

Sex Guilt and Culture-Linked Barriers to Testicular Examinations

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ABSTRACT. This study explored the role of sex guilt in the relationship between culture and testicular self-examination (TSE) and physician testicular examination (PTE) in Euro-Canadian and Chinese men. Euro-Canadian ($n = 42$) and Chinese ($n = 77$) male university students completed online questionnaires. Euro-Canadian men were more likely to have had TSE and PTE than Chinese men. Sex guilt was higher in Chinese men. Sex guilt mediated the relationship between ethnicity and PTE but not the relationship between ethnicity and TSE. Among the Chinese men, sex guilt mediated the relationship between Westernization and PTE but not between Westernization and TSE.

KEYWORDS. Acculturation, testicular cancer screening, sex guilt, Chinese

Although the incidence of testicular cancer is relatively low, with 5.4 cases per 100,000 (National Cancer Institute, 2009a), testicular cancer is the most common malignancy among young men aged 20 to 34 years in the United States, accounting for almost 47% of the total incidence (National Cancer Institute, 2009b). Due to this unusual age distribution, successful treatment of testicular cancer has significant consequences, both on the lives of individual survivors and on society as a whole.

During the past four decades, survival rates have increased dramatically from about 10% in the 1970s to 95% currently if the cancer is de-

tected at an early stage. At more advanced stages of disease, 5-year survival rates fall to 71% (National Cancer Institute, 2009a). This remarkable shift in outcome may be attributed to advances in diagnostic technologies, the advent of cisplatin-based combination chemotherapy, and improvements in surgical techniques. However, despite the progress that has been made in diagnosis and treatment, the etiology of testicular cancer remains unknown, making prevention efforts exceedingly difficult. Research on prognostic factors indicates that men with a longer history of symptoms prior to presentation have poorer survival rates. This inverse relationship between

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length of history and probability of survival is due to more advanced disease among those with a longer history (Medical Research Council Working Party on Testicular Tumors, 1985). Thus, early detection is critical for decreasing the need for more toxic treatments and improving survival. Moreover, germ-cell tumors, which constitute the vast majority of testicular malignancies, grow rapidly, doubling in size every 10 to 30 days and further underscoring the importance of early detection (Richie, 1993).

Testicular self-examination (TSE) is one means by which testicular abnormalities may be initially detected. Although there is no consensus on recommendations in regard to TSE, with some organizations and physicians advocating the regular conduct of TSE (e.g., Clinical Oncology Information Network, 2000) and others recommending against this practice (e.g., Law, 2004), more than 90% of men diagnosed with testicular cancer present with visible symptoms in the scrotum. This suggests that TSE may be a valuable procedure for alerting men to abnormal growths (Dearnaley, Huddart, & Horwich, 2001). Despite this, studies have consistently documented low rates of TSE across various age groups and countries, with estimates ranging from 7% to 49% (Evans, Steptoe, & Wardle, 2006; Khadra & Oakeshott, 2002; Moore & Topping, 1999; Neef, Scutchfield, Elder, & Bender, 1991). Troublingly, studies have also found very low levels of knowledge relating to TSE. In a study of university students, only 1 out of 43 participants was able to indicate the correct procedure for TSE (Moore & Topping, 1999). Only 3% to 42% of men have heard of TSE (Lechner, Oenema, & de Nooijer, 2002; Neef et al., 1991), and none of the high school students knew how to perform a TSE (Vaz, Best, & Davis, 1988).

Among the abnormalities that may be detected by TSE, testicular swelling is the most common reason that prompts men to seek medical attention. The diagnostic process then begins with a testicular examination by a physician (PTE), which involves palpating the testis, epididymis, and spermatic cord between the thumb and the first two fingers (Nichols, Timmerman, Foster, Roth, & Einhorn, 2000). To the best of our knowledge, only one study has reported on rates of PTE. Based on data from the 2002 Na-

tional Survey of Family Growth, which used a nationally representative probability sample, 35% of heterosexual men aged 20 to 44 reported having undergone a PTE (Kalmuss & Tatum, 2007).

The literature on ethnic group differences in rates of TSE is similarly limited, with most studies examining TSE among Caucasian men and only one study examining TSE in Asian men. We are not aware of any studies that have examined ethnic differences in the proportion of men who have undergone PTE. Among the studies that have examined the prevalence of TSE in different ethnic groups, Caucasian men consistently show the highest rates of TSE. For example, of adult men presenting at three emergency rooms in Boston, Caucasian men were more likely than non-Caucasian men to perform TSE (Ginde, Millen, Love, Pang, & Camargo, 2008). Data on the ethnic groups that constituted the non-Caucasian category unfortunately were not provided. In a study conducted in the United Kingdom, Caucasian, Asian, and African men were asked about their knowledge of testicular cancer and TSE practices, but due to the small number of non-Caucasian participants, these were collapsed into a single category for comparison with the Caucasian men (Khadra & Oakeshott, 2002). A study of TSE practices among Boy Scouts found that the Caucasian group had higher rates of TSE than their African American counterparts, with Boy Scouts of other ethnicities excluded from analysis because of their limited number (Ward, Vander Weg, Read, Sell, & Beech, 2005). To our knowledge, the only study that has examined rates of TSE among Asian men combined behaviors such as TSE, having regular physical examinations, and attending scheduled medical appointments into a composite preventive health variable (Courtenay, McCreary, & Merighi, 2002). This study found the highest rate of preventive health behaviors among Caucasian men and the lowest rate among the Asian men.

This finding by Courtenay et al. (2002) is in accord with a large body of research that has found substantial reluctance to engage in preventive reproductive health behaviors among individuals of Asian descent, although the vast majority of this research has been conducted in women (Okazaki, 2002). Significant differences

in mammography and Papanicolaou (Pap) testing rates between Caucasian and Asian women are well documented, with Asian women consistently reporting lower rates of participation in preventive screening than their Caucasian counterparts (Taylor et al., 2002; Tu et al., 2005; Woo, Brotto, & Gorzalka, 2009b; Yu, Wu, & Mood, 2005). In many of these studies, sexual conservatism has been alluded to as a potential mediator of the cultural differences in reproductive health behaviors, and recently embarrassment has been empirically found to predict likelihood of Pap testing among Chinese women (Woo et al., 2009b).

Indeed, studies of cultural differences in sexuality among Asian and Caucasian individuals reveal a remarkable congruence across a number of sexuality-related domains, with Asian individuals found to be more conservative across every domain that has been studied, including sexual knowledge (Brotto, Chik, Ryder, Gorzalka, & Seal, 2005), sexual attitudes (Ahrold & Meston, 2010; Meston & Ahrold, 2010), sexual functioning (Brotto et al., 2005; Woo et al., 2009b), and sexual behaviors (Brotto et al., 2005; Grunbaum, Lowy, Kann, & Pateman, 2000; Woo et al., 2009b).

Compared with Caucasian individuals, Asians also report greater sex guilt (Abramson & Imai-Marquez, 1982; Woo, Brotto, & Gorzalka, 2009a), which is 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). Woo et al. (2009a) recently examined the role of sex guilt in ethnic differences in sexual desire in East Asian and Caucasian women. They found that sex guilt mediated the relationship between ethnicity and sexual desire, such that East Asian ethnicity was significantly associated with higher sex guilt, which in turn was significantly associated with lower sexual desire (Woo et al., 2009a). Thus, it appears that the well-documented finding that East Asian women report lower sexual desire compared with Caucasian women may be linked to higher sex guilt in East Asian women.

Most studies of cultural effects on health behaviors and sexuality have focused on differences between ethnic groups. However, recent research is increasingly recognizing the influence of acculturation within ethnic groups in these domains (e.g., Ahrold & Meston, 2010; Brotto et al., 2005; Brotto, Chou, Singh, & Woo, 2008; Brotto, Woo, & Ryder, 2007; Meston & Ahrold, 2010; Woo & Brotto, 2008; Woo et al., 2009a, 2009b). Acculturation is the process that occurs when individuals move from one culture to another and assimilate the values, attitudes, and behaviors of the new culture (mainstream culture) into their self-identity or culture of origin (heritage culture; Ryder, Alden, & Paulhus, 2000). In the context of this study, mainstream culture refers to Canadian (or Western) culture, and heritage culture refers to Chinese culture. Studying acculturation has been found to provide a more rich understanding of the role of culture in individuals' sexuality and health behaviors compared with examining ethnic group differences alone (e.g., Brotto et al., 2005; Woo et al., 2009a, 2009b). For instance, Woo et al. (2009a) found that sex guilt was a significant mediator of the relationship between mainstream acculturation and sexual desire among East Asian women, such that greater mainstream acculturation was associated with lower sex guilt, which in turn was associated with greater sexual desire. Here we will examine the influence of both ethnicity and acculturation on rates of TSE and PTE in an effort to understand the effects of culture on these health behaviors.

The purpose of the current study was to explore the hypothesis that sex guilt mediates the relationship between culture and testicular cancer screening (TSE and PTE) in Euro-Canadian and Chinese men. Within the entire sample, we hypothesized that the Euro-Canadian men would be significantly more likely to have conducted a TSE and to have had a PTE compared with the Chinese men. We also hypothesized that the Euro-Canadian men would report significantly lower sex guilt than the Chinese men. Among the Chinese men, we hypothesized that sex guilt would mediate the relationship between acculturation (both heritage and mainstream) and testicular cancer screening behaviors.

TABLE 1. Demographic characteristics of Chinese ($n = 77$) and Euro-Canadian ($n = 42$) participants

Variable	Chinese	Euro-Canadian
Mean age in years (<i>SD</i>)***	20.5 (3.24)	23.9 (5.63)
Place of birth (%)***		
Canada or United States	34.2	81.0
China/Hong Kong/Taiwan	55.3	0
Southeast Asia	9.2	0
Europe	1.3	7.1
Other	0	11.9
Years of residency in Canada (<i>SD</i>)	14.4 (7.03)	14.6 (10.88)
Marital status ^a (%)**		
Unmarried	100.0	63.6
Married	0	36.4
Mean acculturation score ^b (<i>SD</i>)		
Mainstream	67.6 (11.04)	n/a
Heritage	66.9 (14.3)	n/a

Note. Significant group differences at ** $p < .01$ and *** $p < .001$.

^aFigures reported are for the 48 participants who indicated that they were currently in a relationship.

^bScale range 10–90.

METHOD

Participants

One hundred and fifty-nine men participated in this study. Of these, 77 self-identified as Chinese and 42 as Euro-Canadian. The remainder self-identified as being of other ethnicities and were excluded from further statistical analysis. Participants were recruited from the subject pool of a large Canadian university, through word of mouth, and through flyers posted around the university campus. The Euro-Canadian group was significantly older than the Chinese group ($t[55] = -3.51, p < .01$), but the two groups did not differ in how long they had lived in Canada ($t[58] = -0.13, p > .05$) nor in the number of years of formal education received ($t[53] = -1.02, p > .05$). Demographic data are presented in Table 1.

Measures

Vancouver Index of Acculturation (VIA)

The VIA (Ryder et al., 2000) is a self-report inventory that measures heritage and mainstream acculturation bidimensionally. “Heritage culture” refers to the individual’s culture of origin, while “mainstream culture” refers to the predominant culture in the new country. The VIA

consists of 20 items that assess 10 domains, with one item assessing heritage acculturation and one assessing mainstream acculturation tied to each domain: cultural traditions, marriage partner, social activities, comfort in professional relationships, entertainment, behavior, maintenance or development of cultural practices, values, humor, and social relationships. Participants were asked to rate their responses on a 9-point Likert scale for each item. Higher scores on the mainstream dimension denote greater Westernization, and higher scores on the heritage dimension denote greater affiliation with the culture and traditions of the individual’s upbringing. The total score on each dimension ranges from 10 to 90. Internal consistency was found to be good for both dimensions in the East Asian validation sample (Cronbach’s $\alpha = .92$ for heritage acculturation and $.85$ for mainstream acculturation). In the current sample, Cronbach’s α is $.89$ for heritage acculturation and $.88$ for mainstream acculturation.

Revised Mosher Guilt Inventory (RMGI)

The RMGI (Mosher, 1988) is a self-report questionnaire consisting of 114 items that assess sex guilt, hostility guilt, and guilty conscience. Items are arranged in pairs in a limited comparison format and participants are asked to rate

their responses on a 7-point Likert scale anchored by 0, which represents “not at all true for me,” and 6, which represents “extremely true for me.” In this limited comparison format, participants are asked to rate their responses to each item while comparing the intensity of trueness within each pair of items. Only the 50 items that comprise the sex guilt subscale were administered in this study. The total score on this subscale ranges from 0 to 300 with higher scores indicating greater sex guilt. Internal consistency for the current sample is very good (Cronbach’s $\alpha = .96$).

Men’s Health Beliefs Questionnaire (MHBQ)

The MHBQ (Woo, 2008) is an unpublished questionnaire developed for this study to assess participants’ testicular cancer screening behaviors. It consists of nine items. Sample questions included, “Have you ever performed a TSE?”; “When was the last time that you performed a TSE?”; and “Have you ever had a testicular examination by a doctor?”

Procedure

Students who were interested in participating were directed to the secure Web site that housed the online questionnaires. The consent form was displayed on the first page that was visible to participants and explained the study purpose and procedures. Participants indicated their consent to take part by clicking the “Continue to Next Page” button at the bottom of the page, which then granted them access to the questionnaires. Participants declined to participate by not clicking on the button. Participants who were recruited from the subject pool received extra course credits for their participation; all other participants were entered into a draw for \$200. All procedures were approved by the university’s research ethics board.

Statistical Analyses

Statistical Program for the Social Sciences version 13 was used for all statistical analyses. Chi-square tests were used in analyses comparing the two ethnic groups on dichotomous

variables such as self-reported testicular cancer screening behaviors. *T*-tests were used in analyses comparing the two ethnic groups on self-reported sex guilt.

The procedure for mediation analysis recommended by MacKinnon and Dwyer (1993) for computing logistic regression mediation was used for all mediation analyses. Although the approach to mediation articulated by Baron and Kenny (1986) has been influential and widely cited, we used the method proposed by MacKinnon and Dwyer because the outcome variables in the current study were dichotomous (“Have you ever conducted a TSE?” and, “Have you ever had a PTE?”).

RESULTS

Effects of Self-Identified Ethnic Group (Chinese vs. Euro-Canadian) on Measures of Sexuality

The Chinese men scored significantly higher than the Euro-Canadian men on the RMGI, $t(99) = 7.78, p < .001$, reflecting more sex guilt among the Chinese men.

Effects of Self-Identified Ethnic Group (Chinese vs. Euro-Canadian) on Testicular Cancer Screening Behaviors

A significantly greater proportion of the Euro-Canadian men reported knowing how to conduct a TSE ($\chi^2[1] = 7.93, p < .001$) and were more likely to have conducted a TSE ($\chi^2[1] = 10.38, p < .01$) than the Chinese men. However, among the men who reported having conducted a TSE, there was no ethnic difference in the proportion who had done so in the previous 2 months ($\chi^2[1] = 0.12, p > .05$) nor in the proportion who reported conducting a TSE at least once every 3 months ($\chi^2[1] = 0.41, p > .05$).

A significantly larger proportion of the Euro-Canadian men reported ever having had a PTE ($\chi^2[1] = 21.62, p < .001$). However, among those men who had had a PTE, there were no significant differences in the proportion who had had their last PTE within the previous year ($\chi^2[1] = 0.22, p > .05$) nor in the proportion who

TABLE 2. Ethnic group differences on general health and testicular cancer screening behaviors

Variable	Chinese	Euro-Canadian
% who know how to conduct TSE**	22.9	48.8
% who have ever conducted TSE**	19.7	48.8
% who have conducted TSE in previous 2 months ^a	53.8	60.0
% who conduct TSE at least once every 3 months ^a	53.8	65.0
% who have ever had PTE***	19.7	63.4
% who have had PTE in previous year ^b	50.0	42.3
% who have PTE at least once every 2 years ^b	21.4	46.2

Note. TSE = Testicular self-examinations. PTE = Testicular examination by a physician.

^aFigures provided are for the men who reported having conducted a TSE.

^bFigures provided are for the men who reported having undergone a PTE. The remaining figures are based on the full sample.

Significant group differences at ** $p < .01$ and *** $p < .001$.

reported PTE at least once every 2 years ($\chi^2[1] = 2.37, p > .05$). Data are presented in Table 2.

The Mediating Role of Sex Guilt in the Relationship Between Ethnicity and Testicular Cancer Screening

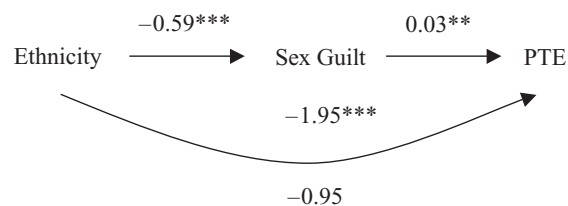
To test our hypothesis that sex guilt mediates the relationship between ethnicity and whether or not a man has ever conducted a TSE, we conducted a mediation analysis based on the approach proposed by MacKinnon and Dwyer (1993) for mediation with dichotomous outcomes. Chinese ethnicity was associated with significantly more sex guilt ($\beta = -.59, p < .001$). However, the effect of sex guilt on TSE, holding ethnicity constant, was not statistically significant ($\beta = .001, p > .05$), showing that sex guilt was not linked to TSE. Hence, sex guilt did not mediate the relationship between ethnicity and likelihood of TSE.

We conducted a similar mediation analysis to test our hypothesis that sex guilt mediates the relationship between ethnicity and whether or not a man has ever undergone a PTE. The effect of sex guilt on PTE, holding ethnicity constant, was statistically significant ($\beta = .03, p < .01$), showing that higher levels of sex guilt were linked to a lower probability of having undergone a PTE. Hence, sex guilt mediated the relationship between ethnicity and likelihood of PTE (Figure 1).

Effects of Acculturation (Chinese Men Only) on Measures of Sexuality

Among the Chinese men, mainstream acculturation was significantly and negatively correlated with RMGI scores ($r[60] = -.30, p < .05$), such that greater mainstream acculturation was associated with less sex guilt. Heritage acculturation was not significantly correlated with scores on the RMGI ($p > .05$).

Figure 1. The mediating role of sex guilt in the relationship between ethnicity and testicular examination by a physician (PTE). Note. The coefficient from Ethnicity to Sex Guilt represents the effect of ethnicity on sex guilt. The coefficient from Sex Guilt to PTE represents the effect of sex guilt after controlling for the effect of ethnicity. The coefficient shown above the arrow from Ethnicity to PTE represents the direct effect of ethnicity on PTE; the coefficient shown below this arrow represents the effect of ethnicity on PTE after controlling for sex guilt. ** $p < .01$. *** $p < .001$.



Effects of Acculturation (Chinese Men Only) on Testicular Cancer Screening Behaviors

Mainstream acculturation was not significantly correlated with knowledge of how to conduct a TSE ($r[68] = -.19, p > .05$) but was correlated with TSE such that more mainstream acculturated men were more likely to have ever conducted a TSE ($r[69] = -.25, p < .05$). Among the men who reported having conducted a TSE, mainstream acculturation was not correlated with either time elapsed since last TSE ($r[12] = -.27, p > .05$) or frequency of TSE ($r[12] = -.27, p > .05$).

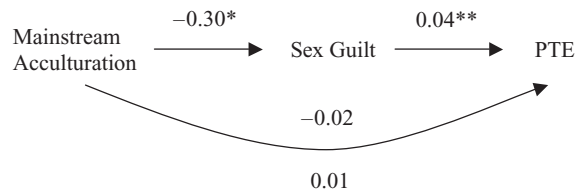
In regard to PTE, mainstream acculturation was not significantly correlated with whether or not Chinese men had ever had a PTE ($r[69] = -.09, p > .05$). Among the men who reported having had a PTE, mainstream acculturation was not correlated with time elapsed since last PTE ($r[14] = .07, p > .05$) but was correlated with frequency of PTE ($r[14] = -.54, p < .05$) such that more mainstream acculturated men were more likely to undergo PTE at least once every 2 years. Heritage acculturation was not significantly correlated with any of the testicular cancer screening variables (all $p > .05$).

The Mediating Role of Sex Guilt in the Relationship Between Mainstream Acculturation and Testicular Cancer Screening

To explore whether sex guilt mediates the relationship between mainstream acculturation and TSE, we again used the procedure suggested by MacKinnon and Dwyer (1993). Greater mainstream acculturation was associated with significantly less sex guilt ($\beta = -.30, p < .05$). The effect of sex guilt on TSE, holding mainstream acculturation constant, was not significant ($\beta = .004, p > .05$), showing that sex guilt was not linked to TSE. Hence, sex guilt did not mediate the relationship between mainstream acculturation and likelihood of TSE.

We then examined whether sex guilt mediates the relationship between mainstream accultura-

tion and PTE. The effect of sex guilt on PTE, holding mainstream acculturation constant, was significant ($\beta = .04, p < .01$), showing that sex guilt was significantly linked to PTE. Hence, sex guilt mediated the relationship between mainstream acculturation and likelihood of PTE (Figure 2).



The Mediating Role of Sex Guilt in the Relationship Between Heritage Acculturation and Testicular Cancer Screening

We then conducted a mediation analysis to explore whether sex guilt mediates the relationship between heritage acculturation and TSE. There was no effect of heritage acculturation on sex guilt ($\beta = -.07, p > .05$). Thus, sex guilt did not mediate either the relationship between heritage acculturation and TSE or that between heritage acculturation and PTE.

DISCUSSION

Self-Identified Ethnic Group (Chinese vs. Euro-Canadian), Sexuality, and Testicular Cancer Screening Practices

In comparing the two ethnic groups, the Euro-Canadian men reported significantly lower sex guilt compared with the Chinese men. These findings are in accord with a large body of research showing that individuals of Chinese descent are significantly more conservative and experience greater sex guilt than those of European descent (e.g., Abramson & Imai-Marquez, 1982; Brotto et al., 2005).

The results of the analyses of group differences in testicular screening practices support our hypotheses that the Euro-Canadian men would be more likely to have conducted TSE and to have undergone PTE than the Chinese men—findings that are consistent with studies of other preventive health behaviors among individuals of Chinese and European descent (e.g., Tu et al., 2005; Woo et al., 2009b; Yu et al., 2005). However, it is interesting that among those men who reported having conducted TSE, there were no ethnic differences in either the time elapsed since the last TSE or in the frequency of TSE, with the majority of men in both ethnic groups reporting that their last TSE occurred in the previous 2 months and that they conducted TSE at least once every 3 months. These findings suggest that barriers to TSE may be the greatest when a man has not yet attempted TSE, but that once a man has conducted a TSE, he tends to continue the practice on a regular basis. Therefore, this finding is important because it indicates that if a man can be convinced to conduct a TSE, he may be inclined to continue monitoring his testicular health, which improves the probability that any abnormalities will be discovered early when the cure rate is highest.

Similarly, although the Euro-Canadian men were more likely to have undergone a PTE, among the men who reported having had at least one PTE, there were no ethnic differences in either the time elapsed since the last PTE or in the frequency of PTE. In contrast to the findings on TSE, however, the majority of men had not had a PTE in the previous year, and most reported

undergoing PTE less than once every 2 years. This finding that PTE is conducted relatively infrequently underscores the importance of increasing rates of TSE so that abnormal growths may be detected early and brought to medical attention.

Interestingly, and contrary to our hypothesis, mediation analysis revealed that sex guilt did not mediate the relationship between ethnicity and TSE. Thus, the ethnic difference in the proportion of men who had ever conducted a TSE cannot be explained by ethnic differences in the level of sex guilt. On the other hand, a separate mediation analysis found that the relationship between ethnicity and PTE was mediated by sex guilt. To address the potential confound of the ethnic difference in age, we conducted a similar mediation analysis in which we controlled for the effect of age on level of sex guilt and likelihood of having undergone a PTE. The mediation effect remained even after controlling for age (data not shown). Taken together, this pattern of findings suggests that guilty feelings surrounding sexuality may function as a barrier to exposing one's genitals for physical examination by a third party, such as a physician, but do not inhibit the checking of one's own genitals. These findings are novel as the mechanisms that underlie the association between ethnicity and testicular cancer screening have never been empirically examined. Future research may shed light on the specific characteristics of the self-examination versus the physician examination that lead them to be influenced differently by sex guilt.

Acculturation in Chinese Men, Sexuality, and Testicular Cancer Screening Practices

The finding that greater mainstream acculturation was associated with less sex guilt is consistent with our hypothesis and with other research that has examined the effects of bidimensional acculturation on various aspects of sexuality in women (e.g., Ahrold & Meston, 2010; Brotto et al., 2005, 2007; Meston & Ahrold, 2010; Woo & Brotto, 2008; Woo et al., 2009a, 2009b). Similarly, consistent with expectations, Chinese men who were more mainstream acculturated

were significantly more likely than their less mainstream-acculturated counterparts to have ever conducted a TSE.

Interestingly, mediation analyses revealed that sex guilt mediated the relationship between mainstream acculturation and PTE but not the relationship between mainstream acculturation and TSE. These results mirror those found in the whole sample when sex guilt was tested as the mediator between ethnicity and testicular cancer screening behaviors and suggest that with increasing Westernization, sex guilt plays less of a role as a barrier against a physician examining a man's testicles. Taken together, these two sets of results suggest that sex guilt may play a role in testicular cancer screening behavior when examination of the genitals by a third party (e.g., a physician) is required.

Why does sex guilt affect PTE but not TSE? One possibility is that although men make contact with their own genitals in the natural course of daily life, thus rendering TSE an extension of a familiar procedure, their genitals are not normally exposed to others with the exception of intimate partners during sexual activity. In this way, PTE may have acquired sexual meaning in the same manner that Pap testing in women has (Fisher & Fisher, 1998), such that feelings of guilt surrounding sexuality are evoked at the prospect of having a physician conduct a genital examination. Another possibility is that the cultural difference in rates of PTE may be a manifestation of the general disinclination to seek health care found among Chinese individuals, with the sexual element inherent in a PTE serving to heighten this reluctance. Future research will be needed to improve our understanding of why sex guilt plays a role in cultural differences in PTE but not TSE.

Finally, none of the mediation analyses in which heritage acculturation was entered as the predictor variable demonstrated a mediation effect. This finding suggests that the extent to which a Chinese man continues to affiliate with his culture of origin does not have any effect on either TSE or PTE, both before and after controlling for the effect of sex guilt. It also emphasizes the more important role of Westernization in changing attitudes and behaviors around reproductive health practices.

This study has some limitations that may affect the conclusions drawn. Firstly, our sample size is relatively modest, and this may have limited our ability to detect statistical effects. This is especially true of the analyses involving only the men who had engaged in TSE and PTE, as these men comprised a relatively small subset of the total sample. Secondly, the Chinese men in this university sample comprised a very select segment of the population and were likely to be more mainstream acculturated than Chinese men in the general population; generalization of these results must therefore be done with caution. This also suggests, however, that ours may reflect a more conservative finding and that if a community sample of Chinese men were examined, effects of sex guilt on testicular screening behavior would be even more pronounced. Future research may benefit from including men from a more diverse range of ages and educational and socioeconomic backgrounds to improve the generalizability of findings.

To conclude, to our knowledge, the current study is the first to have examined the mechanisms that underlie the effects of culture on testicular cancer screening behaviors. With the Asian population growing rapidly in North America (Statistics Canada, 2001; U.S. Census Bureau, 2000), there is an urgent need to improve our understanding of both the rates of testicular cancer screening in this group and the factors that influence these health behaviors. There are implications for educating young men on the importance of testicular cancer screening. These results suggest that targeting sex guilt may lead to improved PTE rates, particularly among Chinese men. They also suggest that Chinese men who are less mainstream acculturated may be particularly vulnerable to poor cancer screening behavior. Future efforts aimed at developing interventions to improve reproductive health behaviors in men should address sex guilt as a known barrier to testicular cancer screening.

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