

Prenatal, Obstetric, Neonatal Outcomes and Contraceptive Behaviors in Women with Four or More Pregnancies

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Abstract: *Background:* The aim of the population-based study was to determine prenatal, obstetric, neonatal outcomes and contraceptive behaviors in women with four or more pregnancies.

Methods: This study was conducted with women (n=294) using a questionnaire in two family centers of Manisa, Turkey where the fertility rate was high.

Results: In the study, the mean number of pregnancies was 5.6±1.5. Loving children, willing to have a larger family and to have a male child were determined the main reasons of extreme fertility. Although 93.2% of women did not desire to have children in the future, only 43.3% of them used a birth control method. The rates of gestational diabetes, hypertension, depression, physical violence, lower weight of baby, risk of miscarriage, preterm birth and cesarean section were higher in the women with more pregnancies.

Conclusions: It is very important to provide women with more pregnancies who had unmet need with client-centered counseling to encourage them to use more effective methods.

Keywords: Birth control methods, contraception, neonatal outcomes, obstetric outcomes, prenatal outcomes, unmet need.

INTRODUCTION

The world population which was approximately 6 billion in 2000 and reached 7,202,951,000 in 2014 has been increasing year by year [1]. Uncontrolled population growth is one of the major problems not only in Turkey which has the highest population growth rate among the European countries but also in other countries of the world [2,3]. In Turkey, the total fertility rate is 2.26 births per woman and it is higher in rural areas (2.73) than in urban areas (2.16). While, 57% of married women do not desire to have any more children in the future; 79% of women used contraceptive methods (CM) [4].

Maternal mortality and morbidity are important criteria used to determine a country's level of development. In developing countries, maternal and infant mortality rates are significantly higher among women with unplanned pregnancies, women who conceived before 18 years old or after 35 years old, and women with four or more pregnancies [2, 3].

In the literature, it was reported that chronic diseases, gestational hypertension and diabetes, preeclampsia, low birth weight, fetal malposition and malpresentation, antepartum bleeding, infection,

difficult labor, premature birth and fetal chromosomal abnormalities were more common in women who had four or more pregnancies and that these conditions are associated with increased risk of death. It was also indicated that mortality rates were high among mothers who had no formal education or only primary education, women who had lower family income level and women who lived in rural areas and in developing countries [2].

In previous studies, social norms, cultural differences, the woman's age at first marriage, family structure, couples' knowledge, attitudes and behaviors towards CM, desired number of children, availability and acceptability of family planning services, preference of child gender, women's social status, income level of the family, employment and education status of women and religious beliefs were defined as the factors affecting female fertility [2, 5-8].

Assessing the couples' fertility preferences, reason for having four or more pregnancies, the effects of excessive fertility on maternal-infant health and women's contraceptive behaviors are very important to understand for women's unmet family planning needs in terms of reducing maternal and infant mortality [5]. Unmet need for family planning is used to describe the status of a woman who is in the reproductive age, does not desire to have any more children, or desires to delay the next child but does not use any method of contraception [9,10]. The concept of unmet need has

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played an important role in family planning research, evaluation of worldwide population policies and programs used to reduce the incidence of unplanned pregnancies. Millennium Development Goal (MDG) 5b (the achievement of universal access to reproductive health) target of providing universal access to reproductive health by 2015 encompasses the health care dimensions of family planning, preconception, prenatal, and postnatal care in order to reduce maternal morbidity and mortality [9, 11].

In family planning, satisfaction of unmet needs is a key component to improve women's reproductive health. Family planning may prevent unwanted pregnancies and illegal abortions and reduce the total numbers of births. Alkema *et al.* (2013) determined that all over the world, contraceptive prevalence increased from 54.8% in 1990 to 63.3% in 2010, and unmet need for family planning decreased from 15.4% in 1990 to 12.3% in 2010. In 2010, 146 million (130-166 million) women worldwide aged 15-49 years who were married or in a union had an unmet need for family planning. The absolute number of married women who either use contraception or who have an unmet need for family planning is projected to grow from 900 million (876-922 million) in 2010 to 962 million (927-992 million) in 2015, and will increase in most developing countries. While the rate of contraceptive use in developed countries was 68.1% in 1990 and 71.5% in 2010, it was 51.8% in 1990 and 62% in 2010 in developing countries [12].

In the earlier studies, desire to have more children [13], health concerns or medical reasons [14, 7], lack of information about CM [14-16], the failure of previous CM [17], side effects of CM [7, 13, 15, 17] fear of side effects of CM [7, 14-16], superstitions [16], misconceptions about CM [7], husbands opposing CM [13, 14] and cultural reasons [16] were identified as the main reasons for not using CM.

As expected, unplanned pregnancies, common especially among women who had four or more pregnancies, result in induced abortions or unwanted births which affect women and child health [18]. Counseling of effective CM was emphasized as an important strategy to help reduce unplanned pregnancies and maternal mortality especially among women who have more than four children and desire not to have any more children in the future. The aim of the study was to assess prenatal, obstetric, neonatal outcomes and contraceptive behaviors among women who had four or more pregnancies.

METHODS

This study was conducted between October 01, 2012 and October 01, 2013 in the 4th and 5th Family Health Centers of Manisa province where the fertility rates were high. The population of the study included 1252 women who gave birth to four or more children according to household identification records of 2011 kept in these Family Health Centers. The sample size for known population was determined as 294 by using the Epi Info 2000 program. The sample size was based on an unknown prevalence of 50%, a confidence interval of 95% and standard deviation of 5%. After the required sample size was calculated, every fifth record was selected from a list of records from a computer file randomly.

A five-part questionnaire developed by the researcher through a literature review was used to collect data. The first part comprised questions about the women's and their husband's socio-demographic characteristics such as age group, education and employment status of couples and perceived family income level. The second part included questions about the women's fertility characteristics such as number of pregnancy, delivery and children. The third part contained 11 questions about women's opinions about fertility. The questions were both open and closed type. Reasons of desired or not children and "if you were an infertile woman, how would your husband react?" questions were open-ended type. The fourth part consisted of questions about prenatal, obstetric and neonatal outcomes for the each pregnancy period such as the status of each pregnancy (planned or unplanned), miscarriage and preterm delivery risk, gestational hypertension and diabetes, urinary incontinence, depression and physical violence. The mode of delivery and the baby's birth weight were assessed in this part. The last part included questions about women's behaviors towards CM. A pilot study was undertaken with 10 women to check whether the questionnaire was understandable. The questionnaires were administered by face-to face interviews in women's home and it took approximately 30 minutes to complete the questionnaires.

In the study, characteristics of women, prenatal, obstetric and neonatal outcomes of each pregnancy and women's opinions about fertility were analyzed by using the descriptive analysis. The relationship between the women's socio-demographic and obstetrics characteristics, desire to have more children and contraceptive behaviors was assessed with the

Chi-square test and Fisher exact test by using the SPSS (17.0) program.

RESULTS

The mean age of the women participating in the study was 39.8 ± 11.5 , 35.7% graduated from primary school, 85.7% were unemployed and 72.8% of them stated that their income was equal to expenses. The mean number of pregnancies was 5.6 ± 1.5 . Of the participants, 31.3% became pregnant four times, 45.9% had miscarriages and 7.8% had induced abortion. The mean number of unplanned pregnancies was 3.6 ± 1.3 (Table 1).

Table 1: Characteristics of Women and their Family

Characteristics of women	n	%
Age group of women		
19-30 age	72	24.5
31-40 age	125	42.5
41-50 age	54	18.4
≥51 age	43	14.6
Birthplace of women		
City	81	27.6
Town	110	37.4
Village	103	35.0
Education of women		
Illiterate	82	27.9
Literate	63	21.4
Primary school	105	35.7
Secondary school	29	9.9
High school and university education	15	5.1
Employment status of women		
Employed	42	14.3
Unemployed	252	85.7
Age group of husband		
19-30 age	35	11.9
31-40 age	95	32.3
41-50 age	107	36.4
≥51 age	57	19.4
Education of husband		
Illiterate	16	5.4
Literate	57	19.4
Primary school	109	37.1
Secondary school	47	16.0
High school and university education	65	22.1
Employment status of husband		
Employed	254	86.4
Unemployed	40	13.6
Health insurance		
Yes	208	70.7
No	86	29.3

(Table 1). Continued.

Perceived income level		
Income less than expenses	72	24.5
Income equal to expenses	214	72.8
Income higher than expenses	8	2.7
Number of pregnancies		
4 pregnancies	92	31.3
5 pregnancies	52	17.7
6 pregnancies	84	28.6
7 pregnancies	46	15.6
8 pregnancies	6	2.0
9 pregnancies	6	2.0
10 pregnancies	8	2.7
Status of miscarriage		
Yes	135	45.9
No	159	54.1
Status of induced abortion		
Yes	23	7.8
No	271	92.2
Total	294	100.0

Most of the women (93.2%) and 86.7% of their husbands did not desire to have any children in the future. However, the reasons for the women and their husbands who desired to have more babies were shown in Table 2.

Table 2: Women's Opinions about Fertility

Women's opinions about fertility	n	%
How many children would you like to have?		
1-2	81	27.6
3-4	141	48.9
≥5	72	26.5
Do you desire to have children in the future?		
Yes	20	6.8
No	274	93.2
Reasons of desired children (for women) (n=20)		
For being family	1	5.0
My husband desire	1	5.0
I desire to have larger family	5	25.0
I desire to have male children	2	10.0
I like children	11	55.0
Reasons for not desiring to have children (for women)(n=274)		
I have enough children	196	71.5
Economic reasons	29	10.6
I am in the premenopausal period	4	1.5
I gain weight	2	0.7
Advanced age	29	10.6
Taking care of children is difficult	14	5.1

(Table 2). Continued.

Does your husband desire to have a child in the future?		
Yes	39	13.3
No	255	86.7
Reasons for desiring to have children (for husband)(n=39)		
For economical support the family	4	10.3
Economically in the future	1	2.6
To become a family	14	35.9
To have a larger family	9	23.1
To have male children	1	2.6
Grandparents' desire	10	25.6
He likes children		
Reasons for not desiring to have children (for husband)(n=274)		
He thinks we have enough children	184	72.2
He doesn't desire to have children	3	1.2
Economic reasons	39	15.3
Advanced age	29	11.4
I gave birth to many children because my husband and I desired to have a male child		
Yes	102	34.7
No	192	65.3
If you were an infertile woman, how would your husband react?		
He would feel very sad	91	31.0
He would try IVF	57	19.4
I don't know how he would react	51	17.3
He would have a second wife	40	13.6
He would divorce me	25	8.5
He would try to adopt a child	22	7.5
He would take it kindly	8	2.7
Total	294	100.0

The relationship between the women's socio-demographic and reproductive characteristics and desire to have more children was presented in Table 3. It was found that 37.9% of the women born in a village and 39.0% of the illiterate women, 29.8% of the husbands who was 51 and over age group and 45.6% of the literate husbands desired to have 5 or more children. The number of children desired decreased as the level of education and income level increased in women ($p < 0.05$).

The women who used a CM desired to have fewer children than the women who did not use a CM. Of the women not using a CM, 27.5% desired to have 5 or more children ($p < 0.05$).

In the study, 79.6% ($n = 234$) of the women stated that they had used a CM throughout their life and

43.2% ($n = 127$) of them used a CM while the study was performed. CM used by the women were intra-uterine device (41.7%, $n = 53$), tubal ligation (26.8%, $n = 34$), withdrawals (19.7%, $n = 25$), condoms (7.9%, $n = 10$), oral contraceptive pills (2.4%, $n = 3$) and others (1.6%, $n = 2$). While 13.3% ($n = 39$) of the participants stated that their husbands interfered with their using a CM, 5.4% ($n = 16$) said their husbands did not know that they used a CM (data not shown).

Nearly half of the women in the 31-40 age groups (50.4%) and the majority of the women aged 41-50 (83.3%) had used a CM. Women who lived in a city (58.0%), women with higher education (73.3%) and the employed women (90.5%) had used a CM.

Overall, 72.0% of the women whose husbands were in the 41-50 age group, 70.8% of the women whose husbands had a high school or higher education level and 49.2% of the women whose husbands were employed had used a CM.

Of the women, 47.5% who had health insurance and 87.0% who had induced abortion did not use any CM. The rates of using a CM among the women in terms of the number of children they desired to have were 55.6%, 39.7% and 36.1% among the women planning to have 1-2 children, 3-4 children and 5 or more children, respectively ($p < 0.05$) (Table 4).

The rates of the unplanned pregnancies were 60.6% and 75.0% at the 7th and 10th pregnancies, respectively. The rates of having a hypertensive disorder were as follows: 1.7%, 6.5% and 62.5% during the first, fourth and tenth pregnancies, respectively. Gestational diabetes rate was 1.0%, 10.7% and 13.6% during the first, sixth and the seventh pregnancies. Abortion imminence and preterm birth risk rates were 15.0% and 4.8% during the first pregnancy respectively, and 32.0% and 12.8% during the sixth pregnancy, respectively.

Having depression during each of the first 10 pregnancies was as follows: 18.0%, 19.4%, 19.4%, 28.9%, 37.8%, 49.3%, 45.5%, 30.0%, 21.4% and 25.0%. The rates of being exposed to physical violence during the 1st, 5th and 6th pregnancies were 2.0%, 3.0% and 7.3%, respectively.

The rates of cesarean section (CS) delivery during the 1st, 7th, and 10th pregnancies were as follows: 0.7%, 33.3%, and 25.0%, respectively. While 8.9% of the women gave birth to an infant less than 2500 gram at their first pregnancy, 20.0% of them gave birth to an

Table 3: Relationship between Women's Characteristics and Desire to have more Children

Characteristics of women	Number of children desired			Test
	1-2 children n (%)	3-4 children n (%)	5 and more children n (%)	
Age group of women				
19-30 age	13 (18.1)	44 (61.1)	15 (20.8)	X ² =11.342 df=6 p=0.078
31-40 age	33 (26.4)	61 (48.8)	31 (24.8)	
41-50 age	21 (38.9)	18 (33.3)	15 (27.8)	
≥51 age	14 (32.6)	18 (41.9)	11 (25.6)	
Birthplace of women				
City	41 (50.6)	36 (44.4)	4 (4.9)	X ² =43.518 df=4 p=0.000
Town	21 (19.1)	60 (54.5)	29 (26.4)	
Village	19 (18.4)	45 (43.7)	39 (37.9)	
Education of women				
Illiterate	14 (17.1)	36 (43.9)	32 (39.0)	X ² =30.368 df=8 p=0.000
Literate	16 (25.4)	26 (41.3)	21 (33.3)	
Primary school	31 (29.5)	57 (54.3)	17 (16.2)	
Secondary school	12 (41.4)	15 (51.7)	2 (6.9)	
High school and university education	8 (53.3)	7 (46.7)	0 (0.0)	
Employment status of women				
Employed	21 (50.0)	19 (45.2)	2 (4.8)	Fisher's exact test p=0.164
Unemployed	60 (23.8)	122 (48.4)	70 (27.8)	
Age group of husband				
19-30 age	9 (25.7)	20 (57.1)	6 (17.1)	X ² =18.075 df=6 p=0.006
31-40 age	14 (14.7)	57 (60.0)	24 (25.3)	
41-50 age	41 (38.3)	41 (38.3)	25 (23.4)	
≥51 age	17 (29.8)	23 (40.4)	17 (29.8)	
Education of husband				
Illiterate	9 (56.3)	3 (18.8)	4 (25.0)	X ² =45.109 df=8 p=0.000
Literate	10 (17.5)	21 (36.8)	26 (45.6)	
Primary school	26 (23.9)	56 (51.4)	27 (24.8)	
Secondary school	13 (27.7)	19 (40.4)	15 (31.9)	
High school and university education	23 (35.4)	42 (64.6)	0 (0.0)	
Employment status of husband				
Employed	68 (26.8)	127 (50.0)	59 (23.2)	X ² =3.246 df=2 p=0.197
Unemployed	13 (32.5)	14 (35.0)	13 (32.5)	
Health insurance				
Yes	65 (31.3)	90 (43.3)	53 (25.5)	X ² =7.078 df=2 p=0.029
No	16 (18.6)	51 (59.3)	19 (22.1)	
Perceived income level				
Income less than expenses	32 (44.4)	26 (36.1)	14 (19.4)	X ² =21.249 df=4 p=0.000
Income equal to expenses	44 (20.6)	112 (52.3)	58 (27.1)	
Income higher than expenses	5 (62.5)	3 (37.5)	0 (0.0)	
Number of pregnancies				
4-5 pregnancies	38 (26.4)	89 (61.8)	17 (11.8)	X ² =29.963 df=2 p=0.000
6 and more pregnancies	43 (28.7)	52 (34.7)	55 (36.7)	
I gave birth to many children because my husband and I desired to have a male child				
Yes	24 (23.5)	42 (41.2)	36 (35.3)	X ² =62.720 df=2 p=0.000
No	57 (29.7)	99 (51.6)	36 (18.8)	
Having used contraceptive method				
Yes	45 (35.4)	56 (44.1)	26 (20.5)	X ² =7.211 df=2 p=0.027
No	36 (21.6)	85 (50.9)	46 (27.5)	
Total	81 (27.6)	141 (48.0)	72 (24.5)	

Table 4: Relationship between Women's Characteristics and Contraceptive Behaviors

Characteristics of women	Using contraceptive methods		Test
	Yes n (%)	No n (%)	
Age group of women			
19-30 age	19 (26.4)	53 (73.6)	$X^2=79.085$ df=3 p=0.000
31-40 age	63 (50.4)	62 (49.6)	
41-50 age	45 (83.3)	9 (16.7)	
≥51 age	0 (0.0)	43 (100.0)	
Birthplace of women			
City	47 (58.0)	34 (42.0)	$X^2=11.058$ df=2 p=0.004
Town	45 (40.9)	65 (59.1)	
Village	35 (34.0)	68 (66.0)	
Education of women			
Illiterate	21 (25.6)	61 (74.4)	$X^2=64.882$ df=4 p=0.000
Literate	37 (58.7)	26 (41.3)	
Primary school	30 (28.6)	75 (71.4)	
Secondary school	28 (96.6)	1 (3.4)	
High school and university education	11 (73.3)	4 (26.7)	
Employment status of women			
Employed	38 (90.5)	4 (9.5)	Fisher's exact test p=0.000
Unemployed	89 (35.3)	163 (64.7)	
Age group of husband			
19-30 age	0 (0.0)	35 (100.0)	$X^2=80.149$ df=3 p=0.000
31-40 age	41 (43.2)	54 (56.8)	
41-50 age	77 (72.0)	30 (28.0)	
≥51 age	9 (15.8)	48 (84.2)	
Education of husband			
Illiterate	2 (12.5)	14 (87.5)	$X^2=30.585$ df=4 p=0.000
Literate	22 (38.6)	35 (61.4)	
Primary school	37 (33.9)	72 (66.1)	
Secondary school	20 (42.6)	27 (57.4)	
High school and university education	46 (70.8)	19 (29.2)	
Employment status of husband			
Employed	125 (49.2)	129 (50.8)	Fisher's exact test p=0.000
Unemployed	2 (5.0)	38 (95.0)	
Health insurance			
Yes	113 (54.3)	95 (45.7)	Fisher's exact test p=0.000
No	14 (16.3)	72 (83.7)	
Perceived income level			
Income less than expenses	39 (54.2)	33 (45.8)	$X^2=4.691$ df=2 p=0.096
Income equal to expenses	85 (39.7)	129 (60.3)	
Income higher than expenses	3 (37.5)	5 (62.5)	
Number of pregnancies			
4-5 pregnancies	63 (43.8)	81 (56.3)	Fisher's exact test p=0.472
6 or more pregnancies	64 (42.7)	86 (57.3)	
Status of induced abortion			
Yes	3 (13.0)	20 (87.0)	Fisher's exact test p=0.001
No	124 (45.8)	147 (54.2)	
Does your husband know that you are using a contraceptive method?			
Yes	127 (45.7)	151 (54.3)	Fisher's exact test p=0.000
No	0 (0.0)	16 (100.0)	
How many children would you like to have?			
1-2 children	45 (55.6)	36 (44.4)	$X^2=7.211$ df=2 p=0.027
3-4 children	56 (39.7)	85 (60.3)	
5 or more children	26 (36.1)	46 (63.9)	
Total	127 (43.2)	167 (56.8)	

Table 5: Prenatal, Obstetrics and Neonatal Outcomes in Women who had Four or more Pregnancies

Prenatal and obstetric outcomes	1. pregnancy n (%)	2. pregnancy n (%)	3. pregnancy n (%)	4. pregnancy n (%)	5. pregnancy n (%)	6. pregnancy n (%)	7. pregnancy n (%)	8. pregnancy n (%)	9. pregnancy n (%)	10. pregnancy n (%)
Pregnancy status										
Planned	279 (94.9)	257(87.4)	238(81.0)	194(66.0)	108(53.7)	72(48.0)	26(39.4)	13(65.0)	6(42.9)	2(25.0)
Unplanned	15 (5.1)	37(12.6)	56(19.0)	100(34.0)	93(46.3)	78(52.0)	40(60.6)	7(35.0)	8(57.1)	6(75.0)
Gestational hypertension										
Yes	5(1.7)	5(1.7)	4(1.4)	19(6.5)	21(10.4)	24(16.0)	15(22.7)	3(15.0)	3(21.4)	5(62.5)
No	289(98.3)	289(98.3)	290(98.6)	275(93.5)	180(89.6)	126(84.0)	51(77.3)	17(85.0)	11(78.6)	3(37.5)
Gestational diabetes										
Yes	2(0.7)	2(0.7)	3(1.0)	14(4.8)	15(7.5)	16(10.7)	9(13.6)	0(0.0)	0(0.0)	0(0.0)
No	292(99.3)	292(99.3)	291(99.0)	280(95.2)	186(92.5)	134(89.3)	57(86.4)	20(100.0)	14(100.0)	8(100.0)
Abortions imminence										
Yes	44(15.0)	27(9.2)	56(19.0)	78(26.4)	53(26.4)	48(32.0)	23(34.8)	0(0.0)	3(21.4)	0(0.0)
No	250(85.0)	267(90.8)	238(81.0)	216(73.6)	148(73.6)	102(68.0)	43(65.2)	20(100.0)	11(78.6)	8(100.0)
Preterm labor										
Yes	14(4.8)	12(4.1)	21(7.1)	34(11.6)	22(14.2)	11(12.8)	8(14.3)	0(0.0)	0(0.0)	0(0.0)
No	280(95.2)	282(95.9)	273(92.9)	260(88.4)	133(85.8)	75(87.2)	48(85.7)	20(100.0)	14(100.0)	8(100.0)
Urinary incontinence										
Yes	11(3.7)	11(3.7)	23(7.8)	49(16.7)	37(18.4)	40(26.7)	8(12.1)	3(15.0)	3(21.4)	1(12.5)
No	283(96.3)	283(96.3)	271(92.2)	245(83.3)	164(81.6)	110(73.3)	58(81.9)	17(85.0)	11(78.6)	7(87.5)
Depression										
Yes	53(18.0)	57(19.4)	49(19.4)	85(28.9)	76(37.8)	74(49.3)	30(45.5)	6(30.0)	3(21.4)	2(25.0)
No	241(82.0)	237(80.6)	245(80.6)	209(71.1)	125(62.2)	76(50.7)	36(55.5)	14(70.0)	11(78.6)	6(75.0)
Physical violence										
Yes	6(2.0)	2(0.3)	5(1.7)	3(1.0)	6(3.0)	11(7.3)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
No	288(98.0)	292(99.7)	289(98.3)	291(99.0)	195(97.0)	139(92.7)	66(100.0)	20(100.0)	14(100.0)	8(100.0)
Mode of delivery										
Vaginal	255(86.7)	271(92.2)	231(81.3)	219(74.5)	140(69.7)	69(46.0)	34(51.5)	16(80.0)	8(57.1)	3(37.5)
CS	2(0.7)	7(2.4)	11(3.7)	33(11.2)	15(7.5)	17(11.3)	22(33.3)	2(10.0)	0(0.0)	2(25.0)
No delivery (abortion or stillbirth)	37(12.6)	16(5.4)	44(15.0)	42(14.3)	46(22.9)	64(42.7)	10(15.2)	2(10.0)	6(42.9)	3(37.5)
Disabled baby										
Yes	5(1.9)	3(1.1)	1(0.4)	5(2.0)	8(5.2)	1(1.2)	2(3.6)	0(0.0)	0(0.0)	1(20.0)
No	252(98.1)	275(98.9)	249(98.6)	247(98.0)	147(94.8)	85(98.8)	54(96.4)	18(100.0)	8(100.0)	4(80.0)
Birth weight babies										
≤2500 gr	23(8.9)	17(6.1)	10(4.0)	14(5.6)	12(7.7)	6(7.0)	6(10.7)	3(16.7)	0(0.0)	1(20.0)
2501 -3000 gr	72(28.0)	88(31.7)	71(28.4)	73(29.0)	36(23.3)	26(30.2)	19(33.9)	8(44.4)	4(50.0)	2(40.0)
3001-4000 gr	160(62.3)	162(58.3)	153(61.2)	148(58.7)	89(57.4)	47(54.7)	30(53.6)	7(38.9)	4(50.0)	2(40.0)
≥4001 gr	2(0.8)	11(4.0)	16(6.4)	17(6.7)	18(11.6)	7(8.1)	1(1.8)	0(0.0)	0(0.0)	0(0.0)
Total	294(100.0)	294(100.0)	294(100.0)	294(100.0)	201(100.0)	150(100.0)	66(100.0)	20(100.0)	14(100.0)	8(100.0)

infant less than 2500 gram at their tenth pregnancy (Table 5).

DISCUSSION

The study's main key finding was that there was a high level of unmet need for contraception and adverse prenatal, obstetrics and neonatal outcomes in women who had four or more pregnancies. It is very important to determine women's behaviors and attitudes towards CM and unmet family planning needs. Thus, client-centered counseling of the women can provide increasing the usage of more effective methods. In family planning services, meeting the requirements for unmet needs is a key component to improve women's reproductive health. Moreover, it was found out that individual, social and cultural factors may influence women's fertility preferences. In the study, 6.8% of the women and 13.3% of their husbands stated that they desired to have children again in the future. Studies defined that 39% of the women in Ethiopia [18] and 35.4% of the women in Indonesia [5] still desired to have children although they had reached the number of children they desired.

We also aimed to investigate the cultural reasons why those women still wanted to get pregnant. As it is known, ignoring patients' cultural background may cause some obstacles to the health care givers when define the problem and create proper solutions. Thus, it is important to raise health care providers' awareness of cultural reasons of desiring to have children in couples. In the current study, loving children, willing to have a larger family and desiring to have a male child were the most common reasons for a demand to have new children. In communities in which people demand to have larger families, increasing a woman's fertility is of great importance, because children are considered as people to support the family financially or to provide care for parents in their old age or when they are sick [5, 8, 10]. Gender preference is another important factor for demanding children. About one-third of the women in this study said that male gender preference was the main reason to conceive again. Especially in Turkey, couples who live in extended families desire to have a son for the continuation of the surname and to feel more powerful [8]. Similarly, in one study 27% of the women and 35% of their husbands desired to have male children [18]. Another study stated that 43.3% of the men desired to have a son and 21.3% of the women became pregnant again due to the demand for a male baby [15]. It was pointed out that a woman's decision of fertility was affected not only by personal,

social and cultural factors but also by her partner's wishes [5]. Therefore; informing women's partners about the effects of the greater number of pregnancies on women health is essential.

In the study, 13.6% of the women stated that if she were infertile, her husband would get married to another woman unofficially to have a child. In developing countries, fertility is recognized as one of the important traditional roles of women. If a woman has many children, she is respected by her husband, relatives and in-laws. On the contrary, infertile women were often pressurized for the second marriage of her husband (*Kuma*) [8].

The rate for the awareness of CM was found very high in many developing countries; for instance, 92.2% in Ethiopia [15], 90.3% in Nigeria [16], 99.3% in Iran [19] and 99.0% in Turkey [4]. In the study, about two out of three women had used at least one CM but many of them discontinued it due to the side effects. Hence, it is very important to define women's attitudes towards CM, perceptions of CM and misbeliefs about CM in order to provide for the continuation of the use of birth control methods.

In the study, 43.2% of the women used a CM at the time of the study. This rate is lower than TDHS 2013 survey. According to the TDHS-2013 findings, the contraceptive prevalence rate was 79% and the most common methods ever used by married women were withdrawal (64%), male condom (46%), IUD (39%) and the pill (31%) [4]. In other studies conducted in developing countries, the rate of the use of CM as follows: 43.1% in Ethiopia [15], 30.6% in Nigeria [16], 36.2% in Sudan [20], 69.1% in India [10], 82% in Colombia [21].

Although the use of effective CM in the developing countries increased from 54% in 2003 to 57% in 2012, unmet need for modern contraceptives was still very high in 2012, especially in sub-Saharan Africa (60%), south Asia (34%), and western Asia (50%) [22]. In Indonesia 35.4% of the women stated the desire for more children and 51.8% did not use any contraceptives [5]. In India, of the participants who did not desire any more children, 32.2% used traditional methods and 30.3% used condoms. In Iran, 81.5% of the women used CM and the study pointed out that woman, who had lower number of children, used more contraceptive methods [19]. Accomplishment of the desired number and healthy timing of births has important benefits for women, families, and societies.

To meet the unmet need for modern CM, countries should allocate more resources, facilitate access to high-quality family planning services and arrange public education interventions to decrease social barriers [22]. Health providers and institutes should give priority especially to women with a greater number of pregnancies and did not use CM.

In the present study, approximately one out of five women reported that they used the withdrawal method. In Turkey, withdrawal is a widely used method and previous studies reported the rate of the method between 19% and 59.6% [7, 23, 24]. In Ghana, the use of traditional methods of contraception was very high because the methods were accepted as safe. The main barriers to modern contraceptive use were determined as fear of side effects, desire for more children and partner's disapproval [25].

In the current study, women who were born in a village, desired to have male children, and had not used any CM desired to have 5 or more children. Having a greater number of pregnancies and not using contraceptives were more common in women and their husbands with low level of education, without health insurance and/or with low-income. In some studies previously conducted in Turkey, similar results were obtained [8, 20]. Employment status of women is also an important factor affecting the number of children and these women participated in decisions concerning the family and had fewer children because they were employed and they used CM more than unemployed women [8]. Women who have a low level of education are usually unemployed, have low income, marry at an early age and give more births. Therefore, taking precautions to help those women have more education will give them the opportunity to work and thus become financially independent of their husbands and be able to decide to have fewer children.

The use of CM rate was lower among the women who had an induced abortion (13.0%) than women who did not (45.8%). The findings showed that induced abortion is perceived as a method of birth control in women who had four or more pregnancies. Therefore, women with induced abortion who have very high unmet need for CM and who are especially in at-risk groups should be provided counseling about CM in order to increase the use of effective methods to reduce unplanned pregnancies.

In the study, final decision about CM was made by women's husbands (7.1%). While 5.4% of the husbands did not know that their wives used a CM,

13.3% of them did not approve the use of CM. According to other research findings, in Ethiopia, 16% of the women said that their husbands made a decision on contraceptive use [15]. In Turkey, 4.2% of the women reported that their husbands did not want to use any CM [23]. In Cameroon, the disapproval of the partner was determined as one of the factors affecting contraceptive use [26]. As can be seen from the studies, husbands play the principal role in decision-making regarding contraceptive use. So giving counseling to men to raise their awareness of CM and ensuring their participation in family planning counseling is crucial if the use of effective methods is to be increased.

As can be known, unplanned pregnancies, which can be avoided by using contraceptive methods, negatively affect women's health in many ways. In the study, women who had unplanned pregnancy had higher parity. According to the previous studies, the unplanned pregnancy rate was 33.1% in East Anatolia in Turkey [24], 26.8% in Manisa, a province in Western part of Turkey [2], 39% in Italy [27] and 30.7% in Iran [19]. Consistent with our study findings, one study found that the number of unplanned pregnancies increased in women who had four or more pregnancies [6].

It is known that the prevalence of chronic diseases increases in women of advanced maternal age and/or in multiparous women. Consistent with previous research findings, in this study the prevalence of hypertensive disorders and gestational diabetes during pregnancy was high in women with higher parity [2]. Community awareness programs about the negative effects of excessive fertility on maternal and child health can be arranged. Moreover, health care providers can provide counseling to women about CM.

In the study, urinary incontinence, risk of abortion, preterm delivery and cesarean section (CS) rate were also higher in women who had four or more pregnancies. Urinary incontinence which affects women's psychological, physiological and social health is an important issue for both health providers and women. Many women do not present to health institutions because they feel embarrassed. Similarly, in Turkey urinary incontinence rate during pregnancy was determined as 24.9% [28]. In Turkey, CS is very common; the ratio of CS was found as 48% of all births. Women living in Western Turkey, conceiving in older age, conceiving with assisted reproductive technology, desiring fewer children preferred elective

CS in Turkey [4]. As can be seen in our findings, the CS rate was increased after fourth pregnancies. In particular, the negative effects of repeated CS on the mother-infant mortality and morbidity should be announced to the community with education programs.

In the study, the participants who had four or more pregnancies had more depressive symptoms and were exposed to partner violence during pregnancy. The finding is similar to the findings of previous studies [18]. In antenatal period, pregnant women should be informed about psychological changes during pregnancy and postpartum period. Partner violence during pregnancy affects both women and child health and in studies conducted worldwide, the incidence of violence during pregnancy ranged between 0.9% and 49.0% [29].

This cross-sectional study has some limitations. First, it included only the women who had four or more children and resided only in one city and the findings cannot be generalized to women living in other cities or Turkey. Secondly, the questionnaire used in the survey included questions about women's past pregnancies and birth outcomes. Some women were not able to remember them accurately and this may have led to recall bias. We were not able to compare women's past pregnancies and birth outcomes using their medical records. The study's key findings are of the value because there are limited published studies about the issue and the results to be obtained from the study may contribute to the development and implementation of health policies. The main implication of the findings is that more efforts should be made for women who do not use any contraception although they do not desire to have a baby in the future. Education on the prevention of unplanned pregnancies is of the utmost importance for the couples. Raising health professionals' awareness of socio-demographic and reproductive characteristics of women with high parity plays a very important role in determining the cultural characteristics of community to provide better quality health care services. Assessing couples' opinions about both excessive fertility and its effects on maternal-infant health and women's contraception behaviors also plays an important role in the understanding of unmet family planning needs in terms of reducing maternal and infant mortality.

ETHICS COMMITTEE APPROVAL

The study was approved by the Ethics Committee of Celal Bayar University Faculty of Medicine. 20.06.2012-206.

INFORMED CONSENTS

Written informed consents were obtained from all the participating pregnant women.

CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

FINANCIAL DISCLOSURE

The authors declared that this study has received no financial support.

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