

Factors Related to Women's Fertility Intent: A Study Based on the Theory of Rational Action

Roghayeh Khorram¹, Maryam Hasani¹, Mahmood Karimy^{2*}, Atefeh Mohammadi¹, Mehdi Ranjbaran³

¹Social Determinants of Health Research Center (SDHRC), Department of Public Health, Saveh University of Medical Sciences, Saveh, Iran

²Social Determinants of Health Research Center (SDHRC), Assistant Professor, Saveh University of Medical Sciences, Saveh, Iran

³Reproductive Epidemiology Research Center, Department of Epidemiology and Reproductive Health, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran

*Corresponding author: Mahmood Karimy, University of Medical Sciences, Saveh
Email: karimymahmood@yahoo.com

Received: 26/06/2015; Accepted: 22/12/2015

Abstract

Introduction: Over the past few decades, we have seen a major decline in fertility in Iran and in the world. A wide range of social, economic and personality factors, including delayed marriage, fertility behavior, educational and economic goals have affected fertility intent. The rational action theory that determines the relationship among attitude, intent and behavior can be used to explain women's fertility intent.

Objective: The aim of this study was to determine the factors related to fertility intent based on rational action theory.

Materials and Methods: In this analytical cross-sectional research, the study's population includes 480 married women covered by Saveh health centers which were selected by cluster sampling in 2015 and became subjects of the study. Data was collected by self-report and using a questionnaire designed on the basis of the constructs of the theory of rational action, marital satisfaction variable and demographic factors. It was analyzed by independent t-test and Pearson's correlation.

Results: The results showed that about 62% of the women tended to have a baby. The variable of the fertility intent indicated significant and positive correlation with the constructs of the theory of rational action (attitude $p=0.001$, $r=0.45$, mental norms $p=0.0001$, $r=0.41$, obedience motivation, $p=0.0001$, $r=0.36$) and also marital satisfaction variable ($p=0.0001$, $r=0.37$) and significant but a negative correlation with marriage age ($r=-0.39$, $p=0.03$).

Conclusion: According to the relationship between the constructs of the theory of rational action and the intention of fertility, consideration of these factors is useful for influencing women's fertility. Educational interventions on fertility are also recommended to help couples make informed decisions about fertility and correct false beliefs.

Keywords: Fertility, Reproductive Behavior, Women

Please cite this article as: Khorram R, Hasani M, Karimi M, Mohammadi A, Ranjbaran M; Factors Related to Women's Fertility Intent: A Study Based on the Theory of Rational Action. J Holist Nurs Midwifery. 2017;27(3): 57-66

Introduction

The fertility rate in the country has been declining over the last three decades. So, results of the censuses and statistics in Iran show that the total fertility rate of 7.7 children per woman in 1966 reached 1.6 children in 2011 [1]. Also, the total fertility rate or the number of live births expected by each woman during her fertility period dropped from 6.3 in 1986 to below the replacement level of 2.1 in 2006 [2]. Reducing fertility and consequently reducing population has negative effects on all economic, social and cultural structures of the community. Among the negative effects and consequences of reduced fertility is population structure change, so-called aging population and, consequently, lack of economic growth and development [3]. Extensive population changes over the past three decades and the resulting demographic challenges along with reduced fertility will have a decisive impact on population growth, demographic composition and structure, and will moderate the acceleration of population growth [4]. From a demographic point of view, fertility has been known to be the most important determinant of population fluctuation (gender construct and age of population) [5]. Therefore, population policies in most countries are mainly focused on reducing or increasing fertility [6].

Relative perception about the importance of each of the factors affecting fertility developments in recent years, especially the attitude towards childbearing, has attracted the attention of researchers [6].

One of the areas that have undergone many changes in our country in these years is the childbearing activities of individuals and families, especially women [6]. Deciding on fertility is one of the major events in a couple's life, which in turn

affects many aspects of life such as health, economic conditions and household welfare [7]. Previous studies have shown that people often make their fertility decisions in terms of their beliefs and attitudes, that is, the change in fertility practice is closely related to the change in people's value systems [4, 7, 8]. Studies conducted by Mansourian and Khoshnervis [9] and Farrokh Eslamo et al. [10] in Iran, by Peterson et al. in the United States [11], and Lampic et al. in Sweden [12] also showed that change in reproductive performance of couples may be due to major changes in their attitudes towards fertility and childbearing.

Determining the beliefs of individuals in this field by using the rational action theory can help clarify the angles of this intention. The rational action theory used as the theoretical framework in this study was presented in 1967 by Fishbone and Ajzen to better understand the relationship among attitude, intent and behavior [11]. According to this theory, humans, before deciding to do a behavior, first examine its application and efficiency and if it seems reasonable to behave, they will take action. In this theory, behavior is a function of information and important beliefs related to behavior and behavioral intention is an important determinant of behavior. Direct determinants of people's behavioral intention are attitude towards behavior and also abstract norms related to behavior [12]. The ultimate goal of this model is prediction of behavior and it is assumed that behavioral intention is a direct determinant of behavior and other indirect factors that affect behavior [11–12]. Figure 1 shows the relationship among the constructs of this theory.

In the absence of knowledge and information shortage about the effective factors of fertility in women under the control of Saveh Medical School, the

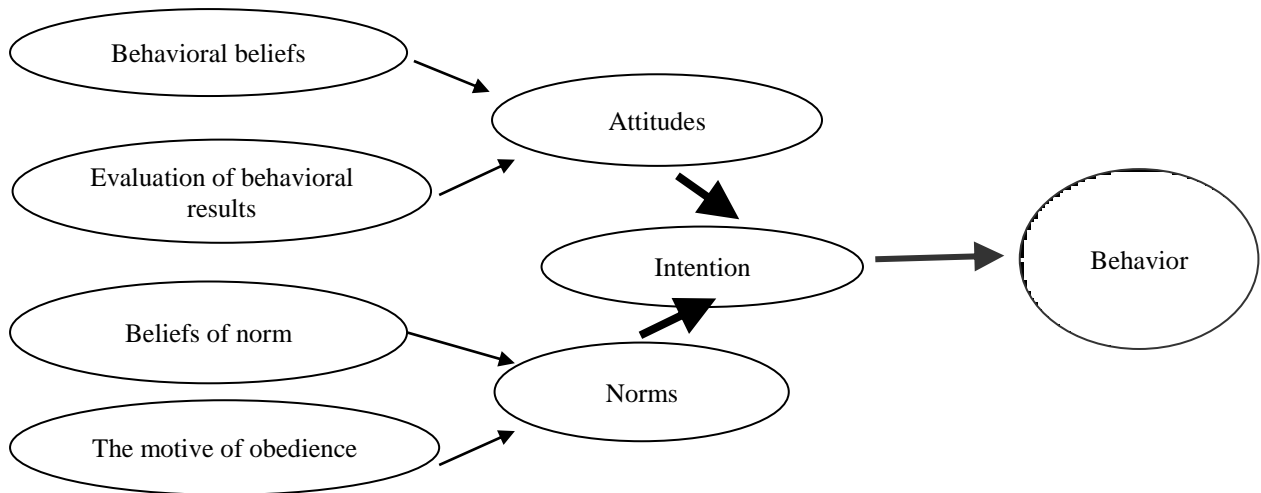


Figure 1. The form of the theory of rational action

present study was conducted to identify the factors affecting the intention of women to bear a child for effective intervention. It hoped to help health planners and policymakers in implementing new demographic policies.

Materials and Methods

In this analytic cross-sectional study, the study's population includes married women with health records covered by health departments of Saveh Medical School in 2015. Married women who passed one year of their marriage without children, or having a child, tended to participate in research and, felt they had a medical problem for pregnancy and hence, they came for the investigation. After obtaining a permit from the authorities of Saveh Medical School and providing a list of health centers covered by the faculty, research units were selected through cluster sampling and entered into the study. The sampling method was that, in the first stage, the population of four areas (central part of Nowbaran city of Saveh and central and Kharqan district of Zarandieh city) under the control of Saveh Medical School was taken, according to the census of 2011. Then, from each district of the city of Saveh and Zarandieh,

a city health center and a rural center were selected randomly. In total, four urban centers and four rural centers were included in the study. In the next stage, according to the proportion of rural women's population to urban women in each section, the proportion of sample required for each center was determined. In the final stage, using the household records, and by systematic sampling, the number of samples needed from each center was selected and entered into the study. The selected women were invited by telephone. They came to the health center and after being explained the goals and method of study, they completed the informed consent form by the research team and also their questionnaire.

Sample size of 400 cases was determined by using the Cochran formula and we assume acceptance error sampling of 5%, 95% confidence level and 36% of the childbearing intention [6]. So, 500 questionnaires were distributed and 17 questionnaires were removed due to defects. So, 483 forms were completed (97% response rate).

Data was collected using a researcher-made questionnaire and self-report method. The questionnaire consisted of

three parts of demographic information (12 questions), the constructs of rational action theory (32 questions) and marital satisfaction questionnaire (10 questions). To design and construct a questionnaire related to the variables of the theory of rational action, the research group used library studies and sample of the questionnaires used in previous studies [3, 5, 10, 13, 14]. Content validity of the questionnaire was confirmed by calculating content validity ratio (CVR) and content validity index (CVI). The questionnaire was distributed to 10 professors in health education, social medicine, and obstetrics, who had the expertise and experience in the field. They were asked to provide the required feedback after a qualitative review of the tool based on grammatical criteria, the use of appropriate words, placement of items in their proper place, and appropriate rating. The errors and uncertainties in the questionnaire were then corrected, according to their views. According to the panel's number of experts (10 people) and the Lowsheh table, the criterion higher than 0.62 was used to confirm the content validity ratio and the criterion above 0.79 was used to confirm the content validity index. Also, the reliability of the questionnaire was evaluated by calculating the internal correlation coefficient on a group of 25 women. Cronbach's alpha was 88% for attitude questions, 82% for abstract issues, and 85% for behavioral intention.

In this study, the attitude towards fertility and childbearing had 15 questions and answers were Likert's five options from 1 (completely disagreed) to 5 (completely agreed). They were designed to evaluate the positive and negative beliefs of the research units. At this scale, the range of achievable scores was between 15 and 75 and, higher scores represent a better attitude towards fertility and childbearing.

The structure of the abstract norms score, in relation to the influence of best friend, wife, and other important people on women's fertility intention with six five-option questions was from 6 to 30. Higher the score, higher was the impact of the individual by the other important person. The motive of obedience of the individual was measured with seven questions and the range of achievable scores was between 7 and 35. A high score indicates high motivation for obedience of the individual. The behavioral intention structure for childbearing was measured with four questions and the score range was between 4 and 20. Earning a high score reflects the high intention for childbearing. As previous studies have shown, marital satisfaction can be one of the factors affecting fertility [10–12]. This variable was also studied. Marriage satisfaction questionnaire of evaluation and nurturing relationship issues, communication and happiness (ENRICH), which was psychoanalyzed by Rajabi et al. [15], was used. This questionnaire measures marital satisfaction with responses in five-option Likert scale from 1 (completely disagree) to 5 (completely agree). Earning a high score in this tool reflects marital satisfaction.

Ethical considerations were observed for all participants in the study. They were informed about things like how and why the plan was implemented, confidentiality issues and non-use of information tools, and also the purpose of carrying out the design and obtaining written consent. Data was analyzed by SPSS software version 18 at a significant level of 0.05 with t-test, Chi-square and Pearson's correlation coefficient tests.

Results

Four hundred eighty three married women under the protection of Saveh Medical School with an average age of 24.7 ± 5.6

Table 1. Comparison of frequency of the specifications of the research units in two groups with and without tendency to childbearing

Variable		With tendency to childbearing Number (%)	Without tendency to childbearing Number (%)	Sig.*
Education level	Illiterate	4(0.83)	2(0.41)	0.006
	Under the diploma	114(24)	89(18)	
	Diploma	95(20)	84(17)	
	Academic	45(9)	50(10)	
Employment status	Employed	29(6)	39(8)	0.05
	Housewife	227(45)	188(41)	
Husband employment status	The worker	154(32)	121(25)	0.78
	Employee	30(6)	26(5)	
	Free business	80(17)	72(15)	
Housing	Landlord	156(32)	59(12)	0.001
	Tenant	81(17)	107(22)	
	The others	34(7)	46(10)	

*Chi-square test

years and an average age of their spouses of 30.5 ± 4.9 participated in the study. Age of majority of the subjects (33%) was 26 years old. 80% of the population lived in the city and rest of the subjects was from villages. Among the units studied, 1.2% was illiterate, 42% pre-diploma, 37% had a diploma and 19.8% had university degrees.

Chi-square test showed significant difference in the two groups of those who had tendency and did not have tendency for childbearing in terms of education level ($p=0.05$). In terms of employment, 14% subjects were employed and the rest were housewives. And among them, the housewife group had a tendency to have children more. About 42 percent of the units studied were landlords, 39 percent tenants, and the rest were living at a paternity or boarding house. The average home area was 81 square meters. Chi-square test showed two significant differences in the two groups with and

without tendency for childbearing in terms of residence status ($p=0.05$). A total of 62% of the samples tended to have a child. The characteristics of the research units in the two groups with and without tendency for childbearing are listed in Table 1.

In this study, Pearson's correlation coefficient was used to determine the relationship among variables and the results showed that there was a significant and negative correlation between fertility intention and marriage age ($r = -0.39$) and, marital satisfaction ($r = 0.37$), attitude ($r = 0.45$), abstract norms ($r = 0.41$) as well as obedience motive ($r = 0.36$) had a positive and significant correlation with the intention of fertility ($p=0.01$) (Table 2).

The assumption of normalization of data was evaluated using the Kolmogorov-Smirnov test and the results showed that this assumption had been established.

Table 2. Correlation between the constructs of the theory of rational action and marital satisfaction with the intention of fertility

Variable	Attitude	Abstract norms	The motive of obedience	Marital Satisfaction	Behavioral intention
Attitude	—				
Abstract norms	r=0.45 P=0.001	—			
The motive of obedience	r=0.38 P=0.001	r=0.53 P=0.001	—		
Marital Satisfaction	r=0.36 P=0.0001	r=0.49 P=0.001	r=0.55 P=0.001	—	
Behavioral intention	r=0.45 P=0.001	r=0.41 P=0.0001	r=0.36 P=0.0001	r=0.37 P=0.0001	—

Table 3. Comparison of the mean score of marital satisfaction and the constructs of rational-action theory in people with and without tendency to childbearing

Variable	Tendency to childbearing		Without tendency to childbearing		Total		Sig.*
	Mean ± SD	Total number	Mean ± SD	Total number	Mean ± SD	Total number	
Marital Satisfaction	38.2±7.6	300	31.4±8.7	183	34.2±7.5	483	0.001
Attitude	55.1±10.4	300	42.1±18.3	183	50.2±1.5	483	0.001
Abstract rules	23.9±6.3	300	19.2±7.1	183	22.1±7	483	0.001
The motive of obedience	24.8±6.2	300	22.7±7.5	183	23.9±6.8	483	0.002
Behavioral intention	16.8±8.5	300	13.2±7.9	183	15.4±8.4	483	0.001

* Independent T Test

Considering that in this study, the purpose was to determine and compare the mean of the constructs of the theory of rational action in the two groups with and without tendency, independent t-test was used. As Table 3 shows, the group with tendency for childbearing had higher mean score of marital satisfaction, attitude, abstract norms, motivation for obedience and higher behavioral intention than the group without the tendency and independent t-test showed a significant difference between the two groups ($p=0.05$).

Discussion

In recent years, the decline in fertility and the factors affecting it have been at the center of sociological and demographic studies. The present study aimed to determine the effects of childbearing using the theory of rational action. Based on the results, 62% of the units tended to have a child. This finding was in line with the study of Kalantari et al. In Tabriz, that showed the incidence of childbearing in women was 59% [14]. This amount was 41% in the study of Hosseini and Beigi [6], and 41% in Abbasi Shavazi's study [16]. This finding was larger in

comparison with the results of Cleland [17], Kerzer and White [18], which showed an average childbirth tendency of 28%. However, direct comparison of these values is difficult due to the constant change in variables such as the population studied and how to look at the trend towards childbearing because, for example, in the Kerzer and White study, the samples included all 14–29-year-old women. Obviously, in this society, some women have had more than two children and they will not be willing to give birth [18].

Like the findings of Naghdi and Zareh Study in Iran [19] as well as Adhikari in Nepal [20], this study is also of the view that marital satisfaction was significantly and positively correlated with childbearing. Also, women with fertility intent had a higher mean marital satisfaction score than those who did not want to have a child. Various studies have shown that sexual function has a direct and significant relationship with sexual satisfaction of individuals [21–22] and marital satisfaction is one of the important factors affecting women's health. Form of marital relationship is one of the most important and frequent causes of sexual dysfunction. Indeed, the most important goal of sexual desire is reproduction and having a child [8]. Therefore, having proper education programs in this field while consolidating the family foundation can have a positive effect on childbearing.

Our findings showed that there is a reverse and significant correlation between marriage age and fertility intention, which is similar to the findings of some studies [4, 19]. In this regard, the study of the United Nations Population Program in 22 developing countries showed that there may be an inverse relationship between the age of maternal marriage and fertility [3]. Kodzi et al. also showed that for a one-

year, increase in age during the first child's birth, reduced total fertility of women by 3% [22]. However, according to the statistics of Iran, the average age during first marriage for women increased from 19.7 years in 1976 to 23.4 years in 2011 [1] and this means increasing the age of marriage can be effective in reducing childbearing in the last decade.

In line with previous studies [19, 21], this study also showed a lower tendency of childbearing in women with higher levels of education. According to the modernization theory, educated people have lower tendency for childbearing [23]. It seems that in higher-educated families, the child is less preferred because of increased attention to the quality of children's education and the learning of the skills they need. On the other hand, there is evidence that both women's education and participation in the women's workforce are related to the power of women in the family. Promoting women's education leads to increased employment opportunities, and, consequently, a higher chance to make decisions in the household [12, 24]. This may result in lower fertility.

In the present study, employed women tended to have fewer children than housewives. This may be due to the security and financial independence caused by employment that does not look at the child as a future capital or provider of family income and also the job problems caused by having a child and working women in the country. In line with the findings of this study, there were studies conducted by Pradhan and Pandey in Nepal [25], and Khadivzadeh et al. in Mashhad [1]. However, the findings of this study in this regard were consistent with the findings of the study by Naghdi and Zareh in Shiraz [19].

Based on the mean scores of attitude in the group with behavioral intention, the

tendency for childbearing was significantly higher than the group without tendency. This finding was consistent with some studies [10, 26]. It seems that given the expectation that there is a relationship between attitude and behavior, positive attitude towards fertility has been able to influence the unit's tendency.

In this study, there was a positive and significant correlation between abstract norms and obedience motivation with the intention of fertility. The mean score of abstract norms and obedience motives in the group with fertility intention was significantly higher than the group without fertility intention. This finding suggests that spouses and mothers are the most influential. This deduction is in line with the study by Nourani et al. [8], Khadizadeh et al. [2]. Based on the theory of rational action, abstract norms refer to the social pressure perceived by the individual to accomplish or not to carry out target behavior. People often act on the basis of their perceptions of what others (friends, family, colleagues, etc.) think they should do and their intention to accept behavior is potentially influenced by those who have close connections with them [27]. Considering this issue in the present study, it seems that in designing and implementing childbearing educational programs, the participation of spouses plays an important role in motivating couples. Researchers believe that attitudes and behavioral intentions towards any phenomenon are strongly influenced by the norms of that society.

The lack of participation of men in this can be one of the limitations of the present study. Therefore, it is recommended that subsequent studies assess the beliefs and factors affecting childbearing from the point of view of men also in order to obtain a clearer view of the factors and

beliefs affecting fertility in Iranian families.

This research is aimed at providing information to parents and health workers, educational planners and researchers about the factors affecting childbearing. The results showed that the constructs of the theory of rational action (attitude, abstract norms, and motivation of obedience) and marital satisfaction are directly related to the tendency for childbearing. Therefore, the fertility rate can be improved by changing and improving the attitudes of women, as well as identifying and educating others important in the life of the individual (such as spouses, friends, etc.). Accordingly, demographic policy-makers can take a positive step in identifying the factors that affect fertility for preventing a further decline in fertility by planning for the application of theories and patterns of behavior change. Performing similar studies in the population and other areas using this model as well as designing and conducting educational programs on fertility to assist couples to make informed decisions about fertility and correct false beliefs is recommended.

Acknowledgments

We thank the deputy director of the Research Department of Saveh University of Medical Sciences. This study has been approved with the Code of Ethics No. Ir.savehums - rec139413 by the Ethical committee of the school and Code 216/94. The authors of this paper also thank all midwifery and family health professionals of health centers covered by the Deputy Health Department of the Faculty of Medical Sciences of Saveh. The authors of the paper also express their gratitude to all the loved ones participating in this project.

Conflict of interest

No conflict of interest has been declared by the authors.

Author contributions

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE

(<http://www.icmje.org/recommendations/>):

-Substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;

-Drafting the article or revising it critically for important intellectual content.

References

1. Khadivzadeh T, Arghavani E, Shakeri MT. Relationship between Fertility Motivations and Preferences in Couples. Iranian Journal of Obstetrics, Gynecology and Infertility. 2014;17(114):8-18. Persian
2. Khadivzadeh T, Latifnejad R, Bahrami M, Taghipour A, Shavazi J. The influence of social network on couples' intention to have the first child. Iran J Report Med. 2013;11(3):209-218.
3. Kariman N, Amerian M, Jannati P, Salmani F, Hamzekhani M. A Path Analysis of Factors Influencing the First Childbearing Decision-Making in Women in Shahrood in 2014. Global journal of health science .2016. 8(10): 24-29.
4. Keshavarz H, Haghighatian M, Tavasoli Dinani K. A Study on the Factors Influencing the Space between Marriage and Having Children, Case Study: Married Women of 20-49 in Isfahan. Journal of Applied Sociology. 2013; 24 (2) :111-125.
5. Miller WB, Bard DE, Pasta DJ, Rodgers JL. Biodemographic modeling of the links between fertility motivation and fertility outcomes in the NLSY79. Demography.2010;47(2):393-414.
6. Hosseini H, Bagi B. Socioeconomic, cultural and demographic determinants of childbearing desires among married women attending health centers in Hamedan, 2012. Journal of Kermanshah university of medical science. 2014;18(1):22-29. Persian
7. Sennott C, Yeatman S. Stability and change in Fertility preferences Among young women in Malaw. Int Perspect Sex Reprod Health. 2012 Mar;38(1):34-42. doi: 10.1363/3803412.
8. Nourani Sh, Jonaidy E, Shakeri MT, Mokhber N. Sexual Satisfaction in Fertile and Infertile Women Attending State Clinics in Mashad. J Reprod Infertil. 2010;10(4):269-277.
9. Mansourian MK, Khoshnevis A. Married women's attitude and sexual preferences about reproductive practice: Tehran case study. Hum soc sci J Shiraz Univ 2006; 24(2):129-46.
10. Farrok-Eslamlou H, Vahabzadeh Z, Moeini R, Moghaddam Tabrizi F. Pre-marriage couples' fertility attitude following recent childbearing persuasive policies Iran. The Journal of Urmia Nursing and Midwifery Faculty. 2013;11(10):836-845.
11. Peterson BD, Pirritano M, Tucker L, Lampic C. Fertility awareness and parenting attitudes among American male and female undergraduate university students. Hum Reprod. 2012 May;27(5):1375-82. doi: 10.1093/humrep/des011. Epub 2012 Mar 8.
12. Lampic C, Svanberg AS, Karlström P, Tydén T. Fertility awareness, intentions concerning childbearing, and attitudes towards parenthood among female and male academics. Hum Reprod. 2006 Feb;21(2):558-64. Epub 2005 Nov 17.
13. Ahmadi K, Nabipoor Ashrafi M, Kimiaee A, Afzali M H. Effect of family problem solving on marital satisfaction. Journal of Applied Science. 2010. 10(8): 682-687. Persian
14. Kalantari S, Abbaszadeh M, Mozafari A, Rakeei Bonab N. The Sociological Study of Attitude to Child bearing and its some related. Journal of Applied Sociology 2010;21(1):83-104.
15. Rajabi Gh . Factorial Structure of Marital Satisfaction Scale in Married Staff Members of Shahid Chamran University. Iranian Journal of Psychiatry and Clinical Psychology. 2010 ; (4) : 351- 358. Persian
16. Abbasi-Shavazi M, Hosseini H. Ideational changes and its impact on fertility behavior and attitudes of Kurd and Turk women. Journal of Women in Development and Politics. 2009;7(2):55-84. Persian
17. Cleland JG. Diversity of fertility levels and implications for the future. Procedia social and behavioral sciences. 2010; 2(3): 6920 -6927.
18. Kertzer DI, White MJ, Bernardi L, Gabrielli G. Italy's Path to Very Low Fertility: The Adequacy of Economic and Second Demographic Transition Theories: Le cheminement de l'Italie vers les très basses fécondités: Adéquation des théories économique et de seconde transition démographique. Eur J Popul. 2009 Feb;25(1):89-115. Epub 2008 Mar 27.
19. Naghdi A, Zareh S. Study of social and cultural factors effected on fertility among

- marginalized women. *Journal of woman and society*. 2013;4(2):31-40.
20. Adhikari R. Demographic, socio-economic, and cultural factors affecting fertility differentials in Nepal. *BMC Pregnancy and Childbirth*. 2010; 10:19.
 21. Sadeghi R, Abbasi-Shavazi MJ. Ethnicity and patterns of marriage in Iran. *Women in Development & Politics*. 2005; 3(1): 25-47.
 22. Kodzi IA, Johnson DR, Casterline JB. Examining the predictive values of fertility intentions among Ghanaian women. *Demographic Research*. 2010; 22(30): 965-984.
 23. Shakiba F, Azkhosh M, Dolatshahee B, Younesi J, Eftekhari M. The Relationship between Attitudes toward Modern Assisted Reproductive Technique and Demographic Characteristics of Infertile Cases. *The Iranian journal of Obstetrics, Gynecology and Infertility*. 2013; 16(58):16-23.
 24. 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. Persian
 25. Pradhan A, Pandey S. Fertility desire of working in Kathmandu. *J Nepal Health Res count*. 2010; 8(17):95-98.
 26. Kazemi Z. The Effect of Developmental Idealism on the Gap between Mothers and Daughters in their Attitudes towards Marriage and Family. *Journal of Family Research*. 2010; 6(3): 299-312.
 27. Karimy M, Niknami Sh, Hidarnia Al, Hajizadeh E, Shamsi M. Personal Attitudes, Risk Perception and Perceived Vulnerability toward Water Pipe Smoking among Male Students in Zarandieh . *Health Education & Health Promotion*. 2014;1(2):20-31.