



Male Contraceptive Methods: Prevalence, Trend, and Associated Socioeconomic Factors

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Abstract

Objectives: In recent years, using male contraceptive methods has exceeded those of the female in several societies due to the increasing involvement of men in family planning. Hence, the present study divided the contraceptive methods into male and female methods and examined the prevalence, trend, and socioeconomic factors associated with using male methods.

Materials and Methods: The population of this cross-sectional survey included all married men and women in Tehran out of whom 1272 samples with a 49-year-old woman or younger in their households were selected by the multistage cluster sampling technique. Data were analyzed by Cramer's V, phi and logistic regression tests using SPSS version 21.

Results: Based on the results, about three-fourths of the families in Tehran used male contraceptive methods. In addition, the results revealed that using male contraceptive methods has increased over the last 2 decades. In other words, using a condom, as a contraceptive method, increased among the married men while withdrawal decreased. Multivariate analysis indicated that the use of male contraceptive methods was more prevalent among younger, more educated, as well as less religious people and those with egalitarian gender attitudes.

Conclusions: Generally speaking, knowledge of failure rate of male contraceptive methods, teaching the side-effects of female methods, and greater familiarity of families with emergency contraceptive pills are essential.

Keywords: Family planning, Male and female contraceptive methods, Theory of modernity

Introduction

Family planning programs have an important impact on lower fertility, especially in developing countries (1). Data published by the United Nations (UN) (2) indicate that the rate of using contraceptive methods has increased over the last decades in most of the countries. Employing these methods among 15 to 49-year-old married women increased in various countries including Japan (from 19.5% to 54.3% during 1950-2005), Thailand (from 14.8% to 79.3% during 1970-2012), Morocco (from 19.4% to 67.4% during 1980-2010), and the United States (from 58.8% to 74.1% during 1955-2011).

Different ways of contraception are available of which couples can choose a method based on their conditions. They are generally divided into traditional and modern methods and the UN periodically publishes the statistics of using these methods. Male and female sterilization, pills, injections, Norplant, Intrauterine device (IUD), as well as male and female condoms are considered the main modern methods and withdrawal and rhythm are among the main traditional methods.

In addition, previous data demonstrate that with the prevalence of contraceptives, women are regarded as major users. However, in recent decades and with wider

involvement of men in family planning, the ratio of using the so-called male contraceptive methods including male sterilization, condom, withdrawal, and rhythm gradually increased. Further, its using ratio approximated to or exceeded the use of female contraceptive methods in some countries. For instance, 55.1 % of the total used methods among the Spanish couples were related to the male methods in 2006. Furthermore, this ratio increased to 64.1%, 80%, 84.3%, and 89.7% in Ukraine (2012), the Netherlands (1991), Greece (1997), and Serbia (2014), respectively (3).

Involving in reproductive health-related issues is an essential strategy which is in line with limiting the incidence of sexually transmitted diseases (STDs) and AIDS (4) and reducing the unintended pregnancies (5). Men's involvement in family planning and the use of male contraceptive methods are indicators of social development, gender equality, and breaking gender taboos. However, this active involvement is accompanied by several issues and challenges. The most important issue is that withdrawal and condom, as the main male contraceptive methods, have a high rate of failure and lead to various unintended pregnancies and abortion among the users. Unintended pregnancy has numerous severe



effects such as delayed prenatal care, as well as preterm and low-birth-weight infants (6). Moreover, unnecessary abortions, especially if illegal are highly risky (7).

Studies represent that employing male contraceptive methods significantly increased in Iran such that it ranked above many developed countries (3,7). Despite the availability of primary healthcare, modern family planning methods, and necessary knowledge of the field in Iran (7,8), male traditional methods constitute a significant part of the contraceptive methods (7,9) while the World Health Organization (WHO) programs emphasize using reliable contraceptive methods. Additionally, the high prevalence of temporary male methods, namely, condom and withdrawal is regarded as a major concern for the public and reproductive health and population policy planners. The conditions are even harder in a society like Iran where abortion is illegal. In addition, illegal abortions would have multiple risks. More importantly, statistical evidence and research (10-13) indicate that the prevalence of using male contraceptive methods in Tehran is above the national average and a high proportion of these methods is associated with high-failure methods.

According to indirect national estimates in Iran, there are 73000 intentional abortions annually (14) and about half of the abortions and more than two-thirds of unintended pregnancies occurred as a result of withdrawal (15,16). Recent evidence in Tehran indicates that only in a negligible percent of the unintended pregnancies (3%) no contraceptive method was used while most of the unintended pregnancies were either the result of contraceptive failure (70%) or ceasing to use the contraceptives (27%) (17).

Therefore, identifying the factors related to the choice of contraceptive methods is of great importance regarding improving and managing the quality of family planning service including arrangements, educational needs, and financial planning. Further, empowering the country to fulfill the expected effects of such policies and family planning programs which are associated with unintended pregnancies are considered essential (18). Although different previous studies focused on women, they mainly examined traditional and modern methods. Accordingly, in the present study, the population of which included men and women, contraceptive methods were classified into male (i.e., male sterilization, as well as male condom, withdrawal, and rhythm) and female (pills, injections, Norplant, IUD, and female sterilization) methods. Furthermore, this study sought to answer the following questions: How prevalent is the use of male contraceptive methods in Tehran? What patterns does the trend of using these methods follow? What are the socioeconomic determinants of using these methods?

Materials and Methods

This quantitative cross-sectional study was conducted to investigate the prevalence, trend, and socioeconomic

factors regarding using male methods in 2015. The statistical population of the study encompassed all the married men and women residing in Tehran. According to the Statistical Center of Iran, the population of Tehran living in 6014 districts included 8 153 974 people in 2011 out of whom 4 262 047 people were married (19).

To select a representative sample in each area, the population of Tehran was divided by 50 districts to obtain a selected distance of 163 079.48 based on the cultural, social, and economic differences between the areas. The first district was selected randomly. Then, the selected distance was added to the first district and the following districts were selected accordingly. Finally, the number of samples in each district was determined based on the population of each area and the selected districts. The sample size was considered 1728 people based on the sampling error at 95% confidence level, a sampling error of 0.05 based on Cochran's formula, and considering a design effect of 2 and adjustment factor of 0.25 for unresponsiveness. However, given the possible loss (approximately 0.15 based on the rate of families' census in the Statistical Center of Iran), the sample size raised to 2000 people who were selected employing probability proportional to size sampling techniques. The samples were married and in each household, the husband or wife was invited for the interview.

The maps of the selected districts were obtained from the Statistical Center of Iran. More than 10 interviewers collaborated on sampling by home visiting across the selected districts in 2015 and collected the required data administering the final version of a Likert scale questionnaire developed after testing the preliminary questionnaire. Then, the questionnaires were assessed by the project investigator and invalid questionnaires or those with high nonresponse rate were excluded. Eventually, 1736 questionnaires were selected out of which a total of 1272 samples were used in which women in the studied families were 49 years old or younger.

The questionnaire was revised by the experts and faculty members of the National Population Studies, and Comprehensive Management Institute in order to estimate its face validity. After initial testing and modification, the final questionnaire was prepared. Moreover, exploratory factor analysis and Cronbach α were applied to obtain the construct validity and to check the reliability of the items, respectively. The following variables were measured by the questionnaire:

Religiosity

It represents the religious devotion such that it affects the attitude, tendency, and actions of a person (20). In this study, based on Huber and Huber's study and the short form of religiosity which includes intellectual, ideological, ritualistic, experiential, and consequential dimensions of religion (21), 5 items were measured on a Likert scale: 1) There will be Doomsday after death and our actions will be

judged; 2) Without religious beliefs, I feel my life is futile; 3) We must strongly confront bad hijab; 4) How often do you perform your compulsory daily prayers?; 5) How often do you attend religious festivals and mourning? These five items were loaded on one factor with a Cronbach α of 0.923 in factor analysis.

Decision-Making Power

It was measured by 5 items: Who makes the decisions on family affairs, recreational activities, major purchases, childrearing, and visiting in your family? One factor was extracted from these 5 items in factor analysis with a Cronbach α of 0.837.

Agreement Regarding Childbearing

This variable was assessed by one item: ‘How much do you disagree with your spouse about childbearing?’ This item was classified into low, intermediate, and high disagreement.

Dual-Worker Families

According to Locksley’s definition (22), couples both working more than 20 hours a week are called dual-worker families while in single-worker families only the man is employed. This is a 2-part variable which is on a nominal scale. Theoretically, a single-worker family can encompass families with only the woman working. However, based on the purpose of this study and due to a small number, such families were eliminated and therefore, in this study, a single-worker family is defined a family in which only the man is employed.

Gender Attitudes

It was created by combining the following 7 items from the studies conducted by Spence and Helmreich (23), Swim

et al (24), and Glick & Fiske (25) on a Likert scale while considering factor loading of each item and a Cronbach α of 0.887. The items were as follows: 1) It is acceptable for women to be supervisor at workplace (reverse); 2) In case there is no financial need, women should not work outside home; 3) In general, men are better political leaders than women; 4) College education is more suitable for men than women; 5) The responsibility of women is housekeeping and child-rearing; 6) The husband must be the main decision-maker in the family; 7) If the wife’s income is more than that of the husband, it is not good for their relationship.

Education

It was classified into three categories including secondary and lower, a diploma and pre-university degree, and higher than a diploma.

Income

This variable was divided into three categories including lower than 625 dollars (22 500 000 IRR; 1 dollar is about 36 000 Rials), 625-1042 dollars (22 500 000-37 500 000 IRR), and higher than 1042 dollars (37 500 000 IRR).

Age

It was categorized into three groups of under 34 years, 35-44 years, and 45 years or above.

Results

Generally, 1272 samples were included in the current study of which 48.6% were males and 51.4% were females. The mean age of male and female participants was 39.9 and 36.1 years, respectively. The age and gender composition indicates that the sample is representative of the statistical population. Figure 1 illustrates the prevalence of male and

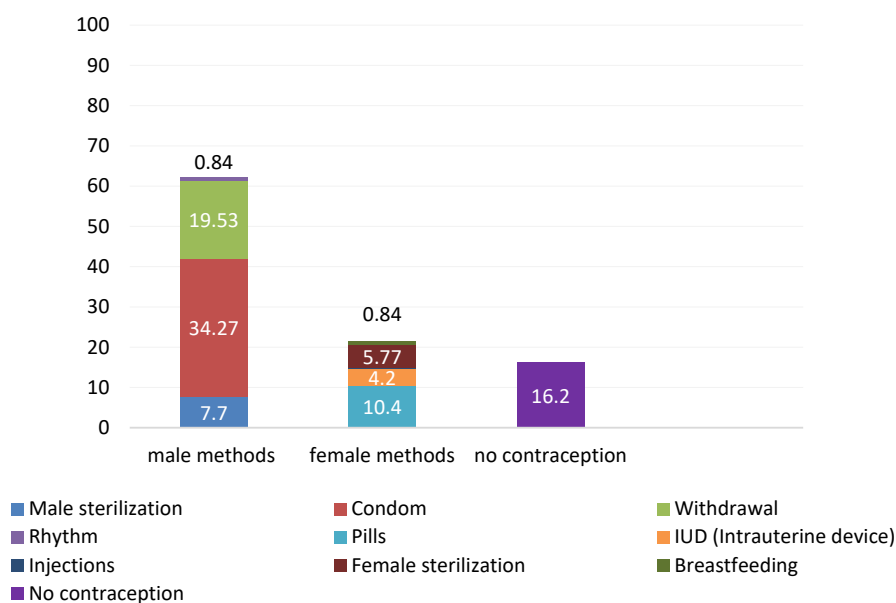


Figure 1. Percentage of Using Male and Female Contraceptive Methods.

Table 1. The Percentage of Using Male and Female Contraceptive Methods among 15-49 Years Old Married Women in Tehran

Year	Contraception	Male Methods						Proportion of Male Methods				
		Male Methods	Female Methods	Male Sterilization	Condom	Withdrawal	Rhythm	Male Method	Male Sterilization	Condom	Withdrawal	Rhythm
2000	77.6	39.0	38.6	5.0	6.4	26.9	0.7	50.2	12.82	16.41	68.97	1.8
2009	85.3	52.8	32.5	6.4	15.5	30.2	0.7	61.9	12.12	29.36	57.19	1.33
2015	83.8	62.34	21.16	7.7	34.27	19.35	0.84	74.39	12.35	54.97	31.33	1.35

Source: Ministry of Health and Medical Education (11), Erfani (12), and Modiri (26).

female contraceptive methods in Tehran.

As displayed in Figure 1, using contraceptive methods by the couples is very high in Tehran such that in 2015, about 84% of the couples used one of the contraceptive methods along with male methods which accounts for nearly three-fourths of the contraceptive methods. Condom followed by withdrawal was the most used male contraceptive methods. Table 1 presents the extent of using contraceptive methods, male methods, and the trend of male contraceptive methods.

As shown in Table 1, 77.6% of people employed one of the contraceptive methods in 2000 while this has reached 85% in 2009. No significant change was observed in this regard in 2015. Additionally, about 50% of the users preferred male contraceptive methods in 2000. Selection of male contraceptive methods increased to 62% in 2009 and 74% in 2015. Table 2 represents 2-dimensional tables of independent variables and male and female contraceptive methods. Based on the data in Table 2 and bivariate analyses using male contraceptive methods decreased with aging, a higher level of religiosity, and

gender attitude while it increased with higher levels of education and income and in dual-worker families.

In addition, socioeconomic determinants of using male contraceptive methods by applying the logistic regression model are provided in Table 3.

As Table 3 indicates, education, age, gender attitudes, and religiosity were considered influential in the simultaneous entry of the research variables into the regression model while work status (dual or single workers), income, decision-making power, and agreement about childbearing had no significant effect.

Discussion

Based on the findings it was revealed that despite the government’s new policies and restriction of contraceptives, family planning is widely exercised in Tehran and about 84% of the couples use one of the contraceptive methods. Three-fourths of those who use family planning devices select male contraceptive methods. Although male methods had positive aspects, they have negative outcomes due to a high failure rate of

Table 2. Two-dimensional Tables of Research Variables and Bivariate Tests

Variables		Female Methods	Male Methods	Bivariate Test
Age	≤34	18.2	81.8	Cramer's V=0.161 P=0.000
	35-44	27.7	72.3	
	45≥	34.7	65.3	
Education	Secondary and lower	49	51	Cramer's V=0.161 P=0.000
	A diploma or a pre-university	26.1	73.9	
	Higher than a diploma	15.3	84.7	
Income	Lower of 22 500 000	28.3	71.7	Cramer's V=0.121 P=0.001
	22 500 000-37 500 000	19.6	80.4	
	Higher than 37 500 000	11.5	88.5	
Religiosity	Low	11.9	88.1	Cramer's V=0.193 P=0.000
	Intermediate	26.3	73.8	
	High	33	67	
Gender attitudes	Egalitarian	16.5	83.5	Cramer's V=0.215 P=0.000
	Intermediate	32.8	67.2	
	Traditional	41.5	58.5	
Work status	Single worker	27.2	72.8	phi=0.070 P=0.025
	Dual worker	19.9	80.1	
Decision making	Male dominant	30.9	69.1	Cramer's V=0.056 P=0.208
	Equal	24.9	75.1	
	Female dominant	36.1	63.9	
Agreement about childbearing	High	26	74	Cramer's V=0.038 P=0.489
	Intermediate	20.4	79.6	
	Low	27.8	72.2	

Table 3. The Results of Logistic Regression Model Fit Using Predictive Variables

Variables		B	P	EXP(B)
Age (ref. ≥45)	≤34	0.790	0.001	2.204
	35-44	0.246	0.247	1.279
Education (ref. higher than a diploma)	Secondary and lower	-1.244	0.000	0.288
	A diploma or a pre-university	-0.486	0.013	0.615
Income (ref. higher than 37 500 000)	Lower of 22 500 000	-0.752	0.054	0.472
	22 500 000-37 500 000	-0.626	0.142	0.535
Religiosity (ref. high)	Low	0.674	0.008	1.962
	Intermediate	0.052	0.769	1.054
Gender attitudes (ref. traditional)	Egalitarian	0.764	0.003	2.148
	Intermediate	0.232	0.343	1.262
Work status (ref. single worker)	Dual worker	0.209	0.331	1.232
Decision making (ref. female dominant)	Male dominant	0.184	0.716	1.202
	Equal	0.315	0.423	1.371
Agreement about childbearing (ref. low)	High	-0.121	0.835	0.886
	Intermediate	-0.339	0.596	0.713
Omnibus tests	Chi square	126.720		
	df	15		
	P value	0.000		
Model summery	Cox & Snell R square	0.119		
	Nagelkerke R square	0.176		

condom and withdrawal.

The present study presented the extent of using contraceptive methods, male methods, and the trend of male contraceptive methods. As previously mentioned, 77.6% of people used one of the contraceptive methods in 2000 which reached 85% in 2009. However, it indicated no significant change in 2015. About 50% of the users selected male contraceptive methods in 2000 which increased to 62% in 2009 and 74% in 2015. The changes during these periods regarding using different male contraceptive methods are interesting. While male sterilization and rhythm did not represent any noticeable changes, they reduced the use of withdrawal (68.97% in 2000 to 31.33% in 2015). However, these 2 variables significantly increased the use of the condom (16.41% in 2000 to 54.97% in 2015)

Selection of a contraceptive method is a complex process which is affected by several biological, economic, social, demographic, and behavioral variables (27). Further, the effects of age, income, education, media consumption, social networks, religiosity, and gender attitudes originated from the theory of modernity were reported in previous studies. For instance, the result of the study by Ghosh in 2 northern and southern states of India indicated that men who used contraceptive methods had higher living standards and were more educated and more exposed to public media. Furthermore, spousal communication was the most important variable which positively affected the use of the condom. Moreover, age was considered an effective variable (5). Another study in 2000 reported that more than 60% of men in Germany, Spain, Brazil, and Mexico were interested in using male contraceptive methods. This tendency was greater in men with higher income and education (28). Additionally, Ringheim found that men's age could influence the

selection of contraceptive methods (29). Similarly, Basu demonstrated that high prevalence of using withdrawal among educated and urban women was correlated with ultramodern attitudes toward body and modern medicine which reflected women's attention to their bodies and interest in using natural methods (30).

Religious belief is another influential variable and determinant of family planning methods. Male sterilization is not popular among the Muslims and Roman Catholics (5, 29). In addition, the withdrawal was approved by the Prophet Mohammad and this is probably the reason for the prevalence of such method in some Muslim countries (9, 31). The results of a qualitative study in Turkey revealed that although men and women were not against contraceptive methods, they resisted using medical contraceptive methods and insisted on using withdrawal due to cultural and religious reasons (32).

Afshani et al indicated that male methods including condom, withdrawal, and male sterilization were used more (69.3%) compared to female methods, namely, female sterilization, pills, and IUD (28.2%). As regards the influential variables, modernism, religiosity, income, and education had a significant direct effect while age and media consumption had a significant reverse effect on men's role in family planning (33). Rabbani et al. reported that 64.4% of families used male methods while 36.6% of them employed female methods and that as a whole, men had a greater role than women in family planning. Further, modernism, education, and media consumption had a significant direct impact while marriage and age difference of the couples had a significant reverse effect on men's role and involvement in family planning (34). Furthermore, Mehryar et al examined the effect of the attitude types and argued that men who assumed women

were responsible for family planning and birth control were less likely to use contraceptive methods. Moreover, positive relationships among couples and men's higher levels of education were found to increase the likelihood of using contraceptives among men (35). In line with the theory of power sources, Kamal et al indicated that men who were more involved in family planning and their wives were more educated and employed had high knowledge of contraceptives, used social networks, and had a favorable relationship with their spouses (36).

Based on the literature which mostly confirms the theories of modernity and power sources, it is hypothesized that younger age, higher income and education, lower religiosity, more egalitarian gender attitudes, and greater decision-making power, as well as women's greater employment in household, and couple's higher agreement about childbearing would encourage couples to prefer male contraceptive methods.

The growing interest of the couples in using the male contraceptive methods over the last 2 decades is evident. Additionally, the increasing trend of using these methods represents that family planning in Tehran is turning into a male issue. In addition, the trend of male contraceptive methods demonstrates that using condom quadrupled while using withdrawal reduced to less than half. There is a positive point to this trend, that is, withdrawal (with higher failure rate than a condom) is less used while condom use is increased. Therefore, a positive step has been taken over time toward using low-failure devices.

As discussed earlier, education, age, gender attitudes, and religiosity were the most influential factors in using male contraceptive methods. This is in line with the results of previous studies.^{5,9,28,29,31-34}

Conclusions

In general, given the prevalent use of male contraceptive methods, it is essential to provide further training on the failure rate of male contraceptive methods, side-effects of female methods, and greater familiarity with emergency contraceptives in family planning programs. Media and family training classes before and during the marriage can have an effective role in this regard. Moreover, it is recommended to qualitatively assess the reasons for the couples' tendency toward using male methods, as well as their knowledge of failure rate and side-effects of male and female methods.

Conflict of Interests

The authors declare that there is no conflict of interests.

Ethical Issues

The study was approved by the National Population Studies and Comprehensive Management Institute, Tehran, Iran in 2015 with the registered number of 20.15280. The data of this study are obtained from the approved project of National Population Studies and

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