

## Fertility Behavior and its Influencing Factors in Female Employees of Tehran University of Medical Sciences, Tehran, Iran

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### ABSTRACT

**Background & aim:** In Iran, the fertility rate showed a significant decrease from 6.08 in 1976 to 1.2 in 2011. This pattern will lead to population reduction during 2041-2046. Women's employment is one of the factors which may affect fertility behavior. Therefore, this study aimed to determine the fertility behavior and its influencing factors in female employees of Tehran University of Medical Sciences, Tehran, Iran.

**Methods:** In this cross-sectional study, the statistical population was all married female employees of Tehran University of Medical Sciences. The Census method was used, and 116 subjects were included in the study. The data collection tool was a self-structured questionnaire. Variables influencing fertility behavior were collected and the influence of each was investigated. Data were analyzed by SPSS (version 16).

**Results:** The findings showed that the level of education plays an important role in determining fertility behavior. So that a significant relationship was found between the level of education and all indicators of reproductive behavior, including the time interval between marriage and the first childbearing ( $P=0.008$ ), the ideal number of children ( $P=0.007$ ), the age gap between children ( $P=0.001$ ) and age at the time of marriage ( $P=0.001$ ). Also, income level, employment status, housing status, sexual preference, fear of childbearing and government facilities were other factors influencing fertility behavior ( $P<0.05$ ).

**Conclusion:** The obtained results showed that the educational status of individuals, job security and the existence of facilities in the administrative system to support childbearing for female employees are effective in their fertility behavior. It is essential to consider these factors in order to promote fertility intention.

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## Introduction

One of the most important categories of population science is the category of fertility and its related behaviors (1). Fertility behavior is defined as the childbearing pattern of a couple,

including the number of children, time of childbearing, and other behaviors related to reproduction or contraception (2). In developed countries, along with decrease in mortality, the birth rate has also decreased. Although in some developing countries, despite decrease in

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mortality, fertility is still high. According to theoretical discussions, the power of reproduction in human society is not realized only by its physiological ability, but is influenced by a wide and complex network of interaction with demographic, social, economic and cultural factors (3).

Many factors affect fertility behavior, including the undeniable influence of religious beliefs on fertility. In the great divine religions of Islam, Judaism, and Christianity, having a child is considered a divine blessing (4). Marriage age is one of the factors affecting fertility behavior. Populations with a higher marriage age are likely to have higher education, more urbanization, and overall higher social and economic development. In addition, in populations where women have a higher marriage age due to more education and awareness, they experience less unwanted fertility. On the other hand, late marriage may allow women to develop job opportunities or personal interests (5). The study of Shahbazian (2015) showed that there is a negative relationship between women's employment and fertility (6). In addition, there are differences in societies in terms of the distance between the births of children, which is achieved by the use of contraceptives or desire for temporary infertility (7). In other words, although natural fertility is subject to biological, social and cultural laws and regulations, on the other hand, controlled fertility is subject to family laws and regulations, and couples can be the most important decision-making factor regarding the number of births (3).

According to the report of the Iranian Statistics Center, there is decrease significant in fertility rate in the last few decades of the country. So that this downward trend has reached from 6.08 in 1976 to 1.2 in 2011 and due to the increase of people of reproductive age in the middle of the population pyramid, according to the census of 2016, the fertility level in Iran has been slowly increasing in recent years. (8). However, according to the report of international organizations, fertility is expected to be less than 1.5% in Iran until 2025, and it seems that it will reach a low population level in recent decades (9). Therefore, with the continuation of this situation, we will face a major challenge

regarding population in the future. The decrease in fertility below the replacement level and the consequent decrease in the population cause an increase in the median age, followed by aging population and a decrease in the youth workforce. In addition, there is a significant decrease in the number of births among married female employees of Tehran University of Medical Sciences, which can be due to various reasons. The role of each influential factor such as gender preference, education, time interval between marriage and first childbearing, duration of marriage, presence of government facilities, concern about childbearing, housing status, women's employment status, income level, and age of marriage should be analyzed. It seems that by identifying the reasons for the decrease in population growth in the studied area, it is possible to make suggestions in this regard. Therefore, this study aimed to determine fertility behavior and its influencing factors in married female employees of Tehran University of Medical Sciences, Tehran, Iran.

## Materials and Methods

This cross-sectional study was conducted in 2016 using a researcher-made questionnaire in the Tehran University of Medical Sciences, Tehran, Iran. The study population was all married female employees of Tehran University of Medical Sciences. The inclusion criteria were being a female employee and married at the time of the study, and the exclusion criteria was not completing the questionnaire.

The data collection tool in this research was a researcher-made questionnaire. A questionnaire consisting of 30 Yes or No and multiple-choice questions was designed to investigate the variables related to fertility behavior. The variables of the study included educational level, age of marriage, duration of marriage, socio-economic status, available facilities to support childbearing as well as variables related to the fertility behavior including age of first pregnancy, number of fertility, age gap between children and also time interval between marriage and first childbearing.

The validity and reliability of the questionnaire was determined before the research. The content validity was used for validity of the tool, and the validity index was reported to be more than 0.7. The retest method was used for the

reliability of the questionnaire. In this way, 10 female employees first completed the questionnaire. After two weeks, the same questionnaire was again given to the subjects to complete it. The correlation between the data in the two stages of the test was 98% and it was confirmed. Cronbach's alpha coefficient was used to confirm the internal consistency of the questionnaire (Cronbach's alpha coefficient=0.8).

The Census sampling method was used and there were 304 female employees in the faculty, and considering that about 42% of female employees were unmarried, 177 subjects were eligible, and after referring to all the target communities, 129 subjects participated in the study and answered the questionnaire. Finally, 116 questionnaires were fully completed.

Mean, standard deviation and frequency distribution table were used to describe individual data. The mean difference (T-Test) and analysis of variance (ANOVA) were used for inferential analysis of data. Data were analyzed by SPSS (version 16).  $P \leq 0.05$  was considered as the significant level.

## Results

According to the results obtained from the research, the mean age of the participants was  $33.17 \pm 6.02$  years, the age of women at marriage was  $22.77 \pm 3.46$  years, the duration of marriage was  $9.81 \pm 6.59$  years, and the age at first pregnancy was  $24.32 \pm 3.62$  years. Demographic and occupational data were shown in Table 1.

**Table 1.** Frequency of demographic and occupational variables

Variable	Mean±SD
Age	33.17±6.02
Age at marriage (year)	22.77±3.46
Duration of marriage (year)	9.81±6.59
Time interval from marriage to the first childbearing (year)	2.58±1.90
Age at first pregnancy	24.3±3.63
Number of children	2.51±1.40
Age gap between children (months)	61.33±30.11
Ideal number of children	3.12±11.29
<b>Education</b>	N (%)
Associate, diploma and high school	32(27.58%)
Bachelor	38(32.75%)
Master and PhD	46(39.65%)

Variable	Mean±SD
<b>Job category</b>	
Service	19(16.37)%
Employee	32(27.58%)
Expert	65(56.03%)
<b>Housing status</b>	
Owned	22(18.96%)
Rental	63(54.31%)
Organizational	13(11.20%)
Joint family	18(15.51%)
<b>Employment status</b>	
Official	13(11.20%)
Contract	18(15.51)
Contractual	85(73.27)
<b>Husband's employment status</b>	
No job	20 (17.24%)
Part time	33(28.44%)
Full time	60 (51.72%)
Educational	3 (2.58%)
<b>History of pregnancy</b>	
Yes	73 (62.69%)
No	43 (37.06%)

The results of the study showed that the level of education is an influencing factor on the time interval between marriage and first childbearing ( $P=0.008$ ), the age gap between children ( $P=0.001$ ), the ideal number of children ( $P=0.007$ ) and age at the time of marriage ( $P=0.001$ ). A significant relationship was observed between the employment status and the mean number of pregnancies ( $P=0.001$ ), so that the mean number of children was higher in the group with official employment status. However, there was no significant difference between the employment status and other factors such as age at the time of marriage, the time interval between marriage and the first childbearing, the number of children and the age gap between children ( $P < 0.005$ ).

Housing status was the influencing factor on the time interval between marriage and first childbearing ( $P=0.017$ ) as well as the number of children. The mean number of children in employees with property housing ( $4.17 \pm 1.52$ ) was significantly higher compared to the residents of the organizational houses ( $1 \pm 0$ ) ( $P=0.001$ ). However, the housing status did not have much effect on the marriage age and the ideal number of children.

There was a significant difference between gender preference with the number of fertility ( $P=0.013$ ), age gap between children ( $P=0.003$ )

and age at marriage ( $P=0.001$ ). Based on the results of the statistical test, this was a significant difference between the participants who prefer none, one, two or three of their children to be girls. A significant difference was observed between the time interval between

marriage and first childbearing with concern about childbearing in female employees of the university ( $P=0.001$ ). The details of the relationship between the components related to fertility behavior and the study variables were shown in Table 2.

**Table 2.** The relationship of the studied variables and fertility behavior of the participants in the study

Variable	Mean age of marriage (year)	time interval between marriage and first childbearing (year)	number of pregnancy	age gap between children (month)	Ideal number of children
<b>Education</b>					
Diploma and associate	18±0	2.0±0	2.0±0	34.33±5.77	4±0
Bachelor	21.2±4	1.62±0.62	3.0±1.41	49.58±37.01	4±0.8
Master	22.8±3	3.12±2.5	1.88±0.6	24.31±29.32	3.4±1
PhD	24.0±2.9	3.31±2.02	2.72±1.90	10.04±4.94	3.9±3.8
<b>P-Value</b>	<b>*0.001</b>	<b>*0.008</b>	<b>0.095</b>	<b>*0.001</b>	<b>*0.007</b>
<b>Employment status</b>					
Official	22.5±2.13	1.76±1.09	4.08±1.67	16.0±17.79	3.42±1.08
Contract	24.2±4.84	2.1±1.79	2.5±1.08	39.2±44.99	3.83±0.74
Contractual	22.63±3.38	2.57±2.08	2.12±1.05	24.85±27.36	3.80±0.89
<b>P-Value</b>	<b>0.262</b>	<b>0.214</b>	<b>*0.001</b>	<b>0.096</b>	<b>0.321</b>
<b>Housing status</b>					
Owned	23.63±4.35	1.6±1.05	4.17±1.52	25.31±32.10	3.63±1.04
Rental	22.68±3.47	2.74±2.25	2.37±1.15	28.93±32.24	3.83±0.85
Organizational	22.61±2.18	4.12±1.24	1.0±0.0	9.0±0	3.38±0.5
Joint family	21.07±2.84	2.0±0	2.25±0.46	29.61±24.95	3.61±0.86
<b>P-Value</b>	<b>0.228</b>	<b>*0.017</b>	<b>*0.001</b>	<b>0.17</b>	<b>0.339</b>
<b>Gender preference (tendency to have girl)</b>					
No girl	26.80±4.43	2.0±0	4.5±1	32.8±21.75	3.60±0.54
One girl	23.51±3.30	2.44±1.54	2.52±1.72	15.66±32.09	3.55±0.88
Two girls	22.27±3.13	2.86±2.31	2.30±1.05	28.72±32.09	3.83±0.87
Three girls	18.20±1.6	1.0±0	0.8±1.02	61.02±47.65	5.0±0
<b>P-Value</b>	<b>*0.001</b>	<b>0.365</b>	<b>*0.013</b>	<b>*0.003</b>	<b>*0.005</b>
<b>Concern about childbearing*</b>					
Yes	23.06±3.46	2.82±2.10	2.35±1.27	58.12±26.62	3.67±0.98
No	21.78±3.39	2.14±1.5	2.79±1.64	68.54±39.97	4.07±0.42
<b>P-Value</b>	<b>0.09</b>	<b>0.12</b>	<b>0.279</b>	<b>0.412</b>	<b>*0.007</b>
<b>Cause of concern about childbearing</b>					
Concern about pregnancy	22.44±2.74	2.37±1.40	2.0±0	36.5±4.04	3.77±0.66
Concern about delivery	22.95±3.92	2.44±0.72	2.57±1.27	32.0±11.66	4.04±1.1
Concern about care	23.66±3.88	3.81±2.25	2.47±1.69	44.54±19.83	3.90±0.37
No supportive facilities	21.82±2.95	1.85±1.63	1.79±0.69	77.28±17.79	3.53±1.17
<b>P-Value</b>	<b>0.02</b>	<b>*0.005</b>	<b>0.337</b>	<b>*0.005</b>	<b>0.191</b>

\*Existence of significant relationship with  $p<0.05$  in ANOVA test \*\*Existence of significant relationship with  $p<0.05$  in T-test

## Discussion

Fertility as one of the demographic components is of the influential factors in the development process in any society. Considering

that women are considered the main factor of birth, the present study investigated the influencing factors in female employees working in Tehran University of Medical Sciences.

The results of this study showed that the level of education in female employees of Tehran University of Medical Sciences is a determinant for their fertility behavior. In other words, higher education of female employees was related to a longer distance from the time of marriage to first childbearing. This was also true for the number of children. So that the higher the education, the lower the number of children, the longer the time interval between children, and the lower the ideal number of children. It seems that educated women have less desire to have children due to having more educational, occupational, social and recreational opportunities (10). On the other hand, this may be due to not receiving the necessary support to combine work and home (especially childcare) (11).

Shahabadi et al. (2016) showed that women's attitude towards education and their decision regarding continuing education after marriage has been considered as an important and influential variable on the distance from marriage to the birth of a child. In other words, the interference between women's education and their fertility is usually answered by delaying the birth of the first child, which directly affects the level and behavior of the fertility pattern in the society. (12).

Education can simultaneously influence economic and cultural mechanisms (13-14). Studies conducted in Europe showed that higher education is associated with an increase in the desire for fertility because higher education means better access to financial resources (15-16). Undoubtedly, the marriage also plays an important role because women with higher education in Europe have more chance to marry and can have better educated partners, which can help them to have bigger families (17).

This study, along with previous research, indicates that addressing the obstacles to women's education, with the goal of increasing the population, requires a multi-pronged approach. This includes cultivating a cultural shift that prioritizes reaching the desired population size, raising awareness regarding the negative consequences of declining fertility rates within the educated population, and implementing mechanisms to provide support for working mothers in caring for their children.

(17-19). According on the results of the present study, the employment status of female employees of Tehran University (official or contract) had a direct effect on the number of children. The results of a case study also showed that economic insecurity, especially the employment status of the family, had a significant effect on the behavior and ideal of low fertility of married women in Sanandaj city (5).

In Northern European countries and to a lesser extent in Western European countries, social support is of great importance for combining work and family life, and labor markets are more stable compared to most countries in Central, Eastern and Southern Europe. In this context, a successful labor market for women emerges as a key factor in creating a family, even if it leads to a delay in the birth of the first child. In Central and Eastern European countries and to a lesser extent in Southern European countries, it seems that women's employment does not facilitate childbearing. Low childcare coverage combined with unstable labor market conditions may explain this result. For example, women who have succeeded to work in the labor market of Southern European countries believe that childbirth is associated with a high risk of job loss, on the other hand, non-working women do not have the necessary financial means to start a family. As a result, both groups of working and non-working women face problems in starting a family. The results show that government policies that are used with the aim of creating job security and combining work with family can increase fertility at the macro level despite the delay in childbearing in working women (20-22).

The problems that especially working women are involved in relation to employment and housework caused restrictions for childbearing. It is the responsibility of the government and the society to remove this heavy burden from the shoulders of the women of the society. By supporting women in the workplace, stabilizing their employment status during pregnancy and after childbirth, and encouraging the pattern of cooperation at home, it is possible to prevent the reduction of fertility in the society (20, 23). The other findings of the present study are the effect of housing status (owned, rented, organizational or shared with family) on the



time interval between marriage and first childbearing and the number of children in female employees of the Tehran University of Medical Sciences. In other words, the housing status of the studied community, most of which have rented housing, had a direct effect on the time interval between marriage and birth. Other studies also showed that factors related to the housing status or its price had a significant effect on fertility behavior (24-25).

The results of the present study showed that the income level of the participants was an effective factor on the number of children and the age of marriage. In addition, the higher level of household income in the female employees of Tehran University of Medical Sciences was related to the more number of children and lower age of marriage. It seems that after a period of delaying fertility in developed countries where even the participation of women in the labor market has increased in recent decades, it shows the positive role of economic development and its combination with providing more opportunities for women to combine work with family. Therefore, nowadays, fertility depends a lot on family support policies that can combine home and work for the family (25). In addition, the results of the present study showed that the sexual preference variable had a direct effect on the reproductive behavior of female employees of Tehran University of Medical Sciences. In other words, the interest of the studied society to have more male children has an effect on their reproductive behavior. This group prefers their child to be a boy if their childbearing age, the number of children, or the age gap between children increases. In different societies and eras, there have been sexual preferences regarding their children, which originated from popular beliefs of people (26).

However, gender preference is not a driving force in continuing fertility in the low fertility context of Tehran (27).

The results of the current research showed that government facility was an effective factor on the fertility behavior of the participants. So that there was a significant relationship between government facilities and the time from marriage to first childbearing, the number of children, the ideal number of children, and the

age of marriage. In other words, more government facilities in the field of fertility is related to the studied society wants to get married earlier and after marriage have a shorter distance to the first childbearing, and they also want to have more children. In line with the results of the present study, Mobasheri et al. (2013) showed that the lack of support and welfare facilities by the government for childbearing is one of the most important factors affecting childbearing (28).

The results of the present study also showed that the worry about childbearing could affect the time interval between marriage and first childbearing. Another study showed that the mother's negative motives had a direct effect on the time interval between marriage and first childbearing, which could be due to the mother's stress, fear of becoming a parent, and child care challenges (29). It should be planned to reduce these concerns. This research, while investigating the reproductive behavior of female employees of Tehran University, also paid attention to the factors affecting fertility. One of the limitations of this research is that it is only conducted on female employees of Tehran University. One of the strengths of our study is that we examined the fertility behavior of female employees, acknowledging that women's employment is a significant challenge in childbearing decision-making. It is suggested to perform this research on different types of workers to provide a wider range of effective factors.

## Conclusion

The results showed that some economic challenges, job security conditions, and the existence of facilities in the administrative system, as well as the presence of negative motivations such as worrying about childbearing, play an important role in the fertility behavior of the working women. It seems that special attention should be paid to these factors in order to plan for the correction of fertility beliefs and practices about childbearing among female employees. On the other hand, direct government support as well as taking decisions to improve job stability and provide housing has been the effective factors in improving the fertility rate and changing the fertility index and getting married at an

appropriate age. To reduce these concerns, we need to develop curricula at the higher education levels in relation to the desired population and childbearing, as well as developing programs that are appropriate for strengthening the family responsibilities of wife and mother in working women.

## Declarations

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## Conflicts of interest

Authors declared no conflicts of interest.

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The present article results from a research project ratified by the Vice-Chancellor for Research of Tehran University of Medical Sciences, Tehran, Iran.

## Ethical approval

The Ethics Committee of Tehran University of Medical Sciences approved this study under ethical code of Ir.tums.rec.1394.1384. Compliance with confidentiality in the filled questionnaire and confidentiality of personal data, as well as avoiding misuse of information was observed. It was avoided to induce or impose personal opinions on the participants. A written consent was obtained from the participants to participate and complete the questionnaire.

## Authors' contributions

SK designed the study and led the research team. SD conducted the data collection and performed the statistical analysis. FK contributed to the literature review and manuscript writing. MH provided critical revisions and ensured the integrity of the data. All authors reviewed and approved the final version of the manuscript.

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