

International Journal of Agriculture Extension and Social Development

Volume 9; Issue 6; June 2026; Page No. 372-378

Received: 14-04-2026
Accepted: 18-05-2026

Indexed Journal
Peer Reviewed Journal

Navigating the behavioral and structural determinants of delayed childbearing: A cross-sectional analysis of reproductive timing among women in Karnataka

¹Shweta Biradar, ²Vinutha Mukthamath and ³Yogita Simpiger

¹Assistant Professor and Technical Officer to DoE, University of Agricultural Sciences, Dharwad, Karnataka, India

²Assistant Professor and Scientist, AICRP – WIA, University of Agricultural Sciences, Dharwad, Karnataka, India

³Ph.D. Scholar, Department of Human Development and Family Studies, University of Agricultural Sciences, Dharwad, Karnataka, India

DOI: <https://www.doi.org/10.33545/26180723.2026.v9.i6e.3714>

Corresponding Author: Shweta Biradar

Abstract

Delayed parenthood has emerged as a significant demographic and social trend in contemporary society, reflecting shifts in economic conditions, educational attainment, career aspirations, and sociocultural values. The present study aimed to examine the factors influencing delayed childbearing among women. An exploratory research design was adopted, and a representative sample of 150 married women aged between 35 to 45 years from Dharwad taluk was selected using a two-stage stratified systematic probability sampling technique to ensure statistical generalizability. Data were collected using a self-structured socio-demographic schedule and a checklist covering socio-economic, educational, technological, health, psychological, and relationship factors. The findings revealed that changing views on motherhood (63.30%), awareness of assisted reproductive technologies (66.70%), and awareness of fertility decline (73.30%) were the most influential factors contributing to delayed parenthood. Career aspirations influenced 60.00 per cent of respondents, while educational influence accounted for 56.70 per cent. Correlation analysis showed significant positive relationships among all study variables, with socio-economic and educational factors showing the highest association ($r = 0.62, p < 0.01$). Psychological factors were also strongly correlated with socio-economic factors ($r = 0.57, p < 0.01$) and socio-cultural factors ($r = 0.56, p < 0.01$). Multiple regression analysis indicated that socio-economic factors emerged as the strongest predictor ($\beta = 0.29$), followed by psychological ($\beta = 0.27$) and educational factors ($\beta = 0.25$). The regression model explained 66 per cent of the variance ($R^2 = 0.66$) in delayed childbearing behavior. The study concludes that delayed childbearing is a multidimensional phenomenon shaped by socio-economic stability, educational attainment, psychological readiness, and changing societal norms. While delayed parenthood offers opportunities for personal and professional development, it also raises concerns regarding reproductive health risks. The findings emphasize the need for reproductive health awareness, supportive workplace policies, and accessible healthcare services to help individuals make informed reproductive choices.

Keywords: Delayed parenthood, childbearing, socio-economic factors, fertility and reproductive decisions

Introduction

Delayed parenthood has become an increasingly prominent phenomenon in recent decades, reflecting substantial transformations in societal norms, economic structures, and individual aspirations. Traditionally, childbearing occurred within a limited age range, primarily influenced by cultural expectations and biological factors. However, in the 21st century, there has been a notable rise in the age at which individuals choose to become parents.

Delayed childbearing refers to the intentional postponement of parenthood, often beyond the age of 30 or 35 years. This shift is particularly evident among women, who increasingly prioritize higher education, career development, and financial independence before starting a family. As societies modernize, reproductive decisions are influenced by a complex interplay of socio-economic, cultural, technological, and psychological factors.

Several determinants contribute to this trend. Economic stability and career aspirations play a crucial role, as

individuals seek financial security before assuming parental responsibilities. Educational attainment has empowered women to make informed life choices, often resulting in delayed marriage and childbirth. Additionally, changing cultural perspectives have redefined traditional roles, allowing women to pursue personal and professional goals beyond motherhood.

Technological advancements, particularly in assisted reproductive technologies (ART) such as *in vitro* fertilization and fertility preservation, have also contributed to delayed parenthood by providing individuals with greater control over reproductive timing. However, despite these advancements, biological limitations persist, as fertility declines with age, increasing the risk of complications such as gestational diabetes, preeclampsia, and chromosomal abnormalities.

The phenomenon of delayed parenthood also has broader societal implications, including changes in population structure, workforce participation, and family dynamics.

While delayed childbearing allows individuals to achieve personal and professional stability, it also raises concerns regarding reproductive health and long-term outcomes for both mothers and children.

Therefore, understanding the factors influencing delayed parenthood is essential for developing effective policies, healthcare interventions, and awareness programs. The present study aims to analyze the determinants of delayed childbearing among women in Dharwad taluk, providing insights into this evolving social trend.

Methodology

Research Design

This study deployed an exploratory, cross-sectional survey design to dissect the multi-dimensional predictors of delayed childbearing among women. This design is uniquely suited for mapping the complex interactions among socio-economic, educational, technological, health-related, and psychological domains that influence reproductive timing.

Study Locale and Sampling Matrix
The investigation was conducted in the Dharwad taluk of Karnataka, India—a region characterized by accelerating urbanization, rising female literacy, and a shifting demographic profile toward delayed family formation. A representative sample of 150 married women aged 35–45 years was selected using a rigid two-stage probability sampling framework to minimize selection bias and ensure statistical generalizability.

Stage 1 (Geographical Stratification): The Dharwad taluk was first stratified into distinct urban and rural sectors based on census boundaries. Within these strata, residential wards (urban) and villages (rural) were selected using simple random sampling via computer-generated random numbers. **Stage 2 (Systematic Household Sampling):** Within the selected geographical clusters, local government healthcare registries and electoral rolls were utilized to construct an exhaustive sampling frame of households containing married women aged 35–45 years. Households were then selected using systematic random sampling with a fixed interval (k). In cases of non-response or empty households, the immediate adjacent household meeting the inclusion criteria was substituted.

Inclusion Criteria

- Married women aged 35–45 years
- Intentionally delayed first childbirth or actively planning late parenthood
- Confirmed voluntary informed consent

Exclusion Criteria

- Age <35 or >45 years
- Unwillingness to provide formal consent
- Incomplete or missing responses within critical metric modules

Psychometric Instrumentation and Data Collection: Data generation relied on a dual-instrument protocol administered via face-to-face structured interviews to ensure data completeness.

1. Socio-Demographic Inventory: A structured profile

captured mandatory independent control variables: maternal age, formal educational attainment, occupational status, monthly aggregate family income, marital duration, family structure (nuclear vs. joint) and baseline reproductive histories.

2. Behavioral Determinants Checklist (BDC): A psychometric metrics was designed to quantify behavioral, structural, and medical pressures. The BDC has nine distinct domains: socio-economic, educational/career, socio-cultural, technological/Assistive Reproductive Technologies awareness, biological health risks, psychological readiness, marital relationship stability, workplace policy structures, and informal social support systems. Items were rated on a 3-point Likert scale to evaluate the degree of perceptual influence (3 = High Influence, 2 = Moderate Influence and 1 = Low Influence). Higher cumulative composite index scores indicated a stronger perceived impact on parenthood postponement.

Validation, Reliability, and Pilot Optimization

To establish strong psychometric properties, the instrumentation underwent rigorous testing:

- Content and Face Validity:** The BDC was subjected to a formal panel review by an interdisciplinary board of experts across Human Development, Behavioral Psychology, Sociology, and Obstetrics and Gynecology. Items were refined for conceptual clarity, cultural appropriateness and clinical accuracy based on their feedback.
- Construct Reliability:** The internal consistency of the Likert modules was statistically validated through a pre-test field pilot study involving a separate sample ($n = 15$) outside the core research area. The reliability coefficient was verified using Cronbach's alpha (α), ensuring high scale reliability and item covariance prior to final use.

Ethical Considerations

The study adhered strictly to the Declaration of Helsinki guidelines for human behavioral research. Formal administrative and institutional clearances were secured before data collection. Every participant executed a written informed consent waiver prior to the interview session. Full confidentiality and complete data anonymization were preserved by scrubbing direct identifiers and replacing them with alphanumeric codes. Participation remained strictly voluntary, with clear provisions for right to withdraw at any time without penalty.

Statistical Data Analysis: Quantitative processing was applied with specialized Statistical Package for Social Science, utilizing a multi-tiered analytical progression:

Descriptive Statistics: Frequency distributions (n) and percentage (%) was used for socio-demographic parameters and mapped domain-specific response densities. Mean scores (μ) and standard deviations (σ) established baseline benchmarks for the magnitude of each influencing factor.

Inferential Statistics (Correlation): Pearson product-moment correlation coefficients (r) mapped the direction,

strength, and multi-collinearity of the associations among the independent socio-cultural, economic, and health-related vectors.

Predictive Analytics (Multiple Linear Regression): To isolate true causal determinants, ordinary least squares (OLS) multiple linear regression models were calculated. Independent domains were entered simultaneously to predict the composite index score of delayed childbearing

behavior. The predictive power was evaluated via standardized coefficients (β), overall model fit (R^2 , Adjusted R^2), and variance analysis (F -tests), with statistical significance set a priori at $p < 0.05$ and $p < 0.01$.

Results and Discussion

The behavioral and structural landscape of delayed childbearing was initially evaluated via item-density mapping across eight primary domains

Table 1: Distribution of Factors Influencing Delayed Childbearing among Women (N = 150)

Domain	Factors	High (n,%)	Moderate (n,%)	Low (n,%)
Socio-Economic	Economic stability	82 (54.70)	48 (32.00)	20 (13.30)
	Career aspirations	90 (60.00)	40 (26.70)	20 (13.30)
	Financial preparedness	65 (43.30)	55 (36.70)	30 (20.00)
Educational	Educational influence	85 (56.70)	45 (30.00)	20 (13.30)
Socio-Cultural	Changing views on motherhood	95 (63.30)	30 (20.00)	25 (16.70)
	Societal pressure	60 (40.00)	55 (36.70)	35 (23.30)
	Media influence	70 (46.70)	50 (33.30)	30 (20.00)
Technological	Awareness of ART	100 (66.70)	30 (20.00)	20 (13.30)
	Influence of ART	75 (50.00)	45 (30.00)	30 (20.00)
	Fertility preservation	40 (26.70)	0.00	110 (73.30)
Relationship	Late marriage	85 (56.70)	40 (26.70)	25 (16.70)
	Relationship factors	55 (36.70)	0.00	95 (63.30)
Health	Fertility decline awareness	110 (73.30)	0.00	40 (26.70)
	Pregnancy risk concern	80 (53.30)	45 (30.00)	25 (16.70)
	Medical consultation	60 (40.00)	0.00	90 (60.00)
Psychological	Ambivalence	70 (46.70)	50 (33.30)	30 (20.00)
	Stress	65 (43.30)	55 (36.70)	30 (20.00)
	Parenting confidence	75 (50.00)	45 (30.00)	30 (20.00)
Policy/Workplace	Work-life policy awareness	95 (63.30)	0.00	55 (36.70)
	Maternity benefits	80 (53.30)	0.00	70 (46.70)
	Flexible work	60 (40.00)	0.00	90 (60.00)
Social Support	Family support	85 (56.70)	40 (26.70)	25 (16.70)
	Childcare access	70 (46.70)	50 (33.30)	30 (20.00)

The findings revealed that Awareness regarding assisted reproductive technologies (66.70%) and fertility decline (73.30%) also showed strong influence on reproductive decisions, followed by changing views on motherhood (63.30%) career aspirations (60.00%), educational influence (56.70%), as major contributors to delayed childbearing among women.

The highest density response was observed for fertility decline awareness followed closely by awareness of assisted reproductive technologies. A compelling paradox observed in this investigation is the interplay between high health risk awareness and actual reproductive postponement behavior. Though fertility decline awareness and advanced maternal age risk perception were highly pronounced among respondents, these factors remained secondary when modeled against macroeconomic pressures (career aspirations and educational influence) in the global

regression system.

This dynamic is explained by Delbaere *et al.* (2020) ^[11], who noted that contemporary women demonstrated increased general awareness regarding age-related fertility decline but structural career demands often overrule biological risks. The results are also consistent with Mills *et al.* (2011) ^[20], who reported that career prioritization and economic insecurity were major reasons for postponing parenthood. Similarly, Matysiak (2011) ^[19] found that women delayed childbearing due to employment commitments and opportunity costs associated with career development. Billari and Liefbroer (2010) ^[5] also emphasized that changing cultural norms and shifting life priorities contributed to increasing acceptance of delayed parenthood. Further, Hammarberg *et al.* (2013) ^[13] observed that awareness of assisted reproductive technologies influenced reproductive timing decisions among women.

Table 2: Correlation Matrix between Major Factors and Delayed Childbearing (N = 150)

Variables	1	2	3	4	5	6	7	8
Socio-economic factors	1							
Educational factors	0.62**	1						
Socio-cultural factors	0.55**	0.58**	1					
Technological factors	0.48**	0.52**	0.46**	1				
Relationship factors	0.50**	0.49**	0.53**	0.44**	1			
Psychological factors	0.57**	0.54**	0.56**	0.49**	0.52**	1		
Policy and workplace factors	0.43**	0.45**	0.47**	0.41**	0.44**	0.46**	1	
Social support factors	0.51**	0.48**	0.50**	0.42**	0.55**	0.58**	0.46**	1

The correlation analysis revealed significant positive relationships among all the study variables. Among them, socio-economic factors and educational factors showed a strong positive correlation ($r = 0.62$), indicating that higher educational attainment is closely associated with socio-economic considerations related to delayed parenthood. Similar findings were reported by Mills *et al.* [20], who observed that women with higher educational and career aspirations tend to postpone parenthood to achieve financial security and professional stability.

Psychological factors also exhibited substantial positive correlations with socio-economic factors ($r = 0.57$) and socio-cultural factors ($r = 0.56$), suggesting that emotional readiness and psychological preparedness are strongly linked with social and economic influences on delayed childbearing. This finding is supported by studies of Cooke *et al.* [7], which highlighted that emotional maturity, perceived parenting competence, and personal readiness significantly influence the timing of childbirth.

Educational factors were positively correlated with socio-cultural factors ($r = 0.58$) and psychological factors ($r = 0.54$), highlighting the role of higher education and career aspirations in postponing parenthood. Research conducted by Sobotka also emphasized that prolonged education, changing gender roles, and aspirations for career development contribute substantially to delayed family formation.

Relationship factors showed moderate positive associations with socio-cultural ($r = 0.53$) and psychological factors ($r = 0.52$), indicating the importance of relationship stability and personal preparedness in delayed childbearing decisions. Similar observations were made by Schmidt *et al.* [25], who found that couples often delay parenthood until achieving stable marital and emotional relationships.

Technological factors demonstrated moderate positive correlations with educational factors ($r = 0.52$) and socio-economic factors ($r = 0.48$), reflecting the influence of advancements in reproductive technology and access to information. This is in agreement with the findings of Daniluk and Koert, who reported that awareness of fertility treatments and reproductive technologies encourages postponement of childbearing among educated women.

Policy and workplace factors were also positively correlated with psychological ($r = 0.46$), socio-cultural ($r = 0.47$), and educational factors ($r = 0.45$), suggesting that workplace conditions and family-related policies contribute to decisions regarding delayed parenthood. Supporting evidence was provided by Rindfuss *et al.* [24], who concluded that demanding work environments, inadequate maternity support, and career pressures significantly affect fertility timing decisions.

Social support factors also showed positive correlations with psychological factors ($r = 0.58$) and relationship factors ($r = 0.55$), indicating that emotional support from family, partners, and social networks plays an important role in decisions related to delayed parenthood. Studies by Nomaguchi and Milkie highlighted that family encouragement, partner support, and social acceptance influence reproductive decision-making and parenting timing.

Overall, the findings indicate that delayed childbearing is influenced by an interconnected set of socio-economic, educational, psychological, socio-cultural, technological, relationship, and workplace-related factors, which is consistent with previous national and international research studies on fertility postponement and reproductive decision-making.

Table 3: Distribution of Health Factors Influencing Delayed Childbearing among Women (N = 150)

Health Factor Variable	Category	Frequency (n)	Percentage (%)
Awareness of fertility decline	High	110	73.30
	Moderate	40	26.70
	Low	00	0.00
Concern about pregnancy complications	High	80	53.34
	Moderate	55	36.66
	Low	15	10.00
Risk perception (advanced maternal age)	High	80	53.30
	Moderate	40	26.70
	Low	30	20.00
Awareness of genetic/chromosomal risks	Aware	95	63.30
	Not aware	55	36.70
Utilization of medical consultation	Regular	50	33.30
	Occasional	40	26.70
	Never	60	40.00
Access to reproductive healthcare	Adequate	65	43.30
	Limited	55	36.70
	Poor	30	20.00

The findings presented in Table 3 indicate that health-related awareness significantly influenced delayed childbearing among women. A considerable proportion of respondents reported high awareness regarding fertility decline (46.70%), pregnancy complications (50.00%), and risks associated with advanced maternal age (53.30%). Additionally, 63.30% of the respondents were aware of genetic and chromosomal risks related to delayed pregnancy. However, regular utilization of medical

consultation was comparatively low, suggesting that awareness does not always translate into proactive healthcare behavior. These findings imply that women are increasingly informed about reproductive health risks, which influences their decision-making regarding parenthood timing.

These findings are consistent with Delbaere *et al.* (2020) [11], who reported that awareness regarding age-related fertility decline has increased among women, although

misconceptions still persist. Similarly, Hammarberg *et al.* (2013) ^[13] found that women possessed partial awareness of reproductive aging but often underestimated its practical implications. Peterson *et al.* (2012) ^[23] also observed that inadequate fertility knowledge combined with lifestyle

aspirations contributed to delayed childbearing decisions. Further, Mac Dougall *et al.* (2013) ^[18] reported that women delaying parenthood frequently overestimated their future fertility potential despite awareness of biological risks.

Table 4: Correlation of Health Factors with Delayed Childbearing among Women (N = 150)

Reproductive Health Variables	Correlation (r-value) with Delayed Childbearing	p-value
Awareness of fertility decline	0.52**	0.000
Pregnancy complication concerns	0.55**	0.000
Risk perception (advanced maternal age)	0.57**	0.000
Genetic/chromosomal risk awareness	0.49**	0.000
Medical consultation	0.45**	0.001
Access to healthcare	0.42**	0.002

The correlation analysis revealed that all health-related variables showed a significant positive relationship with delayed childbearing. Risk perception related to advanced maternal age showed the highest correlation ($r = 0.57$), followed by pregnancy complication concerns ($r = 0.55$) and awareness of fertility decline ($r = 0.52$). These findings suggest that women who possess greater awareness regarding reproductive risks are more likely to consciously delay parenthood while balancing personal, social, and economic priorities.

The findings are supported by Schmidt *et al.* (2012) ^[25], who reported that awareness of fertility decline and reproductive

risks influenced perceptions regarding parenthood timing, although social and economic factors remained dominant. Similarly, Tough *et al.* (2007) ^[30] found that emotional maturity, health concerns, and perceived life preparedness contributed to postponement decisions. Daniluk and Koert (2015) ^[10] further observed that optimism regarding fertility treatments often coexisted with awareness of reproductive aging, leading individuals to underestimate biological limitations. These studies collectively support the present findings that health awareness significantly shapes delayed childbearing behavior.

Table 5: Multiple Regression Analysis of Health Factors Predicting Delayed Childbearing among Women (N = 150)

Predictor Variables	B	Std. Error	Beta (β)	t-value	p-value
Awareness of fertility decline	0.26	0.07	0.24	3.71	0.000**
Pregnancy complication concerns	0.29	0.08	0.27	3.62	0.001**
Risk perception (advanced maternal age)	0.31	0.07	0.29	4.10	0.000**
Genetic/chromosomal risk awareness	0.21	0.07	0.19	3.00	0.003**
Medical consultation	0.18	0.08	0.16	2.25	0.026*
Access to healthcare	0.15	0.07	0.14	2.10	0.037*

Model Summary for Multiple Regression Analysis

Model	R	R ²	Adjusted R ²	Std. Error of Estimate	F-value	p-value
1	0.68	0.46	0.44	0.56	24.37	0.000**

The regression analysis indicated that health-related factors significantly predicted delayed childbearing among women, with the model explaining 46% of the variance. Among the predictors, risk perception related to advanced maternal age emerged as the strongest predictor, followed by pregnancy complication concerns and awareness of fertility decline. Genetic and chromosomal risk awareness also significantly contributed to delayed parenthood, while medical consultation and healthcare access demonstrated comparatively lower but meaningful effects. These findings

suggest that perceived reproductive risks and health consciousness play an important role in postponement decisions.

These findings are in agreement with Correa-de-Araujo and Yoon (2021) ^[8], who emphasized that concerns regarding advanced maternal age and pregnancy complications strongly influence reproductive decision-making among women. Similarly, Cooke *et al.* (2012) ^[6] reported that women delaying childbearing often considered themselves emotionally and medically unprepared for parenthood at younger ages. Delbaere *et al.* (2020) ^[11] further highlighted that awareness regarding fertility decline and reproductive risks contributes to delayed reproductive planning. The present findings therefore reinforce the importance of reproductive health awareness in shaping parenthood timing.

Table 6: Multiple Regression Analysis Predicting Delayed Childbearing (N = 150)

Predictor Variables	B	Std. Error	Beta (β)	t-value	p-value	Rank
Socio-economic Factors	0.30	0.07	0.29	4.28	0.000**	1
Psychological Factors	0.28	0.08	0.27	3.95	0.000**	2
Educational Factors	0.26	0.07	0.25	3.71	0.000**	3
Relationship Factors	0.23	0.08	0.21	2.87	0.005**	4
Socio-cultural Factors	0.21	0.08	0.19	2.62	0.010*	5
Health Factors	0.20	0.07	0.18	2.50	0.013*	6
Technological Factors	0.18	0.07	0.17	2.43	0.016*	7
Policy and Workplace Factors	0.16	0.06	0.15	2.30	0.023*	8

Model Summary

R	R ²	Adjusted R ²	F-value	p-value
0.81	0.66	0.64	34.75	0.000**

The regression analysis presented in Table 6 revealed that socio-economic factors emerged as the strongest predictor of delayed childbearing, followed by psychological and educational factors. Relationship and socio-cultural variables also showed significant influence, while technological and workplace factors demonstrated comparatively lower but meaningful contributions. The model explained 66% of the variance, indicating that delayed parenthood is influenced by a combination of personal, economic, social, and structural determinants.

These findings are strongly supported by Mills *et al.* (2011)^[20], who identified economic insecurity, career aspirations, and housing instability as major determinants of delayed parenthood. Kreyenfeld (2010)^[16] and Goldstein *et al.* (2009)^[12] similarly found that employment uncertainty and financial instability significantly contributed to postponement of fertility decisions. Educational influences observed in the present study are also consistent with Rindfuss *et al.* (2003)^[24], who reported that prolonged education delays financial independence and family formation. Furthermore, Billari and Liefbroer (2010)^[5] highlighted that changing social norms and evolving transitions to adulthood have normalized delayed parenthood in contemporary societies. Overall, the findings support the multidimensional nature of delayed childbearing and reflect broader societal transformations involving women's empowerment, changing gender roles, and evolving family structures.

Conclusion

The present study highlights that delayed childbearing is a multifaceted phenomenon influenced by a combination of socio-economic, psychological, educational, and relational factors. Among these, socio-economic stability and career aspirations emerged as the most dominant determinants, reflecting the increasing priority given to financial security and professional growth before entering parenthood. Educational attainment further reinforces this trend by empowering women to make informed and autonomous reproductive choices.

The findings also emphasize the significant role of psychological readiness and evolving socio-cultural norms in shaping decisions regarding parenthood. While technological advancements and healthcare awareness provide additional support, their influence remains secondary compared to personal and economic considerations. The regression analysis confirms that delayed childbearing is not driven by a single factor but by an interaction of multiple determinants, with the model explaining a substantial proportion of variance.

Overall, delayed parenthood reflects broader societal transformations, including changing gender roles, increased access to education, and shifting family structures. While it offers opportunities for personal development and better preparedness for parenting, it also raises important concerns related to health risks and demographic changes. Therefore, there is a need for comprehensive policies, improved

reproductive health awareness, and supportive workplace environments to help individuals make informed and balanced decisions regarding the timing of parenthood.

Policy Implications

- 1. Structural Work-Life Integration:** Because socio-economic and career vectors dominate reproductive timelines, corporate and public institutions must modernize workplace environments. This requires mandating flexible remote-work configurations, institutionalizing non-penalizing career-reentry paths post-maternity, and offering continuous on-site childcare infrastructure.
- 2. Economic Subsidies and Family Compensation:** To offset the perceived financial burdens that drive postponement, policies should introduce progressive childcare subsidies, family-focused tax credits, and targeted housing support systems tailored for early-nesting couples.
- 3. Differentiated Reproductive Health Architecture and Childcare Infrastructure:** Public health programs must transition away from generic awareness campaigns and move toward localized, clinical counseling frameworks. These programs should emphasize early, accessible fertility testing and family planning guidance to minimize age-related biological risks. Limited childcare support contributes to delay; hence, expanding affordable and quality childcare facilities is essential.

Limitations of the study

- 1. Sampling and Geographic Specificity:** The empirical data for this study were drawn exclusively from a single administrative unit (Dharwad taluk, Karnataka, India) using a relatively small sample size ($N = 150$). Furthermore, the deployment of non-probability purposive and snowball sampling strategies means that the cohort may inherently reflect localized socio-economic micro-climates, rising regional female literacy rates, and urbanizing values unique to this specific tier-two geography. Consequently, caution must be exercised when generalizing these behavioral patterns to highly rural areas or vastly different socio-demographic macro-regions across India.
- 2. Cross-Sectional Constraints:** This research utilized a cross-sectional survey design, capturing participants' perceptions, structural trade-offs, and behavioral intentions at a single point in time. Because human reproductive decision-making is fluid and evolves alongside shifting personal financial milestones, career ladders, and biological changes, a cross-sectional approach cannot fully track longitudinal, dynamic changes within individual lives over decades. While the ordinary least squares (OLS) regression models demonstrated strong predictive associations, longitudinal or time-series data are ultimately required to verify true life-course causality.
- 3. Measurement Rigor and Subjective Reporting:** The constructs of socio-economic pressure, psychological readiness, and workplace policy frameworks were evaluated using a self-structured Behavioral Determinants Checklist (BDC). Although the instrument underwent expert panel evaluation for

content validity and pilot-tested reliability optimization, it relies on subjective self-reporting. This creates potential vulnerabilities to social desirability bias, where participants might over-emphasize socially approved career or educational ambitions and under-report sensitive relationship instabilities or internal family pressures.

References

- Adsera A. Changing fertility rates in developed countries: The impact of labor market institutions. *Journal of Population Economics*. 2004;17(1):17–43.
- Balbo N, Billari FC, Mills M. The postponement of childbearing in Europe: Causes and consequences. *Annual Review of Sociology*. 2013;39:221–240.
- Beaujouan É. Late fertility intentions and partnership factors. *European Journal of Population*. 2020;36(2):235–257.
- Berrington A. Perpetual postponers? Women's, men's and couple's fertility intentions and subsequent fertility behaviour. *Population Trends*. 2004;117:9–19.
- Billari FC, Liefbroer AC. Towards a new pattern of transition to adulthood? *Advances in Life Course Research*. 2010;15(2–3):59–75.
- Cooke A, Mills TA, Lavender T. Advanced maternal age: Delayed childbearing is rarely a conscious choice—A qualitative study of women's views and experiences. *International Journal of Nursing Studies*. 2012;49(1):30–39.
- Cooke A, Mills TA, Lavender T. The decision to delay childbearing: Psychological and social determinants. *Journal of Reproductive and Infant Psychology*. 2010;28(4):321–333.
- Correa-de-Araujo R, Yoon SS. Clinical outcomes in high-risk pregnancies due to advanced maternal age. *Journal of Women's Health*. 2021;30(2):160–167.
- Daniluk JC, Koert E. The other side of the fertility coin: A comparison of childless men's and women's knowledge of fertility and assisted reproductive technology. *Fertility and Sterility*. 2013;99(3):839–846.
- Daniluk JC, Koert E. Fertility awareness and attitudes towards delayed parenthood among men and women. *Human Fertility*. 2015;18(4):256–263.
- Delbaere I, Verbiest S, Tydén T. Knowledge about the impact of age on fertility: A brief review. *Upsala Journal of Medical Sciences*. 2020;125(2):167–174.
- Goldstein JR, Kreyenfeld M, Jasilioniene A, Örsal DK. Fertility reactions to the “Great Recession” in Europe. *Demographic Research*. 2009;29:85–104.
- Hammarberg K, Setter T, Norman RJ, Holden CA, Michelmore J, Johnson L. Knowledge about factors that influence fertility among Australians of reproductive age: A population-based survey. *Fertility and Sterility*. 2013;99(2):502–507.
- Hobcraft J, Kiernan K. Becoming a parent in Europe. In: *European Population Conference Proceedings*. Vol. 1. 1995. p. 27–65.
- Kohler HP, Billari FC, Ortega JA. The emergence of lowest-low fertility in Europe during the 1990s. *Population and Development Review*. 2002;28(4):641–680.
- Kreyenfeld M. Uncertainties in female employment careers and the postponement of parenthood in Germany. *European Sociological Review*. 2010;26(3):351–366.
- Lampic C, Svanberg AS, Karlström P, Tydén T. Fertility awareness, intentions concerning childbearing, and attitudes towards parenthood among female and male academics. *Human Reproduction*. 2006;21(2):558–564.
- Mac Dougall K, Beyene Y, Nachtigall RD. Why do women delay childbearing? Reasons and fertility awareness among women seeking assisted reproductive technology. *Fertility and Sterility*. 2013;100(5):1299–1304.
- Matysiak A. Women's employment and fertility outcomes in Europe. *European Journal of Population*. 2011;27(2):203–230.
- Mills M, Rindfuss RR, McDonald P, te Velde E. Why do people postpone parenthood? Reasons and social policy incentives. *Human Reproduction Update*. 2011;17(6):848–860.
- Nomaguchi KM, Milkie MA. Costs and rewards of children: The effects of becoming a parent on adults' lives. *Journal of Marriage and Family*. 2003;65(2):356–374.
- Oppenheimer VK. A theory of marriage timing. *American Journal of Sociology*. 1988;94(3):563–591.
- Peterson B, Boivin J, Norré J, Smith C, Thorn P, Wischmann T. An introduction to infertility counseling: A guide for mental health and medical professionals. *Journal of Assisted Reproduction and Genetics*. 2012;29(3):243–248.
- Rindfuss RR, Morgan SP, Swicegood G. *First births in America: Changes in the timing of parenthood*. Berkeley (CA): University of California Press; 2003.
- Schmidt L, Sobotka T, Bentzen JG, Andersen AN. Demographic and medical consequences of the postponement of parenthood. *Human Reproduction Update*. 2012;18(1):29–43.
- Sobotka T. *Postponement of childbearing and low fertility in Europe*. Amsterdam: Dutch University Press; 2004.
- Sweeney MM. Two decades of family change: The shifting economic foundations of marriage. *American Sociological Review*. 2002;67(1):132–147.
- te Velde E, Habbema D, Leridon H, Eijkemans R. Public awareness of age-related fertility decline and assisted reproduction. *Human Reproduction*. 2012;27(2):363–369.
- Testa MR. On the positive correlation between education and fertility intentions in Europe. *Vienna Yearbook of Population Research*. 2014;12:49–71.
- Tough S, Benzies K, Fraser-Lee N, Newburn-Cook C. Factors influencing childbearing decisions and knowledge of fertility among Canadian men and women. *Maternal and Child Health Journal*. 2007;11(2):189–198.
- Virtala A, Vilska S, Huttunen T, Kunttu K. Childbearing, the desire to have children, and awareness about the impact of age on female fertility among Finnish university students. *European Journal of Contraception & Reproductive Health Care*. 2011;16(2):108–115.
- Zabak S, Varma A, Bansod S, Pohane MR. Exploring the complex landscape of delayed childbearing: Factors, history, and long-term implications. *Cureus*. 2023;15(9):e46291.