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Provider-controlled or user-dependent contraceptive methods: Levels and pattern among married women of reproductive age in China, 1988–2006



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ABSTRACT

Objectives: To explore levels and patterns in contraceptive use since the introduction of informed choice in reproductive health services in China since 1994, and to assess the implications of reproductive health service needs among married women of reproductive age in China.

Material and methods: Data from Chinese nationwide surveys of family planning and reproductive health undertaken in 1988, 1997, 2001, and 2006 were analyzed to assess levels and trends in patterns of contraceptive use among married women by age, residence, and number of children. Contraceptive methods were classified into two categories: provider-controlled and user-dependent methods.

Results: The provider-controlled pattern for contraceptive use was predominant regardless of whether women were free to choose their own contraceptives. Older, rural women, and those with more than one child preferred provider-controlled contraceptive methods; this trend has changed little after 1997. In contrast, the user-controlled methods were preferred by young, urban women, strikingly with no or only one child, and geographically in more affluent areas in north or southwest China.

Conclusion: A preference for user-dependent methods is noted in the urban areas but inclination towards provider-controlled contraceptive methods is still prevalent in rural areas in China.

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Introduction

In 1979, the Chinese government introduced the one-child family policy to regulate population growth [1]. Under this policy it became mandatory for married couples of reproductive age to use an intrauterine device after the first birth and undergo sterilization after the second, a network of family planning technical service centers served as the contact point between couples and service providers.²

In 1994, the United Nations International Conference on Population and Development (ICPD) in Cairo declared that people have the freedom to decide whether, when, and how often to reproduce. This implies that men and women have the right to be

informed and to have access to safe, effective, affordable, and acceptable methods of family planning of their choices through local service centers. In response, the Chinese government began to promote actively reproductive health plans [2] and informed choice in family planning programs [3,4]. More services were provided to increase knowledge and access to contraception services [5].

Now two decades after the ICPD, it is important to take stock of the fundamental changes in contraceptive method preference in China after the introduction of informed choice, and the factors that influence women's choice of contraceptive methods.

Contraceptive methods can be classified into two categories: provider-controlled and user-dependent methods. Women using the former tend to use long-term contraceptive methods implemented by doctors, because women have no choice; women using the latter are free to choose their own contraception and mainly use short-term, over-the-counter methods. Given the diversity of China's fertility policies carried out at local areas and at the national level [6], most of reproductive age women could have

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² Family planning technical service centers include hospitals, maternal and child-care service centers, and family planning technical service stations in China.

Table 1

Changes in patterns of contraceptive use among Chinese married women of reproductive age, 1988–2006 (%).

Pattern	1988, (95%CI)	1997, (95%CI)	2001, (95%CI)	2006, (95%CI)	P_{trend}^a
Provider controlled	87.39 (87.02–87.76)	92.62 (90.78–94.46)	90.59 (89.52–91.66)	87.65 (86.47–88.83)	<0.001
User dependent	12.61 (12.47–12.75)	7.38 (6.86–7.90)	9.41 (9.07–9.75)	12.35 (11.91–12.79)	<0.001

^a P_{trend} was tested by Cochran-Armitage trend analysis.**Table 2**

Changes in patterns of contraceptive use among Chinese married women of reproductive age by education level, 1988–2006 (%).

		1988	1997	2001	2006
Provider controlled	Illiterate	94.63	97.93	97.79	78.68
	primary	90.79	96.28	95.29	80.13
	junior high school	81.27	92.21	90.26	74.74
	senior high school+	70.97	79.72	75.15	61.34
User dependent	Illiterate	5.37	2.07	2.21	21.32
	primary	9.21	3.72	4.71	19.87
	junior high school	18.73	7.79	9.74	25.26
	senior high school+	29.03	20.28	24.85	38.66

their own choices of contraceptive behaviors after the informed choice was promoted by the government.

Thus, we presume two patterns of contraceptive use in family planning programs: In the *provider-controlled pattern*, contraceptive methods are guided by family planning policies, advocated by the government, popularized by family planning services, and used passively by users; in the *user-dependent pattern*, users themselves choose the contraceptive methods according to their own health conditions and life interests.

Users may still choose long-term contraceptive methods at their own free will. But in the early stages of family planning programs, people lacked the initiative in selecting and using long-term contraceptive methods. For example, Sterilization and the IUD constitute 93 percent of all methods being used [7]. The IUD is the predominant reversible method, constituting 88 percent of all reversible methods [8].

Although there were some researches on contraceptive methods in China, there was very limited research to classify the contraceptive methods into provider-controlled methods and user-dependent methods and analyzed these two controlled methods transition from 1988 to 2006. In the study here, we explored and analyzed the transition of these two controlled methods by using multiple national surveys.

Materials and methods

The data for this study came from four nationwide surveys conducted by the National Population and Family Planning Committee in 1988, 1997, 2001, and 2006.³ The 1988 survey used a stratified, systematic, clustered, unequal-proportional sampling method to sample 30 provinces, municipalities, and autonomous regions of China. The later three surveys used stratified, three-stage, clustered, probability proportional to size (PPS) to sample 31 provinces, municipalities, and autonomous regions of China. The questionnaires on reproductive health for all four surveys

contained questions about contraception. Studies have indicated that the standard of data were of good quality [9–14].

This article focuses on married women aged 15–49 years. The analyzed samples were 249,990 in 1988, 10,494 in 1997, 30,551 in 2001, and 24,176 in 2006, accounting for 54%, 69%, 77%, and 73% of the total samples, respectively (Appendix A).⁴

To examine women's motivations and initiatives in contraception, for the purpose of this paper, we classified contraceptive methods into two categories: provider-controlled methods (male sterilization, female sterilization, intrauterine devices, and implants) and user-dependent methods⁵ (oral pills, condoms, and other methods⁶). If most of women adopted provider-controlled methods, we called this pattern of contraceptive use as the *provider-controlled contraceptive use pattern* (hereafter, *provider-controlled pattern*); if most women adopted user-dependent methods, we called this pattern as the *user-dependent contraceptive use pattern* (hereafter, *user-dependent pattern*).

An exploratory analysis was conducted by SPSS to examine the prevalence of contraceptive use and spatiotemporal changes in patterns of contraceptive use among women by age, area of residence, and number of children.

Results

The predominant contraceptive methods used by women were provider-controlled methods, the proportion of which held steady above 87% from 1988 to 2006. Since 1997, the proportion of women

⁴ Most respondents were women aged 20–49. The proportion of women aged 30–39 held steady at more than 40% in the four surveys. From 1988 to 2006, the proportion of women aged 20–29 decreased more than 10%, whereas the proportion of women aged 40–49 increased more than 13%. This correlates with the baby boomers of the 1950s and 1960s entering their reproductive years, gradually influencing the age structure of Chinese population with the passage of time. The educational level of the women varied considerably across the four surveys. The proportion of illiterate and semilliterate women dropped considerably; the proportion with a middle school, high school, or college education or more increased markedly; and the proportion with a primary school education increased from 1988 to 2001 and then dropped for 2006. This reflects improvements in education in China in the past 20 years. The level of urbanization revealed in the 1988 data (39.5%) was markedly higher than the national average of 25.8%, whereas of the levels in 1997, 2001, and 2006 were below the national averages at the time (22% compared with 29.9% in 1997, 24.4% compared with 37.7% in 2001, and 32.6% compared with 43.9% in 2006). This may be attributable to the use of a different sampling design in the 1988 survey. However, the trend for urbanization found in the later three surveys was in accordance with the national average. The geographic distribution of the sample across the six main regions of China reflected the general distribution of the Chinese population at the time. The proportion of respondents in the north, east, and southwest showed little change, whereas those in the northeast and northwest decreased considerably and that in south-central China increased considerably. The average number of children among the respondents changed greatly from 1988 to 2006. The proportion of single-child families increased considerably, whereas the proportion of families with three or more children dropped by at least 50% in 2001 and more than 70% in 2006. The proportion of families with two children held steady at about one third.

⁵ Oral pills and injections were classified in the same category in the 1997 survey, but the number of respondents using these methods was very small. In addition, although injections can only be given by medical personnel, their use depends greatly on the user's initiative (i.e., the user must go to the medical service post to request the service). Thus, we regarded this method as a user-dependent method.

⁶ Other methods include the rhythm method, withdrawal, etc.

³ The four surveys are as follows: the National Population and Fertility Survey (1988), the National Population and Reproductive Health Survey (1997), and the National Family Planning and Reproductive Health Survey (2001 and 2006).

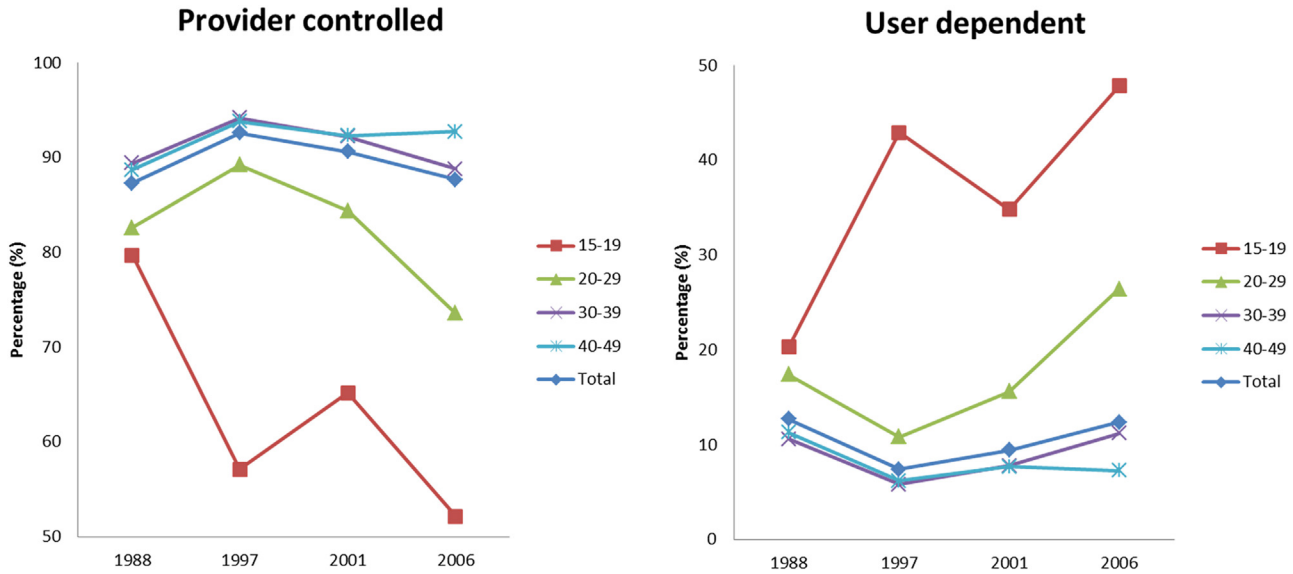


Fig. 1. The Age Patterns of contraceptive use among Chinese married women of reproductive age, 1988–2006.

choosing provider-controlled methods fell slightly, while that of women choosing user-dependent methods increased by 5% (Table 1).

Results indicated that regardless of whether informed choice programs were available, women preferred provider-controlled methods.

The pattern of contraceptive use also differed by level of education attained by the women. Comparatively educated women preferred user-dependent methods, while less educated women relied more on provider-controlled methods before 1997, however user-dependent methods showed an increasing trend after 1997 (Table 2).

There were differences in age-specific patterns of contraceptive use, especially for user-dependent patterns (Fig. 1). The change in the proportion of women aged 20–49 using provider-controlled or user-dependent methods mirrored corresponding changes among the total population. With increasing age women were more likely

Table 3

Provider-controlled contraceptive use among Chinese married women of reproductive age by different education level, comparison of urban versus rural residence, 1988–2006 (%).

		1988	1997	2001	2006
Rural	Illiterate	94.84	98.09	97.88	78.86
	primary	92.57	96.58	95.86	80.69
	junior high school	86.49	95.93	93.65	76.64
	senior high school+	82.52	94.10	90.02	68.74
Urban	Illiterate	93.85	93.81	96.01	76.16
	primary	87.02	92.37	88.93	76.05
	junior high school	77.15	82.84	81.28	70.21
	senior high school+	67.56	74.36	70.53	59.07

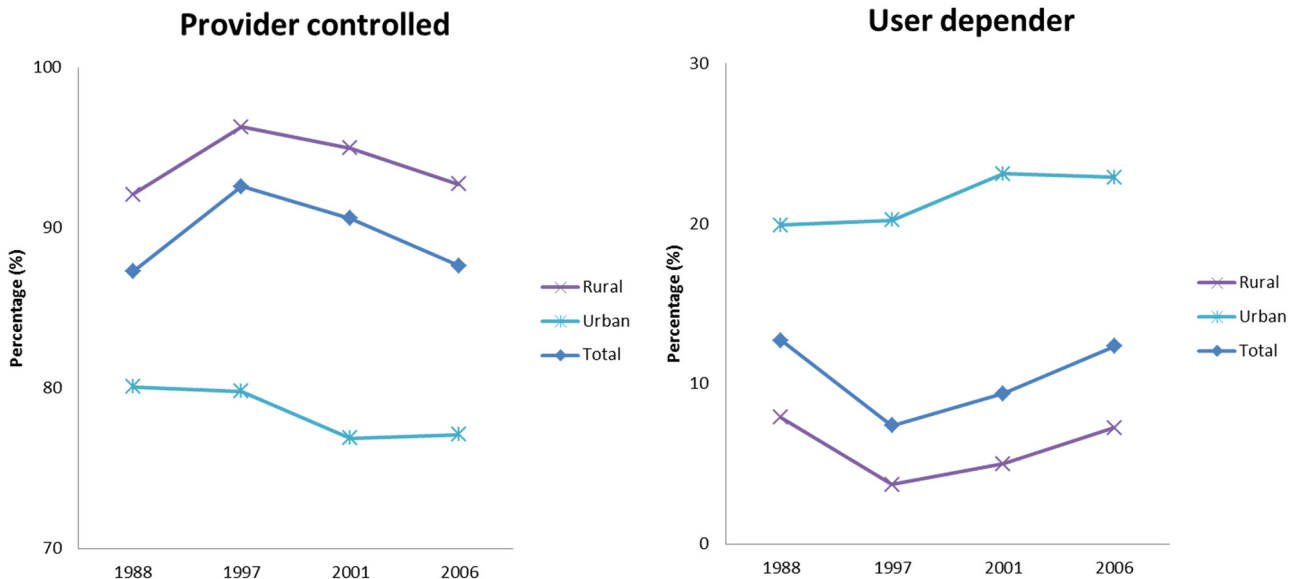


Fig. 2. Patterns of contraceptive use among Chinese married women of reproductive age by urban versus rural residence, 1988–2006.

to use provider-controlled methods. In particular, the proportion of women aged 20–29 using provider-controlled methods decreased more than 15% from 1997 to 2006, whereas of the proportion using user-dependent methods increased dramatically by 14.6%, almost 2.5 times, over this same period. Patterns of contraceptive use among women aged 15–19 were not in line with those of the total population. The proportion of these women selecting provider-controlled or user-dependent methods exhibited a fluctuating trend, not a stable one. This phenomenon may be attributable to bias caused by the small sample size.

In general, women in both urban and rural areas were using provider-controlled patterns of contraceptive use, but there were some differences between the two groups. In 1988, the proportion of rural women using provider-controlled methods were above 90%, in contrast, the percentage of urban women using provider-controlled methods was around 80%, but the trend went down gradually after 1997. The gaps of the proportion of using provider-controlled methods between the rural and urban areas in the four surveys were about 12%–18%. On the contrary, the situation was reverse for user-dependent methods. (Fig. 2).

Considering the differences in education level in rural and urban populations, we also compared the patterns of contraceptive use among women in urban and rural areas by education level. There were gaps in provider-controlled contraceptive use between rural and urban women after we controlled for the education level. The difference between rural and urban women was small at illiterate and primary school level, and was high at junior high and senior high school level. (Table 3).

The use of provider-controlled methods in different regions of China showed a small decreasing trend over time, in accordance with that for the whole country. The use of provider-controlled methods also varied by region: The proportion of women using such methods was lowest in north China and highest in the affluent south-central China-by more than 8% (Table 4).

The proportion of women using provider-controlled methods increased with an increase in the number of children. The percentage of women who had more than 2 children are 68.8%, 55.7%, 53.7% and 48.1% in 1988, 1997, 2001, and 2006 respectively (Appendix A for detail) The data showed that the prevalence was more than 94% among women with three or more children, around 91% among women with two children, and approximately 80% among women with one child, however this trend declined gradually after 1997. The proportion of women using user-dependent methods was steady at slightly more than 82% among those with no child (Fig. 3).

The trends in contraceptives method use also changed over the years. Compared to 1988, where provider controlled methods was 87.3 percent, the trend changed very little (or remained the same) compared to the 1997–2006 data points.

Discussion

Before the ICPD, individuals had little information on reproductive methods and had less freedom in choosing contraceptives

[15]. People's choices of contraceptive methods were strongly influenced by the government's family planning policy in China. The one-child policy was aggressively pursued by the government in 1980s. Long-term or provider-controlled family planning methods were advertised widely and also the head of the local office would lose job and position if they couldn't meet the agreed targets for population control. This is one of the reason that provider controlled methods became more widespread and indeed and not to mention, that in the process the quality of provider control methods improved as well. After the ICPD in 1994, China began to actively launch reproductive health projects. Evidence shows that the introduction of informed choice programs has provided people with more freedom in deciding which contraceptive methods to use, enabling people to break from traditional ways and experiment with new methods [16,17].

A comparison of the features and trends in contraceptive use among Chinese married women of reproductive age in 1988, 1997, 2001, and 2006 showed that people still had a strong preference for provider-controlled contraceptive methods. This is true even after the introduction of informed choice programs, especially during the 10 years when China emphasized and implemented the quality of care in reproductive health. In other words, despite differences in salient individual (age, number of children) and regional (rural vs. urban, geographic region) characteristics and trends over time and across regions, women's preferred pattern of contraceptive use in China is predominantly provider-controlled pattern. There are two possible explanations for this. One is that provider-controlled methods (or long-term methods) are in line with ground realities in China in terms of complying with government policies and the methods reliability; the other is that the quality and quantity of reproductive services (i.e., informed choice programs) do not meet the people's need for acceptability, accessibility, and reliability, and thus they have no choice but opt for methods with which they are already familiar [18,19]. In the study here, we observed that there were opposite trend of contraceptive patterns. There are two potential reasons for this. One is that the subjects' characteristics are significantly different, which might affect the contraceptive method used. Another one is that Chinese economic is aggressively changing during the past decades. Socioeconomic factors might affect the contraceptive method used by an unknown mechanism.

Older, rural women, and women with more children preferred provider-controlled contraceptive methods, and this changed little after 1997. Most of older women had less desire to reproduce after their satisfaction for the number of children reached the governmental policy limit.

Many provider-controlled methods are long-term methods which meet the need of women who were interested in either spacing or limiting. On the other hand, user control methods such as condoms or pills are more short term methods which women can stop the methods when they plan to have children. The result showed that whether or not women had children had a strong bearing on their choice of contraceptives. The more children a woman had, the more likely she was to use provider-controlled contraceptive methods; and women without children opted for user-dependent methods.

In China, the level of social and economic development, cultural customs and living environment vary greatly across geographic regions, so family planning policies must also vary accordingly [20,21]. Theoretically speaking, if family planning policies differ across regions, then differences will be therein patterns of contraceptive use and uptake of reproductive health services.

Studies have indicated that woman's choice of contraceptives depends on many factors, such as effectiveness, insurance status, income, her current relationship status, and health and safety concerns [19,22], in addition to age, parity, and living environment. Moreover, women desire more autonomy in their decisions about

Table 4
Provider-controlled patterns among Chinese married women of reproductive age by region, 1988–2006(%).

	North	Northeast	East	South central	Southwest	Northwest
1988	74.2	90.4	89.1	94.0	91.6	83.7
1997	90.5	91.4	91.9	94.6	93.9	91.7
2001	85.4	89.2	90.5	93.8	92.2	88.8
2006	82.4	86.4	86.8	92.1	84.5	90.0

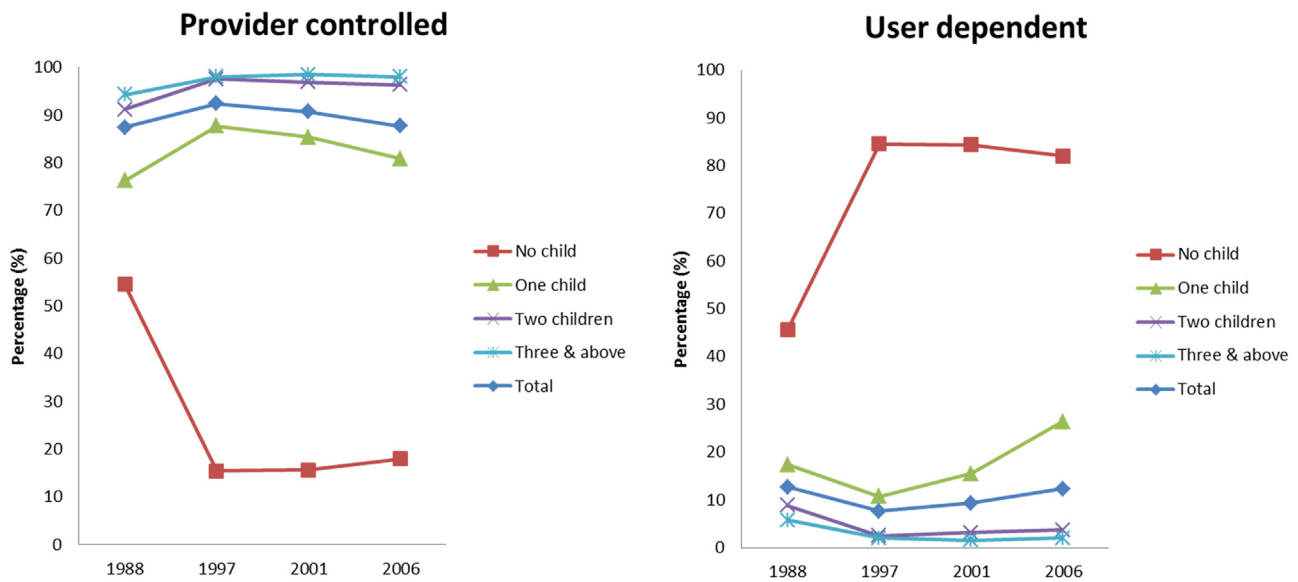


Fig. 3. Patterns of contraceptive use among Chinese married women of reproductive age by number of children, 1988–2006.

contraceptives than in general health care [22]. People need quality contraceptive services, their involvement in decision making and having access to services and products to be able to take advantage of the services [19].

In the past two decades, Chinese government has made a great efforts in promoting informed choice programs, but the effects were far from expected not only because of the poor access to information, products and quality of existing reproductive health services but also because of historical inertia. The data has shown that Chinese women even after the informed choice promoted by the government prefer provider-controlled methods.

The results reveal that the proportion of women choosing user-dependent contraceptive methods has exhibited a small but significant increase since 1997. The data also highlights the particular groups that are most likely to use user-dependent methods: urban women aged 15–29, with no child or only one child, and geographically those living in north or southwestern China. Possible explanations for this trend include increased demand for contraceptive services, women's improved financial status, and greater accessibility to contraceptive care.

This study compared patterns of contraceptive use at four time periods, however the individual respondents were not followed over time, and therefore this analysis cannot be considered longitudinal in nature. For this study we used the categorization on contraceptive use among women as provider-controlled and user-dependent, to evaluate changes in family planning in China over time in exploring patterns of contraceptive use among married women of reproductive age in China and the decisive factors underlying changes in these patterns following the introduction of informed choice in reproductive health programs.

Every country has responsibility towards its citizens to ensure adequate access to high quality family planning services and to guarantee that each individual has the right to make fully informed choices regarding contraceptive use.

The study has important implications. It gives clear evidence that provider controlled methods are still preferred by many Chinese women and most are long term methods such as IUDs, implants and sterilizations. There is a need for the government to take necessary steps to support and strengthen strategies to ensure promotion of method mix by encouraging the use of other less utilized methods such as pills and condoms, to broaden the range of contraceptives options. Our study also suggested that the

government to take actions to improve the quality of family planning services/informed family planning choice throughout the country, especially in the less developed and rural areas. At the same time it is important to continue to ensure quality service provision for long-and short term methods, through continuous on-the-job training and supervision.

Disclaimer: This report contains the collective views of an international group of experts, and does not necessarily represent the decisions or the stated policy of the World Health Organization.

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Appendix A. Characteristics of married respondents aged 15–49

	1988	1997	2001	2006
Age group				
15–19	0.2	0.1	0.1	0.1
20–29	27.3	28.4	20.9	16.8
30–39	49.0	41.0	47.0	46.4
40–49	23.5	30.6	32.0	36.7
Educational level				
Illiterate or semiliterate	36.0	23.9	19.6	7.7
Primary school	27.5	32.1	31.8	26.0
Middle school	23.5	29.7	33.3	41.6
High school	11.7	11.2	11.1	16.1
Graduate school or more	1.4	3.1	4.2	8.6
Average years of education	4.6	5.4	5.7	7.1
Area of residence				
Rural	60.5	78.0	75.6	67.4
Urban	39.5	22.0	24.4	32.6
Region of residence				
North	14.9	14.6	14.4	13.5
Northeast	14.1	8.8	9.3	8.3
East	31.0	30.3	29.1	29.5
South-central	15.1	26.1	25.2	28.2
Southwest	11.6	14.1	14.0	13.3
Northwest	13.3	6.1	7.9	8.2
Number of children				
0	1.1	1.3	1.6	1.2
1	30.1	43.0	44.7	50.6
2	31.3	39.6	37.3	36.9
3 or more	37.5	16.1	16.4	11.2

(Continued)

	1988	1997	2001	2006
Sample size	249990	10494	30551	24176

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