

MECHANISMS THAT UNDERLIE CULTURAL DISPARITIES IN WOMEN'S SEXUAL
DESIRE: THE ROLE OF SEX GUILT AND ITS TREATMENT

by

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Abstract

Research that has examined cultural influences on sexual functioning in women of East Asian (Chinese, Japanese, Korean) and European descent has consistently found significant differences between these two ethnic groups, such that those of European descent report higher sexual functioning than their East Asian counterparts. More recent research that has examined the effects of acculturation *within* East Asian samples has also found that higher mainstream acculturation is associated with higher sexual desire and arousal. Despite research showing significant cultural effects on sexual function, there has been a dearth of research on the mechanisms that *underlie* these cultural effects. Most studies have explained cultural effects on sexual functioning by referring to culture-linked differences in sexual conservatism. Studies 1 and 2 of the present dissertation are the first to examine the proposition that sexual conservatism mediates the relationship between culture and sexual desire, and to explore the role of sex guilt in Euro-Canadian and East Asian women. Study 1 found that sexual conservatism mediates the relationship between ethnicity and sexual desire in women in a university convenience sample. Sexual conservatism did not mediate the relationship between acculturation and sexual desire among the East Asians. In contrast, sex guilt mediated both the relationship between ethnicity and sexual desire, and the relationship between mainstream acculturation and sexual desire within the East Asians, suggesting that sex guilt has more utility than sexual conservatism in expanding the understanding of how culture affects sexual desire. Study 2, which used a community sample, replicated the key results of Study 1. Together, the findings of Studies 1 and 2 suggested that addressing sex guilt in psychological interventions for low sexual desire may augment the effectiveness of these interventions. Study 3 is the first known study to examine the effectiveness of a brief cognitive behavioural intervention in reducing sex guilt and increasing

sexual desire. The intervention was effective in reducing sex guilt, but there was no effect on sexual desire. The clinical and research implications of this research for furthering the understanding of factors that underlie cultural differences in sexuality are discussed.

Preface

The research presented in this dissertation was approved by the University of British Columbia Behavioural Research Ethics Board and was covered by certificates H07-02197 (Study 1), H06-04073 (Study 2), and H10-01641 (Study 3).

Studies 1 and 2 of this dissertation have been published. Study 1 corresponds to Woo, Brotto, & Gorzalka, 2011a, and Study 2 corresponds to Woo, Brotto, & Gorzalka, 2011b. The citations are as follows:

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Introduction

Defining Culture

There has been growing empirical interest in culture-linked differences in sexual functioning among women of East Asian (in particular, Chinese, Japanese, and Korean) and European ancestry. Defining culture is a notoriously difficult task as most of culture is taken for granted in that it is rare for people to talk or think about the influence of their own culture on their behaviours (Brislin, 2000). In their classic work on definitions of culture, Kroeber and Kluckhohn (1952) surveyed the anthropology literature and found 164 definitions of culture that ranged from the very narrow to the very broad. In attempting to synthesize these definitions, Kroeber and Kluckhohn (1952) defined culture as consisting of "patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievement of human groups, including their embodiment in artifacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values; culture systems may, on the one hand, be considered as products of action, on the other as conditioning elements of further action." Numerous subsequent attempts have been made to define culture.

Currently, many social scientists agree with a formulation that was put forward by Marsella (1994), who considered culture to be "shared learned behaviour which is transmitted from one generation to another for purposes of promoting individual and social survival, adaptation, and growth and development. Culture has both external (e.g., artifacts, roles, institutions) and internal representations (e.g., values, attitudes, beliefs, cognitive/affective/sensory styles, consciousness patterns, and epistemologies)." This definition explicitly encompasses intangible aspects of modern societies such as values, beliefs and

cognitive styles that shape the way in which individuals interpret the meaning of symbols and behaviours, while underscoring the tendency of individuals within a culture to interpret the meaning of symbols and behaviours in similar ways. Expanding on this understanding of culture, others have pointed out that it is these values, beliefs and interpretations that differentiate groups of people from one another (Banks & McGee-Banks, 1989).

Western & East Asian Cultures

Of the major civilizations that arose between the eighth and third centuries B.C., those of Greece and China are often considered cultures that were most different from each other and that influenced each other the least. Much has been written about the differences between modern individuals of western and East Asian cultural backgrounds, with the former being heirs of the sociocognitive systems of the ancient Greeks and the latter representing the intellectual legacy of the ancient Chinese. The two systems of philosophy, social organization and thought were enormously influential in the ancient world, but more remarkably, the effects of these systems remain apparent when comparing contemporary individuals raised in societies influenced by ancient Chinese philosophy (primarily China, Korea, and Japan) with individuals raised in societies influenced by ancient Greek philosophy (primarily Europe, the United States (US), and the countries that comprise the British Commonwealth; Nisbett, Peng, Choi, & Norenzayan, 2001).

One of the defining characteristics of the ancient Greeks was a sense of personal agency in that even common people possessed a sense that they had control over their lives and were free to make choices for themselves without any social constraints, a presumption that was unparalleled in the ancient world. Along with this sense of personal agency, the ancient Greeks also had a strong sense of being unique individuals with distinct characteristics and goals. The

Greek tradition of debate arose from these characteristics, with Homer claiming that the most important skill for a man to possess, next to being a competent warrior, was that of a debater. Commoners were active participants in debates and could challenge even a king without deadly consequences (Hamilton, 1973).

A second distinguishing feature of ancient Greek civilization was their curiosity about the nature of the world and their attempts to understand the world through the creation of causal models of the objects and events around them. The ancient Greeks created these models by classifying objects and events and generating rules about them for the purpose of systematic description, with the ultimate goal of discovering underlying physical principles. Through this curiosity and system of discovery, the ancient Greeks made immense advances in fields ranging from physics to astronomy, geometry, philosophy, natural history and ethnography (Cromer, 1993; Lin, 1936; Lloyd, 1991; Toulmin & Goodfield, 1961).

Ancient Chinese civilization provides a fascinating contrast to the Greeks. In place of the Greek sense of personal agency, the Chinese possessed a strong sense of collective agency, or mutual social obligation, within which the self could not be understood in isolation; rather, the self had to be considered in the context of relationships with others. Individuals were components of large, complex webs of social interrelationships and each individual carried out prescribed roles in an organized, hierarchical system in which unambiguous reciprocal obligation guided ethical conduct. The primary concern of the ancient Chinese, who were profoundly influenced by the teachings of Confucius, was not the creation and maintenance of a unique identity that they carried with them across social settings, but the modification of the self so as to preserve harmony within the various social groups (e.g., village, family) of which they were a part. Confucianism was, fundamentally, an expansion of the obligations that existed in a world

of interrelationships between emperor and subject, parent and child, brother and sister, and so on. The paramount concern was of maintaining harmonious relationships, with all other teachings flowing from this principle. Given the overarching importance of social harmony in ancient Chinese society, it is not surprising that any form of conflict, including debate, was discouraged.

In contrast to the ancient Greek approach to understanding the nature of the world, the ancient Chinese displayed a marked lack of wonder and curiosity about the natural world despite their remarkable technological achievements which included the invention of irrigation systems, ink, porcelain, the compass, stirrups, the wheelbarrow, deep drilling, pound-locks on canals, watertight compartments, the paddle-wheel boat, quantitative cartography, immunization techniques, seismographs and acoustics (Logan, 1986). This apparent paradox can be resolved by regarding these achievements not as products of scientific observation and theory, but as a genius for practicality (Munro, 1969).

These fundamentally different social organizations have far-reaching consequences and a brief account of the repercussions of social organization on the cognitive process of attention will serve to illustrate the notable point that differences between the ancient Greeks and Chinese continue to be manifested in modern individuals who were raised in these cultures. A well-documented and oft-cited difference between contemporary East Asian and western societies is that the former are collectivist and group-oriented while the latter are more individualist (e.g., Bond, 1996; Fiske, Kitayama, Markus, & Nisbett, 1998; Hofstede, 1980; Hsu, 1981; Markus & Kitayama, 1991). Given the ancient Chinese emphasis on the preservation of group harmony, they would have been sensitive to their environment and adopted a situation-centered approach to manage their environment, and in turn, would have expected their environment to be sensitive to them. The ancient Greek sense of personal agency and absence of social constraint, on the

other hand, would have fostered a more active and controlling attitude in dealing with their environment. It therefore follows that the ancient Chinese child would have quickly learned to view the world as consisting of networks of interdependent relationships, whereas the ancient Greek child would have been raised to view the world as a collection of independent objects that could be acted on (Chiu, 1972).

What relevance does the link between social organization and cognitive processes in ancient Greece and China have for the understanding of contemporary western and East Asian culture? Research in the field of cultural psychology reveals not only that contemporary western and East Asian individuals continue to differ significantly on the collectivist-individualist dimension, but that associated cognitive differences persist. For example, Masuda and Nisbett (2001) demonstrated that East Asians, specifically Japanese, had greater difficulty than individualistic, analytic Americans in isolating a salient object while ignoring the field in which it is situated.

Within the cognitive domain, there is a wealth of additional evidence of cultural differences between East Asian and western individuals in processes ranging from causal attribution to systems for organizing events and objects in the world, evaluation of arguments, and tolerance of apparently contradictory beliefs, with these differences remaining whether the samples studied are ethnic Chinese, Korean or Japanese, whether they reside in their home countries or in North America, and whether study materials for the East Asians are given in English or translated into their native language (Nisbett et al., 2001).

What are the mechanisms by which the social practices and cognitive processes of two very different ancient civilizations have been maintained through millennia? Nisbett et al. (2001) suggested a number of practices that they speculate could have led to interactions

between the two in such a way that they perpetuate each other. For example, the most popular game among East Asian intellectuals is Go, whereas chess is the game of choice for western intellectuals. Various authors have observed that Go is more complex and holistic, whereas chess is analytic. Go boards consist of 19 x 19 spaces and the pieces have more possible moves, whereas chess boards consist of 8 x 8 spaces and the pieces are limited in their rules for movement. The relatively higher number of possible moves for Go pieces results in increased difficulty in predicting opponents' moves, with the result that the best strategy for Go is dialectical, necessitating the taking of multiple perspectives and a search for the truth in opposing propositions, which fits with the holistic thinking described earlier in East Asians (Campbell, 1983; Xia, 1997). On the other hand, the relative straightforwardness of chess permits players to perform well by engaging in the analytic thinking that characterized the ancient Greeks and that continues to be found in western civilization.

As a second example of practices that may have contributed to the perpetuation of differences between contemporary East Asian and western individuals, East Asian and European languages differ from one another in many respects. First, the writing systems of East Asian languages are pictographic, and it can be argued that European alphabets are more analytic and served as a natural tool for the classification in which the ancient Greeks engaged (Logan, 1986). Second, words in East Asian languages have multiple meanings and syntax is minimal in these languages; as such, words must be understood in the context of sentences (Freeman & Habermann, 1996). On the other hand, American parents make deliberate attempts to decontextualize language to make words understandable independent of context (Heath, 1982). Third, nouns that refer to categories (e.g., "birds") are more commonly used by English speakers

than Chinese speakers, whereas exemplars (e.g. "sparrow") are more commonly used by Chinese speakers, again reflecting the ancient Greek practice of classification (Ji, 2001).

Significant ethnic differences have also been found in other domains, including questionnaire response styles (e.g., Hamamura, Heine, & Paulhus, 2008), personality (e.g., McCrae, Yik, Trapnell, Bond, & Paulhus, 1998; Yang, 1986), and the prevalence of shyness and related constructs of social anxiety and unassertiveness (e.g. Draguns, 1986; Okazaki, 1997; Paulhus, Duncan, & Yik, 2002; Zane, Sue, Hu, & Kwon, 1991). The nature of these differences can be traced back to the philosophical differences between the ancient Greeks and Chinese although further elaboration on this point is beyond the scope of this dissertation .

A Brief History of Cultural Influences on East Asian Sexuality

Chinese sexuality has been influenced by three main philosophical traditions which interact but are not always in agreement with one another. According to the Yin-Yang doctrine, of which written records date back to 1150-249 B.C., sexual intercourse between a man and a woman is an integral and essential element of nature. This doctrine could reasonably be expected to promote openness and liberal sexual attitudes and behaviour because of its view that sex is a microcosmic analogy to the constant striving for harmony of the Yin and the Yang forces in the universe (Ng & Lau, 1990). Taoism's influence on Chinese sexuality is more complex, in its original form favouring spontaneous, non-restrictive sexuality, but with later interpretations and religious influences perpetuating sexual myths and promoting a mystical understanding of sex among Chinese people (Ng & Lau, 1990).

Among the three main philosophical traditions, it is indisputable that the teachings of Confucius have had the most dominant, far-reaching, and long-lasting influence on Chinese thought and culture, with this influence extending, not surprisingly, to sexuality. Consistent with

his emphasis on social harmony, Confucius viewed sex as being good as long as it did not lead to social instability or damage interpersonal relationships (Ng & Lau, 1990). His positive attitude towards sexuality is reflected in teachings such as "eating food and having sex is human nature" and "food and drink and the sexual relation between men and women compose the major human desires." Moreover, sexual intercourse was necessary for the fulfillment of one's filial obligation to marry and bear children to perpetuate the family name, a responsibility that Confucius took very seriously (Ruan, 1991).

However, interpretation of Confucian philosophy began to change with the social and political instability of the Qin and Han dynasties (221 B.C. to 220 A.D.). During the Han Dynasty (206 B.C. to 220 A.D.), Confucianism was declared the official state philosophy and his works became required reading for the civil service examinations. Confucianism in its present form was heavily influenced by the Neo-Confucians of the Song Dynasty (960 to 1276 A.D.) who gave the Confucian classics strict interpretations. From that time on, Confucianism became sexually suppressive; sexual behaviour was reserved for one's spouse and was viewed as serving a purely procreative role. One of the factors that may have cemented this sexually suppressive form of Confucianism is that immediately following the Song Dynasty, when Neo-Confucianism took hold in the government, China was invaded by Mongolia and thereafter occupied for almost 100 years. One of the problems that the Chinese faced as an occupied country was the need to protect the women from seduction or coercion by the occupiers. In that context, Neo-Confucian rules required women to remain secluded from public. This long history of sexual suppression appears to form the foundation for traditional Chinese attitudes towards sexuality (Ng & Lau, 1990). As Confucianism spread to influence Japan and Korea, those societies became patriarchal. Virtuous women were to be seen only by pre-determined males in their

families and the sexes were segregated after the age of seven in Korea (Frenier & Mancini, 1996).

Ethnic Differences in Sexual Function

As one index of culture-linked effects on sexual function in contemporary individuals, there are significant ethnic differences in sexual function between women of East Asian and European descent. Sexual function may be understood as sexual response or excitement, and female sexual function consists of several domains, including desire, arousal, lubrication, orgasm, satisfaction and pain. Cross-cultural research in this area has found that women of European ancestry consistently report higher levels of sexual function compared to their East Asian counterparts. In a study of university students, Brotto, Chik, Ryder, Gorzalka, and Seal (2005) found that Euro-Canadian 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, 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). Similarly, Cain et al. (2003) examined the sexual functioning of premenopausal midlife women who participated in the large multiethnic Study of Women's Health Across the Nation (SWAN) and found that Euro-American women reported sexual desire and arousal more often than Chinese and Japanese women, and pain during intercourse less frequently than Chinese and Japanese women. Using the same database, Avis et al. (2005) controlled for a number of variables that have been found to be related to sexual function in women, including menopause status; sociodemographics including age,

marital status, educational attainment and the ability to pay for basic needs; health variables such as perceived health, leaking urine and quality of sleep; the use of contraception; psychological variables such as depressive symptoms, perceived stress, hostility, and attitude towards aging; relationship satisfaction; and self-reported importance of sex. These authors found that ethnic differences in sexual function between Chinese, Japanese and Euro-American women persisted despite controlling for these variables, with Chinese women reporting pain during intercourse more frequently, and both Chinese and Japanese women reporting sexual desire less frequently compared to Euro-American women. Thus, ethnic differences in sexual functioning have been extensively delineated and the findings have been consistent across diverse populations ranging from university and community-based samples in North America to a systematic, multi-country population study. In contrast to the myriad studies that have noted ethnic differences in sexual function, there has been a relative dearth of research into the mechanisms by which ethnicity influences sexual function. One of the primary aims of the current series of studies was to address the paucity of research in this domain by examining sex guilt as a possible mediator of the relationship between ethnicity and female sexual function.

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). Mosher (1965) suggested that individuals who report high levels of sex guilt anticipate experiencing guilt if they behave in a manner they considered to be immoral; in order to avoid feelings of guilt, such individuals are relatively less sensitive to external cues that indicate

rewards or punishments and instead inhibit behaviours that violate internalized standards of appropriate behaviour.

Acculturation Influences on Sexuality

In addition to ethnic differences as a measure of cultural effects on sexuality, recent research has increasingly highlighted the importance of attending to the effects of acculturation within ethnic groups (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, Brotto, & Gorzalka, 2010a; Woo, Brotto, & Yule, 2010) as changes that occur in the self-identity of individuals who move from one culture to another are not captured by simply comparing individuals from different ethnic groups. Acculturation is the process by which an individual who moves to a new culture assimilates aspects of the new culture's values, attitudes, and behaviours into their self-identity as a result of continuous and direct contact with individuals from the new culture. Ryder, Alden, and Paulhus (2000) define "heritage culture" as the individual's culture of origin or upbringing, and "mainstream culture" as the predominant culture in the new setting and this terminology will be used throughout the remainder of this dissertation.

Unidimensional Perspective of Acculturation and Sexuality

A review of the literature on acculturation reveals that the most influential perspectives on acculturation may be classified into two main categories- the unidimensional perspective and the bidimensional perspective. In the former, acculturation is viewed as a process in which individuals who move to a new culture incorporate elements of the new culture into their self-identity *while simultaneously relinquishing aspects of their heritage culture*. From this perspective, individuals who move to a different culture initially possess self-identities that are influenced exclusively by the heritage culture and over time as their self-identities move toward

the mainstream culture, they, by definition, move away from the heritage culture by a corresponding magnitude. At the other extreme, as individuals become fully acculturated to the mainstream culture, they fully relinquish the heritage culture. This view of acculturation as assimilation was first articulated by Gordon (1964) who stated that assimilation into the mainstream culture is necessarily accompanied by "the disappearance of the ethnic group as a separate entity and the evaporation of its distinctive values" (Gordon, 1964, p. 81). More recent conceptualizations of unidimensional models suggest that different aspects of self-identity may become acculturated to the mainstream culture at different rates and that it is possible for either overexaggeration of the mainstream culture or backtracking toward the heritage culture to occur (e.g. Triandis, Kashima, Shimada, & Villareal, 1988).

This view of acculturation has been influential in research on cultural change. However, most of this research has used proxy measures for acculturation, with the most common being length of residency in the new culture. This implicitly assumes that individuals who have lived in the new culture for a longer time have assimilated more of the new culture compared to newer immigrants. This approach to the study of acculturation has led to interesting findings such as that the personality profiles of recent Chinese immigrants to Canada resemble those of individuals living in Hong Kong, whereas the profiles of Chinese individuals who have lived longer in Canada more closely resemble those of Euro-Canadian individuals (McCrae et al., 1998).

One problem with using demographic variables as proxies for acculturation is that there are a number of factors, in addition to length of residence in the new country, that may influence assimilation of the new culture, including the cultural mix in the individual's neighbourhood, pre-immigration exposure to the new culture and the amount of contact with individuals from the

mainstream and heritage culture. Furthermore, the unidimensional model of acculturation does not take into account individual differences in the rate of adaptation to the new culture. Another difficulty with using length of residency in the new culture as a proxy for acculturation is that this model fails to adequately account for those who develop a bicultural identity that incorporates elements of both the mainstream and heritage cultures.

Researchers have attempted to address these deficiencies by constructing questionnaires to measure acculturation more directly. The most widely used measure of Asian acculturation to North American culture is the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn, Ahuna, & Khoo, 1992; Suinn, Rickard-Figueroa, Lew, & Vigil, 1987). This scale assumes a unidimensional process of acculturation that ranges from very traditional at one end to very assimilated at the other end, with biculturalism defined as being the midpoint of the scale. The SL-ASIA has been used in many studies of the adjustment and mental health of Chinese immigrants (e.g. Davis & Katzman, 1999; Iwamasa & Kooreman, 1995; Knowles, Wearing, & Campos, 2011).

Unidimensional acculturation and sexual behaviour.

With cultural influences on sexuality being a relatively understudied area- Wiederman, Maynard, and Fretz (1996) found that only 7% of all articles in sexuality published between 1971 and 1995 included ethnicity as a variable of interest- only a handful of studies have examined the effect of unidimensional acculturation on sexuality-related variables in individuals of Asian descent. Using an unpublished questionnaire by Marmot (1975) to measure acculturation unidimensionally, Huang and Uba (1992) reported that higher mainstream acculturation was associated with more liberal sexual attitudes toward premarital sexual behaviours, younger age of first intercourse, and higher likelihood of having experienced

premarital intercourse among 114 Chinese university students in the US . However, Huang and Uba (1992) found no relationship between length of residency and liberality of sexual attitudes; thus, the effects of acculturation on sexual attitudes, age at sexual debut and premarital intercourse experience would have been obscured if the authors had used length of residency as their sole measure of acculturation.

These findings contrast with those of Meston, Trapnell and Gorzalka (1996) who used length-of-residency as a proxy for acculturation. Meston, et al (1996) compared sexual behaviour between "Asian" (including Chinese, Japanese, Filipino, Korean and Vietnamese) and "non-Asian" individuals recruited from a university's human subject pool and found that the Asian individuals were more conservative on measures of interpersonal sexual behaviour (e.g. kissing, stroking partner's genitals, oral sex, intercourse), sociosexual restrictiveness (e.g. lifetime number of sexual partners, number of one-night stands, number of partners in the past year) and intrapersonal sexual behaviour (e.g. sexual fantasies, masturbation) compared to their non-Asian counterparts. With respect to acculturation among the Asian participants, Meston and colleagues (1996) used length of residency in Canada as a proxy for acculturation to Western culture. Asian participants were classified as "Canadian-born," "pre-1987 immigrants," and "post-1987 immigrants," with 1987 being the median year of immigration among those born outside of Canada. In this study, no effect of length of residency was found on any measures of interpersonal sexual behaviour or sociosexual restrictiveness and no effect was found on most measures of intrapersonal behaviour except fantasies of promiscuity and intercourse. Meston and colleagues (1996) offered a number of possible explanations for the absence of length of residency effects on sexual behaviour, including: (1) their definition of "Asian" being limited to first-generation Asian individuals and perhaps acculturation effects not being strong enough to

be discerned until the second generation following immigration; (2) language difficulties among Asian participants leading them to either leave items blank or to indicate "no" when they came across terms they did not understand; and (3) perhaps Asians who immigrate to North America are more sexually liberal than those who do not as the Asian individuals in this study reported somewhat greater sexual experience compared to Asian individuals in Hong Kong.

Unidimensional acculturation and sexual attitudes.

Longer length-of-residency in the west has been associated with more conservative sexual attitudes (Leiblum, Wiegel, & Brickle, 2003; Meston, Trapnell, & Gorzalka, 1998). Meston, et al (1998) examined the effect of culture on sexual knowledge and attitudes by comparing male and female Canadian undergraduates of Asian and non-Asian ancestry and among the Asian participants, studying the effect of length of residency in Canada on those variables. As before, the Asian group was divided into those who were Canadian-born, pre-1987 immigrants and post-1987 immigrants. In ethnic group comparisons, Meston and colleagues (1998) found that the Asian participants held more conservative sexual attitudes and possessed less sexual knowledge compared to the non-Asians. Within the Asian group, the post-1987 immigrants held more conservative sexual attitudes than both the Canadian-born and the pre-1987 immigrants. Taken together with the findings of Meston et al. (1996) in which no effects of length of residency were found on sexual behaviour, Meston and colleagues (1998) suggested that cultural influences on sexual behaviour may be slower to emerge compared to similar influences on sexual attitudes. However, it is possible that Meston and colleagues (1996) may have found an effect of acculturation on sexual behaviour if they had included a measure to specifically assess acculturation. For example, data (Woo, Brotto, & Gorzalka, 2010b) indicate that mainstream acculturation among East Asian university women is correlated with sexual

activities including kissing, touching with clothing removed, touching of partner's genitals, giving oral sex and receiving oral sex, in that greater mainstream acculturation is associated with a greater likelihood of having engaged in each of these activities.

Leiblum, Wiegel and Brickle (2003) examined the sexual attitudes of a multi-ethnic group of male and female medical students studying in the US and Canada. Of this sample, 132 self-identified as being of European descent, 39 as Asian, 29 as South Asian, 10 as African American, 9 as Hispanic, 7 as African, and 7 as Middle Eastern. Participants completed the Cross Cultural Attitude Scale (CCAS), a self-report questionnaire that was developed by the authors (that is as yet not empirically validated) to assess sexual and health-related behaviours on which individuals from different cultural backgrounds might vary. The CCAS consists of two sections: (1) a demographic section that includes questions about age, ethnic background, country of origin, ethnic background of parents, gender, years of education and relationship status, as well as questions designed to assess acculturation, including length of residency in North America and degree of identification with the mainstream culture; and (2) a section designed to assess sexual attitudes. Consistent with prior research, Leiblum et al. (2003) found that the Asian participants endorsed significantly more conservative sexual attitudes than their European descent counterparts in ethnic group comparisons. In analyses of acculturation effects, length of residency and mainstream acculturation were found to jointly affect sexual attitudes in that the combination of greater mainstream acculturation and longer residency was associated with more conservative sexual attitudes. However, Leiblum et al. (2003) did not analyze the effects of acculturation and length of residency separately so it is not possible to compare the predictive value of length of residency and their measure of acculturation on sexual attitudes in this study.

Length-of-residency has also been linked to attitudes toward coercive and noncoercive sexual behaviour. Kennedy and Gorzalka (2002) examined differences between Asian ($n = 205$) and non-Asian ($n = 195$) male and female university students in attitudes toward coercive (e.g. rape, sexual harassment) and noncoercive (e.g. premarital sexual intercourse, masturbation, oral sex) sexual behaviour, and length of residency in Canada was used to explore the influence of acculturation on attitudes towards these sexual behaviours. Asian individuals were defined as those from East Asia (e.g. Hong Kong, China, Japan, Korea) and Southeast Asia (Philippines, Malaysia, Vietnam), with the majority of this group (92%) self-identifying as ethnic Chinese. For the purposes of investigating length of residency effects, the Asian individuals were classified as Canadian-born, those who arrived in Canada before age 13 (the median age at immigration) and those who arrived in Canada after age 13. As expected, the Asian group held more conservative sexual attitudes toward noncoercive sexual behaviour. This group also demonstrated higher acceptance of rape myths and tolerance of sexual harassment. Within the Asian group, length of residency was inversely related to rape myth acceptance and tolerance of sexual harassment but was not associated with attitudes towards noncoercive sexual behaviour. Kennedy & Gorzalka (2002) speculated that the reason for this may be because social cues guide what constitutes appropriate behaviour in relation to coercive sexual behaviour and that social cues may change suddenly with a change in the cultural environment. On the other hand, Kennedy and Gorzalka (2002) postulated that individual cues from the home and family environment may be more influential in guiding noncoercive sexual behaviour and that these cues may be slower to change.

Unidimensional acculturation and gender differences in erotic plasticity.

Gender differences in erotic plasticity- the degree to which sexuality can be modified by contextual factors such as acculturation (Baumeister, 2000)- have also been found (Benuto & Meana, 2008). Benuto and Meana (2008) studied the extent to which there were gender differences in the influence of acculturation on sexual attitudes and experience. Self-report questionnaires were administered to 132 Asian American, 79 Hispanic American and 67 African American male and female undergraduates. Acculturation was measured using the version of the General Ethnicity Questionnaire (GEQ; Tsai, Ying, & Lee, 2000) that measures respondents' orientation to American culture and included items such as "when I was growing up, I was exposed to American culture" and "how fluently do you write English?" Thus, these authors effectively limited their investigation to the effects of mainstream acculturation on sexual attitudes and sexual experience. Based on total scores on the GEQ, a median-split of acculturation level was conducted and participants' level of acculturation to American culture was classified as either high or low. Consistent with the findings of Huang and Uba (1992) and Meston and colleagues (1998), Benuto and Meana (2008) found a significant effect of acculturation on both sexual attitudes and sexual experience in that across the different ethnic groups and both genders, those who were highly mainstream acculturated endorsed more liberal sexual attitudes and more sexual experiences. When Benuto and Meana (2008) correlated scores on the GEQ with sexual attitudes and sexual experience (i.e. considering acculturation as a continuous rather than a dichotomous variable), they found that greater mainstream acculturation was associated with more liberal sexual attitudes and more sexual experience among the women. However, among the men, greater mainstream acculturation was associated with more liberal sexual attitudes but not related to sexual experience.

Summary of research on unidimensional acculturation and sexuality.

Thus, among the handful of studies that have examined the effects of unidimensional acculturation on sexual behaviours and attitudes, those that used length of residency as a proxy for acculturation did not consistently find acculturation effects on sexuality. On the other hand, an acculturation effect was reliably found when acculturation was assessed using measures that were constructed specifically to measure it. It appears, therefore, that these measures of acculturation are superior to length of residency as they permit detection of within-ethnic group differences that would otherwise be missed and improve the understanding of the impact of culture on sexuality. However, as discussed earlier, unidimensional views of acculturation do not consider individual differences in the rate of adaptation to the mainstream culture, nor do they allow for the possibility that individuals may retain strong elements of their heritage culture while simultaneously embracing aspects of the mainstream culture.

Bidimensional Perspective of Acculturation and Sexuality

In contrast to the unidimensional model of acculturation, the bidimensional approach to acculturation (e.g., Berry, 1980; Ryder et al., 2000) postulates that the degree to which an individual assimilates aspects of the mainstream culture is independent of the extent to which the individual continues to embrace the values of the heritage culture. That is, individuals do not necessarily relinquish their heritage culture if and when they become more acculturated to the mainstream culture.

A bidimensional measure of acculturation, the Vancouver Index of Acculturation (VIA; Ryder et al., 2000), was developed to facilitate a head-to-head comparison of the advantages and limitations of each of the major theoretical perspectives on acculturation. The VIA consists of pairs of statements, with one statement in each pair referring to North American culture (e.g. "I often participate in mainstream North American cultural traditions") and the other referring to

the heritage culture (e.g. "I often participate in my heritage cultural traditions"). Scores on the heritage dimension of this scale are summed to obtain a total score for heritage acculturation and a similar procedure is conducted for the mainstream dimension. On both dimensions, higher scores indicate greater acculturation to the corresponding culture. Through a series of studies involving male and female undergraduates of Chinese, non-Chinese East Asian (e.g. Japanese, Korean, Vietnamese), and non-English-speaking descent (East Indian, Italian, Arabic, and excluding Chinese and East Asian), Ryder et al. (2000) found that both the mainstream and heritage dimensions of the VIA were correlated in expected directions with demographic variables such as percentage of time lived in North America. In terms of association with the Big Five dimensions of personality (Costa & McCrae, 1992), acculturation measured bidimensionally displayed meaningful patterns of personality correlates which generally remained even after controlling for percentage of time lived in North America. On the other hand, correlations between unidimensional acculturation (as measured by the SL-ASIA) and personality were no longer significant once demographic variables were controlled for. Overall, Ryder et al. (2000) found that mainstream and heritage acculturation could be measured reliably, showed concurrent and factorial validity, were independent of each other, and demonstrated distinctive and noninverse patterns of associations with external variables of interest. Taken together, the data provide greater support for the bidimensional model than the unidimensional model, and indicate that the VIA is effective in assessing acculturation bidimensionally. This research also revealed that acculturation, when measured as two separate dimensions, provided richer and more complete information that was not detected when merely using a unidimensional measure.

Bidimensional acculturation and sexual attitudes and behaviours.

Both dimensions of acculturation have been associated with various aspects of sexuality, with higher mainstream acculturation being generally linked to more sexual openness and higher heritage acculturation being linked to less sexual openness in both men and women. Brotto et al. (2005) recruited 173 Euro-Canadian and 176 Asian Canadian female university students who completed a battery of questionnaires that included the VIA and measures of sexual knowledge, sexual experience, sexual attitudes, sexual functioning (e.g. desire, arousal, receptivity and satisfaction), and anxiety evoked in response to sexual situations. In ethnic group comparisons, the results were in keeping with other research that has compared individuals of Asian and European descent on sexuality-related variables in that the Euro-Canadian women reported significantly more accurate sexual knowledge, more open sexual attitudes, greater sexual experience, higher sexual desire and arousal, higher sexual frequency, greater sexual receptivity and greater pleasure with orgasm. In examining the effects of acculturation on these sexuality variables among the Asian women, Brotto et al. (2005) compared the results of the analyses when length of residency in Canada was used as a measure of acculturation with those when the mainstream and heritage dimensions of the VIA were used. With length of residency as the predictor variable, higher unidimensional acculturation was associated with greater sexual knowledge, more open sexual attitudes, more sexual experiences, higher levels of sexual arousal, and lower levels of arousal-evoked anxiety. With the heritage and mainstream dimensions of the VIA entered as predictor variables, greater mainstream acculturation was related to greater sexual experience, more open sexual attitudes, higher sexual desire, higher sexual arousal (including mental arousal, genital arousal, and pleasure from direct genital touch), and lower levels of arousal-evoked anxiety. In addition, higher heritage acculturation was linked to more conservative sexual attitudes in the Asian women. Of particular interest in this study, Brotto et

al. (2005) also found an interaction between the mainstream and heritage dimensions on sexual attitudes. Specifically, the Asian women with low heritage acculturation scores (i.e. those who had relinquished their heritage culture) reported increasingly open sexual attitudes with increasing mainstream acculturation whereas those with high heritage acculturation scores did not demonstrate increasingly open sexual attitudes with increasing mainstream acculturation. One reason that this finding is important is that it contradicts the presumption that Asian women become more sexually open with longer length of residency in North America. Secondly, and perhaps more importantly, this interaction effect is an example of a finding that would have been missed if the study of cultural effects had been limited to ethnic group comparisons or unidimensional acculturation.

Ahrold and Meston (2010) investigated the effects of bidimensional acculturation on sexual attitudes in a sample of male and female university students self-identifying as either Euro-American, Hispanic American or Asian American. Participants completed a battery of questionnaires that included the VIA and the Attitude subscale of the DSFI. In ethnic group comparisons, the Asian American individuals were more conservative in attitudes towards homosexuality and casual sex compared to both Hispanic American and Euro-American individuals. The Euro-American group was more liberal towards gender role traditionality compared to the Asian and Hispanic American groups, and Hispanic Americans had more open attitudes towards extramarital sex than Asian and Euro-Americans. With regard to the acculturation findings, greater heritage acculturation predicted more conservative attitudes towards casual sex and gender role traditionality, and greater mainstream acculturation was associated with more open attitudes towards homosexuality and casual sex among the Asian American men and women. In the Hispanic American men and women, higher mainstream

acculturation was associated with more conservative attitudes towards extramarital sex. Among the Asian and Hispanic American women, greater mainstream acculturation was related to more openness in attitudes towards homosexuality, casual sex and gender role traditionality, whereas higher heritage acculturation was related to more conservative attitudes towards casual sex and gender role traditionality. In the Asian and Hispanic American men, higher mainstream acculturation was associated with greater liberality in attitudes towards casual sex but greater conservatism in attitudes towards extramarital sex. In addition, in the Asian and Hispanic American men, higher heritage acculturation was associated with more conservative attitudes towards homosexuality and casual sex. Furthermore, in both the Asian and Hispanic American women, the relationship between heritage acculturation and conservatism towards gender role traditionality was stronger at lower levels of mainstream acculturation.

In another study, Meston and Ahrold (2010) examined the impact of ethnicity and acculturation on sexual experience, age of sexual debut and casual sexual behaviour. A sample of Euro-American, Hispanic American and Asian American university men and women completed the VIA and the Experience subscale of the DSFI. They also completed selected items from the Sociosexual Orientation Inventory (SOI; Simpson & Gangestad, 1991), which were used to measure casual sexual behaviour such as number of sexual partners in the previous year, frequency of one-night stands and projected number of sexual partners over the following five years. Finally, participants were also asked about age of sexual debut which included age of first sexual caress (defined as kissing and/or petting), age at first sexual activity (defined as contact with a partner's genitals), and age at first intercourse. With regard to sexual experience, the Asian American group was less likely to report experience in petting, oral sex or intercourse whereas the Hispanic and Euro-American groups reported similar levels of experience. In

analyses of age of debut, Asian individuals reported older ages of debut for first caress and first sexual activity. With respect to casual sexual behaviour, Asians reported the fewest sexual partners in the previous year and were less likely to report one-night stands. Analyses of acculturation effects revealed that high heritage acculturation among the Asian American women predicted less experience with masturbation and oral sex, and older age at first caress. Higher mainstream acculturation among the Asian American women predicted younger age at first caress. Among the Asian American men, higher heritage acculturation was associated with older age at first sexual activity and older age at first intercourse. With regard to the impact of acculturation on casual sexual behaviour, there was an interaction between heritage and mainstream acculturation in predicting number of partners in the previous year and one-night stands among the Asian American women. Specifically, Asian American women with low heritage acculturation scores reported more casual sexual behaviour with increasing mainstream acculturation, whereas women with high heritage acculturation scores did not exhibit an increase in casual sexual behaviours with westernization.

In another study, Brotto et al. (2007) extended the study of the impact of acculturation on sexual functioning to men, who had been relatively understudied in the recent research on culture and sexuality in individuals of European and Asian descent. That the basic findings in women also extended to men suggests pervasive cultural influences that affect both sexes and that merit further investigation beyond observing their existence. Brotto et al. (2007) recruited 124 Euro-Canadian and 137 East Asian male university students and administered a battery of questionnaires. The VIA was included to measure heritage and mainstream acculturation separately. The Information, Attitude, Experience, Drive, Fantasy and Body image subscales of the Derogatis Sexual Functioning Inventory (DSFI; Derogatis & Melisaratos, 1979) were used to

provide an index of "sexual permissiveness" in sexual beliefs and behaviours. The Golombok Rust Inventory of Sexual Satisfaction (GRISS; Rust & Golombok, 1986), which includes subscales to measure Impotence, Premature Ejaculation, Non-Sensuality, Avoidance, Dissatisfaction, Infrequency, and Non-Communication, was used to assess sexual difficulties. Similar to Brotto et al. (2005), Brotto and colleagues (2007) compared the results of the analyses when length of residency in Canada was used as a measure of acculturation with those when the mainstream and heritage dimensions of the VIA were used. Interestingly, length of residency in Canada was not associated with any of the DSFI subscales or any of the GRISS subscales, indicating that length of residency did not affect sexual permissiveness or sexual function. In contrast, higher scores on the mainstream dimension of the VIA were associated with greater sexual permissiveness, as well as with higher levels of Information, Attitude, Fantasy and Body Image. Higher mainstream acculturation was also associated with lower Impotence, Avoidance and Non-Communication, indicating less sexual dysfunction. These results provide further support for the use of measures designed specifically to measure acculturation rather than using demographic information such as length of residency as these results would not have been detected using length of residency alone. The finding that the mainstream dimension of the VIA was predictive of a number of sexuality variables whereas no effect of length of residency was found also implicates factors other than the passage of time in explaining the effects of mainstream acculturation on sexual function and satisfaction.

Bidimensional acculturation and reproductive health behaviours.

The effect of acculturation on sexual health behaviours has also been studied with similar basic findings in both men and women. Specifically, higher mainstream acculturation is associated with more accurate reproductive health knowledge and a higher likelihood of having

engaged in reproductive health behaviours. Brotto et al. (2008) studied the impact of acculturation on reproductive health knowledge and reproductive health practices, including Papanicolaou (Pap) testing and breast self-examinations, in women recruited from Canada and India. From a university subject pool, 29 Indo-Canadian, 267 Canadian East Asian and 222 Euro-Canadian women were recruited. One hundred and forty-five Indian women were recruited from a general outpatient clinic in New Delhi, India. All participants completed the VIA and an unpublished questionnaire that was developed by the researchers to assess cancer screening practices and beliefs about cancer. Ethnic group comparisons revealed that the Euro-Canadian group was most likely to have ever had a Pap test, and that there were no differences between the two Indian groups (Indian versus Indo-Canadian) in the proportion who had ever had a Pap test. With regard to breast self-examinations, the majority of the Euro-Canadian women reported that they had previously performed the procedure, followed by about half of the Canadian East Asian and Indo-Canadian women, and finally a minority of the Indian women. In analyses of the effect of ethnic group on reproductive health knowledge, Brotto and colleagues (2008) found that the three Canadian groups displayed more accurate and up-to-date knowledge on reproductive health compared to the Indian women. Because level of acculturation only applies to ethnic minority individuals in a new culture, the effect of acculturation on reproductive health knowledge was examined only among the Canadian East Asian and the Indo-Canadian women. In both groups, higher mainstream acculturation was associated with more accurate reproductive health knowledge, and higher heritage acculturation was associated with less accurate reproductive health knowledge.

In men, mainstream acculturation was associated with an increased likelihood of conducting testicular self-examinations (Woo, Brotto, and Gorzalka, 2010a). Woo et al. (2010a)

employed Euro-Canadian and Chinese male university students who completed the VIA to assess mainstream and heritage acculturation and the Men's Health Beliefs Questionnaire, an unpublished questionnaire that was developed by the authors to assess testicular cancer screening behaviours such as testicular self-examinations and physician testicular examinations. A larger proportion of the Euro-Canadian group reported knowledge of how to conduct a testicular self-examination and were more likely to have conducted such an examination compared to the Chinese men, although among the men who had conducted a testicular self-examination, there was no ethnic difference in the time elapsed since their last examination nor in the frequency of examinations. The results of ethnic group comparisons were similar with regard to physician testicular examinations, with a larger proportion of the Euro-Canadian group having ever had a physician testicular examination. Among the Chinese men, greater mainstream acculturation was associated with higher likelihood of having ever conducted a testicular self-examination although mainstream acculturation was not related to whether or not the men had ever undergone a physician testicular examination. There was no relationship between heritage acculturation and any of the testicular cancer screening variables.

Bidimensional acculturation and participation in sexual psychophysiological research.

Both mainstream and heritage acculturation have been linked to likelihood of participation in psychophysiological sexual arousal research (Woo, Brotto, & Yule, 2010). Women recruited from a university and the community who were interested in participating were asked to telephone the research laboratory and undergo a telephone screen. During the screen, participants were told that the purpose of the study was to explore the relationship between ethnicity and sexual knowledge and activity, and were scheduled for a session at the laboratory in the middle phase of their menstrual cycle. During these sessions, Euro-Canadian

and East Asian women completed a battery of questionnaires that included the VIA and measures of sexual function and sexual knowledge. Following completion of the questionnaires, those who were recruited from the university subject pool received course credits and those recruited from the community received an honorarium. Participants were then informed of the opportunity to participate in the second phase of the study, which involved sexual psychophysiological testing and was completely optional. Participants were not told about phase 2 until this point. The women were told that phase 2 would involve entering an internally locked testing room, being seated on a comfortable recliner, and watching a neutral and erotic film while having their genital arousal assessed. Genital arousal would be assessed with a tampon-shaped, previously sterilized, acrylic probe that the woman would insert vaginally with the aid of diagrammed instructions. Participants were also told that they would complete a self-report measure of their affective and sexual responses to the films. Woo, Brotto, and Yule (2010) were interested in the impact of culture on participants' willingness to participate in phase 2. These authors found that the East Asian women were more likely to participate in phase 2 compared to their Euro-Canadian counterparts. Among the East Asian women, greater heritage acculturation was associated with lower likelihood of participating in phase 2 whereas greater mainstream acculturation was associated with a higher likelihood of participating in phase 2.

Thus, to summarise the research on the influence of acculturation on sexuality among Asian women, greater mainstream acculturation is associated with higher sexual desire, higher sexual arousal, greater sexual experience, more open sexual attitudes, lower sexual non-communication, less sexual avoidance, lower non-sensuality, lower levels of arousal-evoked anxiety, more accurate reproductive health knowledge, higher likelihood of consenting to participate in psychophysiological sexual arousal testing, and younger age at first caress. In

Asian men, higher mainstream acculturation is associated with greater sexual openness, higher levels of sexual knowledge, fewer erectile difficulties, less sexual avoidance, less sexual non-communication, and higher likelihood of having conducted a testicular self-examination.

Among Asian women, higher heritage acculturation is associated with more conservative sexual attitudes, less accurate reproductive health knowledge, less likelihood of consenting to participate in psychophysiological arousal testing, less experience with masturbation and oral sex, and older age at first caress. Among Asian men, higher heritage acculturation is associated with more conservative sexual attitudes and older age at first sexual activity. Interestingly, significant interactions have also been found between mainstream and heritage acculturation, with Brotto et al. (2005) finding that Asian women who had relinquished their heritage culture reported increasingly open sexual attitudes with increasing mainstream acculturation whereas those who maintained their heritage culture did not. Furthermore, Meston and Ahrold (2010) found that Asian women who had relinquished their heritage culture reported more casual sexual behaviour with increasing mainstream acculturation, while those who maintained their heritage culture did not demonstrate an increase in casual sexual behaviours with increasing westernization.

With regard to sexual function in particular, research on the effect of acculturation has generally found that greater mainstream acculturation is associated with higher levels of sexual function whereas greater heritage acculturation is linked to lower levels of sexual function. For instance, greater mainstream acculturation was associated with greater sexual desire and satisfaction in one study (Woo, Brotto, & Gorzalka, 2009) and in another, higher heritage acculturation and lower mainstream acculturation were predictive of sexual avoidance and more sexual complaints overall (Woo & Brotto, 2008). Brotto et al. (2005) found that higher

mainstream acculturation was associated with higher sexual arousal and desire although these variables were unrelated to degree of heritage acculturation.

Defining Sexual Desire

Of the elements that comprise sexual function, ethnic differences in desire are of particular interest because conceptualizations of what sexual desire is, more so than other aspects of sexual function, may vary considerably across cultures. In fact, definitions of sexual desire alone, even without considering the complicating factor of cultural variations in its meaning, have long been a source of controversy among both researchers and clinicians. Masters and Johnson's (1966) seminal publication on the anatomy and physiology of the human sexual response described four stages of the sexual response: excitement, plateau, orgasm and resolution. This model did not include an element of sexual desire.

In contrast, Kaplan (1979) conceived of the human sexual response as a triphasic phenomenon, consisting of an initial phase of sexual desire, followed by arousal, and finally, orgasm. Kaplan conceptualized sexual desire as a feeling that prompts individuals to initiate or to be receptive to sexual activity and postulated that desire was essential for individuals to progress to the arousal stage. Although Kaplan's (1979) definition of desire was influential in shaping the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed. [DSM-III]; American Psychiatric Association [APA], 1980) diagnostic criteria for inhibited sexual desire disorder, later renamed hypoactive sexual desire disorder (HSDD) from the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., text revision [DSM-III-TR]; APA, 1987) onwards, this definition of female sexual desire has been criticized as it was based on a male model of sexual response (e.g. Basson, 2000).

The traditional model of the human sexual response (desire-arousal-orgasm-resolution; Kaplan, 1979; Masters & Johnson, 1966) has been fairly useful in furthering the understanding of men's sexual health; however, sex differences render the direct application of this model to women problematic. For instance, testosterone plays an important role in the male urge to release sexual tension but this biological urge to seek out sexual activity to release sexual tension is lower in women (Bancroft, 1989). Moreover, it is well-documented that women's reasons for engaging in sexual activity are manifold, including motivations that are not exclusively sexual or biological, and desire for sex per se may not necessarily be present at the beginning of a sexual experience (e.g. Hill & Preston, 1996; Lunde, Larson, Fog, & Garde, 1991; Regan, & Berscheid, 1996). In fact, of the top 50 reasons given by female college students for why they have sex, 15 did not load onto the factor that would most closely resemble Kaplan's conceptualization of sexual desire (Meston & Buss, 2007) and women report engaging in sexual activity without first experiencing desire (Beck, Bozman, & Qualtrough, 1991).

Further criticism of the traditional sexual response cycle stems from Kaplan's view of desire for sexual activity and the presence of sexual fantasies as fundamental markers of healthy sexual desire; conversely, their absence or deficiency was considered an indicator of disordered sexual desire. However, research indicates that many sexually healthy women report infrequent sexual fantasies and that those who do experience frequent sexual fantasies generate them deliberately as a means of augmenting sexual arousal during sexual activity (Cutler, Garcia, & McCoy, 1987; Garde & Lunde, 1980). Similarly, the evidence suggests that it is common for sexually healthy women to be unaware of their sexual thoughts (Bancroft, Loftus, & Long, 2003; Cawood & Bancroft, 1996). Other critics have noted that the emphasis on desire for sexual

activity and sexual fantasies disregards important elements of women's sexual satisfaction, including intimacy, communication, affection, and respect (Leiblum, 1998; Tiefer, 1991).

To address some of the criticisms that have been raised against the traditional model of sexual response, Basson (2000) proposed an alternative model in which responsive sexual desire, defined as desire that is evoked as a result of a conscious choice to experience sensual touching, is distinguished from spontaneous sexual desire, or desire that is unprompted by any stimulus. The latter corresponds to Kaplan's (1979) definition of sexual desire. Basson (2000) suggested that the female sexual response cycle begins with some motivation, which may be either sexual or non-sexual in nature, to either initiate or be receptive to sexual activity. Subsequently, if certain conditions, such as the physical environment and the quality of the interpersonal relationship, are conducive to sexual activity, the presence of sexual stimulation would lead to arousal which may then lead to a desire for the sexual activity to continue. Thus, sexual desire is seen as a *response* to sexual arousal rather than a precursor to it.

While Basson's (2000) conceptualization of responsive sexual desire resolves some of the problems with Kaplan's definition, such as the finding that most sexually healthy women in long-term relationships are not aware of spontaneous thoughts (Garde & Lunde, 1980), it is not without its critics. For instance, Sand and Fisher (2007) presented descriptions of the Masters and Johnson (1966, 1970), Kaplan (1979) and Basson (2000) models of sexual response to women. Sand and Fisher (2007) found that the Basson (2000) model was most likely to be endorsed by women with low sexual desire while the other two models were more likely to be endorsed by women without sexual complaints.

Sexual desire has also been viewed from a systems perspective and conceptualized as a characteristic nested in the context of an interpersonal relationship rather than a sensation that is

possessed by an individual (e.g. Schnarch, 2000; Verhulst & Heiman, 1988). Another view of sexual desire is as an outcome of a complex motivational process to seek out rewarding sexual experiences (Everaerd & Laan, 1995). According to this proposition, individuals possess a biological sexual system that perceives and processes sexual stimuli, as well as the cognitive ability to represent sex in memory such that sexually relevant stimuli can be recognized and responded to, with these two components interacting to produce sexual motivation. Furthermore, the incentive value of specific sexual experiences from this perspective may fluctuate as a function of sensitivity and responsivity to sexual stimuli. From this point of view, the waxing and waning of sexual desire in established relationships are normal occurrences as are variations in sexual desire within an individual through time, situations, and sexual partners.

With regard to conceptualizations of sexual desire in Western and East Asian culture, it is possible that there may be considerable culture-linked variations in the meaning of sexual desire given significant ethnic differences across numerous other domains of sexuality. 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 et al., 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). Although not the focus of the current dissertation, further research is necessary to shed light on culture-specific definitions of sexual desire and qualitative methods may be helpful in this regard.

Explanations for Cultural Differences in Sexual Desire

Sexual Conservatism

Although the cultural differences in sexual desire are well-documented, there is a lack of research on the factors that may account for the disparity. To date, studies comparing Western and East Asian sexuality have referred to general culture-linked differences in sexual conservatism in efforts to explain disparities in sexual functioning, including sexual desire. 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).

There is a large body of literature that has found East Asian individuals to be sexually conservative compared to Western individuals in every domain of sexuality that has been studied. For example, youth of European descent report initiating sexual activity at an earlier age (Cavazos-Rehg et al., 2009; 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. Studies of sexual attitudes indicate more conservative attitudes toward a range of issues including homosexuality, casual sex and gender role traditionality among Asian individuals when compared to North American norms (Ahrold & Meston, 2010). Asian American individuals also reported significantly later personal timetables for initiating sexual behaviours than their Euro-American counterparts (Feldman, Turner, & Araujo, 1999).

Thus, it is clear that there exist significant cultural differences in sexual conservatism, and disparities in sexual function have frequently been attributed to these variations in sexual

conservatism. However, the extent to which these differences sexual conservatism account for cultural differences in various aspects of sexuality, including sexual desire, has not been directly empirically tested.

Sex Guilt

Another possible factor that may underlie cultural differences in sexual desire is sex guilt. As noted earlier, sex guilt has been defined as “a generalized expectancy for self-mediated punishment for violating or for anticipating violating standards of proper sexual conduct” (Mosher & Cross, 1971, p. 27). Although conceived of as a personality disposition, this definition encompasses an affective component in that individuals may experience affective guilt following a perceived violation of internalized standards of sexual behaviour. Supporting this notion, women who scored high on dispositional sex guilt reported feeling guilty after reading an erotic literary passage (Mosher & Greenberg, 1969). In a study with a behavioural outcome measure, male subjects were surreptitiously observed in a waiting room. As expected, those who chose to read erotic magazines scored lower on dispositional sex guilt. Interestingly, when the high sex guilt men who had not inhibited their erotic interest were compared to those who had inhibited their erotic interest, those who had not inhibited their interest reported feeling more guilty on a measure of affective guilt (Schill & Chapin, 1972). Similarly, high sex guilt individuals reported feeling more guilty than low sex guilt individuals after viewing sexually explicit films (Mosher, 1971, 1973; Mosher & Abramson, 1977).

The relationship of sex guilt to a variety of factors including age, religion, gender, moral reasoning and culture has also been studied. Cross-sectional research examining the relationship between sex guilt and age has generally found older age to be associated with higher levels of sex guilt (Abramson & Imai-Marquez, 1982; Keller, Eakes, Hinkle, & Hughston, 1978);

however, Kutner (1971) found no relationship between age and sex guilt. It has also been noted by a number of researchers that reported levels of sex guilt have been declining over time (e.g. Green & Mosher, 1985; Mosher, 1988). Bell and Chaskes (1970) found that university students surveyed in 1968 were less likely than those in 1958 to require a commitment of engagement to engage in premarital sexual intercourse and that the absence of such a commitment was less likely to predict guilty feelings about intercourse in 1968.

Research on sex guilt and religion indicates that higher levels of religiosity are linked to greater sex guilt. Religiosity can be conceptualized as the role and importance of religion in an individual's life (Cowden & Bradshaw, 2007). Early research in this area, which used frequency of church attendance as a proxy for religiosity, found that greater religiosity was associated with higher levels of sex guilt (Gunderson & McCary, 1979). Wyatt and Dunn (1991) examined the relationship of socioeconomic status, ethnicity and religiosity to sex guilt among African American and Euro-American women. These researchers found that religiosity, as measured by church attendance, was a better predictor of sex guilt than ethnicity and socioeconomic status, with more frequent church attendance linked to higher levels of sex guilt. Similar results were found in more recent research that did not use frequency of religious service attendance as a proxy for religiosity. Woo, Morshedien, Brotto and Gorzalka (2012) used a multidimensional self-report measure of religiosity that assessed four domains of religiosity- spirituality, intrinsic religiosity, religious fundamentalism and paranormal belief- to investigate the relationship between religiosity and sex guilt in East Asian and Euro-Canadian female university students. Woo and colleagues (2012) found that in both the East Asian and Euro-Canadian groups, sex guilt was positively correlated with religious fundamentalism, intrinsic religiosity and

spirituality, in that higher levels of each domain of religiosity were associated with higher levels of sex guilt.

Research that has compared gender differences in levels of sex guilt has generally found that women report higher sex guilt than men (Abramson & Imai-Marquez, 1982; Abramson & Mosher, 1975; Brotto, Woo, & Gorzalka, 2011; Evans, 1984).

Within the literature on sex guilt, there has been relatively little research on the effects of culture on sex guilt. Wyatt and Dunn (1991) studied the relationship between ethnicity and sex guilt in a sample of 126 African American and 122 Euro-American women who were recruited from the community. The authors used multistage stratified probability sampling with quotas to obtain samples of African American and Euro-American women who were comparable to each other. Random-digit dialling of randomly generated telephone numbers was used to locate participants and of those who met the demographic inclusion criteria (e.g. age, education level, marital status, number of children), there was a 27% refusal rate. Wyatt and Dunn (1991) found that the African American women reported significantly higher sex guilt than their Euro-American counterparts, although this was contrary to earlier research comparing these two ethnic groups (Reiss, 1967; Slane & Morrow, 1981).

Other research that has compared sex guilt between ethnic groups has focused on individuals of Asian and European descent. Evidence from converging lines of research suggests that Asian individuals would report significantly greater sex guilt than those of European descent. 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 Euro-Americans. Between-group comparisons revealed that the Euro-Americans reported significantly less sex guilt than the Japanese Americans. Within each ethnic group, sex

guilt decreased with successive generations. Abramson and Imai-Marquez (1982) did not specifically include a measure of acculturation. Nevertheless, using generational status as a proxy measure of acculturation, it was concluded that increasing mainstream acculturation (i.e. later generational status) was associated with decreasing levels of sex guilt among the Japanese Americans although the youngest generation of Japanese Americans continued to report higher levels of sex guilt than their Euro-American counterparts.

Brotto and colleagues (2011) recruited 38 Euro-Canadian and 45 East Asian men from the university subject pool and, consistent with the results obtained by Abramson and Imai-Marquez (1982), found that the East Asian men reported significantly higher sex guilt than their Euro-Canadian counterparts. Unlike Abramson and Imai-Marquez (1982), Brotto and colleagues (2011) included the VIA, which measured acculturation bidimensionally, and found a negative relationship between mainstream acculturation and sex guilt in that greater mainstream acculturation was associated with lower levels of sex guilt in the East Asian men. Similarly, Woo, Brotto, and Gorzalka (2010a) examined the effects of culture on sex guilt in 42 Euro-Canadian and 77 Chinese male university students and found that sex guilt was significantly higher among the Chinese men. In the Chinese men, higher mainstream acculturation was associated with lower levels of sex guilt whereas heritage acculturation was unrelated to sex guilt.

Objectives of the Current Studies

The following series of studies will examine possible underlying mechanisms of cultural differences in sexual desire in East Asian and Euro-Canadian women. The major objectives of this dissertation are: (1) to empirically test the conjecture that cultural differences in sexual conservatism underlie cultural differences in sexual desire (Study 1); (2) to explore the role of

sex guilt in the link between culture and women's sexual desire in a university convenience sample (Study 1); (3) to examine whether the effects of sex guilt on sexual desire found in Study 1 can be replicated in a sample of women in the community (Study 2); and (4) to test whether a cognitive-behaviourally based intervention targeting sex guilt may be effective in reducing sex guilt and improving sexual desire in women (Study 3). It is anticipated that this series of studies will provide a clearer understanding of the mechanisms that underlie well-documented cultural differences in sexual desire and will contribute to a knowledge base on which interventions for women with low sexual desire may be developed.

Study 1: The Role of Sex Guilt in the Relationship between Culture and Women's Sexual Desire in a University Convenience Sample

Of the psychological factors that have been studied in the context of sexual function, the most studied include the cognitive dimensions of cognitive distraction (Beck, Barlow, Sakheim, & Abrahamson, 1987; Dove & Wiederman, 2000; Elliot & O'Donohue, 1997; Farkas, Sine, & Evans, 1979; Geer & Fuhr, 1976; Przybyla & Byrne, 1984), causal attributions (Fichten, Spector, & Libman, 1988; Weisberg, Brown, Wincze, & Barlow, 2001), perfectionism (DiBartolo & Barlow, 1996) and efficacy expectations (Bach, Brown, & Barlow, 1999; Creti & Libman, 1989; Palace, 1995). Cognitive distraction, or distraction from sexual cues in a sexual context, has been found to have a negative impact on both subjective and physiological sexual arousal in women (e.g. Dove & Wiederman, 2000; Elliot & O'Donohue, 1997). Moreover, increased cognitive focus on thoughts of failure and disengagement have been associated with various sexual disorders, including difficulties with sexual desire, arousal, orgasm and pain (Nobre & Pinto-Gouveia, 2008). Similarly, higher levels of perfectionism are related to higher clinician ratings of a psychogenic component of erectile disorder (DiBartolo & Barlow, 1996) and internal, stable attributions of false negative feedback on erectile response are associated with lower physiological and subjective sexual arousal in men (Weisberg et al., 2001). Efficacy expectations have also been implicated in sexual function, with false positive feedback increasing efficacy expectancies of sexual arousal as well as actual genital arousal in women with sexual difficulties (Palace, 1995). Conversely, research in men with no sexual problems has found that false negative feedback lowers efficacy expectancies as well as actual physiological response to erotic stimuli (Bach et al., 1999).

The role of emotions in sexual function has received relatively less empirical attention. Studies that have investigated the impact of mood on sexual arousal have found that positive affect is associated with higher subjective sexual arousal in both sexually functional and dysfunctional men (Koukounas & McCabe, 2001; Rowland, Cooper, & Heiman, 1995; Rowland, Cooper, & Slob, 1996). Results of experimental studies are consistent with these findings, with experimentally-induced depressed affect associated with delayed subjective sexual arousal (Meisler & Carey, 1991) and a decrease in penile tumescence (Mitchell, DiBartolo, Brown, & Barlow, 1998) in men without any sexual difficulties.

An association has likewise been found between depressed mood and low sexual desire. Men with sexual dysfunction reported significantly more negative affect when exposed to erotic stimuli (Beck & Barlow, 1986; Heiman & Rowland, 1983), and Bancroft et al. (2003) found that 42% of men reported decreased sexual desire when depressed compared to 9.4% who reported increased sexual desire. Similarly, a study of men and women with a primary DSM-III (1980) diagnosis of inhibited sexual desire found that these subjects had a significantly higher lifetime prevalence of depressive disorders compared to matched controls and that the difficulties with sexual desire almost always coincided with or were preceded by the onset of the depressive disorder (Schreiner-Engel & Schiavi, 1986). A more recent study of men and women found that the prevalence of sexual problems in depressed subjects (defined as those with major depressive disorder, dysthymia and recurrent brief depression) was approximately twice that found in control subjects (Angst, 1998). Unfortunately, data on the prevalence of specific types of sexual dysfunctions in the depressed and control groups were not provided.

Anxiety has also traditionally been viewed as having a negative impact on sexual functioning. For example, Masters and Johnson (1970) proposed that anxiety impedes sexual

arousal by interfering with reception of sexual stimuli, thereby inhibiting physiological arousal, and Kaplan (1974, 1988) claimed that anxiety is detrimental to physiological arousal by disrupting the functioning of the autonomic nervous system. Barlow's (1986) model of sexual dysfunction proposed that cognitive distraction and performance anxiety interact to maintain sexual arousal difficulties in both men and women. Sexually dysfunctional individuals are hypothesized to experience more negative affective reactions in sexuality-related contexts, underestimate their levels of sexual arousal, and perceive a lack of control over their sexual arousal. Consequently, these individuals are distracted by the social consequences of not achieving adequate levels of sexual arousal, and increased autonomic arousal serves to further focus attention on the consequences of inadequate sexual performance, which culminate in further deterioration in sexual performance. However, this perspective is in contradiction to a growing body of literature that indicates a facilitative effect of anxiety on physiological sexual arousal, particularly in women, via increased activity of the sympathetic nervous system (Meston & Gorzalka, 1996; Palace, 1995; Palace & Gorzalka, 1990).

The literature on the role of other emotions in sexual functioning is remarkably scarce. The impact of anger on sexual functioning has been studied but the results are inconsistent. Yates, Barbaree, and Marshall (1984) examined sexual arousal to rape cues in a male university convenience sample and found that anger dampened erectile response to audiotaped stimuli describing sex between mutually consenting adults but increased erectile response to descriptions of rape. In another study of male undergraduates, Bozman & Beck (1991) found an inhibiting effect of anger on both sexual desire and arousal. To the best of this author's knowledge, there has been only one study on the relationship between the personality trait of worry and sexual

functioning. This study found a significant, but weak, correlation between a predisposition to worry and low sexual desire (Katz & Jardine, 1999).

Sex guilt has also been implicated in sexual functioning such that there appears to be an inverse relationship between affective sex guilt and sexual functioning. Darling, Davidson, and Passarello (1992) examined affective reactions to first intercourse among male and female undergraduates and found that more women than men reported experiencing affective guilt after first intercourse and that the most common reasons that women cited were "didn't like person," "parents' feelings," and "wait until married." Men who reported guilty feelings cited "didn't like person," "my personal values," and "weren't friends afterward" as their reasons for feeling guilty. Feeling guilty was also the primary reason given by both men and women for why the first intercourse experience was not psychologically satisfying. Another study on the emotion of guilt and its relationship with sexual functioning found that individuals who reported more sex guilt fantasized significantly less often, reported greater sexual and relationship dissatisfaction, and had more sexual problems compared to those who reported less sex guilt (Cado & Leitenberg, 1990). Unfortunately, the nature of these sexual problems was not specified.

Research on dispositional sex guilt indicates a similar association with sexual functioning. Galbraith (1969) studied the association between sex guilt and the Thorne Sex Inventory (Thorne, 1966), a self-report measure of sexual interests, attitudes and behaviours. Sex guilt was negatively correlated with scores on the Sex Drive and Interest and Promiscuity-Sociopathy subscales and positively correlated with the Repression of Sexuality subscale of the Thorne Sex Inventory. Although this is the only published study of the link between dispositional sex guilt and sexual functioning that this writer is aware of, its findings are consistent with the research on affective sex guilt and sexual function reviewed above (e.g. Cado

& Leitenberg, 1990; Darling et al., 1992). Other research on dispositional sex guilt reveals that individuals who report more sex guilt also report restricting their sexual activities to the less intimate forms of sexual activities (Abramson & Mosher, 1975; Mosher & Cross, 1971), have greater difficulty retaining sex-related information (Schwartz, 1973), and spend less time reading erotic material (Schill & Chapin, 1972). These findings suggest that sex guilt may have considerable implications for sexual functioning. However, the role of sex guilt has never been examined as a possible mediator of the relationship between culture and women's sexual desire.

In more recent research, Nobre and Pinto-Gouveia (2006) compared emotional reactions to automatic thoughts that occur during sexual activity between sexually functional and dysfunctional 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. The clinical sample in this study comprised women who had been diagnosed with a range of sexual dysfunctions, including hypoactive sexual desire disorder, vaginismus, female orgasmic disorder, dyspareunia, female sexual arousal disorder and sexual aversion disorder. In a separate study, Nobre and Pinto-Gouveia (2003) found that sex guilt was significantly and negatively correlated with sexual desire and sexual satisfaction. In comparisons between women diagnosed with hypoactive sexual desire disorder and a healthy control group, women in the clinical group reported significantly more guilt than those in the control group (Nobre & Pinto-Gouveia, 2008).

To summarize, research to date has found that East Asian women report more sex guilt than Euro-Canadian women, and that greater sex guilt is significantly linked to lower levels of sexual functioning. Furthermore, it is apparent that East Asian women experience lower sexual functioning, in general, compared to Euro-Canadian women. Although ethnic differences in sexuality have been documented repeatedly in the 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 Euro-Canadian female sexuality invariably finding higher sexual functioning in the Euro-Canadian women and often attributing such differences to cultural variations in sexual conservatism, examining the role of sex guilt in these differences may refine the understanding of the mechanisms by which ethnicity influences sexual function.

In addition to investigating the relationships among ethnicity, sex guilt, sexual conservatism and sexual desire, the current study will also examine acculturation, measured bidimensionally, as another index of culture. Specifically, the effects of mainstream and heritage acculturation among the East Asian women on sex guilt, sexual conservatism and sexual desire will also be studied.

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 self-reported sexual desire but not necessarily orgasm, genital pain, psychophysiological sexual arousal, or other aspects of sexual function (Woo, Brotto, & Gorzalka, 2009; Yule, Woo, & Brotto, 2010). 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 anecdotal supposition that sexual conservatism mediates the relationship between culture (indexed by ethnicity and acculturation)

and sexual desire, and (2) to explore the potential mediating role of sex guilt in the link between culture and sexual desire.

Method

Participants

East Asian (Chinese, Japanese or Korean) and Euro-Canadian 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 Euro-Canadian (n = 105) and East Asian (n = 137)**Participants*

Variable	Euro-Canadian	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 ^a (%)		
Unmarried	90.4	95.7
Married	1.9	1.4
Mean Acculturation Score ^b (<i>SD</i>)		
Mainstream	n/a	65.7 (13.7)
Heritage	n/a	70.1 (12.7)

Note. Significant group differences at *** $p < .001$. ^a Figures reported are for the 120 participants who indicated that they were currently in a relationship. ^b Scale range, 20-180.

Measures

Vancouver Index of Acculturation (VIA)

The VIA (Ryder et al., 2000; Appendix A) 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. Examples of items that comprise the mainstream dimension include "I am comfortable working with typical North American people" and "I enjoy North American entertainment." 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). In the current sample, Cronbach’s $\alpha = .88$ for heritage acculturation and $.90$ for mainstream acculturation.

Female Sexual Function Index (FSFI)

The FSFI (Rosen et al., 2000; Appendix B) 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, only the Desire domain was examined. The two questions that comprise the Desire subscale of the FSFI 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 ($r = .83$) and internal consistency were high in the validation

sample (Cronbach's $\alpha = .92$). Internal consistency is also high in the current sample (Cronbach's $\alpha = .89$). 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)

Mosher's (1966, 1968) forced-choice measure of sex guilt was published as one of three scales for measuring guilt, with the other two measuring hostility guilt and morality-conscience guilt. In the decade following its publication, a considerable body of research established the construct validity of the sex guilt scale. For example, individuals who scored higher on this scale reported guilty feelings or other negative affect following exposure to erotic reading material or films (Mosher, 1972, 1973; Mosher & Greenberg, 1969), were less sexually experienced (Langston, 1973; Mosher, 1973; Mosher & Cross, 1971), expressed more negative sexual attitudes (Mosher, 1973), provided fewer sexual associations in response to double entendre words (Galbraith & Mosher, 1968, 1970) and retained less birth control information (Schwartz, 1973). As a result, Mosher's sex guilt scale remains the most widely used method to measure sex guilt despite the length of time that has elapsed since its publication.

The RMGI (Mosher, 1988; Appendix C) is a self-report questionnaire that was derived from the forced-choice measure by submitting the items for an updated item analysis. The resulting measure assesses 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, only the Attitude subscale (Appendix D) was included 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 $\alpha = .83$) and the conservatism dimension

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

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 this author 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. In analyses of the relationship between 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 culture 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 p 's < .05), with the Euro-Canadian 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, large familywise error rate was adjusted for by 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 Euro-Canadian women scored significantly higher on the Desire subscale of the FSFI, indicating that the Euro-Canadian 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 to the Euro-Canadian 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 Euro-Canadian women, $t(201) = 9.18, p < .001$, indicating that the East Asian women were significantly more sexually conservative compared to their Euro-Canadian counterparts (Table 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	Euro-Canadian		East Asian		<i>t(df)</i>	<i>p</i>	<i>Effect Size^d</i>
	M	SD	M	SD			
FSFI Desire ^a	4.08	1.02	3.14	1.09	6.80 (238)	< .001	.89
RMGI ^b	64.52	28.15	121.71	45.30	-11.03 (192)	< .001	1.48
DSFI Attitude ^c	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). ^aBased on *n* = 103 Euro-Canadians and *n* = 137 East-Asians. ^bBased on *n* = 89 Euro-Canadians and *n* = 114 East-Asians. ^cBased on *n* = 94 Euro-Canadians and *n* = 109 East-Asians. ^d*Effect* size (Cohen's *d*) was calculated as $d = (M_1 - M_2)/s$, where $s = \sqrt{[(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2]/(n_1 + n_2)}$.

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

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 ^{a,b}	RMGI	DSFI Attitude
RMGI	.59***		
DSFI Attitude	-.54***	-.78***	
FSFI Desire	-.40***	-.54***	.44***

^aThe Euro-Canadian group was coded as 1 and the East Asian group as 2. Correlations significant at *** $p < .001$.

^bCorrelations involving Ethnicity were point-biserial. All other correlations were Pearson correlations.

Scores on the RMGI and FSFI Desire subscale were significantly and negatively correlated in both the Euro-Canadian, $r(87) = -.31, p < .01$, and East Asian women, $r(114) = -.43, p < .001$, indicating that greater sex guilt was associated with lower sexual desire.

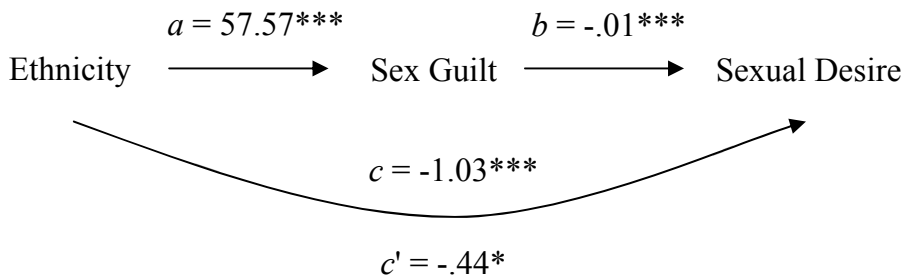
The Mediating Role of Sex Guilt in the Relationship between Ethnicity and Sexual Desire

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).

Figure 1

The mediating role of sex guilt in the relationship between ethnicity and sexual desire in Euro-Canadian and East Asian women.



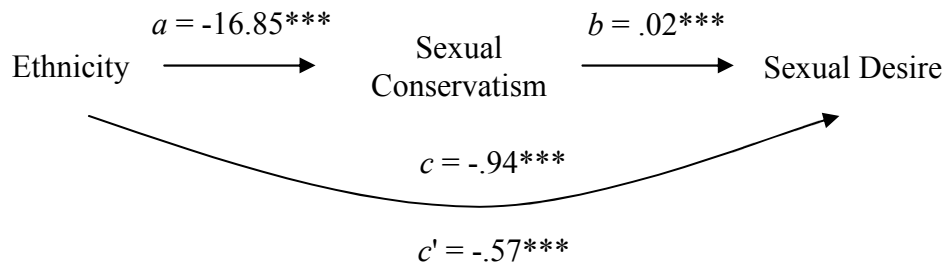
Note. a represents the effect of ethnicity on sex guilt. b represents the effect of sex guilt after controlling for the effect of ethnicity. c represents the direct effect of ethnicity on sexual desire; c' represents the effect of ethnicity on sexual desire after controlling for sex guilt. * $p < .05$. *** $p < .001$.

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).

Figure 2

The mediating role of sexual conservatism in the relationship between ethnicity and sexual desire in Euro-Canadian 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 scores ($p > .05$). Heritage acculturation was also not correlated with FSFI Desire, DSFI Attitude or RMGI scores (all p 's > .05).

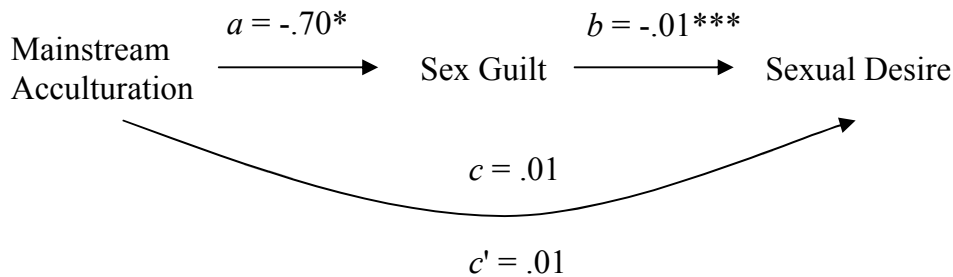
Sexual desire and sex guilt were significantly and negatively correlated, $r(114) = -.43, p < .001$, indicating that more sex guilt was associated with lower sexual desire.

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).

Figure 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. $^*p < .05$. $^{***}p < .001$.

Discussion

Ethnicity and Sexuality

The results of the analyses of ethnic differences in sexual desire supported our hypothesis that the Euro-Canadian 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., 2009).

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

Although researchers have long presumed that ethnic disparities in sexual desire reflect ethnic differences in sexual conservatism, the results of this study provide the first 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 European descent 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 behaviour 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 explore 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 Euro-Canadian or East Asian ethnicity and sexual desire; that is, the significantly greater sex guilt experienced by the East Asian women accounted for their diminished sexual desire in comparison with the Euro-Canadian 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."

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; Brotto et al., 2007; Meston & Ahrold, 2010; Woo & Brotto, 2008; Woo, Brotto, & Yule, 2010), the effect of both mainstream and heritage acculturation on sexual desire, sexual conservatism, and sex guilt was examined. 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 the hypothesis 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, the university sample was significantly younger than women in the general population, leading to concerns about the generalizability of the 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 it was not possible 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, the measure of sexual desire that was used in the current study was developed and validated on samples of women of European ancestry. 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.

Implications

The finding that elevated sex guilt among the East Asian women was one factor that accounted for the ethnic disparity in prevalence of low sexual desire may have implications for the 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 this author's 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. The current 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 is expected to improve.

Conclusion

To conclude, this study replicated several prior findings of ethnic differences in sexuality between women of East Asian and European ancestry. More importantly, this study also enhances the 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.

Study 2: The Relationship between Sex Guilt and Sexual Desire in a Community Sample of Chinese and Euro-Canadian Women

The findings from Study 1 that sex guilt mediated the relationship between ethnicity and sexual desire among East Asian and Euro-Canadian women, as well as the relationship between mainstream acculturation and sexual desire among East Asian women, are novel as the specific mechanisms that underlie the well-documented association between culture and sexual desire have previously not been empirically delineated.

However, one of the limitations of Study 1 was the youth of the university sample (mean age of the East Asian women = 20.3 years; mean age of the Euro-Canadian women = 20.9 years). The young age of the university sample meant that the great majority of the sample were unmarried (90.4% of the Euro-Canadian women and 95.7% of the East Asian women). This is of particular significance in studying East Asian sexuality because of the traditional East Asian view that sexual activity is acceptable only in the context of marriage. Parents are highly intolerant of premarital sexual activity, especially in daughters, and children are brought up with strong parental and societal expectations that expressions of sexuality will be reserved for marriage (Lee & Chang, 1999; Youn, 2001).

A second limitation of Study 1 is that the East Asian women in that sample may have been more mainstream acculturated and less heritage acculturated compared to those in the general population. As a number of studies have found significant effects of acculturation on various aspects of sexuality (e.g. Brotto et al., 2005; Meston & Ahrold, 2010), it is not possible to ascertain whether the relationships among culture, sex guilt and sexual desire will hold in East Asian women in the general population.

Study 2 was designed to extend the results of Study 1 by examining whether the relationships among culture, sex guilt and sexual desire found in Study 1 would generalize to an older and more diverse community-based sample. Of particular interest was whether the mediating effect of sex guilt in the relationship between culture and sexual desire found in Study 1 would remain in a community-based sample. Sex guilt, but not sexual conservatism, was examined in this study in part because one of the implications of Study 1 was that sex guilt had more utility in explaining culture-linked differences in sexual desire than did sexual conservatism. A second reason for not including a measure of sexual conservatism in Study 2 was concern about the length of the interview. As a community sample was sought, it was feared that a lengthy interview would be a deterrent to participation.

Method

Participants

Chinese and Euro-Canadian women 20 years of age and older were eligible to participate in this study. Only Chinese women were targeted in this study (as opposed to Study 1 which also included Japanese and Korean women) as one of the goals of the current study was to recruit women with limited English proficiency in order to include those who were less westernized and more acculturated to the heritage culture. Therefore, it was necessary to recruit bilingual research assistants to assist with the interviews that needed to be conducted in a non-English language. The scarcity of research assistants proficient in Japanese and Korean precluded the possibility of including Japanese and Korean women with limited English proficiency. Follow-up analyses of the data in Study 1 revealed that restricting the East Asian sample to Chinese women did not change the main findings of that study. Specifically, the ethnic differences in sex guilt ($p < .001$, Cohen's $d = 1.41$), sexual conservatism ($p < .001$, Cohen's $d = 1.20$) and sexual

desire ($p < .001$, Cohen's $d = 0.81$) remained. Importantly, sex guilt continued to mediate the relationship between ethnicity and sexual desire ($ab = -.60$, $CI_{95} = -.86, -.36$). It is therefore believed that the absence of Japanese and Korean participants in the current study will not alter the essence of the findings as they relate to East Asian women.

A total of 165 women participated. Of these, 87 self-identified as Chinese and 78 as Euro-Canadian. Participants were recruited from the community using a variety of methods, including a letter mail campaign, and the snowball method. Flyers were also posted in public areas describing the inclusion criteria and providing a brief description of the study. Of the participants in this study, 51 were recruited via a letter mail campaign, 64 were recruited through flyers posted in public places and 50 were recruited by the snowball method. About 200 letters were mailed out to Euro-Canadian and Chinese women as part of the letter mail campaign.

There were significant ethnic differences in the proportion of participants recruited by the various methods, $\chi^2(2) = 29.15, p < .001$. Of the Euro-Canadian women, 51% were recruited by the letter mail campaign, 19% by the snowball method and 30% by seeing the posted flyers. Of the Chinese women, 13% were recruited by the letter mail campaign, 40% by the snowball method and 47% by seeing the posted flyers.

There were no significant ethnic differences in age but the Euro-Canadian women reported living in Canada for a significantly longer period of time than the Chinese women. Demographic data are presented in Table 4.

Table 4

Demographic Characteristics of Euro-Canadian (n = 78) and Chinese (n = 87) Participants

Variable	Euro-Canadian	Chinese
Mean age in years (<i>SD</i>)	42.1 (17.2)	42.8 (13.2)
Place of Birth (%)***		
Canada or US	82.1	9.2
China/Hong Kong/Taiwan	1.3	86.2
Southeast Asia	0	2.3
Europe	11.5	0
Other	5.1	2.3
Years of residency in Canada (<i>SD</i>)***	36.4 (18.6)	12.0 (10.4)
Marital status ^a (%)***		
Unmarried	51.4	23.5
Common-Law	8.1	2.9
Married	24.3	58.8
Divorced	13.5	10.3
Widowed	2.7	4.4
Mean Acculturation Score ^b (<i>SD</i>)		
Mainstream	n/a	59.0 (12.7)
Heritage	n/a	68.4 (12.8)

Significant group differences at *** $p < .001$. ^a Figures reported are for the 142 participants who responded to this question. ^b Scale range, 20-180.

Procedure

Interested participants telephoned the laboratory and were screened to ensure that they self-identified as either Chinese or Euro-Canadian and met the minimum age requirement. Participants were interviewed in person by trained female psychology students at a time and in a location of the participants' choice. Locations that were commonly selected included the research laboratory, participants' homes, cafes, and libraries. All of the Euro-Canadian women were interviewed in English. The Chinese women were interviewed in the language of their choice (English, Cantonese or Mandarin). The interview consisted of a number of validated measures that were administered verbally. Measures containing items of a more personal nature, such as those relating to sexual functioning, were completed by the participants themselves if they chose. Measures included: the VIA (Ryder et al., 2000; to assess mainstream and heritage acculturation), the FSFI (Rosen et al., 2000; to assess level of sexual desire), the RMGI (Mosher, 1988; to measure level of sex guilt), and an investigator-derived questionnaire assessing demographic variables, including relationship and sexual functioning, and experience with various types of sexual activities. Participants received a monetary honorarium 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 comparisons of the two ethnic groups on self-reported sex guilt and sexual desire. In analyses of the association between ethnicity and sexual variables, the point-biserial statistic was used.

As in Study 1, the bootstrap method for mediation analysis recommended by Shrout and Bolger (2002) was used for all mediation analyses. Three thousand samples, with replacement, were used in each mediation analysis. Mediation analyses were conducted using an SPSS macro developed by Preacher and Hayes (2004).

Results

Ethnic Group Comparisons on Basic Demographic Characteristics

There was no significant ethnic difference in age, $t(144) = -.31, p > .05$ (mean age of Chinese women = 42.84 years, SD = 13.21; mean age of Euro-Canadian women = 42.10 years, SD = 17.15). There was also no significant ethnic difference in the proportion of women who reported being in a relationship, $\chi^2(1) = 1.46, p > .05$. However, a significantly larger proportion of the Chinese women reported having been married (including those who reported being married, divorced or widowed) than the Euro-Canadian women, $\chi^2(1) = 11.64, p < .01$. There was also a significant ethnic difference in years of education, with the Euro-Canadian women reporting more years of education, $t(163) = 3.73, p < .001$. Of the 87 Chinese participants, 33 were interviewed in Cantonese and 30 were interviewed in Mandarin.

Ethnic Group Comparisons on Sexuality Measures

The two groups did not significantly differ in the proportion of women who had engaged in kissing, hugging or holding hands, $p > .05$. However, the Euro-Canadian women were significantly more likely to have engaged in touching with clothing removed, $\chi^2(1) = 11.31, p < .01$, touching of partner's genitals, $\chi^2(1) = 14.47, p < .001$, performing of oral sex on their partner, $\chi^2(1) = 13.14, p < .001$, receiving of oral sex from their partner, $\chi^2(1) = 6.56, p < .05$, and sexual intercourse, $\chi^2(1) = 6.23, p < .05$. All proportions are presented in Table 5.

Table 5

Ethnic Group Differences on Sexual Activity

Variable	Euro-Canadian	Chinese
% who have engaged in hugging, kissing or holding hands	97.9%	88.9%
% who have engaged in touching with clothing removed**	95.6%	68.2%
% who have touched their partner's genitals***	93.3%	59.1%
% who have performed oral sex on their partner***	68.2%	29.5%
% who have had oral sex performed on them by their partner*	61.4%	34.1%
% who have engaged in vaginal-penile intercourse*	93.3%	73.9%

Significant group differences at * $p < .05$, ** $p < .01$, *** $p < .001$.

A Bonferroni correction was applied by dividing the conventional α level of .05 by two (the number of comparisons being made) to adjust for large familywise error rate. Thus, ethnic differences were considered statistically significant only if $p < .025$ (.05/2 comparisons).

Compared to the Chinese women, the Euro-Canadian women scored significantly higher on the Desire subscale of the FSFI, indicating that the Euro-Canadian women reported significantly greater sexual desire than the Chinese women in the previous four weeks, $t(155) = 4.21$, $p <$

.001. The Chinese women scored significantly higher on the RMGI compared with the Euro-Canadian women, $t(137) = -13.00, p < .001$, demonstrating that the Chinese women reported significantly higher levels of sex guilt (Table 6).

Table 6

Ethnic Group Differences on Scores from the Desire Subscale of the Female Sexual Function Index (FSFI) and the Revised Mosher Guilt Inventory (RMGI)

Variable	Euro-Canadian		Chinese		$t(df)$	p	Effect Size ^c
	M	SD	M	SD			
FSFI Desire ^a	3.64	1.16	2.82	1.26	4.21 (155)	< .001	.68
RMGI ^b	69.08	29.41	144.59	39.41	-13.00 (137)	< .001	2.17

Note. Higher scores denote greater sexual desire (FSFI) and higher sex guilt (RMGI). ^aBased on $n = 75$ Euro-Canadians and $n = 82$ Chinese. ^bBased on $n = 65$ Euro-Canadians and $n = 76$ Chinese. ^cEffect size (Cohen's d) was calculated as $d = (M_1 - M_2)/s$, where $s = \sqrt{[(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2]/(n_1 + n_2)}$.

Scores on the RMGI and FSFI Desire subscale were significantly and negatively correlated in both the Euro-Canadian, $r(63) = -.47, p < .001$, and Chinese women, $r(72) = -.53, p < .001$, indicating that more sex guilt was associated with lower sexual desire.

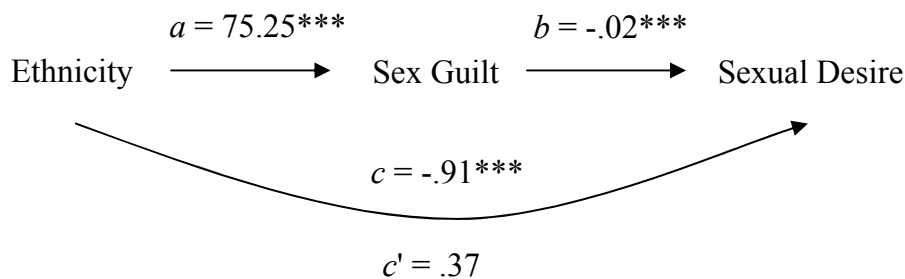
The Mediating Role of Sex Guilt in the Relationship between Ethnicity and Sexual Desire

The effect of ethnicity on sex guilt was demonstrated ($B = 75.25, p < .001$), indicating that Chinese ethnicity was associated with significantly greater sex guilt. The effect of sex guilt on sexual desire, holding ethnicity constant, was also significant ($\beta = -.02, p < .001$), 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 ($ab = -1.29$, $SE = .22$, $CI_{99} = .74, 1.89$). Hence, sex guilt mediated the ethnic group difference in sexual desire (Figure 4).

Figure 4

The mediating role of sex guilt in the relationship between ethnicity and sexual desire in Euro-Canadian and Chinese women.



Note. a represents the effect of ethnicity on sex guilt. b represents the effect of sex guilt on sexual desire 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. *** $p < .001$.

Effects of Acculturation (Chinese women only) on Measures of Sexuality

Mainstream acculturation was not significantly correlated with FSFI Desire scores, $r(81) = .10$, $p > .05$, but was significantly correlated with RMGI scores, $r(75) = -.24$, $p < .05$, indicating that more westernized Chinese women reported significantly less sex guilt. Heritage acculturation was not correlated with either FSFI Desire or RMGI scores (all p 's $> .05$).

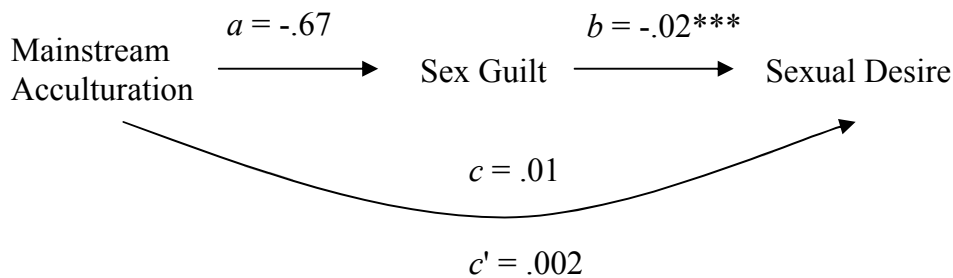
The Mediating Role of Sex Guilt in the Relationship between Mainstream Acculturation and Sexual Desire

A mediation analysis to examine whether sex guilt would mediate the relationship between mainstream acculturation and sexual desire was conducted. The effect of mainstream

acculturation on sex guilt was not significant at conventional α levels ($\beta = -.67, p = .10$), indicating that mainstream acculturation was not significantly associated with sex guilt. On the other hand, the effect of sex guilt on sexual desire, holding mainstream acculturation constant, was significant ($\beta = -.02, p < .001$), showing that greater sex guilt was linked to less sexual desire after controlling for the effect of mainstream acculturation. The indirect effect of mainstream acculturation on sexual desire was significant ($ab = .01, SE = .006, CI_{95} = .0004, .02$). Hence, sex guilt mediated the relationship between mainstream acculturation and sexual desire in the Chinese women (Figure 5).

Figure 5

The mediating role of sex guilt in the relationship between mainstream acculturation and sexual desire in Chinese women.



Note. a represents the effect of mainstream acculturation on sex guilt. b represents the effect of sex guilt on sexual desire 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. $***p < .001$.

Discussion

Ethnicity and Sexuality

In ethnic group comparisons, the Euro-Canadian women reported significantly greater sexual desire than the Chinese women. This result is consistent with the literature on ethnic differences in general sexual function as well as the research on ethnic differences, particularly in sexual desire (e.g., Brotto et al., 2005; Cain et al., 2003; Laumann et al., 2005; Woo et al., 2009).

Analyses of ethnic differences in sex guilt revealed that the Chinese women reported significantly greater sex guilt compared to their Euro-Canadian counterparts. This finding fits with both the results of Study 1, which found less sex guilt among Euro-Canadian individuals, and the results of Abramson and Imai-Marquez (1982), who found significantly higher levels of sex guilt in Japanese-American than Euro-American individuals.

Interestingly, mediation analyses revealed that sex guilt mediated the relationship between ethnicity and sexual desire, such that higher levels of sex guilt in the Chinese women accounted for the ethnic disparity in sexual desire. This finding is consistent with the findings of Study 1 which was conducted in university students and indicates that sex guilt is a mediator of the relationship between ethnicity and sexual desire even in the current sample that was more diverse than the university convenience sample that was studied in Study 1.

Acculturation in Chinese Women and Sexuality

As another index of cultural influences, the effect of bidimensional acculturation on sex guilt and sexual desire was examined. The finding that mainstream acculturation was not significantly correlated with sexual desire stood in contrast to the hypothesis that greater westernization would be associated with higher levels of sexual desire in Chinese women. This

finding is also incongruent with other studies that have found a significant association between mainstream acculturation and sexual desire (e.g., Brotto et al., 2005; Woo, Brotto, & Gorzalka, 2011a). One possible explanation for the current finding is that the present study may have been insufficiently powered, limiting the ability to detect a significant effect of mainstream acculturation on sexual desire. It is noted that the current sample of Chinese women is much smaller than that utilized in Study 1. On the other hand, mainstream acculturation was found to be significantly correlated with sex guilt such that greater westernization was associated with less sex guilt, a finding that is consistent with the literature on the effects of acculturation on Chinese sexuality as well as the results of Study 1.

The results of the mediation analyses supported the hypothesis that sex guilt would mediate the relationship between mainstream acculturation and sexual desire among the Chinese women and are in accord with the results of Study 1 which found a similar mediating effect in a sample of female university students. Although mainstream acculturation was not significantly associated with sex guilt in the current study, a crucial step in the traditional approach to mediation popularized by Baron and Kenny (1986), the bootstrap approach used in the current study indicated that the indirect effect of mainstream acculturation on sexual desire, through the intervening variable sex guilt, was significant. The bootstrap method was used because of the temporally distal nature of the causal process between culture and sexual desire. However, simulation research reveals that this method also has the advantages of greater power and better Type I error control compared to the Baron and Kenny (1986) approach (Hayes, 2009).

In contrast to the mediating role that sex guilt plays in the relationship between mainstream acculturation and sexual desire, mediation analyses revealed that sex guilt did not mediate the relationship between heritage acculturation and sexual desire among the Chinese

women. This finding did not support the hypothesis that sex guilt would underlie the effect of heritage acculturation on sexual desire, but is consistent with the results of Study 1, where no mediation effect was found in the relationship between heritage acculturation and sexual desire. Jointly, these findings suggest that while sex guilt is not associated with heritage acculturation and changes in sexual desire, sex guilt plays an important role in accounting for the augmenting effect of westernization on sexual desire.

Implications

The present results were consistent with those of Study 1 in that sex guilt mediated both the relationship between ethnicity and sexual desire in the entire sample as well as that between mainstream acculturation and sexual desire in the Chinese women. It is interesting to note, however, that the effect of ethnicity on sex guilt is stronger in the current study than Study 1, as indicated by the relevant effect sizes [Cohen's $d = 2.17$ in the current study versus 1.48 in Study 1. Although both effect sizes are large (Cohen, 1992), the relative magnitude of the relationship between ethnicity and sex guilt in the two studies suggests that sex guilt may vary with sample characteristics. That is, younger age and more education may be factors that protect individuals from experiencing greater guilt in sex-related situations. Supporting this proposition, additional analyses of the current data revealed that age is significantly correlated with sex guilt, such that older age is associated with greater sex guilt in both the Euro-Canadian and Chinese women, a finding that may not have been detected in a university sample composed of participants who are largely homogeneous in age. Thus, conclusions about culture and sexuality that are based on research with university samples must be made tentatively and might strive to include a more socioeconomically and demographically diverse sample.

Moreover, that the mediating effect of sex guilt in the relationship between culture and sexual desire was found in the current community-based sample may have implications for the psychological treatment of sexual desire difficulties in Chinese women. The limited research on psychological treatments for female HSDD indicate that these interventions are generally effective (Brotto, Basson, & Luria, 2008; Hawton et al., 1991; Hurlbert, 1993; McCabe, 2001; Schover & LoPiccolo, 1982; Trudel et al., 2001), combining elements such as sensate focus, sexual skills training, sexual psychoeducation, mindfulness training, cognitive restructuring and behaviour change. However, the extent to which these interventions are effective in non-European descent groups is unclear as this has not been studied. Given the significant differences between Chinese and Euro-Canadian individuals across practically every domain of sexuality that has been studied, and the growing evidence that sex guilt plays an important role in Chinese women's level of sexual desire, incorporating a specific focus on reducing sex guilt in psychological interventions may be especially beneficial for Chinese women with complaints of low sexual desire. For example, thoughts and beliefs that are linked to sex guilt may be identified, challenged and substituted with more balanced thoughts. Examples of thoughts that may be associated with sex guilt include "sex should happen only if a man initiates", "a good mother must control her sexual urges", and "experiencing pleasure during sexual activity is not acceptable in a virtuous woman" (Nobre, Pinto-Gouveia, & Gomes, 2003).

Additional analyses revealed that FSFI Desire was lower in Study 2 than Study 1 in both the Euro-Canadian (Cohen's $d = 0.40$) and Asian women (Cohen's $d = 0.27$). The reasons for this difference are unclear, but it could be speculated that it may be due to the difference in age between the two samples, with Study 2 participants being significantly older compared to Study 1 participants. There is some research that supports this speculation, with a number of studies

(Bancroft et al., 2003; Hayes et al., 2007; Hayes & Dennerstein, 2005) finding that increasing age is associated with lower sexual desire.

Limitations

This study has some limitations that must be addressed. First, although this study examined a sample of women who were recruited from the community and who were therefore more heterogeneous in their backgrounds compared to a university convenience sample, the sample is not nationally representative, which may limit the generalizability of the findings. Second, it is well-established that volunteer bias– the tendency for those who choose to take part in research studies to differ from those who choose not to take part– is an ongoing concern in sex research (e.g., Plaud, Gaither, Hegstad, Rowan, & Devitt, 1999; Strassberg & Lowe, 1995; Wiederman, 1993; Woo, Brotto, & Yule, 2010). Thus, the Chinese women who participated in the current study may differ from those who did not participate in their level of acculturation. It is also possible that the women who chose to participate in this study may differ from women in the general population with regard to their level of sex guilt. Given that both acculturation and sex guilt are variables of interest in the current study, volunteer bias in these areas may affect the conclusions that can be drawn about the role of sex guilt in the relationship between culture and sexual desire. Finally, as in Study 1, the RMGI has not been validated in a Chinese population. Furthermore, although published studies have validated the DSFI, the VIA, and the FSFI in Chinese samples (Chang et al., 2009; Ryder et al., 2000; Tang et al., 1997), only the FSFI was validated in a sample of Chinese women recruited from the community; the DSFI and VIA were validated in samples of Chinese university students.

Conclusion

The results of the current study were consistent with prior research that examined differences in sexual desire and sex guilt in Chinese and Euro-Canadian women. These results were also consistent with Study 1 which found that sex guilt is one mechanism by which culture influences sexual desire among Chinese women. Given that sex guilt has been found to play an important role in Chinese women's low sexual desire in both a university sample and a community-based sample, an interesting extension of this research would be to investigate whether an intervention designed to target sex guilt may be effective in treating Chinese women seeking treatment for complaints of low sexual desire. Furthermore, it is plausible that sex guilt may represent a concern for individuals in other cultural groups. Sustained empirical study of the interrelationships among sex guilt, sexual desire and culture may further our knowledge of how these variables interact with one another as well as provide an evidence base upon which interventions for complaints of low sexual desire may be developed and improved.

Study 3: Examining the Effectiveness of a CBT-Based Classroom Intervention in Improving Sexual Desire

Some of the results of Study 1 were replicated in the community sample that was recruited for Study 2. In particular, the expected ethnic differences in sex guilt and sexual desire were found in both studies, as well as a mediating effect of sex guilt in the relationship between ethnicity and sexual desire. Given that sex guilt has been found to play a role in East Asian women's low sexual desire in both Studies 1 and 2, the goal of the current study was to investigate whether an intervention designed to reduce sex guilt may be effective in improving sexual desire.

To date, no published studies have examined the effectiveness of using an intervention based on the principles of cognitive behaviour therapy (CBT) to target sex guilt as a means of improving sexual desire in women, although a review of the literature revealed three studies that have explored the impact of treatment on sex guilt itself. Doller (1981) recruited 150 female undergraduates who had previously completed the Mosher Forced-Choice Guilt Inventory (MFCGI; Mosher, 1968). On the basis of their MFCGI scores, participants were categorized as displaying high sex guilt, moderate sex guilt or low sex guilt, and only those 150 participants who were classified as high or moderate sex guilt were recruited for the study by Doller (1981). Within each level of sex guilt, participants were assigned to one of five treatment conditions. The three experimental treatment conditions consisted of a sex education lecture condition, a peer discussion condition, and a combination lecture-discussion condition. The control-sexual exposure condition and the no-treatment control condition comprised the two control conditions.

For the sex education lecture condition, a sex education lecture was developed by Doller (1981). The lecture contained information that was aimed at dispelling myths that were relevant

to the areas of sexuality covered by the MFCGI, including premarital sex, masturbation, homosexuality, petting, sexual intercourse, and "unusual" sexual practices and was delivered by an individual who had received extensive training in sex education and sex therapy. In the peer discussion condition, participants discussed the same topics that were covered in the sex education lecture, but without input from the experimenter. Participants were asked to share their sexual attitudes and values and were given guidelines on the topics to be discussed. In the combination lecture-discussion condition, participants listened to the sex education lecture described above, then participated in the peer discussion procedure. There were two control conditions in the study by Doller (1981). In the control-sexual exposure condition, participants completed a questionnaire that contained questions regarding their sexual experience, attitudes and values. Finally, in the no-treatment control condition, participants were not asked to engage in the lecture, discussion group, or to complete the questionnaire.

All participants completed the sex guilt subscale of the MFCGI following exposure to their assigned condition and were then asked to view sexually explicit slides, to rate their degree of sexual arousal and their affective responses, and to recall details of the slides. Participants were instructed to take as much time as they needed to study the slides and were given a remote control with which to control the presentation of the slides. The time spent viewing each slide was recorded by the experimenter who waited outside the door and timed the clicks of the changing slides. All participants completed the sex guilt subscale of the MFCGI again four weeks later.

Doller (1981) hypothesized that high sex guilt participants in the experimental treatment conditions grouped together would have lower scores on the MFCGI (indicating less sex guilt), report less negative affect and higher sexual arousal to the slides, spend more time viewing the

slides and correctly recall more slides than high sex guilt participants in the control conditions. Effects of a smaller magnitude were expected for the moderate sex guilt participants. None of these hypotheses were supported by the data. However, Doller (1981) found that high sex guilt participants in the sex education lecture and the combination sex education-peer discussion conditions had lower scores on the MFCGI, spent more time viewing the slides, and recalled more slides correctly following the interventions. On the other hand, participants whose level of sex guilt was determined to be moderate on the basis of their pre-intervention scores on the MFCGI (Mosher, 1968) did not demonstrate changes in any of the dependent variables following treatment. Participants in the combination lecture-discussion condition reported less negative affect compared to participants in the other conditions.

Using a different approach, Stein (1977) compared the effectiveness of autogenic therapy, implosive therapy and systematic desensitization in the reduction of sex guilt. Stein (1977) recruited 55 male and female university students whose scores on the MFCGI fell within the top third of students who participated in a pretesting session, indicating higher levels of sex guilt. These participants were randomly assigned to three treatment and two control groups. The treatment conditions consisted of autogenic therapy, implosive therapy and systematic desensitization. The control conditions consisted of attention control and waiting list control. Participants in each of the treatment conditions participated in a total of four treatment sessions. In the autogenic therapy condition, participants were introduced to autogenic training, a relaxation technique that involves repeating a series of visualizations (e.g. "my right arm is heavy," "both legs are warm") that induce a state of relaxation. The description and rationale for autogenic therapy, as well as the relaxation instructions, were provided via audio tape and the purpose of this treatment was to induce a relaxed physiological state that would be antagonistic

to the stress response that was assumed to accompany sex guilt. Similarly, participants in the implosive therapy condition listened to a description and rationale for implosive therapy followed by implosive imagery presented on an audio tape. By following the imagery presented on the tape, participants in this condition imagined how guilty they would feel in situations such as engaging in extramarital sex, being caught masturbating by their parents, and telling a sexual joke that was not well-received, then not experiencing anticipated feared consequences. The goal of this procedure was to extinguish the guilt response to the various imagery stimuli presented. In the systematic desensitization condition, participants engaged in progressive muscle relaxation while imagining guilt-evoking stimuli, with the goal of this condition being counterconditioning. The procedure for the attention control group was similar to that for the systematic desensitization condition except that the progressive muscle relaxation was paired with neutral imagery. Participants in each of these four conditions received four treatment sessions at one-week intervals. Participants assigned to the waiting list control group received no intervention.

Participants completed self-report questionnaires prior to treatment, following treatment, and four weeks after treatment, with those in the waiting list control group completing these measures without undergoing any other procedures. Measures included the MFCGI; the Reaction Inventory-Guilt (Evans, Jessup, & Hearn, 1975), a measure of specific situations that evoke guilt; the Perceived Guilt Index (Otterbacher & Munz, 1973), a measure of both state and trait guilt; and the Word Association Test (Galbraith, Hahn, & Liberman, 1968), a projective test of sexual motivation and sex guilt. None of the treatment conditions resulted in significant changes in levels of sex guilt as measured by these guilt measures.

Finally, Marshall (1976) compared the effectiveness of relaxation training and relaxation training plus stimulus control in reducing sexuality-related anxiety after watching erotic films in female undergraduate students. Participants in both groups received identical training in relaxation techniques but those in the relaxation training plus stimulus control group were also allowed to turn the film off for 45 seconds and use the relaxation techniques if they became anxious while watching the films. Treatment did not result in changes in sex guilt as measured by the MFCGI (Mosher, 1968).

The literature examining the effectiveness of CBT in treating low sexual desire is similarly limited. McCabe (2001) recruited 95 men and 105 women who presented to the Sexual Behaviour Clinic of a university with heterogeneous sexual complaints including painful intercourse, premature ejaculation, erectile disorder, retarded ejaculation, lack of sexual interest, anorgasmia and sexual arousal disorder. Of these, 45 men and 54 women completed the ten-session treatment program, with the remainder dropping out in the first few sessions due to relationship problems, unrealistic expectations of speed of improvement, and difficulty committing to program requirements. The treatment program, which was based on cognitive behavioural principles, was designed to enhance communication, improve sexual skills, reduce performance anxiety, and change cognitions and behaviours that interfered with functioning in these domains. Treatment sessions focused on discussing barriers to sexual performance and strategies for overcoming these barriers. Participants did homework exercises between treatment sessions that consisted of communication and sensate focus exercises. Before and after the treatment program, participants completed the Sexual Function Scale (McCabe, 1998a), which assesses attitudes toward sex, range of sexual activity, sexual satisfaction, communication, and quality of the relationship; and the Sexual Dysfunction Scale (McCabe, 1998b), which assesses

various sexual difficulties including premature ejaculation, erectile disorder, retarded ejaculation, anorgasmia, female sexual arousal disorder, vaginismus and lack of sexual desire. McCabe (2001) found that 53% of the men and 44% of the women experienced improvements in their sexual functioning following treatment and that among men, treatment was most likely to be successful for those presenting with premature ejaculation, erectile dysfunction, and retarded ejaculation. Among the women, treatment was most successful for those presenting with anorgasmia and sexual arousal disorder. Importantly, for both men and women, the percentage of time that participants experienced sexual difficulties decreased after treatment although there were no changes in intercourse frequency, general feelings about the relationship, or communication in the relationship. Other positive changes following treatment included more positive attitudes toward sex, participants being less likely to view themselves as sexual failures, increased perception of sex as enjoyable, and reports that sexual difficulties affected fewer aspects of the relationship.

Trudel and colleagues (2001) assessed the effectiveness of a cognitive-behavioural treatment program in treating low sexual desire in women in a controlled study. Seventy-four heterosexual couples in the Montreal area, in which the female partners reported difficulties with sexual desire, were recruited. The presence of desire difficulties in the female partners was established using a structured clinical interview, after which couples were randomly assigned to either the 12-week treatment condition or the 12-week waiting-list control group. All couples completed interviews and a battery of questionnaires before and after treatment, as well as three months and one year after treatment. Those assigned to the waiting-list control group were re-evaluated after the 12-week waiting period and again after treatment. The battery of questionnaires included measures of sexual desire, sexual esteem, sexual preoccupation, sexual

motivation, sexual anxiety, sexual satisfaction, sexual knowledge, sexual experience, sexual fantasies, attitudes towards sexuality, beliefs about their relationship and about marital problems, sexual arousability, marital functioning, and perception of the communication skills displayed by themselves and their partners. The treatment program consisted of 12 weekly group couple sex therapy sessions that were co-facilitated by teams of male and female therapists. The sessions contained sexual information, sexual intimacy exercises, communication skills training, sexual fantasy training and cognitive restructuring, and couples were given homework assignments and readings to complete between sessions. Trudel and colleagues (2001) reported that 74% of the women no longer met diagnostic criteria for desire difficulties following treatment, and that 64% of the women maintained their gains one year after treatment. This study also found improvements in marital functioning, sexual satisfaction, perception of sexual arousal, repertoire of sexual behaviours, frequency and pleasure related to sexual activity, sexual esteem, sexual motivation, sexual anxiety and thoughts related to sexual and marital functioning.

Other treatment programs for low sexual desire that have included CBT as one of their ingredients have also been found to be helpful in increasing sexual desire in women with and without gynaecologic cancer (Brotto, Basson, & Luria, 2008; Brotto, Heiman, et al., 2008). Brotto, Heiman, and colleagues (2008) developed a mindfulness-based psychoeducation treatment manual that contained elements drawn from *Becoming Orgasmic* by Heiman and LoPiccolo (1988), an empirically based behavioural treatment for women with lifelong orgasmic disorder; *Seven Principles for Making Marriage Work* by Gottman and Silver (1999); *The Miracle of Mindfulness* by Hahn (1976); and *Progressive Relaxation* by Jacobson (1938). Nineteen women who had been treated for either cervical or endometrial cancer by hysterectomy completed the individual four-session treatment, each spaced four weeks apart, that was aimed at

alleviating difficulties with sexual arousal. Although the primary goal of this research was to develop an evidence-based psychological treatment for female sexual arousal disorder, the effects of the treatment on other aspects of sexuality, including sexual desire, were also examined. With regard to sexual functioning, Brotto, Heiman, et al. (2008) found significant improvements in self-reported sexual arousal, sexual desire, orgasm, and sexual satisfaction following the treatment program. These researchers also found a positive effect of the treatment on sexual distress, depressive symptoms and overall well-being following treatment.

Following up on the study by Brotto, Heiman and colleagues (2008), Brotto et al. (2012) examined the efficacy of the same intervention compared to a wait-list control group. A total of 31 women who had undergone hysterectomy for either cervical or endometrial cancer completed all three 90-minute individual treatment sessions. No significant effect of the wait-list control condition was found on sexual desire, arousal, orgasm, lubrication, pain, satisfaction, or sex-related distress. In contrast, significant improvements in sexual desire, arousal, lubrication, orgasm and satisfaction were found immediately following the intervention. Interestingly, these gains were maintained at the six-month follow-up.

Again building on the study by Brotto, Heiman, and colleagues (2008), Brotto, Basson and Luria (2008) adapted the psychoeducation treatment to a group format for women with low sexual desire and/or arousal that was unrelated to cancer. Brotto, Basson, and Luria (2008) recruited 26 women who participated in three 90-minute group sessions, spaced two weeks apart. Participants completed a battery of questionnaires that included measures of sexual desire, arousal, lubrication, orgasm, satisfaction, pain, distress, and quality of the relationship. Physiological sexual arousal was also assessed and was measured using a vaginal

photoplethysmograph. Significant increases in sexual desire and interest, and a significant decrease in sexual distress, were found.

Thus, there is some evidence that a psychoeducational intervention has been helpful in reducing sex guilt (Doller, 1981) as well as a growing body of research finding that CBT-based interventions have been effective in improving sexual desire in women. However, to this author's knowledge, there have not been any published studies of the effectiveness of directly targeting sex guilt in a CBT-based treatment program with the goal of increasing sexual desire.

The results of Studies 1 and 2 suggest that sex guilt plays an important role in low sexual desire among East Asian women. As noted above, the literature on the effectiveness of treating sex guilt as well as research examining the effectiveness of treating sexual desire with CBT are scarce. Therefore, the goal of the current study is to examine whether a CBT-based intervention aimed at reducing sex guilt may increase sexual desire in Euro-Canadian and East Asian women compared to two control conditions (the culture and sexuality control condition and the technology and multi-tasking control condition).

It was hypothesized that: (1) the Euro-Canadian women would report significantly higher pre-group sexual desire and less sex guilt compared to the East Asian women; (2) the CBT intervention group would lead to a decrease in sex guilt in both ethnic groups compared to both control groups as measured by the Revised Mosher Guilt Inventory; (3) the CBT intervention group would lead to an increase in sexual desire in both ethnic groups compared to both control groups as measured by the Desire subscale of the FSFI.

Method

Participants

East Asian and Euro-Canadian female university students who were fluent in English and 18 years of age and older were eligible to participate in this study. A university convenience sample was used in this study given the exploratory nature of this study and the time and financial constraints inherent in conducting dissertation research. A total of 119 women participated and of these, 59 self-identified as Euro-Canadian and 60 self-identified as East Asian. The East Asian group was comprised of 77% Chinese and 23% Korean women. All participants were recruited through the human subject pool at a large Canadian university and were randomly assigned to one of the three conditions (described in detail below). Demographic data are shown in Table 7.

Table 7

Demographic Characteristics of Euro-Canadian (n = 59) and East Asian (n = 60) Participants

Variable	Euro-Canadian	East Asian
Mean age in years (<i>SD</i>)***	21.7 (4.52)	19.7 (1.74)
Place of Birth (%)***		
Canada or US	78.0	20.0
China/Hong Kong/Taiwan	0	48.3
Korea	0	23.3
Southeast Asia	0	6.7
Europe	11.9	0

Variable	Euro-Canadian	East Asian
Other	10.1	1.7
Years of residency in Canada (<i>SD</i>)***	16.7 (9.3)	9.5 (6.4)
Relationship status (%)		
Single	41.3	43.3
In a relationship	58.7	56.7
Mean Acculturation Score ^b (<i>SD</i>)		
Mainstream	n/a	66.4 (9.8)
Heritage	n/a	68.1 (11.8)

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

Procedure

Participants who were interested in participating picked up a questionnaire package from the laboratory and completed the questionnaires. They returned these completed pre-group questionnaires to the group facilitator when they attended their assigned group (the CBT intervention condition, the culture and sexuality control condition and the technology and multi-tasking control condition). Each group session was limited to 10 participants to foster a more comfortable atmosphere and to encourage participation. The duration of the lecture component within all three conditions was approximately 45 minutes.

In the CBT intervention condition, participants were presented with information about the female sexual response cycle and factors that can influence sexual desire, including sex guilt-related thoughts. The CBT model was illustrated with a facilitator-derived example. The facilitator then demonstrated how irrational thoughts relating to sex guilt could be identified,

challenged, and replaced with more balanced thoughts. Thoughts related to sex guilt were elicited from participants when possible. When thoughts appropriate to the content of the lecture could not be elicited, the facilitator provided an example. In the culture and sexuality control group, participants were presented with information about the female response cycle and how culture influences sexuality and sexual dysfunction. In the technology and multi-tasking control group, the impact of technology and multi-tasking on our brains, lives and productivity was discussed; topics relating to sexuality were intentionally avoided to control for the effects of discussing sexuality in a group setting. The contents of each group are described in more detail below.

Measures

The same battery of questionnaires was administered immediately after the respective groups (post-group questionnaires), 2 weeks after the groups (2-week follow-up questionnaires), and 2 months after the groups (2-month follow-up questionnaires) to assess the degree of change in sexual desire and sex guilt. As in Studies 1 and 2, questionnaires included the Vancouver Index of Acculturation (to measure mainstream and heritage acculturation separately in the East Asian participants), the desire subscale of the Female Sexual Function Index (to assess level of sexual desire), and the sex guilt subscale of the Revised Mosher Guilt Inventory (to assess level of sex guilt). The total time spent by participants completing the pre-group questionnaires, attending the group, and completing the post-group and two-week follow-up questionnaires was about 2 hours. Participants received extra course credits for their participation up to this point. Those who completed the questionnaires at the two-month follow-up were entered into a draw for \$200. The pre-group and post-group questionnaires were administered in paper-and-pencil format, whereas the 2-week and 2-month follow-up questionnaires were administered via the

internet. Of the 119 women who participated in the current study, 43 (19 Euro-Canadian, 24 East Asian) completed the 2-month follow-up questionnaires.

Intervention and Control Conditions

CBT Intervention Condition

In this condition, the meaning of sexual arousal and desire was discussed, and prevalence rates of low sexual desire were presented. Participants were presented with information about Basson's (2000) sexual response cycle which posits that four components need to be present for sexual desire to occur: sufficient motivation to engage in sexual activity, favourable context (e.g. quality of relationship with partner), conducive physical environment, and pleasing sexual stimuli. This was followed by a discussion of factors that influence sexual functioning, including factors that predispose an individual to experience sexual difficulties, those that bring about sexual difficulties (precipitating factors), and those that play a role in maintaining the difficulties (perpetuating factors). The role of sex-guilt related thoughts was highlighted. Group participants were encouraged to contribute as much to this discussion as they felt comfortable with.

The CBT model was presented and elaborated with a facilitator-derived example. The facilitator then demonstrated, with the use of a thought record, how inaccurate, sex-guilt related thoughts could be identified, challenged, and substituted with more balanced thoughts. Examples of sex-guilt related thoughts that arose in the course of the discussion groups included "any woman who initiates sex is immoral," "masturbation is dirty," and "good girls don't like sex." To build on the foundation laid by the group session, participants were asked to complete at least one thought record on their own prior to completing the two-week follow-up

questionnaires. Participants were asked to complete the thought record based on a thought associated with sex guilt. Examples of such thoughts were provided in participant handouts.

The contents of this intervention were adapted from an intervention for women with sexual arousal and desire difficulties developed by Brotto and Heiman (2003). To date, there have been three published studies that have reported on the efficacy of this intervention in separate samples (Brotto, Basson, et al., 2008; Brotto et al., 2012; Brotto, Heiman, et al., 2008). All three studies found a significant beneficial effect of the intervention on sexual desire.

Culture and Sexuality Control Condition

Similar to the CBT intervention condition, in the culture and sexuality control condition, the meaning of sexual arousal and desire was discussed, and prevalence rates of low sexual desire were presented and participants were then introduced to Basson's (2000) sexual response cycle. Following this, the facilitator led a discussion of various factors that influence sexual functioning, including sex guilt. The contents of the two groups diverged after this point. Instead of presenting and elaborating on the CBT model and working through a thought record, participants in the control group were given information about the influence of culture (both ethnicity and acculturation) on various aspects of sexuality, including sexual dysfunction. As in the CBT intervention condition, participants were encouraged to contribute to the discussion. To match the CBT intervention condition with respect to study demands, participants in this control condition were asked to make a list of the factors that influenced their own sexual functioning prior to completing the two-week follow-up questionnaires. A portion of the contents of the culture and sexuality control condition were adapted from the intervention developed by Brotto and Heiman (2003) and described above (Brotto, Heiman, et al., 2008).

The purpose of this control condition was to expose participants to sexual material without attempting to change thoughts and emotions about sexuality.

Technology and Multi-Tasking Control Condition

In the technology and multi-tasking control condition, frequency of and reasons for multi-tasking were discussed. The concept of mindfulness was introduced and a mindfulness exercise was conducted. Following this, participants read an article about the consequences of technology and multi-tasking on our cognitive abilities, lives and productivity, then were asked to discuss the article. As with the other two conditions, participants were encouraged to contribute as much to the discussion as they felt comfortable. Furthermore, to be consistent with the study demands of the other conditions, participants were asked to conduct a mindfulness exercise and write a diary entry about the experience before completing the two-week follow-up questionnaires.

This control condition, in which the topic of discussion was non-sexual, was included to control for the potential effects of discussing sexuality in a group setting. Topics relating to sexuality were explicitly avoided in this discussion group.

Statistical Analysis

SPSS version 13 was used for all statistical analyses with the exception of multi-level regression analyses, details of which are described below. *T*-tests were used in analyses comparing the two ethnic groups on continuous basic demographic characteristics, self-reported sex guilt and sexual desire. χ^2 tests were used in analyses comparing the two ethnic groups on categorical variables of interest such as proportion of participants in a relationship and proportion of participants who had engaged in various sexual activities.

Results

Ethnic Group Comparisons on Basic Demographic Characteristics

There was a significant ethnic difference in age, $t(74.6) = 3.32, p < .001$ (mean age of East Asian women = 19.65 years, SD = 1.74; mean age of Euro-Canadian women = 21.75 years, SD = 4.52). There was no significant ethnic difference in the proportion of women who reported being in a relationship, $\chi^2(1) = 0.05, p > .05$. There was no significant ethnic difference in highest level of educational attainment, $\chi^2(5) = 4.38, p > .05$.

Ethnic Group Comparisons on Sexuality Measures

There were significant ethnic differences in the proportion of women who had engaged in kissing, $\chi^2(1) = 17.70, p < .001$, touching with clothing removed, $\chi^2(1) = 7.24, p < .01$, touching of partner's genitals, $\chi^2(1) = 10.08, p < .001$, performing of oral sex on their partner, $\chi^2(1) = 15.64, p < .001$, receiving of oral sex from their partner, $\chi^2(1) = 11.50, p < .001$, and sexual intercourse, $\chi^2(1) = 6.18, p < .05$. All proportions are presented in Table 8.

Table 8

Ethnic Group Differences on Sexual Activity

Variable	Euro-Canadian	East Asian
% who have engaged in hugging, kissing or holding hands***	96.6%	66.7%
% who have engaged in touching with clothing removed**	79.7%	56.7%

Variable	Euro-Canadian	East Asian
% who have touched their partner's genitals***	78.0%	50.0%
% who have performed oral sex on their partner***	71.2%	35.0%
% who have had oral sex performed on them by their partner***	64.4%	33.3%
% who have engaged in vaginal-penile intercourse*	64.4%	41.7%

Significant group differences at * $p < .05$, ** $p < .01$, *** $p < .001$.

Ethnic Group Differences in Pre-Group Sex Guilt and Sexual Desire

The two ethnic groups were compared with respect to reported levels of sexual desire and sex guilt prior to participating in the assigned group. Large familywise error rate was adjusted for by applying a Bonferroni correction by dividing the conventional α level of .05 by two (the number of comparisons being made). Thus, ethnic differences were considered statistically significant only if $p < .025$ (.05/2 comparisons). Compared to the East Asian women, the Euro-Canadian women scored significantly higher on the Desire subscale of the FSFI, indicating that the Euro-Canadian women reported significantly greater pre-group sexual desire than the East Asian women in the previous four weeks, $t(117) = 3.37, p < .001$. The East Asian women scored significantly higher on the RMGI compared to the Euro-Canadian women, $t(105) = -6.71, p < .001$, demonstrating that the East Asian women reported significantly higher pre-group levels of sex guilt (Table 9).

Table 9

Ethnic Group Differences on Pre-Group Scores from the Desire Subscale of the Female Sexual Function Index (FSFI) and the Revised Mosher Guilt Inventory (RMGI)

Variable	Euro-Canadian		East Asian		<i>t(df)</i>	<i>p</i>	<i>Effect Size^c</i>
	M	SD	M	SD			
FSFI Desire ^a	4.20	1.08	3.50	1.18	3.37 (117)	< .001	.62
RMGI ^b	63.57	36.07	119.20	52.74	-6.71 (105)	< .001	1.23

Note. Higher scores denote greater sexual desire (FSFI) and higher sex guilt (RMGI). ^aBased on *n* = 59 Euro-Canadians and *n* = 60 East Asian. ^bBased on *n* = 58 Euro-Canadians and *n* = 60 East Asian. ^c*Effect size* (Cohen's *d*) was calculated as $d = (M_1 - M_2)/s$, where $s = \sqrt{[(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2]/(n_1 + n_2)}$.

Scores on the RMGI and FSFI Desire subscale were significantly and negatively correlated in both the Euro-Canadian [$r(58) = -.40, p < .01$] and East Asian women [$r(60) = -.53, p < .001$], indicating that higher level of sex guilt was associated with lower sexual desire.

Ethnic Group Differences in Sex Guilt and Sexual Desire Following the Discussion Groups

The two ethnic groups were compared with respect to reported levels of sexual desire and sex guilt at the post-group and 2-week follow-up time points. Large familywise error rate was adjusted for by applying a Bonferroni correction by dividing the conventional α level of .05 by two (the number of comparisons being made). Thus, ethnic differences were considered statistically significant only if $p < .025$ (.05/2 comparisons). Compared to the East Asian women, the Euro-Canadian women scored significantly higher on the Desire subscale of the FSFI at both the post-group and 2-week follow-up time points, indicating that the Euro-Canadian

women reported significantly greater sexual desire than the East Asian women at post-group and at the 2-week follow-up, $t(117) = 2.82, p < .01$ and $t(116) = 3.63, p < .001$, respectively. The East Asian women scored significantly higher on the RMGI compared to the Euro-Canadian women post-group and at the 2-week follow-up, $t(104) = -6.23, p < .001$ and $t(105) = -6.53, p < .001$ respectively, demonstrating that the East Asian women continued to report significantly higher levels of sex guilt following the discussion groups (Tables 10 and 11).

Table 10

Ethnic Group Differences on Post-Group Scores from the Desire Subscale of the Female Sexual Function Index (FSFI) and the Revised Mosher Guilt Inventory (RMGI)

Variable	Euro-Canadian		East Asian		$t(df)$	p	Effect Size ^c
	M	SD	M	SD			
FSFI Desire ^a	4.21	1.09	3.60	1.26	2.82 (117)	< .01	0.52
RMGI ^b	59.20	35.24	109.90	52.08	-6.21 (117)	< .001	1.14

Note. Higher scores denote greater sexual desire (FSFI) and higher sex guilt (RMGI). ^aBased on $n = 59$ Euro-Canadians and $n = 60$ East Asian. ^bBased on $n = 58$ Euro-Canadians and $n = 60$ East Asian. ^cEffect 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 11

Ethnic Group Differences on Scores from the Desire Subscale of the Female Sexual Function Index (FSFI) and the Revised Mosher Guilt Inventory (RMGI) at the 2-Week Follow-Up

Variable	Euro-Canadian		East Asian		<i>t(df)</i>	<i>p</i>	<i>Effect Size^c</i>
	M	SD	M	SD			
FSFI Desire ^a	4.07	1.13	3.25	1.30	3.63 (116)	< .001	0.65
RMGI ^b	59.90	37.36	115.22	53.78	-6.53 (105)	< .001	1.19

Note. Higher scores denote greater sexual desire (FSFI) and higher sex guilt (RMGI). ^aBased on *n* = 59 Euro-Canadians and *n* = 60 East Asian. ^bBased on *n* = 58 Euro-Canadians and *n* = 60 East Asian. ^c*Effect size* (Cohen's *d*) was calculated as $d = (M_1 - M_2)/s$, where $s = \sqrt{[(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2]/(n_1 + n_2)}$.

Multilevel Regression Analyses

Multilevel regression analyses were conducted using hierarchical linear modeling (HLM) software (R version 2.14.2; R Development Core Team, 2011). The purpose of using this data analytic technique was to account for the nesting of the four sampling occasions within the 119 participants, who were then nested within discussion groups. Time (coded 0 through 3) was entered at Level 1 and conceptualized as the within-person predictor (i.e., levels of sex guilt and sexual desire obtained from questionnaires administered at pre-group, post-group, 2-week follow-up, and 2-month follow-up). Condition (CBT Intervention, Culture and Sexuality Control, and Technology and Multi-Tasking Control) was entered at Level 2 and conceptualized as a between-person predictor. Group (the specific discussion group within the experimental condition in which each individual participated) was entered at Level 3.

The effect of the CBT Intervention Condition on sex guilt and sexual desire was tested by examining the following model:

$$\text{Level 1: } Y_{ijk} = b_{0ij} + b_{1ij}(\text{Time}) + \varepsilon_{ijk}$$

$$\text{Level 2: } b_{0ij} = b_{00j} + b_{01j}(\text{Culture and Sexuality Control Condition}) + b_{02j}(\text{Technology and Multi-Tasking Control Condition}) + u_{0ij}$$

$$b_{1ij} = b_{10j} + b_{11j}(\text{Culture and Sexuality Control Condition}) + b_{12j}(\text{Technology and Multi-Tasking Control Condition}) + u_{1ij}$$

$$\text{Level 3: } b_{00j} = b_{000} + r_{00j}$$

$$b_{01j} = b_{010}$$

$$b_{02j} = b_{020}$$

$$b_{10j} = b_{100} + r_{10j}$$

$$b_{11j} = b_{110}$$

$$b_{12j} = b_{120}$$

This model was run once with sex guilt entered as the outcome variable, Y_{ijk} , and once with sexual desire entered as the outcome variable. At Level 2, the variables "Culture and Sexuality Control Condition" and "Technology and Multi-Tasking Control Condition" are dummy variables contrasted with the reference group, the CBT Intervention Condition.

With sex guilt entered as the outcome variable, results indicated that there was a significant effect of time on sex guilt at Level 1, $b = -3.49$, $z = -2.34$, $p < .01$, such that reported levels of sex guilt decreased over the four sampling occasions when considering all three conditions together. The interaction between time and the Technology and Multi-Tasking Control Condition dummy variable was significant, $b = 3.40$, $z = 1.74$, $p < .05$, indicating that the trajectory of level of sex guilt over the four sampling occasions in the Technology and Multi-

Tasking Control Condition was significantly different from that in the CBT Intervention Condition. The trajectory of level of sex guilt over the four sampling conditions did not differ between the CBT Intervention Group and the Culture and Sexuality Control Group, $b = 0.36$, $z = 0.16$, $p = .437$. Results of this multilevel regression analysis are presented in Table 12.

Table 12

Results of multilevel regression analyses predicting level of sex guilt from treatment condition

Predictor variables	<i>b</i>	SE	<i>z</i>	<i>p</i>
Intercept	80.26	8.29	9.68	< .001
Time	-3.49	1.50	-2.34	< .01
Condition (Ref = CBT Intervention Group)				
Culture and Sexuality Control	26.59	12.69	2.10	0.018
Technology and Multi-Tasking Control	8.00	11.01	0.73	0.233
Time x Condition (Ref = CBT Intervention Group)				
Time x Culture and Sexuality Control	0.36	2.22	0.16	0.437
Time x Technology and Multi-Tasking Control	3.40	1.96	1.74	0.041

With sexual desire entered as the outcome variable in the multilevel regression model, results indicated that none of the predictor variables significantly predicted sexual desire, indicating no effect of the intervention on sexual desire (see Table 13).

Table 13

Results of multilevel regression analyses predicting level of sexual desire from treatment condition

Predictor variables	<i>b</i>	SE	<i>z</i>	<i>p</i>
Intercept	3.91	0.20	19.25	< .001
Time	0.00	0.07	-0.05	> .05
Condition (Ref = CBT Intervention Group)				

Predictor variables	<i>b</i>	SE	<i>z</i>	<i>p</i>
Culture and Sexuality Control	-0.10	0.31	-0.33	> .05
Technology and Multi-Tasking Control	-0.01	0.27	-0.05	> .05
Time x Condition (Ref = CBT Intervention Group)				
Time x Culture and Sexuality Control	-0.09	0.10	-0.86	> .05
Time x Technology and Multi-Tasking Control	-0.08	0.09	-0.92	> .05

When the effect of the CBT Intervention Group was examined by ethnic group, there was no ethnic difference in the trajectory of level of sex guilt or sexual desire over the four sampling occasions (see Tables 14 and 15).

Table 14

Results of multilevel regression analyses predicting level of sex guilt from treatment condition

with ethnicity entered as a between-person predictor

Predictor variables	<i>b</i>	SE	<i>z</i>	<i>p</i>
Intercept	56.73	9.64	5.89	< .001
Time	-1.76	1.87	-0.94	> .05
Condition (Ref = CBT Intervention Group)				
Culture and Sexuality Control	17.35	15.23	1.14	> .05
Technology and Multi-Tasking Control	5.72	13.19	0.43	> .05
Ethnicity (Ref = Euro-Canadian)	50.26	14.94	3.36	< .01
Time x Condition (Ref = CBT Intervention Group)				
Time x Culture and Sexuality Control	-1.34	2.99	-0.45	> .05
Time x Technology and Multi-Tasking Control	0.08	2.62	0.03	> .05
Time x Ethnicity (Ref = CBT Intervention Group)	-3.90	3.11	-1.25	> .05
Condition (Ref = CBT Intervention Group) x Ethnicity (Ref = Euro-Canadian)				
Culture and Sexuality Control x East Asian	12.34	22.69	0.54	> .05
Technology and Multi-Tasking Control x East Asian	-1.07	19.69	-0.05	> .05
Time x Condition (Ref = CBT Intervention Group) x Ethnicity (Ref = Euro-Canadian)				
Time x Culture and Sexuality Control x East Asian	4.04	4.59	0.88	> .05
Time x Technology and Multi-Tasking Control x East Asian	6.55	4.05	1.62	> .05

Table 15

Results of multilevel regression analyses predicting level of sexual desire from treatment

condition with ethnicity entered as a between-person predictor

Predictor variables	<i>b</i>	SE	<i>z</i>	<i>p</i>
Intercept	4.02	0.29	14.07	< .001
Time	0.009	0.09	0.10	> .05
Condition (Ref = CBT Intervention Group)				
Culture and Sexuality Control	0.35	0.44	0.78	> .05
Technology and Multi-Tasking Control	0.22	0.38	0.57	> .05
Ethnicity (Ref = Euro-Canadian)	-0.32	0.41	-0.77	> .05
Time x Condition (Ref = CBT Intervention Group)				
Time x Culture and Sexuality Control	-0.10	0.14	-0.73	> .05
Time x Technology and Multi-Tasking Control	-0.02	0.12	-0.15	> .05
Time x Ethnicity (Ref = CBT Intervention Group)	-0.03	0.15	-0.24	> .05
Condition (Ref = CBT Intervention Group) x Ethnicity (Ref = Euro-Canadian)				
Culture and Sexuality Control x East Asian	-0.74	0.62	-1.19	> .05
Technology and Multi-Tasking Control x East Asian	-0.36	0.53	-0.67	> .05
Time x Condition (Ref = CBT Intervention Group) x Ethnicity (Ref = Euro-Canadian)				
Time x Culture and Sexuality Control x East Asian	0.03	0.21	0.15	> .05
Time x Technology and Multi-Tasking Control x East Asian	-0.11	0.19	-0.58	> .05

Discussion

Review of Hypotheses and Related Results

The current study sought to extend the findings of Studies 1 and 2, which found that culture-linked differences in sexual desire are mediated by levels of sex guilt, by examining the efficacy of a CBT-based intervention in reducing levels of sex guilt and thereby increasing sexual desire compared to two control groups in a university convenience sample of women. The current intervention was adapted from a treatment manual that was developed by Brotto and Heiman (2003) for women with difficulties with sexual arousal and desire, and which was found to have a beneficial effect on sexual desire (Brotto, Basson, et al., 2008; Brotto et al., 2012; Brotto, Heiman, et al., 2008). There has been extremely limited research on the treatment of sex guilt, with just three unpublished dissertations that have examined the efficacy of various interventions in reducing sex guilt (Doller, 1981; Marshall, 1976; Stein, 1977), and the literature examining CBT treatments for sexual desire is similarly limited (Brotto, Basson, & Luria, 2008; Brotto et al., 2012; Brotto, Heiman, et al., 2008, McCabe, 2001; Trudel et al., 2001). The current study contributes to the literature in both areas by examining whether an intervention aimed at decreasing sex guilt could be effective in increasing sexual desire.

Hypothesis 1 predicted that the Euro-Canadian women would report significantly higher sexual desire and lower sex guilt than the East Asian women prior to participating in the discussion groups. This hypothesis was supported by the data and these results are consistent with the literature on ethnic differences in sexual functioning and sex guilt in individuals of Asian and European ancestry (e.g. Abramson & Imai-Marquez, 1982; Brotto et al., 2005; Cain et al., 2003; Laumann et al., 2005; Woo et al., 2009; Woo et al., 2011a; Woo, Brotto, & Gorzalka, 2011b), including the results of Studies 1 and 2.

Hypothesis 2 predicted that the CBT Intervention Condition would lead to a decrease in sex guilt compared to both control conditions. Multilevel regression analyses revealed a significant difference in the trajectory of sex guilt between the CBT Intervention Condition and the Technology and Multi-Tasking Control Condition, indicating that the CBT intervention led to a significant decrease in reported levels of sex guilt compared to the Technology and Multi-Tasking Control Condition, which was essentially a no-treatment control condition. On the other hand, there was no difference in the trajectory of sex guilt between the CBT Intervention Condition and the Culture and Sexuality Control Condition, indicating that sex guilt did not differ between these two conditions following group participation. The results therefore provided support for hypothesis 2.

The current study represents the first investigation to date of the efficacy of a CBT-based intervention in reducing sex guilt. The finding that the CBT Intervention Condition led to a significant decline in sex guilt compared to the Technology and Multi-Tasking Control Condition suggests that the CBT intervention employed in the current study represents a promising avenue for reducing guilty feelings surrounding sexuality. However, it must be recognized that the current study represents an exploratory study in that there has been no published research examining the efficacy of directly targeting sex guilt using a CBT approach. As such, a university convenience sample was used in which participants were not screened for high levels of sex guilt or distress related to sex guilt, and thus, did not necessarily have difficulties with high levels of sex guilt. This likely led to the inclusion of participants who did not view sex guilt as a problem in their lives and who therefore may not have been motivated to engage actively with, or to reflect on, the discussion material or the homework assignment. Furthermore, the current intervention was brief as a large amount of information (especially in

the CBT Intervention Condition) was presented within a short period of time (each discussion group lasted 45 minutes) and it is likely that participants would have benefited from additional time to absorb and process the material and to clarify any questions they may have had.

Interestingly, there was no difference in sex guilt following the discussion group when comparing the CBT Intervention Group to the Culture and Sexuality Control Condition. It is important to note that the Culture and Sexuality Control Condition involved discussion of sexual material, including the meaning of sexual arousal and desire, factors that influence sexual functioning, and the role of culture in sexuality. Furthermore, the homework assignment for those in the Culture and Sexuality Control Condition involved making a list of factors that influenced participants' own sexuality prior to completing the 2-week follow-up questionnaires. In contrast, the Technology and Multi-Tasking Control Condition was specifically included in the current study to control for the potential effects of discussing sexuality in a group setting. As such, the topic of discussion was non-sexual in nature as was the homework assignment. It is possible that for the participants in the Culture and Sexuality Control Condition, discussing sexual material in a group setting and thinking about the factors that shaped their sexuality may have inadvertently reduced self-reported levels of sex guilt although the mechanisms for this are unclear and beyond the scope of the current investigation. On the other hand, follow-up analyses revealed that there was no significant difference in the trajectory of sex guilt between the Culture and Sexuality Control Condition and the Technology and Multi-Tasking Control Condition, $b = 3.11, z = 1.30, p > .05$. Thus, there is no evidence from the current study that discussing sexuality alone, without an intervention component that directly targets sex guilt, is effective in reducing sex guilt compared to a no-treatment control group. However, future research utilizing larger samples may provide further clarification on the extent to which discussions of sexual

material in a group setting may affect sex guilt even in the absence of an active attempt to reduce sex guilt.

Hypothesis 3 predicted that the CBT Intervention Condition would lead to an increase in self-reported sexual desire compared to both control conditions. Multilevel regression analyses revealed no differences between the CBT Intervention Condition and the two control conditions in the trajectory of sexual desire over the four time points, indicating that the CBT intervention did not lead to an increase in sexual desire compared to the control conditions. There are a number of possible reasons for the non-significant effect of the CBT intervention on sexual desire. First, it is possible that the limited size of the sample resulted in the current study being underpowered and that a significant effect of the CBT treatment on sexual desire was missed as a result. Second, participants were not screened for level of sexual desire, or for distress or impairment arising from difficulties with sexual desire, prior to their participation in this study. This may have skewed the results toward non-significance by including participants who did not experience sexual desire difficulties, thereby leaving little room for improvement due to a ceiling effect. Moreover, research indicates that the incidence of desire difficulties increases with age, and thus, the young age of the current sample would predict a low prevalence of sexual desire difficulties. For example, using a national probability sample of 987 Caucasian American and African American women aged 20 to 65 years of age, Bancroft et al. (2003) found a clear relationship between age and frequency of thinking about sex with interest, with frequency of sexual thoughts declining with increasing age. Hayes et al. (2007) found that among women aged 20 to 70 years, self-reported sexual desire decreased with age among European women and there was a trend toward an age-related decline in sexual desire among American women, although this trend was non-significant. In a review of community-based studies of the

relationship between age and sexual functioning, Hayes and Dennerstein (2005) found that sexual desire decreases with age, and estimated that this decline begins in a woman's late 20s to late 30s. Thus, the relatively low incidence of sexual desire difficulties in the current sample may have compromised the ability of the current study to produce and detect an increase in sexual desire. Comparing FSFI Desire scores across the three studies, it was found that participants (both Euro-Canadian and Asian) in Study 3 reported the highest levels of sexual desire. Additional analyses revealed that the magnitude of the differences ranged from very small to medium (Cohen's $d = 0.11$ to 0.50) when comparing the Euro-Canadian participants in Study 3 to those in Studies 1 and 2, and that the magnitude of the differences ranged from small to medium (Cohen's $d = 0.32$ to 0.56) when comparing the Asian women in Study 3 to those in Studies 1 and 2. Unfortunately, the reason for this is unclear from the current series of studies; however, this finding suggests that there may have been a ceiling effect in the current study such that with sexual desire already being at a relatively high level, it may not have been possible to further increase it via a brief intervention.

To investigate whether there were any ethnic differences in the effect of the intervention on sex guilt and sexual desire, ethnicity was added as a Level 2 factor in the multilevel regression analysis. Results revealed no ethnic difference in the effect of the intervention on either of the outcome variables.

Implications

The current study provides further evidence of culture-linked differences in self-reported sex guilt and sexual desire among individuals of Asian and European descent. Taken together with the results of studies 1 and 2 which found that sex guilt plays an important role in mediating

East Asian women's low sexual desire, this suggests that interventions aimed at reducing sex guilt may be effective in increasing sexual desire.

Unfortunately, interventions for the reduction of sex guilt have received little empirical attention, and the present research represents the first attempt to apply cognitive behavioural techniques to decrease sex guilt. Although there were no significant differences between the three conditions in level of sexual desire following the discussion groups, it is believed that further investigations of whether targeting sex guilt may be beneficial in effectively treating complaints of low sexual desire may still be warranted due to the significant effect of the intervention on levels of sex guilt. As noted earlier, a number of factors in the current study may have skewed the results toward non-significance, including small sample size, a ceiling effect with regard to sexual desire, and the fact that participants were not selected based on pre-participation levels of sexual desire. Further research that addresses these factors may shed light on the effectiveness of targeting sex guilt in the treatment of low sexual desire. Of the limited research that has examined the treatment of sex guilt, the current study was the first to find a significant effect on sex guilt within a sample of female undergraduate students. Although Doller (1981) did find lower levels of sex guilt following two of the three treatment conditions, participants in that study were recruited based on their scores on the MFCGI, with only those who scored in the top two thirds being invited to participate. Moreover, the effect reported by Doller (1981) was found only for those participants who had been classified as reporting high sex guilt. No changes in sex guilt were found among the participants who had been classified as moderate in level of sex guilt. It is interesting to note that a significant effect of the treatment on sex guilt was found in the current study despite the fact that the participants in the current study were not selected based on level of sex guilt.

Furthermore, due to the exploratory nature of the current study, the intervention was relatively brief, consisting of a single, 45-minute group session, during which a large amount of information was presented, including the incidence of sexual difficulties, a theoretical model of female sexual desire, an explanation of CBT, thoughts related to sex guilt, and a technique for identifying and modifying these thoughts. Within this condensed session, attempts were also made to facilitate group participation. As noted earlier, the current intervention was adapted from a manual developed by Brotto and Heiman (2003), and it is worthwhile to highlight that all three studies that have examined the efficacy of the original intervention were based on longer and more elaborated treatment programs, with Brotto, Heiman, et al. (2008) examining the efficacy of a treatment consisting of three, one-hour sessions, and Brotto, Basson, et al. (2008) and Brotto et al. (2012) studying the effects of the treatment provided in three, 90-minute sessions. It, therefore, appears reasonable to speculate that the current intervention, if expanded, may produce an increase in sexual desire. This, however, is purely speculative and requires further investigation. Based on the current results and the factors that may have skewed the key results toward non-significance, it is recommended that future research on the CBT treatment of sexual desire utilize an expanded intervention to allow participants additional time to more fully understand and absorb the material, as well as to obtain clarification of any questions that may arise.

General Discussion

Research that has considered the effects of culture on sexuality among those of Asian and European descent has consistently found significant differences between the two groups in facets of sexuality ranging from sexual knowledge, attitudes, and norms, to sexual behaviour, sexual and reproductive health, and sexual abuse and aggression. Furthermore, as a separate index of culture, more recent research that has examined the effects of bidimensional acculturation within Asian individuals living in North America has also reported significant effects of both mainstream and heritage acculturation on various aspects of sexuality. Although the vast majority of these studies attributed the observed cultural effects to culture-linked disparities in sexual conservatism, this proposition had not been empirically examined and remained an anecdotal supposition.

The current research represents the first attempt to explore the possible mechanisms that underlie cultural effects on sexuality among Asian and Euro-Canadian women, with a specific focus on sexual desire, and provides the first empirical evidence to date that sexual conservatism is one of the mechanisms by which culture influences sexual desire. Specifically, Study 1 found that East Asian ethnicity is associated with higher levels of sexual conservatism among female undergraduates, which in turn is linked to lower levels of sexual desire. This research is also the first to investigate the potential role of sex guilt in cultural effects on sexual desire and found that sex guilt is another mediator of the relationship between ethnicity and sexual desire, with East Asian ethnicity being associated with higher sex guilt, and higher sex guilt being linked to lower sexual desire. Interestingly, although both sex guilt and sexual conservatism mediated the relationship between ethnicity and sexual desire among the undergraduate students in Study 1, sex guilt alone was found to mediate the relationship between mainstream acculturation and

sexual desire in the East Asian participants. Specifically, higher mainstream acculturation was associated with lower sex guilt, which in turn was associated with higher sexual desire among the East Asian women.

This pattern of findings suggests that although sexual conservatism plays a role in explaining differences in sexual desire between individuals of East Asian and European ancestry, sex guilt may have more utility than the general concept of sexual conservatism in the understanding of difficulties with sexual desire. Moreover, as one of the ultimate goals of the current research program was to develop an intervention for an underlying cause of the culture-linked disparity in sexual desire, it was necessary to further explore the role of sex guilt in the etiology of low sexual desire. One of the primary goals of Study 2, therefore, was to examine whether sex guilt would continue to play a role in level of sexual desire in an older sample, where a higher proportion of participants would be married. The findings of Study 1 could not be generalized beyond the young and largely unmarried university convenience sample that was used as it is possible that level of sex guilt may be influenced (i.e. decrease) via a change in marital status from single to married, given the cultural prohibition against pre-marital sexual activity in East Asian culture, especially for women.

A remarkable example of how seriously East Asian culture regards the importance of female premarital virginity can be seen in a Cantonese wedding tradition. Newly married couples return to visit the bride's family three days after the wedding. At this time, the groom traditionally presents to the bride's parents a whole roasted suckling pig if he is satisfied that his bride was a virgin at the time of marriage. This pig is cut and distributed to relatives and friends. On the other hand, if the groom is not satisfied about his bride's virginity, he does not offer her parents a pig. As a result, the presence or absence of the roasted pig is a public announcement of

the bride's virginal status before her marriage, with the absence of the pig likely to cause consternation among onlookers and profound and lasting shame in the bride's parents (Ho, 2005). As a variant on this tradition, a whole roasted pig is an indicator of the bride's premarital virginity whereas a roasted pig with its ear broken off indicates premarital loss of virginity. Although it is rare in modern times for a groom to not offer a roasted pig (or to break off the pig's ear) regardless of his bride's premarital sexual experience, the spirit of the tradition exemplifies Asian conservatism towards sexuality. As a result of the cultural emphasis on restricting sexual expression outside of marriage, it was not possible to draw conclusions about the relationships among culture, sex guilt and sexual desire in older, married women based on the results of Study 1. In the social context of the participants in Study 1, sex guilt may be expected to be elevated among the East Asian women due to cultural restrictions on sexual activity. It is conceivable that sex guilt may not play a similar role in low sexual desire among married East Asian women as it is presumed that their marital status would confer cultural endorsement of sexual activity within the marital relationship.

In Study 2, a sample of Chinese women was recruited from the community and interviewed in the language of their choice (English, Cantonese, or Mandarin). Although not a nationally representative sample, a majority of the Chinese participants (59%) were married at the time of the interview and a total of 74% of the Chinese participants reported having been married at one point (10% were divorced and 4% were widowed). It is therefore noteworthy that Study 2 also found that sex guilt mediates the relationship between ethnicity and sexual desire, as well as that between mainstream acculturation and sexual desire, mirroring the main results of Study 1 despite the significant difference in the proportion of married women who might have

been expected to experience less sex guilt than their unmarried counterparts. Also as in Study 1, sex guilt did not mediate the relationship between heritage acculturation and sexual desire.

Why does sex guilt mediate the relationship between ethnicity and sexual desire? As noted in the introduction to this dissertation, despite the openness of Confucius to sexuality, Neo-Confucian thought during the Song Dynasty (960 to 1276 A.D.) became sexually suppressive and prohibitions against premarital and extramarital sexual activity arose. Subsequent historical events cemented this sexual suppression; Mongolia invaded and occupied China for 100 years and in an occupied country, Neo-Confucian rules that required women to be concealed from the public served the purpose of protecting them from the occupiers. As Confucianism spread to Japan and Korea, these views of sexuality also profoundly affected those cultures.

The question of how Neo-Confucian views of sexuality were transmitted to the current samples of East Asian participants, between 9% (Study 2) and 30% (Study 1) of whom were born outside of East Asia, may be addressed by examining research on 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). Research on Japanese American individuals has found that in the face of discomfort, second- and third-generation Japanese American parents were less likely to persist in discussion of sexual issues with their children compared to Euro-American parents (Abramson, Moriuchi, Waite, & Perry, 1983). Despite the ostensible absence of discussions about sexuality in Chinese families, research suggests that Asian parents need to clearly communicate their sexual values and expectations to their children and, in fact, use other, more indirect ways to convey these messages in an attempt to shape 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 Chinese parents tell their children that “romance is for marriage, and not before,” parental expectations of children’s sexual conduct are abundantly clear even without specifically and verbally referring to sexual intercourse (Gudykunst, 2001; Kim & Ward, 2007). In fact, one qualitative study on communication in Asian American families indicates that 12% of women and 24% did not recall talking to their parents about sexuality at all, either because the topic did not naturally arise in conversations, or because it was actively avoided by both parties (Kim & Ward, 2007). However, it appears that parental sexual values were still communicated effectively as some of these participants indicated that “it was just understood that [sex] was bad and I wasn’t supposed to do it.” Even when verbal messages were recalled by participants, these often took the form of indirect communications such as “there’s no need to date when you are still young” and “studying and schoolwork is more important than dating a guy.” Despite the non-verbal and indirect nature of the messages, however, the sexually prohibitive tone was clear to the recipients of the messages.

Moreover, the study by Kim & Ward (2007) found that female participants recalled receiving more sexually prohibitive messages than male participants, which is indicative of a sexual double standard. This is consistent with the findings of quantitative research studies. For example, one study of men in Hong Kong found greater tolerance of men than of women engaging in casual sex (Family Planning Association of Hong Kong, 2000). Another study conducted in Hong Kong found that more women than men believed that their relationships would remain unaffected if they discovered that their fiancés had had prior sexual partners (Liu,

Ng, Zhou, & Haeberle, 1997). In contrast, the men in that study expected that their relationships would be irreparably damaged if they discovered the same of their fiancées. Consequently, consistent and strong parental condemnation of female pre-marital intercourse, whether verbal or non-verbal, 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 play an important role in dampening sexual desire.

The finding that the specific construct of sex guilt plays a role in East Asian women's sexual desire has important implications. Understanding that the cultural differences in sexual desire among East Asian and Euro-Canadian individuals are mediated by sex guilt suggests the possibility that culture-linked differences in other domains of sexuality may also be explained by specific constructs (of which sex guilt comprises one). Although many such cultural disparities have been attributed to ambiguous differences in sexual conservatism, it is hoped that the current findings will encourage more in-depth and sustained research into the factors that underlie other cultural differences in sexuality.

The main objective of Study 3 was to extend the findings of Studies 1 and 2 by examining the effectiveness of a CBT-based intervention in increasing sexual desire by reducing sex guilt. As noted earlier, there was a significant effect of the intervention on sex guilt whereas no effect on sexual desire was found. Although only limited support for the central hypotheses of Study 3 was found, it is believed that additional research on interventions designed to increase sexual desire by reducing sex guilt are warranted due to the growing literature indicating an inverse relationship between sex guilt and sexual desire. With respect to the hypothesis that the intervention would lead to an increase in sexual desire, although Study 3 found no treatment

effect on sexual desire, it is believed that future research utilizing larger sample sizes and recruiting participants based on difficulties and/or distress related to sex guilt and sexual desire may clarify the extent to which a therapeutic focus on sex guilt may be beneficial in increasing sexual desire. As noted earlier, it is believed that Study 3 suffered from a number of methodological limitations that may have negatively affected the ability to produce and detect changes in both sex guilt and sexual desire.

Clinical Implications

The current series of studies also have a number of important clinical implications. Firstly, the current evidence that sex guilt plays an important role in East Asian women's sexual desire has implications for the treatment of low sexual desire in this population. The findings from Studies 1 and 2 suggest that the effectiveness of psychological interventions aimed at increasing East Asian women's sexual desire may be improved by specifically incorporating a focus on addressing sex guilt. Given the central premise of CBT that thoughts, emotions and behaviours are inextricably linked and that changes in any one of these elements leads to changes in the other two, it is proposed that a CBT based intervention aimed at identifying and modifying thoughts that are linked to sex guilt may lead to a reduction in sex guilt among East Asian women.

Secondly, although the hypothesis that the CBT Intervention Condition would lead to a reduction in sex guilt and an increase in sexual desire was only partially supported by the data in Study 3, it is believed that the methodological limitations of Study 3 may have compromised the ability to produce and detect changes in these main outcome variables. Thus, it is possible that interventions similar to the one examined in Study 3 may show promise if the aforementioned

limitations are addressed. However, at this point, this remains speculative and future research will be needed to explore this possibility.

Furthermore, although the primary goal of the current research was to explore possible underlying mechanisms of cultural differences in sexual desire among women of East Asian and European ancestry, both Studies 1 and 2 found a negative correlation between sex guilt and sexual desire within each ethnic group such that higher sex guilt was associated with lower sexual desire. This finding, taken together with the finding by Nobre (2009) that sex guilt negatively influenced sexual desire both directly and indirectly in a causal model in a sample of Portuguese women, indicates that interventions designed to increase sexual desire by reducing sex guilt may have utility even among women of other ethnocultural backgrounds when sex guilt is a prominent feature of the presentation. This finding of a significant inverse association between sex guilt and sexual desire provided the major impetus for exploring the effectiveness of an intervention aimed at sex guilt reduction in Study 3.

Limitations

As is the case with all research, the current research had some limitations that may have affected the results and the conclusions that could be drawn. Although a significant mediating effect of sex guilt was found in the relationship between culture and sexual desire, it is possible that other factors that were not examined in the current research could account for these findings. For example, the social desirability of reporting high levels of sex guilt was not studied and culture-linked differences in social desirability, given culture-linked attitudes towards sexuality, may account for this finding.

Secondly, as previously mentioned, Studies 1 and 3 were based on university convenience samples and thus, the findings suffer from lack of generalizability to the general

population due to the younger age, higher socioeconomic status, likely greater westernization and higher proportion of unmarried participants that characterize university populations. In addition to these limitations, the use of a university convenience sample posed particular logistical problems in Study 3. The university's human subject pool guidelines stated that participants could receive a maximum of two credits per study and thus, the time commitment required of participants in Study 3 had to be limited to two hours (one credit is given per hour of participation). This requirement was the major reason for the brevity of the intervention as participants needed to be given time to complete three sets of questionnaires and the homework assignment, in addition to participating in the discussion group.

Thirdly, as noted previously, as Study 3 was exploratory in nature and a university sample was used, participants did not necessarily have difficulties with either sex guilt or sexual desire. As such, participants may have had limited motivation to engage with the material to change their sex guilt and sexual desire. It is also important to recall that participants in Study 3 were recruited from the university's human subject pool and that participants had limited information about the purpose of the study prior to presenting for the discussion group. With regard to the latter, participants were only told that the purpose of the study was "to examine the effect of various discussion groups on sexual desire" in the consent form. It is plausible that participants were participating primarily to obtain course credits and did not expect to be asked to exert effort to change their sexual desire. By nature, CBT requires both a desire to change and exertion of effort from clients (in this case, research participants), both within and outside of sessions, and both of these ingredients may have been missing due to the use of a university sample. Furthermore, the sample size in Study 3 was relatively small, which increases the risk of

Type II errors and it is possible that significant treatment effects on sexual desire were missed in this research due to this limitation.

A fourth limitation of Study 3 was that groups in all three conditions were facilitated by the current author. As such, it is possible that the marginally significant effect of the intervention on sex guilt may have been due to experimenter bias. Although the nature of the study would have precluded the blinding of group facilitators even if multiple facilitators were available, the current experimenter may have influenced the results through a desire to find a significant treatment effect.

As alluded to, the current research suggests a number of potential directions for future research. Firstly, although the finding that sex guilt mediated the relationship between ethnicity and sexual desire as well as the relationship between mainstream acculturation and sexual desire is interesting and novel, the reasons for the absence of a similar effect on heritage acculturation are unclear. One possible reason for the insignificant findings in relation to heritage acculturation could be the psychometric properties of the heritage acculturation dimension of the VIA. According to one of the authors of the VIA (Ryder, 2009), unpublished data suggest that findings relating to heritage acculturation have displayed less reliability compared to findings relating to mainstream acculturation. The reasons for this are unclear and it is hoped that future research will be able to shed light on this question.

Secondly, the current research focused on East Asian and Euro-Canadian sexual desire. It would be interesting for future research to expand these findings to other areas of sexuality (e.g. other domains of sexual functioning, sexual attitudes, sexual knowledge) by investigating potential underlying mechanisms by which culture influences sexuality. Moreover, factors that underlie sexuality differences in other ethnic groups have received limited empirical attention.

For example, African-American individuals report more conservative attitudes toward homosexuality than Hispanics and Euro-Americans (Bonilla & Porter, 1990), and Hispanics report more restrictive attitudes towards premarital and extramarital sex (Eisenman & Dantzker, 2006) but the reasons for these differences remain unclear and would be interesting to explore. With respect to other cultural differences in sexual function, Hispanic women report lower physical pleasure and arousal compared to Euro-American women (Avis et al., 2005) and it would be interesting to investigate whether sex guilt plays a role in this disparity, or whether this difference can be accounted for by another factor.

Third, although the mediating effect of sex guilt was found in two separate samples drawn from different populations, the possibility remains that factors that were not studied in the current research may account for these results. It is hoped that future research will control for potential confounding factors such as cultural differences in the social desirability of reporting high levels of sexual desire, which may account for the finding that sex guilt plays a mediating role in the relationship between ethnicity and mainstream acculturation, and sexual desire. This may be particularly important given the well-documented East Asian reticence in sexuality-related issues.

Fourthly, with a significant difference in sex guilt but no difference in sexual desire found between the CBT condition and the no-treatment control condition (Technology and Multi-Tasking Control Condition) despite the factors that may have skewed the results toward non-significance, it may be worthwhile to explore this intervention more thoroughly. Some possibilities include expanding the treatment by providing more sessions or otherwise lengthening the intervention, or through investigation of which specific portions of the treatment were the active ingredients in effecting change in sex guilt. At the moment, the evidence of

treatment effectiveness may not be strong enough to warrant a clinical study; however, future research that screens participants for high sex guilt or low sexual desire prior to participation may shed light on whether expanding the current intervention to a clinical sample would be warranted.

Finally, Studies 1 and 3 investigated East Asian women as a group on the basis that Chinese, Japanese and Korean cultures have all been heavily influenced by Confucianism and neo-Confucianism, as well as recent research that has grouped these cultures together in comparisons with individuals of European ancestry (e.g. Brotto et al., 2005; Brotto et al. 2011; Brotto et al., 2007; Kennedy & Gorzalka, 2002; Meston & Ahrold, 2010; Woo & Brotto, 2008). Additional analyses of the current data revealed no differences between the Korean and Chinese participants in the trajectory of either sex guilt or sexual desire over the four sampling occasions, indicating no differences between the two ethnic groups with respect to their response to the intervention. However, analyses of ethnic differences revealed that the Korean participants reported significantly greater levels of sex guilt than the Chinese participants, $t(17) = -2.12, p = .05$. The reason for this difference is beyond the scope of the current study, but it is believed that this result provides further impetus for examining individuals from ethnic Chinese, Japanese and Korean backgrounds separately. East Asians are a heterogeneous group and it is likely that investigating them as separate groups would yield interesting findings and provide a more fine-grained understanding of various factors that influence sexuality within the different cultures.

It is also noted that even among the Chinese individuals who participated in the three current studies, there was heterogeneity in place of birth, with those born in Asia primarily originating from Taiwan, Hong Kong, and China. It was not possible to meaningfully analyze the data separately for individuals originating from different places as the sample sizes would

have been too small to provide sufficient power. However, given the strong historical and political forces that have shaped the political systems, national identities and degree of personal freedom in these places, it is speculated that research employing larger samples would find significant differences among Chinese individuals originating from Taiwan, Hong Kong, and China.

The findings of the current research expand our understanding of cultural disparities in sexual desire beyond the observation of their existence and suggest potential avenues for the psychological treatment of sexual desire difficulties. It is hoped that this research will provide a basis for further research into both underlying mechanisms of cultural effects on sexual desire as well as development of psychological interventions for sexual desire difficulties. Although advances in psychological treatments for sexual desire difficulties in women are important in and of themselves, perhaps even greater importance is conferred by the absence of any approved pharmacological treatments for these difficulties.

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Appendices

Appendix A. Vancouver Index of Acculturation.

Please answer each question as carefully as possible by circling **one** of the numbers under each question to indicate your degree of agreement or disagreement.

Many of these questions will refer to your **heritage culture**, meaning the culture that has influenced you the most (other than North American culture). It may be the culture of your birth, the culture in which you have been raised, or another culture that forms a part of your background. If there are several such cultures, pick the one that has influenced you **most** (e.g. Chinese, Irish, Mexican, Black). If you do not feel that you have been influenced by any other culture, please try to identify a culture that may have had an impact on previous generations of your family.

What is your **heritage culture**? _____

Use the following key to help guide your answers:

Strongly		Disagree		Neutral/		Agree		Strongly
Disagree				Depends				Agree
1	2	3	4	5	6	7	8	9

1. I often participate in my heritage cultural traditions.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

2. I often participate in mainstream North American cultural traditions.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

3. I would be willing to marry a person from my heritage culture.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

4. I would be willing to marry a North American person.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

5. I enjoy social activities with people from the same heritage culture as myself.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

6. I enjoy social activities with typical North American people.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

7. I am comfortable working with people of the same heritage culture as myself.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

8. I am comfortable working with typical North American people.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

9. I enjoy entertainment (e.g., movies, music) from my heritage culture.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

10. I enjoy North American entertainment.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

11. I often behave in ways that are typical of my heritage culture.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

12. I often behave in ways that are 'typically North American'.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

13. It is important for me to maintain or develop the practices of my heritage culture.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

14. It is important for me to maintain or develop North American cultural practices.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

15. I believe in the ways of my heritage culture.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

16. I believe in the mainstream North American values.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

17. I enjoy the jokes and humor of my heritage culture.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

18. I enjoy typical North American jokes and humor.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

19. I am interested in having friends from my heritage culture.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

20. I am interested in having North American friends.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

Appendix B. Female Sexual Function Index.

These questions ask about your sexual feelings and responses during the past 4 weeks. Please answer the following questions as honestly and clearly as possible using the scale to the right. Your responses will be kept completely confidential. If you choose not to answer a particular question, please proceed to the next question. Circle only one item per question. In answering these questions, the following definitions apply:

Sexual activity can include caressing, foreplay, masturbation, and vaginal intercourse.

Sexual intercourse is defined as penile penetration (entry) of the vagina.

Sexual stimulation includes situations like foreplay with a partner, self stimulation (masturbation), or sexual fantasy.

<u>Question</u>	<u>Response options</u> (please circle)
1. Over the past 4 weeks, how satisfied have you been with your overall sexual life?	5= Very satisfied 4= Moderately satisfied 3= About equally satisfied & dissatisfied 2= Moderately dissatisfied 1= Very dissatisfied
2. Over the past 4 weeks, how often did you feel sexual desire or interest?	5= Almost always or always 4= Most times (more than ½ the time) 3= Sometimes (about ½ the time) 2= A few times (less than ½ the time) 1= Almost never or never
3. Over the past 4 weeks, how would you rate your level (degree) of sexual desire or interest?	5= Very high 4= High 3= Moderate 2= Low 1= Very low or none at all
4. Over the past 4 weeks, did you engage in sexual activity of any kind with a partner and/or by yourself (masturbation)?	0 = No sexual activity (neither with a partner nor by myself) 1 = Sexual activity with a partner only 1 = Sexual activity by myself only 1 = Sexual activity both with a partner and by myself

If you selected “0 = No sexual activity (neither with a partner nor by myself)”, please skip remaining questions on this questionnaire. If you selected any other response, please continue.

- | | | |
|-----|--|---|
| 5. | Over the past 4 weeks, how often did you feel sexually aroused (“turned on”) during sexual activity or intercourse? | 0= No sexual activity
5= Almost always or always
4= Most times (more than ½ the time)
3= Sometimes (about ½ the time)
2= A few times (less than ½ the time)
1= Almost never or never |
| 6. | Over the past 4 weeks, how would you rate your level of sexual arousal (“turned on”) during sexual activity or intercourse? | 0= No sexual activity
5= Very high
4= High
3= Moderate
2= Low
1= Very low or none at all |
| 7. | Over the past 4 weeks how confident were you about becoming sexually aroused during sexual activity or intercourse? | 0= No sexual activity
5= Very high confidence
4= High confidence
3= Moderate confidence
2= Low confidence
1= Very low or no confidence |
| 8. | Over the past 4 weeks, how <i>often</i> have you been satisfied with your sexual arousal (excitement) during sexual activity or intercourse? | 0= No sexual activity
5= Almost always or always
4= Most times (more than ½ the time)
3= Sometimes (about ½ the time)
2= A few times (less than ½ the time)
1= Almost never or never |
| 9. | Over the past 4 weeks, how <i>often</i> did you become lubricated (“wet”) during sexual activity or intercourse? | 0= No sexual activity
5= Almost always or always
4= Most times (more than ½ the time)
3= Sometimes (about ½ the time)
2= A few times (less than ½ the time)
1= Almost never or never |
| 10. | Over the past 4 weeks, how <i>difficult</i> was it for you to become lubricated (“wet”) during sexual activity or intercourse? | 0= No sexual activity
1= Extremely difficult or impossible
2= Very difficult
3= Difficult
4= Slightly difficult
5= Not difficult |
| 11 | Over the past 4 weeks, how <i>often</i> did you maintain your lubrication (“wetness”) during sexual activity or intercourse? | 0= No sexual activity
5= Almost always or always
4= Most times (more than ½ the time)
3= Sometimes (about ½ the time)
2= A few times (less than ½ the time)
1= Almost never or never |
| 12. | Over the past 4 weeks, how <i>difficult</i> was it to maintain your lubrication (“wetness”) during sexual activity or intercourse? | 0= No sexual activity
1= Extremely difficult or impossible
2= Very difficult
3= Difficult
4= Slightly difficult
5= Not difficult |

13. Over the past 4 weeks, when you had sexual stimulation, how *often* did you reach orgasm (climax)?
- 0= No sexual activity
5= Almost always or always
4= Most times (more than ½ the time)
3= Sometimes (about ½ the time)
2= A few times (less than ½ the time)
1= Almost never or never
14. Over the past 4 weeks, when you had sexual stimulation, how *difficult* was it you to reach orgasm (climax)?
- 0= No sexual activity
1= Extremely difficult or impossible
2= Very difficult
3= Difficult
4= Slightly difficult
5= Not difficult
15. Over the past 4 weeks, how satisfied were you with your ability to reach orgasm (climax) during sexual activity or intercourse?
- 0= No sexual activity
5= Very satisfied
4= Moderately satisfied
3= About equally satisfied & dissatisfied
2= Moderately dissatisfied
1= Very dissatisfied
16. Over the past 4 weeks, how satisfied have you been with the amount of emotional closeness during sexual activity between you and your partner?
- 0= No sexual activity
5= Very satisfied
4= Moderately satisfied
3= About equally satisfied & dissatisfied
2= Moderately dissatisfied
1= Very dissatisfied
17. Over the past 4 weeks, how satisfied have you been with your sexual relationship with your partner?
- 0= No sexual activity
5= Very satisfied
4= Moderately satisfied
3= About equally satisfied & dissatisfied
2= Moderately dissatisfied
1= Very dissatisfied
18. Over the past 4 weeks, how often did you experience discomfort or pain *following* vaginal penetration?
- 0= Did not attempt intercourse
1= Almost always or always
2= Most times (more than ½ the time)
3= Sometimes (about ½ the time)
4= A few times (less than ½ the time)
5= Almost never or never
19. Over the past 4 weeks, how often did you experience discomfort or pain *during* vaginal penetration?
- 0= Did not attempt intercourse
1= Almost always or always
2= Most times (more than ½ the time)
3= Sometimes (about ½ the time)
4= A few times (less than ½ the time)
5= Almost never or never
20. Over the past 4 weeks, how would you rate your level (degree) of discomfort or pain *during or following* vaginal penetration?
- 0= Did not attempt intercourse
1= Very high
2= High
3= Moderate
4= Low
5= Very low or none at all

Appendix C. Revised Mosher Guilt Inventory- Sex Guilt Subscale.

This inventory consists of 50 items arranged in pairs. Please respond to each item as honestly as you can by rating your response on a 7-point scale from 0, which means NOT AT ALL TRUE FOR ME to 6, which means EXTREMELY TRUE FOR ME. Ratings of 1-5 represent ratings of agreement-disagreement that are intermediate between the extreme anchors of NOT AT ALL TRUE and EXTREMELY TRUE for you. The items are arranged in pairs of two to permit you to compare the intensity of trueness for you. This limited comparison is often useful since people frequently agree with only one item in a pair. In some instances, it may be the case that both items or neither item is true for you, but you will usually be able to distinguish between items in a pair by using different ratings from the 7-point range for each item. Rate each of the 50 items from 0 to 6 as you keep in mind the value of comparing items within pairs. Please do not omit any items.

Not at all						Extremely	
True for me						True for me	
0	1	2	3	4	5	6	

“Dirty” jokes in mixed company...

1. do not bother me.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

2. are something that make me very uncomfortable.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Masturbation...

3. is wrong and will ruin you.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

4. helps one feel eased and relaxed.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Sexual relations before marriage...

5. should be permitted.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

6. are wrong and immoral.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Not at all						Extremely
True for me						True for me
0	1	2	3	4	5	6
Sexual relations before marriage...						
7. ruin many a happy couple.						
0	1	2	3	4	5	6
8. are good in my opinion.						
0	1	2	3	4	5	6
Unusual sex practices...						
9. might be interesting.						
0	1	2	3	4	5	6
10. don't interest me.						
0	1	2	3	4	5	6
When I have sexual dreams...						
11. I sometimes wake up feeling excited.						
0	1	2	3	4	5	6
12. I try to forget them.						
0	1	2	3	4	5	6
"Dirty" jokes in mixed company...						
13. are in bad taste.						
0	1	2	3	4	5	6
14. can be funny depending on the company.						
0	1	2	3	4	5	6
Petting...						
15. I am sorry to say, is becoming an accepted practice.						
0	1	2	3	4	5	6
16. is an expression of affection which is satisfying.						
0	1	2	3	4	5	6

	Not at all						Extremely
	True for me						True for me
0	1	2	3	4	5		6

Unusual sex practices...

17. are not so unusual.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

18. don't interest me.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Sex...

19. is good and enjoyable.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

20. should be saved for marriage and childbearing.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Dirty jokes in mixed company...

21. are coarse, to say the least.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

22. are lots of fun.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

When I have sexual desires...

23. I enjoy it like all healthy human beings.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

24. I fight them because I must have complete control of my body.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Unusual sex practices...

25. are unwise and lead only to trouble.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

26. are all in how you look at it.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

	Not at all						Extremely
	True for me						True for me
0	1	2	3	4	5		6

Unusual sex practices...

27. are OK as long as they're heterosexual.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

28. usually aren't pleasurable because you have preconceived feelings about their being wrong.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Sexual relations before marriage...

29. in my opinion, should not be practiced.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

30. are practiced too much to be wrong.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

As a child, sex play...

31. is immature and ridiculous.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

32. was indulged in.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Unusual sex practices...

33. are dangerous to one's health and mental condition.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

34. are the business of those who carry them out and no one else's.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

When I have sexual desires...

35. I attempt to repress them.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

36. they are quite strong.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

	Not at all						Extremely
	True for me						True for me
0	1	2	3	4	5		6

Petting...

37. is not a good practice until after marriage.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

38. is justified with love.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Sexual relations before marriage...

39. help people adjust.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

40. should not be recommended.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Masturbation...

41. is wrong and a sin.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

42. is a normal outlet for sexual desire.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Masturbation...

43. is alright.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

44. is a form of self-destruction.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Unusual sex practices...

45. are awful and unthinkable.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

46. are alright if both partners agree.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Not at all

Extremely

True for me

True for me

0

1

2

3

4

5

6

If I had sexual relations, I would feel ...

47. all right, I think.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

48. I was being used, not loved.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Masturbation...

49. is alright.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

50. should not be practiced.

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Appendix D. Derogatis Sexual Functioning Inventory- Sexual Attitude Subscale.

Below are a series of statements about various aspects of sexual behaviour. We would like to know to what extent you agree or disagree with each one. Please indicate how much you agree or disagree with each statement by placing the appropriate number from the alternatives below in the space alongside the statement. Please do not skip any statements and work quickly.

	-2	-1	0	1	2
	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1. []					
2. []					
3. []					
4. []					
5. []					
6. []					
7. []					
8. []					
9. []					
10. []					
11. []					
12. []					
13. []					
14. []					
15. []					
16. []					
17. []					
18. []					
19. []					
20. []					
21. []					
22. []					
23. []					
24. []					
25. []					
26. []					
27. []					
28. []					
29. []					
30. []					

Sexuality & Culture

Outline

- Importance of culture in understanding sexuality
- Cultural differences in sexuality
- History of sex in China

Importance of culture

- Value-laden
- Sexuality-related beliefs & values vary across cultures

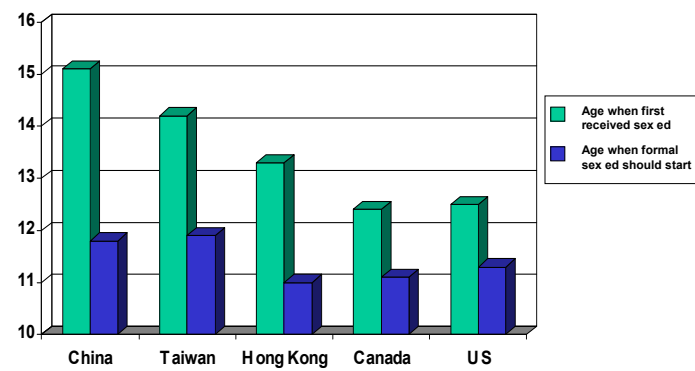
Importance of culture

- Sexually conservative beliefs and behaviour in Chinese individuals compared to Western norms
- Sex education is minimal; parents & health professionals are reluctant to discuss sexuality
- Chinese culture in general: collectivistic, patriarchal

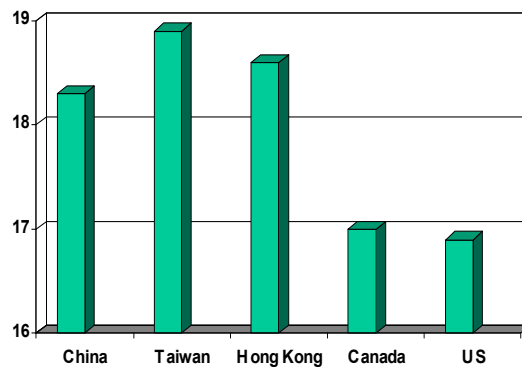
Durex Study (2005)

- n = 317,000
- 41 countries

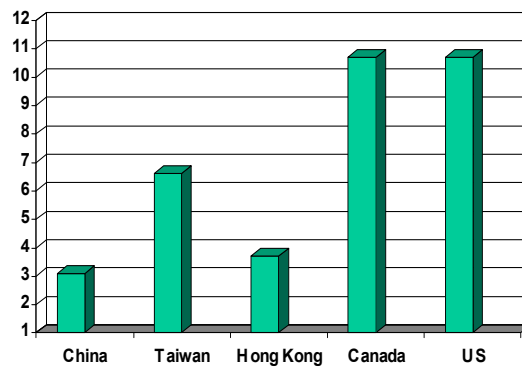
Sex Education (Durex Study, 2005)



Age of First Intercourse (Durex Study, 2005)

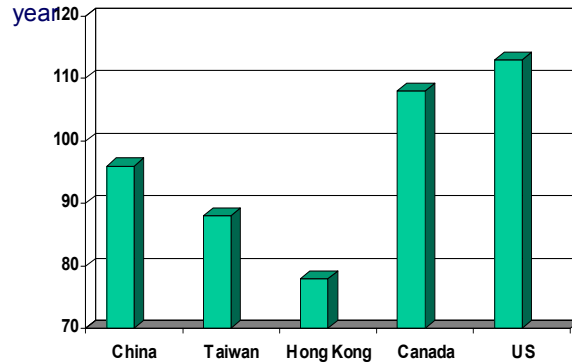


Number of Sexual Partners (Durex Study, 2005)



Frequency of Intercourse (Durex Study, 2005)

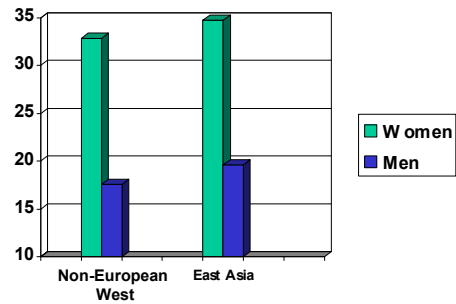
Number of times had
intercourse in past
year



Laumann et al. (2005)

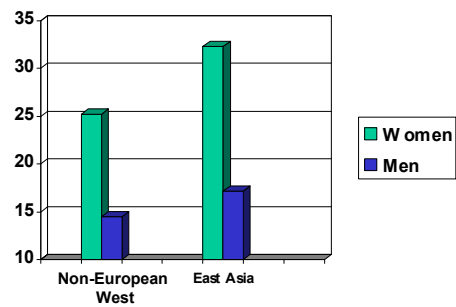
- n = 13,882 women; 13,618 men
- 29 countries (Europe, North America, South America, Middle East, Asia, Australia, NZ)

Lack of Sexual Interest (Laumann et al., 2005)



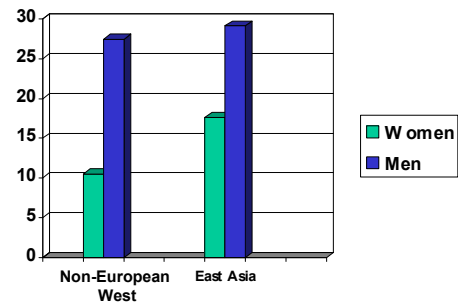
Non-European West: Australia, Canada, NZ, South Africa, US
East Asia: China, HK, Japan, Korea, Taiwan

Inability to Reach Orgasm (Laumann et al., 2005)



Non-European West: Australia, Canada, NZ, South Africa, US
East Asia: China, HK, Japan, Korea, Taiwan

Orgasm too Quickly (Laumann et al., 2005)



Non-European West: Australia, Canada, NZ, South Africa, US
East Asia: China, HK, Japan, Korea, Taiwan

History of Sex in China

3 main influences on Chinese sexuality:

- Concept of Yin & Yang
- Confucianism
- Taoism

*** This section focuses on heterosexual relationships due to the heterocentrism inherent in each of the above influences

History of Sex in China

Concept of Yin & Yang

- All objects & events are products of 2 elements:
 - Yin- negative, passive, weak, destructive (female)
 - Yang- positive, active, strong, constructive (male)
- Harmonious interaction of male & female principles is vital
- In traditional Chinese medicine, everything is classified as Yin or Yang- patient's physical constitution, symptoms, herbal & dietary remedies
 - Yin- deficiency, cold
 - Yang- excess, heat
 - Illness- imbalance of Yin & Yang elements
 - Treatment goal- restore balance between Yin & Yang

History of Sex in China

Concept of Yin & Yang (cont'd)

- “A cold disease should be heated up, a hot disease should be made cold, a warm disease should be cooled down, a cold disease should be warmed up, a dispersing disease should be constricted, an inhibiting disease should be dispersed...”

~ Nei Jing (“Canon of Internal Medicine”, Chinese medical classic)

- Preventive health care, balanced diet = maintaining balance between Yin & Yang
- Sexual intercourse = opportunity to exchange Yin & Yang

History of Sex in China

Confucianism

- Confucius (551-479 BC)
- System of moral philosophy & political ideology- Official ideology of the imperial bureaucracy for 2,000 years
- Positive attitude toward human sexuality
 - Eg. "Eating food and having sex is human nature"
 - Eg. "Food and drink and the sexual relation between men and women compose the major human desires"
- Qualifiers: maintaining orderly relationships; context of marriage & filial obligation

History of Sex in China

Taoism

- Philosophy & religion
- Practical way of life; individual life & tranquillity
- Sexual technical books

History of Sex in China

Names for Male & Female Genitalia

Male	Female
Weapon of love	Grotto of Pleasure
Warrior	Love Anemone
Jade Sceptre	Valley of Lust
Crimson Bird	Golden Groove
Yang Pagode	Purple Peony

Compare with cock, dick, schlong; beaver, muff, pussy

History of Sex in China

What happened?

- Neo-Confucianism in 1,000 AD (Song Dynasty)
- “It is a very small thing to die as a result of starvation, but a very serious evil to lose chastity toward one’s dead husband by remarrying” ~ Cheng I, Neo-Confucian
- Since then, successive regimes have maintained repressive sexual policies

History of Sex in China

Recent Changes

- In mid-1980's, government began to acknowledge need for sex education programs. Why?
 - Pressure from politically influential individuals
 - High population growth was a problem. In 1973, implementation of birth control program; needed to provide sexual information essential to understanding and using contraception
 - Teenage pregnancy, juvenile sex crimes, STIs seemed to be increasing; hoped that sex education would address some of these problems
 - Opening up of China to Western cultural influences → ↑ personal freedoms, expression of desire to improve sexual lives

History of Sex in China

Excerpt from *Secret Instructions Concerning the Jade Chamber* (Classical Chinese sex manual, 4th Century?)

[The Yellow Emperor asked] "How can I become aware of the joyfulness of the woman?"

[Replied the Immaculate Girl] "There are 5 signs, 5 desires, and 10 movements. By looking at these changes, you will become aware of what is happening in her body. The first of the 5 signs is called "reddened face"; if you see this you slowly unite with her. The second is called "breasts hard and nose perspiring"; then slowly insert the jade stalk [penis]. The third is called "throat dry and saliva blocked"; then slowly agitate her. The fourth is called "slippery vagina"; then slowly go in more deeply. The fifth is called "the genitals transmit fluid" [female ejaculation]; then slowly withdraw from her."

...**[The Immaculate Girl said]** "Through the 5 desires, one is made aware of the woman's response, or what she wants you to do to her. First, if she catches her breath, it means that she wants to make love with you. Second, if her nose and mouth are dilated, it means that she wants you to insert your penis. Third, if she embraces you tightly, it means that she is very stimulated and excited. Fourth, if her perspiration flows and dampens her dress, it means that she wants to have her orgasm soon. Fifth, if her body straightens and her eyes close, it means she has already been satisfied."