A review of contraceptive practices among married and unmarried women in China from 1982 to 2010

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A B S T R A C T

Objective To analyse the contraceptive prevalence rate (CPR) among married and unmarried women in China, from 1982 to 2010.

Method Data concerning married women were collected from national surveys conducted by the Chinese government. Those pertaining to unmarried women were obtained by searching the China Academic Journal Network Publishing database and PubMed.

Results CPR among married women in China was 89% in 2010, the highest in the world. Most married women use long-acting reversible contraceptives, particularly intrauterine devices, and sterilisation. CPR among sexually active unmarried women has fluctuated between 17 and 70% since 1988, although the frequency of condom use has increased (Cochran-Armitage trend test, $\chi^2 = 126.1, p < 0.001$). More than 25% of unmarried women rely since at least 1982 on less effective contraceptive methods, including rhythm and withdrawal. This has led to an annual induced abortion rate of approximately 20% among those women.

Conclusion In sharp contrast to the high CPR among married women, the rate among sexually active unmarried women in China has remained extremely low since 1988. More efforts should be directed at raising contraception awareness among this population to improve their reproductive health and reduce the rate of unwanted pregnancy.

K E Y W O R D S Contraception; Married women; Unmarried women; China

I N T R O D U C T I O N

China is a developing country with a population of over 1.3 billion, according to 2010 census data from the State Statistics Bureau. The large population and low environmental capacity have a significant impact on economic and social improvements in China. A family planning (FP) policy was implemented in the early 1970s aiming mainly at lowering the birth rate.
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and at controlling population growth through contraception. The said policy proved effective, as the birth rate dropped from 33.4 per thousand in 1971 to 18.2 per thousand in 1980, even though the contraceptive prevalence rate (CPR) in the 1970s was only 15–30% among married women.

In the 1980s, the FP policy was strengthened in parallel with China’s opening-up and reform policies. Married couples with one or more children were required to use contraception. Three symbolic events indicated that China considered FP a national policy. First, the Central Committee of the Communist Party of China (CPC) issued an open letter in 1980 calling for members of the CPC and Communist Youth League to have only one child, in a bid to improve the quality of life. Second, the State Family Planning Commission (SFPC) was established in 1981 to oversee implementation of the FP policy; in 2003, this Commission was renamed the National Population and Family Planning Commission (NPFPC). Third, the central government in Beijing revised the Constitution in 1982 to stipulate that couples had a duty to practise FP, thereby enshrining FP in national policy. The year 1982 was the first in which the SFPC, later the NPFPC, conducted a One-per-thousand Population Sample Survey of Fertility among married Chinese women in order to track CPR and use of FP methods nationwide. Since then, the central government has conducted official surveys on contraception and fertility among married women every 4 to 5 years.

From its inception, FP policy in China has been implemented legally and systematically, but primarily for married individuals, particularly married women. When people get married, a government-run FP system provides them with contraceptive counselling and reproductive health materials for free. Every county or town has its own FP clinics, which are responsible for providing contraceptive means and FP guides. However, in contrast to the policy infrastructure set up for married women, unmarried women, especially those who are younger, receive little attention. These women are provided with little contraceptive education, so they usually obtain it through private channels, the Internet or books. As they are also not entitled to free contraception, they generally pay for it themselves. As a result, young and unmarried women are much less likely to seek professional FP services. At the same time, premarital sex is increasingly common due to social and economic development: a study in 2006 estimated that more than one third of unmarried women in China engage in sex, and that this rate is growing at 8% per year.

Thus, contraceptive practices among unmarried women are becoming increasingly relevant to assessing women’s reproductive health and the effectiveness of FP policy in China. However, data on these practices are scarce. Premarital sex and contraception among unmarried women remain sensitive topics in policy discussions. In fact, the Chinese government does not issue formal reports on contraceptive practices among unmarried women, whereas it does so regularly for their married counterparts.

Some studies on these sensitive topics have been published in both the Chinese and English language literature, but we are unaware of studies that comprehensively review CPR and FP methods used by unmarried women since the early 1980s. Therefore, we carried out a review of CPR and use of contraceptive methods by both married and unmarried women, in China, from 1982 to 2010. This information should not only help us understand contraceptive use among women in the country, but it should be useful to policy makers when evaluating the current FP policy.

METHODS

Data sources and quality assessment

Data for married women were collected from national surveys conducted by the NPFPC and the 2011 Yearbook of China’s Population and Family Planning. A total of six surveys were included: the One-per-thousand Population Sample Survey of Fertility in 1982, the Two-per-thousand Population Sample Survey of Fertility in 1988, the Family Planning Management Information Survey in 1992, and the National Sample Surveys of Population and Reproductive Health in 1997, 2001 and 2006. Data in the 2011 Yearbook of China’s Population and Family Planning were based on a survey of national contraceptive use in 2010. Data on contraceptive use and birth rates in other regions of the world were obtained from United Nations reports.

Since no official government reports are available on contraceptive practices among unmarried women, we conducted a literature search in two databases. We searched the China Academic Journal Network
Publishing (CAJNP) database from the beginning of 1982 through the end of 2011 using keyword combinations of ‘biyun’ (contraception) and ‘weihun’ (unmarried), ‘xuesheng’ (student), ‘qinnian’ (youth) or ‘hungqian’ (another term for unmarried). We searched PubMed over the same time period using a combination of one keyword from each of the following three groups: [‘China’ or ‘Chinese’], [‘adolescent’, ‘teenager’, ‘young’ or ‘college student’] and [‘contraception’ or ‘contraceptive’]. Studies were excluded if they reported (i) data concerning unmarried men that could not be separated from data related to unmarried women, or (ii) data on unmarried women presenting at a hospital or clinic because of unexpected pregnancy or because they wanted an abortion. The second exclusion criterion was applied because most unwanted pregnancies among unmarried women are likely to be due to lack of contraceptive use, sporadic use or use of less effective methods, so we worried that data from this group of women might not accurately reflect contraceptive practices among unmarried women as a whole.

The quality of included studies was evaluated based on study design, sample size and response rate. A cross-sectional survey involving a population of over 1000 unmarried women and a response rate exceeding 80% was considered a high-quality study. A cross-sectional survey involving fewer than 1000 but reporting reliable results was considered of average quality and included in the review. Studies that we considered to have unclear or poor design based on the recommendations of the Cochrane Handbook of Systematic Reviews, and studies that we judged to present unreliable or conflicting data were considered to be of poor quality and excluded from the review.

**Review of CPR**

Government surveys collected data on CPR for married women every 4 to 6 years; the CPR was calculated as the proportion of married women aged 20 to 49 (or their husbands) who used at least one form of contraception in a given year. CPR for unmarried women was determined in different ways in individual studies. Some studies examined frequency of contraceptive use, generally subdivided into four categories: never use, occasional use (in fewer than half the episodes of intercourse), frequent use (in more than half the episodes of intercourse), and regular use. Other studies examined CPR at first intercourse. In both approaches, the method was applied to women defined as ‘sexually active’, although this definition was never explained in the original studies.

**Review of the use of different contraceptive methods**

Data on contraceptive methods used by married women were obtained from the government-reported survey data mentioned above. Data for unmarried women were obtained from individual studies and were limited to women defined as sexually active. If two or more studies presented data for the same year, the data were combined. Thus, the prevalence of each contraceptive method for a given year was calculated by adding up the numbers of sexually active women using that particular method in all studies pertaining to that year, and dividing the figure obtained by the total number of unmarried, sexually active women mentioned in the studies concerning that year.

**STATISTICAL METHODS**

The Cochran-Armitage trend test, as implemented in SAS version 9.0 (SAS Institute, Cary, NC, USA), was used to analyse trends in the use of different contraceptive methods by unmarried women. Differences were considered statistically significant when $p < 0.05$.

**RESULTS**

A flow diagram showing the process of literature searching and study selection is given in Figure 1. In the end, 15 studies from 1988 to 2008 were included in the review; 12 of these were reported in Chinese, and three in English (Table 1).  

**Trends in CPR among married women in China**

Figure 2 depicts CPRs and birth rates among married women, both in China and around the world, during the period 1982–2010. In 1982, in China, the CPR was 70%, and the birthrate 22 per thousand; subsequently, the CPR increased and the birth rate dropped. In 2010, the CPR was estimated at 89% among 270 million married women in China, making it the highest in the world, followed by the
CPRs in Norway (88%), Portugal (87%), and the United Kingdom (84%) 18.

**Trends in the use of different contraceptive methods by married women in China**

Since 1982, married women have used primarily long-acting reversible contraceptives (LARCs), particularly intrauterine devices (IUDs), and sterilisation (Figure 3). IUDs have been the first-choice FP modality in China, with female sterilisation the second choice, and male sterilisation the third. IUDs are less popular elsewhere in the world (Figure 4). Since 1992, the frequency of sterilisation in China has continuously decreased, while IUDs remain the major contraceptive method.

Short-acting methods are less popular among married women; of those methods, the condom is the one most frequently resorted to. According to the national government survey in 1982, condoms accounted for only 2% of all contraceptive methods. Subsequently its use increased steadily, reaching its highest level (8%) in 2010. Nevertheless, condoms are still employed less often in China on average than worldwide and in developed countries (Figure 4). The prevalence of oral contraceptive use has remained low over the study period, and it has continuously declined. In 2010, the pill was the first choice of only 1% of married women. Other contraceptive methods, including implants (e.g., Norplant®, Sino-Implant), vaginal barrier methods (excluding condoms), and injectables, have been employed infrequently.

**Trends of CPR among unmarried women in China**

While contraceptive use among married women in China has risen to the highest level in the world as a result of the FP policy, the situation in unmarried women is alarming. The prevalence of regular contraceptive use between 1988 and 2008 has varied widely, between 17% and 70%, depending on the year, without showing a clear increase (Table 2). The situation among younger unmarried women is no less alarming, with two high-quality studies reporting rates of regular contraceptive use of 25% and 48% among university students 28,29. Rates of contraceptive use at the time of first sexual intercourse are an imperfect measure of a person’s normal contraceptive practices, but they are
Table 1: Relevant studies on contraceptive prevalence rate (CPR) and contraceptive methods used by unmarried women in China.

<table>
<thead>
<tr>
<th>Study</th>
<th>Language</th>
<th>Year</th>
<th>City</th>
<th>Study aim</th>
<th>Population</th>
<th>Age (years)</th>
<th>Sample size</th>
<th>Key result</th>
<th>Study quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lou et al., 1992</td>
<td>Chinese</td>
<td>1988</td>
<td>Shanghai</td>
<td>Contraceptive prevalence</td>
<td>Sub-urban</td>
<td>Not indicated</td>
<td>7872</td>
<td>Low CPR</td>
<td>High</td>
</tr>
<tr>
<td>Lou et al., 2002</td>
<td>Chinese</td>
<td>1995</td>
<td>Shanghai</td>
<td>Contraceptive prevalence</td>
<td>Urban</td>
<td>20–26</td>
<td>2580</td>
<td>Low CPR and high unwanted pregnancy rate</td>
<td>High</td>
</tr>
<tr>
<td>Li et al., 2000</td>
<td>Chinese</td>
<td>1999</td>
<td>Beijing</td>
<td>Contraceptive knowledge and behaviours</td>
<td>College students</td>
<td>17–23</td>
<td>485</td>
<td>Low CPR and less effective contraceptive methods</td>
<td>Average</td>
</tr>
<tr>
<td>Cao et al., 2002</td>
<td>Chinese</td>
<td>1999</td>
<td>Shanghai</td>
<td>Contraceptive prevalence</td>
<td>Urban</td>
<td>17–39</td>
<td>599</td>
<td>Moderate CPR</td>
<td>Average</td>
</tr>
<tr>
<td>Wang et al., 2002</td>
<td>English</td>
<td>2002</td>
<td>Shanghai</td>
<td>Contraceptive prevalence and method use</td>
<td>Out-of-school</td>
<td>15–24</td>
<td>503</td>
<td>Low CPR and high unwanted pregnancy rate</td>
<td>Average</td>
</tr>
<tr>
<td>Lou et al., 2004</td>
<td>Chinese</td>
<td>2002</td>
<td>Shanghai</td>
<td>Contraceptive prevalence and method use</td>
<td>Migrants</td>
<td>15–24</td>
<td>601</td>
<td>Low CPR</td>
<td>Average</td>
</tr>
<tr>
<td>Lin et al., 2008</td>
<td>Chinese</td>
<td>2005</td>
<td>Shanghai</td>
<td>Contraceptive knowledge and behaviours</td>
<td>Migrants</td>
<td>16–27</td>
<td>215</td>
<td>Poor knowledge and low CPR</td>
<td>Average</td>
</tr>
<tr>
<td>Sun et al., 2011</td>
<td>Chinese</td>
<td>2006</td>
<td>Shanghai</td>
<td>Contraceptive knowledge and behaviours</td>
<td>Urban</td>
<td>15–24</td>
<td>3042</td>
<td>Poor knowledge and low CPR</td>
<td>High</td>
</tr>
<tr>
<td>Li et al., 2006</td>
<td>English</td>
<td>2006</td>
<td>Wuhan</td>
<td>Sexual and contraceptive behaviours</td>
<td>University students</td>
<td>16–26</td>
<td>2365</td>
<td>Low CPR and unreliable contraceptive methods</td>
<td>High</td>
</tr>
<tr>
<td>Yu et al., 2009</td>
<td>Chinese</td>
<td>2006</td>
<td>7 cities</td>
<td>Sexual and contraceptive behaviours</td>
<td>University students</td>
<td>16–31</td>
<td>15,982</td>
<td>Low CPR</td>
<td>High</td>
</tr>
<tr>
<td>Zhou et al., 2011</td>
<td>English</td>
<td>2007</td>
<td>7 cities</td>
<td>Sexual behaviours and contraceptive conditions</td>
<td>University students</td>
<td>Not indicated</td>
<td>33,219</td>
<td>High unwanted pregnancy rate and low CPR</td>
<td>High</td>
</tr>
<tr>
<td>Li et al., 2007</td>
<td>Chinese</td>
<td>2007</td>
<td>Wuhan</td>
<td>Sexual behaviours and contraceptive prevalence</td>
<td>University students</td>
<td>16–23</td>
<td>286</td>
<td>Low CPR</td>
<td>Average</td>
</tr>
</tbody>
</table>

(Continued)
among the few data that have been reported for unmarried women in China. These rates remained at low levels of 21–60% from 1995 to 2006, without showing a clear increase (Table 3).

Trends in the use of different contraceptive methods by unmarried women in China

For the period 1998–2008, sexually active unmarried women relied primarily on short-acting methods, including condoms, pills, rhythm, withdrawal and emergency contraception pills (ECPs) (Table 4). This pattern
was quite different from that among married women, most of whom resorted to LARCS and sterilisation (Figure 3). Among the short-acting methods employed by sexually active unmarried women, only the percentages of condom use augmented during the study period, from 17% in 1988 to 40% in 2008 (Cochran-Armitage trend test, $\chi^2 = 126.1, p < 0.001$). ECPs have become acceptable: 35% of sexually active unmarried women reported having used these at least once in 2008. Unmarried people in China frequently resort to traditional but less effective methods, such as rhythm and withdrawal. For example, for the period 1988 to 2008, 12–54% of sexually active unmarried women resorted to the rhythm method, and 2–24% reported practising withdrawal (Table 4). In 2008, sexually active unmarried women relied on less effective contraceptive methods in 25% of their sexual encounters.

Table 2 Review of studies of contraceptive prevalence among unmarried women in China.

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>Total sample size</th>
<th>No. of sexually active, unmarried women</th>
<th>Regular use (%)</th>
<th>Frequent use (%)</th>
<th>Occasional use (%)</th>
<th>Never use (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lou et al.</td>
<td>1988</td>
<td>7872</td>
<td>969 (12%)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>65</td>
</tr>
<tr>
<td>Lou et al.</td>
<td>1995</td>
<td>2580</td>
<td>1789 (69%)</td>
<td>35</td>
<td>34</td>
<td>—</td>
<td>31</td>
</tr>
<tr>
<td>Wang et al. and Lou et al.</td>
<td>2002</td>
<td>1104</td>
<td>167 (15%)</td>
<td>17</td>
<td>21</td>
<td>34</td>
<td>29</td>
</tr>
<tr>
<td>Yu et al.</td>
<td>2006</td>
<td>15,982</td>
<td>735 (5%)</td>
<td>47</td>
<td>37</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Zhou et al. and Li et al.</td>
<td>2007</td>
<td>33,505</td>
<td>2766 (8%)</td>
<td>25</td>
<td>70</td>
<td>—</td>
<td>5</td>
</tr>
<tr>
<td>You et al.</td>
<td>2008</td>
<td>628</td>
<td>144 (23%)</td>
<td>70</td>
<td>16</td>
<td>—</td>
<td>12</td>
</tr>
</tbody>
</table>
DISCUSSION

Findings and interpretation

Contraceptive use among married women under the current FP policy

Over the past 30 years, China has achieved the highest CPR among married women in the world, and has successfully controlled its population growth. This finding is consistent with previous reports of high CPR among married women in China\textsuperscript{34,35}. This significant achievement is attributed mainly to strict implementation of the FP policy. In the early 1980s, after the FP policy was enforced on a national level, it became mandatory for married women with one child to have an IUD inserted, and those with two or more children were compelled to undergo sterilisation\textsuperscript{36}. As a result, the CPR in China rapidly increased, and LARCS and tubal occlusion procedures became the methods most frequently applied among married women, and vasectomy, in men.

While the strict implementation of the FP policy controlled population growth, it caused uproar and resistance in large regions, especially in rural areas\textsuperscript{36}. In 1994, China implemented a reformed contraceptive policy among married women, in accordance with the recommendations of the International Conference on Population and Development organised by the United Nations\textsuperscript{2}. The core of this policy is that married women should be allowed to choose their own contraceptive methods after proper counselling. This policy reform indicates that China has begun to pay more attention to women’s rights around the contraceptive issue.

Since this policy reform, increasing numbers of married women employ short-acting contraceptive methods\textsuperscript{2}. Nevertheless, most married women who use contraception prefer the long-acting IUD. Since 1994, fewer married women have elected to undergo sterilisation.

Low CPR among unmarried women and possible reasons

Although the FP policy in China has achieved impressive changes in contraceptive use among married women, the situation among sexually active,

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|}
\hline
\textbf{Study} & \textbf{Year} & \textbf{Total sample size} & \textbf{No. of women with sexual experience} & \textbf{CPR at first sexual intercourse} \\
\hline
Lou \textit{et al}.\textsuperscript{10} & 1995 & 2580 & 1789 & 390 (22\%) \\
Li \textit{et al}.\textsuperscript{22} and Cao\textsuperscript{23} & 1999 & 1273 & 662 & 390 (59\%) \\
Lou \textit{et al}.\textsuperscript{24} & 2002 & 601 & 75 & 23 (31\%) \\
Lin \textit{et al}.\textsuperscript{25} & 2005 & 215 & 105 & 22 (21\%) \\
Sun \textit{et al}.\textsuperscript{26} and Li \textit{et al}.\textsuperscript{27} & 2006 & 5407 & 688 & 354 (52\%) \\
\hline
\end{tabular}
\caption{Review of studies on contraceptive prevalence rate (CPR) at first sexual intercourse among unmarried women in China.}
\end{table}

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|c|c|c|}
\hline
\textbf{Study} & \textbf{Year} & \textbf{No. of women using contraception} & \textbf{Condom} & \textbf{Pill} & \textbf{Rhythm} & \textbf{Withdrawal} & \textbf{Emergency} & \textbf{Others} \\
\hline
Lou \textit{et al}.\textsuperscript{21} & 1988 & 341 & 17 & 12 & 25 & 24 & 0.0 & 22 \\
Li \textit{et al}.\textsuperscript{22} & 1999 & 63 & 27 & 15 & 54 & 4 & 0.0 & 0.0 \\
Wang \textit{et al}.\textsuperscript{11} and Lou \textit{et al}.\textsuperscript{24} & 2002 & 139 & 40 & 21 & 12 & 20 & 5 & 3 \\
Li \textit{et al}.\textsuperscript{27} & 2006 & 42 & 30 & 3 & 39 & 2 & 26 & 0 \\
Zhou \textit{et al}.\textsuperscript{29} and Liu \textit{et al}.\textsuperscript{32} & 2007 & 2848 & 36 & 23 & 15 & 19 & 6 & 0 \\
Yang \textit{et al}.\textsuperscript{31} & 2008 & 335 & 40 & 0 & 13 & 12 & 35 & 0.0 \\
\hline
\end{tabular}
\caption{Review of studies on contraceptive methods used by sexually active, unmarried women in China.}
\end{table}
unmarried women remains a matter of great concern. The CPR in that group is lower than among married women, and the frequency of use of less efficient contraceptive methods is considerably higher. This situation appears to have improved little over the past 20 years. This is most likely due to the fact that, since its inception, the FP policy in China has paid little or no attention to unmarried women. The latter, in contrast to their married counterparts, do not have access to contraceptive counselling in the national network of FP clinics, nor do they have access to free contraceptives. Not surprisingly, surveys indicate that unmarried young people, such as university students, lack basic knowledge about contraception and even about sexual and reproductive health in general.\(^{25,29-31}\)

As premarital sexual activity has become more common among unmarried women over the past 30 years, rates of unwanted pregnancy and induced abortion have risen in that group.\(^{37}\) Abortion, especially among unmarried women, is a sensitive topic in China, making it difficult to come by precise data. However, estimates indicate that the number of induced abortions has risen from seven million in 1998 to 13 million in 2008.\(^{38}\) A comprehensive review showed that among sexually active unmarried women, during the period 1995–2000, the unwanted pregnancy rate ranged from 12 to 32% (average, 28%), and the abortion rate was over 20%\(^{7}\).

**Strengths and weaknesses of the review**

To the best of our knowledge, this is the first review of trends in CPR and contraceptive methods used by unmarried women in China over the past 30 years. At the same time, the review also examines the corresponding trends in married women, confirming and extending the results of previous reviews\(^{34,35}\) by carrying out a systematic analysis of the literature and controlling for study quality.

Despite the public health insights that this review offers, it does have some important limitations. First, the accuracy of survey data can be questioned, because premarital sex and contraception among unmarried women have always been sensitive topics in China, making many unmarried women unwilling to discuss them. To reduce this unreliability, we excluded studies that, in our opinion, were poorly designed or presented potentially misleading data, and ended up with 15 studies of relatively good quality. This selection process may have eliminated useful data or led to bias in the final set of studies. In addition, even studies that we judged to be of good or high quality presented several methodological weaknesses. The unmarried women included in our review were defined as sexually active, but most of the original studies did not define that term; few studies, for example, recorded intercourse frequency among unmarried women. Comparisons between married and unmarried women over the same time period are difficult, not only due to the substantial difference in sample size but also to the lack of age standardisation: the age of married women included in our review was 20 to 49 years, while that of unmarried women was 15 to 39 years.

Second, all included studies focused on large cities. Nearly half of these studies were conducted in Shanghai, the largest and most developed city in China, whereas contraceptive coverage is likely to be lower in rural areas, where knowledge about sexual and reproductive health (SRH), and contraception, is poor.

The third limitation is that only four of the 15 included studies were performed before 2000. This probably reflects the sensitive nature of contraception among unmarried women; only recently has it become an acceptable topic for discussion and research.

**Implications of the review**

In general, CPRs and frequencies of use of contraceptive methods varied considerably between married and unmarried women in China over the 30-year study period. The country has successfully controlled its rapid population growth by imposing the use of long-acting and permanent contraceptive methods, as a result of which married women in China show the highest CPR worldwide. Among unmarried women, however, CPR remains alarmingly low, and the use of less effective contraceptive methods extremely frequent. The present review may help policy makers evaluate the FP system and better understand contraceptive use among unmarried women. More efforts are needed from both government and civil society to improve knowledge of sexual health and reproduction among unmarried women, and to reduce the high rates of unwanted pregnancy and abortion in China.
Unanswered questions and future research

This review raises at least two urgent questions. One concerns the contraceptive situation in rural areas, where at least half the Chinese population lives. It seems likely that the situation there is even more alarming than among the urban populations in the included studies, since rural young people generally possess even less knowledge about SRH and contraception than do urban youths and young adults. Low incomes may further limit contraceptive use in rural populations.

Another urgent question relates to contraceptive use among unmarried adolescents. Although studies show that rates of premarital sex and unwanted pregnancy have risen among adolescents over the last 20 years,[7,39] the contraceptive practices of this population are poorly understood. Although many of the studies in this review included unmarried women as young as 15 or 16 years old, most participants were over 18 years old. Future research should examine contraceptive use among sexually active adolescents in urban and rural areas, as well as among unmarried women in rural areas.

CONCLUSION

In China, during the past 30 years, contraceptive practices of unmarried women differed considerably from those of their married counterparts. Among married women, China has achieved the highest CPR in the world and, by giving long-acting and permanent methods precedence, has successfully controlled population growth. Among unmarried women, however, contraceptive use has remained low and has involved less effective methods, leading to high rates of unwanted pregnancy and abortion. Outreach and support for unmarried women are urgently needed to improve their knowledge of reproductive health, and to reduce these high rates.

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REFERENCES

25. Lin F; Huang L. Knowledge of contraception methods and contraceptive behaviours among unmarried female migrants of Minhang District in Shanghai. Chin J Fam Plann 2008;7:416–8. [In Chinese]