

## Original Article

# Fertility Behaviour of Iranian Women: A Community-Based, Cross-Sectional Study

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## Abstract

**Background:** The fertility behavior of Iranian women and their reproductive needs is changing and consequently, for providing good services, it is critical to monitor their reproductive behavior at a national level.

**Method:** This study was carried out by Avicenna Research Institute in the urban and rural parts of Iran between 2010 and 2011. Using cluster sampling, the reproductive history of 17,187 married women aged 20 – 40 years were recorded. The statistical analysis of the data was performed using SPSS software (Version 11.5), and  $P < 0.05$  was considered significant.

**Results:** The common methods of contraception at the time of interview were natural methods (29.8%). The first pregnancy was unwanted in 20.6% of the women. The average number of childbirth per 35 – 40 years woman was 2.4. The mean age of women at marriage date and the mean age at the first childbirth both have increased with time ( $p < 0.001$ ).

**Conclusion:** Although the fertility rate has declined in Iran, the most important reproductive issues like unwanted pregnancy and use of non-reliable methods of contraception are not resolved yet. Increased mean age at first Childbirth and elevated numbers of couples with no childbirth, because of voluntarily childlessness or Infertility should be noticed more by policy makers. Then allocating enough resources for reproductive health services is vital in new family planning policies.

**Keywords:** Childbirth, contraception, fertility behavior, Iran, unwanted pregnancy

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## Introduction

Over the past four decades, Iran has experienced several different policies on population control, and finally from 1985, the greatest and quickest decline in fertility occurred because of the government's population control programs.<sup>1,2</sup> In the last census of the country, the population growth rate and the mean household size was 1.3% and 3.6% respectively.<sup>3</sup> Reproductive health and family planning programs in Iran caused many improvements in increasing the use of contraceptive methods and controlling the birth rate.<sup>4,5</sup> The Islamic Republic of Iran has successfully completed its commitments under the Plan of Action of the International Conference on Population and Development, but in order to achieve the goals by 2015, it should face significant challenges that require a systematic effort.<sup>6</sup> Although some studies have been conducted in the field of fertility behavior,<sup>5,7-9</sup> it is critical to continue monitoring the reproductive behaviors of women and its trends at a national level. This study is part of a large national survey on the fertility status of Iranian women<sup>10</sup> and its purpose is to provide a better understanding of reproductive behav-

iors such as pregnancy, childbearing, family planning, and abortion at a national level in order to improve services, policies, and ultimately the future health of women.

## Material and Method

This study was carried out by Avicenna Research Institute between 2010 and 2011 in the urban and rural parts of Iran. The study proposal and consent form were approved by the Ethics Committee of Avicenna Research Institute. To obtain a representative sample of the urban and rural population in Iran, cluster sampling was done using the postal codes. The number of random clusters in each province was determined based on its population. Then, 1000 random clusters were selected and 17 women were interviewed in each cluster. As the number of clusters in some province was less than 12 then the total number of clusters increased to 1011. We used the regional map for finding the postal addresses easily. Totally, the reproductive history of 17,187 married women aged 20 – 40 years were recorded. Divorced women, widows, and women who lived separated from their husbands (spousal abandonment for more than one year), foreigners, and temporary residents were excluded from the study. The content validity of self-developed questionnaire was determined by an expert team in the field of fertility. The questionnaire was piloted three times to eliminate ambiguities and to ensure its clarity. Finally, the approved questionnaire was verified by the Research Committee. The questionnaire contained questions about demographic data and reproductive history. Interviews with participants were conducted by qualified midwives. Interviewers began house-to-house

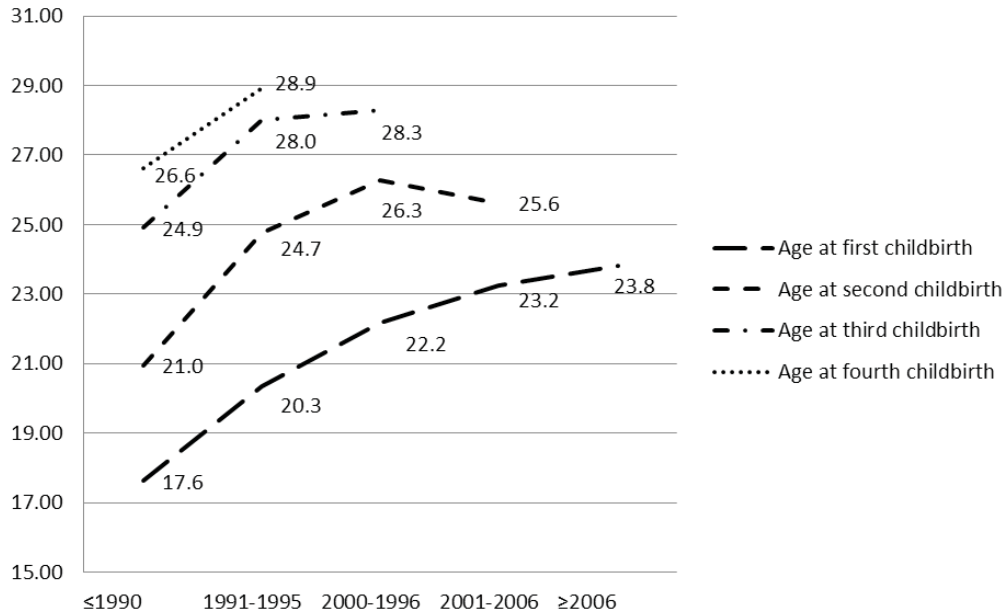
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**Table 1.** The mean age of the women at marriage and first and second childbirth based on marriage date

Marriage date group	Mean (sample size)			
	Age at marriage	Age at first childbirth	Age at second childbirth	Childbirth interval (second – first)
≤ 1990	15.6 (1855)	17.6 (1826)	20.9 (1740)	3.6 (1740)
1991–1995	18.3 (2735)	20.3 (2671)	24.7 (2395)	4.7 (2395)
1996–2000	19.9 (3458)	22.2 (3348)	26.3 (2448)	4.5 (2448)
2001–2006	21.0 (5490)	23.2 (4886)	25.6 (1555)	3.1 (1555)
≥ 2006	22.7 (3649)	23.8 (1510)	---	---
<b>Total</b>	<b>19.5 (17187)</b>	<b>21.4(14241)</b>	<b>24.6 (8138)</b>	<b>4.1 (8138)</b>

**Figure 1.** The mean age of the women at childbirth based on marriage date

survey in groups of two persons based on pre-defined areas. A detailed questionnaire guide (including manual and audio files) and the regional map were provided for the interviewers. All questionnaires were reviewed daily by the field leader of each province, and incomplete questionnaires were returned to interviewers. All the questionnaires were rechecked again by a central qualified team. The statistical analysis of the data, including descriptive statistics (mean, range, frequency and distribution) and analytic statistics (ANOVA, Chi-square and t-test) were performed using SPSS software (SPSS Inc. Chicago, USA Version 11.5).  $P < 0.05$  was considered significant.

## Results

The Study questionnaires were completed for 17,187 married women aged 20 – 40 years who participated in this study from all provinces of Iran. The mean age of the women was 30.3 (SD: 5.731) at the time of interview. Most of the participants were housewife 87.3% (15010) and had a high school diploma or higher level of education 60.1% (10344).

Contraceptive prevalence was 83.5 % (14354) at the time of interview. The common methods of contraception at the time of interview were natural methods of contraception 29.8% (5116), oral contraceptive pills 18.0% (3091), barrier methods 15.5% (2663), Intra Uterine Device 10.3% (1774) and other family planning methods 9.9% (1710).

Pregnant women at the time of interview were 6.1% (1043). From 17187 women who participated in this study, 15091 women had at least one pregnancy. Of all pregnancies, 21.9% occurred when women were less than 18 years old (teenage pregnancy) and 0.5% occurred when they were older than 35 years. Out of 31,082 pregnancies the rate of abortion was 11.2% (3488) and among these abortions 11.1% (389) was reported as induced abortion. Abortion rate in the first pregnancy was 9.2% (1379).

Out of the 15091 first pregnancies, 20.6% (3106) were the unwanted pregnancy. The mean age (SE) of the women with the first planned and unplanned pregnancy was 21.3 (0.04) and 20.3 (0.07) years respectively which showed a significant difference ( $p < 0.001$ ). The mean time between marriage and the first pregnancy in women was  $15.4 \pm 0.2$  months. This interval varied according to the educational level and job status of the women. Post hoc tests showed a significant difference between all groups. When the level of education increased from high school to higher education, the mean time between the marriage and the first pregnancy increased from 13.64 to 24.95 months ( $p < 0.001$ ). The average of this interval was 15.2 months for housewives and 17.7 months for employed women ( $p < 0.001$ ).

The mean age of the women in marriage and their first and second childbirth based on marriage date has been shown in table 1. Age of marriage and childbearing increased in recent years ( $p < 0.001$ ) and the interval between first and second childbirth have been significantly changed ( $p < 0.001$ ). Since the second

**Table 2.** Number of childbirth in the study population based on the current age

Age group	Frequency of childbirth (sample size), Number of childbirth					Total	Mean
	0	1	2	3	≥ 4		
20–24	43.5 (1370)	47.4 (1493)	8.4 (264)	0.6 (20)	0.0 (3)	100.0 (3150)	0.7
25–29	22.2 (1056)	50.1 (2376)	23.7 (1124)	3.4 (162)	0.6 (29)	100.0 (4747)	1.1
30–34	7.6 (340)	33.8 (1504)	43.0 (1915)	12.0 (534)	3.6 (161)	100.0 (4454)	1.7
35–40	3.7 (180)	13.5 (653)	43.4 (2101)	25.1 (1213)	14.3 (689)	100.0 (4836)	2.4
<b>Total</b>	<b>17.1 (2946)</b>	<b>35.1 (6026)</b>	<b>31.4 (5404)</b>	<b>11.2 (1929)</b>	<b>5.2 (882)</b>	<b>100.0 (17187)</b>	<b>1.5</b>

childbirth was not completed for marriage  $\geq 2006$ , it is not reasonable to compare the mean age of women at first and second childbirth (Table 1). Assuming that the first childbirth was almost completed for women in this study, figure 1 shows how the mean age at the first childbirth increased with time. It was 17.6 years before 1990, which increased to 23.8 years after 2006. Age pattern of childbirth was not completed in some marriage date groups because the second and more childbirth dates were not completed and it is not reasonable to compare the mean age of women for any one of these events through the time (Figure 1). The mean age of women at their first childbirth was significantly different between different groups of educational levels. With increasing the level of education, the mean age of women at their first childbirth increased ( $p < 0.001$ ).

The number of childbirth based on the current age is shown in Table 2. According to this table, 17.1% of participants did not have any childbirth experiences and the majority of 35 – 40 years old women had two or three childbirth experiences.

The mean number of childbirth by current age is shown in Table 2. Overall, the average number of childbirth per married woman (aged 20 – 40 years) was 1.5. Since the rate of stillbirth and child mortality is negligible therefore; the number of childbirth is close to the number of children ever borne by women.

## Discussion

This study provides an overview about the fertility behavior of Iranian women. While the government has recently implemented the policy of increasing the population because of the dramatic decline in birth rate, women's reproductive health and their safe childbearing should not be ignored. Despite the great success of family planning programs in the country in recent years, unfortunately the common methods of contraception in the present study were natural methods similar to the Demographic and Health Survey (2011). Although the number of married women using contraception has increased to more than 70%,<sup>12</sup> modern techniques have not yet found their position among Iranian women. Training young woman about modern techniques is essential for preventing unintended or untimed pregnancy and illegal induced abortion. Couples may tend to use non-reliable methods such as natural methods due to lack of knowledge.<sup>13,14</sup> Family planning policymakers should plan services with new approaches that focus on women's health and empowerment.<sup>15</sup>

As induced abortion is illegal in Iran except in certain medical conditions,<sup>16</sup> the reported value of the present study is lower than the actual value. The reported value of induced abortion in present study is even lower than the recent studies that specifically noticed induced abortion.<sup>9,17–19</sup> No official information has been collected

about the abortion rate in Iran. Although social and economic concerns are the main reasons for induced abortion in Iran,<sup>20</sup> the knowledge is limited about other reasons for abortion and more research in the field needs to be performed.

A noticeable percent of women were younger than 18 years at their pregnancies (teenage pregnancy) or older than 35 years at their pregnancies. Although these statistics do not represent the current condition of pregnancy in women, but these high risk pregnancies still deserve reflection.

In the present research, for every 5 cases of first pregnancy, one unwanted first pregnancy was recorded. Some reports indicate that there are a high percentage of unwanted pregnancies in Iran. The rate of unwanted pregnancies in Iran has been reported to be between 25 to 35% in recent studies.<sup>21–24</sup> Similar to a study by Mohammad Beygi, et al. (2009), a significant relation was observed between having an unwanted first pregnancy and the maternal age.<sup>21</sup> Therefore, younger women are more vulnerable and family planning training should be started preferably before marriage.

The interval between marriage and the first pregnancy was related to the educational level and job status of women in the present study. Similarly Tolnay, et al. (1980) found that socioeconomic variables such as education have significant influence on the number of children ever born.<sup>25</sup> The present findings seem to be consistent with those of Pezeshki, et al. (2005) and Abbasi-Shavazi, et al. (2009) who found that most of women postpone the first pregnancy with contraceptive methods for accessing a better educational status. They noticed that short spacing between marriage and the birth of the first child had the potentiality to increase population growth in Iran, but a surprising change in the fertility behavior and the increase in the interval between the marriage and the first pregnancy has obviously resulted in a significant decline in fertility.<sup>26,27</sup> Then the government policy makers should consider more this group of women in their new policies.

The mean age at marriage and the first childbirth are increasing and have a significant difference based on the marriage date ( $P < 0.001$ ). For example, the mean age at first birth in marriages registered after 2006 has increased for about six years when compared to marriages before 1990. Age pattern in some marriage date groups has not been completed in figure 1. Since the second and higher childbirth dates have not been completed, the mean age of women is underestimated. Due to the increase in the marriage age and the subsequent decrease in the reproductive years in these women, good counseling regarding reproductive plans is necessary. Then health care providers should help all couples to choose their reproductive life plan immediately and properly after marriage. It seems that the childbearing age of women has increased because of changes in the socio-cultural conditions, delayed marriage, and achieving better opportunities in education and employment.<sup>27</sup>

Frequency of couples with no childbirth (Voluntarily childless or infertile) is 17.1%, but in the age group of 35 – 40, it has reduced to 3.7%. Then childlessness is due to motherhood postponement and it had been well documented before by Abbasi-Shavazi, et al. (2013).<sup>28</sup>

The average number of childbirth per woman was 1.5. It should be noted that these values do not indicate the mean number of childbirth for a total duration of childbearing. Since these women may still become pregnant, the actual value is higher than 1.5. The actual value is at least 2.4 (the average number of childbirth for women of 35 – 40 years old). As all participants were married, the overall family size of 3.5 is consistent with the family size of 3.6 in the 2011 National Population and Housing Census (2011). This study confirms other report about the fertility decline in Iran.<sup>5,29,30</sup> In a study by Kazerooni, et al. (2000), the mean number of children was 4.56.<sup>7</sup> Reproductive health issues and the needs of Iranian women have changed in the last three decades. The interval between the marriage and the first pregnancy and the mean age at the first childbirth has increased. The number of couples with no childbirth because of voluntarily childlessness or infertility is high and should be noticed more by policy makers. Although the fertility rate has declined, issues like unwanted pregnancy and use of non-reliable methods of contraception are not resolved yet. Women need more support and guide from a health care provider to make the best decisions in their short reproductive life. Allocating enough resources for reproductive health services is vital as well.

This study is a basis for future policy making in reproductive health programs. Self-report was one of the important limitations in this study. Given the importance of the timing of events in the reproductive history of women, recalling some of the events was difficult especially in older women.

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