CONDOM USE AT SEXUAL DEBUT AMONG CHINESE YOUTH*

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ABSTRACT

Chinese youth represent a high-risk group for sexually transmitted infections and unintended pregnancies, but little is understood about their sexual behaviors. Using nationally representative data, this study examines the social and demographic correlates of condom use by Chinese youth at sexual debut. The study also examines the relationship context of condom use at sexual debut. The results indicate that the condom use at sexual debut is very low in China, which confirms that youth are a high-risk group. The results demonstrate that age and educational attainment are the primary indicators of condom use. Early sexual debut associates with a greater risk of unsafe sex at sexual debut and higher educational attainment increases the likelihood of self-protecting behaviors. The likelihood of self-protection also increases when sexual partners plan their sexual debut or discuss contraception beforehand. The conclusions suggest that interventions are needed to provide youth with better knowledge about self-protection.

Key words: condom use, sexual debut, risky behavior

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Among youth, it is well-documented that risky sexual behaviors correspond to a high rate of unintended pregnancies and the spread of sexually transmitted infections (STIs) (Finer and Henshaw 2006; Hearst and Chen 2004; Meekers and Klein 2002). The condom is the most common method of self-protection, and it is the lone method that reduces exposure to STIs as well as providing contraception (Abma, Martinez, and Copen 2010; Cates and Steiner 2002; Shlay et al. 2004).Condomuse at sexual debut is connected to the likelihood of subsequent condom usethroughout adolescence and early adulthood(Miller, Levin, Whitaker, and Xu 1998; Shafii et al. 2004).The consistent use of condom is essential for the prevention of unintended pregnancies and most viral and non-viral STIs (Manlove, Ryan, and Franzetta 2003). For these reasons, self-protection behavior at sexual debut has long-term implications for well-being, since it appears to be a habit-forming behavior (Shafii et al. 2004). Following this logic, it is possible that social differences in condom use at sexual debut are a proxy for high-risk behaviors (unsafe sex) throughout adolescence and early adulthood.

The interest in the sexual and reproductive behavior of youth is well-justified because STIs are a global public health problem and the social consequences of early child-birth associate with low socioeconomic status for women and their children (Eggleston 1998; Gerbase, Rowley, and Mertens 1998). As Juarez and LeGrand observe (2005), early sexual relations are predisposed to risky behaviors for several reasons. The primary reasons are related to insufficient knowledge about self-protection and a failure to plan against unsafe sex. Besides less knowledge, younger people also have less personal regard for the consequences of unsafe sex because of their faulty perceptions of “invulnerability”to risk. This is an important observation considering that condom use corresponds to perceptions of risk (Meekers and Klein 2002). For these reasons,

it is reasonable to define youth (people aged 15-24 years) as a high-risk group for unintended pregnancies and STIs.

In China, little is understood about the sexual behavior of youth, except that the age of sexual debut is declining and the prevalence of premarital sex is increasing (see World Health Organization 2005 for a review). This lack of knowledge is troubling given that China is facing a sharp rise in STIs, and that younger people are among the most vulnerable population, along with female sex workers, injection drug users, and migrant workers (Chen et al. 2011; Song and Ji 2010; Zou et al. 2012). Our knowledge of condom use among Chinese youth is incomplete, and almost nothing is known about their risk-taking behaviors (unprotected intercourse) at sexual debut (Wang and Davidson (2006) is an exception). Moreover, there are few studies from other countries that examinethe prevalence of condom use at sexual debut and its social and demographic correlates (e.g., Eggleston 1998; Manning, Longmore, and Giordano 2000; Shafii, Stovel, and Holmes 2007).While numerous studies focus on condom use among Chinese sex workers (e.g., Lau et al. 2007; Wang et al. 2009; Chenet al. 2007), there is a paucity of research on the self-protection behaviors of youth.

Three sets of factors appear to be germane to condom use at sexual debut among Chinese youth. First, age and gender represent the key demographic indicators. Evidence from other developing countries demonstrates that age is a crucial indicator of risky sexual behaviors (Blum and Mmari 2005; Eggleston 1998). The consistent finding is that condom use increases with age and that early sexual debut increases the risk of having unsafe sex. This is largely because age is related to knowledge about self-protection and efficacy planning for safer sexual intercourse (Juarez and LeGrand 2005). As Eggleston (1998) observes, the relationship between gender and condom use at sexual debut is less clear-cut. However, the general finding is that young males

report higher levels of condom use than females, and that females also encounter greater barriers to condom use (Blum and Mmari 2005).

Second, socioeconomic status could also have effects on self-protection behaviors at sexual debut. Research on sub-Saharan African adolescents demonstrates that poverty decreases the timing of sexual debut (early onset) and that poor are less likely than their wealthier peers to use condoms (Madise, Zulu, and Ciera 2007). This research suggests that, through its influence on sexual behaviors, poverty is a mechanism for the transmission of STIs. Several other studies show that educational attainment is a predictor of condom use and high-risk behavior (Blum and Mmari 2005; Juarez and Martin 2006). For example, Karim and co-authors (2003) demonstrate that females from Ghana with a secondary education or higher are four times more likely than their lesser educated peers to use a condom at sexual debut. The effect of education on condom use could correspond to knowledge about STIs, which can sensitize people about the risks of unsafe sex. In China, youth with low levels of education also have less knowledge about their sexual and reproductive health, which could influence their perceived risks and decision-making about condom use (Wang et al. 2001).

Thirdly, there is a growing emphasis on the relationship context of condom use. Though it is often modeled as an individual-level behavior, Manning, Longmore, and Giordano (2000) point out that decisions about condom use usually happen at the couple-level, which means that self-protection behavior requires co-operation (especially for females) between sexual partners. Relationship context refers to factors such as the relationship type, the age gap between the couple, and discussion of self-protection. Previous studies demonstrate that condom use is higher among couples in committed or long-term relationships than it is among those in less serious relationships or casual sexual encounters (Eggleston 1998; Manning, Longmore, and Giordano

2000). This difference could relate to differences across relationships in the level of discussion and planning for safer sex, which are important factors of condom use (Manlove, Ryan, and Franzetta 2003; Stone and Ingham 2002). In addition, whether the sexual debut is consensual or non-consensual is also a crucial indicator of condom use (Manlove, Ikramullah, and Terry-Humen 2008).

This study uses data from the National Youth Reproductive Health Survey (NYRHS) to examine the sexual behavior of unmarried Chinese youth (ages 15-24). The NYRHS is the first nationally representative sample of the reproductive and sexual well-being of Chinese youth. The study has two major objectives relating to the self-protection and contraceptive behavior among Chinese youth. Given the lack of national data, there is very little research on this topic, and the existing studies are based on convenience, regional, or clinical samples, which do not offer generalizable empirical findings. Our primary objective is to illustrate the relationship between age at sexual debut and male condom use and also the socioeconomic and demographic differences in male condom use at sexual debut. Our secondary objective is to examine the social circumstances of sexual debut (e.g., planned versus unplanned sexual debut, coerced or consensual sex) and whether these associate with condom use at debut. The study estimates separate models for males and females given that the determinants of condom use and circumstances of sexual debut could be gender-specific.

The Chinese Context

In China, premarital sex was uncommon before the 1970s because of cultural norms, which stressed the reproductive function of sexual intercourse (Parish, Laumann, and Mojola 2007). With the opening up and economic reforms in the 1980s, the social regulation of sexual behavior has ebbed, and the younger generations have adopted liberal attitudes about premarital

sex and the purpose of sexual relations (Yu 2010). Though marriage remains an important context of sexual debut, it is clear that sexual relations have become untethered from this institution as well as procreation. The majority of unmarried youth are willing to have premarital sex and 22% have experienced it, which is a major change in sexual behaviors from previous generations (Zheng, Chen, and Gao 2010). Hence, Chinese youth are sexually active while being unmarried for longer periods than ever before (Wang and Davidson 2006). With this increase, a growing proportion of youth are engaging in sexual behavior that places them at high risk of unintended pregnancies and STIs.

Among all age groups, STIs have re-surfaced as a public health problem. Before 1950, STIs such as syphilis and gonorrhea were common (Chen et al. 2000). The prevalence of STIs were greatly reduced by the mid-1960s through a multi-pronged public health program, including eliminating the commercial sex trade, providing better access to screening and treatment, and informational campaigns aimed at prevention. With the liberalization of sexual behavior, much of these gains have been lost, and STIs are spreading rapidly from high-risk subgroups (e.g., female sex workers) to the general population (Chen et al. 2011). Between 1989 and 1998, the incidence of STIs (excluding HIV/AIDS) increased 4.2 times for females and 3.8 times for males, with non-marital sexual relations being the primary source of infection (Chen et al. 2000). The Chinese population has also become vulnerable to the transmission of HIV/AIDS among heterosexuals (Beyrer 2003). The spread of STIs reflects an urgent need for behavioral interventions, particularly for high-risk groups (Chen et al. 2011).

Much of the research focuses on female sex workers, injection drug users, and rural migrants. However, Chinese youth, who account for 13% of the population (161 million persons), are the largest high-risk group, and their sexual behaviors have wide-reaching and long-term

implications. Despite the paucity of research, it has become increasingly clear that younger people are indeed a vulnerable group. About half of STI cases between 1995 and 1998 occurred in people aged 29 or younger, which is a disproportionately high incidence (Chen et al. 2000). Among sexually active unmarried females, 23% have had unintended pregnancies, of which 91% were terminated through induced abortion (Zheng, Chen, and Gao 2010). These trends reflect a lack of self-protection and contraception among Chinese youth. Nationally representative figures are unavailable, but findings from regional studies and surveys of college students suggest that about half of sexually active youth use condoms, and far less use them at sexual debut (Song and Ji 2010; Yu 2010).

Previous studies demonstrate that Chinese youth are ill-prepared for avoiding unsafe sex (Wang and Davidson 2006; Wang et al. 2005). Their risky behaviors parallel a widespread lack of knowledge about sexual and reproductive health. This knowledge is especially deficient among those age 12-18 years (World Health Organization 2005). Within this age group, less than half can identify major STIs such as syphilis and gonorrhea, and many have a limited understanding of the transmission paths of HIV/AIDS. Moreover, less than half cannot identify a method of contraception. Though this knowledge increases with age, it is still low among college students. The rural population and migrant youth have among the least amount of knowledge, with some unaware of the relationship between sexual intercourse and pregnancy. In large part, this lack of knowledge stems from an absence of comprehensive sex education in schools and a reluctance among parents to discuss these issues with their children (Zhang, Li, and Shah 2007). Despite changing sexual behaviors, the older generations still consider sexual relations a taboo topic. This has left the younger generation ill-informed and consequently at high risk of unsafe sexual behaviors.

Data and Methods

Data Source

The empirical analysis is based on data from the National Youth Reproductive Health Survey (NYRHS). The NYRHS was a collaboration of Peking University, the National Working Committee on Children and Women under the State Council, and the United Nations Population Fund. The survey was conducted by Peking University from October to November 2009. The data were collected through face-to-face interviews and a supplemental self-directed (anonymous) paper questionnaire for questions on sensitive topics, such as sexual debut and condom use. The target population was unmarried youth aged 15-24 from all mainland provinces, autonomous regions and municipalities, excluding those living in Tibet, which has less than 0.2% of China's total population (National Bureau of Statistics China 2011). The NYRHS used a multistage sampling design, dividing the country into 7 geographic regions and then into 40 administrative regions. Within each region, the target population was divided into three groups: in-school youth, out-of-school youth, and youth living in collective (company) dwellings. A total of 22,228 unmarried youth completed the survey with a response rate of 75.1% (see Zheng, Chen, and Gao 2010). For further details about the survey design and sampling procedure, see Peking University (2010).

Variables

This study examines male condom use at sexual debut and the circumstances of sexual debut and how these influence condom use. In the NYRHS, the respondents were asked: "How old were you (in years) when you had sexual intercourse for the first time?" People tend to remember their age at sexual debut accurately and report it honestly (e.g., Siegel, Aten, and Roghmann 1998). Table 1 shows that 22.4% of the study sample had their sexual debut at the

time of the survey. Among those who reported a sexual debut (restricted sample), the survey asked whether a condom was used at this time (1= yes). About 36% of Chinese youth used a condom at sexual debut. For the analysis on the circumstances of sexual debut, the study sample is restricted to respondents who experienced their sexual debut with their current partner. In the NYRHS, the respondents were asked whether their sexual debut was with their current partner (1 = yes). The respondents who reported a sexual debut with a former partner were not asked about the circumstances of sexual debut.

Table 1 about here

The analysis estimates gender-specific models and considers the effects of several covariates on condom use at sexual debut. This includes age at the interview and age at sexual debut. Age at the interview is measured as a three-level categorical variable: early adulthood (21-24 years), late adolescence (17-20 years), and early adolescence (15-16 years). The "early adolescence" category is the reference group. Age at sexual debut is measured using a similar three-level categorical variable. Table 1 shows 31.7% of the respondents reported having their sexual debut in early adulthood, 60.2% in late adolescence, and 8.1% in early adolescence. The definitions and descriptive statistics for these and all other selected variables are presented in Table 1.

The analysis considers several other social and demographic variables. Whether the respondent is currently in school (high school or university) (1 = yes) or out-of-school. The analysis includes a three-level categorical variable of the respondent's educational attainment (junior high school or lower, senior high school, and college diploma or higher) and whether she/he received formal sex education (1 = yes) in school. Whether the respondent is from an intact household (1 = yes) or an alternative family. Paternal and maternal education is measured

as four-level categorical variables: elementary school or lower (reference group), junior high school, senior high school, and college diploma or higher. Previous studies show that family structure and parental education are more important predictors of the sexual behavior of adolescents than other family-related predictors, such as household income (Cooksey, Rindfuss, and Guilkey 1996; Morris 1992). The analysis also measures urban/rural status (*hukou*). In China, a person's urban/rural status corresponds to their access to public resources (e.g., education, healthcare) and mobility (Liu 2005). Research from other countries demonstrates that condom use among youth is lower in rural than in urban areas (e.g., Meekers and Calvès 1999). A variable for region is included (Eastern, Central, and Western China) because regional imbalances in socioeconomic development could influence condom use behaviors and perceptions of risk.

In addition, the study considers factors capturing the context of sexual debut. These factors include: age gap with first sexual partner(1 = yes if the gap is 3 or more years); whether there spondent planned her/his sexual debut (1 = yes);the circumstances of sexual debut (forced/coerced, coaxed into/persuaded, and consensual intercourse); whether the respondent discussed contraception with their partner before her/his sexual debut (1 = yes); and the type of relationship with their first sexual partner (engaged, serious relationship leading to marriage, semi-serious, and causal).

Statistical Method

Contraceptive behavior at sexual debut is the result of two sequential decisions: the first decision is whether to have sexual intercourse and the second decision is whether to use a condom (or contraception) at this time (Brauner-Otto and Axinn 2010). The probability of condom use at sexual debut is, therefore, a conditional probability. In our analysis, the

probability of condom use at sexual debut is observed for a restricted sample, i.e., people who have had their sexual debut. If the decision to have sexual intercourse is correlated with condom use, then the regression estimates in the models of condom use at sexual debut could be biased, because these estimates are based on a non-random sample (Greene 2012). This implies that the decision to begin having sex could associate with other risky behaviors, including not using condoms during sexual intercourse. To address this issue, the analysis estimates two-stage probit models (Heckman 1979). The first stage estimates the effects of the selected explanatory variables on the decision to have sexual intercourse for the full sample (selection equation) and the second stage estimates the effects of the selected variables on condom use at sexual debut for the restricted sample (outcome equation).

Results

The main objective of this study is to examine social differences in condom use at sexual debut (CSD) among Chinese youth. Figure 1 presents the overall rate of CSD for Chinese youth aged 15-24 years and breaks this down according to age group. The bivariate results demonstrate that about one-third (35.7%) of Chinese youth used a condom at their sexual debut. The rate of CSD increases from early adolescence to early adulthood. The rate of CSD is 20.7% for Chinese youth aged 15-16 years, 33.1% for those aged 17-20, and 44.6% for those aged 21-24.

Figure 1 about here

Table 2 presents the results of the estimated parameters of the selection models and the outcome models. As discussed above, the selection models examine the relationship between the selected explanatory variables within the full sample, and the outcome models examine the relationship between these variables and condom use at sexual debut within the restricted sample. The table present separate models for males and females. The significant *rho* indicates that the

selection and outcome equations are related, demonstrating the need to adjust for sample selection bias, as has been done. The selection model presents the risk factors of sexual debut among male and female youth. The results indicate that age has strong effects on sexual debut, with older age associating with a higher likelihood of being sexually experienced. Factors that decrease the likelihood of sexual debut include being a student, coming from an intact family, urban status, and coming from a developed region.

Table 2 about here

In gender-specific models, Table 2 presents the effects of the selected variables on the likelihood of using a condom use at sexual debut (CSD). The analysis demonstrates that age at sexual debut has a positive effect on CSD for males and females, after controlling for the effects of all other covariates. The findings indicate that CSD increases with age. In comparison to those aged 15-16 years, those aged 17-20 and 21-24 have a higher likelihood of condom use. For both males and females, the respondent's main activity (attending school or being out-of-school) has non-significant effects on CSD. The influence of sex education is also non-significant, but this is likely because sex education in schools is basic and does not provide sufficient information about STIs and methods of self-protection (Zhang, Li, and Shah 2007). However, the educational attainment of youth has significant effects. In comparison with youth with junior high school or less, those with senior high school or a college diploma or more have a higher likelihood of CSD. This finding applies to both males and females. All other selected variables in the model have non-significant effects on CSD.

Table 3 presents the descriptive statistics of the circumstances of sexual debut for the respondents who experienced this event with their current partner. About 10% of males and 28% of females had an age gap of three or more years with their partner at sexual debut. About 45%

of males and 39% of females planned their sexual debut. Among males, 19% reported that their sexual debut involved them coaxing or persuading their partner into sex or being themselves coaxed into it. About 8% of males reported forcing or coercing their partner into sexual debut or being forced into it themselves. The remainder (73.4%) reported that their sexual debut was consensual. About 21% of females reported being coaxed (or coaxing their partner) into sexual debut and 6% reported being forced (or forcing their partner) into it. The rest (74%) reported that their sexual debut was consensual. About 26% of males and 24% of females discussed contraception with their partner before their sexual debut. Table 3 shows that most Chinese youth were either in a serious relationship or engaged at sexual debut, and few experienced this event in causal encounters.

Table 3 about here

Table 4 demonstrates how the selected variables for relationship context influence the likelihood of CSD. The age gap between partners has non-significant effects on CSD for both males and females. The analysis considers the circumstances of sexual debut, which compares the effects of being (a) forced/coerced into sexual debut and (b) coaxed into sexual debut with consensual sexual debuts. For both males and females, the category "forced/coerced into sexual debut" includes whether the respondent forced/coerced her/his partner into sexual debut or were forced/coerced into sexual debut themselves. Of course, whether a person forced a partner or were themselves forced into sexual debut are distinct circumstances. These were combined into a single category because of small cell counts. For males, being forced into sexual debut was a rare event and few females forced their partner into it. For the most part, these categories represent male behavior (i.e., coaxing or coercing female partners into sexual debut) and this is how we interpret the findings. The category "coaxed into" sexual debut also combines whether the

respondent coaxed her/his partner or was coaxed into it themselves. For males, a sexual debut that involves force or coercion increases the likelihood of CSD at sexual debut in comparison to sexual debuts that are consensual. In contrast, when males coax or persuade their partners into sex, they are less likely to use a condom at sexual debut. The circumstances of sexual debut have non-significant effects on CSD for females. For both males and females, discussing contraception with their partners increases the likelihood of CSD. The effect of relationship type has very weak effects. For females, being in a semi-serious relationship decreases the likelihood of CSD in comparison to their engaged counterparts, but relationship type otherwise has non-significant effects for males and females.

Discussion and Conclusion

The purpose of this study was to examine condom use at sexual debut (CSD) among Chinese youth. As discussed above, little is known about this topic, which is a concern because sexual activity has increased among youth and STIs have re-emerged across China since the 1980s. Coupled with a lack of knowledge about their sexual and reproductive health, the sexual behavior of Chinese youth is a "hidden" public health problem. Chinese youth are a large sub-group (161 million persons) that is at risk of STIs and unintended pregnancies. Given that condom use is habit-forming, understanding the determinants of CSD is essential for identifying high-risk youths.

Using nationally representative data, this study examined how social and demographic factors influence CSD. The findings generally confirm the patterns of condom use in other developing countries and demonstrate that Chinese youth are a high-risk group. The overall rate of CSD is under 36%, which shows that almost two-thirds of Chinese youth are practicing unsafe sex at sexual debut. This rate of CSD is low in comparison to youth in other countries. For

example, 61% of US youth use a condom at sexual debut (Shafii, Stovel, and Holmes 2007). Since people under age 29 account for a disproportionate number of STIs (Chen et al 2000), it is an urgent need to implement behavioral interventions for Chinese youth.

For the most part, our selected social and demographic variables have similar effects for males and females. Of these variables, only age and educational attainment have significant effects on CSD. Our results demonstrate that age is an especially important predictor of CSD. This finding is consistent with studies from other developing countries that observe that condom use increases with age (see Blum and Mmari 2005). Our finding about the relationship between age and CSD implies that early sexual debut associates with risky sexual behavior. From our results it is not clear why this is the case. However, previous research suggests that youth are less knowledgeable about self-protection and also lack the skills to plan against unsafe sex (Juarez and LeGrand 2005). It is also possible that younger people lack good access to condoms or simply are less cautious than older people when it comes to their sexual behavior.

As prior research indicates, condom use is a couple-level decision (e.g., Manning, Longmore, and Giordano 2000). Moving beyond individual-level models of condom use, our analysis considered how relationship context influences CSD. The results from these models confirm that relationship context is important. The key findings are that planning sexual debut and discussion of contraception between the couple have strong effects on the self-protecting behavior of youth. This suggests that youth who are better prepared for their sexual encounters are more likely than others to plan against unsafe sex. For the most part, the type of relationship has no bearing on CSD. That is, whether youth are in serious or casual relationships at their sexual debut is not a major factor.

This study has several data limitations. First, the dataset focused on unmarried youth. The sexual behaviors of married youth before and after marriage are not observed in this study. Second, the study is limited in that the questions about the relationship context of sexual debut were only asked of people who experienced this event with their current partner. Only about 60% of the restricted sample were still with the person they had their sexual debut with. To some extent, it is possible that the factors that associated with the respondent no longer being with their first sex partner (e.g., it was a casual relationship) could influence CSD. Hence, the effects of relationship context need to be interpreted with some caution. Finally, the dataset lacks concrete information about the respondents' level of knowledge about self-protection and access to it, which is necessary for sorting out whether risk behaviors represent a lack of knowledge, barriers to access, or carelessness.

Our results suggest that it is necessary to begin providing Chinese youth with a comprehensive sex education at the beginning of high school and perhaps even distribute condoms to them. This comprehensive education should emphasize the risks of unsafe sex and provide concrete information about self-protect. The main challenge to implementing such a program is public resistance. Until the 1980s, premarital sex was uncommon and the main purpose of sex was considered to be procreation (Parish, Laumann, and Mojola 2007). Policy-makers and school officials are reluctant to implement comprehensive sex education programs out of concern that these will be perceived as promoting immoral behaviors (Wang et al. 2005). The taboos against discussing sexual and reproductive health represent a danger to the well-being of youth.

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Table 1 Variable Definitions and Descriptive Statistics for Variables Used in the Analysis

Variable	Definition/Coding	% in full sample	% in restricted sample
Response variables			
Sexual debut	Dummy variable (1 = yes, 0=no)	22.4	—
Condom use at sexual debut	Dummy variable (1 = yes, 0=no)	—	35.8
Explanatory variables			
Gender	Dummy variable (1 = male, 0 = female)	50.8	57.7
Age at the interview			
Early adulthood	Dummy variable (1 = 21-24 years, 0 = no)	33.2	63.8
Late adolescence	Dummy variable (1 = 17-20 years, 0 = no)	49.1	33.1
Early adolescence	Reference category (1 = 15-16 years, 0 = no)	17.7	3.1
Age at sexual debut			
Early adulthood	Dummy variable (1 = 21-24 years, 0 = no)	—	31.7
Late adolescence	Dummy variable (1 = 17-20 years, 0 = no)	—	60.2
Early adolescence	Reference category (1 = 12-16 years, 0 = no)	—	8.1
Main activity			
Attending school	Dummy variable (1 = yes, 0=no)	46.0	23.9
Family Structure			
Two biological parents	Dummy variable (1 = two biological parents,		
	0 = other situations)	94.4	92.8
Father's educational attainment			
College diploma or higher	Dummy variable (1 = yes, 0 = no)	15.8	15.1
Senior high school[a]	Dummy variable (1 = yes, 0 = no)	32.6	32.1
Junior high school	Dummy variable (1 = yes, 0 = no)	37.4	36.6
Elementary school or lower	Reference category	14.2	16.2
Mother's educational attainment			
College diploma or higher	Dummy variable (1 = yes, 0 = no)	11.7	11.0
Senior high school[a]	Dummy variable (1 = yes, 0 = no)	24.8	24.0
Junior high school	Dummy variable (1 = yes, 0 = no)	38.0	38.5
Elementary school or lower	Reference category	25.5	26.5
Urban/rural status	Dummy variable (1 = urban, 0 = rural)	48.5	46.9
Region			
Eastern China	Dummy variable (1 = yes, 0 = no)	45.6	44.8
Central China	Dummy variable (1 = yes, 0 = no)	31.4	30.7
Western China	Reference category	23.0	24.5
Sex education in school	Dummy variable (1 = yes, 0 = no)	34.8	36.0
Educational attainment			
College diploma or higher	Dummy variable (1 = yes, 0 = no)	25.3	33.3
Senior high school[a]	Dummy variable (1 = yes, 0 = no)	56.4	47.5
Junior high school or lower	Reference category	18.3	19.2
N		22,288	4,982

Note: Weighted percentages, unweighted *N*.

Data sources: the 2010 National Youth Reproductive Health Survey.

[a] This category includes both senior high school and technical school, which are designed for the students who have finished their junior high school in China.

Table 2 Estimated Parameters of Heckman's Selection Model of the Condom Use at Sexual Debut among Chinese Unmarried Youth Aged 15-24

	Men				Women			
Independent variable	Selection Equation		Outcome Equation		Selection Equation		Outcome Equation	
Age at the interview								
Early adulthood	1.372	***	—		1.443	***	—	
Late adolescence	0.637	***	—		0.701	***	—	
Early adolescence[a]								
Age at sexual debut								
Early adulthood	—		0.821	***	—		1.034	***
Late adolescence	—		0.426	***	—		0.670	***
Early adolescence[a]								
Main activity								
Attending school (1 = yes)	-0.367	***	0.012		-0.537	***	-0.122	
Family Structure								
Two biological parents (1 = yes)	-0.151	**	0.130		-0.207	**	-0.014	
Father's educational attainment								
College diploma or higher	-0.137	*	0.067		0.040		-0.135	
Senior high school	-0.155	**	-0.029		-0.180	**	-0.046	
Junior high school	-0.146	**	-0.096		-0.173	**	-0.138	
Elementary school or lower[a]								
Mother's educational attainment								
College diploma or higher	0.076		0.106		-0.131		0.052	
Senior high school	0.146	**	-0.058		-0.030		-0.001	
Junior high school	0.110	**	-0.016		-0.024		-0.154	
Elementary school or lower[a]								
Urban (1 = yes)	-0.127	***	-0.024		-0.242	***	-0.002	
Region								
Eastern China	-0.278	***	0.051		-0.153	***	0.035	
Central China	-0.167	***	-0.031		-0.111	*	-0.027	
Western China[a]								
Had formal sex education (1 = yes)	0.090	**	-0.063		0.072	*	-0.065	
Educational attainment								
College diploma or higher	0.077		0.317	**	0.044		0.374	**
Senior high school	-0.001		0.222	*	0.102		0.231	*
Junior high school or lower[a]								
Constant	-1.021	***	-1.507	***	-1.124	***	-1.637	***
rho	0.297	*			0.467	**		
Log-Likelihood	-7308.9				-5852.6			
model (wald) X^2 (*d.f.* = 16)	80.45	***			80.58	***		
Number of Obs.	11,212				11,075			
Censored Obs.	8,344				8,962			

[a] Reference category.

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 3 Circumstances of sexual debut: Unmarried Chinese Youth (age 15-24)

Variable	Men	Women
Age gap between respondent and the first sexual partner		
Three or more years (1 = yes)	10.1%	27.7%
Planned first sex (1 = yes)	44.8%	39.4%
Circumstance of sexual debut		
Coaxed into/persuaded	19.0%	20.6%
Forced/coerced	7.6%	5.9%
Consensual	73.4%	73.5%
Talked about contraception before debut(1 = yes)	26.3%	23.8%
Type of relationship with first sexual partner		
Casual	9.6%	6.2%
Semi-serious	35.3%	28.1%
Serious relationship leading to marriage	44.3%	48.2%
Engaged	10.8%	17.5%
N	1,578	1,411

Note: Weighted percentages, unweighted *N*.

Data sources: the 2010 National Youth Reproductive Health Survey.

Table 4 Estimated Parameters of Heckman's Selection Model of the Condom Use at Sexual Debut among Chinese Unmarried Youth Aged 15-24

Circumstances of first sexual debut	Men		Women	
Age gap between respondent and first sexual partner				
Three or more years (1 = yes)	0.197		0.057	
Planned first sex (1 = yes)	0.683	***	0.830	***
Circumstance of sexual debut				
Forced/coerced	0.444	**	-0.243	
Coaxed into/persuaded	-0.290	*	-0.099	
Consensual (reference)				
Talked about contraception before debut (1 = yes)	1.278	***	0.702	***
Type of relationship with first sexual partner				
Serious relationship leading to marriage	0.008		-0.113	
Semi-serious	0.038		-0.351	*
Casual	-0.280		-0.082	
Engaged (reference)				
Constant	-1.320	*	-1.725	***
rho	0.116		0.574	**
Log-Likelihood	-4941.252		-4539.683	
model (wald) X^2 (*d.f.* = 24)	256.61	***	248.71	***
Number of Obs.	11,206		11,066	
Censored Obs.	9,628		9,660	

Note: Selection equations are not shown (but are available from the authors). Models controls for all independent variables shown in Table 1.

*** $p < .001$ ** $p < .01$ * $p < .05$

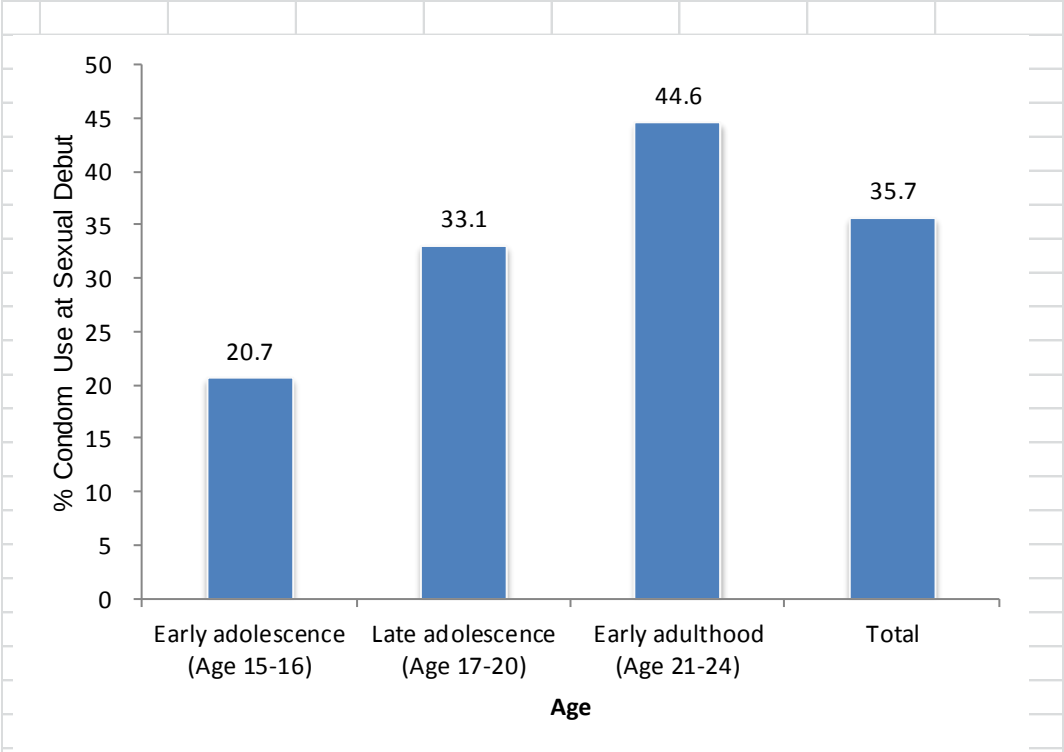

Figure 1 Percent of Chinese Youth's Condom Use at Sexual Debut

Data Source: The National Youth Reproductive Health Survey, 2010