Factors Affecting the Fertility Desire of Anatolia:

A CHAID Analysis Assessment

Dilek Öcalan , Yeşim Ceylantekin and Ayşe Koyun

Afyon Kocatepe University, Afyon School of Health Nursing Department
Ali Çetinkaya Kampüsü
İzmir Karayolu Üzeryi 7. Km. 03200, Afyonkarahisar Turkey

*Corresponding author

Copyright © 2018 Dilek Öcalan, Yeşim Ceylantekin and Ayşe Koyun. This article is distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Aim: Recently, the total fertility rate in Turkey has been reduced down to two and exhibits tendency to reduce more, possible risks to be caused in population structure which started to be discussed in public. The study was conducted to explain the factors affecting the fertility desire of Anatolia.

Method: Survey was conducted with 1342 women who were chosen at A Group Family Health Centers in Afyonkarahisar, Turkey. Data have been assessed with descriptive statistics and CHAID analysis.

Results: 30,7% of women were willing for another child, in contrast to 53,1% of women, who were unwilling for another child, and only 16,2% of women were hesitant. According to CHAID analysis of the variables that affect the fertility desire, variable that the best explain fertility desire is the number of children. By the number of children increases, fertility desire decreases. Variables that the best describes the number of children are maternal age and duration of marriage.

Conclusion: The most affecting condition fertility desire is number of children. We conclude that the fertility desire is the highest in early adulthood (<24) and in women who had a child or no child.

Keywords: Anatolia, CHAID analysis, Fertility control, Fertility desire, Women’s health

Introduction

In a population report published by United Nations (2015), it was stated that
world population was 7 billion and would reach approximately 9.1 billion by 2050. Turkey population was 79,766 million in 2017 (Turkish Statistical Institute, 2017).

Population is one of crucial factors for development of a country. Economic, social, cultural, and social problems are seen in developing countries having high population increase while in developed countries having low population increase or having population decrease, this situation constitutes a threat for future of relevant country. Due to these reasons, different population policies are carried out in different regions of the world (Doğan, 2011). It is possible to mention three periods in terms of population policies in Turkey, namely (Eryurt et al., 2013). Pronatalist policy was applied in the first period from the first years of Republic to 1965; and antenatalist policy was applied in the second period after 1965 (Doğan and Özdamar, 2003). As a consequence of these policies, the total fertility rate (TFR) was 4.33 in 1978, then, it gradually began declining to reach 2.08 in 2012 (Turkish Statistical Institute, 2014). Furthermore, there are significant differences in the TFR in accordance with the level of welfare, region, and education of women. The TFR was 1.93 in Western Anatolia and 3.41 in Eastern Anatolia. The TFR was 1.66 among women who having higher education and 3.76 among women who have not finished primary school.

It is expressed that desire to limit fertility is common in women who are educated and live in cities in particularly Western, Central and Northern Anatolia (Hacettepe University Institute of Population Studies, 2014). Recently, as the TFR in Turkey has been reduced down to 2 and exhibits tendency to reduce more, possible risks to be caused in population structure which started to be discussed in public (Alper and Sayan, 2012; Sayan, 2012). These demographical tendencies were reported in majority of the Organisation for Economic Co-operation and Development countries (OECD, 2010). The TFR of the world is 2.53; it is 4.88 for Africa; 2.25 for Asia; 1.54 for Europe; 2.30 for Latin America and the Caribbean; 2.02 for Northern America; and 2.47 for Oceania (United Nations, 2012).

In population field in Turkey, it aimed to enhance the TFR with the policies applied as of 2013. In order to reach this aim, a number of pronatalist policies are followed such as not assigning any night duty to mothers from pregnancy and throughout two years as of the birth (Official Newspaper, 2013). Making financial aids to those to be married, to buy a house, and to give birth (Official Newspaper, 2015). Furthermore, it is in the agenda to make regulations such as level adaptation of durations spent in leaves without pay after birth of women officers, opportunity to work halftime after maternity leave, and prolongation of leave after birth.

Conceptually, desires (or preferences) explain goals or ideals (Miller et al., 2004). There are evidences that fertility desires predict fertility behavior, in developed countries (Barber, 2001; Quesnel and Morgan, 2003). As well as in developing countries (Quesnel and Morgan, 2003; Kodzi et al., 2010). According to the Miller’s theory, childbearing process consists of four-step psychological sequence: the formation of traits (or motivations) which defined as characteristics, the activation of traits into desires (or preferences), the translation of desires into
Factors affecting the fertility desire of Anatolia

intentions, and the activation of intentions in the form of behaviors. Motivations that actuate individuals to be parents, include personal and socio cultural characteristics such as age, marital status, level of education, income, children number, etc. (Miller et al., 2004). In social psychology literature, fertility desires and intentions describe different constructs. Intentions include plans for action and may be more sensitive to individual conditions and limitations (Miller et al., 2004). In contrast to this literature, the Demographic and Health Surveys evaluate the two concepts together (ICF International, 2015). Individuals’ fertility preferences depend on their characteristics and conditions. For example, the fertility behavior of older women is more consistent than younger women (Adhikari, 2010; Hayford and Agadjanian, 2012). There are many contributing factors for the high fertility, among which are age at first marriage, perceived ideal number of children, literacy status, mass media exposure, wealth status, and child-death experience by mothers (Machira and Palamuleni, 2017; Baykara-Krummle1 and Milewski, 2017). Education is also associated with higher consistency childbirthing behavior for women who don’t want to have children (Hoem et al. 2006; Kleven and Landais, 2017).

We expected these factors to explain the outcome measure for this study fertility desires. The study was conducted to explain the factors affecting the fertility desire of Anatolia.

Method

Afyonkarahisar where the study was conducted is within three geographical regions (Central Anatolia, Aegean, and Mediterranean) in Anatolia and in a junction point where land, rail, and air roads are crossed (Afyonkarahisar Municipality, 2015). The women’s population in Afyonkarahisar were 137,915 (Turkish Statistical Institute, 2014). The annual population increase rate of Afyonkarahisar is below Turkey average (13.7 in a thousand) with 4,5 in a thousand, the infant mortality rate of Afyonkarahisar is over Turkey average (10,8 in a thousand) with 12,6 in a thousand, and the TFR of Afyonkarahisar is below Turkey average (2,1) with 1,9 (Turkish Statistical Institute, 2014). This survey was conducted between 16 March and 30 June 2015.

The study was conducted with women registered at A Group Family Health Centers (A-FHCs) in Afyonkarahisar, Turkey. A stratified sampling approach was used in the selection of the study sample. It was determined that the sample size should be at least 384 (Yazıcıoğlu and Erdoğan, 2004). The A-FHCs in Afyonkarahisar were divided into two layers as urban and rural areas. 1450 women (1058 women from urban areas and 392 women from rural areas) who were randomly selected from the A-FHCs in a ratio of 3:1, responded the questionnaire addressed to them. Inclusion criteria of the study were to be of a fertility age (ages of 18-49), to be married, to have a residence in Afyonkarahisar, and to be volunteer to participate in the study. 98 women, who were not appropriate for study under those criteria (not married and under the age of 18) and who fill incomplete the questionnaire; they were excluded. Therefore, the data,
which belonged to 1342 women (1009 women from urban areas and 333 women from rural areas), were assessed.

The independent variable for the study is fertility desire. For the purpose of this study, fertility desire of the women is defined by a response to the question: "Would you like to have a / another child in the future? The answer 1 was coded as "yes", 2 was coded as "undecided" and 3 was coded as "no". The dependent variables for the study were age, education, partner education, social security status, job, partner job, family type, households, economic status of family, location, marriage age, marriage duration, first delivery age, used family planning method, pregnancy histories, ideal children number, reasons for unwillingness for child, and factors that may change this decision.

We hypothesized that fertility desire would vary by sociodemographic characteristics and fertility history, in accordance with previous studies of reproductive decisions (Chen et al., 2001; Sennott and Yeatman, 2012).

Data were collected through out a questionnaire prepared by researchers. The questionnaire collected detailed demographic and socioeconomic information. Preliminary use of the questionnaire was conducted on 10 women. Informed consent was received from the women who agreed to participate in the study and to Afyonkarahisar Governorship (numbered 24927766-116 and dated 16.03.2015).

The variables that describe the fertility desire of Turkish women were determined with CHAID analysis which is one of the data mining methods. CHAID analysis makes the most suitable division in data set by using chi-square statistic. CHAID analysis is an explanatory method which is used in studies to determine the relations between a dependent variable and a series independent variable (Doğan, 2011). This analysis is an algorithm which separates the data set into detailed and special sections (Diepen and Franses, 2006). Data were analyzed using SPSS 18.0 for Windows. The statistical significance level was accepted as p<0.05. Data have been assessed with descriptive statistics and CHAID analysis to investigate the relationship between all variables and fertility desire.

Results

The average age of the women was 32.9±7.1. The average marriage age of women was 21.0±3.5; marriage duration was 11.7±7.7; age of first birth was 22.5±3.8; number of ideal children was 2.6±0.7; number of pregnancies was 2.4±1.3; and the number of living children was 2.0±1.0. Thirty percent of women had higher education. 45.2% of women were working. 93.9% of women identified their economic conditions as moderate-good (Table 1).

It was detected that 36.3% of women married in adolescence, and 21.7% gave first birth at adolescence. 39% of women had at least three pregnancies and 26.2% had at least three living children. Moreover, it was revealed that 25.6% of women did not use any family planning method, 19% used traditional, and 55.4% used modern method. The most preferred modern methods were condom (23.7%), intrauterine device (13.7%), and pills (6.9%).
Withdrawal method is the most commonly used traditional method (18.6%). It was stated that women did not use a family planning method due to their desire to get pregnant, unwillingness of their spouse, and side effects / health concern. 30.7% of women wanted to have a / another child, 53.1% did not want to have a / another child, and 16.2% were undecided. Reasons for unwillingness for a / another child of women are having adequate number of children (38.9%), financial incapability (16.9%), and age factor (10.5%). Women stated that their willingness to have a / another child could be changed depending on the improvement of their economic conditions (28%), provision of kindergarten and care provider support (26.2%), and the enhancement of child aid (23.5%).

According to CHAID analysis of the variables that affect the state of children desire, variable that the best explain fertility desire is the number of children. By the number of children increases, fertility desire decreases. Variables that the best describes the number of children are maternal age and duration of marriage. By the marriage duration increases, fertility desire reduces in women who have more than two children. In the other women, age affects negatively the fertility desire. Fertility desire is affected by ideal number of children in women who younger (<=30) and have one or two children (Figure 1).

Discussion

This study was purposefully conducted to explain the factors affecting the fertility desire of Anatolia. It was determined that women who had birth at adolescence and were married over 20 years did not want to have another child. However, women who married over 30 years of age and had marriage duration shorter than 5 years wanted to have more children.

There was a relationship between age and fertility desire (Hacettepe University Institute of Population Studies, 2014). It was detected that fertility desires decreased in women in upper limit of the fertility period and increased in women between the ages of 18 and 29. The fact that women who had their first births at adolescence were in a considerable rate (21.7%) and that the women stated that the main reasons for unwillingness to fertility was having adequate number of children (38.9%) showed that women had adequate number of children in their early ages. According to the Hacettepe University Population Studies Institute (2014), 95% of women between the ages of 15-19 wanted to have more children while this ratio diminished down to 19% for women who are between the ages of 35-39 (Hacettepe University Institute of Population Studies, 2014).

Postponing of fertility of women in the OECD (2011) countries is shown as the greatest problem in reduction of the TFR (OECD, 2011). The first birth age of women in countries such as Germany, Italy, Spain, and United Kingdom is close to 30. Moreover, it was stated that at least 20% of women between ages of 25-49; 40% of women in Austria, Finland, Germany, and Greece had no children. The education level of women plays an important role on fertility. It constitutes increasing education level and decreasing fertility cycle (Kitapçioğlu and Emre, 2008; Regassa and Fantahun, 2012; Akça and Ela, 2012).
In Turkey, it was determined that women having no education had more children than women having higher education (Hacettepe University Institute of Population Studies, 2014).

It was determined in our study that 24% of women who were primary school graduates and 35% of women who were higher education graduates did not want to have another child. It was thought that women who have higher education wanted to postpone getting married and having children. Furthermore, 69% of women having one child and 3% of women who had four or more children wanted another child. A similar result was observed in some studies (Kitapçıoğlu and Emre, 2008; Hacettepe University Institute of Population Studies, 2014).

As expected, the desire to have another child reduced considerably with the increase of the number of children.

Generally, a close relationship was observed between possessed children and ideal child number. The average ideal child number was 2,9 in Turkey (Hacettepe University Institute of Population Studies, 2014). In the present study, the ideal child number was 2.6±0.7. This result showed that women want to have nuclear family structures in Turkey. The income of household affects fertility decisions of families. In Turkey, 9% of women with one child and bad economic status and 27% of women, who have one child and good economic condition, did not want to have another child (Hacettepe University Institute of Population Studies, 2014). In our study, 64.6% of women with bad economic condition and 48.6% of women with good economic condition do not want to have another child.

In the present study, the main reason of unwillingness for child is having adequate number of children. In case of the improvement of economic conditions, it was determined that 28% of women might want to have another child. In case of a re-pregnancy status, the highest claim is the improvement of financial sources. Thus, women with good economic condition had more willingness for child. It was determined that women might want to have another child in case of the improvement of economic conditions. These results showed that fertility might be increased with the increase of welfare status of women. In addition, an inverse relationship was reported between number of children and working rate of mother affecting the income level of family in OECD (OECD, 2011). In developed countries, it was detected that the TFR of women having bad economic conditions were high (Ashford, 2001).

Another factor affecting the TFR is the birth control methods (United Nations, 2013). In our study, it was determined that 25.6% of women do not use a family planning method and half of women who did not use a family planning method wanted to have another child. 26% of women report the use of withdrawal in Turkey (Hacettepe University Institute of Population Studies, 2014). As far as the study, 54.2% of women, who get used to the traditional method, do not want to have a child. This result showed that the traditional methods were used as effective methods in Turkey.

According to the results CHAID analysis, the most affecting condition for fertility desire is number of children. In some studies, number of children is signifi-
Factors affecting the fertility desire of Anatolia

Factors affecting the fertility desire (Doğan and Özdamar, 2003; Regassa and Fantahun, 2012; Tesfaye et al., 2012). This may be explained as a cultural consequence in developing countries. The most affecting variables the number of children are maternal age and duration of marriage in current study. The duration of marriage and number of children increase, the fertility desire decreases. Age affects negatively the fertility desire. Additionally, fertility desire is affected by ideal number of children in women who younger (<=30) and have one or two children. Sennott and Yeatman (2012) reported that the fertility behavior is related to several factors, including age, education, and marital and socioeconomic status (Sennott and Yeatman, 2012). Hayford and Agadjanian (2012) found that only age and past fertility behavior are significantly associated with fertility desire among women who want more children (Hayford and Agadjanian, 2012). This finding may show that fertility desire increases among women in early adulthood.

Conclusion

Consequently, it’s worth pointing out that women who were between ages of 18-29, were secondary education graduates, dealt with self-employment, lived in broad families, had good economic statuses, were married in and over the age of 30 years old, had marriage durations of 5 years, had no pregnancy, had no living child, had their first birth after 20 years of age, and did not use family planning method have more fertility desire. The most affecting condition fertility desire is number of children. However, there is need more comprehensive studies to understanding of fertility changes currently ongoing in Anatolia. Incentive measures should be taken especially for women in early adulthood in order to improve the qualitative aspects of TFR. It is thought that these measures would be more beneficial than enforcing numerical limitations for enhancing the TFR.

Acknowledgements. The authors would like to thank the Afyonkarahisar Provincial Health Directorate and Public Health Directorate staff who helped them in performing data collection phase of this study.

References


[15] I.A. Kodzi, D.R. Johnson, J.B. Casterline, Examining the predictive values of
Factors affecting the fertility desire of Anatolia


Table 1. Descriptive results of participants according to selected variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean ± SD)</td>
<td>32.9 ± 7.1</td>
<td></td>
</tr>
<tr>
<td>Households (mean ± SD)</td>
<td>4.3 ± 1.5</td>
<td></td>
</tr>
<tr>
<td>Marriage age (mean ± SD)</td>
<td>21.0 ± 3.5</td>
<td></td>
</tr>
<tr>
<td>Marriage duration (mean ± SD)</td>
<td>11.7 ± 7.7</td>
<td></td>
</tr>
<tr>
<td>First delivery age (mean ± SD)</td>
<td>22.5 ± 3.8</td>
<td></td>
</tr>
<tr>
<td>Pregnancy number (mean ± SD)</td>
<td>2.4 ± 1.3</td>
<td></td>
</tr>
<tr>
<td>Children number (mean ± SD)</td>
<td>2.0 ± 1.0</td>
<td></td>
</tr>
<tr>
<td>Ideal children number (mean ± SD)</td>
<td>2.6 ± 0.7</td>
<td></td>
</tr>
<tr>
<td>Education level (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary School</td>
<td>679</td>
<td>50.6</td>
</tr>
<tr>
<td>Secondary School</td>
<td>302</td>
<td>22.5</td>
</tr>
<tr>
<td>Higher education</td>
<td>361</td>
<td>26.9</td>
</tr>
<tr>
<td>Profession (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>735</td>
<td>54.8</td>
</tr>
<tr>
<td>Worker</td>
<td>231</td>
<td>17.2</td>
</tr>
<tr>
<td>Officer</td>
<td>343</td>
<td>25.5</td>
</tr>
<tr>
<td>Self-employment</td>
<td>33</td>
<td>2.5</td>
</tr>
<tr>
<td>Family Structure (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear</td>
<td>1087</td>
<td>81.0</td>
</tr>
<tr>
<td>Broad</td>
<td>255</td>
<td>19.0</td>
</tr>
<tr>
<td>Economic condition of family (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bad</td>
<td>82</td>
<td>6.1</td>
</tr>
<tr>
<td>Good</td>
<td>774</td>
<td>57.7</td>
</tr>
<tr>
<td>Place of Settlement (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>1009</td>
<td>75.2</td>
</tr>
<tr>
<td>Rural</td>
<td>333</td>
<td>24.8</td>
</tr>
<tr>
<td>Family planning method (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not used</td>
<td>344</td>
<td>25.6</td>
</tr>
<tr>
<td>Modern method</td>
<td>743</td>
<td>55.4</td>
</tr>
<tr>
<td>Traditional method</td>
<td>255</td>
<td>19.0</td>
</tr>
<tr>
<td>Total</td>
<td>1342</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Figure 1. CHAID analysis of the variables

Received: December 12, 2017; Published: January 23, 2018