Use of Family Planning Methods and Influencing Factors Among Women in Erzurum

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Background:
Our study aimed to determine the prevalence of family planning methods, socio-demographic characteristics and the relationship between pregnancy histories and usage of family planning methods among women aged 15–49 years old living in the Erzurum provincial center.

Material/Methods:
This is a descriptive, cross-sectional study. From the total 106 669 women aged 15–49 years old living in the Erzurum provincial center, a sample of 627 individuals was selected. A questionnaire consisting of items inquiring into women’s socio-demographic characteristics, birth and pregnancy history, and the use of family planning methods was administered using face-to-face interviews. Statistical analysis was performed using the SPSS 20.00 software. Descriptive statistics were expressed as mean, median, n, percentage, and standard deviation. The chi square, chi square trend, Mann-Whitney U tests, and logistic regression analysis were used for data analysis.

Results:
The mean age of the women in the study was 33.03 years (SD=7.1 years). The mean total number of pregnancies was 3.07 (SD=1.7). Of the women in the study, 77.7% (n=487) used some kind of FP, with 48.2% (n=302) using modern methods and 29.5% (n=185) using traditional techniques. The most commonly used modern methods were intra-uterine devices (IUDs) and condoms, and the most common traditional method used was withdrawal. The use of modern methods was higher among women working outside of the house. It was positively associated with higher education and income and negatively associated with the total number of pregnancies.

Conclusions:
Appropriate use of family planning services rises in line with improvements in women’s education, prosperity, and employment status.

MeSH Keywords:
Contraceptive Agents • Family Planning Services • Reproductive Health

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**Background**

The link established between population, development, and fertility led first to the concept of population planning and subsequently to those of birth control and family planning (FP) [1].

FP encompasses all those practices that enable individuals or couples to avoid unwanted pregnancies, to regulate the period elapsing between 2 pregnancies and to decide when to have children and how many, in the light of their ages and socioeconomic conditions [2]. FP occupies an important place among basic health services [3]. At the same time, access to safe and voluntary FP is a basic human right [4].

Circumstances under which FP techniques are not employed at sufficient levels result in numerous health and social problems. Encouragement of FP in countries with high birth rates has the potential to reduce poverty and hunger and to prevent 32% of maternal deaths and approximately 10% of child deaths. In addition to its importance even for women who do not work outside of the home; better reproductive health services benefit the economy and contribute to sustainable development by allowing women to complete their education, join the workforce, be more productive at work and obtain a higher income. Investment in FP is also key to achieving an end to poverty, one of the Sustainable Development Objectives, and other targets such as health and sexual equality [5]. However, approximately 225 million women worldwide wishing to avoid pregnancy are unable to benefit from safe and effective FP methods for reasons such as the inability to access reproductive health services and lack of spousal support [4].

According to data for 2011, the level of global use of FP of any kind was 63.2%; use of an effective method was 57% and use of ineffective methods was 6.1%; in developed regions the comparable levels were 70.1%, 61%, and 9%, and in developing regions 62.1%, 56.4%, and 5.6%, respectively [6].

According to the Turkish Demographic and Health Survey (TDHS) 2013, the level of current use of any form of FP in Turkey was 73.5%, use of a modern method was 47.4% and use of a traditional method was 26%. The prevalence of methods intended to prevent pregnancy (modern and traditional methods) for the eastern regions of Turkey was reported as 61.4% [7]. Fertility rates and maternal mortality in eastern Turkey are generally higher than for the country as a whole, while levels of use of FP methods are lower [8]. Although Erzurum, an eastern city of Turkey, is a relatively large province with a population of around 750,000, there are large differences among women living in the countryside and women living in towns. Women living in towns are better off with regards to educational opportunities and household income, but at the same time, they seem to be more dependent on their husbands than countryside women because very few of them are gainfully employed. In the countryside of eastern Turkey, one-third of the married women are not able to speak Turkish, and one third of the women have no official civil marriage, which puts them at a disadvantaged position in terms of legal rights [9]. Also, the concept of under-age marriage and motherhood, a multi-dimensional problem with social economic, cultural, religious, and legal aspects, is still important in eastern Turkey [10].

The purpose of our study was to determine the levels of use of FP methods, socio-demographic characteristics, and the association between FP methods and pregnancy histories of women aged 15–49 years old in the Erzurum provincial center.

**Material and Methods**

This descriptive, cross-sectional study was performed in the Erzurum provincial center between 01/02/2015 and 01/06/2015.

The study population consisted of 109,669 women aged 15–49 years. A sample size of 627 women was calculated with a margin of error of 5%, sample proportion of 61.4% [7], and a confidence level of 99%. The sample was approached via the 15 family practice health centers (PHC) in the city center. From each PHC, 50 participants were invited to join the study. Participants were surveyed using a researcher-administered questionnaire consisting of 53-items. The study questions were prepared by the researchers after a vigorous literature review. Queried areas were “demographic characteristics”, “birth and pregnancy history”, and “the use of family planning methods”.

Formulation of the questions was based on the Turkish Ministry of Health’s categorization of FP methods: “intrauterine devices”, “oral contraceptives”, “injectable contraceptives”, “intra-dermal implants”, “surgical methods”, “barrier methods”, and “natural methods” [11].

Each participant was invited for voluntary participation, and consent forms were obtained from all the women participating. Ethical approval was obtained from the Atatürk University Clinical Research Ethical Committee (Date 02.05.2013, No. 1/4). Administration of each questionnaire took around 15 minutes. The study was completed with valid data from 627 participants (84% participation rate).

Data entry and statistical analysis were performed using SPSS 20.00 software. Descriptive statistics were expressed as mean ± standard deviation (SD), median, n, and percentage. The chi square, chi square trend, Mann-Whitney U test, and logistic regression analysis were used for data analysis.
Results

The mean age of the women in the study was 33.03±7.1 years; 81.2% (n=509) were housewives and 45.1% (n=283) had primary school or less education. Participant characteristics are shown in Table 1.

Median age at marriage of the participants was 20 years. Median age at first pregnancy was 21 years; and 94.1% (n=590) of women had experienced at least one prior pregnancy. Mean number of pregnancies was 3.07±1.7, 14.8% (n=93) of women had experienced 5 or more pregnancies, and the period between pregnancies was less than 24 months in 21.5% (n=135) of women. Mean number of live births was 2.2±1.1, and 40% of women reported 3 as the ideal number of children.

All the women in the study had heard of FP. Among the modern (effective) methods, the most commonly used ones were intrauterine devices (IUD) (n=116; 25.4%), condoms (n=114; 25.0%), and oral contraceptives (n=21; 4.6%). Distribution of the use of different methods is presented in Table 2. In addition, 75.4% (n=214) of the women using modern methods reported obtaining these from health institutions, and 40.6% (n=185) reported having received counseling services from health institutions regarding the methods they employed.

Women using IUDs reported doing so because these were reliable and free of charge, while those preferring condoms did so because they were easily available and had fewer side-effects.

### Table 1. Participant characteristics.

| Age     | n  | %  |
|---------|----|----|
| 15–19   | 9  | 1.4|
| 20–24   | 63 | 10.0|
| 25–29   | 137| 21.9|
| 30–34   | 168| 26.8|
| 35–39   | 125| 19.9|
| 40–44   | 78 | 12.6|
| 44–49   | 46 | 7.3 |

| Educational status          | n  | %  |
|-----------------------------|----|----|
| Primary school or below     | 283| 45.1|
| Middle school               | 95 | 15.2|
| High school                 | 138| 22.0|
| University                  | 111| 17.7|

| Partners’ educational status| n  | %  |
|-----------------------------|----|----|
| Primary school or below     | 120| 19.1|
| Middle school               | 90 | 14.4|
| High school                 | 203| 32.4|
| University                  | 214| 34.1|

| Number of individuals in the family | n  | %  |
|-------------------------------------|----|----|
| 4 or fewer                          | 356| 56.8|
| 5 or more                           | 271| 43.2|

| Monthly income                     | n  | %  |
|-------------------------------------|----|----|
| 1000 TL or less                     | 193| 30.8|
| 1001–3000 TL                        | 335| 53.4|
| 3001–5000 TL                        | 71 | 11.3|
| 5001 TL or more                     | 18 | 4.5 |

| Total number of pregnancies         | n  | %  |
|-------------------------------------|----|----|
| 0                                   | 37 | 5.9 |
| 1                                   | 97 | 15.5|
| 2                                   | 167| 26.6|
| 3                                   | 137| 21.9|
| 4                                   | 96 | 15.3|
| 5 or more                           | 93 | 14.8|
| Total                               | 627| 100.0|

### Table 2. Use of different family planning methods.

| Method               | n  | %  |
|----------------------|----|----|
| Highly effective     |    |    |
| Subcutaneous implant | 0  | 0.0|
| Intrauterine Device (IUD) | 116 | 25.4|
| Vasectomy            | 0  | 0.0|
| Tube ligation        | 28 | 6.1 |
| Moderately effective |    |    |
| Injection            | 3  | 0.7 |
| Oral contraceptive   | 21 | 4.6 |
| Others               |    |    |
| Condom               | 114| 25.0|
| Withdrawal           | 162| 35.5|
| Calendar method      | 3  | 0.7 |
| Spermicide           | 1  | 0.2 |
| Breastfeeding        | 7  | 1.5 |
| Vaginal douche       | 1  | 0.2 |
| Total                | 456| 100.0|
There were significant differences in the reasons of method preference between women. The most common reason of preference being reliability (78.5%; n=358) followed by having less side effects (53.3%; n=243), being free (41.5%; n=189), and easy access (24.6%; n=112) (chi square=281.118; \( P < 0.001 \)).

In terms of reasons for not employing FP, 40.9% (n=70) cited existing pregnancy, 28.7% (n=49) a desire to have children, and 13.5% (n=23) medical reasons.

Of the women in this study, 81.9% (n=513) stated that breastfeeding would not prevent pregnancy.

Histories of abortion were present in 24.9% (n=156) of women, 93.6% (n=146) of which took place for medical reasons, including miscarriage.

A statistically significant difference in terms of the use of any method of FP was determined based on women’s age groups (chi square=6.609; \( P = 0.037 \)) with a linear trend (chi square=5.708; \( P = 0.017 \)); method-usage increased with increasing age groups. The most common use of any FP method (including both traditional and modern methods) was in the 35-year-old or older age group (Table 3). In terms of use of modern versus traditional methods by age groups, modern methods were most commonly employed in the 15–24 year-old age group and traditional methods were most commonly used in the 35 years or older age group, though the difference was not statistically significant (Table 4).

A significant association was also observed between educational levels and the use of any FP technique (\( P < 0.05 \) or the preference of modern versus traditional methods (Tables 3, 4).

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The use of modern FP techniques was higher among women who had more pregnancies (chi square=35.741; \( P < 0.001 \)).
educated to a university level compared to the other groups (Table 4). No statistically significant difference was determined in terms of the use of FP depending on partners’ educational levels, but a significant difference was observed in terms of the use of modern versus traditional techniques ($P < 0.05$). The use of modern methods was higher among women with partners educated to a university level (75%; $n=111$), while the use of traditional methods was higher among women with partners educated to a high school level (48.7%; $n=74$) (Table 4).

There was a statistically significant difference in the use of FP methods in terms of total numbers of pregnancies ($P < 0.001$). The highest level of use of any method was among women with 3 or more pregnancies (85%; $n=256$). The use of FP increased with the number of pregnancies (Table 3).

### Table 4. Distribution of use of modern and traditional family planning methods depending on various sociodemographic characteristics and numbers of pregnancies.

| Method used | Modern | Traditional | Total |
|-------------|--------|-------------|-------|
| n           | %      | n           | %     | n         | %     |
| Age group   |        |             |       |          |       |
| 15–24       | 29     | 65.9        | 15    | 34.1      | 44    | 100 |
| 25–34       | 139    | 62.9        | 82    | 37.1      | 221   | 100 |
| 35 or over  | 115    | 60.2        | 76    | 39.8      | 191   | 100 |
| Educational status |        |             |       |          |       |
| Primary school or below | 122 | 57.0 | 92 | 43.0 | 214 | 100 |
| Middle school | 37   | 52.9 | 33 | 47.1 | 70 | 100 |
| High school | 62    | 62.0 | 38 | 38.0 | 100 | 100 |
| University | 62    | 86.1 | 10 | 13.9 | 72 | 100 |
| Partners educational status |        |             |       |          |       |
| Primary school or below | 52   | 60.5 | 34 | 39.5 | 86 | 100 |
| Middle school | 42   | 60.0 | 28 | 40.0 | 70 | 100 |
| High school | 78    | 51.3 | 74 | 48.7 | 152 | 100 |
| University | 111   | 75.0 | 37 | 25.0 | 148 | 100 |
| Employment status |        |             |       |          |       |
| Working outside the house | 61   | 78.2 | 17 | 21.8 | 78 | 100 |
| Not working outside the house | 222  | 56.7 | 156 | 43.3 | 378 | 100 |
| Monthly income |        |             |       |          |       |
| 1000 TL or less | 83   | 58.9 | 58 | 41.1 | 141 | 100 |
| 1001–3000 TL | 146   | 58.4 | 104 | 41.6 | 250 | 100 |
| Above 3000 TL | 54    | 83.1 | 11 | 16.9 | 47 | 100 |
| Total number of pregnancies* |        |             |       |          |       |
| 0 | 12 | 80.0 | 3 | 20.0 | 15 | 100 |
| 1 | 48 | 73.8 | 17 | 26.2 | 65 | 100 |
| 2 | 54 | 54.5 | 45 | 45.5 | 99 | 100 |
| 3 or more | 158  | 61.7 | 98 | 38.3 | 256 | 100 |
| Total | 283 | 62.1 | 174 | 37.9 | 456 | 100 |

$X^2=0.620$ p $>0.05$  
$X^2=22.525$ p $<0.001$  
$X^2=7.954$ p $<0.001$  
$X^2=10.415$ p $<0.05$  
$X^2=14.228$ p $<0.05$  
$X^2=9.073$ p $<0.05$  
$X^2=22.525$ p $<0.001$  

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In terms of education, the highest incidence of abortion was observed in women educated to primary school level or below (29%; n=81). No significant difference in abortion levels was determined in terms of women’s education, employment, or income statuses. In terms of education, the highest quotation of “abortion can’t be regarded as a FP technique” was observed among university graduates (98.2%; n=109) and levels differed significantly depending on educational status (P<0.05).

We performed a logistic regression analysis to check for factors independently associated with the use of effective contraceptive methods. For this, we categorized the method_usage as follows: 1 was high or moderately effective methods (including oral contraceptive pill, injection methods, IUDs, intradermal implants, vasectomies, and tubal ligation) and 2 was less effective methods (including condoms and other barrier methods, withdrawal, fertility-awareness methods, and others). Independent variables used in the regression analysis were 1) age (numerical); 2) level of education (primary school and less; middle school; high school; university), 3) working status (employed; unemployed); and 4) category of monthly income (up to 1000 TL; 1001–3000 TL; over 3000 TL). Age was the only significant independent variable affecting the use of effective contraceptive methods (P=0.023; Exp (B)=1.034; 95% CI: 1.005–1.064).

Discussion

A total of 77.7% of the women in our study were using FP in some form, 48.2% were using modern methods, and 29.5% were using traditional techniques. Studies and TDHS data have shown that the use of modern FP methods is increasing in Turkey overall, as well as in the eastern region [7,8,12].

IUDs were the most commonly used modern method in our study, while withdrawal was the most prevalent traditional technique. Studies from different parts of Turkey also support the data of IUDs being the most commonly employed modern FP method [13–15]. Tubal ligation and IUDs are the most commonly employed methods in the world overall and in Asia, while oral contraceptives, condoms, and injection methods are more popular in Europe and Africa [6]. This discrepancy may derive from countries’ sociocultural characteristics and variations in national FP policies. Turkish males are known to be reluctant to learn about and practice FP. Especially male vasectomy as a FP method has received no attraction in the Turkish community. A male voluntary surgical contraception clinic was established in Ankara in 1989 based on a claim of a growing demand for services [16]. However, even this internationally supported voluntary services could not engage public interest. One study has demonstrated public superstition that vasectomy could lead to impotence [17]. Also, the use of implant contraceptives is low nationwide in Turkey with only a 0.2% use rate [8]. The reason behind this may be its cost, with no reimbursement by the social security fund. Getting an implant is a relatively costly procedure in Turkey (Implanon® rods costs around $100 USD, while IUDs, oral contraceptive pills, and condoms are provided by the primary health care units free of charge).

In our study, 64% of women using modern FP methods reported receiving counseling from health institutions. A study of migrant women in Canada determined that one of the most important birth control-associated problems was lack of knowledge how FP services could be obtained [18]. A study from the United States reported that women who had never attended a reproductive health clinic and received counseling services used no FP methods [19]. In addition, studies from Turkey have shown that health personnel recommendations play an influential role in the selection of FP methods [20]. These findings demonstrate that the availability of and access to FP services is an important factor in meeting the FP needs of a population.

Women in this study primarily cited reliability (58.5%) and low levels of side-effects (35.6%) as the main reasons for the methods they employed. Similar to our findings, other studies from Turkey have shown that women chose FP methods that are reliable, easy to use, safe, and have few side-effects [13,14,20].

As to our findings, usage of FP methods increased with age, while the use of modern methods decreased after the age of 35 years. TDHS data for 2013 indicated that the use of all FP methods increased rapidly up to the age of 40 years, but then declined after 40 years of age [8]. Being married, higher age, or less frequent sexual activity have been shown to affect FP method preferences. Thus, women over the age of 35 years old constitute a risk group in terms of not using effective FP [19,21]. Studies from Indonesia and Iran have shown that the use of any method of FP increases with age [22,23]. These findings all indicate that sexually active young women constitute a risk group for unwanted pregnancies and that access to both education and services is a priority issue.

According to our study, the use of modern methods increased significantly with increasing educational levels. According to TDHS figures for 2013, the highest level of use of any method of FP was among primary school graduates, while the use of modern methods was highest in participants educated to high school and university levels [8]. Several other studies from Turkey and abroad have determined an age-dependent increase in the use of both traditional and modern methods [8,13,15,23–27].

Partners’ education levels affected the use of FP similar to women’s own education. The use of modern FP methods rose significantly in line with the partners’ educational levels. In this
regard, our findings agree with the previous literature from various provinces of Turkey and from various other countries, showing that the use of FP methods increased in line with the educational level of partners [15,24,25,28].

The use of modern methods of FP increased parallel to the families’ income status. TDHS data for 2013 indicated an increase in the use of both traditional and modern methods with the increase of prosperity levels [8]. Studies from various countries have also reported an increase in the use of modern methods together with prosperity [20,24,28,29]. This indicates an interaction between prosperity and FP. The use of effective FP techniques rises as prosperity levels increase, suggesting that poverty can be combated by increasing prosperity levels through effective FP.

Working status among women influenced the use of both traditional FP and modern methods. Unemployed women exhibited a higher level of use of any FP method, while the use of modern techniques was higher among working women. Various studies from Turkey have confirmed that the use of FP methods is higher among working women [13,24]. This may be attributed to the self-control of working women on their own reproductive lives.

Relatively high utilization of FP was observed among women with 3 or more total pregnancies in this study. However, in contrast to our finding, other studies from Turkey and abroad have shown that the use of both traditional and modern FP techniques increases with the numbers of pregnancies [13,22,25,29]. In our study, although the use of any method increased together with the number of pregnancies, the use of modern techniques decreased. This showed that women with high numbers of pregnancies are not protected by effective methods.

Of the participants in our study, 81.9% stated that breastfeeding women can become pregnant. This view was highest among university graduates, but no correlation was determined with the level of education. In studies from Egypt, 65% of breastfeeding women with babies aged under 6 months and 59% of breastfeeding women with children aged under 36 months used no form of FP [30,31]. Sociocultural differences among countries affect attitudes toward the use of FP.

In addition, 24.9% of our study participants had undergone abortions, 89.6% of them with medical indications. We observed that 94.9% of participants did not regard abortion as a method of FP, and this was particularly high among university graduates. Women regarded as less protected against unplanned pregnancy and possible abortions include both adolescents and women over 35 years of age. Therefore, reliable information and education on sexuality and contraception, especially for those at high risk, is essential in the struggle against unwanted pregnancies.

Conclusions

FP services need to be accessible, high quality, and capable of responding to the different preferences of individuals. Only then, can people choose the most appropriate and safe methods for their own needs and employ them on a regular basis. Appropriate use of FP services rises in line with improvements in women’s education, prosperity, and employment. Considering the benefits to be obtained from the interaction between FP services and the society’s general well-being, governments and international institutions should ensure the maintenance and improvement of these services to the greatest possible extent.

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