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## Unintended pregnancy and induced abortion among unmarried women in China: a systematic review

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### Abstract

**Background:** Until recently, premarital examination for both men and women was a legal requirement before marriage in China. Researchers have carried out surveys of attendees' sexual activity, pregnancy and abortion before their marriages, trying to map out reproductive health needs in China, according to this unique population-based data. To systematically identify, appraise and summarise all available studies documenting pregnancy and induced abortion among unmarried Chinese women attending premarital examinations.

**Methods:** We searched the Chinese Biomedical Literature Index from 1978 to 2002; PUBMED; and EMBASE. Trials were assessed and data extracted by two people independently.

**Results:** Nine studies, of which seven were conducted in the urban areas, one in the rural areas, and one in both urban and rural areas, met the inclusion criteria. In the seven studies in urban areas, the majority of unmarried women had experienced sexual intercourse, with estimates ranging from 54% to 82% in five studies. Estimates of a previous pregnancy ranged from 12% to 32%. Abortion rates were high, ranging between 11 to 55% in 8 studies reporting this, which exclude the one rural study. In the three studies reporting both pregnancy and abortion, most women who had become pregnant had an induced abortion (range 86% to 96%). One large rural study documented a lower low pregnancy rate (20%) and induced abortion rate (0.8%).

**Conclusions:** There is a large unmet need for temporary methods of contraception in urban areas of China.

### Background

In the past two decades, China has experienced dramatic social changes associated with rapid economy growth and reform. Traditional attitudes towards sex, marriage and family have changed, and pre-marital sex is more acceptable [1]. Reproductive health care is available through government services. A variety of contraceptive services including induced abortion are widely available at township and upper level health facilities. Contraceptive tab-

lets and condoms are also available at drug stores and supermarkets [2]. "Backstreet" abortion, often seen in many other developing countries, has become rare in China, particularly in the urban areas. This is largely because of effective rectification of medical care market by the Chinese government. However, the current National Family Planning Programme targets married couples and the young people have little access to information or advice about contraception. Against this background, we

wanted to assess whether current reproductive health services were meeting the needs of unmarried women in China.

All women intending to marry were bound to take a premarital medical examination at designated health facilities, usually maternal and child health (MCH) centres, by law until October 2003 [3]. The main purpose of the premarital medical examinations was to ensure that both men and women do not have any infectious or genetic related diseases, which may affect the other or their future children. This legal requirement has been very controversial internationally. Since October 2003, the Chinese Government has made the examination optional.

Some Chinese researchers have carried out studies of women attending premarital examinations with data on reproductive health needs. This is unique population based data on reproductive needs of young Chinese women, which will not be easily available in the future because of the recent change of the policy. We systematically sought and summarized these studies to assess the adequacy of current family planning services in meeting the needs of unmarried women for temporary methods of contraception.

## Methods

### Inclusion criteria

Any paper reporting studies on the premarital examinations that included questions about a prior induced abortion and appeared to be population based (reporting on all women attending the clinic).

### Search strategy

We searched the Chinese Biomedical Literature Index from 1978 and 2002, using the following free text terms in Chinese: "*Wei-Hun-Xian-Yun*; unmarried pregnancy"; "*Ren-Liu*; induced abortion". We identified 37 papers requiring more careful scrutiny. We searched PUBMED (no time limits) and EMBASE (1980 to 2002), using a variety of terms (China or Chinese AND adolescent or teenager or young AND abortion or premarital medical examination or pregnancy). We identified 15 papers from PUBMED and 26 from EMBASE.

### Study selection and data extraction

Two researchers viewed the papers independently, applied the inclusion criteria and extracted data on the proportion with a history of induced abortion. If available, we extracted data on the number reporting sexual intercourse, or/and previous pregnancy or/and induced abortion, and calculated 95% confidence intervals around the estimates.

## Results

### Description of studies

All 37 potentially relevant papers identified from Chinese Biomedical Literature Index were published in Chinese. Three were case series, 2 were qualitative studies, and 1 was a literature review, and therefore these six papers were excluded. Of the remaining 31 papers, 14 did not distinguish premarital from other women attending the clinic; of the remaining 17, 8 did not report on a history of induced abortion. We also found that the study done by Wang [4] was a subgroup of the study done by Zhao et al [5] and therefore excluded the later study. This left 8 papers meeting our inclusion criteria [5-12]. From 15 papers identified from PUBMED, only one paper written in Chinese [13] met the inclusion criteria. Among 26 papers identified from the search of EMBASE, none of the papers met the inclusion criteria. This leaves a total of 9 papers included in the review.

The nine included studies covered five provinces. Seven of the included studies were in urban areas, one in a rural area, and one included women from both urban and rural areas (Table 1). All studies reported on all of the women attending premarital examinations, and specified that the interviewees were women attending the premarital medical examinations.

We attempted to assess the quality of the studies. Seven out of nine studies reported that the researchers used a specially designed questionnaire to interview these women. The other two studies reported that the researchers used standardised pre-marital medical examination forms to compile the data. Structured questionnaire was used during pre-marital medical examinations and interview was done in private room according to the pre-marital health care service guideline made by MOH.

### Findings

The average age of the women in the five studies in which the information was available is between 23 and 27 years old, with a range of 19 – 44 years old. Sexual activity was reported in 5 of the 7 urban studies: this was greater than 54% in all studies; in the one rural study, the level was much lower (20%, n = 5,960); in the study covering both urban and rural Shanghai, 69% of unmarried women had sexual activity before their marriage.

A history of premarital pregnancy was sought in 2 of the seven urban studies. This ranged from 12 to 32%. The study conducted in both urban and rural Shanghai shows a similar finding (28%). Several studies commented that most of these pregnancies were unintended, and no contraceptive measures were used, but no quantitative data on this were systematically collected or reported.

**Table 1: Sexual activity, pregnancy and induced abortion among the Chinese pre-married women participating in premarital medical examinations from all included studies**

Urban/rural	Study site/year	Women N	Ave. age (Range)	Sexual activity n (%;95% CI)	Pregnancy n (%;95% CI)	Induced abortion n (%;95% CI)	Reference No.
Urban and rural	Shanghai; 1995–96	2580	NA	1789 (69; 68–71)	712 (28;26–29)	638 (24;23–26)	13
Urban	Xuhui District, Shanghai; 1999	788	25 (20–39)	599 (76; 73 to 79)	251 (32; 29 to 35)	215 (27; 24 to 31)	5
Urban	Baoshan District, Shanghai; 1995–96	550	NA	298 (54; 50 to 58)	66 (12; 9 to 15)	63 (11; 9 to 14)	6
Urban	Xinghua City, Jiangsu; 2000	1,068	23 (19–32)	836 (78; 76 to 81)	NA	419 (39; 36 to 42)	7
Urban	Tengzhou City; Shandong; 1998	758	25 (22–37)	622 (82; 79 to 85)	NA	149 (20; 17 to 23)	8
Urban	Qingdao City; Shandong; 2000	2,403	27 (22–44)	NA	NA	561 (23; 22 to 25)	9
Urban	Jiaxing City, Zhejiang; 2000	208	25 (21–31)	157 (75; 69 to 81)	NA	80 (38; 32 to 45)	10
Urban	Nanping City; Fujian; 1998–99	2,790	NA	NA	NA	1,527 (55; 53 to 57)	11
Rural	Gaotang County; Shandong; 1999	5,960	NA	1,192 (20; 19 to 21)	NA	45 (0.8; 0.6 to 1.0)	12

NA data not available

A history of induced abortion was sought in all the 7 urban studies, and ranged from 11 to 55%, with 6 of the 7 studies reporting that 20% or more of the women had a history of induced abortion. Four of the 7 studies reported that, among those unmarried women who had induced abortion, some of them had 2 or more induced abortion. However, the indicators used in the four studies varied, so we could not analyze the data further. Induced abortion was rarely reported in the large rural study (0.8%). Three studies (two in urban areas and one in both urban and rural) reported both pregnancy and induced abortion history. Most women who had become pregnant had an induced abortion (86%, 90% and 96%).

## Discussion

We used the unique opportunity of the premarital examinations to obtain population based data on reproductive need of women who were not yet married. Since the premarital examination was legally required in China before October 2003, these studies were likely to represent the population living in the catchment area of the MCH centres, and were not a selected group. Although this potentially excludes other data of need, we have not identified any other source of population-based data in this age group in China [14]. In addition, we included only studies that asked women about previous induced abortion. The reason for this is that we were interested in unmet need in relation to contraception in unmarried women. All the studies are conducted in more developed areas of China. Although there is only one rural study, it had a large sample, and shows low reported sexual activity and induced

abortion. The levels for both sexual activity and induced abortion are consistently high in the urban studies.

These data show that premarital sex is more common in some urban areas than we expected, and that abortion is the main response. This is an invasive procedure not without risk and can lead to problems with fertility in later life. The data indicate a large unmet need for reproductive health services for women prior to marriage in China.

This is the first time to our knowledge that data from Chinese population surveys about reproductive health needs has been systematically sought and summarized. In assessing the Chinese literature, it would be helpful if authors publishing articles in Chinese fully delineate their methods to help assessment of quality.

## Implications for policy

China has been changing quickly, but services and social responses to these changes are slower, as was found in many countries in economic transition, such as Vietnam and Mongolia. Health policy-makers from China and other similar countries should pay special attention to this problem and need to develop strategies to help mitigate the effects [12,14]. A concerted response to the problem and an action on meeting the needs of reproductive health among unmarried and young women is required. This includes introduction of appropriate information about contraceptive methods to school children and young people; provision of user-friendly contraceptive advice and services, targeted particularly the young women. Further

more, the government of China and other similar countries should develop appropriate policies that enable relevant institutions (such as schools and health facilities), communities, and the public to get involved in the improvement of reproductive health by changing the perceptions of sexual activity before marriage, increasing the awareness of reproductive health in general and contraceptive services in particular among young men and women, and creating an environment in which the needs of reproductive health of these women can be met without having too many difficulties and inconvenience.

### Contributions

Qian Xu initiated the study, carried out the Chinese Literature Search and data extraction. Paul Garner contributed to the methods and advised on summarizing the data. Shenglan Tang screened literature published in English, and carried out data extraction. All authors contributed to the drafting and completion of the manuscript.

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