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Original Article

Fertility characteristics of a province in eastern Turkey

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Abstract

Background: The aim of this research was to evaluate the fertility rate of Tunceli, a province located in eastern Turkey and rapidly changes over time, and the factors thought to be effective in the change.

Methods: The research had a cross-sectional design. The sample of the study consisted of 356 women. The data of the study were obtained using a questionnaire that consists of 41 questions by face to face interview technique.

Results: The mean age of the women who participated in the research was 36.49 ± 7.07 , the mean first gestational age was 25.20 ± 3.75 , the mean number of pregnancies was 1.85 ± 0.91 , and the mean parity was 1.74 ± 0.84 . The first labors of 70.5% of the women were normal vaginal delivery, 52.0% used an effective family planning method, and 95.5% could easily reach the methods. In the study, it was determined that there was a negative, moderate, significant correlation between the first marriage age and the mean number of pregnancies, that the number of pregnancies and parity increased significantly as the educational level of women decreased, that the number of pregnancies and parity increased significantly as the educational level of spouses of women decreased and that the number of pregnancies and parity decreased significantly as the level of income of family increased.

Conclusions: In the research, the fertility of women was found to be associated with some sociodemographic characteristics. For this reason, improvement of sociodemographic characteristics that may negatively affect the fertility should be supported.

Keywords: birth rate, fertility, gestation

Introduction

Fertility is affected by the health status of the individual and determines the future of countries. It is directly associated with how much the rising generation increases and how this increase will affect the labor force in the future and with the issues that on which fields and at which level the investments should be made [1]. A large number of variables such as social status, educational level, view of child, and expectations as well as the level of income, marriage age, customs/traditions/beliefs, access to family planning and birth control methods, level of medical technology, economic cost of the child, preference of male child, social status of household affect the fertility [2-9]. Fertility

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is a global problem. Considering the data on fertility, it can be seen that the fertility rate started to decrease in the 1960s in developing countries. This decrease has accelerated in the 1980s, continued in the 1990s, and is still continuing today [1]. This global change regarding fertility is similar to that in our country. The mean total fertility rate in 1980 was 4.87, however, this rate was 4.87 in Tunceli, the province where the research was conducted. Today, the fertility rate is decreasing throughout the country [10]. According to Turkey's Population and Health Research data [11], the total fertility rate of the individuals aged between 15-49 years is 2.16 and the fertility rate in the eastern region of the country is 3.41. According to the national report, the fertility rate is 2.07 in Turkey, the fertility rate of Tunceli province is 2.01 and below the average of the country [12].

Fertility rate and fertility characteristics are not only associated with the renewal of the population. They are also important since they are the factors that are effective in people's life choices, the difficulties they experience in life, and the boundaries they struggle to overcome. Therefore, the research was carried out to evaluate the change in the fertility rate of Tunceli, a province located in eastern Turkey, and the factors thought to be effective in the change.

Methods

The research was planned in order to investigate the fertility characteristics of a province (Tunceli) located in eastern Turkey and the affecting factors. The universe of the research consisted of 356 women who were in the age group of 15-49 years and who applied to obstetrics and gynecology clinic of the state hospital where the data were collected. The minimum sample size was determined as 239 with a 95% confidence interval and 5% error margin using StatCalc (EpiInfo Version 7) considering that the fertility rate is 3.41 in the eastern region and that the total fertility rate between the age of 15-40 years is 2.16 according to Turkey's Population and Health Research data [11].

The sample group was reached using improbable sampling method and it was aimed to reach as many women as possible [13]. A total of 356 women included in the study. The data of the research were collected by face to face interview technique using a questionnaire consisting of 41 questions prepared by the researchers by reviewing the literature [2-9].

This study was performed in strict accordance with the recommendations in the Helsinki Declaration. In order to conduct the research, written consent was taken from Munzur University Noninvasive Research Ethics Committee (01/03/2018-E.3733), from the state hospital where the research data were collected and from the women included in the research sample.

The SPSS (Statistical Package for Social Science) 15.0 program was used for the analysis of the data. In the analysis of the data, number, percentage, mean, and standard deviation were used. T-test, Mann Whitney U test, Chi-square, Pearson Correlation test, one-way ANOVA, and Posthoc Bonferroni test were used for the independent groups. The findings were assessed at a 95% confidence interval and $p < 0.05$ significance level.

Results

As a result, it was found that the mean age of the women was 36.49 ± 7.07 (range between 20-49) and that 42.4% of the women were secondary school/high school graduates. It was determined that the mean age of their spouses was 39.74 ± 7.38 (range between 24-57) and that 48.3% were secondary school/high school graduates (Table 1).

It was found that of the women, 98.9% had a pregnancy experience and 43.3% had the first pregnancy experience at an age between 25-29 years. It was determined that 92.7% of the women gestated 1-3 times, that 98.9% had given birth before, and that 70.5% of the first labors were normal vaginal birth. In addition, 91.0% of the women had no history of miscarriage/abortion and only 5.1% ($N=18$) were found to have a history of curettage. 52.0% of the women were determined to use effective family planning method. It was found that the most preferred method was an intrauterine device (IUD) (48.1%) and that 95.5% of the women could easily reach the methods. It was found that religious beliefs were effective at the rate of 0.6% in determining the number of children, however, material factors were found to be effective at the rate of 17.1% (Table 2).

In the research, the mean values of women and their spouses according to some characteristics are as follows: the mean age of the women was 36.49 ± 7.07 (range between 20-49), the mean age of their spouses was 39.74 ± 7.38 (range between 24-57), the mean first marriage age was 23.29 ± 3.85 (range between 16-37), the mean first gestational age was 25.20 ± 3.75 (range between 19-37), the mean number of pregnancies was 1.85 ± 0.91 (range between 0-5), the mean parity was 1.74 ± 0.84 (range between 0-4), the mean number of miscarriages was 0.11 ± 0.38 (range between 0-2), the mean number of curettages was 0.07 ± 0.31 (range between 0-2), the mean number of children planned was 1.78 ± 0.81 (range between 0-5), and the mean number of alive children was 1.78 ± 0.88 (range between 0-6).

The number of pregnancies, parity, and the number of miscarriages of women who didn't have income were found to be significantly higher than those who had income ($p < 0.05$). Moreover, there was no significant difference found between working and non-working women in terms of the number of curettages ($p > 0.05$). It was determined that the mean number of pregnancies and the mean parity of

women who had a health problem during pregnancy were significantly lower than those who did not have a history of health problem during pregnancy ($p < 0.05$). It was found that the mean number of pregnancies and mean parity of women who thought that religious beliefs had an effect on determining the number of children was high, and that their mean number of miscarriages and curettages were low. In this group, only the number of miscarriages was found to be significantly different ($p < 0.05$). The mean number of pregnancies, mean parity, and mean number of miscarriages were determined to be significantly higher among the women who did not use any effective family planning (FP) method (2.31, 0.16, 2.14, respectively) compared to those who used (1.42, 1.37, 0.06) ($p < 0.05$). There was no significant difference found in the number of curettages among those who did not use effective FP method ($p > 0.05$) (Table 3).

Table 1. Sociodemographic characteristics of women and their partners

	Women		Men	
	N=356	%	N=356	%
Age groups				
20-24 years	15	4.2	3	0.8
25-34 years	131	36.8	99	27.8
35-44 years	158	44.4	165	46.4
≥ 45 years	52	14.6	89	25.0
Mean age	36.49 ± 7.07 (range: 20-49)		39.74 ± 7.38 (range: 24-57)	
Education				
Literate	20	5.6	5	1.4
Primary school	78	21.9	58	16.3
Secondary / High school	151	42.4	172	48.3
Higher education (4 years)	93	26.1	105	29.5
Higher education (> 4 years)	14	3.9	16	4.5
Income situation				
Yes*	189	53.1	341	95.8
No	167	46.9	15	4.2
Family economic status				
Equivalent to income expense	129	36.2		
Less than expense income	192	53.9		
More than expense income	35	9.8		
Family type				
Core	328	92.1		
Large	20	5.6		
Fragmented family	8	2.2		
The place where she spends most of her life				
Village	43	12.1		
Country town	19	5.3		
City center	294	82.6		
Total	356	100.0		

*Pensioners have been included in this group because they generate revenue.

It was determined that the women whose spouses did not work at an income-generating job used FP methods significantly less, that the women who had difficulty in reaching effective FP methods used these methods significantly less, and that the rate of not using effective FP methods was significantly high among the women who had a higher parity ($p < 0.05$) (Table 4).

There was a negative, moderate, significant correlation between the first marriage age and the mean number of pregnancies ($r = -0.433$, $p = 0.000$). The number of pregnancies was found to increase as the first marriage age of women decreased. Likewise, there was a negative, moderate, significant correlation between the first marriage age and the mean parity ($r = -0.404$, $p = 0.000$). The parity was found to increase as the first marriage age of women decreased (Table 6).

Table 2. Marriage and obstetric characteristics

	N=356	%
First marriage age group		
15-19 years	61	17.1
20-24 years	167	46.9
25-29 years	108	30.3
30-34 years	18	5.1
35-39 years	2	0.6
Pregnancy story		
No	4	1.1
Yes	352	98.9
First pregnancy age groups		
15-19 years	20	5.6
20-24 years	140	39.3
25-29 years	154	43.3
30-34 years	37	10.4
35-39 years	5	1.4
Number of pregnancy (N=352)		
1-3 pregnancies	330	92.7
4-5 pregnancies	22	6.2
Health problems in pregnancy		
Yes	81	22.8
No	275	77.2
Birth story		
Yes	352	98.9
No	4	1.1
Number of births (N=352)		
1-2	296	84.1
3-4	56	15.9
First birth (N=352)		
Vaginal	248	70.5
Cesarean section (C/S)	104	29.5
Last birth (N=63)		
Vaginal	48	76.2
Cesarean section (C/S)	15	23.8
Number of abortuses (N=32)		
None	324	91.0
1 time	24	6.7
2 times	8	2.2
Number of abortions		
None	338	94.9
1 time	12	3.4
2 times	6	1.7
Effective family planning method use		
Yes	185	52.0
No*	171	48.0
Family planning method* (N=185)		
Intrauterine device	89	48.1

Condom	55	29.7
Oral contraceptive	41	22.2
Reaching effective family planning methods		
Hard	16	4.5
Easy	340	95.5
The effect of religious belief in determining the number of children		
Yes	2	0.6
No	354	99.4
The effect of financial factors in determining the number of children		
Yes	61	17.1
No	295	82.9
Total	356	100.0

*Protected by the withdraw method were considered as not using effective methods (N=82).

Table 3. Differences between pregnancy, birth, abortus, and abortion numbers with some variables

	N	Pregnancy Number Mean±SD	p	Birth Number Mean±SD	p	Abortus Number Mean±SD	p	Abortion Number Mean±SD	p
Income situation*									
Yes	189	1.65±0.76	0.000	1.56±0.69	0.000	0.07±0.28	0.050	0.04±0.22	0.058
No	167	2.08±1.01		1.95±0.94		0.16±0.47		0.10±0.39	
Health problem in pregnancy*									
Yes	81	1.65±0.69	0.010	1.56±0.61	0.006	0.16±0.46	0.263	0.05±0.27	0.554
No	275	1.91±0.96		1.80±0.88		0.10±0.35		0.07±0.32	
The effect of religious belief in determining the number of children**									
Yes	2	2.00±0.00	0.135	3.00±1.41	0.098	0.50±0.71	0.048	0.00±0.00	0.744
No	354	1.99±0.75		1.73±0.83		0.11±0.38		0.07±0.31	
Effective family planning method use*									
Yes	185	1.42±0.62	0.000	1.37±0.59	0.000	0.06±0.31	0.016	0.05±0.26	0.243
No	171	2.31±0.95		2.14±0.88		0.16±0.44		0.09±0.36	

*Independent samples t-test. **Mann Whitney U test

Table 4. Differences between some variables and effective family planning method usage status

	Effective family planning method use		χ ² *	p
	Yes (%)	No (%)		
Income situation of the partner				
Yes	181 (53.1)	160 (46.9)	4.016	0.045
No	4 (26.7)	11 (73.3)		
Reaching effective family planning methods				
Hard	4 (25.0)	12 (75.0)	4.881	0.027
Easy	181 (53.2)	159 (46.8)		

*Chi-square test

It was determined that the parity and number of pregnancies increased significantly as the educational level of women decreased. According to the posthoc test (Bonferroni) result, the significant intergroup difference in terms of the number of pregnancies was between the illiterate/primary school groups and secondary school/higher education groups ($p<0.05$). In terms of the parity, the intergroup difference was found to be between the secondary school/lower education groups and high school/higher education groups ($p<0.05$). It was determined that the parity and number of pregnancies increased significantly as the educational level of women's spouses decreased. With the posthoc test performed, the significant intergroup difference in terms of the parity and number of pregnancies was found to be between the secondary school/lower education groups and high school/higher education groups ($p<0.05$). It was found that the parity and number of pregnancies in women who lived in a village most of the time in their lives were significantly higher than that in women who lived in a town and city and that the parity and number of pregnancies decreased significantly as the level of income of the family increased. The significant intergroup difference was found to be originated from the high number of pregnancies and parity in women who had an "income less than expenses" perception ($p<0.05$) (Table 6).

Table 5. The relationship between first marriage age and pregnancy and birth numbers

		Pregnancy number	Birth number
First marriage age			
	r	-0.433	-0.404
	p*	0.000	0.000

*Pearson correlation analysis.

Table 6. Some variables that make differences in the number of pregnancy and birth*

	Pregnancy number		Birth number	
	Mean±SD		Mean±SD	
Women education				
Literate	2.70±1.03	F=23.331 p=0.000	2.45±0.95	F=19.248 p=0.000
Primary school	2.47±0.95		2.26±0.90	
Secondary school	2.00±0.72		1.95±0.75	
High school	1.60±0.72		1.54±0.67	
Higher education (4 years)	1.48±0.75		1.41±0.66	
Higher education (> 4 years)	1.07±0.48		1.07±0.48	
Partner education				
Literate	2.70±1.03	F=14.759 p=0.000	2.45±0.95	F=13.336 p=0.000
Primary school	2.47±0.95		2.26±0.90	
Secondary school	2.00±0.72		1.95±0.75	
High school	1.60±0.72		1.54±0.67	
Higher education (4 years)	1.48±0.75		1.41±0.66	
Higher education (> 4 years)	1.07±0.48		1.07±0.48	
The place where she spends most of her life				
Village	2.42±0.93	F=10.363 p=0.000	2.35±0.90	F=14.400 p=0.000
Country town	1.63±1.07		1.47±0.84	
City center	1.78±0.87		1.67±0.79	
Family economic status				
Equivalent to income expense	2.01±0.94	F=6.813 p=0.001	1.88±0.86	F=6.391 p=0.002
Less than expense income	1.70±0.82		1.61±0.77	
More than expense income	1.54±0.92		1.46±0.82	

*One Way ANOVA. *Posthoc Bonferroni test.

Discussion

The high fertility level which can increase the risk of maternal-infant death by causing high-risk pregnancy and labor is one of the most important factors that can affect the health of women negatively [14]. The fertility level of the societies can be affected by the biological factors such as general health status of women, menarche and menopausal age, infertility as well as social factors such as first marriage age, ordinary family structure in the society, customs/traditions/beliefs, economic status, educational level and employment status of both women and their spouses, access to family planning methods, and economic burden of the child on the family [2]. Also, the proportion of urbanization (or urban population) and the participation of women in the non-agricultural workforce significantly affect fertility rate [15].

With the declaration of the republic in our country, the educational level of women who have taken their rightful place has increased [16]. Education can reduce fertility by leading women to become stronger in society, thus to become one of the decision-makers in the family. Moreover, with the increase in the educational level, women whose labor force participation rate has increased postpone the marriage and birth. As a result, the use of modern birth control methods increases and the number of children desired decreases [6]. In a study conducted with women with a constant educational level, it was reported that the status of having children more than the ideal number decreased as the educational level of the spouses increased [7]. In this study, it was similarly found that the parity and number of pregnancies significantly increased as the educational level of women and their spouses decreased. In the studies conducted in America and Pakistan, it was emphasized that fertility decreased as the level of education increased [8,9]. In a study conducted in Turkey, it was found that the fertility level decreased as the educational level of women and their spouses decreased [2].

Since women take the responsibility of childcare from the time of birth, a negative correlation arises between women's fertility preferences and labor force participation. In other words, working women prefer to have less number of children compared to nonworking women or they may postpone the birth decision. This causes the childbearing age of women to increase [17,18]. In this study, it was found that the parity and number of pregnancies of the women who didn't have income were significantly higher compared to those who had income and that the women whose spouses did not work at an income-generating job used FP methods significantly less. According to this finding, nonworking women not only experienced pregnancy and labor more but also experienced miscarriages more. This suggests the tendency of women who are unable to benefit from health care services due to economic reasons to have a miscarriage in unhealthy conditions, which are very risky in terms of maternal and child health.

With the increasing labor force participation of women, the level of income of the family increases, too. This leads to low birth rates [9]. Also, the increase in the cost of children leads to decreased fertility [19]. According to Turkey's Population and Health Research (TNSA) 2013 results, fertility decreases with the increase in the level of welfare. The basic fertility rate was found to be 3.32 among women living in the houses with the lowest level of welfare, while it was 1.72 among women with the highest level of welfare [11]. Similar to literature, the parity and number of pregnancies were found to decrease significantly as the level of income of the family increased.

In the study, it was found that the parity and number of pregnancies in women who lived in a village most of the time in their lives was significantly higher than that in women who lived in a town and city and that the women who had difficulty in reaching effective family planning methods used these methods significantly less. The fact that women who live in a city, thus who are able to have educational opportunities and to participate in working life at the same time oblige women to have less number of children, it requires women to use FP services more effectively [10]. Other reasons behind the low birth rates in the cities are the high cost of living in a city, the cost of child care, and especially the fact that the children cannot contribute to the production in the cities as in the villages [7,18]. However, in general, fertility is still high in places where women generally do not participate in labor, where women's and men's level of education and income are low, where women and children are perceived with traditional value judgments, and where family planning methods are hard to reach [10]. As in Turkey, in societies where women are disadvantaged compared to men in terms of their legal, social, and economic status, policies that empower women to have greater control over their own health, indirectly lowering fertility, are more likely to be met with resistance [20]. Similarly, in TNSA 2013 data, it is stated that women in rural areas in each age group give birth to more children compared to those in urban areas [11].

The vast majority of the citizens of the Republic of Turkey are Muslim [11]. In Muslim countries, religious belief is one of the most important factors that affect family planning practices [21]. In Muslim societies, the thought that fertility is controlled by fate is dominant and it is stated that abortion is prohibited in Islam except for medical reasons. Also, in this study, it was found that the mean parity and mean number of pregnancies of women who thought that religious belief is effective on determining the number of children were high and that miscarriage and curettage means were low. Likewise, in the studies conducted in our country, it was seen that the majority of women think that abortion is wrong in religious terms [22,23].

The societies where the first marriage age is low are the societies that have a child early and in which fertility is high [24]. As the age at first labor which is an important determinant of general fertility level is lower, so the fertility starts earlier. This means a higher number of children compared to fertility starting later [11]. In this study, it was found that the parity and number of pregnancies increased as the first

marriage age of women decreased. Since childbearing at an early age can constraint women from taking advantage of educational opportunities and economic activities, woman's age at first labor can affect both mother's and child's health and welfare [11].

In the study, it was determined that the mean number of pregnancies and the mean parity of women who had a health problem during pregnancy were significantly lower than those who did not have a history of health problem during pregnancy. Systemic diseases that are present or develop in women during pregnancy can have an increasing effect on the morbidity and mortality of both mother and baby during pregnancy [18].

The mean number of pregnancies, mean parity, and mean number of miscarriages of the women who did not use an effective FP method were found to be significantly higher than those who used. These findings obtained from the research support the literature [25,26]. These results show that risky conditions during pregnancy such as miscarriage and curettage decrease with the use of effective FP methods and that women's desire for contraception increases, thus they prefer effective FP methods as the number of children increases.

Conclusions

In conclusion, it was found that the fertility of the women who participated in the research was associated with some sociodemographic characteristics such as income and working status, status of experiencing a problem during pregnancy, religious belief, the use of effective FP method, first marriage age, educational level of woman and her spouse, status of living in a village or city. For this reason, improvement of sociodemographic characteristics that may negatively affect the fertility should be supported.

Conflict of interest

There is no conflict of interest among the authors.

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