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Chinese parents' perspectives on adolescent sexuality education

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Chinese Parents' Involvement in Sexuality Education for Adolescents

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sexuality education; sexual communication; sexual attitudes and behaviors; cross-cultural studies; Asian sexuality

Abstract

Structural equation modeling was used to examine a model of factors related to Chinese parents' level of involvement in sexuality education for adolescents. Greater parental education was indirectly related to parents' engagement in sexuality education through its relationship with more traditional cultural values, greater perceived knowledge of sexuality, and increased quality of the parent-child relationship. The model was found to be largely consistent regardless of the gender of the parent or child and the residence of the family. Results demonstrate that there are

multiple pathways to consider within the topic of Chinese parental involvement in sexuality education.

Chinese Parents' Involvement in Sexuality Education for Adolescents

Sexuality education is a lifelong process of acquiring information and forming attitudes, beliefs, and values regarding sexuality (SIECUS, n.d.). During adolescence, parents play an important role in helping their children to recognize what is appropriate behavior and to cultivate a set of moral values (Strouse & Fabes, 1985). Parents may influence their children's sexual development through direct communication (Fox & Inazu, 1980; Holtzman & Rubinson, 1995), nonverbal behavior (Kim, 2009), and emotional qualities of the relationship (Jaccard, Dittus, & Gordon, 1996). When parents become involved in sexuality education for children, this involvement has the potential to postpone or forestall children's sexual activity, and promote safer sexual practices (e.g., Dilorio, Bluhar, & Belcher, 2003; Fox & Inazu, 1980; Hutchinson, 2002).

Traditionally, Chinese cultural norms have been conservative about the discussion of sex between generations (Bullough & Ruan, 1990) and parents seldom provide direct guidance to their children about sexuality (D. Liu, Ng, Zhou, & Haeberle, 1997). Since the 1980s, however, China has become increasingly open to the outside world, and more information about sexuality appears in the media. Although there are currently efforts underway to increase sexuality education in Chinese schools (Liu & Su, 2014), there are few studies which have examined the factors associated with Chinese parents' involvement in sexuality education. Identifying such factors can contribute to the efforts of Chinese educators to promote more effective sexuality education for adolescents. In this paper, we draw on theoretical frameworks such as ecological systems theory (Bronfenbrenner, 1989) and Gudykunst's intercultural communication theory

(Gudykunst et al., 1996) which situate parent-adolescent communication in the context of culture. Our goal is to examine how parents' knowledge, comfort, and ultimate willingness to discuss sexuality education with adolescents is related to the interplay of the cultural beliefs of the parents and the quality of the parent-adolescent-relationship.

Chinese Cultural Beliefs Regarding Sexuality Education

Bronfenbrenner's ecological systems theory emphasizes the ways in which individuals are affected by interactions with others and how these interactions are nested within an ecology consisting of multiple, interconnected systems (Bronfenbrenner, 1989). Communication between parents and children takes place in the microsystem, and this system is impacted by the processes of other systems, such as the marital relationship of their parents (mesosystem), their parents' work environments (exosystem), and the values and beliefs of their culture (macrosystem). Additionally, this theory also describes how these systems change over time (chronosystem). Although it difficult for any study to adequately consider all of the systems that Bronfenbrenner describes, in the present study, we examine the intersection of the macrosystem and microsystem, beginning with a consideration of the context of Chinese family dynamics and sexuality education practices.

The cultural beliefs, values, and practices surrounding sexuality in China have varied considerably throughout history. Although it was not a taboo subject in ancient China, sexuality became more closely circumscribed as the asceticism of Confucianism gradually restricted the development of sexual scholarship (D. Liu, 2000). In contemporary Chinese society, sexuality continues to be an avoided topic of explicit public discussion (Okazaki, 2002). In general, the everyday culture of Chinese adolescents is not nearly as overtly sexualized as it is in European

and North American societies, and the age of sexual onset and marriage for both men and women tends to be later than that of individuals in Western cultures (Parish, Laumann, & Majola., 2007). Parents as well as health professionals tend to be reluctant to discuss sexuality and sexual information (Chan, 1986; Cui, Li, & Gao, 2001), yet sexuality education for Chinese adolescents has been emerging in recent decades. It first appeared in Chinese schools during the 1980s, and since that time, some urban schools have offered health education courses for students, including some courses on sexual issues (Yao & Liu, 1997). As has been found in many cultures around the world, studies conducted in China find that parents are not usually their children's main sources of sexuality education (D. Liu et al., 1997), with most youth relying on health classes, books, and other media sources for sexual knowledge (Hong, 1994; Li, Cottrell, Wagner, & Ban, 2004; Zhang, Li, Shah, Baldwin, & Stanton, 2007).

A central feature of Chinese culture is the importance of the family as the fundamental unit of society, and Confucian tradition specifies that parents have a duty to train their children in moral behavior (Gao et al., 2012; Wu, 1996). Although such training could involve sexuality, research suggests that Chinese parents are reluctant to discuss this aspect of moral behavior with their children. Gao, Lu, Shi, Sun, and Cai's (2001) found that Chinese parents prefer that their children focus on their academic studies and put off interest in sex throughout adolescence. If their children start to ask questions about sex, they may become worried and upset. Many parents feel that their children do not need sexuality education, believing that they will know about sex automatically as adults.

Other research conducted in China, however, found that some parents are becoming involved in teaching their children about sexuality (W. Liu, Van Campen, Edwards, & Russell,

2011). This study explored some of factors related to parental sexuality education for children, including parental education, knowledge about sexuality, and attitudes toward sexuality education. The majority of Chinese parents were found to have reasonably accurate knowledge about sexuality and positive attitudes toward sexuality and sexuality education. However, many Chinese parents did not provide comprehensive sex-related information to their children. Parental level of education was strongly related to both knowledge and attitudes. Such results indicate that the values and attitudes of Chinese parents are not homogenous. Parents who view themselves as more knowledgeable and whose values are less traditional or sexually conservative may be more willing to discuss sexuality education with their adolescents (W. Liu et al., 2011).

Although attitudes towards sexuality and education are changing in China, gender role expectations continue to impact the sexual socialization that adolescents receive within their families (Gao et al., 2012). In pre-modern China, age and gender were sources of power and control in the extended family. Men were socialized to exert power and responsibility, while girls were brought up to be subordinate to men and senior women in the family hierarchy, and to take care of the home and children (Cheung, 1996). Daughters could be restricted in access to all kinds of knowledge about the outside world, including knowledge about sexuality. Traditionally, the virginity of unmarried women has been strongly safeguarded in China, and premarital sex is more strictly proscribed for girls than for boys (D. Liu, 2000). In past times, some people believed that Chinese girls would rather die than lose their virginity, and women who were not virgins at marriage often suffered abuse by their husbands and family (D. Liu, 2000). While Chinese women have made many gains in political and economic power in recent decades, older customs and expectations for male and female behavior still persist and may continue to

influence parents' beliefs, attitudes, and practices with regard to the sexuality education of their sons versus daughters (Cheung, 1996).

There is some evidence that gender plays a role in the socialization of sexuality for adolescents in China. For example, D. Liu and colleagues (1997) found that both gender of the parent and the child were related to parental communication regarding sexuality. Mothers of girls (30.4%) were most likely to give their children answers to sexual questions, while fathers of girls (7.9%) were least likely. W. Liu et al. (2011) also found that gender of parent was a significant predictor of parental practices, with mothers providing more information than fathers. Less is known, however, about the extent to which culturally-relevant gender role attitudes impact these practices. In the present study, we examine the extent to which cultural beliefs regarding the family and female sexuality impact parents' knowledge, comfort, and willingness to participate in sexuality education practices. We expect that those who endorse traditional cultural beliefs emphasizing family and female sexuality will be less likely to engage in sexuality education practices and that this relationship will be mediated by their level of knowledge and comfort discussing such topics. Given the relevance of gender with regard to these beliefs and practices, we will also examine gender differences in these relationships.

Family Relationships and Communication about Sexuality

According to Gudykunst et al. (1996) communication styles are learned patterns of behavior that are influenced by one's cultural values and self-construals. Within a cultural community, individuals vary in the extent to which they adopt the communication patterns common for their reference group. Furthermore, this variation may be closely linked to the extent to which they have adopted values relevant to communication and how they view themselves in

relation to those values. The changes in contemporary China make the inclusion of culturally-based values about communication between adults and children essential to understanding parents' willingness to discuss sexuality with their children. We cannot assume that the traditional beliefs associated with Chinese culture will be found in all individuals and we must also consider the extent to which variations in the adoption of less traditional cultural beliefs are related to other patterns of communication within the family.

The symbolic interactionist perspective of socialization emphasizes the ways in which values and attitudes are transmitted to children by significant others who provide models, standards, and evaluation when they express encouragement and disapproval (Fox, 1981). Thus, adolescents learn about sexuality and what is acceptable behavior, at least in part, through the direct and indirect messages they receive from parents. This perspective draws attention to the quality of parent-adolescent relationships because it is often in the context of a close relationship that discussions about sexual topics take place. For example, Fox (1981) found that mothers and daughters with close relationships were also more willing to communicate with one another about sexuality. Although the rates of sexuality communication in China have been noted to be less frequent than what is reported in Western countries, parent-child communication regarding sexuality has been linked to increased communication with parents regarding other topics (Zhang, Li, Shah, Baldwin, & Stanton, 2007). This may indicate that Chinese families who adopt more open communication in general, are also more likely to engage in discussions of sexuality with their children.

Patterns of communication within Chinese families are often described as being less open to expression of emotion than those in the United States (Stevenson, Chen, & Lee, 1992),

however, there is emerging evidence that Chinese family dynamics are changing, with some parents beginning to adopt parenting styles characterized by open communication and greater expressivity. Western research on parenting style contrasts authoritarian parenting, defined by high levels of demandingness coupled with low levels of warmth and responsive communication, with that of authoritative parenting which is characterized by high levels of demandingness while simultaneously demonstrating high levels of warmth and responsiveness (Steinberg, Dornbusch, & Brown, 1992). Research by Chen and colleagues has found support for the cross-cultural validity of the authoritarian versus authoritative distinction among Chinese parents and finds that authoritative parenting is increasing in China, particularly among urban families (Chen & Li, 2012). These researchers also find that authoritative qualities are associated with perceptions of social change (Chen, Bian, Xin, Wang, & Silbereisen, 2010). Xia et al. (2004) also found evidence that authoritative qualities such as greater acceptance of adolescents' rights, choices, and input on family decisions are increasing among Chinese parents. They found that greater parent-adolescent communication and involvement in decision-making was linked to higher degrees of cohesion and less family conflict (Xia et al., 2004). These results and others (e.g., Pong, Johnston, & Chen, 2010) suggest that the communication patterns associated with authoritative parenting in the United States may also characterize those in China. No other studies to our knowledge have examined the relationship between the family relationship and Chinese parents' willingness to specifically discuss sexuality with adolescents. Based on the research above, however, we expect that parents whose relationships with their adolescents are characterized by greater degrees of authoritativeness, communication, and cohesion, will also be more comfortable and engaged in sexuality education with their adolescents.

Present Study

Although research on parental involvement in sexuality education and on communication regarding sexuality has been conducted for many years in the United States (e.g., Fox, 1981; Rozema, 1986), cross-cultural research on such issues is still limited. The extent to which Chinese parents play a role in providing sexuality education to their children is still poorly understood (Zhang et al., 2007), and more research is needed on the factors that impact parents' willingness to provide such information to their children. As Chinese society changes, cultural values and attitudes towards sexuality may change as well. Better understanding of the relationship between cultural values and parental involvement in sexuality education can provide insight into the best ways to improve Chinese adolescents' knowledge of sexual health. Furthermore, such research can help parents to understand their own beliefs and values regarding sexuality and to think more about how to manage problems with their adolescent children regarding sexuality education.

The goals of this study included the following: (1) identify the factors that relate to Chinese parents' level of involvement in sexuality education for adolescents; (2) examine gender differences in parental involvement in sexuality education between mothers versus fathers; and (3) explore residential differences in parental involvement in sexuality education between parents in urban versus rural areas.

The conceptual model to be examined in this study is shown in Figure 1. Higher parental involvement in sexuality education for adolescents is expected to be related to a) less traditional cultural beliefs about family and female virginity, b) more positive attitudes toward sexuality education, c) more perceived knowledge about sexuality, d) more comfort in discussing sexuality

with adolescents, and e) increased quality of the parent-adolescent relationship (which we operationalize as greater degrees of authoritativeness, communication, and cohesion).

We expect that parental level of education will have no direct effect on parental involvement in sexuality, but have an indirect effect on parental involvement, through the association of higher levels of education with less traditional cultural beliefs, greater perceived knowledge about sexuality, and increased quality of the parent-child relationship. The basis for this expectation is prior research suggesting that increasing education and globalization in China is accompanied by less conservative cultural and sexual values (Higgins & Sun, 2007; Parish et al., 2007; K. Zhang & Beck, 1999) and increases in sexual knowledge (W. Liu et al., 2011). Furthermore, education has been linked to increases in parent-child relationship quality and authoritative parenting among Chinese parents (Xu et al., 2005).

In addition to the pathways discussed above, it is expected that other pathways may also operate, providing complexity to this picture. Indeed, there is reason to hypothesize that more traditional cultural beliefs may be associated with commitment to sexuality socialization insofar as traditional parents feel deeply responsible for the moral socialization of their children. Endorsement of traditional Chinese values has been linked to both authoritarian and authoritative parenting, suggesting that parents who are more traditional seek to foster a strong parent-child bond and are committed to the training of their children in proper morals and behavior (Xu et al., 2005).

However, as noted above, in addition to the mediating path of cultural beliefs on involvement in sexuality education through the parent-child relationship, it is still expected that there would be an additional direct path of cultural beliefs on less involvement, after controlling

for the indirect path. In other words, cultural beliefs regarding sexuality should play a direct role in parents' willingness to discuss sexuality education with their children. Furthermore, greater acceptance of sexuality education is expected to be related to increases in perceived sexual knowledge which, in turn is predicted to lead to greater comfort in discussing sexuality. Finally, greater quality of parent-child relationship is expected to be related to increased comfort in discussing sexuality.

We expect that because mothers communicate about sexuality more than do fathers, the quality of the parent-child relationship will affect parental involvement in sexuality education differently for mothers and fathers (Zhang et al., 2007). We examine gender differences (of parents and target children) in variables both at the mean level, as well as the extent to which the proposed model is invariant across gender of parent and child.

Similarly, we also expect that since urban parents may talk with children about sexuality more than do rural parents, that comfort in discussing sexuality with adolescents and attitudes toward sexuality education may differ for parents from more rural versus urbanized districts. Although the Chinese population living in rural areas has been found to be more sexually conservative than their urban counterparts (Parish et al., 2007), there is also some evidence that high risk sexual activity is increasing among rural Chinese young adults (H. Liu et al., 1998) indicating a need to better understand how the processes of sexual communication may differ among Chinese families living in more rural versus more urbanized districts.

Method

Procedure

The data were collected by questionnaires distributed to the sampled subjects through the assistance of research coordinators in China. Two cities in Mainland China were selected as research sites: Guangzhou (provincial capital of Guangdong Province), one of the major gateways to south China, has a resident population of 12.70 million, making it the country's sixth most populous city; and Hangzhou, provincial capital of Zhejiang Province with a population of 8.70 million, is located on the southeastern coastline of China¹. Both of these cities occupy large geographical spaces, with the districts on the outskirts being more rural than other districts of town. In huge cities in China, like Beijing, Hangzhou, and Guangzhou, some areas are located in the center of the city in what are called "urban districts", and people born and registered there hold "city *hukou*". In contrast, other areas are located in the suburbs and outskirts the city, in what are called "rural districts", and people born and registered there hold "country *hukou*". "Hukou" divides people into two groups, one of "urban persons" and the other of "rural persons". The stratified random sampling method was used for identifying the research subjects. At the first stage, one district in an urban area and one district in a rural area in each city were randomly

¹Analyses comparing the participants recruited from the two cities revealed a number of significant differences. A MANOVA with city as the fixed factor found that parents in Guangzhou are older than parents in Hangzhou (44.85 vs. 43.89 years, $F = 9.903$, $p < .01$), they have lower education levels (3.27 vs. 4.47, $F = 96.182$, $p < .01$), have older children (17.67 vs. 16.86 years, $F = 106.437$, $p < .01$), have more children in the family (2.65 vs. 1.11, $F = 867.975$, $p < .01$), and have higher incomes (3934.15 vs. 3007.81, $F = 5.781$, $p < .05$). Chi-square analyses revealed that the Guangzhou sample had a higher proportion of father participants ($\chi^2 = 9.904$, $df = 1$, $p < .01$), a greater proportion of male children in the sample ($\chi^2 = 16.496$, $df = 1$, $p < .01$), had a higher proportion of rural participants ($\chi^2 = 252.047$, $df = 1$, $p < .01$), and a higher proportion of Buddhist participants ($\chi^2 = 11.709$, $df = 2$, $p < .01$) compared to the Hangzhou.

selected for the survey. As mentioned above, an “urban area” is located in the center of the city, and “rural area” is located in a surrounding suburb. Then by using the random numbers table, one high school was sampled from each district. At the second stage, the students enrolled from grades 10, 11, and 12 in the schools were listed with sequential numbers, the random numbers table was then used for sampling the students. A total of about 1,200 students were selected for sampling in the two cities. After identifying the students, the parents of the students were informed of the nature and content of the study and were invited to participate.

With the help of teachers in the schools in each city, approximately 600 copies of the questionnaire were distributed to the students whose parents agreed to participate in this study. A total of 1,200 questionnaires were distributed in the two cities and 1,029 copies were returned to the researchers in China, generating a return rate of 85.8%. All of the returned questionnaires were used in the final analysis.

For reasons of confidentiality and with the purpose of generating a reasonably high rate of response, each copy of the questionnaire distributed to the parents was put in an envelope along with a cover letter and consent form. Students were told that it was a survey to be completed by their parents and were asked to take the questionnaire home for their parents to finish and return within one week. The teachers in the high schools helped with the collection of the questionnaires. The authors received approval of the Institutional Review Board for this protocol at the University of Nebraska-Lincoln.

Participants

Participants were 1029 parents (52.5% fathers, 47.5% mothers) with a child between the ages of 15 and 20 in high school (in China, children begin high school at 15 or 16 years old and

graduate from high school at 18 or 19 years old). In each family, either mother or father filled out the questionnaire. Their ages ranged from 35 to 62 ($M = 44.25$; $SD = 3.72$) and 95.8% of the parents were married. Current residential status included 59.9% of families in urban areas and 40.1% in rural areas (33% of the participants from Guangzhou lived in an urban district, while 84% of those in Hangzhou lived in an urban district). Almost half of the families (49.2%) had one child, 25.1% two children, and 25.7% had three or more children. There were slightly more daughters (52.4%) than sons (47.6%) in the sample. The age ranges included 59.4% 15-17 years old and 40.6% 18-20 years old.

The occupation of parents was 6.7% professional (professor, doctor, and teacher), 12.3% managerial, 6.1% technical, 11.1% clerical, 3.7% sales worker, 5.0% service worker, 1.3% production/ transportation worker, 10.8% factory worker, 18.9% agricultural worker, 1.5% police and armed service, 14.5% self-employed, 6.7% unemployed, and 1.3% other. In terms of total family income, 20.0% reported a monthly income of RMB 1,000 or less (equivalent to about US \$120. Note: US \$1 = RMB 8.3), 51.8% earned RMB 1,001 to 3,000 (about US \$120-361), 21.8% earned RMB 3,001 to 7,000 (about US \$361-843), and 6.4% earned RMB 7,001 or more. Regarding parental level of education, 4.4% of parents had not finished elementary school, 8.7% had graduated elementary school, 31.0% had graduated junior high school, 31.7% had graduated senior high, 4.9% had some college or technical training, 10.9% had a two-year college degree, 6.8% had a four-year college degree, 0.9% had a master's degree, and 0.7% had a doctoral degree. The mean of education years was 10.87 ($SD = 3.19$). Most parents (90.5%) never attended any parent sexuality education programs, and only 9.5% did. Regarding religion,

33.6% of parents identified themselves as Buddhists, 62.7% stated that they had no religious affiliation, and the remaining 3.7% reported other religious affiliations.

Some parents (33.9%) reported that their adolescent children attended sexuality education classes in school, 23.5% did not attend sexuality education classes, and 42.6% parents did not know if their children went to sexuality education classes. Furthermore, 25.5% of parents reported their children attended additional sexuality education programs in school (such as a one-hour lecture by professional persons brought in from outside), 24.4% did not, and 50.1% did not know if their children attended sexuality education programs. The internet may be an additional source of sexuality information; 35.1% of parents reported that their children could access the internet at home without parents' permission, while 64.9% reported that their children could not.

Measures

All instruments were translated from English into Chinese and then back-translated by a second translator who is fluent in both Chinese and English to ensure the accuracy of the wording

Parental involvement in sexuality education for adolescents

The dependent variable, Chinese parents' perception of their involvement in sexuality education for adolescents, was measured using 35 items for which the participants were asked to report the frequency with which they discussed particular questions with their adolescent children, using a 5-point Likert scale from 1 (*never*) to 5 (*always*). The 35 items covered six different areas of sexuality: female reproductive development (5 items, ex. "What is menstruation?"), male reproductive development (6 items, ex. "What is a wet dream?"), AIDS and STDs (4 items, $\alpha = .91$, ex., "What is AIDS?"), sexual behavior (7 items, ex., "What is

masturbation?”), sexual responsibility (5 items, ex., “How to say ‘no’ if you don’t want to have sex?”), and sexual beliefs (9 items, “What is homosexuality?”). This questionnaire does not address who initiated the discussion of the question (parent or child). Six items on this scale (about sexual behavior, sexual responsibility, birth control, abortion, homosexuality, and AIDS) were from the Sexual Self-Disclosure Scale (SSDS) (Snell, Belk, Papini, & Clark, 1989). The rest of the items were developed by the first author to measure communication about sexuality between parents and adolescents.

Comfort in discussing sexuality with adolescents

Comfort in discussing sexuality with adolescents was measured by a 9-item scale developed by the first author to ask parents if they were embarrassed when they talked with their children about sexual responsibility (2 items, ex., “I am comfortable when I talk to my child about sexual reproduction”), sexual behavior (5 items including birth control, homosexuality, pornography, abortion, and masturbation, ex., “I am comfortable when I talk to my child about birth control”), and AIDS and STDs (2 items, ex., “I am comfortable when I talk to my child about STDs”). These items were rated on a 6-point scale where 0 = *never talked*, 1 = *strongly disagree*, and 5 = *strongly agree* ($\alpha = .92$).

Perceived knowledge about sexuality

Parents’ perceived knowledge about sexuality was measured using 3 individual items: knowledge of human reproduction, HIV/AIDS, and birth control use (ex., “I have enough knowledge about reproduction”). These items were rated on a 5-point Likert from 1 (*strongly disagree*) to 5 (*strongly agree*).

Parent-child relationship quality

Parent-child relationship quality was measured using items from the cohesion subscale from the Family Adaptability and Cohesion Evaluation Scales (FACES II) (see Olson et al., 1992). The 15 items from these scales were added together to obtain a total score, with higher scores indicating more cohesion and fewer conflicts. The scale contains 15 items rated on a 5-point Likert-type scale from 1 (*never*) to 5 (*always*) ($\alpha = .76$, ex., “We feel very close to each other”).

In addition, parent-adolescent communication was measured using 20 items from the Parent-Adolescent Communication Scale (PACS) (Barnes & Olson, 1992). Participants rated their agreement with statements describing the quality of their communication with their adolescent children on a 5-point Likert from 1 (*never*) to 5 (*always*) ($\alpha = .78$ for current sample, ex., “I find it easy to discuss problems with my child”). The means of the parent-adolescent communication were 67.17 ($SD = 9.91$) for mothers and 66.01 ($SD = 8.10$) for fathers in this sample, which were lower than the norm scores provided by Olson et al. (1992) for American mothers ($M = 75.47$, $SD = 10.74$) and fathers ($M = 72.55$, $SD = 11.12$).

The final parent-child relationship quality variable was positive parenting style measured by the Parenting Practices Questionnaire (Robinson et al., 1995). Three factors of authoritative, authoritarian, and permissive parenting styles, based on Robinson and colleagues’ (1995) findings were shown to demonstrate good factorial validity and high internal reliability, with Cronbach alphas of .91, .86, and .75 respectively for each of the factors. This scale includes 62 items measuring authoritative, authoritarian, and permissive parenting styles. The researchers selected the 14 items with highest loadings to measure positive parenting style ($\alpha = .76$, ex., “I give praise when my child is good” and “I take into account my child’s preferences in making

plans for the family”). Parents rated the frequency with which they engage in various parenting behaviors on a 5-point Likert from 1 (*never*) to 5 (*always*).

Attitudes toward sexuality education

Parental attitudes toward sexuality education were measured by 7 items which the first author developed for this study, including two items on sexuality education in the family (ex., “Parents should be the first teachers about sexuality for their children”) and five items on sexuality education in the school (“Schools should offer some courses to teach students about sexuality”). All items were rated on a 5-point Likert from 1 (*strongly disagree*) to 5 (*strongly agree*).

Traditional cultural beliefs

Traditional cultural beliefs were measured with 8 items including two areas: family (3 items, ex. “In my opinion, family is the primary source of social support and identity”) and female virginity (5 items, “A girl should remain a virgin until marriage”). This scale was developed for the purpose of the present study. All items were rated on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*) ($\alpha = .63$).

Demographic information

Demographic information about Chinese parents and their children was obtained at the end of the questionnaire, including parent age, parent gender, parental level of education, etc. Parental level of education was measured by nine categories of the level of education. Parents were asked to identify the highest education level they had achieved. Before conducting data analysis, each category of education level was converted to years of education on the basis of the educational system in China. For example, if the parent reported his/her highest education level

was “senior high graduate,” then the corresponding “years of education” for this individual was 12.

Data Analyses

Preliminary analyses involved the examination of means and mean differences in the manifest variables in order to provide a general description of Chinese parents’ attitudes. To assess mean differences, MANOVAs were run using *PASW Statistics 18* with gender of the parents, gender of the children, urban vs. rural residence, and all interactions as the fixed factors. *PASW Statistics 18* was also used in order to observe the Pearson correlation coefficients between the manifest variables prior to running the confirmatory factor analysis. A confirmatory factor analysis was run in order to examine the fit of the measurement model of the six latent constructs. *LISREL 8.80* statistical software was used to analyze both the measurement model and the structural model. Structural Equation Modeling (*SEM*) was used to analyze the data, following recommendations by Kline (1998), the researchers examined the skew and kurtosis of the univariate distributions provided in the *LISREL 8.80* output to check on multivariate normality prior to running SEM models. Incremental fit indexes [i.e., Normed Fit Index (NFI), Relative Fit Index (RFI), Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI)] were used to evaluate fit by comparing the model to the fit of a null or baseline model. Cut-offs recommended by Hu and Bentler (1998) were used to evaluate the fit of the models using stand-alone indexes [i.e., Chi-square (χ^2), Goodness-of-fit Index (GFI), Adjusted Goodness-of-fit Index (AGFI), Root Mean Square Residual (RMSR), Akaike’s Information Criterion (AIC), and Root Mean Square Error of Approximation (RMSEA)]. Finally, we used the MANOVA tests to examine whether the parameters were invariant across

parent gender, child gender, and urban vs. rural residence. These analyses evaluate noninvariance across parameters in which particular parameters are constrained to be equal. If the difference value is statistically significant, then noninvariance is established.

Results

Descriptive Analyses of Parent Attitudes

Table 1 shows the total means for the sample and total score possible for each variable. Descriptive analyses indicate that Chinese parents did not highly endorse traditional cultural beliefs on average (overall $M = 15.19$ out of a total score of 40 possible). Nevertheless, a few items were highly endorsed. For example, most of the Chinese parents (76.7%) agreed or strongly agreed with the item, “My child is the most important part of my life”, and a majority of Chinese parents (67.7%) agreed or strongly agreed with the item, “A girl should remain a virgin until marriage”.

Chinese parents also had low level of comfort in discussing sexuality (overall $M = 11.91$ out of a maximum score of 45). For example, few parents (8.1%) reported that they moderately or strongly agreed with the item, “I am comfortable when I talk with my child about birth control”, and only 10.3% moderately or strongly agreed with the item, “I am comfortable when I talk with my child about masturbation”.

Chinese parents’ mean for parent-child relationship quality was close to the middle of the scale (overall $M = 110.60$ out of maximum score of 245). For example, a majority of Chinese parents chose “often” (29.5%) or “always” (22.3%) for the item for the item, “We are supportive of each during difficult times” and for, “We feel very close to each other”, they chose “often” (30.7%) or “always” (34.5%).

Additionally, Chinese parents' scores for knowledge (overall $M = 9.07$ out of a maximum score of 15) were above the middle of the scale. The majority of parents answered many of the items correctly; for example, "A male's sperm are made in the testicles" (62.4%), "The fetus normally develops in the female's uterus" (71.1%), and "Someone who is HIV-positive but still healthy can transmit HIV" (61.8%). Some items, however, were less likely to be answered correctly, as only 34% of them knew that testing positive for HIV is not the same as having AIDS and only 36.2% knew STDs can be contracted during oral intercourse.

Chinese parents' scores for attitudes toward sexuality education (overall $M = 24.96$ out of a maximum score of 35) were also above the middle of the scale. More than half of Chinese parents endorsed "agree" or "strongly agree" with the statements such as, "Parents should be the first teachers about sexuality for their children" (51.9%), "School should offer some courses to teach students about sexuality" (70.6%), "Government officials should create policies to ask all middle and high schools to offer sexuality education courses" (63.5%), and "Government officials should create policies to provide more sources of information about sexuality in rural areas" (68.0%).

Finally, Chinese parents' scores for involvement in sexuality education (overall $M = 65.52$ out of a maximum score of 175) were close to the middle of the scale. The descriptive findings suggest that the majority of parents do not report talking with their adolescent children about specific sexual topics, such as birth control methods, masturbation, sexual intercourse, penis development and normal size, how to deal with wet dreams, how to say "no" if you don't want to have sex, and homosexuality. On the other hand, the majority did report talking with their adolescent children about sexual responsibility, sexual beliefs, female

reproduction, and AIDS/STDs. The parents also reported that they talked with children about how to choose friends of the opposite sex, manage menstruation, and understand and prevent AIDS.

There were some differences between Chinese parents in the present sample compared to past research with American parents (Jordan, Price, & Fitzgerald, 2000, Kaiser Family Foundation, 2001), particularly with regard to the extreme ends of the scale. For example, Chinese parents in this sample scored lower in talking “a great deal” about sexual responsibility (American parents: 46% vs. Chinese parents in the present study: 17%), STDs (40% versus 10%), dating relationships/dating behavior (37% versus 15%), puberty (65% versus 7%), HIV/AIDS (55% versus 13%), homosexuality (52% versus 6%), and birth control methods (32% versus 7%). Furthermore, most Chinese parents in the present study “never” or “seldom” talked with their children about abortion (72% of Chinese parents in this study vs. 55% of American parents) and masturbation (83% versus 79%). Chinese parents (63%) were similar to American parents (63%) in “never” or “seldom” discussing pornography with children.

In sum, this combination of findings suggests that Chinese parents have low levels of comfort in discussing sexuality, but do have a sense of being close to their children. They hold positive attitudes toward sexuality education both at home and school, and they wish to be involved in sexuality education for their children. However, they may need more support to discuss sexual topics with their offspring.

Preliminary Analyses Regarding Parent Gender, Child Gender, and Residence Differences

Prior to examining the relationships between variables, a MANOVA was conducted in order to examine mean differences by gender of the parents, gender of the children, residence, and all interactions. The MANOVA results revealed significant multivariate effects only for gender of child (Wilk's Lamda = .946, $F = 8.313$, $p < .001$) and residence (Wilk's Lamda = .943, $F = 8.763$, $p < .001$). Univariate results for these variables are shown in Tables 1 and 2.

There were significant child gender differences in most all the variables, except for attitudes towards sexuality education and comfort in discussing sexuality. Parents with girls had higher scores than parents with boys on cultural beliefs, parent-child relationship, and involvement in sexuality education. Parents with boys had higher scores than parents with girls only on knowledge of sexuality (see Table 1).

With regard to urban vs. rural differences, urban parents had higher scores than rural parents on traditional cultural beliefs, attitudes towards sexuality, knowledge of sexuality, comfort in discussing sexuality, parent-child relationship, and involvement in sexuality education (see Table 2).

Confirmatory Factor Analysis of the Measurement Model

Table 3 displays a matrix of correlations observed between the manifest variables. It can be seen that the manifest variables which constitute each of the latent variables are correlated positively and significantly to each other. A confirmatory factor analysis was run in order to examine the fit of the measurement model of the six latent constructs. The goodness of fit statistics for the CFA showed that all the latent variables had good fit, $\chi^2 (187, N = 940) = 674.82$, $CFI = .97$, $NFI = .96$, $NNFI = .96$, $IFI = .97$, $RMSEA = 0.065$, 90 CI for RMSEA [.060, .070]). The values of CFI, NFI, NNFI, and IFI were all greater than 0.90; and the index of

RMSEA was less than 0.08. That is to say, the measurement model was found to be reliable (see Appendix for full measurement model with all path coefficients).

Analyses Testing the Overall Structural Model

Figure 2 shows the structural equation model standardized solution. The hypothesized model provided a very good fit to the data, $\chi^2(158, N = 940) = 755.29, p < .01, CFI = .97, NFI = .96, NNFI = .96, IFI = .97, RMSEA = .063, 90 \text{ CI for RMSEA } [.059, .068]$. The analysis of the structural errors revealed that the model explained 56% of the variability in parental involvement in sexuality education. All the path coefficients were significant (see Appendix, Figure B for the path model with t-values). From the determinants to parental involvement in sexuality education, the results revealed that all the coefficients for the paths from all five latent determinants were significant and in the expected direction: cultural beliefs (-.78), attitudes toward sexuality education (.53), perceived knowledge about sexuality (.10), comfort level of sexuality communication (.62) and parent-child relationship (.22). The only paths that were not in the expected direction were those from traditional cultural beliefs to parent-child relationship quality (.59) and from traditional cultural beliefs to attitudes toward sexuality education (.88). In both of these cases, we hypothesized a negative relationship (i.e., that traditional cultural beliefs would be related to lower levels of parent-child relationship quality and more negative attitudes towards sexuality education, respectively), but the direction of these paths was positive.

Invariance across Gender of Parents

In order to test whether the models are different between mothers and father, we first tested the hypothesized model (Figure 1) in the father group and the mother group, separately (M0), ($\chi^2_{m0 \text{ father}} = 455.40, \chi^2_{m0 \text{ mother}} = 469.57$). After that, we used multiple-group analysis, M1, to test

the two groups without any restrictions. The total χ^2 of M1 was equal to sum of χ^2 of the two groups tested separately, $(455.4+469.57) = 924.97$. The fit index of M1 indicates the model fits the data for both groups, and the model is acceptable to the baseline model.

Secondly, we set the factor loadings to be invariant between the father group and the mother group (M2). The fit index of M2 was, $\chi^2 = 947.75$, $df = 329$, $RMSEA = .064$, $NNFI = .96$, $FI = .96$. The comparison between M2 and M1 showed $\Delta \chi^2 = 22.78/13 = 1.75 < 2$, which indicates that M2 is acceptable. The factor loadings of the two groups are invariant.

Finally, we set the model structure to be invariant between the father group and the mother group (M3). The fit index of M3 showed $\chi^2 = 956.88$, $df = 342$, $RMSEA = .063$, $NNFI = .96$, $CFI = .96$. The comparison between M3 and M2 resulted in $\Delta \chi^2 / \Delta df = 9.13/13 = 0.70 < 2$, which suggests that M3 is acceptable. The model structure of the two groups is invariant.

To sum up, there was no significant difference between the father and the mother groups in the model (see Table 3 for fit indices).

Invariance across Gender of the Children

In order to test whether the models are different between the parents of boys and girls, we first tested the hypothesized model (Figure 1) in the boy group and the girl group, separately (M0), ($\chi^2_{m0\ boy} = 460.63$, $\chi^2_{m0\ girl} = 553.64$). After that, we used multiple-group analysis, M1, to test the two groups without any restrictions. The total χ^2 of M1 was equal to sum of χ^2 of the two groups tested separately, $(469.63+553.64) = 1024.27$. The fit index of M1 indicates the model fits the data of both groups, and the model is acceptable to the baseline model.

Secondly, we set the factor loadings to be invariant between the boy group and the girl group (M2). The fit index of M2 was, $\chi^2 = 1059.71$, $df = 329$, $RMSEA = .069$, $NNFI = .95$, $CFI =$

.96. The comparison between M2 and M1 showed $\Delta \chi^2 = 35.44/13 = 2.7 > 2$, which indicates the factor loadings of the two groups are not invariant. Inspection of the differences in factor loading between the two models revealed that the path from cultural beliefs to involvement in sexuality education was stronger for parents of girls and the path from attitudes towards sexuality education to involvement in sexuality education was stronger for parents of boys.

Finally, we set the model structure to be invariant between the boy group and the girl group (M3). The fit index of M3 showed $\chi^2 = 1074.79$, $df = 342$, $RMSEA = .068$, $NNFI = .95$, $CFI = .96$. The comparison between M3 and M2 resulted in $\Delta \chi^2 / \Delta df = 15.08/13 = 1.16 < 2$, which suggests that M3 is acceptable. The model structure of the two groups is invariant.

To sum up, although the models worked well for parents of both boys and girls, there was a difference in the factor loadings of two paths within the models for boys and girls (see Table 3 for fit indices).

Invariance across Urban vs. Rural Residence

For the purpose of testing whether the model was different between the group living in urban versus rural districts, we first tested the hypothesized model (Figure 1) in the urban group and the rural group, separately (M0) ($\chi^2_{m0 \text{ urban}} = 538.29$, $\chi^2_{m0 \text{ rural}} = 441.69$). Then, we used multiple-group analysis, M1, tested the two groups without any restrictions. The total χ^2 of M1 was equal to sum of χ^2 of the two groups tested separately ($(538.29+441.69) = 979.98$). The fit index of M1 suggests a good fit, and indicates that the model fits the data of both groups, and the model is acceptable to the baseline model.

Secondly, we set the factor loadings to be invariant between the urban group and the rural group (M2). The fit index of M2 was, $\chi^2 = 988.28$, $df = 329$, $RMSEA = .066$, $NNFI = .96$, $CFI =$

.96. The comparison between M2 and M1 shown, $\Delta \chi^2 / \Delta df = 8.3/13 = 0.64 < 2$, which suggests that M2 is acceptable. The factor loadings of the two groups are invariant.

Finally, we set the model structure to be invariant between the urban group and the rural group (M3). The fit index of M3 was $\chi^2 = 1011.38, df = 342, RMSEA = .065, NNFI = .96, CFI =$

.96. The comparison between M3 and M2 showed $\Delta \chi^2 / \Delta df = 23.1/13 = 1.78 < 2$, which suggests that M3 is acceptable. The model structure of the two groups is invariant.

To sum up, no significant difference was found between the urban group and the rural group in the model (see Table 3 for fit indices).

Discussion

Our results confirmed the hypothesized model and demonstrated that Chinese parents' involvement in the sexuality education of their adolescents can be linked to the interplay of cultural values and family relationship variables. This model demonstrates the complex ways in which various ecological systems interact to impact the proximal processes in which parents and adolescents engage (Bronfenbrenner, 1989). Although previous research has examined the role that Chinese parents' attitudes and knowledge plays in relation to engagement in sexuality education with adolescents (W. Liu et al., 2011), this study is the first to include cultural and parenting factors. Similar to past research, our findings suggest that Chinese parents report generally low levels of comfort regarding discussing sexuality with their adolescents. However, on average, they report a moderate degree of willingness to engage in sexuality education, with considerable individual variability. For this reason, we sought to test a model which could examine the ways in which these variables are interrelated.

Our model began with parental education which was found to be indirectly related to parents' engagement in sexuality education through its relationship with traditional cultural values, perceived knowledge of sexuality, and increased quality of the parent-child relationship. Although we hypothesized that education would be negatively related to traditional cultural values, there was actually a positive relationship between parent education and traditional values. Although this was not expected, it is consistent with other studies indicating that education and other socio-economic conditions are related to Chinese cultural values in complex ways, not inevitably leading to greater liberalization (Chen et al., 2010; Gao et al., 2011). In the present study, educated parents were more likely to endorse values relating to family and the importance of female virginity. This may indicate that parents with higher levels of education ascribe more strongly to traditional values associated with Confucianism, such as the encouragement of education and preferences for young people to focus on pursuits that will bring pride to one's family. Furthermore, such values were related to less involvement in adolescent sexuality education. This indicates that parents who hold traditional Chinese beliefs are more hesitant to discuss sexuality with their children.

In China, traditional beliefs regarding family often promote a non-confrontational communication style wherein open discussion of controversial issues such as sexuality may be considered difficult and uncomfortable (Hsu, 1985). Holding traditional values toward preserving chastity may also lead to less willingness to discuss sexuality, as some Chinese parents have may be concerned that open discussion of sexuality with their children could lead to implicit messages that sex is acceptable (Cui et al., 2001). Such beliefs would be consistent with Gudykunst et al.'s (1996) theory regarding the impact of cultural values on within-group

variation in communication. In general, values about chastity and open discussion of sexuality have public health implications. In China today, as beliefs, values, and practices undergo transformation, these changes can impact the behavioral patterns of individuals, including the messages that parents promote with regard to sexual practices.

Our findings, however, are complex and demonstrate that there are multiple pathways to consider within the topic of Chinese parental involvement in sexuality education, some of which lead to greater involvement and some of which lead to greater hesitation to be involved. In one such pathway, traditional cultural beliefs were related to increased attitudes supporting sexuality education, greater perceived knowledge of sexuality, and increased comfort in discussing sexuality. Importantly, another pathway leading to engagement in sexuality education was through the parent-child relationship. In the present study, the latent construct of parent-child relationship quality included authoritative parenting style, parent-child communication, and relationship cohesion. This conceptualization of the parent-child relationship is consistent with current research indicating that Chinese parents are increasingly adopting a parenting style that is warm and attentive and allows for joint decision making (Chen & Li, 2012; Xia et al., 2004). Because of this, it is not unreasonable that parent-child relationship quality was related to greater endorsement of traditional cultural values, as Xu et al. (2005) found that Chinese cultural values are related to increases in both authoritarian and authoritative parenting. Parents who hold traditional values regarding the centrality of the family may be more likely to be attentive and supportive of their adolescent children, which in turn, may promote a context where parents are able to discuss sexuality and appropriate behavior. Although this is somewhat contradictory with the negative relationship between traditional cultural values and engagement in sexuality

education discussed above, this may indicate an alternative pathway wherein those parents who hold conservative values, but who also maintain a close and communicative relationship with their children, are actually willing to engage in discussions regarding sexuality education with their children. This could indicate that even parents with traditional values can provide guidance to their children regarding sexuality, perhaps by encouraging their children to have practices that are consistent with their own morals.

Finally, our results suggest that this model is largely consistent regardless of the gender of the parent and the gender of the child and whether parents reside in a district of the city labeled as urban versus rural. Although the model fit well for all groups tested, the path between cultural beliefs and engagement in sexuality education was not as strong for parents of boys. This is unsurprising given that the cultural beliefs measured in the present study (i.e., importance of virginity and family) are traditionally emphasized more for girls than boys. The other path that differed was that the path between attitudes towards sexuality education and participating in sexuality education was stronger for parents of boys, which may indicate that even when parents of girls endorse sexuality education, they may still have difficulty discussing it with their daughters.

Additionally, our results examining mean differences in these variables were consistent with this past research. With regard to parent gender, past research has indicated that Chinese mothers are more likely to participate in sexuality education, particularly with their daughters (D. Liu et al., 1997; W. Liu et al., 2011; Zhang et al., 2007). Also, rural Chinese individuals have been found to be more traditional with regard to conservative sexual behaviors (Parish et al., 2007), as well to be more authoritarian in their parenting style and less encouraging of

independence (Chen et al., 2010). In our study, parents of girls did report greater quality of the parent-child relationship and involvement in sexuality education; furthermore, urban parents were less conservative than rural parents on all variables. Despite these differences, however, most of the patterns which predict greater involvement in sexuality education of their adolescent children were consistent across the various groups examined. Future research must continue to examine the differences between the family dynamics and communication patterns of individuals within the Chinese population.

Conclusions and Future Directions

This study was fortunate to have a large sample that is reflective of two different regions in southern China. Nevertheless, generalizations to individuals in other regions based on these findings may be limited. While the use of structural equation modeling allowed us to examine the relationships among multiple variables, the fact that all variables were collected at the same time means that all assumptions regarding the direction of causation between variables cannot be verified, and the results from this study can only be interpreted as correlations. It is important to employ longitudinal research designs to examine how such variables may change over time. Intervention studies could help to elucidate whether parental training to increase knowledge and impact attitudes could encourage parents to engage in more frequent communication regarding sexuality education.

Also of relevance in such research would be to include the report of adolescents themselves regarding not only their parents' behaviors, but also their own attitudes and behaviors so that we can establish the extent to which they are influenced by sexuality education and parental messages they receive. Our parental involvement scale does not differentiate between

discussions that are initiated by the parent versus those by the adolescent, and future research may wish to do so. Furthermore, from the family systems perspective, it would be interesting to know the comfort level that couples (husbands and wives) experience in discussing sexual needs and desires in their own relationship. If parents are not comfortable with communicating about their own sexuality with each other, they might not be comfortable discussing sexuality with their children. The communication about sexuality within the marital relationship may influence the communication about sexuality between parents and children. Further information obtained from both parents and adolescents would be very helpful for educators to obtain a complete picture on sexuality education within the family.

Given the rapid changes in the social context and educational policies of China, this study has implications which can inform educators and practitioners. Sexuality education initiatives which focus on providing instruction and training in the schools are currently underway in China. However, the implementation of these policies is inconsistent (Liu & Su, 2014). Many adolescents still lack accurate comprehensive knowledge regarding sexuality, and as demonstrated by our descriptive findings, many parents lack comfort in discussing such matters in the home. Advocacy groups around the world recommend that parents act as their children's first sexuality educators, and furthermore, that parental efforts must be combined with those of educators and messages in the media to provide comprehensive, accurate, and responsible messages about sexuality to young people (SIECUS, n.d.). One comprehensive sexuality education project has included both teacher and parent training, and there is interest in expanding such projects in the future (Liu & Su, 2014). Educators must focus on overcoming challenges involved in providing effective sexuality education.

The present study helps educators to understand the factors related to parents' willingness to take on the role as sexual socializers and educators within the family. Possible ways to promote this involvement is through encouragement of close relationships and open communication between parents and adolescents and by increasing parent knowledge and comfort with sexuality. Educators should work with parents on how to communicate with their child about some specific sexual topics and provide parents with communication skills about sexuality to increase their level of comfort. If parents can be encouraged to discuss specific sexual topics regarding birth control, STDs, AIDS, and sexual responsibility when their children are younger, it would be possible to reduce the levels of unintended teen pregnancies and abortions and prevent adolescents from contracting disease. It is important to provide parents with the necessary knowledge about human sexuality so they have confidence in their abilities to communicate about sexual issues with their children. Furthermore, such knowledge is important for both mothers and fathers and should be encouraged for parents of both boys and girls. Although gender differences indicate that fathers and parents of boys are more reluctant to engage in sexuality education, education efforts can help to promote greater communication for both genders. Finally, our results demonstrate that traditional cultural beliefs are not always incompatible with the promotion of sexuality education, especially among those who have close relationships with their children. This suggests that educators can work with traditional parents to find ways to promote involvement in sexuality education by helping parents realize the importance of such efforts for the health and well-being of their children.

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Table 1 *Child Gender Comparisons (Parents with Girls vs. Parents with Boys)*

	Boys	Girls	Total	Maximum Score Possible	<i>F</i>	η^2
Traditional cultural beliefs	14.76(2.77)	15.59(2.46)	15.19(2.64)	40	13.86 ^{**}	0.025
Attitudes towards	24.59(4.67)	25.29(3.94)	24.96(4.32)	35	3.50	0.007
Knowledge of	9.24(2.51)	8.92(2.18)	9.07(2.34)	15	4.14 [*]	0.005
Comfort	11.26(11.93)	12.51(12.25)	11.91(12.11)	45	1.702	0.003
Parent-child relationship	107.38(15.58)	113.59(15.54)	110.60(15.85)	245	30.13 ^{**}	0.038
Involvement in sexuality	63.40(28.57)	67.48(24.49)	65.52(26.59)	175	5.23 [*]	0.006
<i>N</i>	432	468	900			

Note.

^{**} $p < .01$

^{*} $p < .05$. Standard deviations are in parentheses.

Table 2 *Residence Comparisons (Urban Parents vs. Rural Parents)*

	Urban	Rural	Total	Maximum Score Possible	<i>F</i>	η^2
Traditional cultural	15.39(2.62)	14.92(2.65)	15.20(2.64)	40	8.25**	.008
Attitudes towards sexuality education	25.41(4.23)	24.38(4.40)	24.99(4.33)	35	11.50**	.014
Knowledge of sexuality	9.31(2.38)	8.68(2.27)	9.05(2.36)	15	11.65**	.017
Comfort discussing sexuality	13.10(12.36)	10.05(11.47)	11.87(12.09)	45	12.46**	.015
Parent-child relationship quality	113.31(15.78)	106.46(14.98)	110.54(15.82)	245	43.17**	.045
Involvement in sexuality education	67.34(26.86)	62.84(26.07)	65.51(26.596)	175	8.26**	.007
<i>N</i>	543	370	913			

Note.

** $p < .01$. Standard deviations are in parentheses.

Table 3 *Matrix of correlations (n = 940)*

		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Involvement female reproduction	-																		
2	Involvement male reproduction	.570**	-																	
3	Involvement AID S/STDs	.618**	.658*	-																
4	Involvement sexual behaviors	.587**	.761*	.729**	-															
5	Involvement sexual responsibility	.553**	.545*	.621**	.634*	-														
6	Involvement sexual	.547**	.549*	.608**	.655*	.694**	-													

	al belie s																		
7	Com fort sexu al respo nsibi lity	.3 6 4 **	.3 7 6* *	.4 4 **	.4 4 0* *	.4 4 6 **	.4 7 8* *	-											
8	Com fort sexu al beha vior	.4 0 7 **	.4 2 2* *	.5 5 **	.5 3 0* *	.5 0 1 **	.5 7 4* *	.7 7 4* *	-										
9	Com fort AID S/ST Ds	.3 9 2 **	.3 9 3* *	.5 4 **	.5 0 6* *	.4 7 0 **	.5 2 4* *	.7 3 5* *	.8 4 5 **	-									
1 0	Kno wled ge perce ived 1	.1 5 4 **	.1 6 7* *	.1 7 **	.1 7 2* *	.1 5 7 **	.1 4 * *	.2 1 0* *	.1 9 4 **	.1 9 0 **	-								
1 1	Kno wled ge perce ived 2	.1 6 1 **	.1 3 5* *	.1 7 **	.1 3 3* *	.1 3 9 **	.1 6 3 *	.1 7 1* *	.1 6 6 **	.1 6 5 **	.6 3 7 **	-							
1 2	Kno wled ge perce ived 3	.1 3 4 **	.2 0 4* *	.2 6 **	.2 3 8* *	.1 7 3 **	.2 5 * *	.2 1 4* *	.2 3 0 **	.1 9 6 **	.5 6 2 **	.5 6 8 **	-						
1 3	Relat ionsh ip cohe sion	.2 7 3 **	.0 7 9* *	.2 4 **	.0 7 1* *	.1 8 4 **	.1 7 * *	.2 0 4* *	.2 4 3 **	.2 2 1 **	.1 2 9 **	.1 6 6 **	.0 8 5 **	-					

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14	Parenting authoritative	.23**	.068*	.21**	.067*	.17**	.14*	.14*	.19**	.17**	.17**	.20**	.107**	.675**	-					
15	Communication total score	.20**	.020	.14**	.020	.15**	.10*	.15*	.16**	.12**	.08**	.08**	.06*	.55**	.54**	-				
16	Attitude family	.14**	-.07	.13**	.003	.15**	.079*	.08*	.09**	.07*	.13**	.10**	.09**	.25**	.33**	.31**	-			
17	Attitude school	.060	.046	.08*	.049	.08**	.077*	.10*	.12**	.11**	.09**	.12**	.052	.26**	.33**	.31**	.48**	-		
18	Cultural beliefs family	-.03	.12*	-.052	.13*	-.088	-.028	-.035	.015	.025	.06*	.09**	.019	.31**	.36**	.35**	.34**	.37**	-	
19	Cultural beliefs female virgin	.033	.136*	-.020	.10*	-.025	-.044	-.08*	-.033	-.026	.065*	.062	.019	.16**	.28**	.17**	.39**	.30**	.31**	-
20	Parent education	.09**	.058	.10**	-.030	-.027	.022	.11*	.12**	.13**	.20**	.22**	.14**	.24**	.25**	.17**	.17**	.16**	.059	.105**

Note.

* $p < .05$ level (2-tailed)

** $p < .01$ level (2-tailed).

Table 4 *Model Fit Indices of For Parent and Child Gender and Residential Comparisons*

Father-Mother Group Comparisons							
	Model set	χ^2	<i>df</i>	$\Delta\chi^2/\Delta df$	RMSE A	NNFI	CFI
M0 _{father}	Fathers separately	455.40	158		0.062	0.96	0.97
M0 _{mother}	Mothers separately	469.57	158		0.067	0.95	0.96
M1	The baseline model	924.97	316		0.065	0.96	0.96
M2	Factor loading invariance	947.75	329	1.75	0.064	0.96	0.96
M3	Structure invariance	956.88	342	0.70	0.063	0.96	0.96
Boy-Girl Group Comparison							
M0 _{boys}	Boys model separately	460.63	158		0.066	0.96	0.97
M0 _{girls}	Girls model separately	563.64	158		0.073	0.94	0.95
M1	Benchmark model	1024.27	316		0.070	0.95	0.96
M2	Factor loading invariance	1059.71	329	2.7	0.069	0.95	0.96
M3	Structure invariance	1074.79	342	1.16	0.068	0.95	0.96
Urban-Rural Group Comparisons							
M0 _{urban}	Urban separately	538.29	158		0.066	0.96	0.96
M0 _{rural}	Rural separately	441.69	158		0.069	0.95	0.96
M1	The baseline model	979.98	316		0.067	0.95	0.96
M2	Factor loading invariance	988.28	329	0.64	0.066	0.96	0.96
M3	Structure invariance	1011.38	342	1.78	0.065	0.96	0.96

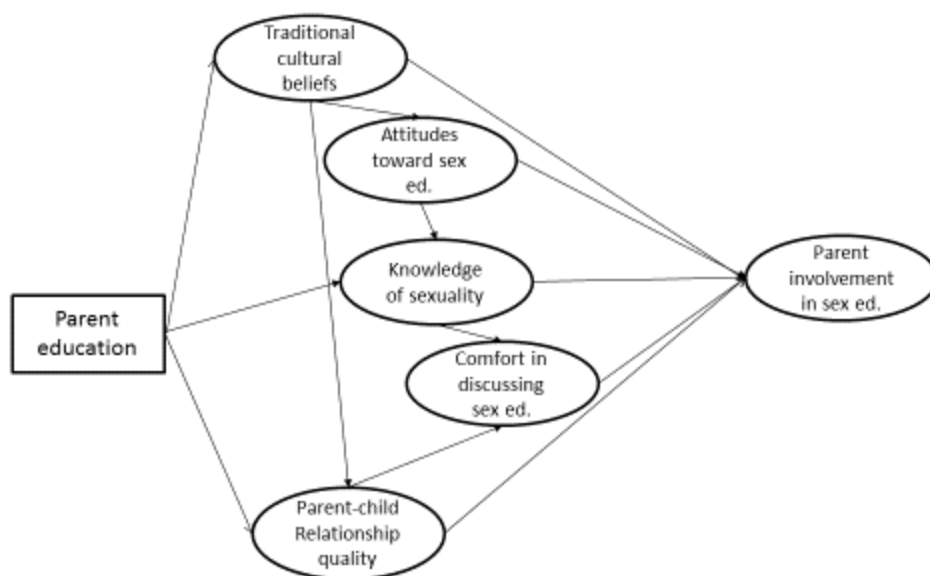


Figure 1. The hypothesized model of parental involvement in sexuality education.

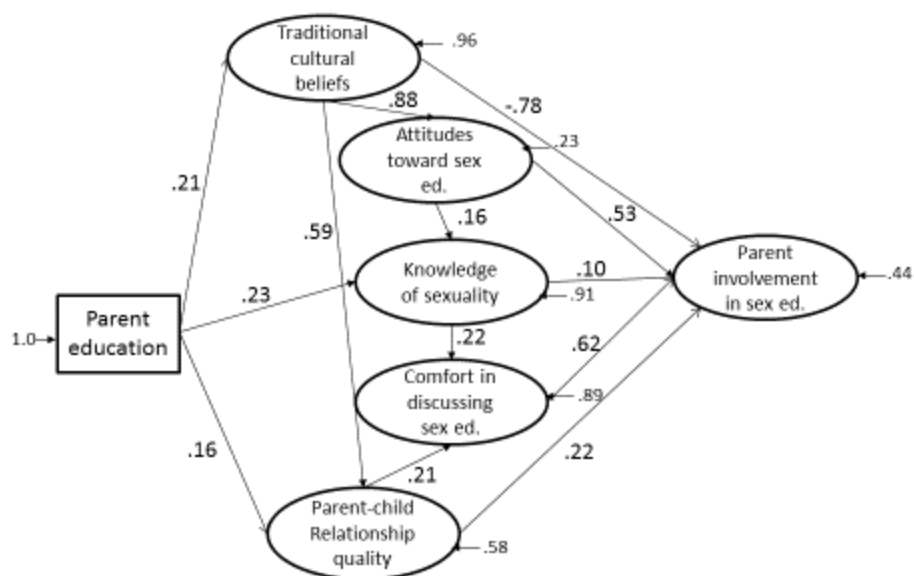


Figure 2. The structural equation model standardized solution for the full sample.

Appendix

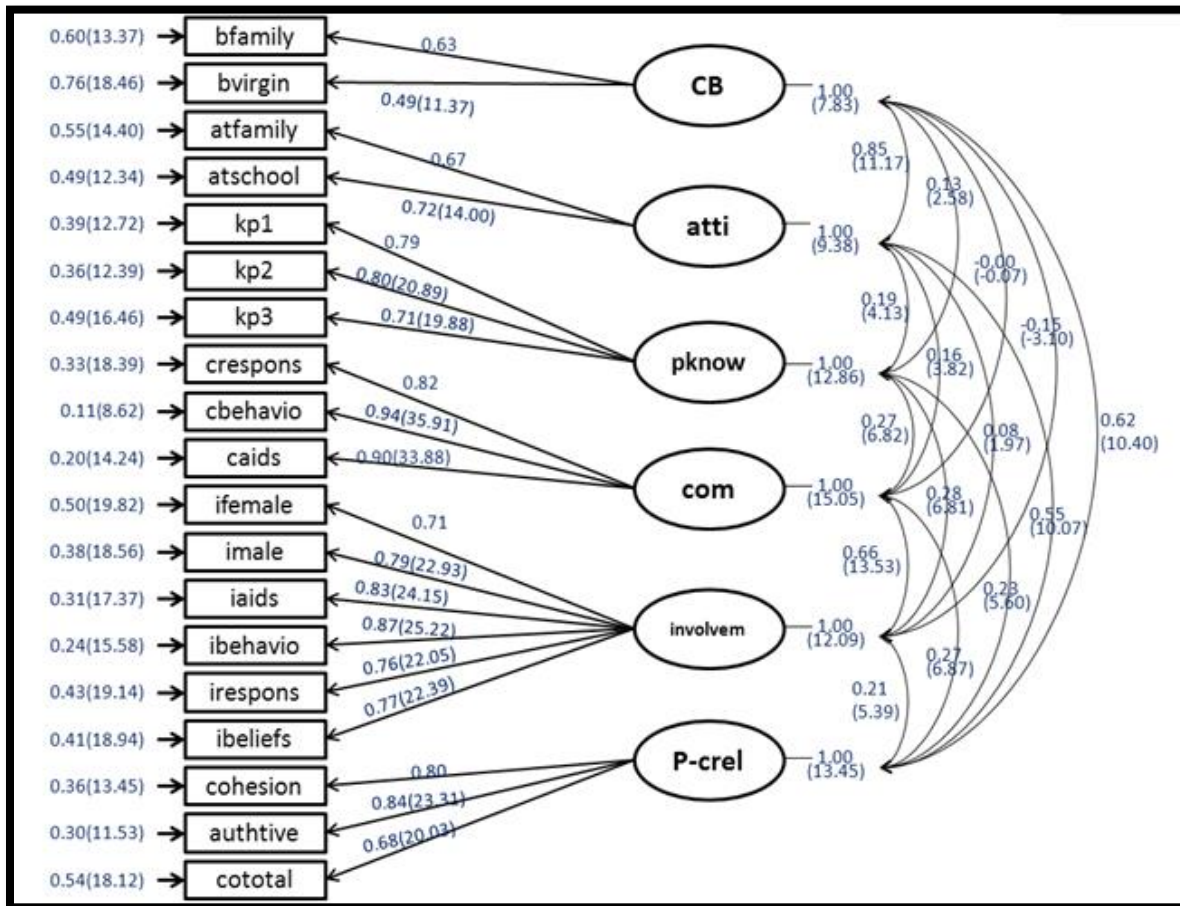


Figure A. Standardize results for the measurement model. Values in parentheses are t-values. CB = traditional cultural beliefs, atti = attitudes towards sexuality education, pknow = knowledge of sexuality, com = comfort discussing sexuality, p-crel = parent-child relationship quality, involvem= parent involvement in sexuality education.

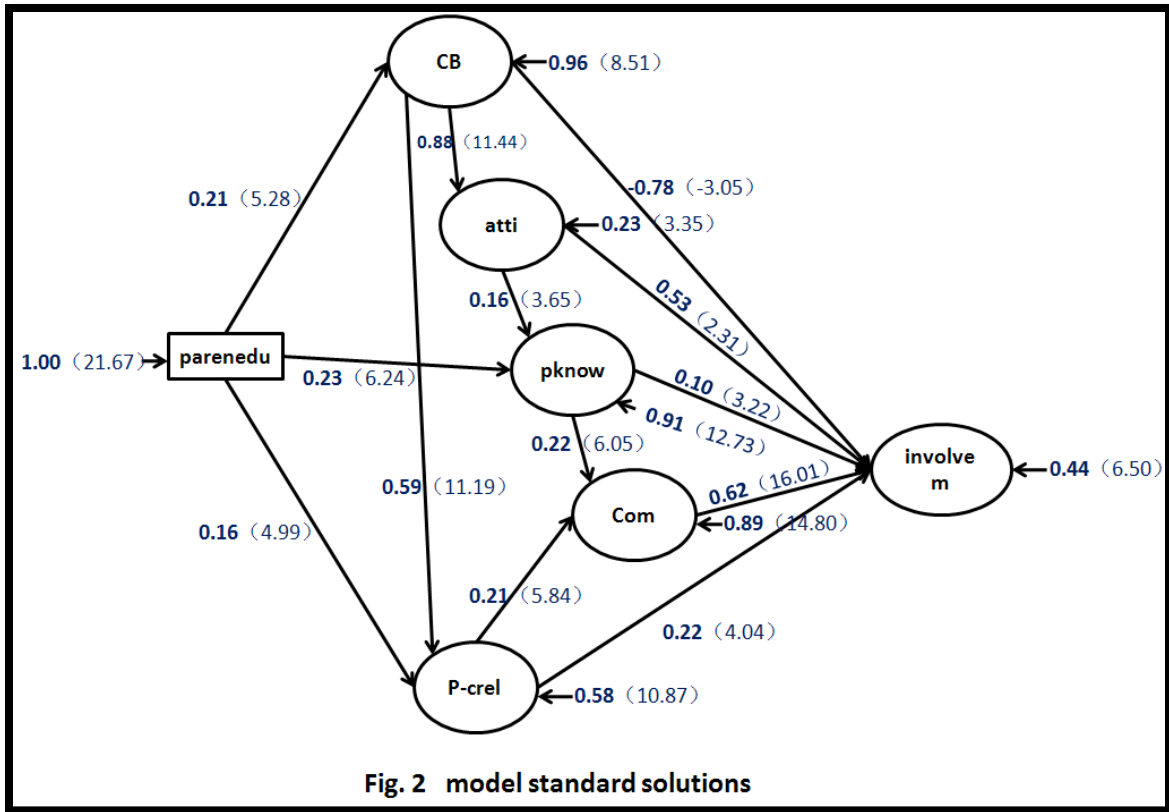


Figure B. The structural equation model standardized solution for the full sample. Values in parentheses are t-values. CB = traditional cultural beliefs, atti = attitudes towards sexuality education, pknow = knowledge of sexuality, com = comfort discussing sexuality, p-crel = parent-child relationship quality, involvem = parent involvement in sexuality education.