Factors Affecting the Use of Long-Acting and Permanent Contraceptive Methods Among Married Women of Reproductive Age in East of Iran

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Abstract

Background: Long-acting and permanent contraceptive methods (LAPMs) are the most effective approaches to reduce fertility. The study of factors associated with the use of LAPMs is one of the key steps in finding the population involved in reduced fertility.

Objectives: The aim of this study was to assess factors affecting the use of LAPMs among married women of reproductive age in Torbat Heydariyeh city, East of Iran.

Methods: This cross-sectional study was conducted on 304 married women aged 15 - 49 years in Torbat Heydarieh in 2016. Data were collected using demographic and fertility questionnaires. The data were analyzed using SPSS 13 by descriptive statistics and multivariate regression analysis.

Results: The current overall prevalence of using LAPMs was 21.4%. The multivariate analysis showed that utilization of LAMPs was less frequent among the participants with diploma (AOR = 0.357, 95% CI = 0.156 - 0.817) and academic education (AOR = 0.418, 95% CI = 0.174 - 1.003) compared to women who had primary and secondary education. However, the utilization of LAPMs was more frequent in those with high income level (AOR = 8.364, 95% CI = 3.994-17.511) and those with higher number of living children (AOR = 2.247, 95% CI = 1.585-3.187).

Conclusions: The persistent use of LAPMs is largely determined by education and income level and the number of surviving children. Reproductive health programmers can consider this group of women for interventions aiming at improving the fertility rate.

Keywords: Long Acting and Permanent Contraceptive Methods, Women, Iran

1. Background

It is expected that in the mid-21st century, the fertility will decline to replacement level or below in many developing countries (1). Today, Iran, like many other countries in the world, is experiencing a very low fertility rate. The total fertility rate (TFR) of this country has dropped from 6.5 in 1976 to 1.6 children per women in 2012 (2). Indeed, the below-replacement level fertility is spread in most regions of Iran (1). It is also observed a reduction in relative portion of population under 15 years and aging of population due to an overall increase in life expectancy and decreased mortality at older ages (1, 3). Therefore, the government policy and decision makers have recently implemented new policies in order to achieve the optimum birth rate and increase the younger population (4).

A number of factors, including changing social conditions, increased contraceptive use, changing marriage patterns, lack of affordable housing, and government policies, have contributed to the decline of fertility rate and may counteract government measures to increase population (4, 5). The use of contraceptive methods has been recognized as one of the main causes of decline in fertility among married women (6). The contraceptive use has increased considerably worldwide over the last decade (7). WHO states that ever-use of the contraceptive methods has increased from 54% in 1990 to 63% in 2007 (8).

Contraceptive methods used for family planning can be classified into two categories: long-acting and permanent methods (LAPMs) that are used to limit childbearing and, short-term methods that are used to postpone childbearing. LAPMs comprise the long-acting and reversible methods such as using intrauterine device (IUD) and implants as well as the permanent methods including tubal ligation and vasectomy (9). IUD appears to be effective for at least 12 years and implants from 3 to 7 years (10, 11). The benefits of LAPMs include convenience, high efficacy, cost-effectiveness, time, effort, and money saving along with other potential health benefits (12, 13). Despite these advantages, using LAPMs may lead to delayed childbearing or

other undesirable outcomes ([9]).

Choosing a LAPM is affected by the number of determinants, including socio-cultural and fertility factors, spouse influence, and other demographic factors ([10], [14]-[16]). For example, Banerjee indicated that higher socioeconomic level is associated with more use of the permanent methods ([16]). Considering the importance of fertility in a country, fertility trends can be predicted and population growth can be controlled by recognizing factors associated with using LAPMs ([17]). Study of factors associated with using LAPMs is one of the key steps in finding the population involved in reducing fertility. To the best of our knowledge, there is no study that documented factors associated with the use of LAPMs in Torbat Heydariyeh, Iran.

2. Objectives

Based on the abovementioned information, the present study was designed to find out factors associated with utilization of long acting and permanent contraceptive methods among married women of reproductive age (15 - 49 years) in Torbat Heydariyeh city, East of Iran.

3. Methods

This descriptive cross-sectional study was undertaken in Torbat Heydariyeh city in the Eastern part of Iran, during October to December 2016. All married women in the reproductive age (15 - 49 years) who were resident in this city at least for 6 months were considered for the study. However, women who were seriously ill as well as those who were infecund, menopause, or pregnant were excluded.

The sample size was calculated as 277 using single population proportion formula with the assumption of 5% margin of error, 95% confidence interval, and 26.1% prevalence of LAPMs use in Iran in 2015. However, by considering 10% non-response rate, the final sample size was 304.

Sampling was carried in all the governmental health centers of Torbat Heydariyeh. The samples were allocated to each health center in proportion to the number of the population under the coverage. Additionally, convenience sampling method was employed through which, all eligible married women in reproductive age (15 - 49 years) who have attended the specified health centers during the study period were selected as study subjects.

A structured demographic and fertility questionnaire was used to collect data. The questions included in the questionnaire were about socio-demographic characteristics, fertility, and contraceptive practices of the women

that were derived from different related literatures. Income level was evaluated as poor (less than enough), middle (as enough), and rich (more than enough) according to self-report.

Utilization of LAPMs was the dependent variable. The LAPMs included implants, intrauterine devices (IUDs), tubal ligations, and vasectomies. For analysis, the participants were divided into 2 groups: user and non-user of LAPMs. As a result, this dichotomous variable was coded one if the participants reported using a LAPM and zero if they reported no LAPM.

All women were completed questionnaires after signing a written informed consent. The written informed consents were obtained from each study participant after being explained about the objectives of the study. All participants were also assured of anonymity, privacy, and confidentiality of the data. The study was approved by the ethics committee of Torbat Heydariyeh University of Medical Sciences (code:IR.THUMS.REC.1392.801).

Statistical analysis was performed using SPSS version 13. Both descriptive and inferential statistics were used for data analysis and interpretations. A multivariate analysis involving all associated variables was performed to ascertain the association between different factors and using LAPM. Crude and adjusted odds ratios with 95% confidence intervals were calculated. Additionally, to select the studied variables for inclusion in the final model, the forward-Wald selection method was used. The level of significance was set at $\alpha = 0.05$.

4. Results

Socio demographic and reproductive characteristics of participants

The respond rate was close to 90%. Most of the participants (51.0%) were in the age range of 25 - 34 years with the mean age of 31.93 ± 6.66. About one third of the participants (34.9%) and their husbands (34.9%) had high school diploma. About 73.7% of women were housewife and about half (54.6%) of their husbands had private job.

About fifty eight percent of the participants were in their first marriage since 20 years ago and more than two-third of them had their first birth when they were older than 20. One hundred nineteen (39.1%) of the study subjects had one living children and the mean number of living children was 1.96 ± 0.99. Less than half (42.1%) of the study participants desired to have a child in future. Additionally, 20.1% of married women had experience of child death. Almost all the participants (99.0%) were using contraceptives, dominated by withdrawal (45.2%).

The overall current prevalence of LAPMs use was 21.4%. IUD, as a long-acting reversible contraceptive method had

the highest frequency (14.1%), followed by tubal ligation (5.92%). There were no married women who used implants.

Other background characteristics are shown in Table 1.

In the bivariate logistic regression analysis, utilization of LAPMs was associated significantly with older age (OR = 1.07, CI = 1.030 - 1.121), high income level (AOR = 5.40, 95% CI = 2.914 - 10.024), and higher number of living children (OR = 2.479, CI = 1.834 - 3.351). Additionally, utilization of LAMPs was lower among the participants with diploma (AOR = 0.295, 95% CI = 0.147 - 0.589) and academic education (AOR = 0.342, 95% CI = 0.175 - 0.668) compared to their counterparts. The women whose husbands had diploma (AOR = 0.762, CI= 0.392 - 1.479) or academic education (AOR = 0.771, 95% CI = 0.394 - 1.510) reported less use of these contraceptive methods. Additionally, the women with desire for another child (OR = 0.212, 1.834 - 3.351) and those who had only surviving boy (AOR = 0.363, 95% CI = 0.183 - 0.721) or girl (AOR = 0.320, 95% CI = 0.156 - 0.655) children had less utilization of LAPMs.

A multivariate analysis was also performed to identify independent predictors of utilization of long-acting and permanent contraceptive methods. The odds of current use of LAPMs was lower among the participants with diploma (AOR = 0.357, 95% CI = 0.156 - 0.817) and academic education (AOR = 0.418, 95% CI = 0.174 - 1.003) than women who were in primary and secondary level education.

Women who were in the high income level (AOR = 8.364, 95% CI = 3.994 - 17.511) had lower odds to use LAPMs compared to women who were in poor and middle income levels.

In addition, higher number of living children were associated with more frequent use of LAPMs (AOR = 2.247, 95% CI = 1.585 - 3.187) (Table 2).

Table 2. Predictors of Using Long Acting and Permanent Contraceptive Methods among Married Women in Torbat Heydariyeh City Based on Multivariate Logistic Regression Analysis

Background Characteristics	Adjusted OR	95%CI	P Value
Number of living children	2.247	1.585 - 3.187	0.001
Women educational status			
Primary and Secondary level		1 (ref.)	1
Diploma	0.357	0.156 - 0.817	0.015
Academic degree	0.418	0.174 - 1.003	0.049
Income level			
Poor and Middle		1 (ref.)	1
high	8.364	3.994 - 17.511	0.001

Age, husband's education status, occupational status of women and their husbands, desire for more children in future, and sex composition of surviving children had no significant association with using LAPMs after controlling for other variables.

5. Discussion

The study revealed that about one fifth (21.4%) of the participants used LAPMs. This finding was consistent with the results of a study carried out in Mahabad, a city in the North West of Iran (18). On the other hand, this rate is very low when compared to some Asian countries such as India (16). In 2015, LAPMs accounted for 56% of contraceptives worldwide (19). Despite that more than half of the women did not want to have more children, the rate of using contraceptive methods was low. Therefore, this population is at risk of unwanted pregnancy.

IUD was used by 14.1% of women of reproductive age in this study. IUD is the second most common method used throughout the world, giving the rate of 18% among Asian women and over 40% among Chinese women (20). Limited use of IUD compared to other countries might be due to the fact that most of women had misconception about IUD and associated problems such as invasion of privacy during its insertion and periodic vaginal examination, intensification of pain during menstruation, and interference with sexual intercourse.

Female sterilization through tubal ligation had a frequency of about 6% and accounted for nearly one fourth of the long-acting and permanent contraceptives. In 2015, 14.8% of married or in-union women in Iran and 19 percent in the world relied on female sterilization (19).

This rate is lower than those reported from several countries in Asia (China, India), Central America (El Salvador, Costa Rica), South America (Columbia- Brazil), and Caribbean region (Puerto Rico) (15, 21). This might be due to the fact that married women in the study region had negative attitudes and wrong beliefs towards female sterilization. Beliefs such as decreased libido, fear of losing their children, and marital conflict are of possible reasons.

Only 1.3% of the study participants used vasectomy. However, the prevalence of male sterilization was 2.9% in Iran in 2015 (19). Similarly, according to surveys carried out in recent years, the prevalence of male sterilization was low in African countries, Latin, South, and Central America countries, Caribbean countries as well as most Asian and European countries except Republic of Korea and Bhutan, the United Kingdom, Netherlands, Belgium, and Spain.

However, Oceania and Northern America countries had a high prevalence of using vasectomy (19). The reason for the less use of vasectomy may be due to that most men have misconception about losing virility, interference with sexual function, and impotency with vasectomy (22).

There were no users of implant in Torbat Heydariyeh city. Similarly, it was estimated that there are no implant users among married or in-union women aged 15 to 49 in 2015 in Iran (19). However, this finding is not consistent with those of other studies that showed higher rates of implant use in Australia, Malaysia, and Ethiopia (12, 14, 23, 24). The relatively low frequent use of these methods can be attributed to misconceptions about implants such as difficulty in the insertion and removal of implants and feeling of carrying a heavy thing in the hand. Moreover, the low availability of a variety type of implants and lack of skilled and trained health personnel may be more effective.

Generally, the wide variety of results can be explained by the difference in socio-demographic and cultural factors in different areas and settings in which the studies have been conducted (rural and urban settings) and access to information and the services.

Based on the multivariate analysis, education and income level and number of children ever born had significant relationships with the using LAPMs. In this context, higher education of the women was associated with less use of LAPMs. The association of higher education status with using LAPMs has been demonstrated by other authors (25). According to a survey, pills, condoms, and traditional methods were more common among educated women while injectable and permanent methods were more common among uneducated women (26, 27). It can be assumed that women with higher education status probably have more knowledge and fear about the side-effects of LAPMs (28). However, authors have often observed a positive association between the level of education and LAPMs utilization (7, 29).

Income level had also a positive association with acceptance of LAPMs. Wealthier women were more likely to use LAPMs than poorer women. This finding is supported by several studies indicating that using LAPMs was more frequent in higher income groups (16, 30, 31).

In contrast, in Bangladesh, India, and Haiti, poorer women were more likely to use LAPMs than wealthier women. This may reflect a different policy environment in the mentioned countries than other countries (13).

We also found that older women were not more likely to use LAPMs than younger women. In this regard, this study contradicts with several previous studies found that older age group of women are more frequent users of LAPMs (11, 15, 32). The reason for this contrast could be due to that the most prevalent long-acting and permanent contraceptive method in this study was IUD that is a reversible method. Therefore, even younger women with fertility intention can use IUD. According to a previous study, injectables and IUCDs were preferred by the young women, while permanent methods were preferred by the older ones (26, 33).

Additionally, there was no significant association between occupational status of women and their husbands and using LAPMs, which is similar to studies conducted by Earsido (2015) and Gultie (2014) (10, 23). In contrast, some studies reported housewife women were more likely to have unmet need of LAPMs (12, 34, 35).

More than fourth percent of the participants did not want to have any child in future. Moreover, in this study, desire for childbearing was not associated with less utilization of LAPMs. This finding is inconsistent with the results of several studies from Bangladesh and Ethiopia, which revealed that woman who wanted no more child were more likely to use LAPMs than those who desired to have more child (11, 23, 36). This discrepancy can be explained by the more frequent use of IUD as a reversible contraceptive method in this study.

On the other hand, women with more children were more likely to utilize LAPMs. Women who believe that they have sufficient numbers of children normally want to space limit the number of children and use long-acting and permanent contraceptive methods rather than short acting methods. This result was consistent with those of studies carried out in Ethiopia, Egypt, Pakistan, and Uganda (10, 11, 37). Actually, number of children was more effective than age in the use of LAPMs.

Finally, sex composition of surviving children had no effect on the choice of contraceptive methods. In contrast, in a study conducted by Oyedokun (2007), sex composition of children was the most important determinant of using the family planning methods and choosing the kind of method (38).

Generally, this study aimed to identify factors affecting the use of LAPMs. Therefore, this study can be a basis for future policy making in reproductive health programs. It is recommended that government policy makers consider this group of women more than before in their new policies.

Despite these findings, the present study had some limitations. Due to the cross-sectional design of the study, it was not possible to establish the cause and effect relationship. Thus, analytical study design is recommended to identify the possible causes. Additionally, this study was conducted only on an urban population. Therefore, it is recommended to conduct other studies in both urban and rural areas. Self-report was also one of the important limitations of this study.

5.1. Conclusions

In conclusion, the findings of this study showed that 21.4% of married women were using long-acting and permanent contraceptive methods. Additionally, after con-

trolling other confounding factors, education status, income level, and number of living children were significantly associated with using LAPMs. Therefore, women with lower education level, higher income level, and higher number of living children should be targeted by strategies to encourage childbearing.

Acknowledgments

Footnotes

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Table 1. Socio-Demographic and Fertility Characteristics of Women

Variables	No. (%)
Age	
15 - 24	46 (15.1)
25 - 29	65 (21.4)
30 - 34	90 (29.6)
35 - 39	52 (17.1)
+ 40	51 (16.8)
Women's educational status	
Primary and Secondary level	92 (30.3)
Diploma	106 (34.9)
Academic degree	106 (34.9)
Husbands' education status	
Primary and Secondary level	98 (32.2)
Diploma	106 (34.9)
Academic degree	100 (32.9)
Women's occupational status	
Governmental Employee	55 (18.1)
Daily laborer	20 (6.6)
Housewife	229 (75.3)
Husbands' occupational status	
Government Employee	81 (26.6)
Daily laborer	54 (17.8)
Private work	166 (54.6)
Income level	
Poor and Middle	244 (80.3)
high	60 (19.7)
Age at marriage	
< 20	176 (57.9)
20 - 24	89 (29.3)
> 25	39 (12.8)
Age at first pregnancy	
< 20	78 (25.7)
20+	226 (74.3)
Number of children ever born	
1	119 (39.1)
2	107 (35.2)
3	55 (18.1)
+ 4	23 (7.6)
Sex composition of Surviving Children	
Only girl	90 (29.6)

Only boy	94 (30.9)
both	120 (39.5)
Having dead child	
No	243 (79.9)
Yes	61 (20.1)
Desire for more child (Future fertility desire)	
Yes	128 (42.1)
No	176 (57.9)
Contraceptive method	
None	4 (1.3)
Pills	31 (10.2)
Depo-Provera	10 (3.3)
IUD	43 (14.1)
Condom	53 (17.4)
Tubal ligation	18 (5.92)
Vasectomy	4 (1.30)
Withdrawal	141 (46.4)
Current use of LAPMs	
Yes	65 (21.4)
No	239 (78.6)