Teenage sexual attitudes and behaviour in China: a literature review

ABSTRACT

China is the most populated of any country in the world. Social norms and values pertaining to love and marriage have changed considerably since the launch of its open-door policy and economic reforms of the 1980s. Attitudes to sex have become more open, while the negative consequences of early sexual intercourse have become issues of health and social concern. The aim of this paper was to provide an overview of the teenage sexual attitudes and behaviour in contemporary China. A literature review was conducted for the period of 2000 and 2010, using both English (Medline, CINAHL, PsycINFO, ASSIA) and Chinese language databases (China National Knowledge Infrastructure, Wanfang database). Thirty-six studies were included and reviewed. It was found that young people reported poor sexual knowledge, especially in relation to reproductive matters and sexually transmitted infections. The media, such as television, magazines and the Internet, were seen as their main sources of information on sex. Despite the frequently reported liberal attitudes to sexual behaviour, only a small number of young people have already lost their virginity or been involved in pregnancies. Young men were more likely than young women to report having had sex, while respondents at vocational high schools were less likely to remain virgins than those at common/key high schools. Although the prevalence of sexual intercourse among Chinese teenagers was still lower than that reported in studies conducted in most western countries, the findings do reflect some changes in sexual values and behaviour of young people within the country. They also suggest the need to develop more comprehensive sex education programmes in cooperation with young people, schools, health organisations, families and communities, and to make sexual and reproductive health services available to all regions and also accessible to teenagers and unmarried young people throughout China.

Keywords: attitudes, China, literature review, sexual behaviour, sex education, teenagers
What is known about the topic
- Social norms surrounding sex, love and marriage have changed among Chinese people.
- The negative consequences of early sexual intercourse have become issues of health and social concern in many countries.
- The prevalence of STIs/HIV has increased in recent years in China.

What this paper adds
- Young people reported poor sexual knowledge and the media became their main sources of information.
- Despite the reported liberal attitudes to sexual behaviour, only a small number of respondents had lost their virginity or been involved in pregnancies.
- There is a need to develop more comprehensive sex education programmes and make sexual and reproductive health services available to teenagers and unmarried young people.
INTRODUCTION

Situated in East Asia, China is the most populated of any country in the world, with an area of 9.6 million square kilometres and a population of 1.3 billion people made up of 56 ethnic groups (China Ethnic Museum 2005, Chinapop 2009). The Chinese mainland is administratively divided into 22 provinces, five autonomous regions and four municipalities (Beijing, Tianjin, Shanghai and Chongqing).

Since the launch of its open-door policy and economic reforms of the 1980s, China has experienced great changes under the multiple influences of rapid modernisation, economic development and exposure to western culture. Social norms surrounding love, marriage and family have changed considerably among Chinese people, with attitudes to sexual expression becoming more open (Zhang et al. 1999, Gao et al. 2001). Like many other countries, the adverse consequences of early sexual intercourse, such as unwanted pregnancies and sexually transmitted infections (STIs), have become the focus of health and social concerns.

In China, teenage births are still socially and culturally unacceptable with most teenage pregnancies being aborted (Gao et al. 2001, Hu 2009). The prevalence of STIs/HIV has also increased dramatically in recent years (WHO 2004, Zhang KL et al. 2004, Wang L et al. 2009a). There were an estimated 740,000 people living with HIV in 2009 and heterosexual transmission became the dominant route, accounting for 44% of all new infections that occurred during the same year (Ministry of Health of the People’s Republic of China 2010). In 2007, 50,000 new cases were diagnosed in the country, of which 33% were people in their 20s and 40% in their 30s (Chinese State Council AIDS Working Committee Office & UNAIDS China 2007).

Although there is serious concern regarding the sexual health of young people in China, research in this area is still of very limited extent, most being conducted with university students with little attention being paid to teenagers and the rural poor (Higgins & Sun 2007, Ma et al. 2009, Yan et al. 2009). Drawing evidence from current literature, this paper aims to provide an overview of the teenage sexual values and behaviour in contemporary China, with discussions on the provision of sex education and sexual health services.

METHODS

The key principles of conducting systematic reviews were followed (Centre for Reviews and Dissemination 2008). A literature search was undertaken for the period of 2000 and 2010 to review the most current evidence. Keywords ‘China’, ‘Chinese’, ‘sex*’, ‘sexual attitude*’, ‘sexual behaviour’, ‘sex education’, ‘teenage*’, ‘adolescent*’ and ‘young people’ were used in various combinations to search English language databases (Medline, CINAHL, PsycINFO, ASSIA). Chinese language databases (China National Knowledge Infrastructure, Wanfang database) were searched using keywords in Chinese, including ‘qing shao nian’ (teenager, adolescent or young people), ‘xing tai du’ (sexual attitudes), ‘xing xing wei’ (sexual behaviour) and ‘xing jiao yu’ (sex education). The inclusion criteria were as follows:

- Sample: primarily 13-19 year olds in mainland China
- Language: Chinese or English
- Types of study: primary research

The review excluded studies conducted in Hong Kong and Taiwan, or studies where a separate breakdown of results for teenage group was unavailable.

A flow diagram of the selection process is shown in Figure 1. Thirty-six studies were included. Predetermined measures of methodological quality of these studies were not applied, because this review focused on providing an overview of research in this area; however, study characteristics were discussed. The data extracted included bibliographies,
study settings, samples, data collection and key findings. A narrative analysis was carried out because the studies included were too diverse to carry out meta-analysis or meta-ethnography (Centre for Reviews and Dissemination 2008).

RESULTS
Study characteristics
Most studies were carried out in large cities and more developed areas, such as Beijing, Shanghai, Guangzhou and Shenzhen. Seven studies were conducted with primarily 13-16 year olds at junior high schools (Table 1), 14 with mainly 16-19 year olds at senior/vocational high schools (Table 2), and 15 with mostly 13-19 year olds at both junior and senior high schools or other settings (Table 3).

In most cases, questionnaires were completed at school in presence of teachers/researchers, which might have increased self-response bias. There was little information on informed consent, while the response rates were generally high, ranging from 82.6% to 100%. It was reported in two studies that some respondents declined to answer some questions on their sexual behaviour (Gong et al. 2007, Xue et al. 2008), while such information was unavailable in others.

All but one study applied a quantitative method using questionnaires to collect data. In the only qualitative study, the data collected from in-depth interviews with 60 participants were presented in a quantitative format (Jia Y et al. 2007). Only a few studies used a large random sample of respondents across regions (e.g. Sun et al. 2001, Nie et al. 2007, Song et al. 2008), while most studies applied a convenience sample.

Sexual knowledge
Knowledge was assessed in terms of the individual’s understanding of reproductive matters, contraception, HIV/AIDS and other STIs.

With regard to knowledge of reproductive matters, in a survey of 1846 first-year vocational high school pupils in Shanghai, 84% felt that they were lacking in such knowledge, with the mean score being 33.5 out of 100 (Chen et al. 2009). In a study of senior/vocational high school respondents in Beijing, 20% did not know when a woman’s fertile period occurs (Zhou et al. 2005), while 39% of junior high school respondents in Wuhan, the capital city of Hubei province, were unable to answer any questions on the female reproductive system (Peng et al. 2004).

A poor understanding of contraception was reported repeatedly. Peng et al. (2004) found that only 2% of female junior high school respondents correctly answered all questions on contraception, while 46% were unable to answer any such questions (Peng et al. 2004). Similarly, in Shaanxi province, 59% of senior high school respondents were unaware of any contraceptive method (Wang L et al. 2009b), and in Shenzhen, a southern coastal city, out of the questions asked on condom use, 65% were answered correctly (Liang et al. 2006). In a study of 591 teenagers seeking abortions in Shanghai, 52% had never heard of emergency contraception (Xu & Cheng 2008).

Knowledge of STIs was also examined. In a small study of 192 high school pupils in Guangdong province, only 23% were able to correctly answer at least 70% of the questions on HIV/AIDS (Liu et al. 2004). Among junior high school respondents in Wuhan, between 22% and 55% were unable to correctly answer any STI questions (Peng et al. 2004, Wu et al. 2007). Conversely, out of the questions asked on basic knowledge of HIV/AIDS, between 55% and 76% were answered correctly by high school respondents in Shenzhen and Chongqing municipality (Jia X et al. 2007a,b, Tang et al. 2008). In some studies, respondents appeared to be more aware of HIV transmission routes (i.e. unsafe sex and
contaminated needles) than routes via which HIV is not transmitted (i.e. handshaking and sneezing) (Sun et al. 2001, Liu et al. 2007, Zhi 2008).

It is difficult to make direct comparison across these studies due to differing samples and measurement tools used to assess sexual knowledge. However, these findings do provide some evidence to suggest young people had insufficient sexual knowledge.

**How teenagers learned about sex**

Most teenagers reported having received information on sex from the media. Among senior high school respondents in Beijing, newspapers/magazines (56%) and television/radio (53%) were reported as their main sources of information on reproductive matters (Zhou et al. 2005). Similarly, films, television, the Internet, newspapers, medical magazines and pamphlets were seen by high school pupils as their main sources of information on STIs/AIDS throughout the regions of China (Liang et al. 2006, Liang & Jiang 2006, Zhi 2008, Wang L et al. 2009b).

The family was also regarded as a source of information by junior high school pupils in Wuhan and Shenzhen (Peng et al. 2004, Gong et al. 2007). Although it was still limited, young people, especially girls, did receive some sex education at home (Peng et al. 2004, Song et al. 2004, Zhao et al. 2005, Liang & Jiang 2006, Gong et al. 2007, Nie et al. 2007, Tang et al. 2008).

The role of schools varied. Among senior high school respondents in Xinjiang autonomous region, 67% reported having learnt about HIV/AIDS at school (Wang J et al. 2009). Schools (60%), books/television (51%), peers (42%), and the Internet (29%) were reported as the main sources by high school respondents in Chongqing (Tang et al. 2008). Schools, together with medical magazines and peers, were also referred to by young people from other areas of China (Li et al. 2002, Yu et al. 2003, Gong et al. 2007, Liu et al. 2007).

However, 76% of junior high school respondents in Wuhan reported that their schools had provided no information about reproductive matters (Peng et al. 2004). Among senior high school pupils in Henan province, 49% of city respondents and only 35% of rural respondents did report having received some sex education at school (Liang et al. 2008,2009). The figures reported by others varied from 42% in Shaanxi province to 46% in Shanghai, and 75% in Guangdong province (Nie et al. 2007, Chen et al. 2009, Wang L et al. 2009b). In terms of HIV/AIDS education, among senior/vocational high school respondents, 40% in rural areas of Henan province and 67% in Xinjiang autonomous region said that this was provided by their schools (Wang J et al. 2009).

It is uncertain whether the observed differences across these studies reflected regional variations in sex education policy or were as a result of response bias. Among respondents who did have received sex education at school, only 12% in Shanghai and 23% in Chongqing thought it useful or satisfactory (Tang et al. 2008, Chen et al. 2009). However, the important role of school in providing education on this subject was highlighted by most respondents in some studies (Tang et al. 2008, Chen et al. 2009, Wang L et al. 2009b). Similar findings were reported in a qualitative study although most respondents were not sure about the need for advice on contraception (Jia Y et al. 2007). Even so, this need was clearly identified by 73% of respondents in Beijing and the main areas that respondents wanted schools to cover were psycho-sexual topics (62%), STI prevention (54%) and sexual morality (38%) (Zhou et al. 2005). Similar results were also reported by Zhao et al. (2005).

**Sexual values and attitudes**

The reported attitudes to premarital sex varied. In junior high school, respondents believing no sex before marriage ranged from 38% in Wuhan to 67% in Dalian (Peng et al. 2004, Yang & Yu 2000). The same view was expressed by 64% of senior high school
respondents in Shaanxi province (Wang L et al. 2009b), and by between 46% of high school respondents in Guangdong province (Liu et al. 2004) and 76% in rural areas of Zhejiang, Shanxi and Qinghai provinces (Zhao et al. 2005). Liberal attitudes were reported by some respondents. For example, 16% of junior high school respondents in Wuhan believed it was okay to have sex before marriage (Peng et al. 2004). This view was reported by 66% of senior/vocational high school respondents in Beijing and 35% believed premarital sex could make a relationship more stable (Song et al. 2006). However, only 9% of rural respondents were in favour of premarital sex (Zhao et al. 2005). A direct comparison of values between rural and city respondents is impossible as this topic was not examined in other studies of young people in rural areas.

With regard to attitudes to teenage sex, junior high school respondents who reported against it varied from 50% in Beijing to 74% in Wuhan (Xu et al. 2007, Wu et al. 2007), while among senior high school respondents, the figures were from 19% in Chengdu to 86% in Shaanxi province (Li et al. 2002, Sun et al. 2004). Respondents who reported in favour of teenage sex seemed generally low, ranging from 4% of junior to 34% of senior high school respondents (Zhou et al. 2005, Xu et al. 2007). The figure rose to 50% in Yu et al. (2003), which might have been resulted from variations in its sample, 75% of which were at school and the rest were either in employment or unemployed.

Attitudes to other behaviours were also reported. Dating while still at school was agreed by from 3% of junior respondents in Beijing to 54% of senior respondents in Shanghai, while some juniors in Shenzhen and Wuhan wished to go on a date (Gong et al. 2007, Wu et al. 2007, Chen et al. 2009). Respondents who agreed with one-night stands was 17% in Chongqing and 29% in Guangdong, while as high as 26% of respondents in Guangzhou also accepted extramarital sex (Liu et al. 2004, Liang & Jiang 2006, Tang et al. 2008).

Sexual behaviour

In most studies of junior high school pupils, only a small proportion reported having already lost their virginity. This was as low as 1%, as reported in two early studies carried out in northern cities, Dalian and Beijing (Yang & Yu 2000, Zhou & Ye 2000). Similarly, in Wuhan, 1% of females and 2% of males were found to have had sex and the figure was 2% in Beijing and Shenzhen (Gong et al. 2007, Wu et al. 2007, Xu et al. 2007).

Among respondents attending senior/vocational high schools, in Beijing 3% had lost their virginity and 4% in the rural areas of Henan province (Zhou et al. 2005, Liang et al. 2009). Similarly, in Shaanxi province, 5% of males and 2% of females had had sex (Li et al. 2002), while the prevalence was as high as 14% in Chengdu (Sun et al. 2004).

In studies of both junior and senior high school pupils, the prevalence of sexual intercourse varied from 1% in Henan to 2% in Beijing and 18% in Guangdong province (Liu et al. 2004, Zhang Y et al. 2004, Zhi 2008). The high proportion reported in Liu et al. (2004) and Sun et al. (2004) might, however, have been resulted from their samples, in terms of size and characters, response bias and respondents’ age group, or have actually reflected the behavioural changes seen in teenagers.

Contraceptive use, pregnancies, abortions and multiple sexual partners were also reported. In rural areas across three provinces, only 29% of respondents who had lost their virginity had ever used contraception (Zhao et al. 2005). It is unclear whether accessibility to contraception in rural areas had affected their contraceptive choice, as their use seemed to be slightly higher among city respondents. For example, in Guangzhou, the capital of Guangdong province, although contraceptive use among high school pupils was still low, about half the respondents used a condom at their first sexual intercourse or had ever used a condom (Li 2000, Zhu et al. 2009). In some studies, between 13% and 21% of respondents
who had had sex reported having been pregnant or made a female pregnant (Zhu et al. 2009, Xue et al. 2008). Eleven respondents in Liang & Jiang (2006) reported having had an abortion. Also, the prevalence of multiple sexual partners among respondents who had already lost their virginity varied from 3% to 60% in Guangzhou and 6% in Wenzhou (Liang & Jiang 2006, Xue et al. 2008, Zhu et al. 2009). It is unclear whether the question was answered honestly and whether they had sex with multiple partners during the same time period or across different time periods. Three percent of respondents in Sun et al. (2001) confirmed diagnoses of STIs.

Only in two studies, information on respondents’ age of first sexual intercourse was available, which was age 11 or younger (Yu et al. 2003, Zhu et al. 2009). In Guangzhou, Zhu et al. (2009) found that of respondents who had lost their virginity, 23% occurred before age 11 and this was more likely to be reported by juniors than by seniors (31% vs. 19%). These findings might have been caused by response bias, as 63 juniors (44%) and 38 seniors (23%) did not answer this question (Zhu et al. 2009), or have reflected that the juniors were not mature enough to take the questionnaire seriously.

Key factors associated with sexual knowledge, attitudes and behaviour

Age differences

As might be expected, older respondents appeared to have a better understanding of sexual matters than those younger than them. Song et al. (2004) surveyed pupils at primary and high schools in Dalian. Half of the respondents were unable to correctly answer the questions put to them on sexual matters, but even so, senior respondents did better than their younger counterparts ($P < 0.001$). In a study of high school pupils in Shanghai, seniors scored significantly higher than juniors (55 vs. 34, $P < 0.001$, Tu et al. 2007). Similar results were found in terms of HIV/AIDS knowledge (Liu et al. 2004, Zhao et al. 2005, Liang & Jiang 2006, Jia X et al. 2007a,b, Liu et al. 2007, Xue et al. 2008, Zhi 2008).

However, older respondents tended to report holding more permissive attitudes to sex (Liu et al. 2004, Sun et al. 2004, Tu et al. 2007, Wu et al. 2007). As might also be expected, older respondents were more likely to report having lost their virginity (Li 2000, Liu et al. 2004, Song et al. 2004, Sun et al. 2004, Jia X et al. 2007a,b, Wang J et al. 2009, Zhu et al. 2009).

Gender differences

Generally, young men were found to have better sex-related knowledge than young women, including knowledge of HIV/AIDS (Li et al. 2002, Yu et al. 2003, Jia X et al. 2007a,b, Wu et al. 2007, Zhi 2008). Even so, in Wenzhou, out of the HIV/AIDS questions asked, the percentage of correct answers from female respondents was significantly higher than that from male respondents (78% vs. 72%, $\chi^2 = 28.171, P < 0.01$, Xue et al. 2008). Such differences may indicate that females did have better knowledge, but its small sample size may also have influenced findings (n=465).

Males were more likely to report having liberal attitudes to premarital and uncommitted sex (Liu et al. 2004, Liang & Jiang 2006) and to have lost their virginity, as reported by respondents at junior high schools (Jia X et al. 2007a, Wu et al. 2007). Consistent results were reported in studies at senior/vocational high school (Sun et al. 2004, Jia X et al. 2007a,b, Nie et al. 2007, Liang et al. 2008, Song et al. 2008), and in studies of high school pupils (Li 2000, Zhao et al. 2005, Tang et al. 2008). Moreover, even among high school pupils in Guangzhou, more males than females reported having more than one sexual partner (63% vs. 45%, $\chi^2 = 4.087, P < 0.04$, Zhu et al. 2009).
Types of schools

When young people reach age 16, following secondary education at junior level, they follow one of three pathways. They can leave school, or attend a senior or a vocational high school. Senior high schools are divided into common or key schools. Only high achievers are eligible to attend key schools.

In some studies, comparisons were made between pupils attending a variety of different types of school. In Beijing, respondents at vocational high schools had a poorer knowledge of reproductive matters than those at common high schools, but they held more liberal attitudes to premarital sex and were more likely to have already lost their virginity ($P < 0.05$, Song et al. 2006). It was also reported in three other studies that respondents at key schools were significantly more likely to remain virgins than those at common and vocational schools ($P < 0.01$, Nie et al. 2007, Song et al. 2008, Wang J et al. 2009).

These variations may be explained as follows. Most of young people attending common and key high schools aim to go through competitive tests to get into university, and therefore might focus more on academic success than those attending vocational high schools. Some evidence supports the idea of academic inspirations being a positive influence on the sexual attitudes of higher performing students. Song et al. (2008) reported that commitment to doing well at school protected respondents from becoming sexually active. Variations may be also explained by other factors, such as family relationships, social economic status and levels of parental education (Sun et al. 2004, Nie et al. 2007, Song et al. 2008).

DISCUSSION
Teenage sexual attitudes and behaviour in China

These findings provide insight into teenage sexual attitudes and behaviour in contemporary China. Premarital/teenage sex was agreed by some teenagers although its prevalence is lower than that reported in studies conducted in most western countries. For example, only 4% of respondents in a UK national survey disapproved of premarital sex (Wellings et al. 1994). Chinese traditional sexual values are mainly based on Confucian and Taoist traditions, stressing reproduction and social stability (Ruan 1991). Sexual intercourse is solely endorsed within marriage for reproductive purposes, while premarital and extramarital relationships, homosexuality and masturbation are all disapproved of. The minimum legal age for marriage is 20 for women and 22 for men in China (National People's Congress 1980). Teenage sex, therefore, is deemed to occur before marriage and is thought culturally unacceptable.

With regard to sexual behaviour, in most studies, less than 5% of respondents reported having lost their virginity, although occasionally the prevalence was higher, especially among male respondents (Li 2000, Liu et al. 2004, Sun et al. 2004, Tang et al. 2008). This figure still seems low, when compared to countries such as the UK and the USA. Based on national surveys, over one-quarter of UK teenagers had become sexually active before age 16 (Wellings et al. 2001, Currie et al. 2008), and an estimated 31% of 15-17 year olds had lost their virginity at this age in the USA (Abma et al. 2004). These findings have been supported by a recent review on sexual behaviour of Chinese young people in western countries, who were found to be more likely than their white counterparts to disapprove of uncommitted sex, be virgins, have lost their virginity at a later age, and have fewer sexual partners (Yu 2010a).

This low prevalence of sexual intercourse may indicate that although many respondents tended to agree with premarital sex, most of them have not yet actually engaged in it. It may also be due to their reluctance to reveal sexual behaviour that may not match the norms of traditional Chinese culture. Sex is always a sensitive topic for people, but
especially for Chinese people (Ruan 1991). This has been reflected in sex-related research with Chinese young people both living in China and overseas, who often declined to reveal their sexual behaviour and were reluctant to take part in such research (Higgins et al. 2002, Gong et al. 2007, Xue et al. 2008, Yu 2009). Although it is always challenging to conduct research in this area with young people in any country due to this reticence, the fact that the reliability of the research reviewed has been influenced by response bias must be taken into account.

Contraceptive use among Chinese teenagers appeared to be low. This might be due to a lack of knowledge about contraception, limited access to contraceptive services, or unawareness of the risk of getting pregnant (e.g. Wu et al. 2002, Peng et al. 2004). Cases of pregnancies and abortions were also reported in some studies discussed (Li 2000, Liang & Jiang 2006, Xue et al. 2008, Zhu et al. 2009). These findings are consistent with studies of university students in China (e.g. Ma et al. 2008, 2009).

**Sexual knowledge and sex education in China**

Sexual knowledge was generally insufficient, especially in terms of reproductive health and STIs. Many of the teenagers in the studies reviewed did not seem to have received sufficient formal sex education at school, while the role of school in this regard was deemed crucial. The media, such as magazines, television and the Internet, were seen to be the main sources of information on sex. Consistent results have been reported in studies carried out in other countries (Lesta et al. 2008, Ngo et al. 2008) and suggest that in China schools have not yet played a key part.

The Chinese government began to support school sex education in 1985 after China’s first case of HIV was identified. It became part of the curriculum offered to pupils in junior high schools in 1988 (Beijing Education Bureau 1988); however, in some areas the policy has still not been well implemented (Gao et al. 2001). It is common for sex education to be taught in biology classes but with a narrow focus on biology and psychological development (Gao et al. 2001, Aresu 2009). This may only consist of reading the reproduction section of textbooks in the classroom or be self learnt without any discussion. The reported cases of unwanted pregnancies and multiple sexual partners call for a more comprehensive sex education that discusses topics on safe sexual practice, sexual morality, negotiation skills and the psychological aspects of sex. Also, the reported differences in sexual attitudes and behaviour between the genders and between respondents attending different types of schools suggest that this education should particularly target adolescent males and young people in vocational and professional training.

School sex education has the scope to reach teenagers before they leave school at 16 at a time when most of them are still sexually inactive. This subject could be one of the most important tools to equip teenagers with the knowledge they need to make healthy and informed choices on their sexual behaviour. A positive impact of sex education at school on young people’s sexual knowledge and prevalence of sexual intercourse has been reported in the USA and the UK (e.g. Wight et al. 2002, Stephenson et al. 2004, Tucker et al. 2007, Mueller et al. 2008). Moreover, in a UK national survey, school has become the most commonly cited source of information on sexual matters among 16-19 year olds and the prevalence of reported STIs was lower among respondents who cited school as their main source than those who reported parents and friends had taught them most (Wellings et al. 2001, Macdowall et al. 2006).

**Review limitations**

This is the first critical review concerning teenage sexual behaviour in China, but some limitations need to be acknowledged. Grey literature was not included, which may
have omitted some relevant work. The selected studies for inclusion may be subject to selective bias, mainly due to a lack of a quality assessment and subjective judgement of the sole reviewer. In future work, such a review could be strengthened by establishing a team comprising of members with different expertise, including bilingual reviewers. Despite these limitations, this review helps enhance the knowledge base of research in this field and lays valuable foundation for additional work.

**Implications for practice and research**

Government policy on school sex education needs to be implemented evenly across the country to ensure equality in education on this subject. However, on its own the school cannot sufficiently mitigate excesses in teenage sexual behaviour, as young people tend to shape their behaviour within a wide set of social and cultural contexts: those of school, family, peers, religion, neighbourhood and media (Yu 2010b). Parents may not have the specific knowledge and skills needed to deal with factual questions about reproduction and STIs that can adequately be taught by trained teachers and health professionals. However, a harmonious family environment, open parent-child discussions on values, and close monitoring of their children’s behaviour can help teenagers develop positive values and a healthy sexual behaviour (Yu 2008, Wetherill et al. 2010).

The media, unsurprisingly enough, are regarded as the most popular source of information on sexual matters. In China, the Internet becomes increasingly used to facilitate sex education and has resulted in some positive effects on sexual knowledge and the attitudes of young people (Lou et al. 2006). However, how teenagers apply media content is crucial and the negative inputs, such as those of online pornography, may be mitigated through parental guidance, monitoring and communication (Collins et al. 2003). There is also some evidence to support the positive influence of comprehensive community-based programmes on young people’s sexual knowledge and contraceptive use (Lou et al. 2004, Wang et al. 2006, Tu et al. 2008). Targeting teenagers both at school and beyond, these programmes could complement school-based education.

Sexual health services need to be universally accessible, but at present, government-sponsored services, such as free consultations, health checks and contraceptives, still focus mainly on married couples. Teenagers and single young people can find themselves excluded from such services, while health professionals are often uncertain about providing them with such services (Tu et al. 2004). If there are barriers stopping school-goers from using such services, increasing numbers of these who are sexually active will continue to be vulnerable to unsafe sex.

As with research in general, issues around sampling, response rate, response bias and confidentiality should be addressed to enhance research quality in this area. Quantitative research needs to be complemented by qualitative research to provide young people with the opportunity to express their views on their own sexual behaviour, the context and meaning of having sex, and reasons for sexual engagement or maintaining abstinence. Future research also needs to use national representative samples including teenagers across China both at school and beyond.

**CONCLUSION**

Rapid changes in the sexual values of Chinese teenagers call for a more comprehensive response to sex education policy and additional improved sexual and reproductive health services. It is challenging to develop and implement nationwide programmes that meet the needs of all young people in such a geographically and socio-economically diverse country. A relevant and inclusive policy framework is needed to enable young people, schools, health organisations, families and communities to get
involved in the development of future programmes and services that are available to all regions and also accessible to teenagers and unmarried young people in China.
REFERENCES


Table 1: Summary of studies conducted with junior high school pupils (n=7): information is provided where available

<table>
<thead>
<tr>
<th>References and setting</th>
<th>Sample and response rate/valid responses</th>
<th>Data collection: method, location and year</th>
<th>Key findings</th>
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</table>
| **Gong et al. (2007)**  
Shenzhen city  
Guangdong province | N=1666  
4 junior high schools  
Year 2 pupils  
12-16 years  
Random cluster sample  
Valid responses: 94.1% | Questionnaire  
(self-completed, anonymous)  
2006 | **Sexual knowledge and main sources**  
Main sources of sexual knowledge: schools (63%), peers (53%), books/magazines (40%) and family (34%)  

**Sexual attitudes**  
59% of males and 38% females wished to have a date.  
Attitudes to teenage sex:  
- 21% of males and 12% of females in favour, $P < 0.01$  
- 42% of males and 59% of females against, $P < 0.01$  

**Sexual behaviour**  
Respondents who had had sex:  
- 2.1% of males  
- 0.9% of females  

Respondents who did not want to answer this question:  
- 55% of males  
- 74% of females |
| **Jia X et al. (2007a)**  
Shenzhen city  
Guangdong province | N=3528  
10 junior high schools  
Year 1-3 pupils  
10-19 years  
(M=14.09±1.16)  
Random cluster sample  
Response rate: 99.4%  
Valid responses: 98.6% | Questionnaire  
(self-completed, anonymous)  
School  
2005 | Percentage of correct answers from all respondents to questions on:  
- HIV/AIDS (55%)  
- HIV transmission routes (e.g. unsafe sex, contaminated needles and breast milk) (77%)  
- HIV non-transmission routes (e.g. handshaking and sneezing) (68%)  
- HIV prevention (61%)  

Respondents in favour of teenage dating: 24%  
Attitudes to extra/premarital sex:  
- 20% in favour  
- 35% neutral  

17.5% had dated.  
1.1% had had sex:  
- 0.4% of Year-1 pupils  
- 0.8% of Year-2 pupils  
- 2.4% of Year-3 pupils  
$P < 0.001$ |
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<tr>
<th>Study</th>
<th>Sample Size</th>
<th>Study Details</th>
<th>Data Collection Method</th>
<th>Sexual Knowledge</th>
<th>Sexual Attitudes</th>
<th>Pre-marital Sex</th>
</tr>
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<tr>
<td>Peng <em>et al.</em> (2004) Wuhan city Hubei province</td>
<td>N=1341</td>
<td>3 junior high schools Year 1-2 female pupils 11.9-13.8 years Random cluster sample</td>
<td>Questionnaire (self-completed, anonymous)</td>
<td>75.8% reported having received no education on reproductive matters at school. Sexual knowledge mean score (out of 100): 47 Respondents unable to correctly answer any questions on: - female reproductive system (39%) - contraception and methods (46%) - STIs (55%) Only 2% of respondents correctly answered all questions on contraception and contraceptive method. Main sources of information on sex: books/magazines (53%), schools (37%), family (34%), radio/TV (31%) and peers (30%)</td>
<td>Attitudes to premarital sex: - 38% against - 38% not encouraging others to have sex before marriage - 8% neutral - 16% in favour</td>
<td></td>
</tr>
<tr>
<td>Wu <em>et al.</em> (2007) Wuhan city Hubei province</td>
<td>N=2987</td>
<td>3 junior high schools Year 1-3 pupils Mean age: 13.1 Cluster sample Valid responses: 96.8%</td>
<td>Questionnaire (self-completed, anonymous) School 2005</td>
<td>Respondents unable to correctly answer any questions on: - contraceptive methods (15%) - STIs (22%) Main sources of sexual knowledge: teachers, peers/friends and parents</td>
<td>Attitudes to teenage dating: - 47% against - 13% in favour Respondents wishing to have a date: 66% Respondents in favour of teenage sex: 74%</td>
<td></td>
</tr>
<tr>
<td>Xu <em>et al.</em> (2007) Beijing</td>
<td>N=647</td>
<td>3 junior high schools Mean age: 14.3 years</td>
<td>Questionnaire (self-completed, anonymous)</td>
<td>Main sources of sexual knowledge: teachers (69%), newspapers/magazines (38%),</td>
<td>Attitudes to teenage sex: - 50% against</td>
<td>2% (13/647) had had sex.</td>
</tr>
</tbody>
</table>
### Yang & Yu (2000)

**Dalian city, Liaoning province**  
N=354  
4 junior high schools  
Year 1-2 pupils  
Random cluster sample  
Valid responses: 99.2%

**School**  
Questionnaire (self-completed, anonymous)

**Main sources of information on sex:** books/magazines (65%), schools (20%) and family (15%)  
78% reported sex education was insufficient at their school.

**Respondents against:**  
- teenage dating: 47%  
- premarital sex: 67%

1.1% (4/354) had had sex.

---

### Zhou & Ye (2000)

**A large undisclosed city**  
N=1036  
10 junior high schools  
Year 1 pupils  
Random cluster sample  
Valid responses: 88.5%

**School**  
Questionnaire (self-completed, anonymous)

1.1% (11/1036) had had sex.
Table 2 Summary of studies conducted with senior/vocational high school pupils (n=14): information is provided where available

<table>
<thead>
<tr>
<th>References and setting</th>
<th>Sample and response rate/valid responses</th>
<th>Data collection: method, location and year</th>
<th>Key findings</th>
</tr>
</thead>
</table>
| **Chen et al. (2009)** | N=1846 3 vocational high schools Year-1 pupils Cluster sample Valid responses: 99.5% | Questionnaire (self-completed, anonymous) 2005 | Sexual and reproductive health mean scores (out of 100):  
- females (35) vs. males (32)  
- those having had sex education (39) vs. those having not had (30), \( P < 0.001 \)  
Main sources of information: mass media (44%), schools (23%) and parents (11%)  
46% had had sex education at junior high school (60% of females vs. 37% of males, \( P < 0.0001 \)  
Respondents who considered school sex education:  
- not useful (30%)  
- useful (12%)  
- average (58%)  
84% reported they were lacking in sexual knowledge and 65% thought it important to provide sex education at school. |
| **Jia X et al. (2007b)** | N=1115 5 senior high schools | Questionnaire (self-) | Percentage of correct answers from all respondents to questions |
|                         |                           |                           | Respondents in favour of:  
- teenage dating: 54%  
- male premarital sex: 53% (60% of males vs. 43% of females, \( P < 0.0001 \)  
- female premarital sex: 48% (53% of males vs. 40% of females, \( P < 0.0001 \)  
46% had dated: 40% of Year 1 pupils vs. 51% of... |
<table>
<thead>
<tr>
<th>Location</th>
<th>Sample Description</th>
<th>Methodology</th>
<th>Responses/Results</th>
<th>Statistical Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shenzhen City Guangdong Province</td>
<td>Year 1-2 pupils 13-21 years (M=16.43±0.9) Response rate: 98.4% Valid responses: 98.5% School 2005</td>
<td>completed, anonymous)</td>
<td>Valid responses: 98.5%</td>
<td>Year 2 pupils, $\chi^2 = 12.88, P &lt; 0.001 6% had had sex:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>● 8.5% of males vs. 3.1% of females, $\chi^2 = 13.86, P &lt; 0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>● 3.7% of Year 1 pupils vs. 8.4% of Year 2 pupils, $\chi^2 = 10.65, P &lt; 0.001</td>
</tr>
<tr>
<td>Jia Y et al. (2007) Tangshan City Hebei Province</td>
<td>N=60 1 senior high school Year 1-3 pupils 15-19 years Random sample</td>
<td>In-depth face-to-face interviews (anonymous, confidential)</td>
<td>35% had not received sex education at school. 75% believed it necessary to have sex education. 30% believed it necessary to provide education and services about contraception. Preferred sources of information on sex: schools (62%), hospitals (33%) and newspapers/magazines (30%)</td>
<td>Respondents against teenage sex: 70%</td>
</tr>
<tr>
<td>Li et al. (2002) Xixiang County Shaanxi Province</td>
<td>N=544 1 senior &amp; 1 vocational high schools Year 1 pupils Mean age: 16.6±0.96 for males, 16.57±0.97 for females Cluster sample Response rate: 100% Valid responses: 99.6%</td>
<td>Questionnaire (self-completed, anonymous)</td>
<td>Mean scores on knowledge of reproductive health and STIs/AIDS (out of 30): males: 12.96±4.40 females: 9.91±4.40 $P &lt; 0.001$ Main sources of information: medical books/magazines (77%), schools (70%) and TV/film (35%)</td>
<td>Respondents against:</td>
</tr>
<tr>
<td></td>
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<td>● premarital sex: 46% of males vs. 57% of females, $P &lt; 0.001</td>
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<td></td>
<td>● teenage sex: 79% of males vs. 93% of females, $P &lt; 0.001</td>
</tr>
<tr>
<td>Liang et al.</td>
<td>N=1070</td>
<td>Questionnaire</td>
<td>Percentage of correct answers</td>
<td>Respondents who had had sex:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>● 4.5% of males (n=15)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>● 2.4% of females (n=4)</td>
</tr>
<tr>
<td>Year</td>
<td>City</td>
<td>Province</td>
<td>School Type</td>
<td>Age</td>
</tr>
<tr>
<td>------</td>
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</tr>
<tr>
<td>2006</td>
<td>Shenzhen</td>
<td>Guangdong</td>
<td>1 senior &amp; 1 vocational high schools</td>
<td>16-19 years</td>
</tr>
<tr>
<td>2008</td>
<td>4 cities</td>
<td>Hunan</td>
<td>N=7623 Senior high schools</td>
<td>15-19 years</td>
</tr>
<tr>
<td>2009</td>
<td>Rural areas in Henan</td>
<td>N=5011 Senior high schools</td>
<td>15-20 years</td>
<td>Random cluster sample</td>
</tr>
</tbody>
</table>

Liang et al. (2006) discuss the prevalence of sex education in a sample of 1 senior & 1 vocational high schools in Shenzhen, Guangdong province. The study found that 4.4% of males and 2% of females had sex. The main sources of information on STIs were newspapers/magazines/books (83%), pamphlets (63%), TV (40%) and friends (40%).

Liang et al. (2008) examined 4 cities in Hunan province with a sample size of 7623. They found that 30% had dated: 33% of males vs. 27% of females, \( \chi^2 = 24.639, P < 0.01 \) and 3.4% had had sex.

Liang et al. (2009) investigated rural areas in Henan province with a sample size of 5011. They reported that 30% had dated: 32% of males vs. 27% of females, \( \chi^2 = 12.008, P < 0.01 \) and 3.6% had had sex: 5.6% of males vs. 1.5% of females, \( \chi^2 = 60.839, P < 0.01 \).
<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Size</th>
<th>Sample Description</th>
<th>Data Collection Method</th>
<th>Key Findings</th>
</tr>
</thead>
</table>
| Nie et al. (2007)             | N=10,016    | 5 cities Guangdong province | Questionnaire (self-completed, anonymous) 2005 | 36% had dated:  
• 38% of males vs. 35% of females, $\chi^2 = 8.586, P = 0.003$  
• 43% of vocational pupils, 35% of common school pupils and 32% of key school pupils, $\chi^2 = 87.249, P < 0.001$  
5.9% had had sex:  
• 8.7% of males vs. 3.3% of females, $\chi^2 = 128.176, P < 0.001$  
• 3.1% of key school pupils, 4.8% of common school pupils vs. 10.1% of vocational pupils, $\chi^2 = 158.833, P < 0.001$  
|
| Song et al. (2006)            | N=628       | 3 common & 1 vocational high schools Beijing municipality | Questionnaire (self-completed, anonymous) School | Respondents who had had sex:  
• 10.4% (21/202) of vocational pupils  
• 4% (17/426) of common school pupils $P < 0.01$ |  
|                              |             |                    | Out of the questions asked on reproductive matters, the percentage of correct answers from:  
• common high school pupils: 79%  
• vocational pupils: 66% $P < 0.05$ | Respondents in favour of premarital sex:  
• common school pupils: 56%  
• vocational pupils: 76%  
Respondents believing premarital sex could strengthen |
<table>
<thead>
<tr>
<th>Authors</th>
<th>Study Details</th>
<th>Methods</th>
<th>Results</th>
</tr>
</thead>
</table>
| Song et al. (2008) 18 provinces | N=110,954 Key/common senior & vocational high schools Year 1-3 pupils Mean age: 16.9±1.14 for males, 16.8±1.10 for females Random cluster sample Valid responses: 99.4% | Questionnaire (self-completed, anonymous) School | - the Internet (52% for males vs. 24% for females, \( P < 0.01 \))
  - videos (36% for males vs. 12% for females, \( P < 0.01 \))
  - books/magazines (24% for males vs. 25% for females) | relationships:
  - common school pupils: 28%
  - vocational pupils: 42%
  - 4.4% had had sex:
    - 6.9% of males vs. 2.1% of females, \( P < 0.01 \)
    - 3.8% of Year 1 pupils, 4.5% of Year 2 pupils vs. 5.3% of Year 3 pupils, \( P < 0.01 \)
    - 4.6% of key school pupils, 6.1% of common school pupils vs. 10.7% of vocational pupils, \( P < 0.01 \) |
| Sun et al. (2004) Chengdu city Sichuan province | N=526 1 vocational high school Year 2 pupils 16-19 years (M=17.07) Valid responses: 94.4% | Questionnaire (self-completed, anonymous) School 2001 | Mean scores on knowledge of:
  - reproductive matters: 4.38 (out of 7)
  - STIs: 11.71 (out of 22) | Attitudes to teenage dating:
  - 5% against
  - 71% neutral
  - 25% in favour Attitudes to teenage sex
  - 19% against
  - 70% neutral
  - 11% in favour |
  - 13.9% had had sex:
    - 22.9% of males
    - 9.4% females \( P < 0.001 \) |
<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Size</th>
<th>Sample Details</th>
<th>Data Collection</th>
<th>Questionnaire</th>
<th>Findings</th>
</tr>
</thead>
</table>
| Wang J et al. (2009) | N=9138      | 14 key, 9 common senior & 5 vocational high schools | Year 1-3 pupils 15-19 years | Random cluster sample | 67% reported having had HIV/AIDS education. Respondents who were aware of AIDS caused by HIV virus: 58%  
- Year 3 pupils scored better than Year 1 & 2 pupils (63%, 61% & 62%, $\chi^2 = 290.54, P < 0.01$)  
- Key school pupils scored better than common and vocational school pupils (64%, 60% & 38%, $\chi^2 = 267.05, P < 0.01$). |
| Wang L et al. (2009b) | N=940       | 3 key and 2 common senior high schools | Year 1-3 pupils 17 years | Random cluster sample | Respondents in favour of premarital sex: 64%  
4.8% had had sex:  
- 7.2% of males vs. 2.7% of females, $\chi^2 = 25.79, P < 0.01$  
- 6% of Year 3 pupils, 4.8% of Year 2 pupils vs. 3.8% of Year 1 pupils, $\chi^2 = 25.79, P < 0.01$  
- 8.7% of vocational pupils, 4.2% of key high school pupils vs. 3% of common high school pupils, $\chi^2 = 27.26, P < 0.01$ |
| Zhou et al. (2005) | N=658       | Key/common senior & vocational high schools | Mean age: 16.8 years | Random cluster sample | Attitudes to teenage sex:  
- 54% against  
- 34% in favour  
- 9% not sure  
3.2% had had sex:  
- 5.4% of males  
- 0.9% of females $P < 0.05$ |
| Valid responses: 97.3% | newspapers/magazines (56%), radio/TV (53%), peers/friends (38%), teachers (33%) and the Internet (31%) | Topics mostly wanted: psychological aspects of sex (62%), STI prevention (54%) and sexual morality (38%) |
Table 3 Summary of studies conducted with both junior and senior high school pupils and others (n=15): information is provided where available

<table>
<thead>
<tr>
<th>References and setting</th>
<th>Sample and response rate/valid responses</th>
<th>Data collection: method, location and year</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li (2000) Guangzhou city Guangdong province</td>
<td>N=4858 2 common &amp; 2 key high schools 12-20 years Cluster sample Valid responses: 82.6%</td>
<td>Questionnaire (self-completed, anonymous) School 1994</td>
<td>Sexual knowledge and main sources:</td>
</tr>
<tr>
<td>Liang &amp; Jiang (2006) Guangzhou city Guangdong province</td>
<td>N=2562 3 high schools Year 2-3 juniors &amp; Year 2-3 seniors Response rate: 100% Valid responses: 99.7%</td>
<td>Questionnaire (self-completed, anonymous) School 2005</td>
<td>Mean scores on knowledge of HIV/AIDS (out of 6): 23% (32% of seniors vs. 15% of juniors)</td>
</tr>
<tr>
<td>Liu et al. (2004) 1 town Guangdong province</td>
<td>N=192 1 junior &amp; 1 senior high schools Year 2 juniors &amp; Year 2 seniors</td>
<td>Questionnaire (self-completed, anonymous) School</td>
<td>Respondents who correctly answered at least 70% of the questions on: HIV/AIDS: 23% (32% of seniors vs. 15% of juniors</td>
</tr>
<tr>
<td>Study</td>
<td>Sample</td>
<td>Year</td>
<td>Methods</td>
</tr>
<tr>
<td>-------</td>
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</tr>
<tr>
<td>Liu et al. (2007) Xinzhou city Shanxi province</td>
<td>N=450 1 high school Year 1-2 juniors &amp; Year 1-2 seniors Cluster sample</td>
<td>2003</td>
<td>Questionnaire (self-completed, anonymous) School 2005</td>
</tr>
<tr>
<td>Song et al. (2004) Dalian city Liaoning province</td>
<td>N=920 Primary schools &amp; high schools Year 6 primary pupils, Year 2 juniors &amp; Year 2 seniors</td>
<td>2002</td>
<td>Questionnaire (self-completed, anonymous) School 2002</td>
</tr>
</tbody>
</table>

13-19 years (M=14.24 for juniors, 16.83 for seniors) Random cluster sample

Random cluster sample 2003 $\chi^2 = 7.4, P < 0.05$; 32% of males vs. 14% of females, $\chi^2 = 8.61, P < 0.05$

- HIV transmission routes: 43%
- HIV prevention: 25%
Main sources of information: radio/TV (90%), schools (80%) and magazines (68%)

- 40% of juniors vs. 70% of seniors in favour, $P < 0.05$
Attitudes to one night stands:
- 79% against
- 14% of juniors vs. 29% of seniors in favour, $P < 0.05$
<table>
<thead>
<tr>
<th>Years</th>
<th>Random cluster sample</th>
<th>Valid responses: 95.8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun et al. (2001)</td>
<td>Beijing, Tianjin, Shenzhen, Shenyang cities &amp; Yunnan province</td>
<td>N=16,580 40 common high schools Year 1 juniors &amp; Year 1 seniors Random cluster sample</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Questionnaire (self-completed, anonymous) School 1999</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of correct answers from all respondents to questions on:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• HIV transmission routes: 73% (71% from juniors vs. 75% from seniors, ( P &lt; 0.01 ))</td>
</tr>
<tr>
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<td></td>
<td>• HIV non-transmission routes: 45% (42% from juniors vs. 47% from seniors, ( P &lt; 0.01 ))</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• HIV prevention: 77% (80% from juniors vs. 74% from seniors, ( P &lt; 0.01 ))</td>
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<tr>
<td></td>
<td></td>
<td>Respondents who had discussed HIV/AIDS with:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• family members: 45%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• friends: 65%</td>
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<tr>
<td></td>
<td></td>
<td>Respondents against premarital sex: 61%</td>
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<tr>
<td></td>
<td></td>
<td>• 60% of juniors vs. 63% of seniors, ( P &lt; 0.01 ))</td>
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<tr>
<td></td>
<td></td>
<td>• 53% of junior males vs. 66% of junior females, ( P &lt; 0.01 ))</td>
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<tr>
<td></td>
<td></td>
<td>• 52% of senior males vs. 72% of senior females, ( P &lt; 0.01 ))</td>
</tr>
<tr>
<td>Tang et al. (2008)</td>
<td>Chongqing municipality</td>
<td>N=665 2 high schools Year 1-3 juniors &amp; Year 1-3 seniors 12-19 years (M=15.5) Cluster sample Valid responses:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Questionnaire (self-completed, anonymous) School 2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Out of the STI/AIDS questions asked, 75% were answered correctly. Main sources of information on sex: schools (60%), magazines/TV (51%), peers (42%) and the Internet (29%) 69% believed it necessary to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Respondents in favour of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• early dating: 47%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• teenage sex: 31%</td>
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<tr>
<td></td>
<td></td>
<td>• one night stands: 17%</td>
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<td></td>
<td></td>
<td>Respondents against:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 3% had diagnosed with a STI:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2.8% of juniors vs. 3.1% of seniors, ( P &lt; 0.01 ))</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Among juniors: 3.7% of males vs. 1.9%, ( P &lt; 0.01 ))</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Among seniors: 4.6% of males vs. 1.7% of females, ( P &lt; 0.01 ))</td>
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<tr>
<td></td>
<td></td>
<td>8.6% had had sex:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 14.5% of males</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 3.1% of females ( \chi^2 = 26.23, P &lt; 0.0001 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>68.8% had used a condom.</td>
</tr>
</tbody>
</table>
97.8% have sex education at school. Attitudes to current school sex education:
- satisfied (26%)
- unsatisfied (35%)
- uncertain (42%)

| Tu et al. (2007) | N=3069 | Questionnaire (self-completed, anonymous) | Mean scores on knowledge of reproductive matters and HIV/AIDS (out of 100):
| Shanghai municipality | 7 junior & 4 senior high schools | School 2004 | - juniors (33.85) vs. seniors (55.08), $P < 0.001$
- male juniors (31.22) vs. female juniors (36.40), $P < 0.001$
- male seniors (55.24) vs. female seniors (54.97), $P < 0.001$
| Year 1 juniors & Year 1 seniors | Main sources of information:
| Mean age: 14.66±0.41 for juniors, 17.6±0.38 for seniors | | - for juniors: teachers (63%), parents (54%) and TV/radio/newspapers (31%)
- for seniors: TV/radio/newspapers (60%), teachers (44%) and magazines (41%)

Respondents against teenage dating:
- juniors: 80%
- seniors: 51%

Respondents in favour of or with neutral attitudes to:
- male premarital sex: 56% of juniors vs. 82% of seniors, $P < 0.001$
- female premarital sex: 54% of juniors vs. 78% of seniors, $P < 0.001$

Respondents who had dated:
- 5.2% of juniors
- 21.9% of seniors

15 juniors and 3 seniors had had sex.

| Xu & Cheng (2008) | N=591 | Questionnaire (self-completed, anonymous) | 48% had heard of emergency contraception. Main sources of information: peers/boyfriends (60%) and magazines/newspapers (21%)
| Shanghai municipality | 6 hospitals | Hospital | All pregnancies were unintended. 49% had never used any contraception.
| Pregnant teenagers seeking abortions 13.5-19 years | | |
### Main reasons for not using contraception:
- not knowing (57%)
- thinking not at risk (35%)

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Sample Information</th>
<th>Methods</th>
<th>Main results</th>
</tr>
</thead>
</table>
| Xue et al. (2008) Wenzhou city Zhejiang province | 2005 | N=465 5 junior & 3 senior high schools Year 1-3 juniors & Year 1 seniors 11-18 years (M=15.40±1.28) Random cluster sample | Questionnaire (self-completed, anonymous) School 2007 | Percentage of correct answers from all respondents to HIV/AIDS questions: 75%  
  - 78% from females vs. 72% from males, $\chi^2 = 19.514, P < 0.01$  
  - 82% from seniors vs. 73% from juniors, $\chi^2 = 28.171, P < 0.01$  
  Main sources of information: teachers (66%), peers (48%) and parents/guardians (33%) |
| Yu et al. (2003) Shanghai municipality | 2000 | N=806 3 towns 75% at junior, senior and vocational high schools 15-18 years          | Questionnaire (self-completed, anonymous) | 69% had never heard of anything about contraception.  
  73% had never asked parents for information on sex (93% of males vs. 54% of females, $P < 0.001$).  
  Main sources of information on sex: schools, medical books/magazines and peers  
  62% had had sex education at school.  
  81% considered it necessary. |
| Zhang Y et al. (2004) Being         |      | N=1361 1 key, 2 common & 1 vocational                                               | Questionnaire (self-completed, anonymous) | Mean scores on reproductive questions (out of 5):  
  - 2.37 for juniors  
  Respondents against teenage dating: 71%  
  Attitudes to teenage |
<table>
<thead>
<tr>
<th>Municipality</th>
<th>High Schools</th>
<th>School</th>
<th>Sex:</th>
<th>Attitudes to Premarital Sex</th>
<th>Information Needs</th>
<th>Preferred Sources</th>
<th>Respondents against Premarital Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zhao et al. (2005) Rural areas in Zhejiang, Shanxi &amp; Qinghai provinces</td>
<td>4 high schools</td>
<td>School 2003</td>
<td>74% of juniors vs. 54% of seniors against, $P &lt; 0.01$</td>
<td>76% against</td>
<td>Relationships (59%), adolescent psychology (51%) and STI/AIDS prevention (49%)</td>
<td>Schools (62%), hospitals (33%) and telephone counselling (24%)</td>
<td>6% of males, 3.1% of females, $P &lt; 0.05$</td>
</tr>
<tr>
<td>Zhi (2008) A county in Henan province</td>
<td>2 junior &amp; 2 senior high schools</td>
<td>School 2005</td>
<td>55% of males vs. 77% of females, $P &lt; 0.05$</td>
<td>65%</td>
<td>HIV/AIDS: 31%</td>
<td>57% of seniors, $P &lt; 0.05$</td>
<td>0.6% had had sex.</td>
</tr>
</tbody>
</table>
| Zhu et al. (2009) | Guangzhou city (urban & suburbs) Guangdong province | N=5966 9 high schools Year 1-3 juniors & Year 1-3 seniors 11-22 years (M=15.94±1.88) Cluster sample Valid responses: 99.4% | Questionnaire (self-completed, anonymous) School 2004 | 1.3% had had forced sex. 4.5% had had sex voluntarily:  
- 6.7% of males vs. 2.4% of females, $\chi^2 = 53.294, P < 0.001$  
- 3.7% of juniors vs. 5.3% of seniors, $\chi^2 = 7.581, P < 0.006$  
59.7% had had multiple sexual partners: 63.1% of males vs. 44.7% of females, $\chi^2 = 4.087, P < 0.04$  
51.2% had used a condom. 21.3% had been pregnant or made someone pregnant. 23.3% had sex before age 11: 31.3% (25/80) of juniors vs. 18.5% (24/130) of seniors, $P < 0.05$ |