americans, and found that though sex guilt decreased with successive generations within each ethnic group, Japanese-Americans who belonged to the youngest generation continued to report greater sex guilt than their Caucasian counterparts. Abramson and Imai-Marquez (1982) did not, however, examine sexual function or attitudes.

Thus, research has documented significant ethnic differences in a number of domains of sexuality in both men and women. To focus on the literature on ethnic differences in sex guilt and sexual functioning in women, research on sex guilt has found that East Asian women report more sex guilt than Caucasian women, and that greater sex guilt is significantly linked to poorer levels of sexual functioning. Furthermore, it is apparent that East Asian women experience poorer sexual functioning, in general, compared to Caucasian women. Although ethnic differences in sexuality have been documented repeatedly in the recent literature, a closer exploration of the mechanisms underlying those group differences has received only limited attention (except Ahrold & Meston, 2010, who explored the influence of religiosity). With studies comparing East Asian and Caucasian female sexuality invariably finding better sexual functioning in the Caucasian women and often attributing such differences to cultural variations in sexual attitudes, examining the role of sex guilt in such differences may refine the understanding of the mechanisms by which ethnicity influences sexual function.

In addition to ethnic group differences as a measure of cultural effects on sexuality, recent research has increasingly highlighted the importance of attending to acculturation (e.g., Ahrold & Meston, 2010; Brotto et al., 2005; Brotto, Woo, & Ryder, 2007; Meston & Ahrold, 2010; Woo & Brotto, 2008). Acculturation is the process by which an individual who moves from one culture to another assimilates aspects of the new culture’s values, attitudes, and behaviors into their self-identity. Research supports a bidimensional approach to acculturation (e.g., Berry, 1980; Ryder, Alden, & Paulhus, 2000) whereby the degree to which an individual assimilates parts of the new culture (mainstream culture) is independent of the extent to which the individual continues to embrace the values of their culture of origin (heritage culture). In the context of the current study, mainstream culture refers to the predominant culture in mainstream Canadian society (or Western culture) and heritage culture refers to East Asian culture. Here, we examined both ethnic group differences and two indices of cultural effects—the role of mainstream and heritage acculturation in East Asians.

The current study examined sexual desire, as opposed to other domains of female sexual function, in part because studies have consistently shown ethnic group differences in sexual desire but not necessarily orgasm, genital pain, psychophysiological sexual arousal, or other aspects of sexual function (Woo, Brotto, & Gorzalka, 2009a; Yule, Brotto, & Woo, 2009). In a large international survey, the prevalence of low desire was nearly twice as high among women from East Asian versus European countries, and attitudes about the future success of the relationship were found to differentially affect sexual desire among European and East Asian women, whereas this was not the case for other aspects of sexual response measured (Laumann et al., 2005).

The goals of the current study were (1) to examine the supposition that sexual conservatism mediates the relationship between culture and sexual desire, and (2) to explore the potential mediating role of sex guilt in the link between culture and sexual desire. It has been suggested that negative emotional states may precede depressed sexual response (Barlow, 1986) and support has been found for this hypothesis. For example, participants revealed significantly less objective sexual arousal in a negative mood induction condition compared to a neutral control condition (Mitchell, DiBartolo, Brown, & Barlow, 1998) and latency to maximum subjective sexual arousal was significantly greater in a depression mood induction condition compared to an elation condition (Meisler & Carey, 1991). We therefore hypothesized that sex guilt would mediate the relationship between culture and sexual desire. Among the East Asian women, we hypothesized that the relationship between acculturation and sexual desire would also be mediated by sex guilt. In addition, because sexual conservatism has been widely cited as the reason for differences between East Asian and Caucasian individuals across a number of sexual domains, sexual conservatism was also examined as a potential mediator of the relationship between culture and sexual desire.

## Method

### Participants

East Asian (Chinese, Japanese or Korean) and Caucasian women who were fluent in English and 18 years of age and older were eligible to participate in this study. There were no exclusion criteria based on place of birth. A total of 242 women participated. Of these, 105 self-identified as Caucasian and 137 as East Asian. The East Asian group was comprised of 83.9% Chinese, 3.6% Japanese, and 12.4% Korean women. All participants were recruited through the human subject pool at a large Canadian university. There were no significant differences in age or in years of education between the two groups. Demographic data are shown in Table 1.

**Table 1** Demographic characteristics of Caucasian ( $n = 105$ ) and East Asian ( $n = 137$ ) participants

Variable	Caucasian	East Asian
Mean age in years ( <i>SD</i> )	20.9 (3.61)	20.3 (1.90)
Place of birth (%)***		
Canada or US	87.6	30.1
China/Hong Kong/Taiwan	0	51.5
Japan/Korea	0	14.7
Southeast Asia	0	3.7
Europe	10.5	0
Other	1.9	0
Years of residency in Canada ( <i>SD</i> )***	17.1 (7.8)	11.7 (6.4)
Marital status <sup>a</sup> (%)		
Unmarried	90.4	95.7
Married	1.9	1.4
Divorced	1.9	0
Mean acculturation score <sup>b</sup> ( <i>SD</i> )		
Mainstream	n/a	65.7 (13.7)
Heritage	n/a	70.1 (12.7)

Significant group differences at \*\*\* $p < .001$

<sup>a</sup> Figures reported are for the 121 participants who indicated that they were currently in a relationship

<sup>b</sup> Scale range, 20–180

### Measures

#### *Vancouver Index of Acculturation (VIA)*

The VIA (Ryder et al., 2000) is a self-report questionnaire that measures Heritage and Mainstream acculturation on two separate dimensions. “Heritage culture” refers to the culture of birth, while “mainstream culture” refers to the predominant culture in the new environment. The VIA consists of 20 items, with two items keyed to each of 10 domains, including social relationships and cultural traditions. Higher scores on the mainstream dimension reflect greater Westernization, and higher scores on the heritage dimension reflect maintenance of the culture and traditions of one’s origin. Both dimensions were found to have good internal consistency in the East Asian validation sample (Cronbach’s  $\alpha = .92$  for heritage acculturation and .85 for mainstream acculturation).

#### *Female Sexual Function Index (FSFI)*

The FSFI (Rosen et al., 2000) is a 19-item measure assessing six domains of sexual function including sexual desire over the previous 4 weeks. Higher scores on each subscale indicate better levels of sexual functioning. In this study, we examined only the Desire domain. The two questions that comprise the Desire subscale are: “Over the past 4 weeks, how often did you feel sexual desire or interest?” and “Over the past 4 weeks, how

would you rate your level (degree) of sexual desire or interest?" Scores on the Desire subscale range from 1 to 5. Test–retest reliability is high ( $r = .83$ ) and internal consistency is high (Cronbach's  $\alpha = .92$ ). The FSFI has been shown to be a valid measure for differentiating women with and without hypoactive sexual desire disorder (Wiegel, Meston, & Rosen, 2005) and may be used for women who are sexually active as well as those who are not (Meyer-Bahlburg & Dolezal, 2007).

#### *Revised Mosher Guilt Inventory (RMGI)*

The RMGI (Mosher, 1988) is a self-report questionnaire that measures three aspects of guilt: sex guilt, hostility guilt, and guilty conscience. It consists of 114 items in a limited comparison format. In this format, items were arranged in pairs and participants were asked to rate their responses on a 7-point Likert scale that ranged from 0 ("Not at all true for me") to 6 ("Extremely true for me") while comparing the intensity of trueness within each pair of items. For the purposes of the current study, only the 50 items that pertained to sex guilt were administered in order to reduce the length of the questionnaire. Examples of items that comprise the Sex Guilt subscale are: "When I have sexual desires, I enjoy it like all healthy human beings" and "When I have sexual desires, I fight them because I must have complete control of my body." The total score for the Sex Guilt subscale was computed by summing the scores obtained on all items, with some items reverse-scored, and possible total subscale scores range from 0 to 300. Higher scores denoted greater sex guilt. Internal consistency for the Sex Guilt subscale in the current sample was high (Cronbach's  $\alpha = .96$ ). The construct, convergent, and discriminant validity of earlier versions of the Mosher Guilt Inventory have been established by a number of studies (e.g., Abramson & Mosher, 1979; Ruma & Mosher, 1967).

#### *Derogatis Sexual Functioning Inventory (DSFI)*

The DSFI (Derogatis & Melisaratos, 1979) is a self-report measure of sexual functioning consisting of 10 domains. In this study, we included only the Attitude subscale to provide a measure of sexual liberalism-conservatism. This subscale consists of 30 items, with 15 items assessing sexual liberalism and 15 items assessing sexual conservatism, and participants were asked to rate their responses on a 5-point Likert scale that ranged from -2 ("strongly disagree") to 2 ("strongly agree"). Examples of items that comprise the Attitude subscale are: "Premarital intercourse is beneficial to later marital adjustment" and "It is unnatural for the female to be the initiator in sexual relations." The score on this subscale was a difference score (liberalism – conservatism) that ranged from -60 to 60, with lower scores reflecting greater sexual conservatism and higher scores indicating greater sexual liberalism. Internal consistency was high for both the liberalism dimension (Cronbach's  $\alpha = .81$ ) and the

conservatism dimension (Cronbach's  $\alpha = .86$ ). The DSFI has been found to have good construct, predictive, and discriminant validity (e.g., Derogatis & Melisaratos, 1979; Derogatis, Melisaratos, & Clark, 1976a; Derogatis, Meyer, & Dupkin, 1976b).

#### *Demographics Questionnaire*

In addition, a questionnaire assessing demographic variables, sexual intercourse history and experience with a variety of different types of sexual activity was developed by the authors for the current study.

#### *Procedure*

An advertisement for the current study was posted on the online experiment management system for the university's human subject pool. Students who were interested in participating clicked on a link from the advertisement that redirected them to the secure website where the web-based questionnaires were posted. The first page that was visible to participants consisted of the consent form which described the purpose of the study as being to "examine the relationship between acculturation and various sexuality-related variables," and explained study procedures. Participants indicated their consent to participate by clicking the "Continue to Next Page" button at the bottom of the page. Participants who declined to click on the button were not granted access to the questionnaires. IP addresses, but not cookies, were collected to enable duplicate entries to be filtered out. Participants received extra course credits for their participation in this study. All procedures were approved by the university's Behavioural Research Ethics Board.

#### *Statistical Analyses*

SPSS version 13 was used for all statistical analyses. *T*-tests were used in analyses comparing the two ethnic groups on self-reported sexual conservatism, sex guilt, and sexual desire. In analyses of the association between ethnicity and sexual variables, the point-biserial statistic was used whereas for acculturation and the sexual variables among the East Asian women Pearson correlations were conducted.

The bootstrap procedure for mediation analysis recommended by Shrout and Bolger (2002) was used for all mediation analyses. Although the approach to mediation articulated by Baron and Kenny (1986) has been influential and widely cited, Shrout and Bolger (2002) suggest that bootstrap methods are more appropriate when the process to be mediated is temporally distal, such as the causal process between ethnicity and sexual desire. The bootstrap method (Shrout & Bolger, 2002) was used in the current study because unlike the traditional Baron and Kenny (1986) approach, the bootstrap method relaxes the requirement that the statistical test of the association between X

(culture) and Y (sexual desire) be statistically significant before proceeding with mediation analysis. Shrout and Bolger (2002) recommend that mediation analysis proceed on the basis of the theoretical reasoning rather than the strength of the relationship between X and Y, especially in studying long-term processes such as the long-term effects of culture on sexual desire. In addition, the bootstrap method does not require the distribution of the indirect effect to meet the assumption of normality. Three thousand samples, with replacement, were used in each mediation analysis. This was done using an SPSS macro developed by Preacher and Hayes (2004) which sampled randomly with replacement from the dataset.

## Results

### Ethnic Group Comparisons on the Sexuality Measures

The two ethnic groups were comparable on sexual experiences except for touching with clothing removed, touching of partner's genitals, and engaging in sexual intercourse (all  $ps < .05$ ), with the Caucasian women more likely to have engaged in each of these activities. There was, however, no significant ethnic difference in the proportion of women currently in a relationship, with approximately half of the women in each group reporting that they were in relationships,  $\chi^2(1) = .02$ .

In comparing the two ethnic groups on the major sexuality variables, we adjusted for large family-wise error rate, applying a Bonferroni correction by dividing the conventional alpha level of .05 by three (the number of comparisons being made). Thus, ethnic differences were considered statistically significant only if  $p < .017$  (.05/3 comparisons). Compared to the East Asian women, the Caucasian women scored significantly higher on the Desire subscale of the FSFI, indicating that the Caucasian women reported significantly greater sexual desire than the East Asian women in the previous four weeks,  $t(238) = 6.80, p < .001$ . The East Asian women scored significantly higher on the RMGI compared with the Caucasian women,  $t(192) = -11.03, p < .001$ ,

demonstrating that the East Asian women reported significantly higher levels of sex guilt. The East Asian women also scored significantly lower on the Attitude subscale of the DSFI than the Caucasian women,  $t(201) = 9.18, p < .001$ , indicating that the East Asian women were significantly more sexually conservative compared to their Caucasian counterparts (Table 2).

Ethnicity was significantly correlated with scores on the RMGI, the FSFI Desire subscale, and the DSFI Attitude subscale (all  $ps < .001$ ). The correlations are shown in Table 3.

### The Mediating Role of Sex Guilt in the Relationship Between Ethnicity and Sexual Desire

The effect of ethnicity on sex guilt was demonstrated,  $\beta = 57.57, p < .001$ , indicating that East Asian ethnicity was associated with significantly greater sex guilt. The effect of sex guilt on sexual desire, holding ethnicity constant, was also significant,  $\beta = -.01, p < .001$ , showing that increased sex guilt was linked to less sexual desire. The indirect effect of ethnicity on sexual desire, computed by multiplying the effect of ethnicity on sex guilt with the effect of sex guilt on sexual desire while controlling for ethnicity, was also significant,  $ab = -.59, SE = .12, CI_{99} = -.94, -.28$ . Hence, sex guilt mediated the ethnic group difference in sexual desire (Fig. 1).

### The Mediating Role of Sexual Conservatism in the Relationship Between Ethnicity and Sexual Desire

The effect of ethnicity on sexual conservatism was demonstrated,  $\beta = -16.85, p < .001$ , indicating that East Asian ethnicity was associated with significantly greater sexual conservatism. The effect of sexual conservatism on sexual desire, holding ethnicity constant, was also significant,  $\beta = .02, p < .001$ , showing that increasing sexual conservatism was linked to less sexual desire. The indirect effect of ethnicity on sexual desire was also significant,  $ab = -.37, SE = .13, CI_{99} = -.72, -.06$ . Hence, sexual conservatism mediated the ethnic group difference in sexual desire (Fig. 2).

**Table 2** Ethnic group differences on scores from the Desire subscale of the Female Sexual Function Index (FSFI), the Attitude subscale of the Derogatis Sexual Functioning Inventory (DSFI), and the Revised Mosher Guilt Inventory (RMGI)

Variable	Caucasian		East Asian		$t(df)$	$p$	Effect size <sup>d</sup>
	$M$	$SD$	$M$	$SD$			
FSFI desire <sup>a</sup>	4.08	1.02	3.14	1.09	6.80 (238)	<.001	.89
RMGI <sup>b</sup>	64.52	28.15	121.71	45.30	-11.03 (192)	<.001	1.48
DSFI attitude <sup>c</sup>	26.77	13.75	9.94	12.37	9.18 (201)	<.001	1.30

Note: Higher scores denote greater sexual desire (FSFI), higher sex guilt (RMGI) and greater sexual liberalism (DSFI Attitude)

<sup>a</sup> Based on  $n = 103$  Caucasians and  $n = 137$  East-Asians

<sup>b</sup> Based on  $n = 89$  Caucasians and  $n = 114$  East-Asians

<sup>c</sup> Based on  $n = 94$  Caucasians and  $n = 109$  East-Asians

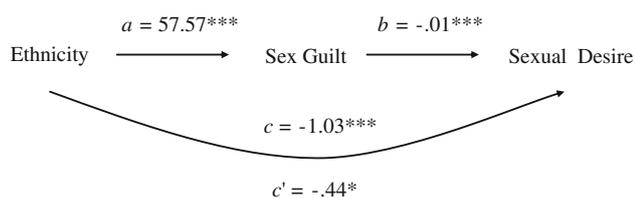
<sup>d</sup> Effect size (Cohen's  $d$ ) was calculated as  $d = (M_1 - M_2)/s$ , where  $s = \sqrt{[(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2]/(n_1 + n_2)}$

**Table 3** Correlations among ethnicity and scores from the Desire subscale of the Female Sexual Function Index (FSFI), the Attitude subscale of the Derogatis Sexual Functioning Inventory (DSFI), and the Revised Mosher Guilt Inventory (RMGI)

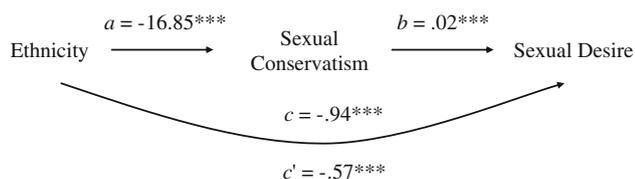
	Ethnicity <sup>a,b</sup>	RMGI	DSFI attitude
Ethnicity			
RMGI	.59***		
DSFI attitude	-.54***	-.78***	
FSFI desire	-.40***	-.54***	.44***

<sup>a</sup> The Caucasian group was coded as 1 and the East Asian group as 2. Correlations significant at \*\*\* $p < .001$

<sup>b</sup> Correlations involving Ethnicity were point-biserial. All other correlations were Pearson correlations



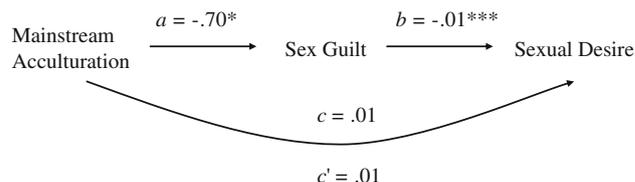
**Fig. 1** The mediating role of sex guilt in the relationship between ethnicity and sexual desire in Caucasian and East Asian women. *Note:* *a* represents the effect of ethnicity on sex guilt. *b* represents the effect of sex guilt after controlling for the effect of ethnicity. *c* represents the direct effect of ethnicity on sexual desire; *c'* represents the effect of ethnicity on sexual desire after controlling for sex guilt. \* $p < .05$ . \*\*\* $p < .001$



**Fig. 2** The mediating role of sexual conservatism in the relationship between ethnicity and sexual desire in Caucasian and East Asian women. *Note:* *a* represents the effect of ethnicity on sexual conservatism. *b* represents the effect of sexual conservatism after controlling for the effect of ethnicity. *c* represents the direct effect of ethnicity on sexual desire; *c'* represents the effect of ethnicity on sexual desire after controlling for sexual conservatism. \*\*\* $p < .001$

### Effects of Acculturation (East Asian Women Only) on Measures of Sexuality

The correlation between mainstream acculturation and FSFI Desire was marginally significant,  $r(134) = .16, p = .069$ , such that more westernized East Asian women reported greater sexual desire. Mainstream acculturation was significantly and negatively correlated with RMGI scores,  $r(113) = -.20, p < .05$ , indicating that more westernized East Asian women reported significantly less sex guilt. Mainstream acculturation was not correlated with DSFI Attitude ( $p > .05$ ). Heritage acculturation was also not correlated with FSFI Desire, DSFI Attitude or



**Fig. 3** The mediating role of sex guilt in the relationship between mainstream acculturation and sexual desire in East Asian women. *Note:* *a* represents the effect of mainstream acculturation on sex guilt. *b* represents the effect of sex guilt after controlling for the effect of mainstream acculturation. *c* represents the direct effect of mainstream acculturation on sexual desire; *c'* represents the effect of mainstream acculturation on sexual desire after controlling for sex guilt. \* $p < .05$ . \*\*\* $p < .001$

RMGI scores (all  $ps > .05$ ). Because neither mainstream nor heritage acculturation were correlated with DSFI Attitude, mediational analyses on sexual desire were not conducted for these independent variables.

Sexual desire and sex guilt were significantly and negatively correlated,  $r(114) = -.43, p < .001$ , indicating that more sex guilt was associated with lower sexual desire.

### The Mediating Role of Sex Guilt in the Relationship Between Mainstream Acculturation and Sexual Desire

The effect of mainstream acculturation on sex guilt was demonstrated,  $\beta = -.70, p < .05$ , indicating that higher mainstream acculturation was associated with significantly less sex guilt. The effect of sex guilt on sexual desire, holding mainstream acculturation constant, was also significant,  $\beta = -.01, p < .001$ , showing that increasing sex guilt was linked to less sexual desire. The indirect effect of mainstream acculturation on sexual desire via sex guilt was significant,  $ab = .01, SE = .004, CI_{95} = .001, .02$ . Hence, sex guilt mediated the relationship between mainstream acculturation and sexual desire (Fig. 3).

## Discussion

### Ethnicity and Sexuality

The results of the analyses of ethnic differences in sexual desire supported our hypothesis that the Caucasian women would report greater sexual desire—a finding that is congruent with an extensive literature on ethnic differences in sexual response (Brotto et al., 2005; Cain et al., 2003; Laumann et al., 2005; Woo et al., 2009a).

Analyses of ethnic group differences in sex guilt supported our hypothesis that the East Asian women would report greater sex guilt than the Caucasian women. This result fits with the results of Abramson and Imai-Marquez (1982), who studied ethnic differences in sex guilt between Japanese-American and Caucasian-American individuals. In addition, the results of our study revealed that the East Asian women were more sexually

conservative than their Caucasian counterparts, a finding that is consistent with both the literature on ethnic differences in sexual attitudes and our finding that the East Asian women reported greater sex guilt than the Caucasian women.

Although researchers have long presumed that ethnic disparities in sexual desire reflect ethnic differences in sexual conservatism, the results of this study provide empirical evidence that sexual conservatism mediates the relationship between ethnic group and sexual desire. This finding was consistent with a large number of studies that have found that Asian individuals are more sexually conservative than their Caucasian counterparts. For instance, studies have found that individuals of Asian descent report initiating intercourse at a later age, lower frequency of masturbation, fewer one-night stands, fewer lifetime partners, and a narrower repertoire of sexual activities (e.g., Brotto et al., 2005; Meston & Ahrold, 2010). These findings suggest that cognitive constructs relating to self-imposed sexual constraints not only play a role in the level of desire generally, but, among East Asian women, this construct plays a particularly detrimental role in limiting women's desire. Because research has shown the important impact of sexual cognitions, which may be the manifestation of sexual conservatism, on views about sexual behavior and abstinence (Ott & Pfeiffer, 2009), these data suggest that sexual conservatism may play a role in the understanding of sexual difficulties. Future research might also explore this construct in other ethnic minority groups to test whether this is a causal mechanism among women universally or only among women of East Asian descent.

In support of our hypothesis, mediation analyses also revealed that sex guilt mediated the relationship between Caucasian or East Asian ethnicity and sexual desire; that is, the significantly greater sex guilt experienced by East Asian women accounted for their diminished sexual desire in comparison with the Caucasian women. This is a novel finding because the specific mechanisms that underlie this well-documented association between ethnicity and sexual desire have not been empirically studied. As described earlier, Mosher and Cross (1971) conceived of sex guilt as a negatively-valenced emotion arising from the violation or anticipated violation of "standards of proper sexual conduct" that may manifest itself by "inhibited sexual behavior, or by the disruption of cognitive processes in sex-related situations."

Why does sex guilt mediate the relationship between ethnicity and sexual desire? One possibility lies in East Asian cultural conservatism. Of the three major Chinese philosophical traditions, Confucianism has had the most profound impact on Chinese culture—its influence eventually also spreading to Japan and Korea. The Neo-Confucians of the Song Dynasty (960 to 1276 A.D.) gave the Confucian classics repressive interpretations, thus setting the stage for the current East Asian view of sexuality as being reserved for marriage and procreation (Ng & Lau, 1990).

The question of how Neo-Confucian views of sexuality were transmitted to the current sample of East Asian participants,

over 30% of whom were born outside of East Asia, may be addressed by examining sexual communication in East Asian families. Parents in traditional Chinese families often experience great discomfort in talking about sexuality and thus prefer to avoid the topic with their children (Chang, 1997). Despite the ostensible absence of discussions about sexuality in Chinese families, recent research suggests that Asian American parents, in fact, use other, more indirect ways to convey messages about their sexual values and expectations of their children's sexual conduct (Kim & Ward, 2007). Asian cultures are described as "high-context" cultures in that speakers convey messages using indirect and implicit means, and listeners use contextual cues to discern the meaning that underlies the verbal portion of the message. Consequently, when parents tell their children that "romance is for marriage," parental expectations of children's sexual conduct are abundantly clear even without specifically and verbally referring to sexual intercourse (Gudykunst, 2001; Kim & Ward, 2007). Consistent and strong parental condemnation of pre-marital intercourse may induce feelings of guilt around the expression of sexuality, including feelings of sexual desire. With restrictive sexual messages being transmitted from generation to generation in this manner, heightened sex guilt in unmarried East Asian women may dampen sexual desire.

As a result of the similarities among Japanese, Korean, and Chinese cultures in regard to sexuality, the current study combined women from these cultures into a single group. However, given that the East Asian group was primarily comprised of Chinese women (84% of the East Asian sample), the results of the current study are most reflective of the effects of sex guilt and conservatism on desire in Chinese women.

#### *Acculturation in East Asian Women and Sexuality*

Because recent research has demonstrated the importance of studying bidimensional acculturation in sexuality research (e.g., Ahrold & Meston, 2010; Brotto et al., 2005, 2007; Meston & Ahrold, 2010; Woo & Brotto, 2008; Woo, Brotto, & Yule, 2009b), we examined the effect of both mainstream and heritage acculturation on sexual desire, sexual conservatism, and sex guilt. The findings that greater mainstream acculturation was significantly associated with less sex guilt and that the positive correlation between mainstream acculturation and sexual desire was marginally significant were consistent with recent research on how acculturation, measured bidimensionally, affects East Asian sexuality. The data also suggest that it was degree of westernization, but not retention of culture of origin, that was associated with sexual desire and mediated by sex guilt.

In contrast to the mediation analyses conducted with ethnicity as the predictor variable in which both sexual conservatism and sex guilt mediated the relationship between ethnic group and sexual desire, sex guilt but not sexual conservatism was found to mediate the relationship between mainstream acculturation and sexual desire. Among the East Asian women, greater mainstream

acculturation (or westernization) was associated with less sex guilt, which was associated with greater sexual desire. This finding suggests that the specific construct of sex guilt has more utility than the general notion of sexual conservatism in furthering the understanding of how culture influences sexual desire. In examining the role of sex guilt in the relationship between bidimensional acculturation and sexual desire in East Asian women, the current study unites the literature on the effects of acculturation on East Asian sex guilt with the literature on the association between sex guilt and sexual function, of which sexual desire is one component. The results of this mediation analysis were congruent with the findings by Abramson and Imai-Marquez (1982) that increasing westernization is associated with less sex guilt, as well as with several studies that found an inverse relationship between sex guilt and sexual function (Cado & Leitenberg, 1990; Darling et al., 1992; Galbraith, 1969; Nobre & Pinto-Gouveia, 2006).

On the other hand, the finding that heritage acculturation was not correlated with sex guilt, sexual conservatism or sexual desire stood in contrast to our hypothesis which was that sex guilt would mediate the relationship between heritage acculturation and sexual desire in the East Asian women. Taken together, these findings suggest that sex guilt may be salient in the process of westernization and becoming more sexually open whereas sex guilt is likely unrelated to the extent to which individuals continue to embrace the values of their heritage culture. Moreover, these findings suggest that among acculturating East Asian women, sexual conservatism alone is inadequate in accounting for changes in sexual desire that come about with westernization. Sex guilt offers a better explanation. Other researchers have also noted that the effects of acculturation on sexuality appear to be distinct from the effects of conservatism on sexuality. For example, Ahrold and Meston (2010) found that acculturation did not mediate the relationship between religious conservatism and sexual attitudes.

### Limitations

This study had some limitations that may affect the conclusions drawn. Firstly, our university sample was significantly younger than women in the general population, leading to concerns about the generalizability of our findings. This is of particular significance in this study because the vast majority of the women in our sample were unmarried and it is not possible to draw conclusions about the relationships among ethnicity or acculturation, sex guilt, and sexual desire in married women based on the current findings. Because of the traditional East Asian view that sexual intercourse is acceptable in the context of marriage, it is conceivable that sex guilt may not play a similar role in low sexual desire among married East Asian women. Secondly, the East Asian women in this sample were likely to be more mainstream acculturated and less heritage acculturated than those in the general population and thus we were unable to ascertain whether the relationships observed in this study would hold for

East Asian women in the general population. Thirdly, whereas the DSFI, the VIA, and the FSFI have been validated in Chinese samples (Chang, Chang, Chen, & Lin, 2009; Ryder et al., 2000; Tang et al., 1997), the RMGI has not been validated in East Asian populations. This may, therefore, impact any conclusions about the construct of sexual guilt that is drawn. Fourthly, and perhaps most importantly, we used a measure of sexual desire that was developed and validated on samples of Caucasian women. It is unclear whether the construct of sexual desire is equivalent in East Asian and Western cultures. It was not possible to examine this within the current study, but future research using qualitative methods may be able to shed light on how individuals within the different cultures understand and experience sexual desire. Finally, although the current study found that sex guilt played a role in cultural differences in sexual desire, it is possible that other factors that were not examined in this study may have led to these results. For example, there may be cultural differences in the social desirability of reporting high levels of sexual desire which may account for the current results.

### Clinical Implications and Conclusion

The finding that elevated sex guilt among East Asian women was one factor that accounted for the ethnic disparity in prevalence of low sexual desire may have implications for our understanding of sexual difficulties in East Asian women. Although numerous studies have documented cross-cultural differences in rates of sexual difficulties (e.g. Brotto et al., 2005; Cain et al., 2003; Laumann et al., 2005), to the best of our knowledge, no study has aimed to explain these differences. Data on psychological treatment efficacy for women with hypoactive sexual desire disorder are sparse (Hawton, Catalan, & Fagg, 1991; Hurlbert, 1993; McCabe, 2001; Schover & LoPiccolo, 1982; Trudel et al., 2001), and the extent to which they generalize to East Asian women is unknown. Our findings indicate that, because sex guilt may be an important variable mediating East Asian women's sexual desire, sex guilt might be targeted in psychological treatment of low desire. To date, psychological treatment interventions for desire disorder have included various combinations of sensate focus, relationship enhancement exercises, sexual skills training, cognitive challenging, mindfulness, provision of sexual information, sexual fantasy training, and homework exercises (Brotto, Basson, & Luria, 2008; Hawton et al., 1991; Hurlbert, 1993; McCabe, 2001; Schover & LoPiccolo, 1982; Trudel et al., 2001). Although these treatments have generally been found to be effective, East Asian women presenting with low desire may benefit especially if sex guilt were a treatment target. For example, automatic thoughts related to sex guilt (e.g., "I am an immoral person for wanting sex" or "It is wrong for a woman to initiate sexual activity") may be directly challenged and replaced with thoughts that are less reflective of guilt. The subsequent impact on sexual desire might then be measured as it would be expected to improve.

To conclude, this study replicated several prior findings of ethnic differences in sexuality between East Asian and Caucasian women. More importantly, this study also enhances our understanding of the mechanisms by which ethnicity and acculturation affect sexual desire and has implications for understanding the etiology and the treatment of low desire in East Asian women.

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