

**Factors affecting women's sex preference in multiethnic society in North Khorasan Province, Iran**Zohreh Abassi<sup>1,2</sup>, Zohreh Keshavarz<sup>3</sup>, Mohammad Jalal Abbasi-Shavazi<sup>4,5</sup>, Abbas Ebadi<sup>6</sup>, Habibollah Esmaily<sup>7</sup>

<sup>1</sup> Ph.D. Student of Reproductive Health. Department of Midwifery and Reproductive Health, School of Nursing & Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>2</sup> Faculty Member of Midwifery, School of Nursing & Midwifery, North Khorasan University of Medical Sciences, Bojnurd, Iran

<sup>3</sup> Ph.D. of Reproductive Health, Associate Professor, Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>4</sup> Department of Demography, Faculty of Social Sciences, University of Tehran, Tehran, Iran

<sup>5</sup> Melbourne School of Population and Global Health Medicine, Dentistry and Health Sciences, The University of Melbourne, Melbourne, Australia

<sup>6</sup> PhD, Professor in Nursing Education, Behavioral Sciences Research Center, Life style institute, Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, Iran

<sup>7</sup> Professor of Biostatistics, Department of Biostatistics, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran

**Type of article:** Original

**Abstract**

**Background:** Sex preference is one of the cultural problems of countries in the field of demographic issues. It can increase the number of pregnancies, reduce the interval between births and delay in seeking prenatal care, which can threaten the health of mother, baby, child and family, especially in traditional societies.

**Objectives:** To determine the role of ethnicity on sex preference of different ethnicities living in North Khorasan Province (Iran).

**Methods:** This cross-sectional study was conducted using a multistage cluster sampling method and a researcher-made questionnaire of reproductive behavior on 1,000 women from 5 ethnicities (Fars, Turk, Kurd, Turkman and Tat) in North Khorasan Province in the summer of 2016. Data were analyzed by IBM-SPSS version 21, using descriptive statistics, ANOVA, t-test, and logistic regression. A significance level of  $\leq 0.05$  was set for examining the study hypotheses.

**Results:** The results showed sex preferences among different ethnicities of North Khorasan Province. The highest level of preference for sons was seen in Turkman (66% vs. 23%). Unlike other ethnic groups, Turkman (21%) and Kurdish people (29.7%) were under pressure from the spouse's family to give birth to sons.

**Conclusion:** Sex preference, especially among the Turkman ethnic group, which are different in terms of geographical, economic and social conditions, affects the fertility and reproductive behavior of the respondents; and it is necessary to reduce son preference for the health and well-being of children and women.

**Keywords:** Fertility, Ethnicity, Sex preference, Reproductive behavior

**1. Introduction**

Fertility in a society is influenced by beliefs, values, norms and even the relationships between its members who affect the decision-making and attitudes of the people, about pregnancy. Sex preference is among the possible

**Corresponding author:**

Associate Professor Dr. Zohreh Keshavarz, Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Tel: +98.2188655366, Email: [z.keshavarz@sbmu.ac.ir](mailto:z.keshavarz@sbmu.ac.ir)

Received: June 29, 2017, Accepted: November 12, 2017, Published: July 2018

iThenticate screening: November 03, 2017, English editing: January 10, 2018, Quality control: January 15, 2018

This article has been reviewed / commented by four experts

Ethics approval: IR.SBMU.RETECH.1395.2.21

© 2018 The Authors. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

factors affecting reproductive behavior, which are determined by the beliefs, values and norms of a society (1). This means that couples have a higher tendency towards one of either sex through direct or indirect influence of socioeconomic and cultural requirements. In the field of demographic issues, sex preference is a cultural problem of third world countries, which has been institutionalized in the culture of many developing countries, but it is a significant obstacle to the success of family planning (1-4). So that the families attempt to achieve the preferred sex of their children despite a sufficient number of children, a condition that increases the chance of continued fertility in the family (4, 5). Many studies indicate that there is preference for a son in the parents (6, 7). However, some studies report lack of sex preference, gender balance (a daughter and a son), or even the desire to have a daughter (8, 9). Sex preference is not a subject limited to third-world countries (1, 3). There is preference for sons in developed countries such as Norway and Iceland, which have a high standard of gender equality and gender gap index (10). People with sexual preference, increase the number of fertility in case of failure to obtain the desired sex. On the other hand, having a sexual preference threatens the health of pregnancy and the success of family planning programs. So that if they match the gender of their fetus during pregnancy with their desires, they will go for health care and screening care sooner, which could lead to the detection of high-risk pregnancy. Otherwise, proceeding to illegal abortions, delay or lack of prenatal care is likely and these findings threaten women's health (1, 11). On the other hand, having a sex preference leads to a reduction in the amount of time between fertility, which is one of the main factors involved in the life of mothers and children, because this problem increases the likelihood of a low birth weight, early delivery, and anemia (12). As studies have shown, in families with a preference for specific gender, the health status of the two sexes is different, so that boys receive significant advantages with respect to parental time, vitamin supplementation, and breastfeeding, which leads to lower perinatal and early childhood mortality (13). Children who receive better nutrition, more parental time, and increased educational inputs are more successful across a wide range of measures later in life (12). Studies have shown that in children with mothers with less preferred sex, 10% of the number of children are wasted, 26% are underweight and almost 39% are stunted (14). The effect of sex preference on fertility rate is a significant matter, especially in countries attempting to decrease their population growth rate with the implementation of family planning programs (15). However, this is not an important subject in Iran where the decline in fertility rates over the past decades has been a major concern for population planners and policymakers (1). Gender inequality, which is derived from the norms of society and human relations, is a noteworthy point in the study of fertility preferences in Iran and many other societies (12). Widespread and destructive effects of gender inequality and the phenomenon of sex preference in individuals, families, communities and countries involve several problems, including pregnancy crisis and multiple pregnancies to achieve the desired sex of the baby, fertility problems such as higher mortality, poor health, unwanted pregnancy and lower academic achievement among girls (1-3), leading to gender inequality in the society (1-13). Today, the sex preference of parents for offspring is an inseparable part of the common beliefs of people in many developing countries, especially in traditional societies. Based on numerous studies, sex preference is one reason for higher fertility rates in traditional communities (1). Iran is one of the most ethno-culturally diverse societies in the world, North Khorasan Province is located in northeastern Iran and is one of the most ethnically diverse territories of Iran, including Turks, Kurds, Fars, Tats and Turkmans, largely reflecting the ethnic make-up of the country. For this reason, the name of this province derives from its treasure of cultures and ethnicities. In this area, there are differences in the reproductive behavior and growth rate of people from (growth rate= 0.8 and TFR= 1.95) to (growth rate=3.3 and TFR=3.1) due to ethnic diversity (17), despite a convergence of fertility behavior of people in different studies in Iran (18). Also, the high potential of this province in terms of ethnic, cultural and religious diversity, is one of the important factors in the dynamics of the population in Iran (19), and since cultural structure has a prominent role in sex preference, especially in cities with more traditional ethnic contexts, they emphasize the increase and preservation of the population (20), The existence of traditional textures and the preservation of traditions by the ethnic people of this region, especially in the Turkman people, and considering that according to our studies, there has been no study about the role of ethnicity on sex preference relatives in Iran, and indirect effects of sexual preference on the health of mothers, children, children and the community, the objective of this study was to determine the affecting factors on sex preference in a multiethnic society in North Khorasan (Iran).

## **2. Material and Methods**

### ***2.1. Research design and participants***

This cross-sectional population-based study was designed to examine the sex preference on married women from various ethnic groups on the multi-ethnic population of North Khorasan, who were in reproductive age (15-49 years) in summer of 2016. The Inclusion criteria of this study were as follows: Iranian nationality, residence in a city or village of North Khorasan Province, married women of reproductive age, no diseases or deficiencies that can cause

interference in their fertility and not diagnosed with severe mental disability or psychiatric disorders which may cause inability to respond to the questionnaire.

## **2.2. Instrument**

The questionnaire was developed by the research team of this study by reviewing and upgrading "The Iran Fertility Transition Survey Questionnaire", which was previously developed and used by one of the authors of this paper (Dr. Abbasi-Shavazi), the questionnaire of reproductive health used in a PhD thesis in Tehran University by Behmanesh and the survey instrument of ICRW (2002) (21-23). We used questions of sex preference such as "Tendency of sex in the first pregnancy", "Is a son helpful for his family?", "Is a woman with no son infertile?", "A son is a good help to increase the family income" in this questionnaire. Internal consistency reliability scale (0.82) and Cronbach's alpha (0.87) were finally confirmed. To do this, proportional random multistage cluster sampling was done in six cities of North Khorasan Province, each group was divided into three clusters: a health center, a community center for women (such as women's parks) and randomly selected homes in the same area. Thus, households were proportionally chosen from each block, and a woman of reproductive age (15-49 years) was chosen from these households. Then, interviewers were present at this area with the permission of the head of the health center to complete the questionnaire.

## **2.3. Sample size and data analysis**

To achieve the goals of this study, 190 subjects (maximum sample size) were chosen for each ethnicity with confidence level of 95% and 80% correlation with variables of the last study on fertility behavior in 2015 by Behmanesh in Babol, Mazandaran Province (22) in which 200 subjects were recruited given the lack of returned questionnaires. In this study, we used the following formula and completed the final questionnaire attributable to 995 people. After completing the questionnaires, data were analyzed using IBM SPSS software for windows version 21, using descriptive and analytical descriptive statistics such as ANOVA, t-test and logistic regression. Data were analyzed at a significance level of 0.05.

## **2.4. Ethics**

This paper is part of a PhD dissertation in reproductive health at Shahid Beheshti University of Medical Sciences concerning reproductive behavior in the multi-ethnic society of North Khorasan Province, with ethics code (IR.SBMU.RETECH.1395.2.21). Informed consent was obtained from all women to assure ethical consideration and the quality of the data.

## **3. Results**

The findings of demographic characteristics showed that among the five ethnic groups of North Khorasan Province, Turkman women were younger than other research units, and the results of ANOVA with Tukey's test between Turk with Turkman, and Kurdish with Turkman groups were significantly different in terms of age ( $p < 0.001$ ). In addition, there was a significant difference between Turkman and Fars groups ( $p < 0.004$ ). Comparing the average age of spouses also showed that Turkman ethnicity had a younger spouse age, which was similar to wife's age. The results of Tukey's test of ANOVA between Turk and Turkman ( $p = 0.000$ ), as well as between Fars and Turkman (0.004) ethnic groups showed a significant difference in terms of spouse's age. There was also a significant difference between Turkman and Tat ethnic groups ( $p = 0.001$ ). With respect to the number of pregnancies, Tukey's test of ANOVA test results showed that the number of children of different ethnic groups has a significant difference, so that Turkman people tend to increase the number of their children, and the Farshad have the lowest number of children. The highest number of children in different ethnicities was three. In most ethnic groups, the first child was born one year after marriage. Turkman people, followed by Tat and Turk groups had the highest prevalence in this respect, and the lowest frequency of pregnancy in the first year was related to Fars ethnicity. Most ethnicities mentioned the first year after marriage as the optimal time to have children with the highest frequency in the Kurdish ethnicity (Table 1). With respect to religion, all the ethnicities were Shi'a except for Turkmans who were all Sunnis. The highest level of education was related to Fars (58%) and Turk (35%) ethnic groups, and the lowest level was observed in the Turkman ethnic group (50% primary school and 22% illiterate), and the same situation was also true for their spouses. In terms of occupational status, the majority of women in all the ethnic groups were housewives, and all the research units stated their subsistence in a basic level. Regarding the factors affecting sex preference, results of ANOVA test showed that the Fars (45%), Turkman (66%) and Tat (44%) people tended to have a son as their first child and the two other peoples (Turk, 42% and Kurdish, 43%) tended to have a daughter in their first pregnancy. The results of the Tukey test revealed the difference between the Turkman people and the other four ethnic groups, and a son is most desired for Turkman people (0.002). With respect to the theory that "a son is a

gift for his parents “, all the ethnic groups (except Turkmans) somewhat agree with this item, but 40% of Turkmans strongly agreed with this and 40% somewhat agreed with the lowest level of disagreement. With respect to the theory that “a daughter is a good companion for parents in old age”, Turkman people have chosen the “somewhat agree” option and other ethnicities chose strongly and somewhat agree options. Regarding the statement “A woman who has no son is infertile?” all the ethnicities disagreed except for Turkman people.

**Table 1.** Comparison of demographic and midwifery data of the studied groups

Ethnic	Variables				
	Ethnicity; n (%)	Age (year); Mean±SD	Husband age (year); Mean±SD	The birthday of the first child (year); Mean±SD	First-to-second pregnancy interval (year); Mean±SD
Fars	209 (21)	31.04±7.8	37.47±11.8	0.99±2.03	3.61±5.18
Turk	206 (19.8)	32.8±8.9	35.2±8.8	1.3±1.8	2.53±3.66
Turkman	197 (20.7)	29.6±7.03	32.04±8.26	1.6±1.5	1.63±2.50
Kurdish	192 (19.3)	30.56±7.9	34.47±9.3	1.7±1.02	3.40±3.6
Tat	191 (19.2)	33.8±7.8	36.22±9.5	2.01±1.3	2.43±4.18
p-value	0.001	0.001	0.001	0.043	0.002

**Table 2.** Frequency of behaviors related to sex preference in different ethnic groups.

Variables	The answer option	Ethnic; n (%)					p-value
		Fars	Turk	Turkman	Kurdish	Tat	
Tendency of sex in the first pregnancy	Male	85 (40.2)	94 (42.4)	79 (41.4)	87 (43.5)	79 (41.4)	0.002
	Female	94 (45)	77 (35.9)	85 (44.5)	77 (40.1)	85 (44.5)	
	No difference	27 (14.8)	31 (19.1)	24 (14.1)	28 (14.5)	27 (14.1)	
	Not responded	3 (1.7)	4 (1.9)	0 (0.0)	0 (0.0)	0 (0.0)	
A son is a gift for his parents	Completely agree	43 (27.1)	43 (29)	87 (44.6)	44 (22.9)	48 (25.4)	0.001
	Somewhat agree	88 (44.8)	76 (40.4)	79 (40.5)	81 (42.5)	82 (43.4)	
	Somewhat disagree	20 (10.1)	25 (13.3)	20 (10.3)	21 (10.9)	16 (8.5)	
	Completely opposed	47 (23.7)	44 (23.4)	9 (4.6)	24 (14)	4(22.8)	
	No idea	11 (6.2)	18 (5.3)	2 (0.5)	19 (8.9)	2 (1)	
A daughter is a good companion for parents in old age	Completely agree	98 (49.7)	100 (51.3)	87 (44.6)	108 (59.3)	111 (59)	0.001
	Somewhat agree	68 (34.5)	72 (36.9)	90 (46.2)	52 (28.6)	57 (30.3)	
	Somewhat disagree	16 (8.1)	6 (3.1)	12 (6.2)	7 (3.8)	5 (2.6)	
	Completely opposed	17 (7.1)	18 (8.7)	7 (3.6)	14 (7.7)	15 (7.8)	
	No idea	13 (6.2)	11 (5.3)	1 (0.5)	11 (5.3)	3 (1.5)	
A woman who has no son is infertile	Completely agree	12 (6)	13 (9.7)	54 (66.2)	43 (23.9)	14 (7.4)	0.001
	Somewhat agree	8 (4)	19 (8.9)	56 (28.6)	31 (17.2)	27 (14.3)	
	Somewhat disagree	29 (14.6)	22 (11.3)	27(13.8)	29 (16.1)	24 (14.3)	
	Completely opposed	150 (75.4)	140(72.2)	59 (30.1)	77 (42.8)	121 (64)	
	No idea	10 (4.7)	12 (5.8)	1 (0.5)	12 (6.2)	2 (1.)	
A son continues the family's reputation	Completely agree	39 (6.19)	37 (4.19)	101(51.5)	49 (26.9)	47 (29.4)	0.001
	Somewhat agree	61(30.7)	73 (38)	68 (34.7)	46 (25.3)	55 (29.1)	
	Somewhat disagree	34 (17.1)	27 (14.1)	17 (8.7)	21 (11.5)	26 (13.8)	
	Completely opposed	65 (32.7)	54 (28.2)	10 (5.1)	65 (37.5)	61 (23.3)	
	No idea	10 (7.4)	15 (7.2)	1 (0.5)	11 (5.7)	2 (1)	
Having a son is good for family income	Completely agree	21 (10.6)	23 (12.1)	66 (33.7)	36 (20)	30 (15.9)	0.022
	Somewhat agree	51 (25.9)	52 (27.4)	90 (45.9)	68 (37.8)	56 (29.6)	
	Somewhat disagree	40 (20.3)	29 (15.3)	23 (11.7)	28 (15.6)	39 (20.6)	
	Completely opposed	85 (43.1)	86 (45.3)	17 (8.4)	48 (26.7)	64 (33.9)	
	No idea	12 (5.7)	16 (7.7)	1 (0.5)	12 (6.2)	2 (1)	
Intent to be pregnant in the future	I do not intend at all	81 (38.9)	92 (47.4)	59 (30.3)	76 (39.6)	82 (42.9)	0.001
	I do not intend to now	83 (39.7)	85 (41.3)	65 (33.3)	80 (41.6)	71 (37.1)	
	I plan to become pregnant	45 (21.5)	25 (12.1)	71 (36.3)	29 (13.1)	38 (23.6)	
	Not responded	0 (0.0)	4 (1.9)	2 (1.1)	7 (3.6)	0 (0.0)	

As can be seen in the Table, the results in strongly agree and somewhat agree were similar to the strongly disagree option. Results for “a son continues the family's reputation” was also similar to the above. The Fars, Turk and Tat

people strongly disagreed with it, but over 50% of research units in Turkman ethnicity strongly agreed with this. Almost 30% of people in each ethnicity also chose the somewhat agree option. Results on the question "Is having a son a good help to increase family income?" were somewhat different. Fars, Turk and Tat completely opposed to giving birth to a certain gender. With respect to pressure from families (72 %), Turkman (21%) and Kurdish people (29.7%) endure pressure from their spouse's family to have a son. The majority of women in different ethnic groups reported that they did not decide to have more children of the desired sex with having enough children. With regard to planning to become pregnant in the future, only Turkman people (36%) had plans to become pregnant in the future. Other people had no intention to become pregnant at all or for the time being, with Turk and Kurdish people having the lowest and Turkmans the highest intention to become pregnant (Table 2). Finally, we used a logistic regression model to control the variables affecting sexual preferences and the role of ethnicity. The results of the logistic model for the nominal qualitative variable showed that there was a significant relationship between ethnicity and the desire for gender of the first child. So, following the introduction of effective variables that have a significant difference in different groups ( $p > 0.05$ ) such as age, spouse's age, spouse's ethnicity, marital status, couples education, couples religion, spouse's job, the age of marriage, the amount of years passing from marriage, and the amount of satisfaction with life, there was a significant difference between the preference of the first child in Kurdish and Turkman ethnicity (0.001), as the female gender inclination for the first child in the Kurds was 1.6 times higher than that of the Turkmans, and the ethnicity remained intact (Table 3).

**Table 3.** Logistic Regression: The Relationship between Ethnicity and the Desire of Gender First

Variables	Ethnic	t	p-value	SD	Odds ratio	Confidence interval
Tendency of sex in the first pregnancy	Turk	-1.47	0.702	2.978	1.608	-3.6-1.08
	Fars	-1.127	0.882	1.639	1.614	-3.30-1.48
	Tat	-0.530	0.777	2.978	1.631	-3.13-1.72
	Kurdish	-0.909	0.001	1.639	1.620	-4.05-0.765
Base group	Turkman	.	.	.	.	.

#### 4. Discussion

The results of this study showed that there are sex preferences in ethnic groups living in North Khorasan Province; but most sexual preference is related to Turkman ethnicity. Although the desire for a specific sex in the first child is different among ethnic groups, the biggest difference in this regard is related to Turkman ethnicity, because the responses of Turkman women were different in terms of frequency in response to the questions of sex preference such as "Is a son helpful for his family?"; "Is a woman with no son infertile?". Turkman women had the highest level of agreement with the above options relative to women of other ethnicities. Results of Kurdish women were similar to Turkman women (38% agreement) concerning the question that a son is a good help to increase the family income. In the present study, stronger sex preferences in the Turkman group relative to other ethnic groups are perhaps dependent upon cultural beliefs, society and traditional subsistence economy, priority for male gender, education level and family pressure, which are affected by the atmosphere in the society. So, culture is a major factor in the dynamics of human populations. Cultural factors such as education, cultural pressure and social structure can increase or decrease the fertility rates. Cultural factors play more important roles than economic factors in determining the patterns of childbearing and sex preference (24). Sex preference for sons over daughters is more common in those cultural environments that encourage high fertility rates on the one hand and where cultural patterns and social expectations influence the regulation of gender roles, and male hegemony is established through socialization in people on the other hand (7). In the traditional society of Turkmans, because of stronger religious beliefs that promote the prohibition of contraception and encourage higher fertility, as well as the highlighted position of men in the economy, perhaps we can use a cultural approach in describing sex preferences in this ethnic group. The study of Joss Ellis about the role of culture on reproductive behavior and sex preferences in London shows that the dominant social and cultural norms in a society create a framework for the analysis of cultural phenomena in a coordinated and equal economic environment, which can change people's reproductive behavior (25). The role of tradition and culture in reproductive decisions and sex preferences are stronger in families belonging to small communities and ethnic minorities, since higher fertility and presence of sons are regarded as factors of power and authority in these communities (24). According to Félix (2012) and Tong (2001) different ethnic groups demonstrated their sex preference in fertility even after moving, leading to differences in reproductive behavior toward their new hosts (26, 27). Interactions of cultural influence and economic insecurity affect the reproductive behavior. Analysis of these findings showed that the norms and cultural beliefs of people with respect to fertility, has a great impact on reproductive behavior of these people. This influence effectively shows the effect of original culture on fertility, demanding the compensation of lower fertility after the initial immigration phase

(27). Another reason for stronger sex preferences in Turkman society relative to other ethnic groups is related to the type of employment, traditional economy and residence of Turkman people. There was significant difference between residences of Turkman people with other ethnic groups in this study, so that 66% of Turkman people lived in villages. The highest frequency of urbanization (92%) was in the Fars ethnic group. The Turkman ethnic group in North Khorasan is a minority mostly living in rural areas and involved in agriculture and animal husbandry, a condition in which sons are a contributing factor in economic affairs. Based on the study of Jafarpour (28) in conjunction with analysis of the geography of various ethnic groups living in North Khorasan Province, it was reported that the majority of Turkmans were in the second and third layers of the society for reasons such as cultural conditions, social environment and early marriage, poor ecological basis and eccentricity. In this job category, there is an economic perspective of male gender, which confirms the results of our study (28). A study in China showed that sons are more favorable than daughters, which is attributed to physical power of sons as the labor force. The sons add a new workforce for the family after marriage while a workforce is subtracted from a family when a daughter gets married, which influences the economy of the family (16). In these circumstances, the issue of sex preference has retained its position in popular belief as a notion of value, especially in traditional rural communities and indigenous cultural context. In traditional societies, when a baby is born, a specific pathway is defined in the framework of traditional roles for them. For girls after puberty, the ideal role of a daughter is her function as a wife and mother where the woman should first show her fertility in the society with the priority to give birth to sons (16-29). In the study of Shahbazian, which was consistent with ours, the average number of births for women living in rural areas was six children vs. four in urban areas (3), which may account for the sex preference in Turkman and Kurdish women who mostly live in rural areas. The study of Almond on Canadian immigrants, Adibisadeh in Iran, Larsyn in South Korea and Hussein in the urban slums of Karachi (Pakistan) were consistent with the results of this study (30-32). On the other hand, sex preference affects reproductive behavior in favor of increasing the number of births and contraceptive use in women (33). Several studies show that the tendency of parents to bear a son, raises the desire for childbearing, particularly in areas where sons are economically more active, so that the sons are a higher priority for proximity to their parents with the chance of passing the current rating to later generations (3, 11). Another factor of higher sex preferences among Turkman people may be dependent upon their economic status, so that the Turkmans in this study had different positions in terms of social economy (jobs, income, place of residence and education) in the system of social stratification. Meanwhile, ethnic inequality in terms of access to educational opportunities is more important than other aspects. Numerous studies have shown the relationship between education and sex preference. The education level of Turkman women in this study was lower than the other four other ethnic groups (0.001). The education level among ethnic Turkmans was also lower than other ethnic groups. The study of Shahbazian has indicated the correlation between education levels of couples with their sex preference. The frequency of fourth and higher pregnancies was higher among women with lower education levels (3). Several studies on the reverse correlation between education level and sex preference, as well as the number of sons per woman with a higher number of pregnancies indicate a strong relationship between the two variables such as Clark in India, Leon, Matthews and Shingles in Nepal, Brakman in Germany and Chang Gupta in Korea (3-5). However, some research had been rejected and reported sex balance in parents (1, 8, 9). Regarding the desire and intention to become pregnant in the future, Turkman people had desire and intention (36%), although they had many children; but whether it is desirable to continue fertility to achieve the desired sex or other reasons, has not been questioned in this study. This is an obstacle to a more accurate conclusion. So, adding this question will be helpful in future research. About use of gender determination approaches to achieve the desired gender, an overwhelming majority of women in different ethnic groups, including Turkman people do not decide to have more children and do not use gender determination approaches to achieve a desired gender. Regarding the pressure of families to achieve the desired gender, in our study, women of different ethnic groups were not under pressure on the gender of their baby (0.22). But the Turkman (21%) and Kurdish people (29.7%) are under pressure from the spouse's family to give birth to a baby of the desired sex. The studies of Park (2), Arnold (34), and Gupta (35) stressed the role of pressure from families to have at least one child as a reason for sexual preference. Perhaps one of the reasons for different responses of Kurdish people to this option in our study is dependent on their place of residence, the Kurdish people had the highest frequency of living in villages after Turkmans. As explained above, the value of sons and daughters is different among villagers and city dwellers because the parents have different views of the two genders. Due to the presence of a more traditional texture and high status of parents in the family and obedience of offspring for them, the pressure and stress on the part of families for having at least two children is justifiable. Nevertheless, given different constraints in urban life, increasingly diverse needs and other preventive mechanisms, there is a higher readiness to limit births, and considering the choice of a lower number of children by parents, there is no acceptable status for sex preference. The Turk, Fars and Tat groups were mostly residents of a city (20, 29). Regarding the limitations, although the Turkman people are more inclined to continue fertility, this study has not

questioned whether this tendency is to reach the desired sex or other causes. So, adding this question will be helpful in future research. The lack of similar studies in Iran to compare the results is one of the constraints of the study.

## 5. Conclusions

Higher fertility rates in traditional societies can be attributed to targeted preference of parents towards a specific gender especially among the Turkman ethnic group, with a different socioeconomic status (jobs, income, place of residence and education), so that it can increase the number of pregnancies, reduce the interval between births that it can threaten the health of mother, baby, child and family. Studies on the fertility of ethnic groups in Iran, especially in multi-ethnic societies, will help politicians achieve the goals of a healthy fertility program and achieve a desirable demographic program.

## Acknowledgments:

This paper is part of a doctoral dissertation of reproductive health in Shahid Beheshti University of Medical Sciences concerning reproductive behavior in the multi-ethnic society of North Khorasan Province with ethic code (IR.SBMU.RETECH.1395.2.21). The researchers hereby appreciate the research deputy of Shahid Beheshti University of Medical Sciences and all the individuals who cooperated in the collection and presentation of the results of this study.

## Conflict of Interest:

There is no conflict of interest to be declared.

## Authors' contributions:

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

## References:

- 1) Azmoude E, Barati-Far S, Behnam H, Aradmehr M. Relationship between Gender Preference, Birth Interval and Sex Composition on Fertility Behavior. *Journal of Health Chimes*. 2015; 3(3): 15-8.
- 2) Arnold F, Kim Choe M, Roy TK. Son Preference, the Family Building Process and Child Mortality in India, *Population Studies*. 1998; 25: 301-15. doi: 10.1080/0032472031000150486.
- 3) Shahbazin S, Gholami A, Shahbazin S. Theroleof gender preference in reproductive behavior of women in the city of Kangavar. *Scientific journal of Ilam university of medical sciences*. 2013; 22(6): 133-42.
- 4) Rahman M, Da Vanzo J. Gender preference and birth spacing in Matlab, Bangladesh. *Demography*. 1993; 30(3): 315-32. PMID: 8405601.
- 5) Mwageni EA, Ankomah A, Powell RA. Sex preference and contraceptive behavior among men in Mbeyaregion. *Tanzania J Fam Plann Reprod Health Care*. 2001; 27(2): 85-9. PMID: 12457518.
- 6) ForoutanY, Saeidi madani SM, Askarinadooshan A, Ashkaran R. Gender Preferences in Neka, Mazandaran Province: Patterns and Determinants. *Population Association of Iran*. 2014; 9(17): 171-90.
- 7) Andersson G. A study on policies and practices in selected countries that encourage childbirth: the case of Sweden. Germany: Max Planck Institute for Demographic Research; 2005. Available from: <http://www.demogr.mpg.de>.
- 8) Rai P, Paudel IS, Ghimire A, Pokharel PK, Rijal R, Niraula SR. Effect of gender preference on fertility: cross-sectional study among women of Tharu community from rural area of eastern region of Nepal. *Reproductive Health*. 2014; 11(15). doi: 10.1186/1742-4755-11-15.
- 9) Jacobsen R, Møller H, Engholm G. Fertilityrates in Denmark in relation to the sexesofpreceding children in the family. *Human Reproduction*.1999; 14(4): 1127-30.
- 10) Sarukhani B, Mahmud U. Reproduction of GenderIn Equality in the Family" Comparative Study of Working Women and Housewives in the City of Ilam". *J Socl Res*. 2008; 1: 47-61.
- 11) Palloni G. Childhood health and the wantedness of male and female children. *Journal of Development Economics*. 2017; 126: 19-32. doi: 10.1016/j.jdeveco.2016.11.005.
- 12) Jayachandran S, Kuziemko I. Why do mothers breastfeed girls less than boys? Evidence and implications for child health in India. *The Quarterly Journal of Economics*. 2011; 126(3): 1485-1538. doi: 10.1093/qje/qjr029. PMID: 22148132.
- 13) Barcellos SH, Carvalho LS, Lleras-Muney A, Carvalho, Adriana Lleras-Muney A. Child gender and parental investments in India: are boys and girls treated differently? *Am Econ J Appl Econ*. 2014; 6(1): 157-89. doi: 10.1257/app.6.1.157. PMID: 24575163, PMCID: PMC3933178.

- 14) Palloni G. Does sex preference affect children's nutrition and health? Findings from Indonesia. Research program on agriculture for nutrition and health. 2016.
- 15) Mansourian MK. Explain the fertility transition. *Journal of Social Sciences and Humanities of Shiraz University*. 2001; 16(32): 25-48.
- 16) Eslamlou F, Vahabzadeh Z, Moeini SR, Moghadam Tabrizi F. Pre-Marriage Couples' Fertility Attitude Following Recent Childbearing Persuasive Policies In Iran. *The Journal of Urmia Nursing and Midwifery Faculty*. 2013; 11(10): 836-46.
- 17) Encyclopedia Iranica. Khorasan i Ethnic Groups [Internet]. Tehran: Encyclopedia Iranica; 2008 [Last Updated: December 15, 2008]. Available from: <http://www.iranicaonline.org/articles/khorasan-1-ethnic-groups>
- 18) Abbasi-Shavazi MJ, Asgari-Nadushan A. Family changes and fertility decline in Iran, case study of Yazd Province. *J Soc Sci Lett*. 2005; 25: 25-75.
- 19) Hosseini H, Bagi B. Women's Autonomy and Fertility Ideals among Kurdish Women in the City of Mahabad. *Women in Development & Politic*. 2012; 10(4): 54-78.
- 20) Quinn P. The development and impact of culture media for assisted reproductive technologies. *Fertility and sterility*. 2004; 81(1): 27-9. doi: 10.1016/j.fertnstert.2003.10.003. PMID: 14711540.
- 21) Zarghami C. "Investigation of Fertility Transition in Iran, evidence of four selected provinces." *Family and Women*. 2007. Available from: <http://www.hawzah.net/fa/magazine/magart/0/6661/78731>.
- 22) Behmabesh F. Reproductive behavior of women in marriage patterns of modern and additional: a combination of successive explanation [dissertation]. [Tehran]: Tehran University; 2015. 210p.
- 23) DegnanKambou S. Exploring Women's Reproductive Histories Using a Narrative Approach: A Survey Instrument. United States; international center for research on women; 2002. Available from: <https://www.icrw.org/wp-content/uploads/2016/10/Women%27s-Reproductive-Histories-Survey-Instrument.pdf>
- 24) Pejhan A, Kamali A. The impact of cultural factors on fertility District Among women between the ages of 15 to 49 years in Tehran comprehensive cultural, Institute for Humanities and Cultural Studies. 2015; 6(2): 115-37.
- 25) Ellis J. Culture, Fertility, and Son Preference. The London School of Economics and Political Science. 2008.
- 26) Neto F, da Conceição Pinto M, Furnham A. Sex and Culture Similarities and Differences in Long-Term Partner Preferences. *Journal of Relationships Research*. 2012; 3: 57-66. doi: 10.1017/jrr.2012.4.
- 27) Tang Z. Cultural Influence, Economic Security, and the Fertility Behavior of the Chinese in Canada. *Canadian Studies in Population*. 2001; 28(1): 35-67. doi: 10.25336/P6D88H.
- 28) Jafarie T. Statistical analysis and geographic analysis relatives living in the villages in North Khorasan. North Khorasan Bureau of Investigation Law Enforcement. 2015; 7: 8-34.
- 29) Abbasi Shavazi MJ, Hosseini M. Evolution of Fertility, Family Planning and Population Policies in Iran. *Journal of Knowledge in Islamic University*. 2011; 15(3): 8-25.
- 30) Almond D, Edlund L, Milligan K. Son preference and the persistence of culture: evidence from South and East Asian immigrants to Canada. *Population and Development Review*. 2013; 39(1): 75-95. doi: 10.1111/j.1728-4457.2013.00574.x.
- 31) Adibisadeh M, Arjmand Siahpoush E, 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: 81-98.
- 32) Larsen U, Woojin C, Das Gupta M. Fertility and son preference in Korea. *Pop Stud J Demog*. 1998; 52: 317-25. doi: 10.1080/0032472031000150496. PMID: 11623524.
- 33) Hussain R, Fikree FF, Berendes HW. The role of son preference in reproductive behavior in Pakistan. *J Bull World Health Org*. 2000; 78: 379-88.
- 34) Park CB, Cho NH. Consequences of sonpreference in a low-fertility society imbalance of the sex ratio at birth in Korea. *J Popul Develop Rev*. 1995; 21: 59-84. doi: 10.2307/2137413.
- 35) Gupta MD, Zhenghua J, Bohua L, Zhenming X, Chung W, Ok BH. Why isson preference so persistent in east and south Asia? A cross-country study of China, India and the Republic of Korea. *J Develop Stud*. 2003; 40: 153-87.