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ORIGINAL RESEARCH

The Impact of Social, Cultural, and Identity-Related Factors on Delayed Childbearing: A Multi-Center Study

Ying Lei[1,*], Xiao Wang[2,*], Yaling Zhou[3,*], Yalan Li[4], Luyao Wang[5], Xiaoying Jia[5], Qingzhan Ma[5], Changsheng Lin[5], Jie Liao[1], Xin Li[5,*], Tianjiao Liu[6]

[1]Chengdu Wenjiang Maternal and Child Health Hospital, Chengdu, 611130, People's Republic of China; [2]Chengdu Xinjin District Maternal and Child Health Care Hospital, Chengdu, 611430, People's Republic of China; [3]Chengdu Gaoxin Southwest Children's hospital, Chengdu, 610047, People's Republic of China; [4]The Fourth People's Hospital of Chengdu, School of Medicine, University of Electronic Science and Technology of China, Chengdu, 611731, People's Republic of China; [5]Key Laboratory of Birth Defects and Related Diseases of Women and Children (Sichuan University), Ministry of Education, West China Second Hospital, Sichuan University, Chengdu, 610041, People's Republic of China; [6]Chengdu Women's and Children's Central Hospital, School of Medicine, University of Electronic Science and Technology of China, Chengdu, 611731, People's Republic of China

*These authors contributed equally to this work

Correspondence: Jie Liao, Wenjiang Maternal and Child Health Hospital, Chengdu, Sichuan, 611130, People's Republic of China, Email 56305039@qq.com; Tianjiao Liu, Chengdu Women's and Children's Central Hospital, 1617 Riyue Avenue, Qingyang District, Chengdu, 611731, People's Republic of China, Email liutianjiaotj66@126.com

Background: Delayed childbearing has become an increasingly prevalent trend, influenced by various psychological and social factors. This study aimed to explore the impact of these factors on the timing of childbirth among women of reproductive age.

Methods: A cross-sectional study was conducted with 1,128 women attending their first prenatal visit at six hospitals between January and December 2023. Sociodemographic, psychological, and health-related data were collected through structured interviews and self-administered questionnaires. Bivariate and multivariate analyses were performed to identify significant predictors of delayed childbearing.

Results: Reproductive health issues, educational level, employment status, career advancement aspirations, and age-related anxiety were significantly associated with delayed childbearing. Multivariate logistic regression revealed that reproductive health issues (OR = 2.70), educational level (OR = 1.84), and career aspirations (OR = 2.53) were independent predictors of delayed childbearing. Interestingly, age-related anxiety was associated with an increased likelihood of earlier reproductive decision-making, reducing the odds of delayed childbirth by 69% (OR = 0.31, 95% CI: 0.23–0.56, $p < 0.001$). Subgroup analysis indicated that both low-income and high-income women were more likely to delay childbirth compared to women with medium income ($p < 0.05$).

Conclusion: Psychological and social factors, including career goals, educational attainment, and reproductive health issues, play a critical role in the decision to delay childbearing. Understanding these influences is essential for developing policies and interventions that support women in making informed reproductive choices. Further research with more diverse populations is needed to confirm these findings and explore the broader societal implications.

Keywords: delayed childbearing, educational level, fertility decisions, reproductive age

Introduction

In recent years, delayed childbirth has become a prominent trend, particularly in developed countries, with an increasing number of women choosing to have children later in life.[1,2] This shift has been driven by a range of psychological, social, and economic factors, reflecting broader changes in women's roles within society.[3,4] However, the psychological and social factors influencing these reproductive choices are less often explored. Understanding the interplay between these factors is essential to provide a more comprehensive view of the complex reasons behind delayed childbearing and its potential consequences for maternal and child health.

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Social factors are significant drivers of delayed childbirth.[5,6] Over the past several decades, women's access to higher education, professional opportunities, and career advancement has transformed societal expectations regarding women's roles.[7,8] As women increasingly prioritize educational and career goals, many delay marriage and childbearing until they achieve a sense of personal and financial stability. Moreover, the increased pressure for women to maintain work-life balance in the face of inadequate parental leave policies and childcare options often leads to further delays in reproductive decisions. Social changes, such as evolving attitudes toward family formation and less stigma attached to delayed motherhood, have also contributed to the normalization of this trend.[9] In China, deeply rooted cultural values such as filial piety, traditional gender roles, and societal expectations regarding family formation exert a unique influence on reproductive decision-making. Moreover, the legacy of historical policies—such as the one-child policy and its recent relaxation—continues to shape contemporary attitudes toward childbearing and maternal health.

Psychological factors are equally influential in the decision to delay childbirth.[5,10] Many women experience significant psychological barriers, including the fear of losing personal autonomy, concerns about the physical and emotional demands of motherhood, and the anxiety of balancing parenting responsibilities with professional ambitions.[11] The growing emphasis on self-fulfillment and individual achievement, particularly in early adulthood, often leads women to prioritize career development, education, and personal goals before considering motherhood. Additionally, some women may feel unprepared for the emotional and financial responsibilities of raising children, contributing to delays in their decision to start a family.[12]

From a health perspective, delaying childbirth is associated with an increased risk of fertility challenges, pregnancy complications, and adverse outcomes for both mothers and infants, including higher rates of preterm birth and low birth weight.[13–15] From a broader societal viewpoint, delayed childbearing contributes to declining fertility rates and an aging population, which can strain social services and healthcare systems in the long term.[16,17]

As such, understanding the psychological and social factors behind delayed childbearing is crucial for developing effective public health strategies and interventions that can support women in making informed, empowered reproductive choices. This study aims to examine these factors, offering insights into how psychological and social dynamics influence women's decisions regarding the timing of childbirth.

Materials and Methods

Study Design and Participants

This study employed a cross-sectional design to analyze the sociodemographic factors associated with delayed childbearing among women of reproductive age, using data collected from a cohort of pregnant women in the early stages of pregnancy at six hospitals including Chengdu Women's and Children's Central Hospital and West China Second Hospital. The primary objective was to examine how various socioeconomic, cultural, and medical factors correlate with the decision to delay childbearing. All participants were nulliparous women who presented to the Department of Obstetrics and Gynecology during the first trimester (≤12 weeks of gestation) between January and December 2023. Women aged 18–45 years who were attending their first prenatal consultation at the hospital were included in the study. Pregnant women with a documented history of severe mental illnesses, such as schizophrenia, bipolar disorder, or major depressive disorder requiring hospitalization, as well as those unwilling to participate, were excluded from the study. For the analysis, participants under the age of 30 were categorized into the Younger childbearing group, while those aged 30 and above were classified into the delayed childbearing group.

This study received ethical approval from the Institutional Review Board (IRB) of Chengdu Women's and Children's Central Hospital (Approval No. 2023097). Clinical trial number: not applicable. Prior to data collection, written informed consent was obtained from all participants, who were assured of the confidentiality of their personal information. Data were anonymized to protect participant privacy and analyzed under strict adherence to the principles outlined in the Declaration of Helsinki. Participation was entirely voluntary, with individuals retaining the right to withdraw from the study at any stage.

Data Collection

Data were collected during participants' first prenatal visit using structured interviews and self-administered questionnaires designed to capture a wide range of sociodemographic and health-related information (Supplementary File 1). The questionnaires included the following key areas:

Age at Pregnancy: The participant's age at the time of conception.

Educational Level: The highest level of education attained, categorized as no formal education, primary, secondary, tertiary, or postgraduate education.

Employment Status: Employment classification as full-time, part-time, or unemployed, with further distinctions by occupation type (eg, professional, administrative, manual labor).

Marital Status: Current status, classified as single, married, or cohabiting.

Income Level: Based on Chengdu's economic standards, participants were grouped into low-income (<3000 RMB/month), medium-income (3000–10000 RMB/month), or high-income (>10000 RMB/month) categories.

Reproductive History: Details on previous childbirths, history of miscarriage, or infertility treatments.

Health-Related Factors: Presence of chronic illnesses such as hypertension or diabetes and reproductive health conditions, including ectopic pregnancy, infertility, polycystic ovary syndrome (PCOS), or endometriosis.

Lifestyle Factors: Smoking, alcohol use, and exercise habits before pregnancy.

Additionally, medical records were reviewed to obtain data on maternal health, including gestational age at the first prenatal visit and any complications in the current or prior pregnancies.

Statistical Analysis

Descriptive statistics were employed to summarize the demographic and socioeconomic characteristics of the study population. Continuous variables, such as age and income, were presented as means with standard deviations, while categorical variables, including educational level and marital status, were reported as frequencies and percentages. To examine factors associated with delayed childbearing, bivariate analyses were conducted using Chi-square tests for categorical variables (eg, marital status, employment status) and independent t-tests for continuous variables (eg, age, income level). Subsequently, multivariate logistic regression analysis was performed to identify significant sociodemographic predictors of delayed childbearing, controlling for potential confounders. A p-value of <0.05 was considered statistically significant. All statistical analyses were carried out using SPSS (version 26, IBM Corp).

Results

The selection process for the study population is illustrated in Figure 1. Women with a history of mental illness were excluded during screening, resulting in a final sample size of 1128 participants. Of these, 507 (44.9%) were categorized into the Younger childbearing group, while 621 (55.1%) comprised the delayed childbearing group. At enrollment, the mean age of participants was 29.73 ± 4.07 years, and the mean pre-pregnancy BMI was 21.95 ± 2.87 kg/m². A total of 71 participants (6.3%) conceived through assisted reproductive technologies, and 168 (14.9%) were classified as advanced maternal age. Notably, only 673 participants (59.7%) reported feeling prepared for childbirth (Table 1).

Social Factors Associated with Delayed Childbearing

Bivariate analysis revealed several significant sociodemographic factors associated with delayed childbearing (Table 2). Women aged 30 years or older were more likely to have attained higher education ($p < 0.001$) and to have a higher income level ($p < 0.001$) compared to their younger counterparts. Full-time employment was also significantly associated with delayed childbearing ($p < 0.001$), with employed women being more likely to postpone pregnancy. Furthermore, the prevalence of reproductive health issues in the delayed childbearing group was twice that of the Younger childbearing group ($p < 0.001$), which may explain the higher utilization of assisted reproductive technologies among women in the delayed childbearing group.

A multivariate linear regression analysis was conducted to further explore the factors influencing childbearing age (Figure 2A). After adjusting for covariates such as pre-pregnancy BMI, income levels, marital status, and psychological

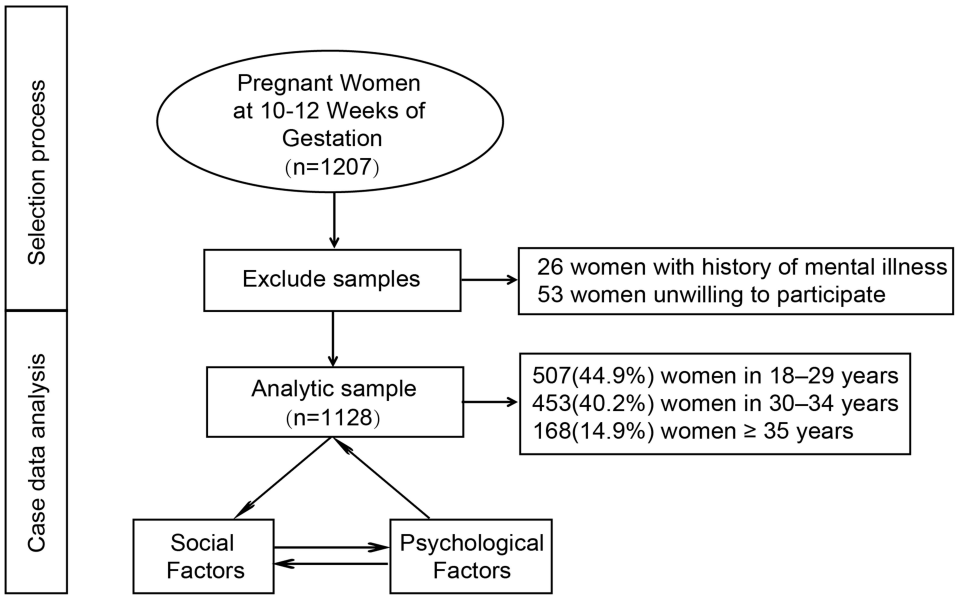

Figure 1 The selection process for this study.

factors, several independent predictors were identified. Reproductive health issues (Beta = 2.73, 95% CI: 1.64–3.82, p = 0.033), educational attainment (Beta = 2.06, 95% CI: 0.81–3.30, p < 0.001), and employment status (Beta = 1.98, 95% CI: 1.17–2.79, p = 0.038), were shown to significantly influence childbearing age. Interestingly, each level of increase in

Table 1 Description of the Participant Characteristics

Variables	Total
Number	1128
Mean Age (year)	29.73 ± 3.94
Pre-pregnancy BMI (kg/m^2)	21.95±2.87
Mode of conception	
Natural conception	1057(93.7%)
Assisted reproductive technology	71(6.3%)
Age stratification (year)	
18–29 years	507(44.9%)
30–34 years	453(40.2%)
≥ 35 years	168(14.9%)
Marital Status (married)	1025(90.9%)
Educational Levels	
No formal education, primary or secondary	159(14.1%)
Tertiary education	758(67.2%)
Postgraduate education	211(18.7%)
Employment Status	
Not employed	143(12.7%)
Part-time or self-employed	202(17.9%)
Full-time	783(69.4%)
Income Levels	
Low-income	164(14.5%)
Medium-income	783(69.4%)
High-income	181(16.0%)
Prepared for Childbearing? (Yes)	673(59.7%)

Abbreviation: BMI body mass index.

Table 2 Description of the Participant Characteristics by Age Types

Variables	Younger Childbearing N=507	Delayed Childbearing N=621	*P*-value
Age (year)	26.64±3.78	32.25±4.30	<0.001[a]
Assisted reproductive technology	25(4.9%)	46(7.4%)	0.088[b]
Gravidity	1(1)	2(1)	0.686[c]
Pre-pregnancy BMI (kg/m2)	21.83±2.97	22.04±2.79	0.222[a]
Smoking	14(2.8%)	23(3.7%)	0.377[b]
Alcohol consumption history	27(5.3%)	40(6.4%)	0.430[b]
Health-Related Factors			
Chronic conditions	31(6.1%)	47(7.6%)	0.338[b]
Reproductive health issues	34(6.7%)	83(13.4%)	<0.001[b]
Social Factors			
Marital Status (married)	462(91.1%)	563(90.7%)	0.788[b]
Educational Levels			<0.001[b]
No formal education, primary or secondary	65(12.8%)	94(15.1%)	
Tertiary education	370(73.0%)	388(62.5%)	
Postgraduate education	72(14.2%)	139(22.4%)	
Employment Status			<0.001[b]
Not employed	78(15.4%)	65(10.5%)	
Part-time or self-employed	131(25.8%)	71(11.4%)	
Full-time	298(58.8%)	485(78.1%)	
Income Levels			<0.001[b]
Low-income	58(11.4%)	106(17.1%)	
Medium-income	387(76.4%)	396(63.8%)	
High-income	62(12.2%)	119(19.1%)	
Psychological Factors			
Factors Influencing Reproductive Intentions?			
Career advancement	308(60.7%)	495(79.7%)	<0.001[b]
Fear of maternal risks	154(30.4%)	150(24.2%)	0.177[b]
Fear of parenting	185(36.4%)	156(25.1%)	0.219[b]
Fear of financial security	265(52.2%)	423(68.1%)	<0.001[b]
Partner factors	159(31.4%)	225(36.2%)	0.086[b]
Age anxiety	87(17.2%)	405(65.2%)	<0.001[b]
Social and cultural expectations	116(22.9%)	342(55.1%)	<0.001[b]
Prepared for Childbearing? (Yes)	264(52.1%)	409(65.9%)	<0.001[b]

Notes: [a]Average and standard deviation. Student's *t*-Test. [b]Number (percentage). Chi-squared Test. [c]Median (interquartile range). Kruskal–Wallis Test.
Abbreviation: BMI body mass index.

educational attainment corresponded to a 2.1-year delay in childbearing age. Similarly, reproductive health issues and full-time employment delayed childbearing by 2.7 and 2.0 years, respectively.

Notably, subgroup analysis based on income levels demonstrated that both low-income and high-income households were significantly associated with delayed childbearing compared to medium-income households. High-income women, on average, delayed childbearing by 2.04 ± 0.57 years compared to medium-income women ($p < 0.001$). Similarly, low-income women delayed childbearing by an average of 1.23 ± 0.55 years compared to their medium-income counterparts ($p = 0.041$) (Figure 2B).

Psychological Factors Influencing Delayed Childbearing

Psychological factors emerged as significant determinants of delayed childbearing. The most commonly cited reason was career advancement, reported by 71.1% of participants (n = 803), as many women expressed a preference to establish their professional careers prior to starting a family. Financial security was the second most frequently reported concern,

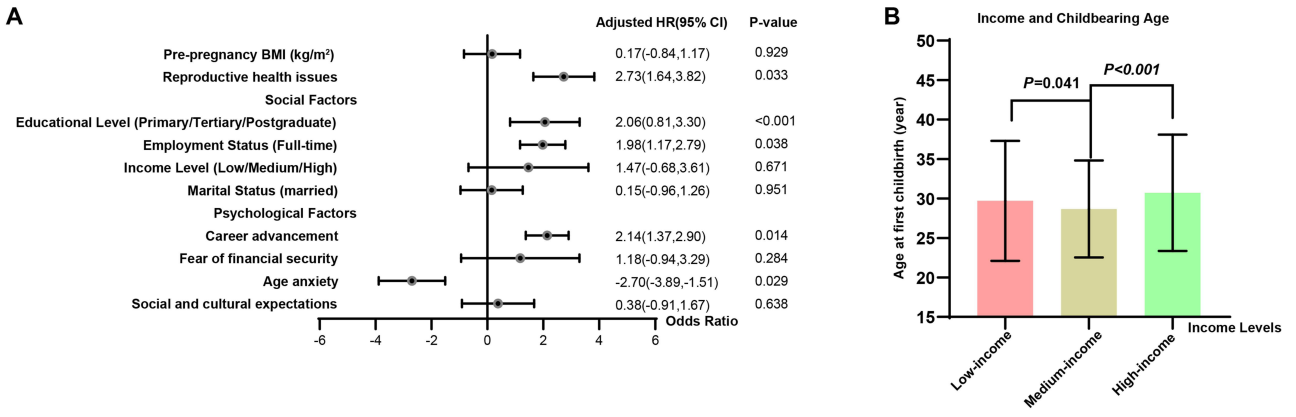

Figure 2 Associated factors influencing age at childbearing. (**A**) A multivariate linear regression analysis was conducted to further explore the factors influencing childbearing age. After adjusting for covariates such as pre-pregnancy BMI, income levels, marital status, and psychological factors, several independent predictors were identified. Reproductive health issues (Beta = 2.73, 95% CI: 1.64–3.82, p = 0.033), educational attainment (Beta = 2.06, 95% CI: 0.81–3.30, p < 0.001), employment status (Beta = 1.98, 95% CI: 1.17–2.79, p = 0.038), career advancement aspirations (Beta = 2.14, 95% CI: 1.17–2.79, p = 0.014) and age-related anxiety (Beta = −2.70, 95% CI: −3.89 to −1.51, p = 0.029) were shown to significantly influence childbearing age. (**B**) Subgroup analysis based on income levels demonstrated that both low-income and high-income households were significantly associated with delayed childbearing compared to medium-income households (High- vs medium-income, p < 0.001; low- vs medium-income, p = 0.041).

identified by 61.0% (n = 688), with participants emphasizing the importance of achieving economic stability before becoming parents. Age-related anxiety was cited by 43.6% (n = 492), reflecting apprehension about increased pregnancy risks and societal perceptions associated with advanced maternal age. Social and cultural expectations were noted by 40.6% (n = 458), highlighting the influential role of societal norms in shaping decisions around the timing of parenthood. The desire for a stable relationship was reported by 34.0% (n = 384), as women expressed reluctance to conceive until they felt secure in their marital or partnership circumstances. Fear of parenting responsibilities was mentioned by 32.9% (n = 371), indicating anxiety about the emotional and practical demands of raising children. Finally, concerns about maternal health risks were reported by 27.8% of participants (n = 314), underscoring apprehensions regarding the physical and medical challenges of pregnancy and childbirth. These findings, summarized in Table 1, illustrate the multifaceted psychological considerations influencing reproductive decisions.

Women in the delayed childbearing group were notably more influenced by psychological factors such as career advancement aspirations, fear of financial insecurity, age-related anxiety, and social and cultural expectations. Despite these influences, nearly two-thirds of these women expressed feeling prepared for childbirth (Table 2). Further multivariate linear regression analysis highlighted career advancement aspirations (Beta = 2.14, 95% CI: 1.17–2.79, p = 0.014) and age-related anxiety (Beta = −2.70, 95% CI: −3.89 to −1.51, p = 0.029) as the most significant psychological predictors of childbearing age (Figure 2A). Women prioritizing career goals were likely to delay childbirth by an average of 2.1 years, while age-related anxiety was associated with an advancement of childbearing age by 2.7 years.

Binary logistic regression analysis was employed to identify factors influencing delayed childbirth (Table 3). After adjusting for pre-pregnancy BMI, income level, marital status, and financial security concerns, several independent predictors were identified. Reproductive health issues significantly increased the likelihood of delayed childbirth (OR = 2.70, 95% CI: 1.53–4.67, p < 0.001). Similarly, higher educational attainment was associated with an 84% increase in the likelihood of delayed childbirth per level (OR = 1.84, 95% CI: 1.23–3.62, p < 0.001). Employment status, specifically full-time work, elevated the likelihood by 1.97-fold (OR = 1.97, 95% CI: 1.26–3.27, p = 0.018), while aspirations for career advancement further increased the likelihood by 2.53-fold (OR = 2.53, 95% CI: 1.17–4.56, p = 0.042). Interestingly, age-related anxiety was associated with an increased likelihood of earlier reproductive decision-making, reducing the odds of delayed childbirth by 69% (OR = 0.31, 95% CI: 0.23–0.56, p < 0.001).

Discussion

The findings of this study shed light on the complex socio-psychological dynamics shaping delayed childbearing, underscoring the interplay of individual aspirations, societal expectations, and health-related concerns in influencing

Table 3 Association Between Delayed Childbearing and Participant Characteristics

Variables	Exp(B)	95% CI	P-value
Pre-pregnancy BMI (kg/m2)	1.21	0.89~1.46	0.084
Reproductive health issues	2.70	1.53~4.67	<0.001
Social Factors			
Educational Level (Primary/Tertiary/ Postgraduate)	1.84	1.23~3.62	<0.001
Employment Status (Full-time)	1.97	1.26~3.27	0.018
Income Level (Low/Medium/High)	1.79	0.52~4.38	0.571
Marital Status (married)	0.95	0.79~1.27	0.483
Psychological Factors			
Career advancement	2.53	1.17~4.56	0.042
Fear of financial security	2.28	0.97~3.49	0.071
Age anxiety	0.31	0.23~0.56	<0.001
Social and cultural expectations	1.18	0.78~1.49	0.471

Abbreviation: BMI body mass index.

reproductive decisions. This delay in childbearing reflects broader transformations in societal norms, economic conditions, and the evolving roles of women, particularly in contexts where higher education, career aspirations, and financial stability are increasingly prioritized.

From a social perspective, the postponement of childbearing aligns with the broader trend of women pursuing higher education and career advancement before starting families.[18,19] This phenomenon is particularly salient in societies with rigid professional structures and economic insecurities, where the perceived necessity of establishing a stable career often outweighs the urgency of early parenthood.[20,21] Such shifts reflect a broader cultural redefinition of the "ideal" maternal timeline, wherein childbearing is deferred until personal, professional, and financial milestones are achieved.[22,23] However, this trend also highlights systemic barriers, such as insufficient workplace flexibility and inadequate support for working mothers, which may inadvertently contribute to delayed family formation.

Psychological factors further complicate this narrative. Career advancement aspirations, while indicative of women's growing autonomy and ambition, may intensify the internal conflict between personal goals and societal expectations.[24,25] This conflict is exacerbated by age-related anxiety, which, paradoxically, both delays and accelerates childbearing depending on its intensity and timing.[26,27] The psychological burden of navigating these competing pressures underscores the need for supportive policies and interventions that address the emotional and practical challenges women face in balancing career and reproductive goals.

Additionally, reproductive health concerns represent a critical, often overlooked dimension of delayed childbearing. Women grappling with such issues may face dual challenges—managing their health while contending with expectations around fertility.[28,29] This highlights the importance of proactive reproductive health education and access to healthcare services that empower women to make informed decisions about their fertility and timing of parenthood. Moreover, in China, limited access to flexible working arrangements and relatively short maternity leave make it difficult for women to reconcile career advancement with family planning. These challenges are compounded by long working hours, relatively low average household income, and inadequate public childcare services, all of which place additional financial and psychological burdens on women during their reproductive years.

Taken together, these findings call for a multifaceted approach to addressing the social and psychological determinants of delayed childbearing. Policies should prioritize creating supportive environments that reduce the trade-offs women face between career progression and family formation.[30,31] Initiatives such as workplace flexibility, subsidized childcare, and comprehensive reproductive health services can alleviate some of the pressures contributing to these delays. Moreover, societal efforts to challenge traditional norms surrounding motherhood and fertility timelines may help create more inclusive frameworks that support diverse pathways to parenthood.

Future research should explore the longitudinal impact of these factors, particularly as societal norms and economic conditions evolve. Understanding how these dynamics interact across different cultural and socioeconomic contexts will be essential for developing targeted interventions that address the unique challenges faced by women in delaying childbearing.

This study has several limitations. Its cross-sectional design precludes causal inferences, and reliance on self-reported data introduces potential recall and social desirability biases. While key covariates were adjusted, unmeasured factors such as healthcare access, workplace policies, and regional cultural norms may have influenced the findings. Furthermore, as all participants had already conceived, the study does not include women who have not yet conceived, which may limit the representativeness and generalizability of the findings to the broader population of women of reproductive age. Additionally, the results may not be generalizable to populations outside the specific cultural and socioeconomic context of this study. Expanding the sample to encompass women from diverse cultural, ethnic, and socio-economic backgrounds would facilitate a deeper understanding of whether these factors exert similar influences across different populations.

Conclusion

In conclusion, this study highlights the significant role of both psychological and social factors in influencing delayed childbearing. Reproductive health issues, higher educational attainment, career advancement aspirations, and employment status were identified as key determinants of postponing childbirth, while age-related anxiety emerged as a countervailing factor. These findings underscore the complex interplay between personal goals, societal pressures, and reproductive health in shaping women's childbearing decisions. Further research is needed to explore these relationships in broader and more diverse populations to better inform policies and interventions aimed at supporting women's reproductive choices across different contexts.

Data Sharing Statement

Data are available upon reasonable request to the corresponding author.

Human Ethics and Consent to Participate Declarations

This study was approved by the Ethics Committee of Chengdu Women's and Children's Central Hospital (No.2023097), and all participants provided written informed consent. Clinical trial number: not applicable.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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