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Attitudes toward fertility and childbearing among childless female teachers working in the Gorgan education system in 2023

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Abstract

Background: Fertility is an important determinant of population dynamics and a key topic in demographic and public health research. This study aimed to assess attitudes toward fertility and childbearing among childless female teachers working in the education system of Gorgan, Iran, in 2023.

Methods: This was a cross-sectional study. A total of 465 eligible female teachers were recruited using systematic sampling. Data were collected using a demographic information form and the validated Persian version of Söderberg et al.'s Attitudes to Fertility and Childbearing Scale (AFCS). The data were analyzed in SPSS software version 19, using analysis of variance, independent t-tests, and Pearson's correlation. The level of statistical significance was set at 0.05.

Results: The mean age of the participants was 36.42 ± 6.95 years, and the mean fertility attitude score was 55.65 ± 11.01. No significant association was found between the fertility attitude score and teachers' education level, spouse's occupation, employment status, homeownership status, or type of contraceptive method (P-value range: 0.31 to 0.92; all P-Value > 0.05). However, Pearson's correlation analysis showed positive correlations between the fertility attitude score and both age (r = 0.10, P-Value = 0.03) and their work experience (r = 0.11, P-Value = 0.02). Additionally, the relationship between the fertility attitude score and both household income level and spouse's education level was borderline significant (P-Value = 0.05).

Conclusion: The results of this study suggest a significant relationship between age and work experience and attitudes towards fertility among female teachers in Gorgan. A positive correlation between older age/more work experience and a more favorable attitude toward fertility may be attributed to factors such as personal maturity, job stability, and psychological economic security. Therefore, cultural policies and programs related to fertility for this group could focus on creating supportive conditions for job stabilization and reducing stressors during the early years of service, aiming to foster a more positive experience of combining employment and childbearing.

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Highlights

What is current knowledge?

- Attitudes toward fertility and childbearing are important predictors of fertility behavior. A declining tendency to have children has become a significant challenge for contemporary societies, including Iran.
- Increased female participation in the modern workforce has also led to shifts in fertility behavior, often influencing decisions about family size and timing.
- Within Iran's urban female workforce, the education sector employs the largest proportion of women. Teaching is a prominent profession where female employees significantly outnumber male employees.

What is new here?

The overlap between the initial, unstable phase of a career and prime reproductive years can create a significant challenge. Professional stability and maturity, which often develop with age and work experience, may provide a more supportive psychosocial context for positive attitudes toward childbearing during the reproductive years. Therefore, supportive policies should aim to assist young female teachers in reaching a stage of "professional stability" as soon as possible, so that career uncertainty does not delay childbearing beyond the optimal biological period.

Introduction

Fertility and childbearing are key determinants of demographic change and therefore important subjects of demographic research (1). Over the past three decades in Iran, demographic studies have shown a dramatic decline in the Total Fertility Rate (TFR). From 7 children per woman in 1979, the TFR fell to 1.8 in 2011 (2), representing a reduction of over 50%. These trends clearly indicate that Iran is currently experiencing a significant fertility decline (3). Significant socio-economic transformations have occurred in Iranian society, and fertility attitudes and behaviors have changed accordingly (4). Changes such as evolving traditional gender roles (5), increased women's economic independence through workforce participation (6), a greater prominence of men's roles in childcare (7), the rise of individualism (8), the diminishing significance of traditional homemaking roles (9), and the perceived burden of multiple childcare responsibilities for working parents (10), may contribute to hesitation in couples' decisions about childbearing and can shape fertility intentions through cognitive and social pathways (11). Furthermore, for many individuals, the decision to become pregnant, particularly for a second or third time, is perceived as anxiety-provoking (12). This perception may stem from negative emotional and physical experiences associated with a first pregnancy (13) and general parenting challenges, turning childbearing into a complex decision in contemporary life (14). In this regard, findings from some studies indicate that concerns related to an inability to manage parental responsibilities, conflicts with employment, increased duties, financial strain on the family, and poor marital relationships contribute to a lower inclination toward childbearing (15). In addition to social, cultural, and

economic influences, childbearing decisions are closely linked to couples' fertility behavior, which is itself shaped by changes in attitudes toward fertility and ideals about childbearing (16). Since attitudes toward fertility and childbearing are a important determinants of fertility behavior, and the declining inclination to have children is a challenge facing contemporary societies, including Iran, it is essential to investigate this phenomenon to prevent the consequences of delayed childbearing (17,18). Extensive research has been conducted both within Iran and internationally to understand the factors influencing fertility behavior (16,18). Measuring and understanding fertility levels and their determinants is not only crucial for population projections but also forms the foundation for economic, social, and demographic planning, and serves as a key indicator for assessing the economic and social conditions of a society (19). The continuation of Iran's current fertility trend implies a substantial increase in the population aged 50-64 by 2050, rising costs of elderly care, a shrinking young and active population, increased need for immigration, and reliance on foreign labor for production and economic growth. These demographic shifts could also present societal challenges, potentially influencing cultural dynamics and social structures (20). Therefore, it is imperative for policymakers to consider these trends when planning and legislating in various social, economic, and health domains (21). For this reason, examining fertility attitudes and their determinants at the individual, interpersonal, and social levels is especially important (22). Recent decades have witnessed significant shifts in Iran's fertility rates, driven by various factors including increased female labor force participation and modern employment, which have consequently influenced reproductive patterns and led to declining fertility to low levels (23,24). Results from one study in Iran indicated that the education sector accounts for the highest occupational activity among urban women (25). Given that teaching is a prominent profession with a higher proportion of female employees and considering the scarcity of research on the attitudes of this influential group, this study aimed to determine attitudes toward fertility and childbearing among childless female teachers employed in the education system of Gorgan County in 2023.

Methods

This cross-sectional study was conducted on 465 female teachers employed in the education system of Gorgan County in 2023. After ethical approval was obtained from Golestan University of Medical Sciences (IR.GOUMS.REC.1402.092), systematic sampling was initiated.

Following the preparation of the sampling frame, the researcher obtained a complete list of all eligible employed teachers from the Gorgan County Department of Education. Considering the approximate population size of 4,500 and a required sample size of 465, systematic sampling with an interval of k ≈ 10 was used (Figure 1). The starting point was selected at random. Selection bias was minimized through the use of systematic random sampling based on a complete and up-to-date sampling frame, ensuring that all eligible teachers had an equal probability of selection.

The selected individuals were then contacted by telephone. The researcher introduced herself, explained the objectives of the study, and, if the individual agreed to participate, assessed eligibility based on the inclusion criteria. Participants were assured that all information would remain confidential. They were also informed of their right to continue or withdraw from the study at any time. The informed consent form and questionnaires were administered online through the Porsline platform (https://porsline.ir/). Participants were informed that upon completing the questionnaires, they would receive a mobile phone credit recharge worth 10,000 Toman.

Inclusion criteria were: being married, nulliparous (With no history of childbirth), residing in Gorgan, being of reproductive age (22-54 years), having any form of employment contract with the Department of Education at primary, lower-secondary, or upper-secondary level, having lived with one's spouse for at least one year, being non-menopausal, and possessing a smartphone.

Exclusion criteria, all assessed based on self-report, included: having medical contraindications for pregnancy (World Health Organization Class IV cardiovascular conditions including pulmonary arterial hypertension (26), New York Heart Association Class III or IV heart failure (26), history of peripartum cardiomyopathy, severe left-sided heart obstruction (26), Marfan syndrome with aortic dilatation (26)), infertility in either spouse, and known psychiatric disorders under treatment.

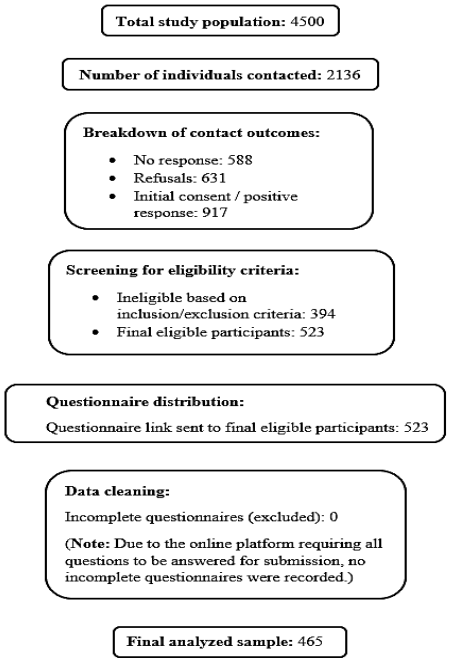

Figure 1. Sampling flowchart

The sample size was calculated based on a study by Zarei Salehabadi et al. in 2020 (27), which reported a mean total score for fertility attitude and childbearing attitudes of 62.65 ± 14.21. Using the formula below with a 95% confidence level and a maximum error of 1.4, a sample size of 396 was estimated.

$$n = \frac{z^2_{1-\alpha/2} s^2}{d^2}$$

Given the subdomains, the maximum required sample size, based on the mean and standard deviation of the "Fertility Requires Prerequisites" subscale (7.83 ± 3.3), with a 95% confidence level and a maximum error of 0.3, was estimated to be 465 participants.

$$n = \frac{z^2_{1-\alpha/2} s^2}{d^2}$$

Data collection tools

The data collection instruments consisted of a demographic information form and the validated Persian version of the Söderberg et al. Attitudes Toward Fertility and Childbearing (ATFC) questionnaire. This questionnaire was originally developed by Söderberg et al. in 2013 to assess women's attitudes toward fertility and childbearing. The original original-language version of the scale contains 3 subscales (Importance of children for the future, Child as an obstacle in the present, and social identity) and 27 items, scored on a 5-point Likert scale from Strongly Agree (5) to Strongly Disagree (1). In the original 27-item scale, the minimum and maximum scores are 27 and 135, respectively, with a higher score indicating a more positive attitude toward fertility and childbearing. The reported Cronbach's alpha for each subscale of the original questionnaire was as follows: Importance of children for the future, 0.901; Child as an obstacle in the present, 0.908; and social identity, 0.805 (28).

This instrument was validated in Iran by Bā'ezat et al. in 2016 (29). The Persian version comprises 24 items and 4 subscales: Child as a pillar of life, Child as an obstacle, postponing fertility to the future, and Fertility Requires Prerequisites. It uses a Likert scale from Strongly Agree (5) to Strongly Disagree (1). The minimum score is 24 and the maximum is 120. Items 10-21 and 25 are reverse-scored. A higher score indicates a more positive attitude toward fertility and childbearing. The reported Cronbach's alpha coefficients for these four subscales were 0.855, 0.864, 0.772, and 0.739, respectively, and 0.792 for the entire scale (29). In the present study, the Cronbach's alpha coefficient for this questionnaire (Comprising 24 items) was calculated as 0.764, indicating acceptable reliability in the study sample.

Data analysis

After collection, the data were entered into SPSS software version 19. Quantitative and qualitative data were described using descriptive statistics, including means and standard deviations and frequency distribution tables. Before conducting parametric tests, the assumption of normality for the distribution of the fertility attitude score within each subgroup of the independent variables (Including teachers' education level, income level, employment status, and contraceptive use) was assessed using the Shapiro-Wilk test. The results indicated that all continuous variables were normally distributed (Supplementary Table 1). Furthermore, the assumption of homogeneity of variances was confirmed using Levene's test (P-value > 0.05 for all variables, including income level (0.345), employment status (0.582), and contraceptive use (0.919)).

Given the large sample size (n=465) and based on the Central Limit Theorem, the use of parametric tests (Independent t-test and Analysis of Variance) was deemed permissible and reliable, even in cases of minor deviations from normality. These tests are generally robust in large samples. Mean comparisons for two-level and three-level qualitative variables were performed using independent t-tests and Analysis of Variance (ANOVA), respectively. Associations between qualitative variables were assessed using the Chi-square test, and associations between quantitative variables were measured using Pearson's correlation coefficient. The level of statistical significance was set at 0.05.

Results

This study was conducted among 465 participants aged 22 to 54 years. The majority of teachers (61.1%) and their spouses (42.8%) held a bachelor's degree. Over half of the teachers (59.4%) reported an average income level. Regarding ethnicity, nearly 90% were Persian. participants' spouses were employed in the government and private sectors in approximately similar proportions. The employment status of 73.5% of the teachers was permanent, and, 70.5% owned their homes. Over 99% had no history of pregnancy, and 63% did not use any contraceptive method. Among all participants, 16.6% reported using condoms, 14.6% used natural methods, and the remainder used contraceptive pills or IUDs (Table 1).

Table 1. Distribution of demographic variables among participants and their spouses

Variable	Subcategories	Frequency (n)	Percentage (%)
Teacher's education level	High school diploma	2	0.4
	Associate degree	5	1.1
	Bachelor's degree	284	61.1
	Master's degree and above	174	37.4
Perceived household income level	High	160	34.4
	Moderate	276	59.4
	Low	29	6.2
Ethnicity	Persian	415	89.2
	Turkmen	27	5.8
	Sistani	10	2.2
	Other	13	2.8
Spouse's education level	Illiterate	3	0.6
	Primary school	2	0.4
	Middle school	10	2.2
	High school diploma	45	9.7
	Associate degree	70	15.1
	Bachelor's degree	199	42.8
	Master's degree and above	136	29.2
Spouse's occupation	Government employee	224	48.2
	Self-employed	223	48.0
	Retired	16	3.4
	Unemployed	2	0.4
Employment status	Tenured (Formal)	342	73.5
	Contractual	71	15.3
	Temporary contract	35	7.5
	Corporate	10	2.2
	Hourly/Part-time	7	1.5
Housing tenure status	Rented	101	21.7
	Owned	328	70.5
	Living with husband's family	18	3.9
	Living with own family	8	1.7
	Inherited	4	0.9
	Employer-provided	6	1.3
History of pregnancy	Yes	4	0.9
	No	461	99.1
History of contraceptive use	Yes	172	37.0
	No	293	63.0
Type of contraceptive method	Natural methods	68	14.6
	Condom	77	16.6
	IUD	5	1.1
	Contraceptive pills	22	4.7

As shown in Table 2, the mean total score for attitudes toward fertility was 55.65 out of 120. This score is lower than the theoretical midpoint of the questionnaire (72). Among the subscales, the highest mean score was observed for" Child as a Pillar of Life" (21.45 out of 35), indicating the perceived value of children within this group. Conversely, the lowest mean score was observed for the "Postponing Fertility to the Future" subscale (12.03 out of 30).

Table 3 presents the association between the attitude toward fertility and childbearing score and demographic variables. To address the ordinal nature of certain variables and the small sample sizes within specific subgroups, we conducted a Kruskal-Wallis test as a sensitivity analysis. The results were consistent with the original ANOVA findings, with all P-Values remaining in a similar range. This confirms that our conclusions are robust regardless of the statistical approach. These sensitivity results are presented in Supplementary Table 2. The results of Pearson's correlation test revealed a direct and significant correlation between the mean attitude score and both teachers' age (r=0.10, P-value =0.03) and their work experience (r=0.11, P-Value =0.02) (Table 4).

Although statistically significant, the strength of these correlations is considered weak. Furthermore, the high correlation between age and work experience, which is expected given the close relationship between these variables, warrants cautious interpretation regarding the independent effect of each.

Table 2. Mean and standard deviation of the total and subscale scores for attitudes toward fertility among female teachers in Gorgan, 2023

Scale	Number of Items	Possible Minimum Score	Possible Maximum Score	Mean ± Standard Deviation	Observed Score Range
Child as a pillar of life	7	7	35	21.45 ± 5.12	8 - 34
Child as an obstacle	7	7	35	15.82 ± 4.96	7 - 32
Postponing fertility to the future	6	6	30	12.03 ± 3.55	6 - 27
Fertility requires prerequisites	4	4	20	10.35 ± 2.89	4 - 18
Total fertility attitude score	**24**	**24**	**120**	**55.65 ± 11.01**	**24 -115**

Table 3. Association between teachers' fertility and childbearing attitude scores and demographic variables

Variable	Subgroups	Mean Score	Standard Deviation	Test statistic	P-Value
Ethnicity	Persian	55.51	10.92	F=1.58*	0.19
	Turkmen	55.07	12.12		
	Sistani	63.10	7.19		
	Other	55.46	13.04		
Income level	High	56.85	12.00	F=3.11*	0.05
	Moderate	54.64	10.20		
	Low	58.52	11.95		
Teacher's education	High school diploma	61.50	4.95	F=1.20*	0.31
	Associate degree	53.60	20.57		
	Bachelor's degree	54.96	11.26		
	Master's degree and above	56.76	10.27		
Spouse's education	Illiterate	65.33	1.53	F=2.09*	0.05
	Primary school	58.50	9.19		
	Middle school	54.80	14.03		
	High school diploma	57.95	11.79		
	Associate degree	56.37	9.22		
	Bachelor's degree	53.81	10.68		
	Master's degree and above	57.01	11.66		
Spouse's occupation	Government employee	55.75	10.96	F=0.74*	0.53
	Self-employed	55.31	11.04		
	Retired	57.69	11.58		
	Unemployed	65.00	11.31		
Employment status	Tenured (Formal)	55.62	10.46	F=0.66*	0.62
	Contractual	55.08	12.01		
	Temporary contract	55.26	10.76		
	Corporate	61.00	19.99		
	Hourly/Part-time	56.71	12.63		
Housing tenure status	Rented	54.88	10.34	F=0.55*	0.74
	Owned	55.98	11.23		
	Living with husband's family	57.17	12.86		
	Living with own family	52.63	8.57		
	Inherited	53.00	8.76		
	Employer-provided	51.67	9.40		
Contraceptive use	Yes	55.58	11.38	t=0.008**	0.92
	No	55.68	10.81		
Type of contraceptive method	Natural methods	53.67	10.81	F=1.28*	0.28
	Condom	56.21	11.69		
	IUD	55.00	8.94		
	Contraceptive pills	59.62	10.46		
	No method used	55.68	10.92		

*Analysis of Variance (ANOVA)
**Student's t-test

Table 4. Correlation between fertility and childbearing attitude scores and women's age, spouse's age, years of marriage, and work experience

Variable	Age of teachers	Age of spouse	Years of marriage	Years of work experience
Fertility attitude score	r = 0.10, **P-Value** = 0.03*	r = 0.09, **P-Value** = 0.06	r = 0.07, **P-Value** = 0.16	r = 0.11, **P-Value** = 0.02*

*Pearson's Correlation Coefficient (r)

Discussion

The results of this study indicate that the mean score for attitudes toward fertility and childbearing among the female teachers studied was 55.65 out of 120. This score is lower than the theoretical mean of the questionnaire (Theoretical mean=72) and aligns with findings from similar studies in northern Iran (29,30). Furthermore, a direct and significant correlation was observed between teachers' age and work experience and their attitudes toward fertility and childbearing.

In a 2024 study conducted in Guilan by Nefshati Faraji et al., which utilized the Söderberg scale among women of reproductive age, the mean fertility attitude score was very similar to that observed in the present study (30). This similarity may be partly explained by the shared cultural characteristics of women living in northern Iran.

In contrast, Zarei's study involving women with a history of pregnancy loss (27), as well as the study by Alijanzadeh in Qazvin on married women who were either childless or had only one child (18), reported higher mean attitude scores despite using the same measurement instrument. These differences may reflect variations in sample composition and demographic characteristics, such as childbirth experience, parental status, fertility history (e.g., miscarriage, molar pregnancy, or ectopic pregnancy), as well as differences in the sampling methods used (Random vs. convenience sampling).

In the current study, teachers' age demonstrated a direct and significant positive correlation with attitudes toward childbearing, suggesting that the propensity for childbearing increases with age. These findings align with previous research. For instance, a case study conducted in Tehran (31) and a global systematic review (32) both indicated that advancing maternal age is associated with a more favorable attitude toward childbearing. This direct relationship between age and childbearing attitudes may be related to an increased sense of urgency as individuals approach the latter stages of their reproductive years (33). Furthermore, older women may develop a more positive attitude because of accumulated life experiences and the achievement of greater psychological or economic stability (22).

However, it is important to note that the study by Khadivzadeh et al. (34) found no significant association between age and attitudes toward childbearing. This discrepancy may be attributed to the distinct population studied young, unmarried individuals attending pre-marital counseling. Their current life stage, before the establishment of married life, may independently shape their fertility attitudes, thus differentiating this group from our sample.

In this study, teachers' work experience also had a direct and significant correlation with attitudes toward childbearing, with increased work experience was associated with a greater tendency for childbearing. This finding is consistent with the results of two previous studies conducted in Iran and India. (35,36).

Although the analyses revealed significant positive correlations between attitudes toward fertility and both age and work experience, the strength of these associations was weak. This indicates that these variables explain only a small proportion of the variance in fertility attitudes, suggesting that additional unmeasured factors are likely involved. The parallel patterns observed for age and work experience support the interpretation that the effect may reflect a broader phase of "life-cycle stability," characterized by economic security, psychological maturity, and social establishment (37,38). Thus, the emphasis in interpreting this finding should be placed on the overarching concept of stability (39). From a policy perspective, this result underscores the importance of facilitating earlier attainment of such stability among young employed women (16,40), rather than relying solely on strategies that encourage delayed childbearing.

A significant finding of this study was the lack of a discernible difference in fertility attitudes among various ethnic groups. This result is consistent with the findings of Abbasi Shavazi (41), who reported a substantial reduction in ethnic variations in fertility rates after controlling for key socio-demographic factors. This observation stands in contrast to previous research (42-44) that identified ethnicity as a primary determinant of fertility attitudes. It appears that within the population studied, strong homogenizing factors, such as elevated levels of education, a unified professional background (Teaching), and urban living environments, may have reduced the impact of traditional ethnic norms on shaping fertility intentions. Consequently, this finding implies that factors associated with modernity, such as educational and occupational status, might exert a more pronounced influence on fertility attitudes than ethnic background itself.

Conclusion

This study revealed a significant positive correlation between older age and longer work experience and more favorable attitudes toward fertility among female teachers, highlighting the interplay of job stability and psychosocial-economic security. The convergence of this stability with the optimal biological window for childbearing is a critical consideration for policy interventions. Although marital duration did not emerge as a significant predictor in this research, macro-level policies designed to facilitate family formation during prime reproductive years by alleviating socio-economic barriers can act as a complementary strategy, thereby expanding fertility opportunities within periods of professional stability.

Strengths of the present study include the use of random sampling (Facilitating generalization to other teachers), a large-scale study with a sample of 465 (Yielding reliable and valid results), investigation of several socio-economic variables and their association with fertility attitudes, and precise measurement of attitudes using a validated questionnaire to assess fertility and childbearing attitudes. Limitations include the geographical restriction of the study (Only in Gorgan city), potentially limiting the generalizability of results to other regions of Iran; the lack of investigation into certain cultural and psychological variables such as religious beliefs and marital satisfaction levels, which could have a significant influence on attitudes; and limited occupational diversity within the sample, which may affect the generalizability of results to other professions.

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Ethical Statement

The Ethics Committee of Golestan University of Medical Sciences approved the study protocol (IR.GOUMS.REC.1402.092).

Written informed consent for publication was obtained from all participants prior to completing the online questionnaires. Participants were informed that their anonymized responses would be used for research publication purposes.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

Author Contributions

The contribution of each author is as follows: E.A., F.S., and N.GH. conceived the study and collected the data. F.M. performed the data analysis. E.A. and F.S. drafted the manuscript. All authors contributed to data interpretation, reviewed and revised the manuscript, and approved the final version.

Data Availability Statement

The datasets generated and/or analyzed during the current study will be available from the corresponding author on reasonable request.

Use of Artificial Intelligence

Artificial intelligence contributed to the English translation process, and the authors subsequently reviewed and edited the output.

References

1. Nitsche N, Wilde J. Fertility and Family Dynamics in the Aftermath of the COVID-19 Pandemic. Population and Development Review. 2024;50(S1):9-22. [View at Publisher] [DOI] [Google Scholar]
2. Azizmohamadi S, Hamidi Durbash Z. Economic Aspects of Changing Fertility Rates. Iranian Economic Development Analyses. 2022;8(2):133-52. [Google Scholar]
3. Erfani A. Policy Implications of Cultural Shifts and Enduring Low Fertility in Iran. Salamat Ijtimai (Community Health). 2019;6(2):112-5. [View at Publisher] [DOI]
4. Burfoot A, Güngör D. Women and reproductive technologies: The socio-economic development of technologies changing the world: Taylor & Francis; 2022. [View at Publisher] [DOI] [Google Scholar]
5. Spolaore E, Wacziarg R. Fertility and Modernity. The Economic Journal. 2021;132(642):796-833. [View at Publisher] [DOI] [Google Scholar]
6. Rangaswamaiah A. From Domestic Roles to Economic Independence: Analysing Women's Evolving Participation in the Labour Force. SIJSS. 2024;22(3):11-21. [View at Publisher] [DOI] [Google Scholar]
7. Offer S, Kaplan D. The "New Father" Between Ideals and Practices: New Masculinity Ideology, Gender Role Attitudes, and Fathers' Involvement in Childcare. Social Problems. 2021;68(4):986-1009. [View at Publisher] [DOI] [Google Scholar]
8. Afra H, Ayar A, Eliasi M, Danesh Y. The importance ofchildbearing in an individualistic society. Quarterly Journal. 2022;13(2):21-43. [View at Publisher] [Google Scholar]
9. Iida A. How Do Traditional Gender Roles Influence Women's Lives in Taiwan? An Investigation of Highly Educated Women's Willingness to Create Families. East Asia. 2023;40(1):81-100. [View at Publisher] [DOI] [Google Scholar]
10. van Bijleveld GG, Dedding CWM, Bunders-Aelen JFG. Children's and young people's participation within child welfare and child protection services: a state-of-the-art review. Child & Family Social Work. 2015;20(2):129-38. [View at Publisher] [DOI] [Google Scholar]
11. Mehta CM, Davis GE, Smith K. "Shouldn't I Know If I Want to Have Kids or Not?": Established Adult Women's Reproductive Decision Making. Journal of Adult Development. 2025. [View at Publisher] [DOI] [Google Scholar]
12. Szcześniak M, Timoszyk-Tomczak C, Łoś J, Grzeczka M. Future anxiety and the motives for postponing parenthood: generational time perspective and life satisfaction as mediators. Front Psychol. 2025:15:1441927. [View at Publisher] [DOI] [PMID] [Google Scholar]
13. Piotrowski K. How many parents regret having children and how it is linked to their personality and health: Two studies with national samples in Poland. PLOS ONE. 2021;16(7):e0254163. [View at Publisher] [DOI] [PMID] [Google Scholar]
14. Ranjbar M, Rahimi MK, Heidari E, Bahariniya S, Alimondegari M, Lotfi MH, et al. What factors influence couples' decisions to have children? Evidence from a systematic scoping review. BMC Pregnancy Childbirth. 2024;24(1):223. [View at Publisher] [DOI] [PMID] [Google Scholar]
15. Omid M, Shahhosseini Z, Hosseinnataj A, Zamaniyan M, Ganji J. Investigating the Factors Related to Desire to Have Children: A Systematic Review. J Mazandaran Univ Med Sci . 2024;34(232):246-59. [View at Publisher]
16. Safdari-Dehcheshmeh F, Noroozi M, Taleghani F, Memar S. Factors Influencing the Delay in Childbearing: A Narrative Review. Iran J Nurs Midwifery Res. 2023;28(1):10-9. [View at Publisher] [DOI] [PMID] [Google Scholar]
17. Safdari-Dehcheshmeh F, Noroozi M, Taleghani F, Memar S. Explaining the pattern of childbearing behaviors in couples: Protocol for a focused ethnographic study. J Educ Health Promot. 2022;11(1):71. [View at Publisher] [DOI] [PMID] [Google Scholar]
18. Alijanzadeh M, Bahrami N, Jafari E, Noori M, Miri F, Joftyar M, et al. Iranian women's attitude toward childbearing and its' association with generalized trust, social support, marital satisfaction and governmental childbearing incentives. Heliyon. 2023;9(5):e16162. [View at Publisher] [DOI] [PMID] [Google Scholar]
19. Cegolon L, Hay SI. Global fertility in 204 countries and territories, 1950-2021, with forecasts to 2100: a comprehensive demographic analysis for the Global Burden of Disease Study 2021. The lancet. 2024;403(10440):2057-99. [View at Publisher] [DOI] [PMID] [Google Scholar]
20. Kashani L, Akhondzadeh S. The Future of Iran's Population: Balancing Aging Trends and Fertility Rates. Avicenna J Med Biotechnol. 2025;17(2):82. [View at Publisher] [DOI] [PMID] [Google Scholar]
21. Joulaei H, Morshed-Behbahani B, Ghadimi P, Nadimi Parashkouhi S, Mansoori Y. Contentious population policy-making and its consequences: a health policy analysis. Int J Equity Health. 2025;24(1):96. [View at Publisher] [DOI] [PMID] [Google Scholar]
22. Hashemzadeh M, Shariati M, Mohammad Nazari A, Keramat A. Childbearing intention and its associated factors: A systematic review. Nurs Open. 2021;8(5):2354-68. [View at Publisher] [DOI] [PMID] [Google Scholar]
23. Meamar FZ, Farajkhoda T. Iranian Aging Tsunami from the Perspective of Sexual and Reproductive Health: Challenges and Strategies for Childbearing. JMRH. 2023;11(1):3540-54. [View at Publisher] [DOI] [Google Scholar]
24. Rasheed NM, Tashtoush MA. The fertility and its relation with some demographic, economic and social variables in Jordan. Turcomat. 2021;12(11):5088-95. [View at Publisher] [Google Scholar]
25. Ghanbari Y, Hovasin NM, Jamini D, Mafakheri A, Gashtil K. Spatial Analysis and Classification of Women's Employment Indices in Rural Areas of Iran. Am J.Sci Res. 2012;71(30):74-83. [View at Publisher] [Google Scholar]
26. De Backer J, Haugaa KH, Hasselberg NE, de Hosson M, Brida M, Castelletti S, et al. 2025 ESC Guidelines for the management of cardiovascular disease and pregnancy. Eur Heart J. 2025;46(43):4462-568. [View at Publisher] [DOI] [PMID] [Google Scholar]
27. Zarei Salehabadi M, Kheirkhah M, Esmaeili N, Haghani S. Effects of Empowerment on the Attitudes toward Fertility and Childbearing in Women with Failed Pregnancies: A Clinical Trial. IJN . 2020;33(125):55-69. [View at Publisher] [DOI] [Google Scholar]
28. Söderberg M, Christensson K, Lundgren I, Hildingsson I. Women's attitudes towards fertility and childbearing - A study based on a national sample of Swedish women validating the Attitudes to Fertility and Childbearing Scale (AFCS). Sex Reprod Healthc. 2015;6(2):54-8. [View at Publisher] [DOI] [PMID] [Google Scholar]
29. Baezzat F, Ahmadi Ghozlojeh A, Marzbani Y, Karimi A, Azarnioshan B. A study of psychometric properties of Persian version ofattitudes toward fertility and childbearing scale. Nursing and Midwifery Journal. 2017;15(1):37-47. [View at Publisher] [Google Scholar]

30. Nesfechi EF, Pouralizadeh M, Khalesi ZB. Relationship Between Spiritual Intelligence and Attitude Toward Fertility and Childbearing in Women. Arch Health Sci Res. 2024;11(3):196-202. [View at Publisher] [DOI] [Google Scholar]
31. Norozi L. Studying the impact of economic and social factors on female fertility rates in Iran. Economic and Planning Research. 1998;3(6):61-78. [View at Publisher]
32. Abdul Latiff M, Fang L, Goh DA, Tan LJ. A systematic review of factors associated with disclosure of child sexual abuse. Child Abuse Negl. 2024;147:106564. [View at Publisher] [DOI] [PMID] [Google Scholar]
33. Beaujouan É, Sobotka T. Is 40 the new 30? Increasing reproductive intentions and fertility rates beyond age 40. Optimizing the management of fertility in women over. 2022;40:3-18. [View at Publisher] [DOI] [Google Scholar]
34. Khadivzadeh T, Rahmanian SA, Esmaily H. Young Women and Men's Attitude towards Childbearing. Journal of Midwifery & Reproductive Health. 2018;6(3):1345-56. [View at Publisher] [DOI] [Google Scholar]
35. Arjmand Siahpoush E, Zeini Wendian M, Rezapour D. A Sociological Analysis for Factors Affecting the Attitude toward Childbearing (Case Study: Employees of Andimeshk Department of Education). Quarterly Journal of Social Development (Previously Human Development). 2021;16(1):59-78. [View at Publisher] [DOI] [Google Scholar]
36. Debnath A, Das S. Inter-relationship among female labour-force participation, fertility and economic development: Evidences from india. Economic Affairs. 2022;67(4):673-80. [View at Publisher] [DOI] [Google Scholar]
37. Lesthaeghe R. The second demographic transition: A concise overview of its development. Proc Natl Acad Sci U S A. 2014;111(51):18112-5. [View at Publisher] [DOI] [PMID] [Google Scholar]
38. Owoo NS, Lambon-Quayefio MP. Does Job Security Affect Fertility and Fertility Intentions in Ghana? Examining the Evidence. J Fam Econ Issues. 2022;43(1):86-99. [View at Publisher] [DOI] [Google Scholar]
39. Gatta A, Mattioli F, Mencarini L, Vignoli D. Employment uncertainty and fertility intentions: Stability or resilience? Popul Stud (Camb). 2022;76(3):387-406. [View at Publisher] [DOI] [PMID] [Google Scholar]
40. Davoudi F, Soleimanvandy Azar N, Ezoji H, Ezoji K. Determinants of Employed Women's Attitude towards Childbearing. JMRH. 2020;8(4):2472-7. [View at Publisher] [DOI] [Google Scholar]
41. AbbaiI SM, Sadeghi R. Ethnicity and fertility: an analysis of fertility behavior of ethnic groups in iran. Soc Sci Paper. 2006;29:29-58. [View at Publisher]
42. Ghahremani F, Ahmadi Doulabi M, Mahmoodi Z, Nasiri M. The structural factors of social determinants of health on Iranian women's childbearing: a systematic review study. IJOGI. 2023;26(2):99-118. [View at Publisher] [DOI] [Google Scholar]
43. Ghorbani Z, Aghasi M. Factors Affecting the Ideals of Childbearing among Young People within Iranian Ethnic Groups. Journal of Applied Sociology. 2025;36(2):133-48. [View at Publisher] [DOI] [Google Scholar]
44. Sadeghi R, Abedini Z, Malmir M, Ebrahimi M. Ethnic Differences in Childbearing Ideals and Behaviors in Iran. Journal of Population Association of Iran. 2025;19(38):57-95. [View at Publisher]

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