

Socio-demographic and Religious Factors Affecting Fertility Rate among Childbearing Women in Easter Iran: A Population-based Study

Elham Azmoude (MSc)¹, Saeede Barati-Far (BSc)^{2*}, Haniye Behnam (BSc)², Maryam Aradmehr (MSc)³

¹ Lecturer, Department of Midwifery, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran

² MSc Student in Midwifery, Student Research Committee, Department of Midwifery, School of Nursing and Midwifery, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran

³ Department of Midwifery, School of Nursing and Midwifery, Sabzevar University of Medical Sciences, Sabzevar, Iran

ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Original article</p> <hr/> <p><i>Article History:</i> Received: 12-Dec-2017 Accepted: 31-Jan-2018</p> <hr/> <p><i>Key words:</i> Demography Fertility Religion Socioeconomic factors</p>	<p>Background & aim: The reduction of fertility rate in the recent years in Iran may be due to the cultural and socioeconomic development in this country. The present study was conducted to investigate the relationship of fertility rate with demographic, socioeconomic, and religious factors among childbearing women in a city in Easter Iran.</p> <p>Methods: This cross-sectional study was conducted on 254 childbearing women in Torbat Heydariyeh, Iran, in 2016. The data were collected using a demographic questionnaire and scale of religiosity developed by Khodayari Fard (2000). Mann-Whitney U test, Spearman correlation, and general linear model were used to assess the relationships between variables</p> <p>Results: The mean number of children among women was 1.85 ± 0.99. Fertility rate showed a direct relationship with age, age of spouse, and duration of marriage. There was an indirect relationship between age at marriage and fertility rate ($P=0.001$). Also, fertility rate was significantly correlated with education ($P=0.001$) and the mean total score of religiosity and its three dimensions ($P<0.05$). Based on the general linear model, women's age, age of spouse, age at marriage, and level of education could predict 54% of the fertility rate variance ($P<0.05$).</p> <p>Conclusion: According to the findings, fertility rate was significantly associated with couple's age, age at marriage, and educational level among the women of reproductive age in Torbat Heydariyeh. Therefore, policy makers should focus on the moderation of these variables to influence population growth.</p>

► Please cite this paper as:

Azmoude E, Barati-Far S, Behnam H, Aradmehr M. Socio-demographic and Religious Factors Affecting Fertility Rate among Childbearing Women in Easter Iran: A Population-based Study. *Journal of Midwifery and Reproductive Health*. 2019; 7(1): 1553-1559. DOI: 10.22038/jmrrh.2018.17015.1307

Introduction

Population is one of the complex multidimensional issues of human societies, affected by economic, social, cultural, and political factors (1). Among the various factors, fertility, migration, and mortality as important indicators of population dynamics, exert the greatest impact on the size and structure of the population (2). Iran is one of the countries experiencing a sharp decline in fertility. Censuses and statistics are all indicative of a

decline in the total fertility rate from 6.2 children per woman in 1986 to 2.5 in 1996, 1.1 in 2006, and 1.8 in 2011 (3, 4). The current total fertility rate of Iran is 1.9-2.1 births per woman, which is close to the replacement level fertility (i.e., 2.1 births per woman) (5).

A 50% reduction in fertility has not only made Iran unique among the Muslim countries, but also reached a record that cannot be seen anywhere else (6). A falling fertility rate will

* Corresponding author: Saeede Barati-Far, MSc Student in Midwifery, Student Research Committee, Department of Midwifery, School of Nursing and Midwifery, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran. Tel: 05152286064; Email: s.barati71@gmail.com

lead to population aging, followed by reduced workforce and compromised health level (7). Several demographic studies have indicated the relationship between fertility rate and economic, social, and cultural factors (8). For instance, the results of a study (2010) performed in Nepal introduces age, education, occupation, income, and location as factors affecting the fertility rate (9).

In a cross-sectional study performed by Hezarjarib et al. (2010) in Tabriz, Iran, the fertility rate was reported to show a direct relationship with the infant death experience. This variable was also inversely associated with income, education level, and feeling of having ideal children (10). However, in a study conducted by Abidi et al. (2012) on a Kurdish tribe in Iran, fertility rate demonstrated no significant correlation with family income and employment status (11).

Another variable that could reportedly explain changes in fertility is religiosity (12). Religious beliefs may affect fertility through affecting the marriage age, family size, and number of children (13). The Islamic and Quranic Verses encourage a timely marriage and emphasize the importance of reproduction (14). Heyford (2008) showed that in the US, the women believing that religion is very important in everyday life had a higher actual fertility rate and tendency to have children than those considering religion as unimportant or relatively important. They also reported that the women with high religiosity had more traditional attitudes about gender role and family, which result in the enhancement of the fertility rate (15).

Khadivzadeh et al. (2014) also found a significant relationship between religious beliefs and fertility preferences among married couples in Mashhad, Iran (17). On the contrary, the results obtained by Branas-Garza (2007) in Spain and Italy indicated no significant relationship between religiosity and number of children (16).

Limited studies have examined fertility rate and its relationship with socioeconomic factors and level of religious beliefs in Iran. Cultural backgrounds and national and regional policies that may affect fertility differ across societies. With this background in mind, the present study

aimed to determine the relationship of fertility rate with demographic, socioeconomic, and religious factors among childbearing women in a city in Eastern Iran.

Materials and Methods

This cross-sectional descriptive study was performed on 254 women of reproductive age (i.e., age range of 15-45 years) referring to the urban health centers of Torbat Heydariyeh, Khorasan Razavi Province, Iran, from February to May 2016. In each of the health care centers, sampling was carried out using convenience sampling method in proportion to the number of the population under coverage. All the women included in the study were Muslims, Iranian, Persian-speaking, and residents of Torbat Heydariyeh and had a minimum of reading and writing literacy. Additionally, they were the biological mother of their children, and all their children were from their present marriage. Pregnant and infertile women and those with physically- or mentally-handicapped children were excluded from the study.

Data collection tools included a demographic form and the Religiosity Scale developed by Khodayari Fard. Fertility rate (i.e., children ever born alive [CEB] up to the survey date) was considered as the dependent variable. On the other hand, demographic, socioeconomic, and cultural variables that were considered as independent variables included age, education level, occupation status (of both spouses), income level, age at marriage, and child loss experience.

The examination of religiosity was performed using the Religiosity Scale developed by Khodayari Fard. This scale entails 40 items in three subscales, namely religious belief, religious emotions, and religious behavior. These items are rated on a 5-point Likert scale ranging from never (0) to always (5). High scores in each of the subscales signify higher religiosity. The validity of this scale has been evaluated and confirmed by Khodayari, reporting a Cronbach's alpha coefficient of 0.89 (18). In the present study, the reliability of this tool was confirmed using the internal consistency method and Cronbach's alpha coefficient on 20 participants ($\alpha=0.8$).

The study protocol was approved by the institutional review board of Torbat Heydariyeh University of Medical Sciences (IRB no. IR.THUMS.REC.1394.2). In line with research ethics principles, the participants were informed about the study objectives, and their oral and written informed consent was obtained.

Data analysis was performed in SPSS statistical software (version 16) using descriptive statistics, as well as Kruskal-Wallis, Mann-Whitney U, and Spearman correlation tests. The linear regression was used to determine the role of each variable in predicting the fertility rate. P-value less than 0.05 was considered

statistically significant.

Results

Based on the results of the study, the mean numbers of children ever born per participant was 1.85 ± 0.99 (range: 0-6). Furthermore, the mean number of girls and boys were 1.02 ± 0.77 and 1.10 ± 0.75 , respectively. The participants had the mean age of 30.94 ± 6.62 years with the mean marriage duration of 11.55 ± 7.46 years. In addition, most of the participants were housewives (79.6%), and 40.12% of them had academic education (Table 1).

Table 1. Demographic and fertility characteristics of the studied women

Variables		Count (%)
Occupation	Housewife	205 (80.7)
	Employee	49 (19.3)
	Worker	45 (17.7)
Husbands' occupation	Self-employed	133 (52.4)
	Employee	75 (29.5)
	Missing	1 (0.4)
Education level	Below Diploma	69 (27.2)
	Diploma	91 (35.8)
	Academic	93 (36.6)
	Missing	1 (0.4)
Income status	Less than sufficient	38 (15.0)
	Sufficient	181 (71.3)
	More than sufficient	29 (11.41)
	Missing	6 (2.36)
Child death experience	Yes	10 (3.9)
	No	244 (96.1)

According to the results of the study, fertility rate showed no significant relationship with employment status, spousal employment status, income level, and child loss experience ($P > 0.05$). However, the relationship between education level and fertility rate was statistically significant ($P = 0.001$) (Table 2). According to the results of the Spearman's correlation test, fertility rate was directly correlated with age ($r = 0.630$, $P = 0.001$), spousal age ($r = 0.675$, $P = 0.001$), and marriage duration ($r = 0.722$, $P = 0.001$). Additionally, this variable had an indirect relationship with age at marriage ($r = -0.316$, $P = 0.001$).

Based on the descriptive statistics, the mean total score of religiosity was 141.27 ± 20.43 (range: 72-208). Considering the dimensions of

religiosity, the mean scores of religious belief, religious emotions, and religious behavior were obtained as 51.29 ± 9.58 , 45.78 ± 6.14 , and 44.19 ± 7.83 , respectively. The results of the Spearman correlation test demonstrated a significant correlation between the mean total score of religiosity and participants' fertility rate ($P = 0.009$). Additionally, the rate of fertility was significantly correlated with the three religiosity subscales, namely religious emotions ($P = 0.005$), religious behavior ($P = 0.022$), and religious belief ($P = 0.039$) (Table 3).

In order to assess the impact of each independent variable on fertility rate prediction, the linear regression analysis was applied.

Table 2. Mean scores of fertility rate according to the demographic and socioeconomic factors

Variables		Fertility rate		P-value
		Mean±SD	Median (interquartile range)	
Education level	Below diploma	2.42±1.22	2.0 (1.0-3.0)	*0.001
	Diploma	1.75±0.88	2.0 (1.0-2.0)	
	Academic	1.50±0.63	1.0 (1.0-2.0)	
Occupation	Housewife	1.88±1.01	2.0 (1.0-2.0)	**0.385
	Employee	1.73±0.90	2.0 (1.0-2.0)	
Husbands' occupation	Worker	2.15±1.34	2.0 (1.0-3.0)	*0.352
	Self-employed	1.76±0.86	2.0 (1.0-2.0)	
	Employee	1.80±0.91	2.0 (1.0-2.0)	
Income status	Less than sufficient	2.07±1.1	2.0 (1.0-3.0)	*0.532
	Sufficient	1.84±0.95	2.0 (1.0-2.0)	
	More than sufficient	1.68±0.92	1.0 (1.0-2.0)	
Child death experience	Yes	1.84±0.97	2.0 (1.0-2.0)	0.924**
	No	1.88±1.08	2.0 (1.0-2.0)	

*Kruskal Wallis test

**Mann-Whitney U test

Table 3. Correlation of studied variables based on the spearman correlation analysis

Variables	Fertility rate	
	Spearman correlation coefficient	P-value
Religiosity score	0.163	0.009
Religious emotions	0.176	0.005
Religious behavior	0.144	0.022
Religious belief	0.130	0.039

All variables that were significantly associated with the fertility rate were entered

into the regression model. The obtained positive regression coefficient indicated that higher participants' age and spousal age were associated with higher fertility rate. Furthermore, age at marriage was found to have a significantly negative influence on fertility rate. Furthermore, education level significantly affected this variable. However, the influence of religiosity on the fertility rate was not detected. Generally, these variables could predict 54% of the fertility rate variance ($P < 0.05$) (Table 4).

Table 4. Effect of study variables on fertility rate based on linear regression analysis

Variables	B	t	β	95.0% Confidence interval for B		P-value
				Lower bound	Lower bound	
Age	0.061	4.71	0.414	0.035	0.086	0.001
Age at marriage	-0.055	-4.58	-0.229	-0.078	-0.031	0.001
Husbands' age	0.033	2.77	0.243	0.010	0.056	0.006
Below diploma ^a	0.538	4.70	0.243	0.313	0.763	0.001
Diploma ^a	0.358	3.37	0.174	0.149	0.566	0.001
Religiosity score	0.00	0.549	0.024	-0.003	0.005	0.583

a: reference level: College and above R squared=0.553 Adjusted R squared=0.542 β = Standardized Coefficients

Discussion

The aim of this study was to examine the relationship of demographic, socioeconomic, and religious factors with fertility rate among childbearing women in Torbat Heydariyeh, a city in the east of Iran. The results revealed a direct relationship between age and fertility rate. The increased number of children along with aging seems to be reasonable and is in line

with the previous studies (19, 20).

Our findings were also indicative of an indirect relationship between age at marriage and fertility rate. Age at marriage and duration of marriage are important factors that can affect fertility rate in two aspects. On the one hand, a higher marriage age is associated with a decline in fertility period, which provides the

couple with fewer childbearing opportunities. Furthermore, with the enhancement of age at marriage, couples would obtain more awareness and experience regarding the contraceptive methods; as a result, they would have more control over their reproductive behavior (21).

These results are consistent with those reported by several national and international studies (11, 19-20, 22). For example, Mobasheri (2013) reported that fertility rate was significantly associated with age, age at marriage, and duration of marriage in women (19). Therefore, rising age at marriage in Iran in recent years could likely justify the reduction of fertility rate.

Similarly, the results of a number of other studies showed an indirect relationship between women's education and their fertility rate (18, 20). Since educated women are usually more aware of family planning methods and advantages and disadvantages of childbearing, they have autonomy and more power in reproduction decision-making; accordingly, they experience a lower fertility rate (23). In addition, most of the educated women work outside, are less present at home, and have concerns about issues related to child care; therefore, they are less probable to give birth to many children (24). These results are consistent with those reported by Hezarjaribi (2010) in Iran, Adhikari (2010) in Nepal, and Al-kandari (2007) in Kuwait (10, 20, 25).

According to our results, fertility rate had no significant relationship with couple's employment status and income level. On the one hand, people with a favorable economic situation can have more children and provide their children with all of the required facilities. On the other hand, they may believe that having more children is a sign of social and cultural backwardness (19). This issues can result in finding an insignificant association between fertility and economic factors, such as woman's career, spousal occupation, and income.

In line with our results, Ider (2012) found no significant relationship between the man's job and fertility (21). However, in another study an indirect relationship was reported between fertility rate and women's employment status and position, which is inconsistent with the

results of the present research (9). The relationship between income and fertility rates was reported to be direct by Al-kandari (2007) and indirect by Hezarjaribi (2010) and Adhikari (2010) (10, 20, 25).

The reason of this inconsistency can be attributed to the fact that the subjects of this study were chosen from the urban areas where even families in the low-income level do not consider children as playing a significant role in the improvement of the family economy. Furthermore, even people with low incomes have access to educational resources, healthcare centers, and mass media that raise awareness. Therefore, people's income or occupational status could not explain their fertility rate. Nonetheless, in the study carried out by Adhikari, 85.2% of participants were rural people (20).

In our study, no significant relationship was observed between child loss experience and fertility rate. In the past, social and economic conditions were in a way that having a large number of children was ideal for most of the families. In such families, children had a great value and were considered as a capital for the family (26). At that time, the lack of facilities and low levels of health care and hygiene resulted in the loss of a large number of children at different stages of life; therefore, families tended to reproduce rather constantly in order to achieve the appropriate number of children.

However, today, the rate of fetal and neonatal mortality is low; as a result, the number of pregnancies is also decreased (10, 27). This might be the reason explaining the lack of any significant relationship between this factor and fertility rate. Similarly, Rutstein (1974) stated that the couples who have lost their child has a higher ideal number of children (27). Shapiro (2018), Akaberi (2013), and Faryyad (2012) also found a direct relationship between infant mortality and fertility rate (28-30).

In the present study, there was a direct relationship between all aspects of religiosity and fertility rate. In most of the communities, religion is very important from social, economic, and political perspectives and plays an important role in the acceptance or resistance of family planning (31). Islamic teachings, verses, and traditions have directly encouraged the

Muslims to childbearing and indicated the benefits of reproduction (14).

In the same vein, in a study performed in Iran, Soroush (2013) observed a significant relationship between religiosity and the actual number of children (12). Likewise, Khadivzade et al. (2017) reported a significant relationship between religious beliefs and fertility tendencies and ideal number of children among marrying couples in Mashhad, Iran (17). Saei (2017) also showed that religious orientation affected the real and ideal number of children among employed women in Tehran, Iran (32). Additionally, Frejka (2008) acknowledged that high fertility rate in the USA, compared to that in Europe, may be due to their stronger religious beliefs (33).

After entering the selected variables in the linear regression analysis, this model was able to predict 54% of the variance in fertility rate for women in Torbat Heydariyeh. Based on the results of the study, couple's age, age at marriage, and education level had a significant role in the prediction of fertility rate. This reflects the priority of policies, such as early and easy marriage, and the provision of such conditions by politicians to promote fertility rate. In this regard, educated women should be the target group for special interventions to increase fertility rate.

There are a number of limitations in the interpretation of the results of this study. With regard to the cross-sectional design of the present study, insufficient evidence was obtained for the investigation of the relationship between the investigated variables and fertility rate. Moreover, a causal relationship could not be determined easily. In addition, this study included the investigation of only a number of factors affecting fertility.

In the present population, factors having a 46% share in predicting fertility rate still remain unknown. In addition, all the participants in the present study were selected from urban population; however, factors affecting fertility rates may vary based on urban and rural communities. Therefore, it is recommended to perform further studies to investigate the factors influencing fertility rate in other parts of the country and among other groups with different religious backgrounds.

Conclusion

Based on the findings of the present study, fertility rate in the city of Torbat Heydariyeh was found to be as low as that in other parts of the country. This is due to a number of factors, the most important of which include couple's age, age at marriage, and education level. Comprehensive realization of the population problems and application of appropriate interventions focusing on the most important factors influencing couples' fertility can provide a bright outlook for the current population problem. This end is likely to be achieved by focusing on the programs, policies, and interventions to lower the marriage age in the population.

Acknowledgements

This study was extracted from a project approved by the Torbat Heydariyeh University of Medical Sciences. The study was funded and supported by the Research Deputy of Torbat Heydariyeh University of Medical Sciences.

Conflicts of interest

The authors declare no conflicts of interest.

References

1. Mahmoudi MJ, KazemiPour S, Mehdi A, Nikoonesbati A. Iran's population projection considering socio-economic factors based on a multidisciplinary approach. *The Journal of Planning and Budgeting*. 2012; 17(2):97-126.
2. Chaurasia AR. Fertility, mortality and age composition effects of population transition in China and India: 1950-2015. *Comparative Population Studies*. 2017; 42:149-186.
3. Abbasi Shavazi MJ, Hosseini-chavoshi M. Evolution of fertility, family planning and population policies in Iran. *Journal of Knowledge in Islamic University*. 2011; 15(3):8-25.
4. Hosseini H, Abbasi Shavazi MJ. Change of thinking and its impact on behavior and ideals Kurdish and Turkish women's fertility. *Journal of Women's Research*. 2009; 7(2):55-84.
5. General population and housing census preliminary results. Iran Statistics Center. Available at: URL: <http://amar.org.ir>; 2015.
6. Vahidnia F. Case study: fertility decline in Iran. *Population and Environment*. 2007; 28(4-5):259-266.
7. Farrokh Eslamlou HR, Vahabzadeh Z, Moieni SR, MoghadamTabrizi F. Pre-marriage couples

- fertility attitude following recent childbearing persuasive policies In Iran. *The Journal of Urmia Nursing and Midwifery Faculty*. 2014; 11(10): 836-846.
8. Eskandari M, Farzaneh S. The effect of female's autonomy on their fertility amount: a case study on married women of 20-35 in Nour. *Social Research*. 2013; 6(18):63-85.
 9. Acharya RC. The effect of demographic factors on fertility behavior in western Terai of Nepal. *Economic Journal of Development Issues*. 2010; 11:99-111.
 10. Hezarjarib J, Abbaspoor A. Influence social-economic on women fertility rate. *Social Research*. 2010; 3:178-184.
 11. Adibi SM, Arjmand SE, Darvishzadeh Z. The investigation of fertility increase and effective factors on it among the kord clan in andimeshk. *Journal of Iranian Social Development Studies*. 2012; 4(1):81-98.
 12. Soroush M, Bohrani SH. The relationship between religiosity, attitudes toward gender roles and attitudes actual and ideal number of children. *Women in Development & Politics*. 2013; 2:209.
 13. Mahmoudain H, Noubakht R. Religion and fertility. *Social Issues in Iran*. 2010; 1(1):195-215.
 14. Kiani R. Evaluation of the fertility of the Holy Quran. *Journal of Population*. 2007; 91:61-62.
 15. Heyford SR, Morgan SP. Religiosity and fertility in the United States: the role of fertility intentions. *Sociology Forces*. 2008; 86(3):1163-1188.
 16. Branas-Garza P, Neuman S. Parental religiosity and Daughters' fertility the case of Catholics in southern Europe. *Review of Economy of the Household*. 2007; 5(3):305-327.
 17. Khadivzadeh T, Hadizadeh Talasaz Z, Shakeri MT. Predicting factors affecting the delay in first childbearing among young married women using the Bandura's social learning theory. *Journal of Hayat*. 2017; 23(3):226-242.
 18. Khodayarifard M, Shokoohi YM, Ghobari BB. Preparing a scale to measure religious attitudes of college students. *Journal of Psychology*. 2000; 4(3):268-285.
 19. Mobasheri M, Alidousti M, Heidari Soureshjani S, Khosravi F, Khalafeyan P, Jalilian M. Determination of the most important factors influencing the fertility patterns of single child and without child families in Shahr-e-kord city in 2013. *Scientific Journal of Ilam University of Medical Sciences*. 2013; 21(6):63-70.
 20. Adhikari R. Demographic, socio-economic, and cultural factors affecting fertility differentials in Nepal. *BMC Pregnancy and Childbirth*. 2010; 10(1):19.
 21. Ider N, Dorosti AA. Evaluating the effect of population information and attitude on reproductive behaviors of teacher in Shushtar. *Journal of Social Sciences*. 2012; 6(18):199-122.
 22. Keshavarz Mozafari H, Sharifirad G, Tavangarrad MR, Mardani Z. An investigation on socio-demographic factors influencing on fertility rate in Shahreza. *The Journal of Health Research*. 2014; 10(1):66-76.
 23. Basu AM. Why does education lead to lower fertility? A critical review of some of the possibilities. *World Development*. 2002; 30(10): 1779-1790.
 24. Correia S, Rodrigues T, Barros H. Socioeconomic variations in female fertility impairment: a study in a cohort of Portuguese mothers. *BMJ Open*. 2014; 4(1):e003985.
 25. Al-Kandari Y. Fertility and its relation with sociocultural factors in Kuwaiti society. *Eastern Mediterranean Health Journal*. 2007; 13(6):1364-1371.
 26. Golmakani N, Fazeli E, Taghipour A, Shakeri MT. Relationship between gender role attitude and fertility rate in women referring to health centers in Mashhad in 2013. *Iranian Journal of Nursing and Midwifery Research*. 2015; 20(2):269-274.
 27. Rutstein SO. The influence of child mortality on fertility in Taiwan. *Studies in Family Planning*. 1974; 5(6):182-188.
 28. Shapiro D, Tenikue M. Women's education, infant and child mortality, and fertility decline in urban and rural sub-Saharan Africa. *Demographic Research*. 2017; 37(21):669-708.
 29. Akaberi A, Mahmoudi M, Zeraati H, Majlesi F. Study of the relationship of socioeconomic and demographic factors with fertility. *Journal of Sabzevar University of Medical Sciences*. 2013; 15(1):40-45.
 30. Fayyad HN. Fertility in Iraq: trends, evolution and influential factors. Doha: Arab Center for Research & Policy Studies; 2012.
 31. Pearce LD. Religion's role in shaping childbearing preferences: the impact of Hinduism and Buddhism. Washington, DC: Population association of America Annual Meeting; 2001.
 32. Gharenaz MS, Ozgoli G, Hajizadeh F, Sheikhan Z, Nasiri M, Jannesari S. The relationship between religious orientation with intention of desired fertility and actual and desirable number of children in working women of Tehran, Iran. *Journal of Research on Religion & Health*. 2017; 3(1):79-90.
 33. Frejka T, Westoff CF. Religion, religiousness and fertility in the US and in Europe. *European Journal of Population*. 2008; 24(1):5-31.