

# FACTORS INFLUENCING THE DECLINING TREND OF VASECTOMY IN SICHUAN, CHINA

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**Abstract.** Vasectomy was once the most common birth control method in both Sichuan Province, China and the world. However, since the 1990s the prevalence of vasectomy in Sichuan, has declined significantly compared to female sterilization in Sichuan and national prevalence of male/female sterilization during the same period. To explore possible reasons for this decline, 27 focus group discussions (FGDs) and 8 in-depth interviews (IDIs) were conducted in four strata of Sichuan. Procedures for qualitative data analysis were used. The findings reveal the decline in vasectomy in Sichuan Province is influenced by multiple factors, including shifts in demographics, changes in family planning working approach and people's perceptions of reproduction, lack of information and misunderstandings about vasectomy, the stereotype of male dominance, bias and preference of program and provider, and the impact of a market economy. Several implications arise from the study for future program development.

**Key words:** vasectomy, influencing factors, China

## INTRODUCTION

Vasectomy has been used since the 19 century and gained popularity as a contraceptive method after World War I. Currently, an estimated 42-60 million men, or 4% of married couples of reproductive age, have used vasectomy for contraception worldwide. The use of vasectomy varies considerably among and within regions,

and among and within countries. Although the total and annual numbers of vasectomies performed in developing countries is larger, the percentage of use is greater in developed countries, especially in the United Kingdom (20.0%), New Zealand (19.3%), Canada (15.2%) and United States of America (9.7%) (UN, 2007).

Vasectomy is a highly effective contraceptive method, with most studies reporting failure rates of less than 1% (Outlook, 2004). It is a simple procedure and can be performed under local anesthesia in an outpatient settings. In 1974 Dr Li Shunqiang in Sichuan Province, China invented the no-scalpel vasectomy (NSV) technique to reduce men's fears related to the incision and to increase vasectomy use in China. NSV is the main development

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in the vasectomy procedure since the 19th century with the advantage of no scalpel, no sutures, fewer complications, less bleeding and pain, a faster recovery and higher client satisfaction, as compared to the conventional method. It has been shown to be the safest surgical approach for vasectomy (Labrecque *et al*, 2004; Cook *et al*, 2007; Kols and Lande, 2008) and sparked renewed interest in vasectomy among both service providers and family planning programs, in both developed and developing countries. In Latin America alone (where NSV has become the standard technique), vasectomy use has increased four-fold during the past decade. The prevalence of vasectomy has remained at a relatively high level in many developed countries, even more than female sterilization (UK, Netherlands and New Zealand) and its use is increasing in some developing countries (India, Iran and the Philippines). NSV is the vasectomy technique recommended by the World Health Organization (WHO) and is becoming standard around the world (WHO, USAID, JHPIEGO, 2007).

### Vasectomy in China

China has the highest number of vasectomies in the world. With its well-established national vasectomy program, 50 million vasectomies were performed from 1960 to 1995 (Liu, 1997a), among which one third were performed with the no-scalpel technique. In 2005, more than 16 million Chinese married couples of reproductive age relied on vasectomy for contraception, accounting for half the world's total. Although vasectomy is generally acknowledged as one of the safest, most effective and cost-effective contraceptive methods, a dramatic decrease in vasectomies has been seen since 1990, with a less significant change in female sterilization during the same period. The prevalence rate of

vasectomies dropped by 46% over the past 15 years (from 11% in 1992 to 6% in 2005) compare to a 16% decrease in female sterilization (from 36% in 1992 to 30% in 2005) (Fig 1). The characteristics of the declining trend of vasectomies in China are seen with the following: the number of vasectomies declines each year; the number of new vasectomies preformed sharply declines each year (Fig 2); the prevalence rate of vasectomies declines each year; and the declining trend of vasectomies is universal throughout China but with great variations among the provinces.

This decline in vasectomy use has been noticed by public health scientists. Their concerns were brought before the relevant authorities and society (Liu, 1996, 1997b, 2000, 2004). However, after more than a decade the situation has not improved. Vasectomy prevalence continues to decline, which is contrast to the global trend of increasing male involvement in family planning/reproductive health (FP/RH) as partners.

### Vasectomy in Sichuan Province

Sichuan was the most populous province in China with over 110 million people in 1995, accounting for 1/10 of the total population of China. By the end of 2007, the reported population of Sichuan (excluding the Chongqing municipality) was 88 million, accounting for 7% of the population of China. It is now ranked the fourth largest population on mainland China.

The early launch of the vasectomy program and large numbers of acceptors are unique features of the family planning program in Sichuan Province. The vasectomy program was begun in 1952 and scaled-up in the 1960s through various activities, including advocacy, demonstrations and technique training. Vasectomy became increasingly more popular since

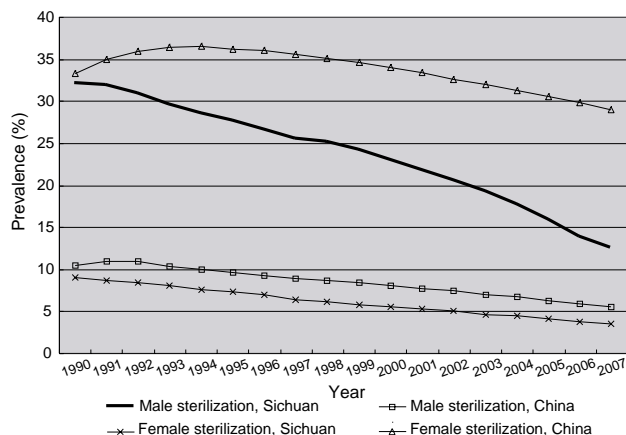


Fig 1—Prevalence rates of male/female sterilization in China (1990-2007).

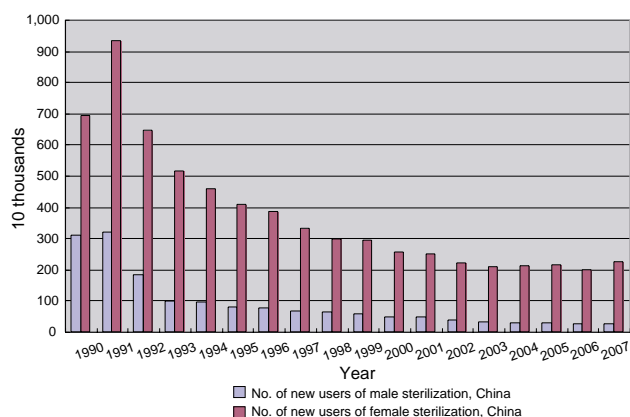


Fig 2—Number of new users of male/female sterilization each year in China (1990-2007).

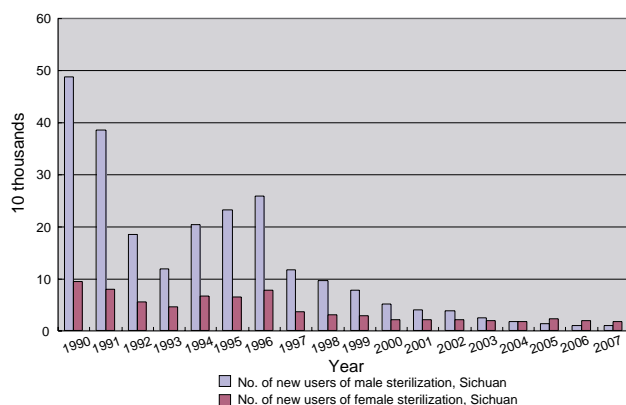


Fig 3—Number of new users of male/female sterilization each year in Sichuan (1990-2007).

Data source: China Population and Family Planning Yearbook, 1991-2008.

the 1970s due to the introduction of the NSV. NSV reduced men’s fear regarding the incision and resulted in a low incidence of hematomas (WHO, 1988), increasing its acceptability. The prevalence rate of vasectomy in Sichuan was once the highest in China and world. Over 14 million vasectomies were performed over the past 30 years, accounting for 1/2 of China’s total and 1/4 of the world’s total. The vasectomy program has made a significant contribution to population control and the economic development of Sichuan Province.

The success of the vasectomy program in Sichuan Province is attributed to the following factors: favorable policy and advocacy (encouraging men to take more responsibility in family planning); model role of cadres (officials and cadres took the lead in having a vasectomy); an effective IEC campaign (disseminating information about male sterilization by both medical professionals and men who have had successful operations); as well as skilled technique and convenient service (well established network of family planning services and a large number of trained providers). This favorable environment along with accessibility of the vasectomy service made Sichuan the only province in China where vasectomies outnumbered female sterilizations by a ratio of 4:1 for about 20 years; this ratio reached 5:1 in 1986. The vasectomy rate in Sichuan remained at a relatively high level during 1980s until the

early 1990s, and was the province with the greater number vasectomies in China. However, since the 1990s the vasectomy prevalence rate in Sichuan experienced the same declining pattern as seen in other parts of China. The absolute decrease ranked first among the 28 provinces (Liu, 2004). The proportion of vasectomy per all types of contraception in of Sichuan Province dropped from 35% in 1990 to 14% in 2007 (Anonymous, 1991, 2008). The number of new female sterilizations in Sichuan has outnumbered vasectomy since 2004 and even doubled in 2007 (Fig 3). Compared with the trend in female sterilizations in Sichuan during the same period, or with the trend in national prevalence of male/female sterilizations during the same period, the decline in vasectomy use in Sichuan is significant and prominent (Fig 1).

Whether the trend indicates vasectomy use in China is truly declining or the findings are merely a temporary aberration in a longer-term upward trend remains unclear. The present study aimed to explore possible reasons for the declining vasectomy use in Sichuan, China. The study was funded by the Ford Foundation.

## MATERIALS AND METHODS

The study was conducted in Sichuan Province, China from 2005 to 2007. Qualitative and quantitative methods were combined to obtain data for the study. This paper focuses on the data drawn from the qualitative study, *ie*, focus group discussions (FGDs) and in-depth interviews (IDIs).

### Study subjects

FGD were held with a variety of subjects: 1) family planning cadres (full or part time cadres in charge of family planning

at municipal, county and district levels); 2) family planning service providers/distributors (full or part time personnel in charge of contraceptive delivery at work units in urban areas, in townships and in villages in rural areas); 3) surgeons, urologists and gynecologists from hospitals and family planning service centers; 4) men who had vasectomy during the previous 5 years; 5) wives of husbands who had a vasectomy; 6) married men who were using contraceptives other than vasectomy; and 7) married women who were using contraceptives other than vasectomy.

In-depth interviews were done among middle and upper level policy-makers and program managers from different departments of provincial and municipal levels of the Population and Family Planning Commission, including science and technology, propaganda and education, technical guidance specialists and contraceptive commodity management.

### Sampling methods

A stratified sampling method was used in the study, the 4 strata being urban, plain, hill and mountain areas. Chengdu City (capital of Sichuan Province), Longquanyi District (a rural district of Chengdu mixed with plains, hilly and mountain areas), Ziyang City (county-level city, which was mainly hilly) and Shehong County (a mainly hilly area) were selected as the field sites. These field sites represented the different levels of economic development and family planning in Sichuan Province.

At each field site, a series of FGDs were held with each of the above mentioned 7 groups of participants. Participants were selected with the assistance of local organisers. In assembling focus groups, care was taken to ensure participants, as much as possible, did not know

each other. Local leaders, who might interfere with free discussions, were excluded. Informed consent was obtained.

In-depth interviews were done in Chengdu City.

#### **Data collection and processing**

Although the topics of discussion were different based on the characteristics of each category of subjects, the core of the discussion, focused on participant knowledge and attitudes regarding various contraceptive methods, particularly to vasectomy. Possible factors, including social, cultural and practical, regarding the declining trend in vasectomies in Sichuan, China, and the problems with vasectomy use in China were discussed.

Focus group discussions were facilitated by a moderator (principal investigator of the study), two tape recorders were used and two persons took notes. In-depth interviews were conducted by principal investigators following the discussion guideline, and the proceedings were tape recorded (only one person refused tape recording, notes were taken instead).

Procedures for conducting FGDs and IDIs, including introductory remarks, guidelines, and detailed instructions, were identical for each series of sessions in each stratum to ensure data quality and comparability. Tapes taken at FGD and IDI sessions were transcribed verbatim and reviewed by the study supervisors for accuracy. Transcriptions were made using Microsoft Word.

Transcriptions of FGDs and IDIs were processed following analytic steps and procedures for qualitative data (Aubel, 1994; Shah, 1999; Yoddumnern-Attig, 2001). The original data were sorted and coded, all responses were kept together by topic and opinion and conclusions were made for each group.

## **RESULTS**

In total 27 focus group discussions were carried out involving 206 participants (one FGD with wives whose husbands had vasectomy in Chengdu City was not carried out) and 8 in-depth interviews were conducted. The socio-economic characteristics of the participants are shown in Table 1. Although data were collected from different groups of participants, their views regarding the factors influencing the declining trend of vasectomy in Sichuan, China were very similar.

#### **Awareness of and attitudes about vasectomy**

Awareness of and attitudes about vasectomy among the participants varied. Policy-makers, program managers, family planning cadres, service providers, and medical doctors generally agreed vasectomy is a good contraceptive method, simple and effective, but they talked more about vasectomy complications that occurred in the 1970s and 1980s. Some respondents expressed their unwillingness to introduce this method because of problems in dealing with complications. "We acknowledge its contribution to history but it (vasectomy) is no longer suitable for the current situation"; "Vasectomy has a high complication rate, which not only causes pain to clients but also interferes with our follow-up work"; "There are other long-acting contraceptive methods available, why bother to do vasectomy?". Some believed female sterilization was easier and had fewer complications.

Vasectomy is the least mentioned contraceptive method in China today. Lack of knowledge, misconceptions and rumors about vasectomy were common among respondents. Some believed vasectomy would reduce sexual potency, cause impotence or make a man physically weak so

Table 1  
Socio-economic characteristics of the participants (for FGDs).

Study site	No. of participants (M/F)	Age ( $\bar{x}$ )	No. of children ( $\bar{x}$ )	Education level			
				Primary	Junior	Senior	$\geq$ College
Chengdu City							
Family planning cadre	2/6	39.1	1			1	7
FP service provider/distributor	1/9	44.3	1			2	8
Clinical doctor	7/2	51.8	1.4				9
Vasectomized men	4	35.3	1.3		1	1	2
Married males	9	45.0	1			3	6
Married females	10	43.3	1		1	2	7
Longquanyi District							
Family planning cadre	2/6	40.5	1			1	7
FP service provider/distributor	1/9	40.3	1			4	6
Clinical doctor	8/2	47.9	1.1			3	7
Vasectomized men	6	42.7	1.8	1	2	3	
Wife her husband had vasectomy	4	40.3	1.8	3	1		
Married males	9	39.0	1		8	1	
Married females	10	38.5	1.2		7	3	
Ziyang City							
Family planning cadre	5/2	41.9	1			2	5
FP service provider/distributor	8/0	44.4	1.9		4	3	1
Clinical doctor	1/5	39.0	1				6
Vasectomized men	5	44.4	2.2	3	1	1	
Wife her husband had vasectomy	8	42.1	2.1	7	1		
Married males	7	32.0	1.1		2	4	1
Married females	9	34.0	1.2	1	8		
Shehong County							
Family planning cadre	5/2	47.3	1			2	5
FP service provider/distributor	0/8	45.5	1.7	5	3		
Clinical doctor	4/5	43.8	1.3		1		8
Vasectomized men	5	39.7	1.7	1	3	1	
Wife her husband had vasectomy	4	37.8	1.7	3		1	
Married males	4	43.8	1		3	1	
Married females	12	38.1	1	2	9	1	

he could no longer work as hard as before. Some worried sperm building up in the body would cause health problems.

Young urban participants felt vasectomy was "an old story of previous generations and far away from us". One urologist said "Along with economic improvement,

people pursue quality of life, sexual performance becomes a major event. One of my vasectomy clients even asked me to leave his sexual potency as big as possible when he lay on the operation table".

Those who held positive attitudes toward vasectomy, felt "Vasectomy is less

expensive and has faster recovery than female sterilization".

Of the 20 men who had vasectomy, 5 had 1 child (25%), 14 had 2 children (70%) and 1 had 3 children (5%). Dissatisfaction with other methods and concern for women's health were the main reasons for choosing vasectomy. One man said "My wife had abortions twice a year on average. I felt guilty I did not have the surgery instead of her". A wife of one man who had a vasectomy suffered from excessive and prolonged monthly bleeding while using an intrauterine device (IUD), "My husband asked me to stop using the IUD, but I got pregnant after IUD removed. When I had an abortion my husband was hurt. He went for a vasectomy himself afterward". All respondents reported hearing negative comments about vasectomy, but their concerns were dispelled when they obtained information from medical professionals and had discussions with others who had vasectomies. Some searched for information from the internet and publications. It generally took them half a year to reach their decision. One man was referred for a vasectomy by a friend, who had one previously, to the same vasectomy doctor. Most (both husbands and wives) were very satisfied with the operation. One man said "I felt no difference after the operation. I recommend vasectomy to my friends if they do not want any more children." A young urban man raised a question "What would I do if I get divorced then remarried and want to have another child?" Being told the success of pregnancy after vasectomy reversal is not guaranteed, the young man expressed regret "If I had known this before I would not have had vasectomy".

#### **Factors influencing the declining trend in vasectomy**

Findings from the various discussions

suggest the reasons for the declining trend in vasectomies in Sichuan Province are complicated and influenced by multiple factors.

**Changes in family planning working approach.** The huge population pressures of the 1970s to 1980s in China required couples of reproductive age to have IUD insertion after having one child and sterilizations after having two or more children. Since the International Conference on Population and Development (ICPD) in 1994, informed choice has been practiced and family planning shifted from an administrative approach to a client-centered approach. The concept of family planning service has changed greatly. Long-acting contraceptive methods are encouraged but sterilizations are no longer required. Such changes were recognized and mentioned by the respondents in all groups. One family planning officer said "When it is not mandatory, I don't think couples will choose sterilizations". The respondents from rural areas had particularly strong feelings: "In the past, family planning cadre asked you to have sterilization after having a second child, now, the policy is much more favorable. It would be okay as long as you practice contraception, no matter what method you are using".

**Changes in family structure and the concept of reproduction.** Another view common among respondents was that people's perceptions about reproduction are changing along with social and economic development.

Today many Chinese families have only one child, a "one child family generally would not consider vasectomy" due to concerns about unexpected events or accidents to the only child. Not a few respondents, both urban and rural, expressed they did not want to have more children.

They said "I would not have more (children) even if I was given a chance or money"; "If I had 2 kids, I would have to do double work, pay twice the money for education, and my life would be much harder".

A FP officer said "Farmers' concepts about reproduction has changed. After having the first child women normally will go for IUD insertion. She will not have a second child as long as she has an IUD. No sterilization would be considered".

The desire to have another child is still strong, particularly for those living in rural areas (as labor is needed) and in those who are rich. "In Chinese traditional perception a perfect family should have both a son and daughter". Some believe an "IUD is simple and can be removed to obtain fertility".

Couples prefer temporary contraceptive methods to permanent methods.

**Impact of propaganda and promotion in FP/RH program.** Respondents agree, the IUD is the most actively promoted and utilized contraceptive method in China. Family planning cadres and service providers/distributors admit that for those who live in rural areas and the less educated are mainly influenced by propaganda. They expressed clear preference for IUD use. They said "Compared with other contraceptive methods, the management and monitoring of an IUD is more convenient for us"; "I feel reassured if the woman has an IUD. For pills or condoms, I would not know if they were used or not". Couples are instructed to use condoms from 42 days to 3 months postpartum, have IUD insertion at 3 months postpartum for vaginal delivery and 6 months for cesarean section. If the woman is not medically eligible for an IUD, condoms or pills would be the alternative recommendations. Induced abortion is a backup method suggested if contraceptive fails. Vasectomy is the last

method mentioned, or not even mentioned at all since "there are so many other contraceptives and backup measures available". In fact this is the regular working model practiced by family planning field workers and service providers. Some respondents stated they were instructed in such way.

Some participants stated propaganda regarding male participation in the FP/RH program, particularly for vasectomy, was weak, "almost no public information about vasectomy"; "the sense of male participation has gradually faded"; "lack of positive mass media and atmosphere". One district FP cadre, who is in charge of training for grassroots FP providers, said "We only offer training regarding IUDs, condoms and oral contraceptives. Vasectomy is no longer in our training package". Some young urban respondents did not know about vasectomy. A young contraceptive distributor in Chengdu City said "I have engaged in family planning work for many years, but I have never heard about vasectomy".

There were also worries from some policy-makers/program managers. "Vasectomy has been not only forgotten by the general public but also higher ranking officials"; "Informed choice have been wrongly understood and practiced"; "IUD use is a bit over promoted. An IUD is not suitable for every woman because of individual differences. The contraceptive mix should be more diverse. The percentage of IUD use could be higher."

**Availability, acceptability and accessibility of contraceptives.** Regarding the availability, acceptability and accessibility of contraceptives, the majority of respondents in all groups were in favor of IUDs. They could enumerate a number of advantages with the IUD, such as better performance of newly developed IUD products, high



efficacy and low adverse-effects, easy to obtain and free of charge, well developed technique after many years of use, a simple procedure that can be done in any hospital and/or FP service center and most of all, it is reversible.

According to current regulations, sterilizations, both vasectomy and tubal ligations, can be performed only in family planning service centers or health institutions at the county/city level. "This guarantees the quality of service, but causes inconvenience and increases the cost for potential clients".

Respondents also mentioned no vasectomy technique training for a long time in the study areas. Many surgeons, particularly the younger ones do not know how to do vasectomy, or have never seen such an operation. They do not feel comfortable talking about a method they are unable to provide. Some senior surgeons were worried "Hospitals will be short of certified vasectomy doctors in a few years".

**Impact of market economy.** Most clinical doctors interviewed recognized vasectomy as a simple, safe and cost-effective contraceptive method with few complications, but they were reluctant to do vasectomy. Two main reasons were given. First, vasectomy is seen as a "high risk" operation: "Today's clients are not the same as the past. They have better education and higher demands"; "Doctors are not unwilling to do vasectomy but unwilling to bear pressures"; "If any complications that I did not clearly inform beforehand occurred, I would be sued and lose money. The client might come to my hospital every day asking for compensation, or he might exaggerate his story in the newspaper. I am worried and so is my hospital"; "Whenever clients come to my hospital for vasectomy, I refer them to family planning services setting".

Second, "Vasectomy is a minor surgery with little profit"; "Based on the medical service charges set by the Chengdu Price Bureau, vasectomy costs RMB 150 (USD22), plus RMB 75 (USD11) for local anesthesia and RMB 40 (USD6) for some medicine, we get so little money"; "It takes me at least an hour to go through the procedures, including inform the client, change clothes, scrub my hands, etc, during the same time I could have seen 2 to 3 outpatients. I take less risk but make more money".

Some senior surgeons were puzzled, "Is vasectomy just an interim measure and out of date?" Younger surgeons were not enthusiastic to learn the technique because there were only a few vasectomy cases each year. "Who wants to make an effort to learn vasectomy? You cannot keep up your skills without practice, even if you were trained"; "Whether this technique can survive entirely depends on market demand".

**Social and cultural factors.** The study revealed that family planning as a fundamental national policy is deeply rooted in the minds of general public. Couples use a certain form of contraception consciously after childbirth. The cultural background of male dominance still has a strong influence on family planning practices. "Many men are reluctant to talk about family planning as they see contraception is the women's duty". "Women themselves know how to deal with contraception. Men should not bother with such matters. That is our Chinese tradition".

Most respondents agreed that husbands and wives should share the responsibility of family planning. Not a few male respondents believed husbands should take more responsibility because they are stronger. Many of them said they had discussed which contraceptive method to use with their wives. However, in real life "Men

generally do not want to use any method, and women have to have IUD insertion". One gynecologist told an extreme story. A woman had 28 induced abortions. The doctor suggested vasectomy but was refused by the couple. The man believed vasectomy would cause him to be weak and disabled. If he could not make money his family would suffer. The woman would rather sacrifice herself as she saw her husband as a breadwinner.

The study found uncertainty about the future caused by increased instability of marriages in society also played a role in the low use of vasectomy.

## DISCUSSION

The findings of present study reveal vasectomy use decline in Sichuan Province is complicated and influenced by multiple factors, including shifts in demographics, changes in family planning working approach and people's perceptions of reproduction, lack of information and misunderstanding about vasectomy, the stereotype of male dominance, bias and preference of the program and provider, and impact of market economy.

An ambivalent attitude was noticed among family planning managers and service providers. Many of them verbally recognized vasectomy as a safe, effective, convenient and simple procedure but showed no intention to introduce it to the general public. They worried about possible vasectomy complications. Numerous studies have shown surgical risks of vasectomy are small and serious side effects are rare (Liskin *et al*, 1983; Labrecque *et al*, 2004; Cook *et al*, 2007; Kols and Lande, 2008). The key point is how to provide better quality service. Careful counseling, standardization of service delivery, supervision and monitoring the provider's per-

formance on a regular basis are crucial elements to ensure quality of service so as to increase demand for vasectomy use. Not offering vasectomy service by assuming little demand can only further reduce demand, creating a vicious cycle. Over time the vasectomy, which "can make an important contribution to the health and family planning goals of countries" (WHO, 1988), may lose its foot in China's family planning program and service providers may not be able to provide vasectomy when needs emerge.

Vasectomy is often the victim of rumors and misinformation. Lack of awareness and widespread rumors about sexual function and physical strength discourage men from considering the procedure. Sometimes providers and program managers share clients' doubts about vasectomy. Providers may even help spread false rumors (Ruminjo, 1999; Bustamante-Forest and Giarratano, 2004). In our FGDs not a few providers believed a vasectomy decreases a man's ability to experience sexual pleasure and results in more side effects and complications than female sterilization. As a result, some providers simply do not mention vasectomy as an option during family planning counseling sessions or encourage female sterilization instead. Incorrect or biased information may influence a couple's choice of contraception. To overcome biases against vasectomy, program providers need to better understand the facts about vasectomy. Effective promotion of vasectomy has two audiences: clients and providers. Both need to change their views of vasectomy.

Contraceptive choice is only one of the elements of quality care, but it is an important one. Factors that influence contraceptive choice come from three levels: the individual/partner/family/community level, the policy making/managerial level,

and the technical service level. Sometimes the later two play a greater role in contraceptive choice (Wu, 2008). Over 70% IUD use for contraception in Sichuan Province in recent years reflects service providers' perceptions and preferences for IUD use and the strong influence of policy guidance. Contraceptive choice involves multiple methods, given the widely varying tastes and preferences of clients during the stages of reproductive life and different attributes regarding the methods themselves, such as effectiveness, convenience and cost (Sullivan *et al*, 2006). Providing clients with complete, objective, unbiased information about contraceptive methods including vasectomy, helping clients to choose the method with the most benefits and the fewest side-effects based on their own circumstances is important to expand contraceptive options.

The most interesting finding of this study was the reason for choosing vasectomy among men who had vasectomy was similar: concern for the woman's health, despite economic, education or occupational differences. All of them saw vasectomy as a better choice than female sterilization, including shorter recovery time, less risk and less expensive. These findings are similar to studies conducted in other countries, which further proved that at least some men are more concerned about the well-being and health of their partners than was commonly believed by service providers. Such findings are important enough to motivate the decision to have a vasectomy. Encouraging men to have a vasectomy for the sake of their partner's health and encouraging men to take responsibility for family planning may be effective promotional strategies (Landry and Ward, 1997).

The findings of the study also showed the low use of vasectomy was not com-

pletely because of men's resistance to the method, but also due to a lack of well-trained service providers. Large-scale training with the no-scalpel vasectomy ended in 1990, no more vasectomy training has been conducted since then. Many trained service providers have reached the age of retirement. New providers have not been trained in this vasectomy technique. As a result, vasectomy services are no longer available in many family planning service centers in Sichuan Province. Technical service is a core element in quality of care. Improving access is also important to increase the method use. Many studies have shown that when information and services are available, some couples who want no more children will choose to have the procedure (Kols and Lande, 2008).

Medical professionals are the main information source for those who had vasectomies in the present study. It is interesting to note almost every man who had vasectomy who was interviewed knew and talked to at least one other man had a vasectomy previously, before having the operation. Satisfied clients are not only pleased with the procedure, but also have accurate and complete information about vasectomy. They are perhaps the most potent advertisement for a vasectomy program (WHO, 1988; Vernon *et al*, 2007).

The crucial roles men play in reproductive health have been highlighted by ICPD and the Fourth World Conference on Women (FWCW). At the conference, there was concern about men's sexual and reproductive health; they also stressed men's responsibility in sexual and reproductive health. While enjoying the benefits of contraception men have the obligation to share the risks of contraception. With men assuming greater responsibility for contraception, many women will be relieved of the burden of being the sole

contraceptor throughout their adult life.

Vasectomy should be readily available and accessible for reasons other than simply increasing contraceptive prevalence or decreasing fertility rates, rather, the availability of vasectomy is important because it is a safe, effective, low-cost form of permanent contraception and is an important part of balanced family planning. It enhances human rights by recognizing men's rights to contraceptive services, increases quality of care by increasing choice for couples and supports gender equity and equality from a gender perspective (Best, 2003).

In conclusion, vasectomy is a contraceptive option for individuals, couples, family planning programs, and community health programs. It is only one long-acting permanent method which enables men to take personal responsibility for contraception. Making good quality services available and accessible can attract more eligible clients. Promotion of vasectomy will not only benefit men, women and families, but will benefit the community and the nation.

Several recommendations may be made from this study. Firstly, advocate government officials and program leaders to understand the benefits of offering vasectomy and win their support for the method. Well-designed IEC programs and sustained promotion can raise public awareness of the method, overcome rumors, and create a favorable environment for male participation. Secondly, invest in training providers. Training helps providers to master key skills. Good surgical skills can increase the effectiveness of vasectomy procedures and reduce complications. Continuous training is needed in order to replace vasectomy providers who leave their jobs and to meet growth in de-

mand. Thirdly, vasectomy should be performed only by well-trained health-care providers in appropriate clinical settings. Relevant service delivery guidelines, including infection prevention protocols, should be followed to maximize client safety. Service delivery monitoring and evaluation help to improve quality of care, assist program managers to determine specific barriers to or concerns about vasectomy services and plan for the future. And lastly, build capacity in counseling services to ensure informed choices in regard to contraception. Understanding this method of sterilization is different from temporary methods. Talking to men is different from women. It is important for providers to have confidence and knowledge regarding counselling potential vasectomy clients to increase client satisfaction and reduce the risk of regrets.

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