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Fertility Desire and Related Factors among Women of Reproductive Age in Iran: A Cross-sectional Study

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ABSTRACT

Background & aim: Developed societies have been grappling with population aging and declining fertility rates, prompting Iran to implement policies aimed at increasing fertility. However, research on fertility desire among women of reproductive age in Iran, remained limited. Therefore, this study was conducted to investigate fertility desire and its related factors in women of reproductive age.

Methods: This cross-sectional study was conducted on 400 women of reproductive age in Kashan, Iran, between 2023 and 2024, using a multistage sampling method. Data were collected using a four-part questionnaire: demographic characteristics, fertility desire, fertility health awareness, and the Multidimensional Scale of Perceived Social Support. Data were analyzed using one-way ANOVA, independent t-tests, Pearson's correlation coefficient, and multiple linear regression in SPSS (version 24).

Results: The mean score for participants' fertility desire was 44.9±7.2 (22-61). There was a significant difference in fertility desire scores based on age, age at marriage, participants and spouses' employment status, participants and spouses' educational level, economic status, and number of pregnancies. Linear regression analysis showed that age (P<0.001), self-assessment of economic status (P<0.001), fertility health awareness (P<0.001), and perceived social support (P=0.003) predicted and explained 29% of the variance in fertility desire (R^2=0.29).

Conclusion: Approximately two-thirds of the women reported a moderate fertility desire. These findings offer policymakers and fertility specialists valuable insight into the key determinants of women's fertility desire. Improving fertility health awareness, social support, and economic conditions may contribute to promoting a younger population structure in Iran.

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Introduction

The decline in fertility rates is a significant factor influencing population structure worldwide, particularly in developed countries (1). This decline, combined with rising life expectancy, has resulted in a decrease in the proportion of children and an increase in the proportion of older adults in the global population (2). Developed societies are now confronting the challenges of population aging and a significant decline in fertility rates, leading to changes in population policies aimed at increasing fertility (3). The level of fertility plays a crucial role in demographic changes, despite significant advancements in managing mortality factors (4). Urbanization has further contributed to declining birth rates in many developed and developing countries, sometimes falling below replacement levels (5). In Iran, societal transformation driven by urbanization and social, geographical, and cultural globalization of

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Iranian families is leading to changes in their behavior and mindset. Over recent decades, Iran has experienced a marked decline in fertility, with fertility falling below replacement levels (6).

Iran's fertility rate has markedly declined over time. In 1966, the rate stood at approximately 7.7 children per woman, which decreased to 1.7 in 2000 and further dropped to 1.8 children per woman in 2015 (7). This rate declined even further to 1.4 children per woman between 2015 and 2020 (8). The latest national census (in 2016) indicated that Iran's population growth rate declined compared to 2015 (9). If this trend persists, Iran is likely to experience a growing aging population alongside a shrinking active workforce. Childbearing remains one of the most complex decisions for women, and studies have indicated a decline in their desire to have children (10-11). Key contributors to the reduction in fertility rates include higher education levels, increased female employment, growing individualism, lifestyle changes, a reassessment of the value of children, a shift in focus from childbearing to child-rearing, and insufficient awareness of the risks associated with delayed fertility (10,12-13). The decision-making process regarding fertility impacts various aspects of life, including health, economic status, and family well-being. It is crucial to recognize the role of economic and social changes in shaping attitudes toward childbearing (13). The decline in fertility rates and its effect on population age structure have various economic, political, social, and health-related consequences (1). Increasing maternal age and delayed childbearing may pose greater risks to both the mothers and the infants, the opportunity to experience parenthood (14).

Various factors can influence an individual's fertility desire and childbearing decisions, including the living environment, cultural context, societal values, age at marriage, fertility-related knowledge, and attitude toward childbearing (15-17). The level of knowledge and attitude in these areas can greatly impact the behavioral outcomes. Given that women constitute half of the active population, their knowledge about reproductive health plays a crucial role not only in their health but also in the health and well-being of their children, families, and society as a whole. Reproductive health is a key aspect of public health, although it has received less attention in married women (18).

Perceived social support is another factor that can influence fertility desire. Studies have shown that perceived social support, as part of social capital, can facilitate individuals' decisions regarding fertility (19). Sadeghi et al. (2016) reported a significant relationship between social support variables and the inclination to have an additional child. However, no significant relationship was found between women's employment status or family socioeconomic status and the desire for further childbearing (20). In contrast, Afarini et al. (2019) showed no relationship between women's fertility desire and social support; although demographic factors such as age, education level, and family economic status emerged as the main determinants of fertility desire among women (3). Considering the policies encouraging childbearing in Iran in recent years and the implementation of government incentive programs to increase fertility, it is necessary to examine this issue.

In terms of cultural characteristics, social context, and family structure, city of Kashan simultaneously incorporates traditional and modern social patterns. This cultural diversity can play an important role in women's attitudes toward childbearing, making it a suitable environment for studying factors related to fertility desire. Considering the conflicting results in previous studies, the importance of this topic in societal structures, and the implications of an aging population on society, this study was conducted to investigate fertility desire and its related factors in women of reproductive age in Kashan, Iran.

Materials and Methods

The present study was conducted from December 2023 to April 2024 in Kashan, Iran. A descriptive analytical cross-sectional design was used to examine the relationship between fertility desire and associated factors among married women attending health centers. Participants were required to meet the following inclusion criteria to be eligible for the study: being Iranian, married, aged between 18 and 45 years, having a personal health record in

the health center, expressing willingness to participate in the research and providing informed consent, having no history of infertility, being able to answer the questions, and having no known psychiatric illness. The exclusion criterion was incomplete questionnaires.

The sample size was estimated to be 360 individuals using Cochran's formula with p=0.63 for prevalence of fertility desire (21), q=0.37, and d=0.05. Considering a 10% attrition rate, the final sample size was determined to be 400 individuals.

$$n = \frac{\left(z1-\frac{\alpha}{2}\right)^2 * p(1-p)}{d^2}$$

A multistage sampling method—comprising cluster, random, and convenience sampling—was employed. First, a list of health centers in each of the five regions of Kashan (serving as clusters) was compiled. Subsequently, four health centers were randomly selected from each region. Finally, participants were recruited using convenience sampling at the selected health centers. To ensure the accuracy and validity of the data, standardized electronic questionnaires were used in this study. The process began with the completion of a demographic information questionnaire, followed by fertility tendency, fertility awareness, and perceived social support questionnaires. On average, participants required 20 to 30 minutes to complete the questionnaires.

The study tool consisted of four sections. Section one included demographic information and comprised 12 items regarding the participant's age, their spouse's age, age at the time of marriage for both the participant and their spouse, number of pregnancies, number of children, time interval between marriage and first pregnancy, level of education, employment status of the participant and their spouse, and self-assessment of their economic status.

Section two utilized the 16-item Fertility Tendency Questionnaire for women designed by Rad et al. (2015). The questionnaire is scored on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The total score range is from 16 to 80, where higher scores indicate a higher fertility desire. Scores below 20 indicate very low or no desire, scores between 21-40 indicate low desire, scores between 41-60 indicate moderate desire, and scores above 61 indicate high desire. The content validity of this scale was confirmed in the study by Rad et al. (2015), with a reported reliability of 0.71 using Cronbach's alpha method (22).

Section three involved a questionnaire on women's awareness of reproductive health. It consists of 9 questions, scored on a 5-point Likert scale ranging from very low to very high. Scores range from 1 to 5, with a total score range of 9 to 45. Higher scores indicate higher awareness of reproductive health. A score of 31 or higher is considered high awareness, while scores below 30 are considered low awareness. The content validity of this scale was confirmed through experts' opinions in the study by Mazloomy Mahmood-Abad et al. (2006), and its reliability was calculated to be 0.80 using Cronbach's alpha method (23).

Section four employed the Multidimensional Scale of Perceived Social Support (MSPSS) developed by Zimet et al. in 1988 (24). This questionnaire consists of 12 questions scored on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). Each item receives a score between 1 and 7, resulting in a total score range of 12 to 84. The scale comprises three subscales: friends (items 6, 7, 9, and 12), family (items 3, 4, 8, and 11), and significant other (items 1, 2, 5, and 10). Scores of 12–20 indicate low perceived social support, scores of 21–40 indicate moderate perceived social support, and scores of 41 and above indicate highly perceived social support. The reliability of this scale was reported in the study by Alipour et al. (2016) with a Cronbach's alpha coefficient of 0.94 for the overall scale, and 0.89, 0.90, and 0.90 for the subscales of friends, family, and significant others, respectively (25).

To collect data, after obtaining ethical approval as well as the necessary permissions from Kashan University of Medical Sciences, Kashan, Iran, and, the researcher proceeded with sampling. Eligible participants respond to the questions on a self-report basis.

Descriptive and inferential statistics were used to examine the study objectives. The normality of the data was confirmed using the Kolmogorov-Smirnov test. Univariate analyses

included one-way analysis of variance (ANOVA), t-test, and Pearson correlation coefficient to determine the relationship between fertility desire and related factors. Multiple linear regression was used to determine the predictive factors of fertility desire among the participating women. Data analysis was performed using SPSS version 24. The significance level of less than 0.05 was considered.

Results

The mean age of the participants was 27.8±4.6 years (18-45 years), while the mean age of their spouses was 31.1±5.3 years (18-58 years). The mean age at marriage was 23.9±3.7 years for the participants and 27.2±4.1 years for their spouses. The average time from marriage to the first pregnancy was 2.2±1.2 years. A total of 400 participants participated in the study, with a response rate of 100%. The mean awareness of reproductive health score of the participants was 33.9 ± 6.5, and the mean perceived social support score of the participants was 56.5 ± 11.2. Other demographic information of the participants is presented in Table 1.

Table 1. Frequency distribution of demographic characteristics of the participants

Variable	Frequency (%)
Age	
18-27	133 (33.2)
28-36	116 (29)
37-45	151 (37.8)
Job status of participants	
Housewife	176 (44)
University student	57 (14.2)
Employed	167 (41.8)
Job status of Participants' spouses	
Unemployed	20 (5)
University student	51 (12.7)
Employed	289 (72.3)
Retired	40 (10)
Level of education of participants	
Diploma and lower	128 (31.9)
Associate's degree	138 (34.6)
Bachelor's degree	53 (13.3)
Master's degree and upper	81 (20.2)
Level of education of participants' spouses	
Diploma and lower	84 (21)
Associate's degree	30 (7.4)
Bachelor's degree	159 (39.8)
Master's degree and upper	127 (31.8)
Economic status self-assessment	
Good	126 (31.5)
Medium	232 (58)
Poor	42 (10.5)
Number of pregnancies	
No pregnancy	74 (18.5)
One	87 (22)
Two	108 (27)
Three	79 (19.5)
Four or five	52 (13)
Number of children	
No children	99 (24.8)
One	64 (16)
Two	162 (40.5)
Three or four	75 (18.7)

Variable	Frequency (%)
Level of reproductive health awareness	
Low	142 (35.5)
High	258 (64.5)
Level of perceived social support	
Low	52 (13)
Highly	348 (87)

The mean fertility desire score among the participants was 44.9±7.2 (22-61). Based on the score range obtained from the questionnaire,

23% (92) had low fertility desire, 74.5% (298) had moderate fertility desire, and 2.5% (10) had high fertility desire. None of the participants reported very low fertility desire (Figure 1).

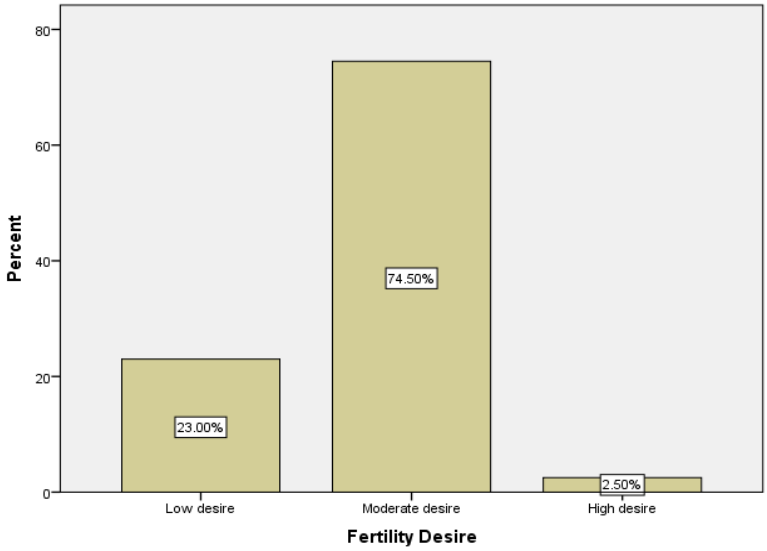

Figure 1. Distribution of participants based on the levels of fertility desire

The t-test showed a significant difference between the fertility desire score and the age of participants at the time of marriage (p=0.004, t= 3.10, CI=1.46, 3.65). Individuals who married at older ages had higher fertility desire. One-way ANOVA test showed a significant difference between the fertility desire score and the age of participants (P<0.001, F=6.99), and Tukey's post hoc test indicated a significant difference in fertility desire score between women aged 28-36 years and other age groups. Additionally, one-way ANOVA test showed a significant difference between the fertility desire score and the employment status of the participants (P<0.001, F=13.50), and Tukey's post hoc test indicated a significant difference in fertility desire score between student women and housewives/employed women.

Additionally, the one-way ANOVA test showed a significant difference between the fertility desire score and the employment status of the participants' spouses (P<0.001, F=6.32), and Tukey's post hoc test indicated a significant difference in fertility desire score between women with unemployed spouses and other groups.

Statistical analysis revealed a significant difference between the fertility desire scores, the education levels of the participants

(P<0.001, F=15.25), and the education levels of their spouses (P<0.001, F=13.10). Tukey's post hoc test indicated a significant difference in fertility desire score between the level of education of participants' spouses (with a Master's degree and the upper) and other groups. Additionally, the statistical analysis demonstrated a significant difference between the fertility desire scores and the self-assessed economic status of the participants (P<0.001, F=9.54).

Table 2. Comparison of mean fertility desire scores across different categories of participants' characteristics

Variable	Mean ± SD	P-Value	Test Statistics
Age at marriage			
14-23	44.20±7.49	0.004	-3.10*
24-34	46.66±6.19		
Age			
18-27	[a]44.04±7.45		
28-36	[b]47.03±5.58	<0.001	6.99**
37-45	[a]44.17±7.77		
Job status			
Housewife	[a]47.29±5.48		
University student	[b]42.93±7.32	<0.001	13.50**
Employed	[a]46.29±7.08		
Husband job status			
Unemployed	[b]40.95±9.28		
University student	[a]47.23±5.78	<0.001	6.32**
Employed	[a]47.60±3.10		
Retired	[a]44.48±7.46		
Education			
Diploma and lower	[a]47.65±6.26		
Associate's degree	[a]46.58±5.23	<0.001	15.25**
Bachelor's degree	[a]45.55±7.48		
Master's degree and upper	[b]41.77±6.84		
Husband education			
Diploma and lower	[a]47.40±5.29		
Associate's degree	[a]45.20±5.70	<0.001	13.10**
Bachelor's degree	[a]44.87±8.32		
Master's degree and upper	[b]41.33±6.41		
Economic status self-assessment			
Good	[a]43.93±7.52		
Medium	[b]46.13±6.64	<0.001	9.54**
Poor	[a]41.52±7.74		
Number of pregnancies			
No pregnancies	[a]46.26±9.45		
One	[a]45.36±6.20		
Two	[a]45.46±5.80	0.04	2.34**
Three	[a]45.66±4.53		
Four or five	[b]42.35±7.40		
Level of reproductive health awareness			
Low	41.38±6.87	<0.001	7.80*
High	46.89±6.53		
Level of perceived social support			
Low	40.29±6.32	<0.001	5.27*
High	46.89±7.53		

Data were analyzed as mean ± SD, * P- value of T-test, **P-value of One-Way ANOVA, a: indicate no significant differences. b: indicate significant differences

Post-hoc tests revealed a significant difference in the association between the fertility desire scores of participants and Medium economic status compared to other groups (Table 2).

The one-way ANOVA test showed a significant difference between the fertility desire score and number of pregnancies (p=0.04, F=2.34), and Tukey's post hoc test indicated a significant difference in fertility desire score between women with four or five pregnancies and other groups.

Also, the t-test showed a significant difference between the fertility desire score and participants' awareness of reproductive health (P<0.001, t=7.80, CI=4.10, 7.90). Individuals with a high awareness of reproductive health had a higher fertility desire.

Additionally, the t-test showed a significant difference between the fertility desire score and participants 'perceived social support (P<0.001, t=5.27, CI=4.12, 6.10). Individuals with highly perceived social support had a higher fertility desire.

Pearson's correlation coefficient showed a positive and significant correlation between the overall fertility desire and perceived social support scores (P<0.001, r=0.19), as well as between the overall fertility desire scores and the scores for awareness of fertility health (P<0.001, r=0.37).

All variables with a p-value less than 0.2 were included in the regression model. The stepwise regression indicated that the age of the participants, self-assessed economic status, scores of overall awareness of fertility health, and overall perceived social support predicted and explained 28% of the variance in the fertility desire of the participants (Table 3).

Table 3. Regression analysis of associations between study variables and participants' fertility desire scores

Variables	Unstandardized Coefficients		Standardized Coefficients	Confidence Interval		T	P-Value	Adjusted R^2	R^2
	B	Std. Error	B	Lower Bound	Upper Bound				
Constant	26.125	2.705		19.590	30.135	9.659	<0.001	0.28	0.29
Age	2.757	0.750	0.175	1.296	4.145	3.677	<0.001		
Self- assessment of economic status	3.480	0.695	0.241	2.347	4.966	5.005	<0.001		
Awareness of reproductive health	0.270	0.041	0.321	0.261	0.406	6.580	<0.001		
Perceived social support	0.140	0.047	0.134	0.031	0.217	2.952	0.003		

Overall, the majority of participants reported a moderate fertility desire. Age, self-assessment of economic status, fertility health awareness, and perceived social support predicted and explained 29% of the variance in fertility desire.

For every one-year increase in age, the average fertility desire score increased by 0.17 standardized units (β = 0.17, P < 0.001). Participants with an average economic status had a fertility desire score that was 0.24 standardized units higher than the reference group (β = 0.24, P < 0.001). For every one-unit increase in awareness of reproductive health score, the average fertility desire score increased by 0.32 standardized units (β = 0.32, P < 0.001). Also, for every one-unit increase in perceived social support score, the average fertility desire score increased by 0.13 standardized units (β = 0.13, P = 0.003).

Discussion

This study aimed to examine fertility desire and related factors among women of reproductive age in Kashan, Iran. The results of the study showed that approximately two-thirds of the participants reported a moderate fertility desire. Consistent with these finding, a study conducted in South Africa reported that approximately 65% of women expressed a strong desire for childbearing (26). Similarly, research in Uganda showed that around 70% of

participants preferred to have families consisting of five or more members (27). A study in Iran (2016) revealed that about two-thirds of women, despite their fertility capability, had no desire for childbearing (28). According to official Iranian statistics, Alborz province had the lowest fertility rate and Sistan and Baluchestan province the highest as of 2021 (29). In Tehran, the capital of Iran, low fertility rates were also reported (30). These variations may be attributed to ethnic diversity and differing cultural norms across regions. In some societies, larger families are preferred. In industrialized cities, economic pressures, competitive opportunities, space and housing constraints, and delaying marriage can negatively affect fertility rates. Different cultural contexts and national policies on childbearing can also influence these results. In recent years, Iran has implemented pronatalist policies aimed at addressing aging, which may contribute to an increased desire for childbearing among women.

In the present study, the majority of participants demonstrated a high level of awareness regarding fertility health. Access to accurate information about sexual relationships and reproductive health is essential for addressing a range of issues, including unintended pregnancies, abortion, and sexually transmitted infections, all of which can significantly affect fertility and reproductive outcomes (31). Previous research has also indicated that women and girls in low- and middle-income countries often lack sufficient awareness of sexual and reproductive health issues, highlighting the need for improved educational initiatives in these contexts (32). Understanding safe sexual relationships and promoting healthy fertility can have a positive impact on the desire for childbearing. In Iranian culture, discussions related to sexual issues are often considered taboo. By removing these taboos and enhancing education through schools and mass media, it is possible to increase awareness, consequently leading to an increase in childbearing among women.

In the present study, more than two-thirds of the participants reported a high level of perceived social support, which was mostly attributed to friends, family members, and other significant individuals in their lives. This support was found to have a direct association with fertility desire. The prevalence of strong relational bonds within Iranian culture likely contributes to the receipt of informal support from these sources (33-34). Although a study in Tehran did not find a relationship between social support and fertility desire (3), most studies have confirmed the association between support and childbearing. A qualitative study in Iran highlighted insufficient support—especially from family members—as a key obstacle to childbearing (35). Similarly, research conducted in northern Iran revealed a significant correlation between social support, particularly assistance with domestic duties, and women's willingness to have children (36). Social support is widely acknowledged as a crucial factor influencing decisions related to childbearing, as it can reduce conflicts and facilitate informed decision-making. Having a reliable person within the family or friends who can assist when needed serves as a positive motivator for childbearing. Furthermore, larger families can expand individuals' social networks and contribute to better mental well-being.

In this study, individuals who married at older ages demonstrated a greater fertility desire. This trend was particularly pronounced among women aged 28-36 compared to other age groups. This finding aligns with a study conducted in Tehran, which showed that for each additional year of age, there was a 20% increase in the desire to have children (3). However, some studies have shown contrasting results, with younger women displaying higher fertility desire (10). In Africa, women aged 45 and above reported lower fertility desire (26). Studies conducted in Iran have also indicated that increasing age is a primary factor contributing to reduced desire and decreased motivation for childbearing (28,37). In recent years, the age of marriage, especially for women, has increased in Iran (31). The delayed age of marriage and the reduced opportunity for childbearing have led individuals to consider childbearing at older ages, providing support for our study's findings regarding increased fertility desire at older ages.

In this study, the employment status of women and their spouses emerged as significant

factors influencing fertility desire. The highest fertility desire scores were observed among housewives, whereas female students reported the lowest scores. This variation may reflect differences in occupational involvement, social participation, and educational responsibilities among women. Additionally, women with unemployed spouses exhibited the lowest fertility desire, potentially reflecting the impact of family income and economic conditions. Notably, unemployment has been identified as one of the most influential economic factors contributing to decreased fertility rates (37).

The educational level of both women and their spouses was found to be inversely associated with women's fertility desire. As education increased, there was a decrease in the desire for fertility. This finding aligns with previous research indicating that each additional year of education among women is associated with an 8% decrease in the intention to have children (3). Similarly, a study conducted in Sabzevar reported that higher levels of education were linked to reduced motivation for childbearing among women (37). Similarly, women with higher education in Africa reported a lower desire for childbearing (26). In Uganda, childbearing was more prevalent among individuals with lower education levels (27). The involvement of both spouses in pursuing education may result in women having less time for family matters, thus reducing their desire for childbearing. However, other studies have also shown that higher education is associated with increased fertility (38). Differences in results may be due to better access to social opportunities and, consequently, greater family economic stability.

In this study, the economic status of families was a significant predictor of fertility desire in women, with families of moderate economic status reporting the highest fertility desire score. Children were traditionally considered as a future workforce, providing economic support to their parents in later years. However, with increasing urbanization and rising unemployment rates, children have become a considerable financial burden for many families, thereby positioning economic status as a critical determinant of fertility desire and childbearing decisions. In India, women with higher socio-economic status had a greater desire for fertility (10). Results from studies conducted in Iran identified economic problems and strong spousal opposition as reasons for the lack of fertility desire (28). Interestingly, while improvements in household income may initially lead to a rise in fertility desire, this trend tends to reverse as economic prosperity increases (39).

In recent years, the status of Iranian women has undergone notable changes. The number of employed and educated women has noticeably increased, leading to greater independence and freedom in various aspects of life, including decision-making related to fertility. Moreover, higher education has contributed to increased awareness of fertility health among women. There has also been a growing emphasis on childbearing, supported by pronatalist policies and extensive advertising campaigns in Iran. Consequently, efforts are underway to enhance women’s motivation to have children. For example, one study demonstrated that interventions aimed at preventing traumatic birth experiences can enhance positive fertility motivation (40). With greater government support and the establishment of welfare and economic facilities for young people concerning childbearing, these initiatives have the potential to mitigate the effects of past population control policies in the country.

Understanding the factors that influence women’s fertility desire enables policymakers to focus on those that positively shape reproductive intentions. Measures such as providing economic support to young people to encourage marriage, offering incentives for childbearing, providing welfare facilities for women, raising awareness of reproductive health, and ensuring access to free infertility treatments can contribute to increasing the young population.

This study, conducted in the city of Kashan, is the first to examine fertility desire among women in this region. The inclusion of factors such as perceived social support and awareness of reproductive health is one of the strengths of this research. Other strengths of this research include an appropriate sample size, the use of valid and standard instruments, and sampling from different areas of the city.

In this study, fertility desire was examined only among married women, but since this matter depends on the joint decision of both spouses, it is suggested that future studies investigate fertility desire among both women and men. Additional limitations include the restriction of sampling to a single city, the use of convenience sampling, the self-report nature of the questionnaire, and the failure to examine some other important factors, such as history of abortion, fertility problems in the family, and cultural pressures.

Conclusion

The results of this study indicate that approximately two-thirds of participants reported a moderate fertility desire, influenced by a combination of individual, social, and economic factors. Interventions such as increasing awareness of fertility health, providing social support, improving economic conditions, establishing welfare facilities for female workers, and creating free childcare centers could help to strengthen this desire. These findings can inform policymakers in designing targeted initiatives that enhance economic and social support, promote educational outreach, and improve access to reproductive and infertility services. By incorporating variables such as social support and reproductive health awareness, this study offers new insights into the multifaceted nature of fertility desire among Iranian women. Future research could adopt a qualitative approach to explore, in greater depth, the factors shaping couples' fertility desires.

Declerations

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Conflicts of interest

The authors declared no conflicts of interest.

Ethical considerations

The study strictly adhered to all relevant ethical laws and principles outlined in the Helsinki Declaration. The general objectives of the study were explained to all participants, and they were assured of the confidentiality of their personal information. Written consent was obtained from all participants, and they were assured that they could withdraw from the study without any compensation and also would have access to the research results if desired. All procedures were performed under approved protocols and all relevant local and national research guidelines and regulations.

Code of Ethics

The Institutional Review Board and Research Ethics Committee of Kashan Faculty of Medicine approved the study protocol (Ethical code: IR.KAUMS.MEDNT.REC.1401.230).

Use of Artificial Intelligence (AI)

We have not used any AI tools or technologies to prepare this manuscript.

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Authors' contribution

AS and NS contributed to design, data analysis, and manuscript writing. AS, NS, and MJ contributed to data analysis and interpretations and revising the manuscript. All authors approved the final manuscript.

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