

Desired Family Size and Its Associated Factors among Mothers Attending Primary Healthcare Centers

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Abstract

Background: Family planning allows women to decide on their family size. Desired family size is defined as the number of children parents would like to have if there are no subjective or economic issues involved in regulating fertility. **Objective:** The study aimed to determine the desired family size and its associated factors among mothers in Duhok, Iraqi Kurdistan. **Materials and Methods:** A cross-sectional study was conducted among 404 women who visited primary healthcare centers between July and September 2021. A self-administered questionnaire was used to collect data. JMP Pro software version 14.3.1 was utilized to analyze variables, *P*-value <0.05 was declared as significant. **Results:** Four (44.3%) and five (33.4%) children were the preferable numbers of children families had. The number of years for birth spacing of more than half the participants was 1–2 years (52.0%), followed by 3–4 (33.7%). Most of the decisions to have a kid were made by husbands (31.9%), followed by influences of culture (19.6%), family income (16.3%), relatives (mother, sisters, mother in law) (12.6%), and religious (9.7%). The mothers were less likely to be involved in decision-making to have a child (22.5%). The desired family size was significantly increased with the age years of mothers and early marriage, living in urban areas, and lower level of education. **Conclusion:** Four and five are the preferable number of children and contributed to with increasing age years of mothers and early marriage, living in urban areas, and lower level of education.

Keywords: Decision-making, family health, family size, ideal, social factor

INTRODUCTION

World Health Organization defined family planning as obtaining the desired number of children and spacing pregnancies.^[1] Family planning assists people to prevent unwanted pregnancy and decreases maternal and child morbidity and mortality by one-third^[2] and reduces poverty and hunger for supporting the health and progress of communities.^[3] In Iraq and Kurdistan, the prevalence rates of using contraception are 53.8% and 34.3%, respectively. It is lower than the global average (63%) and also lower than other countries in the region, such as Jordan (63%) and Tunisia (67%).^[4-6]

Family planning allows women to decide on their family size. Desired family size is defined as the number of children parents would like to have if there are no subjective or economic issues involved in regulating fertility.^[7] Family planning is critical not only for the country but also for

the well-being of individuals, families, and communities.^[8] Mothers' right to determine the number and spacing of children is essential for their rights and sexual health.^[9]

There is ample evidence of a declining total fertility rate worldwide, including in developing countries.^[10] However, with a global population of 7.3 billion in 2015 and anticipation to expand to 9.8 billion by 2050, the population has increased considerably and continues to be a critical concern globally.^[11] Even though the total fertility rate in Iraq has decreased significantly from 7.2 in

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Submission: 01-Mar-2023 **Accepted:** 04-Aug-2023 **Published:** 24-Sep-2024

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How to cite this article: Tahir AI, Ramadhan DS, Salih JF, Piro SS, Abdulah DM. Desired family size and its associated factors among mothers attending primary healthcare centers. *Med J Babylon* 2024;21:633-40.

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DOI:
10.4103/MJBL.MJBL_212_23

1970 to 5.9 in 1990 to 4.07 in 2007 and 3.6 in 2020 but the rate is still very high. Iraqi Kurdistan had a total fertility rate of 4.07 in 2007 and 3.1 in 2020.^[12] More specifically, the fertility rate is 3.7 in the Duhok governorate, and the total average family size in a family is 6.7. This number is higher than that of other governorates of Kurdistan, including 3.1 in Erbil and 2.8 in Sulaimaniyah.^[5]

These differences in the family size in the Duhok province compared to other Kurdish governorates might be due to the lower prevalence of contraceptive use and other factors.

Religious beliefs and financial assistance could be the main reasons for not utilizing contraception in Duhok province, as found generally in Iraq.^[13] The main reason for opposing birth control in Iraq is the tribal and conservative status of Iraqi society, which shuns the idea of limiting fertility.^[14] Other factors such as social and family pressures, gender preference, and the necessity for children as a source of support in later life may have a role in this issue, as seen elsewhere.^[15] Using contraceptive methods is important not only for improvements in health-related outcomes but also to advance educational and economic aspects.^[16] Conducting original research on this topic that has not been studied before in these regions can provide valuable insights and contribute to the existing body of knowledge. It can be helpful to disseminate the results to relevant audiences, such as policymakers, practitioners, and other researchers, to inform decision-making and future research directions. Therefore, this study aimed to determine the desired family size and its associated factors among mothers in Iraqi Kurdistan.

MATERIAL AND METHODS

Study design and sampling

This cross-sectional study included women who visited one of the 18 primary healthcare centers (PHCCs) in the Duhok governorate of Iraqi Kurdistan. The women were interviewed by one of the researchers for inclusion criteria between July 1 and September 1, 2021.

To obtain a representative sample, women were included through systematic random sampling as required. In this regard, eight strata were made up of two districts by the stratified sampling procedure. Therefore, we included PHCCs from these two districts through simple random sampling. To obtain a more representative sample of the population, the data collection was performed on different days from 1 week to another one.

Study settings

This study was performed in the Duhok governorate in Iraqi Kurdistan in 2021 [Figure 1]. Duhok Governorate consisted of the following districts; Zakho, Amedi, Semel, Duhok, Shekhan, Akre, and Bardarash, see Figure 2. We selected the PHCCs of Akre and Bardarash Districts only. These two districts are considered to be the districts with more social relations and traditional culture within the

Duhok governorate. There are 36 PHCCs in these two districts. Akre district has four subdistricts named Akre Center ($n = 6$), Bejil ($n = 7$), Dinarta ($n = 5$), and Girdasin ($n = 2$), and Bardarash district has four subdistricts including Bardarash Center ($n = 4$), Rovia ($n = 5$), Darato ($n = 4$), and Kalak ($n = 3$). We selected the PHCCs through a stratified sampling procedure as follows; Akre center ($n = 3$), Bejil ($n = 4$), Dinarta ($n = 3$), Girdasin ($n = 1$), Bardarash ($n = 2$), Rovia ($n = 2$), Darato ($n = 2$), and Kalak ($n = 1$) as shown in Table 1.

Inclusion criteria

The participants who were included in this study were women aged 15 years and older with different sociodemographic characteristics. These women attended one of the PHCCs in Akre or Bardarash districts in 2021. They visited the PHCCs for the following reasons; antenatal care, nutritional services for monitoring children's growth, and medical checkup. The women who attended the PHCCs from the surrounding camps of refugees and internally displaced persons and unmarried females were not included in this study. Verbal consent was taken from all participants before filling out the questionnaire.

Data collection

A self-administered questionnaire was used after studying literature reviews^[17-19]; questions that were relevant to the current community were developed after small changes were used in this study. The information of this study was collected in two parts. The general information was collected in the first part of the questionnaire. The general information was age, age at marriage, educational level, occupation of mothers and their husbands, and residency. The information on family planning was collected in the second part of a structured questionnaire. The following information was collected in the second part, the number of children they have and the number of children they would like to have in the future, using contraceptives, gender preference, abortions, stillbirths, birth spacing, and the influence of family and husbands on a mother's decision.

Sample size

The required sample size was determined according to Cochran's formula; this method of sample calculating is frequently used for large populations.^[20] The estimated population of Akre and Bardarash Districts was 339,735 in 2018. We estimated that 30% of this population is married women. We accepted a 0.05 error and a confidence interval of 95% for this calculation. The required sample size for this study was 323 persons. But we increased our sample size to 404 women to avoid possible technical issues like missing information, rejection, and other problems.

$$n_0 = \frac{Z^2 pq}{e^2}$$

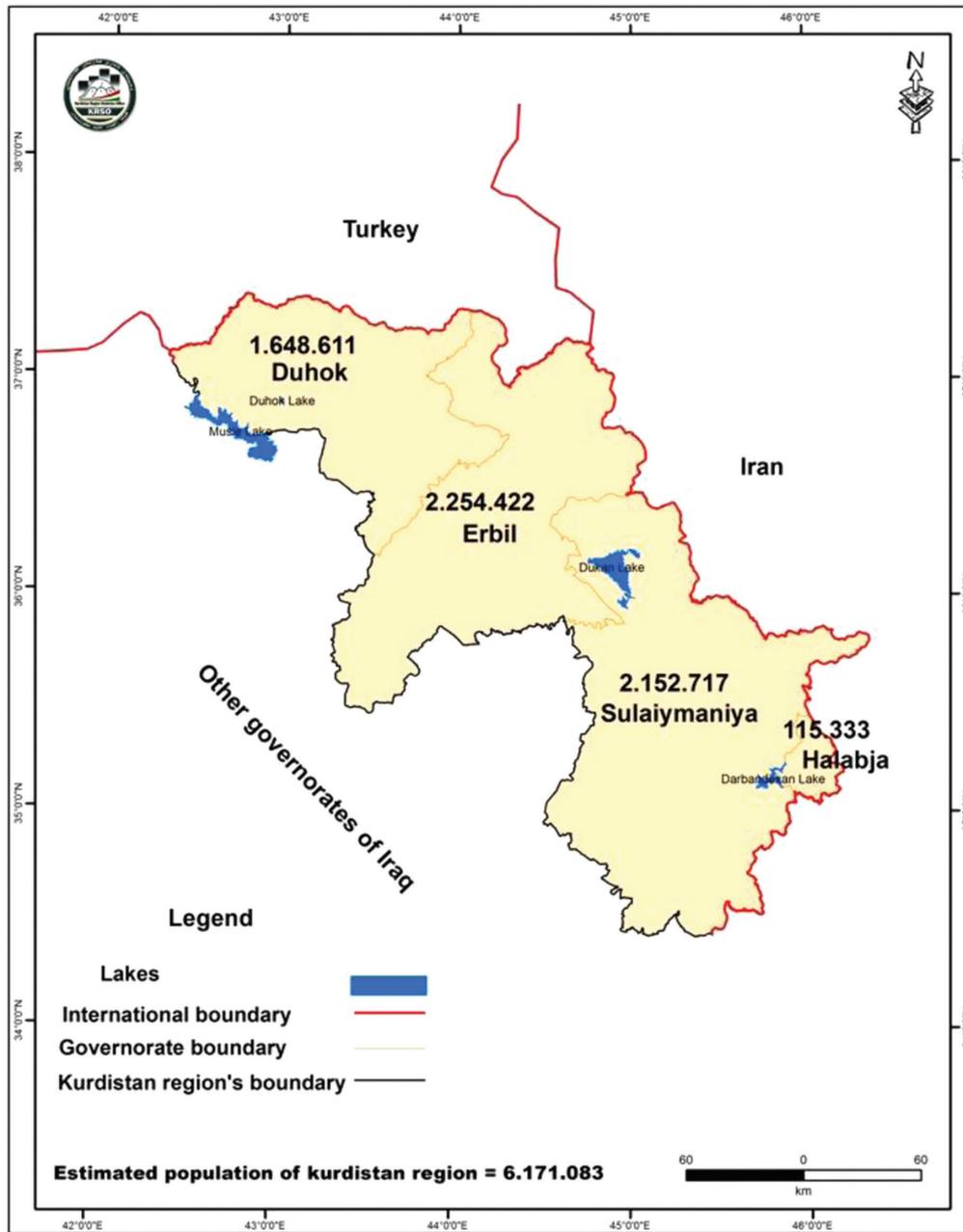


Figure 1: Map of the estimated population of Kurdistan region at governorate level 2020

The sample was increased by 25%. $323 \times 0.25 = 80.75$ (rounded to 81), $323 + 81 = 404$ final women sample size.

Statistical analysis

The general information of the participants was presented in number and percentage. The desired family size, family planning, and direct factors among participants were determined in number and percentage. The Association of desired family size with mothers' characteristics was examined in the Pearson Chi-squared test. A significant level of difference was identified in a *P*-value of less than 0.05. The statistical calculations were performed in JMP Pro 14.3.1 (JMP Statistical Discovery, USA; https://www.jmp.com/en_us/home.html).

Ethical considerations

The permission to perform this study was obtained from the College of Nursing, the University of Duhok in 2020. The ethical approval of this study was obtained from the local health ethics committee in the Duhok General Directorate of Health, registered as reference number 18082021-8-4. In addition, we obtained informed consent from PHCCs and verbal consent from the participants.

RESULTS

The women who participated in this study had different age groups, including <19 (9.7%), 20–29 (50.7%), 30–39 (32.7%), and ≥40 years (6.9%). Most of the participants

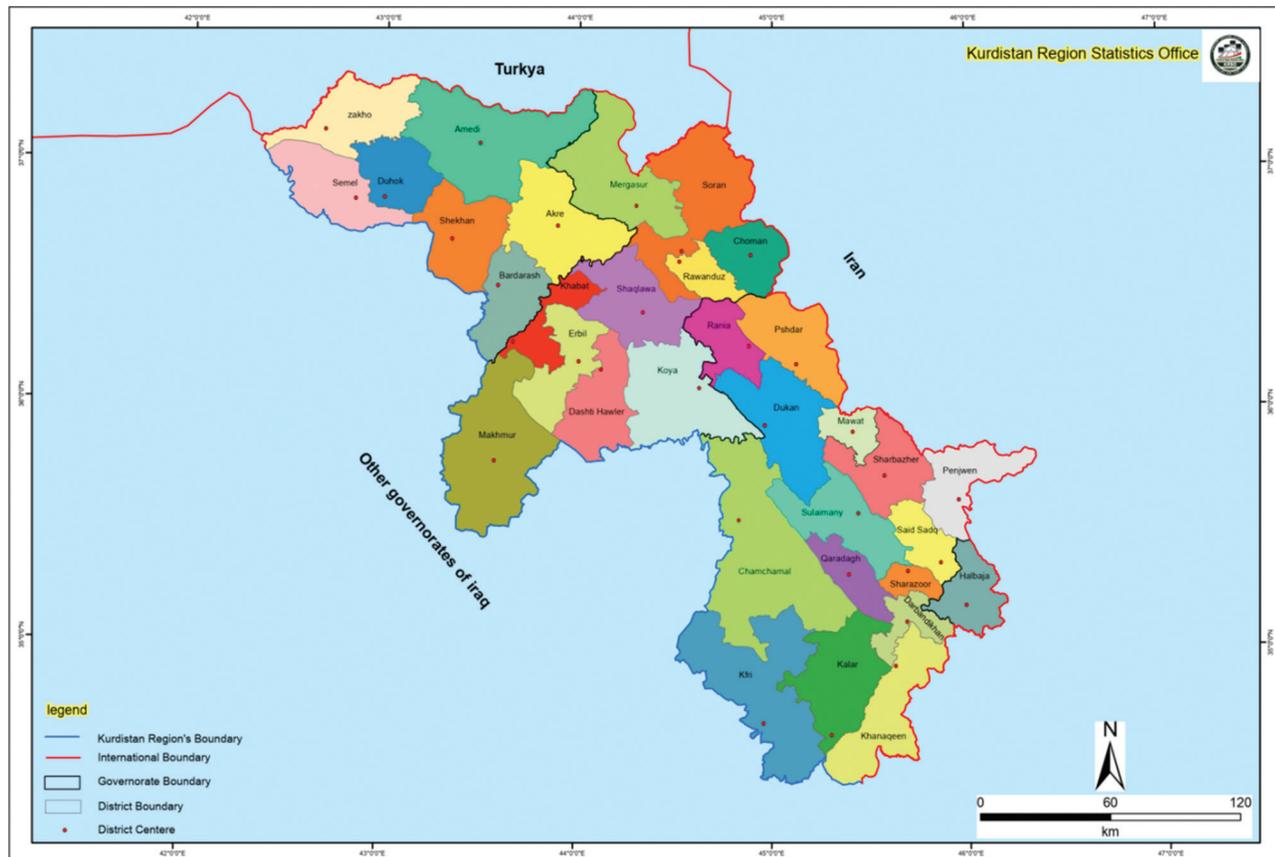


Figure 2: Map of the districts of the Kurdistan region

Table 1: Primary healthcare centers

Number	Subdistricts	No. of PHCCs (%)	Selected PHCCs
1	Akre Center	6 (16.6)	3
2	Bejil	7 (19.4)	4
3	Dinarta	5 (13.8)	3
4	Girdasin	2 (5.5)	1
5	Bardarash	4 (11.1)	2
6	Rovia	5 (13.8)	2
7	Darato	4 (11.1)	2
8	Kalak	3 (8.3)	1
Total		36 (100)	18

married when they were aged ≥ 20 years (49.1%), followed by 15–19 (35.1%). The rate of child marriage among participants was 15.6% in the studied region. The mothers and their husbands had diverse levels of education. But most of them were not educated or had a primary level of education. They were from both urban (45.3%) and rural residential areas (54.7%). Most of the women who were included in this study were housewives (87.6%), see Table 2.

This study found that four (44.3%) and five (33.4%) children were the preferable number of children of participants. The boy gender was more compared to the girl, 31.4% vs. 27.3%, respectively. The number of years for birth spacing of more

than half the participants was 1–2 years (52.0%), followed by 3–4 (33.7%) and ≥ 5 years (14.4%). The prevalence of previously lost fetuses was 8.2% among participants (including stillbirth and abortion). Most of the decisions to have a kid were made by husbands (31.9%), followed by influences of culture (19.6%), family income (16.3%), and relatives (12.6%). The religious (9.7%) and some other factors (9.9%) had the lowest effects in deciding to have a child. We found that the mothers were less likely to be involved in decision-making to have a child (22.5%). More than half of the participants did not intend to exceed their target number of female gender (56.4%). Only 39.4% of the participants used contraceptive tools [Table 3].

Table 2: General characteristics of participants

Characteristics (n = 404)	Statistics no (%)
Age of mothers	
<19	39 (9.7)
20–29	205 (50.7)
30–39	132 (32.7)
≥40	28 (6.9)
Age of husbands	
20–29	179 (44.3)
30–39	153 (37.9)
>40	72 (17.8)
Age at the marriage of mothers	
<15	63 (15.6)
15–19	142 (35.1)
≥20	199 (49.3)
Education level of the mother	
Illiterate	101 (25.0)
Primary	159 (39.4)
Secondary	90 (22.3)
Institute/Bachelor	54 (13.4)
Education level of husbands	
Illiterate	51 (12.6)
Primary school	157 (38.9)
Secondary school	112 (27.7)
Institute/Bachelor	84 (20.8)
Residential areas	
Urban	183 (45.3)
Rural	221 (54.7)
Mothers' occupations	
Housewife	354 (87.6)
Employee	50 (12.4)

The study showed that the desired family size was significantly increased with the age years of mothers; for ≥5 family size, 30.8% among <19, 23.4% among 20–29, 38.6% among 30–39, and 85.7% among ≥40 years ($P < 0.001$). The mothers who married at early ages (≤15–19 years old) were more likely to intend to have more children (83.6%) compared to those who married later (24.6%; $P = 0.0002$). The mothers who live in urban areas were more likely to intend to have more children compared to those mothers who live in rural areas. The mothers with a lower level of education intended to have more children; for ≥5 children, 50.5% in illiterate, 36.5% were primary school graduates, 21.1% in secondary school graduates, and 13.0% in institute/bachelor degree graduates ($P < 0.0001$). The study showed that the mothers who reported that culture or family income has a role in decision-making to have a child were more likely to intend to have more children compared to those who reported that Relatives' influences, Husband's decision, or Religious role have a role in decision making [Table 4].

DISCUSSION

This current study found that four and five children of both genders are the most preferable number of children

Table 3: Desired family size, family planning, and factors among participants

Characteristics (n = 404)	Statistics No (%)
Desired family size	
0	1 (0.2)
1	4 (1.0)
2	55 (13.6)
3	30 (7.4)
4	179 (44.3)
>5	135 (33.4)
Gender preference	
Boy	127 (31.4)
Girl	110 (27.2)
Both boy and girl	167 (41.3)
Previously lost fetus	
No	371 (91.8)
Yes	33 (8.2)
Birth spacing	
1–2 years	210 (52.0)
3–4 years	136 (33.7)
≥5 years	58 (14.4)
Factors affecting decision-making to have a child	
Culture	79 (19.6)
Family income	66 (16.3)
Relatives' influences	51 (12.6)
Husband's decision	129 (31.9)
Religious role	39 (9.7)
Others factors	40 (9.9)
Involvement of mother in decision-making to have a child	
Yes	91 (22.5)
No	313 (77.5)
Contraceptive use	
Yes	245 (60.6)
No	159 (39.4)
If you will have planned girls, will you exceed your target number	
Yes	176 (43.6)
No	228 (56.4)

of mothers in Iraqi Kurdistan. The husband's decision and family income are the most prevalent factors affecting a family to have a child.

A similar desired family size has been reported in other Kurdish governorates as well. For example, 47.6% of mothers in Erbil prefer to have four children. The preference of mothers to have four children may be related to cultural norms and family planning programs.^[21] This desire is not limited to Iraqi Kurdistan. The same preference has been reported among mothers across Iraq as well.^[22,23] The desired family size is broad in some Arabic countries, such as between 5 and 10 children in Saudi Arabia.^[24] However, the desired number of children is lower in Japan (mean number of families = 2.4) and countries such as Iran (mean number of families = 2.5).^[17,25] Interestingly,

Table 4: Association of desired family size with mothers' characteristics

Characteristics (n = 404)	Desired family size						P-value (two-sided)
	0	1	2	3	4	≥5	
Age of mothers							<0.001
<19	0 (0)	2 (5.1)	8 (20.5)	3 (7.7)	14 (35.9)	12 (30.8)	
20–29	0 (0)	2 (1.0)	35 (17.1)	19 (9.3)	101 (49.3)	48 (23.4)	
30–39	0 (0)	0 (0)	12 (9.1)	6 (4.5)	63 (47.7)	51 (38.6)	
≥40	1 (3.6)	0 (0)	0 (0)	2 (7.1)	1 (3.6)	24 (85.7)	
Age at marriage							0.0002*
<15	0 (0.0)	3 (4.8)	2 (3.2)	5 (7.9)	27 (42.9)	26 (41.3)	
15–19	1 (0.7)	1 (0.7)	18 (12.7)	6 (4.2)	56 (39.4)	60 (42.3)	
>20	0 (0.0)	0 (0.0)	35 (17.6)	19 (9.6)	96 (48.2)	49 (24.6)	
Residency							0.0053*
Urban	0 (0.0)	1 (0.6)	21 (11.5)	6 (3.3)	96 (52.5)	59 (32.2)	
Rural	1 (0.5)	3 (1.4)	34 (15.4)	24 (10.9)	83 (37.6)	76 (34.4)	
Education of mothers							<0.0001*
Illiterate	1 (1.0)	2 (2.0)	7 (6.9)	4 (4.0)	36 (35.6)	51 (50.5)	
Primary	0 (0.0)	2 (1.3)	23 (14.5)	8 (5.0)	68 (42.8)	58 (36.5)	
Secondary	0 (0.0)	0 (0.0)	17 (18.9)	6 (6.7)	48 (53.3)	19 (21.1)	
Institute/Bachelor	0 (0.0)	0 (0.0)	8 (14.8)	12 (22.2)	27 (50.0)	7 (13.0)	
Factors influencing decision-making to have a child							0.0179*
Culture	0 (0.0)	1 (1.3)	3 (3.8)	4 (5.1)	40 (50.6)	31 (39.2)	
Family income	0 (0.0)	0 (0.0)	12 (18.2)	1 (1.5)	35 (53.0)	18 (27.3)	
Relatives' influences	0 (0.0)	1 (2.0)	4 (7.8)	3 (5.9)	24 (47.1)	19 (37.3)	
Husband's decision	1 (0.8)	0 (0.0)	26 (20.2)	11 (8.5)	53 (41.1)	38 (29.5)	
Religious role	0 (0.0)	2 (5.1)	7 (18.0)	5 (12.8)	10 (25.6)	15 (38.5)	
Others factors	0 (0.0)	0 (0.0)	3 (7.5)	6 (15.0)	17 (42.5)	14 (35.0)	

Pearson Chi-squared test was performed for statistical analyses

The bold numbers show significant differences

The level of significance is <0.001: highly significant, 0.0002: very highly significant, 0.0053: highly significant, <0.0001: very highly significant, 0.0179: significant

the mothers in Bangladesh preferred two children.^[10] But it must be considered that there is a gap between the actual numbers of children they have and the number they intended. Possibly superstitions about contraception, lack of reproductive knowledge, and lack of collaborative decision-making are related factors to having more children in Bangladeshi mothers.

The ideal number of children in Europe and certain non-European countries (such as Canada, the United States, Australia, Japan, South Korea, and Taiwan) is two children or fewer.^[26] The possible factors related to the desired number of children are occupational situations, economic difficulties, trouble balancing work and childrearing, health issues, or infertility.^[27,28]

The majority of the decisions to have a child were taken by husbands in this study as influenced by culture, family income, and relatives. Religion had the lowest effect in deciding to have a child in this study. The lower level of education and cultural factors have been reported to be associated with high fertility rates in the literature.^[29,30] The role of tradition and culture in reproductive decisions is stronger in families belonging to small communities and ethnic minorities.^[31] Interestingly, a survey from the

Kurdistan region showed male-headed households tend to have bigger-size children compared to female-headed households, 5.2 vs. 3.4 children.^[32]

The role of religion in deciding to have a child is still ambiguous. The role of religion in deciding to have a child was not prevalent in our study. The literature has reported different results on the role of religion on the fertility rate, either in Iraq or elsewhere.^[4,10] But it seems that it has a strong role in deciding the fertility rate in some areas, such as Saudi Arabia.^[33]

In our study, the mothers are less likely to be involved in decision-making to have a child. In terms of the agreement on family size, western countries are more inclined to have an agreement on family size.^[34-36] But in Eastern countries, women do not have control over family planning and fertility decisions such as the timing of pregnancy, family size, and contraception.^[10]

Our study showed that the desired family size was significantly increased with the age years of mothers and early marriage, living in urban areas, and lower education levels. Similar findings have been reported in other countries. For example, a study from China reported that family size preference is associated with younger age and

a higher level of education, but concerning the residency of the participant, their results were in agreement with our findings^[37] and a Malawian survey.^[38] Education was significantly associated with a lower desired family size.^[39] High levels of reported desired family size in rural parts of sub-Saharan Africa are mainly associated with relatively lower levels of education.^[40] Education encourages a desire for reduced reproduction either directly by highlighting the economic, social, and health benefits of a smaller family or indirectly by encouraging women to delay reproduction and invest more in their education and that of their children.^[18]

This study showed that the desired family size was significantly increased with living in urban areas. The literature has no consensus about the role of being in urban or rural areas on the fertility rate. In contrast with our study, research from Japan reported that fertility intentions are higher among women living with bigger families in rural areas.^[17] Living in urban areas provides more probability of employment and educational options for their children. In addition, it is associated with cultural diversity and receptivity to new ideas and consequently undermining conventional norms and values.^[19]

Despite Iraq having legislated 18 years as the minimum age for female marriage,^[28] child marriage is culturally, religiously, or socially practiced in many communities in Iraq.^[41] Based on recent national surveys, early marriage occurs at a rate of 30% before the age of 18; differences range from 8% in Duhok to 43.5% in Missan.^[42] Their reason for child marriage is that they believe that girls in their teenage are physically and emotionally mature enough to take on the whole family's responsibilities.^[25]

CONCLUSION

Four and five are the most preferable number of children in Iraqi Kurdistan. The higher number of children was contributed to with increasing age years of mothers and early marriage, living in urban areas, and lower level of education. Effective health promotion programs are required for comprehensive family life, such as family planning and maternal and perinatal health outcomes.

Acknowledgment

The authors are thankful to the women who participated in the study and gave their time to the research. Also, we would like to extend gratitude to Professor. Samim Ahmed Al-Dabbagh for reviewing the questionnaire.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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