

## Comparison of the Relationship between Women's Empowerment and Fertility between Single-child and Multi-child Families

### Abstract

**Background:** The reduction in fertility and increase in the number of single-child families in Iran will result in an increased risk of population aging. One of the factors affecting fertility is women's empowerment. This study aimed to evaluate the relationship between women's empowerment and fertility in single-child and multi-child families. **Materials and Methods:** This case-control study was conducted among 350 women (120 who had only 1 child as case group and 230 who had 2 or more children as control group) of 15–49 years of age in Isfahan, Iran, in 2016. For data collection, a 2-part questionnaire was designed. Data were analyzed using independent *t*-test, Chi-square test, and logistic regression analysis. **Results:** The difference between average scores of women's empowerment in the case group 54.08 (9.88) and control group 51.47 (8.57) was significant ( $p = 0.002$ ). Simple logistic regression analysis showed that under diploma education, compared to postgraduate education, (OR = 0.21,  $p = 0.001$ ) and being a housewife, compared to being employed, (OR = 0.45,  $p = 0.004$ ) decreased the odds of having only 1 child. Multiple logistic regression results showed that the relationship between women's empowerment and fertility was not significant ( $p = 0.265$ ). **Conclusions:** Although women in single-child families were more empowered, this was not the main reason for their preference to have only 1 child. In fact, educated and employed women postpone marriage and childbearing and limit fertility to only 1 child despite their desire.

**Keywords:** Fertility, Iran, single-child family, women's empowerment

### Introduction

Fluctuation in population is affected by numerous factors, the most important of which is fertility. Fertility rate is an important factor in predicting demographic changes and assessing the socioeconomic status of countries.<sup>[1]</sup> The reduction of total fertility rate to below replacement level in many countries is the cause of population aging.<sup>[2]</sup> Total fertility rate declined from 3.6 in 1986 to 1.6 in 2010 in Iran, and population growth reduced from 3.9% in 1986 to 1.29% in 2010.<sup>[3]</sup> This could lead to population aging in Iran in the future.<sup>[2]</sup> One of the most important reasons for this reduction is the increase in the number of single-child families; 18.9% of Iranian families are single-child families. This pattern has been reported to be 19.9% in urban areas and 16.4% in rural areas.<sup>[3]</sup> Due to the recent reduction in population control policies, reduced fertility is not the result of governmental interventions but can represent the rational choice of women.<sup>[4]</sup>

Because women constitute half of the world population and their role in population fluctuations of countries is considerable, the participation of women and gender equality were addressed as the basic elements of sustainable development in the Cairo Conference (1994).<sup>[5]</sup> Gender development and gender empowerment indices were announced in the Human Development Report of the United Nations in 1995 to measure human development and promotion of women's health.<sup>[6]</sup> Women's empowerment is a process that leads to women's ability to improve their life freely by equal access to resources and opportunities.<sup>[7]</sup> Thus, it was discussed in three fundamental axes of health promotion, access to economic resources, and reduction of gender inequality in the Cairo Conference. Moreover, it is also measured considering the economic, sociocultural, family-interpersonal, legal-political, and psychological dimensions. The economic aspect of women's empowerment includes

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women's access and control over income. The sociocultural aspect includes women's free movement, nondiscrimination compared to boys, and commitment to the education of girls. The familial and intra-individual aspects include participation in decision making, control over sexual relationships, and the ability to make decisions about fertility and use of contraceptive methods.<sup>[8]</sup>

The results of previous studies show that women's empowerment affects the use of contraceptives and family size, and hence can affect fertility and demographic processes.<sup>[9]</sup> In the International Conference on Population and Development in Cairo, women's empowerment was declared crucial to national development and stability of the population.<sup>[6]</sup> Numerous studies have been conducted on the relationship between fertility and women's empowerment. Upadhyay and Karasek showed that empowerment is positively correlated with the ideal number of children and is believed to be due to regional norms and attitudes towards gender roles of women.<sup>[10]</sup>

Khadvizadeh *et al.* concluded that increasing women's empowerment improves health-related literacy, understanding of social rights, quality of life (QOL), and child rearing.<sup>[11]</sup> In fact, increasing women's empowerment increases women's ability in decisions-making about fertility but reduces their opportunities for childbearing and rearing because of involvement in social and business activities.<sup>[11]</sup> Kohan *et al.* showed that, in Iranian families, physical access to free health care services was not enough to empower women in family planning and fertility decisions, and participatory decision making and spousal support within the family empower women in this regard.<sup>[12]</sup>

In studies conducted regarding the correlation between the number of children and empowerment, different results have been reported. Many studies found an inverse relationship between the number of children and empowerment. Very few studies found a direct correlation or no correlation between them.<sup>[10]</sup> Considering the effect of women's empowerment on fertility and population growth, and the importance of fertility reduction and increase in single-child families in Iran, this study was designed to evaluate the relationship between women's empowerment and fertility in single-child and multi-child families.

## Materials and Methods

This case-control study was conducted in 2016. The study population consisted of married women of 15–49 years of age who referred to health centers in Isfahan, Iran. The participants were selected through random cluster sampling method. Confidence level was considered to be 0.95, and test power 0.80%, so  $Z_{1-\frac{\alpha}{2}}$  and  $Z_{1-\beta}$  were, respectively, 1.96 and 0.84. The case group consisted of approximately 120 women with only one 6-year-old live child and the control group of 230 women who had

2 or more live children selected from the same health centers in the same age range. The total sample size was 350 women. Fertility was defined as the number of living children in the family. Since the chance of a second child will be strongly decreased when the first child is older than 6 years,<sup>[13]</sup> case group participants (single-child families) were selected among couples with only 1 child who was at least 6 years of age and born in this marriage. Moreover, the wife was not pregnant, used a contraceptive method, and had no desire to have another child in the future. In the control group (multi-child families), couples had 2 or more live children who were born in this marriage. The research tool was a researcher-made two-part questionnaire designed based on literature and library studies. The first part included questions on personal and fertility characteristics and the second on women empowerment. The second part consisted of 15 questions scored based on a 5-point Likert scale ranging from 1 to 5. Questions 2, 5, 6, 10, and 13 were negatively scored and the rest of the questions were positively scored. The total score of the questionnaire was 15–75. The content validity of the questionnaire was assessed through qualitative method and based on the judgment of 10 experts in reproductive health and midwifery. The reliability of the questionnaire was evaluated through test-retest that was completed on two occasions with an interval of 1 week by 16 women who had the inclusion criteria (8 women from the case group and 8 women from the control group). A correlation of 0.79 was achieved for the questions. The questionnaire was filled by the participants. Data were analyzed in SPSS software (SPSS Inc., Chicago, IL, USA). Descriptive tests of independent *t*-test and Chi-square test were used to compare mean and frequency in the two groups, and simple and multiple logistic tests were used to assess the relationship between the variables.

## Ethical considerations

The researcher explained the aim of the study to participants before questioning, and written informed consent was obtained from them. Moreover, they were assured information confidentiality and being able to leave the study at any time they wished. This research with ethical code IR.MUI.REC.1394.3.560 was approved in 25/08/2015 by the Research Ethics Committee of the Isfahan University of Medical Sciences, Iran.

## Results

In this study, 120 women participated in the case group and 230 women in the control group. The results showed that the average age of women in both groups was over 36 years and no significant difference was found between the groups in this regard ( $p = 0.600$ ). The highest age of marriage in the case and control groups was 34 and 31 years, respectively. The highest age at birth of the first child in the case and control groups was 41 and 36 years, respectively. Majority of the women in the case group (52.50%) were employed

or had an at-home job, whereas most women in the control group (65.66%) were housewives. This difference between the two groups was significant. However, no significant differences were found between the jobs of their spouses. Most women (56.67%) in the case group had an academic degree, while in the control group, majority of the women (62.18%) had a diploma or lower degrees. Moreover, regarding the spouse's education, the difference between the two groups was significant ( $p = 0.037$ ). The majority of the women in both groups (48.33% in the case and 59.13% in the control group) stated that the economic status of their families was at an average level [Table 1], and no significant differences were observed in this regard between the groups ( $p = 0.076$ ). The mean score of women's empowerment in the case group 54.08 (9.88) was more than the control group 51.47 (8.57), and independent  $t$ -test showed significant mean differences in women's empowerment in the two groups ( $p = 0.002$ ). The results showed that item number 1 (I have my own income and capital) had the lowest score and number 10 (I was planning to get pregnant under family pressure) had the highest mean score in both groups [Table 2]. Simple logistic regression analysis [Table 3] showed that the relationship between the husband's education and fertility of single-child families was not statistically significant ( $p = 0.224$ ). The most important related factors were, respectively, age at birth of the first child ( $p < 0.001$ ), women's education ( $p = 0.001$ ), marriage age ( $p = 0.004$ ), and woman's occupation ( $p = 0.004$ ). The results showed that, for each year of increase in age at birth of the first child and marriage age, the odds of having only 1 child increased at a ratio of 1.12 and 1.08, respectively, in both groups. Educational degree of lower than diploma, compared to postgraduate education, and being a housewife, compared to being employed, was associated with a reduction of 0.21 and 0.45 in odds of having a single child, respectively. The results of multiple logistic regression test after entering the age at birth of the first child, marriage age, job, and education of women showed that the relationship between women's empowerment and fertility, was not statistically significant ( $p = 0.265$ ).

## Discussion

In this study, the mean score of women's empowerment in both groups was at an average level. Kiani *et al.*<sup>[14]</sup> and Froozanfar *et al.*<sup>[6]</sup> reported that the empowerment score of women in Tehran, Iran, was average. In the present study, the findings showed that education, employment, marriage age, and age at birth of the first child in the case group were significantly higher than the control group. Furthermore, simple logistic regression analysis showed that age at birth of the first child, education, job, and marriage age had the highest impact on fertility of single-child families. Multiple logistic regression analysis after controlling education, job, marriage age, and age at birth of the first child showed

**Table 1: Relative frequency of the main variables in the two groups**

Main variable	Case (%)	Control (%)	Test	$p$
Woman's job				
Housewife	47.50	65.66	$\chi^2=11.48$	0.003**
At-home Job	5.00	4.78		
Employed	47.50	29.56		
Men's job				
Employed	42.50	36.95	$\chi^2=1.92$	0.589
Self-employed	49.16	55.66		
Retired, unemployed	8.34	7.39		
Women's education				
Lower than diploma	11.66	28.70	$Z=3.68$	<0.001***
Diploma	31.67	33.48		
Diploma to bachelor	42.50	30.43		
Master or PhD	14.17	7.39		
Men's education				
Lower than diploma	22.50	31.32	$Z=2.09$	0.037*
Diploma	29.16	32.61		
Diploma to bachelor	33.34	23.47		
Master or PhD	15.00	12.60		
Economic status				
Good	35.00	23.05	$Z=1.77$	0.076
Average	48.33	59.13		
Bad	16.67	17.82		

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

that women's empowerment had no relationship with fertility of single-child families. Froozanfar *et al.* reported similar results; they found a significant correlation between education, marriage age, and age at the first pregnancy and fertility behavior. They considered the number of children as one of the elements of fertility behavior. They found no relationship between employment and fertility behavior which was reported to be because of the low level of women employment. They also reported that, after controlling age, education, marriage age, and age at the first pregnancy, empowerment had no significant effect on the fertility behavior of women. These findings were reported to be the result of the lack of enough questions in the empowerment questionnaire and simultaneous entry of age and education in logistic regression that had a correlation with empowerment.<sup>[6]</sup> Abbasi-Shavazi and Alimandegar conducted a study on the impact of aspects of women's autonomy on their fertility behavior among Iranian ethnic groups.<sup>[15]</sup> They assessed fertility behavior with the average number of children born alive, as well as aspects of autonomy in information, decision-making, and movement. They showed that, by increasing education and employment, autonomy in decision-making and movement also increases. They found that autonomy in information and movement were inversely related to fertility, but autonomy in decision-making had no relation with fertility. Then, using stepwise regression and controlling employment, education, ethnicity, and age at first marriage,

**Table 2: The mean score of women's empowerment in the two groups**

	Mean (SD)	
	Case	Control
1- I have my own income and capital	2.36 (1.23)	1.88 (1.15)
2- I make my income and capital available to my family unwillingly	3.65 (1.49)	3.68 (1.47)
3- I have the right to choose an appropriate contraceptive method	3.98 (1.18)	3.80 (1.18)
4- I have financial independency to provide the appropriate contraceptive method	3.50 (1.36)	3.11 (1.44)
5- Despite the possibility and willingness to have a job, I do not have one because of household chores and child care	3.85 (1.55)	3.82 (1.53)
6- Despite the possibility and willingness to continue my education, I did not because of household chores and child care	3.66 (1.60)	3.32 (1.66)
7- I have easy access to reproductive health services	3.39 (1.41)	3.09 (1.46)
8- I have the right to make decisions regarding the educational affairs of the children	3.42 (1.23)	3.76 (1.13)
9- I have the right to make decisions on free movement alone	3.76 (1.11)	3.74 (1.15)
10- I was planning to get pregnant under family pressure	4.59 (0.95)	4.40 (1.11)
11- I am allowed to go to the health center or doctor's office alone	4.39 (1.01)	4.18 (1.09)
12- I am allowed to go to relations' or friends' homes alone	4.25 (1.06)	3.92 (1.22)
13- The number of my pregnancy is the preference of my husband	3.97 (1.48)	3.93 (1.47)
14- I have choice to have or not to have sexual relation with my husband	3.53 (1.17)	3.51 (1.21)
15- I can decide on important issues in my family	3.77 (1.16)	3.96 (1.04)

they found that the variables with the greatest impact on women's fertility were education, employment, and autonomy in movement.<sup>[15]</sup>

Abbasi-Shavazi and Khwajehsalehi found that most women had an average level of autonomy.<sup>[16]</sup> Education had a negative relation with fertility intention at all levels of decision-making autonomy, and autonomy in decision-making had a significant negative relation with fertility intention only at the ages of 15–29 years. They concluded that education has the most impact on women's autonomy.<sup>[16]</sup>

In this study, education and employment were important factors influencing fertility of empowered women. In fact, educated women tend to spend time on studying and working in certain jobs, thus delaying marriage and childbearing.<sup>[17]</sup> Rieck (2006) found no relationship

**Table 3: Relationship between the main variables and fertility based on simple logistic regression**

Main variable	$\beta$	OR (95% confidence interval)	<i>p</i>
Marriage age	0.08	1.08 (1.03-1.15)	0.004**
Age at birth of the first child	0.12	1.12 (1.07-1.18)	<0.001***
Women's education			0.001**
Lower than diploma	-1.55	0.21 (0.09-0.52)	0.001
Diploma	-0.71	0.08 (0.23-1.07)	0.075
Diploma to bachelor	-0.55	0.58 (0.26-1.29)	0.182
Master or PhD		Reference group	
Men's education			0.224
Lower than diploma	-0.51	0.61 (0.29-1.27)	0.180
Diploma	-0.29	0.75 (0.37-1.53)	0.432
Diploma to bachelor	0.14	1.15 (0.54-2.44)	0.714
Master or PhD		Reference group	
Women's job			0.004**
Housewife	-0.80	0.45 (0.28-0.72)	0.001
At-home Jobs	-0.37	0.69 (0.25-1.96)	0.488
Employed		Reference group	

\**p*<0.05; \*\**p*<0.01; \*\*\**p*<0.001

between the level of education and possibility of second birth, but found a negative relationship between studying and possibility of second birth.<sup>[18]</sup> Testa, in a study in 27 European countries, found a positive relationship between women's education and fertility intentions.<sup>[19]</sup> She reported that, in countries in which there is more social support and gender equality, such as developed countries, women with higher education have higher fertility intentions. She reported that, in these societies, highly educated women, compared to women with secondary education, tend to have more children. This was reported to be due the employment of educated women in jobs with higher incomes and easier access to childcare services and their possibility of selection of better spouses. In fact, in the appropriate context, due to welfare and family life stability, which is achieved by high education, women have more suitable conditions to have more children and there is no need to reduce fertility to maintain their status.<sup>[19]</sup>

No significant relationship was found between education and job of women's spouses, and fertility in the present study. Indeed, balancing between employment and family commitments, which is a great challenge for women, is not important for men, which may be due to their lower responsibility towards their children and home affairs.<sup>[20]</sup> In fact, in societies with the traditional attitude toward working out as a male role and household chores as a female role, when women are employed and men do not accept household chores, women reduce their fertility to create a balance between their social roles and family roles.<sup>[11]</sup> The limitation of the present study was related to the definition of single-child families because the definition provided by the Iran Ministry of Health for health centers

was different from the one presented in this study. Thus, finding participants for the case group from records was very difficult and sampling was prolonged.

## Conclusion

This study showed that, although women empowerment was higher in single-child families, empowerment was not the cause of low fertility. Women's marriage age, education, job, and age at birth of the first child were associated with reduced fertility. Moreover, the majority of women in single-child families (57.51%) reported 2 children as ideal for them. In fact, having a single child was not the women's preference. It can be concluded that, when women delay marriage and childbearing due to education, employment, and lack of sufficient support or bear the heavy burden of balancing between employment and home duties after marriage, they choose to have only one child despite their desire to have more.

Hence, to help empowered women achieve their intention in fertility, it is suggested that a balance be created between women's jobs and their home duties and men's participation in household responsibilities be increased.

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## Conflicts of interest

Nothing to declare.

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