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Work-related stress and reproductive health: mechanism of delayed childbearing among urban professional women

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Abstract

This study examines delayed childbearing, a growing reproductive health concern, among urban professional women in Hebei, China, where traditional family expectations intersect with intense workplace competition. It explores how women perceive childbearing under work pressure, how work-related stress shapes the postponement of births, and how support systems intervene in this process. This qualitative study, using a constructivist grounded theory approach, conducted in-depth interviews with 26 married professional women aged 28–40 working in enterprises, public institutions, and government agencies. Analysis identified four themes: workplace "ideal worker" norms, embodied work-related strain, insufficient multi-level support, and strategic postponement of childbearing. The study concludes that delayed childbearing among urban professional women is a rational response to overlapping pressures rather than weak fertility intentions, with potential consequences for reproductive health risks associated with advanced maternal age. It provides policy implications for building more fertility-friendly work environments and gender-equitable support systems and offers comparative insights into similar patterns of fertility postponement in other rapidly modernizing settings, including parts of Africa. *(Afr J Reprod Health 2025; 29 [12s]: 135-148).*

Keywords: Delayed childbearing; Work-related stress; Urban professional women; Reproductive health

Résumé

Cette étude analyse le report de la maternité chez les femmes urbaines hautement qualifiées dans la province du Hebei, en Chine, un enjeu croissant de santé reproductive dans un contexte marqué par l'imbrication des attentes familiales traditionnelles et d'une forte concurrence professionnelle. Elle examine la manière dont ces femmes perçoivent la maternité sous contrainte professionnelle, l'influence des tensions liées au travail sur le report des naissances, ainsi que le rôle des dispositifs de soutien. S'appuyant sur une approche qualitative de théorie ancrée constructiviste, l'étude repose sur des entretiens approfondis menés auprès de 26 femmes mariées âgées de 28 à 40 ans, travaillant dans les entreprises, les institutions publiques et les administrations. Quatre thèmes principaux émergent : les normes professionnelles de « l'employé idéal », la corporéité du stress au travail, l'insuffisance des soutiens à plusieurs niveaux et le report stratégique de la maternité. Les résultats montrent que le report de la maternité ne traduit pas un affaiblissement des intentions reproductives, mais constitue une réponse rationnelle à des contraintes structurelles imbriquées, comportant des risques potentiels pour la santé reproductive liés à la maternité tardive. L'étude souligne enfin des implications en matière de politiques publiques en faveur d'environnements professionnels plus favorables à la maternité et de dispositifs de soutien plus équitables du point de vue du genre, tout en ouvrant des perspectives comparatives avec d'autres contextes de modernisation rapide, notamment en Afrique. *(Afr J Reprod Health 2025; 29 [12s]: 135-148).*

Mots-clés: Report de la maternité; Stress professionnel ; Femmes urbaines hautement qualifiées; Santé reproductive

Introduction

Global demographic regimes are being reshaped by the combined forces of rapid population ageing and sustained fertility decline. United Nations projections indicate that the share of the world's population aged 65 and older will rise from about 10% in 2022 to 16% in 2050.[1] Over the same period, total fertility rates (TFRs) in many high- and middle-income societies have fallen well below the replacement level: across OECD countries, the average TFR was around 1.5 children per woman in 2022, with Italy and Spain at roughly 1.2 and Korea at about 0.7 in 2023.[2] China has likewise entered an ultra-low

fertility regime, with recent estimates suggesting that its TFR has fallen to around 1.0[3] and the national population has begun to shrink[4], while the share of people aged 65 and over has reached roughly 15% of the total population.[5]

Childbearing is also occurring later; the mean age at first birth in OECD countries rose from 26.4 years in 2000 to 29.5 years in 2022, exceeding 32–33 years in some low-fertility contexts such as Italy, Spain, Korea and major Chinese cities.[6] These shifts have been linked to elevated risks of infertility, adverse pregnancy outcomes and other reproductive health problems, suggesting that delayed childbearing should be understood as a reproductive health concern rather than merely a private timing choice.[7,8]

Within this global picture, urban professional women have become a key population for understanding low fertility and delayed childbearing, particularly in rapidly ageing, low-fertility societies such as China.[9,10] Research shows that higher educational attainment[11,12], intensive labor-market participation[13,14] and persistent work–family conflict[15,16]tend to depress fertility intentions and shift births to later ages. At the same time, labor markets in many countries continue to be structured around an "ideal worker" norm[17]—expecting workers to be continuously available and unencumbered by care responsibilities—and to impose a "motherhood penalty" in hiring, pay and promotion.[18] For professional women, pregnancy and caregiving are often treated as signals of lower productivity or weaker commitment[19,20].

In China, despite successive relaxations of birth policies, central and local governments' pronatalist measures—including childcare subsidies and campaigns promoting "positive" views on marriage and childbearing[21]—appear to have had limited impact on reversing low fertility.[22,23]Against this backdrop, this study focuses on Hebei province, part of the Beijing–Tianjin–Hebei urban cluster, where economic restructuring and enduring northern family norms intersect[24], making urban professional women in Hebei an important group for examining how work-related stress translates into delayed childbearing.

Existing research has predominantly relied on quantitative survey data to identify socio-economic correlates of "wanting (or not wanting) more children" and has paid relatively little attention to process-focused, qualitative analyses of how urban professional women experience and interpret work pressure, and how multi-level support systems shape the pathways through which stress is converted into delayed childbearing. Against this backdrop, the present study starts from the everyday narratives of urban professional women in Hebei to understand how they talk about childbearing and reproductive health under high work pressure, to trace how work-related stress gradually permeates their decisions about when to have children, and to examine how workplace, partner and family support may reinforce or buffer this delaying process.

Specifically, this study addresses the following research questions: 1) How do urban professional women in high-pressure work environments understand and articulate issues of childbearing and reproductive health? 2) Through what specific pathways and everyday mechanisms does work-related stress influence their decisions to delay childbearing? 3) In this process, how do workplace, partner and family support reinforce or buffer these delaying mechanisms?

Literative review

Research on delayed childbearing at the intersection of women's employment, fertility and reproductive health has expanded steadily in recent years. However, this literature still remains fragmented—either treating postponement primarily as a biomedical risk factor or focusing on macro-level fertility intentions while overlooking the everyday work realities and support constraints faced by urban professional women. This literature review brings together these strands to develop an integrated perspective on delayed

childbearing that connects reproductive health concerns, gendered labour regimes, China's low-fertility context and multi-level support systems, thereby clarifying the specific gaps that the present qualitative study seeks to address.

Delayed childbearing and reproductive health

Clinical and demographic research has documented both the rising trend of delayed childbearing[25,26] and its implications for women's reproductive health[27,28]. Studies from Europe, North America and East Asia consistently show that postponing first births into the mid-30s and beyond is associated with reduced fecundity, higher rates of subfertility and infertility[27], and increased risks of pregnancy and perinatal complications such as gestational diabetes, hypertensive disorders, preterm birth, low birthweight and perinatal mortality.[29] Analyses further suggest that later ages at first and last birth in China are associated with a higher probability of adverse maternal and neonatal outcomes over the life course[30].

These findings have encouraged scholars and policymakers to move beyond treating delayed childbearing as a purely private timing preference and to recognize it as a significant reproductive health concern[28,31]. Postponement of births into later reproductive ages is associated not only with greater reliance on assisted reproductive technologies and higher rates of involuntary childlessness, but also with the accumulation of a "health debt" during pregnancy that may exacerbate inequalities between women in different socio-economic positions.[32,33] At the same time, research increasingly emphasizes that many women delay childbearing in order to pursue extended education and stable careers, highlighting the role of broader social and labour-market structures in shaping fertility timing.[28]

However, most of this literature remains anchored in epidemiological outcomes and age-related risk profiles. Relatively few studies investigate how women themselves understand and negotiate the trade-offs between work, fertility timing and reproductive health in their everyday lives, or how these subjective evaluations are formed in specific occupational and institutional contexts. This gap is particularly salient for urban professional women in rapidly changing labour markets, and is one of the key issues the present study seeks to address.

Work-related stress, gendered labour regimes, and childbearing

Some research links work-related stress and gendered labour regimes to women's fertility intentions and childbearing behaviour. Studies show that high job strain, low job control, long working hours and persistent work–family conflict are associated with lower fertility intentions, reduced transitions to first and higher-order births, and delayed timing of childbearing.[15,16] In the context of China's three-child policies, empirical evidence further indicates that work–family conflict significantly dampens women's intentions to have additional children, an effect that is partly mediated by increased life stress and anxiety.[22,34]

These patterns are closely tied to the persistence of "ideal worker" norms in contemporary labour markets. Research across different national settings shows that employers often assume an ideal worker to be continuously available, fully dedicated to work and unencumbered by caregiving responsibilities. Once women become mothers, they tend to be perceived as less productive and less committed and are therefore considered less suitable for promotion or leadership roles[19,20]. Studies of discrimination related to pregnancy, parenthood and caregiving further document a widespread "motherhood penalty" in hiring, pay and promotion, frequently anchored in assumptions about women's presumed inability to meet ideal worker standards.[17,18]

Professional women in high-skill occupations are particularly exposed to these tensions. Research on women physicians and

academics, for example, finds high rates of delayed childbearing and elevated risks of infertility, alongside the perception that pregnancy and caregiving are read as signals of declining productivity or weakened career commitment.[35,36] To protect contracts, promotion prospects or tenure, many feel compelled to align themselves with ideal worker norms—accepting long hours, unpredictable workloads and constant availability—so that postponing childbearing becomes a strategic way of safeguarding their career trajectories[19].

At the same time, these literature remains dominated by quantitative designs that identify statistical associations between work-related variables and fertility outcomes. Although a small number of qualitative studies have begun to document women's narratives of work–family conflict, much less attention has been paid to how concrete workplace norms, performance evaluations and organisational cultures shape women's embodied experience of stress, and how these experiences are translated into calculations about "when" and "whether" to have children.

Urban professional women and low fertility in China

Recent low fertility in China has prompted many studies on fertility intentions and reproductive behaviour, especially in the context of the gradual relaxation of the one-child policy and the introduction of the universal three-child policy. Recent surveys indicate that the total fertility rate has fallen well below replacement level, and that many adults—especially urban residents and women of reproductive age—report low intentions to have a second or third child. [22,23] Further analyses show that economic pressures, high housing costs, employment instability and the opportunity costs of childrearing are all significantly associated with reduced fertility intentions.[37,38] In response, the Chinese government has introduced a series of policy instruments aimed at building a "fertility-friendly society", including tax relief and housing support, childcare subsidies, extended maternity and paternity leave, and campaigns promoting positive attitudes toward marriage and childbearing.[21] However, existing studies and policy evaluations generally suggest that these measures have had limited success in reversing low fertility, particularly in urban areas where intense job competition, long working hours and entrenched gender role norms continue to shape everyday constraints on partnership and family formation.[23]

It is important to note that, most existing work operationalizes fertility behavior in terms of whether individuals "intend (or do not intend) to have another child" and concentrates on statistical associations between socio-demographic characteristics and stated fertility intentions. By contrast, much less attention has been paid to how urban professional women narrate the multiple pressures they face, how they construct delayed childbearing as a strategic response, and how concerns about reproductive health risks and embodied experiences of stress are woven into these calculations.

Multi-level support systems and fertility decisions

Scholars have shown that affordable childcare services, generous parental leave policies and family-friendly workplace arrangements can help raise fertility rates, or at least narrow the gap between "desired" and "actual" fertility[39,40]. Support from partners and extended family members is equally crucial. Research finds that a more equal division of housework and unpaid care is associated with higher fertility intentions and a greater likelihood of progressing to higher-order births, particularly in decisions about having a second child.[41] Increased involvement of husbands in domestic labour can strengthen wives' intentions to have additional children, whereas highly unequal divisions of unpaid work tend to suppress women's fertility plans.[42]

In China, grandparents frequently provide substantial childcare, which facilitates mothers' continued labour-market

participation and, to some extent, shapes fertility decisions.[43,44] Empirical studies show that the availability of grandparents' childcare is positively associated with the likelihood of having another child and helps mothers remain in employment after childbirth, although couples may also adjust the timing of subsequent births in line with patterns of intergenerational support, thereby sometimes delaying second births.[45,46]

However, there is still a lack of in-depth qualitative research on how urban professional women in China evaluate the reliability of these different forms of support over time, and how such evaluations feed into decisions to postpone childbearing as a strategy for coping with scarce or uncertain support.

Methods

This study adopted a qualitative research design framed within a constructivist paradigm, focusing on how urban professional women make sense of delayed childbearing under conditions of work pressure and limited support resources. Constructivism was chosen because it emphasizes participants lived meanings and the co-construction of knowledge between researchers and interviewees and is particularly suited to analyzing processes and mechanisms that unfold in everyday social context.

Study setting and sampling

The study was conducted in urban areas of Hebei Province in northern China. Situated within the Beijing–Tianjin–Hebei metropolitan region, Hebei has undergone rapid industrialization and urbanization; it combines highly competitive urban labour markets with relatively traditional norms surrounding marriage and childbearing, making it a pertinent context for examining delayed childbearing among professional women.

Purposive sampling was used to recruit married urban professional women who met the following criteria: 1) aged between 28 and 40 years; 2) employed full-time in enterprises (state-owned or private), public institutions (such as schools, hospitals or research institutes), or government agencies; and 3) having experienced delayed childbearing, defined as meeting at least one of the following conditions: having no first birth for at least four years after marriage; having a first birth at age 30 or older; or clearly intending to have another child but postponing a subsequent birth for at least five years after the previous one.

Initial interviewees were recruited through researchers' professional networks and contacts in urban communities in Hebei. Snowball sampling was then employed, with interviewees invited to recommend peers who met the inclusion criteria but worked in different organizations or departments. In total, 26 women participated in the study: 10 were employed in enterprises, 9 in public institutions and 7 in government agencies. All held at least a bachelor's degree and occupied mid-level or junior management positions.

Data collection

Data was collected in several phases between April and August 2025. All in-depth interviews were conducted in Mandarin Chinese. Twenty-five interviews were carried out face to face, and one additional interview was conducted online via a video-conferencing platform. A semi-structured interview guide was used, organized around four core domains: 1) work trajectories and everyday experiences of work-related stress; 2) views and experiences of childbearing, including fertility intentions, timing decisions and understandings of reproductive health; 3) support and constraints from workplaces, spouses/partners, parents and parents-in-law; and 4) reflections on delayed childbearing, including perceived benefits, costs and future uncertainties.

Probing questions and prompts were used flexibly to encourage narrative accounts. Examples included: "Can you describe in detail how you got through your busiest period at work?", "During that period, how did you think about whether and when to have your

first (or second) child?", and "What role did your partner, parents or colleagues play in your decision to wait or to try for a child?" Each interview lasted approximately 60 and 120 minutes. With interviewees' consent, all interviews were audio-recorded and subsequently transcribed verbatim. Immediately after each interview, the researcher prepared brief interview summaries and field notes to document contextual information, initial analytic impressions and non-verbal cues.

Data analysis

Data analysis followed the core principles of grounded theory and proceeded iteratively alongside data collection. Working from the original Chinese transcripts, the research team manually coded the data. Initial coding involved line-by-line reading of each transcript and assigning short, in vivo or action-oriented codes to segments related to work stress, fertility timing and support systems, staying as close as possible to interviewees' own words. These initial codes were then condensed into more focused codes with greater conceptual scope, which were gradually developed into higher-level themes and an analytic framework explaining the process through which childbearing was delayed. Throughout the analysis, constant comparison was used to examine similarities and differences across interviews; analytic memos were written to track concept development and theoretical links; and the thematic structure and category relationships were refined repeatedly. As later interviews were incorporated, they were used to test and elaborate the emerging categories. When new data no longer produced substantial new themes or relationships and the research questions had been adequately addressed, the team judged that theoretical saturation had been reached and concluded data collection and coding.

Ethical considerations

Before each interview, the researcher explained orally the aims of the study, the interview content and the potential sensitivity of some topics, and informed interviewees that their involvement was entirely voluntary and that they could withdraw at any time without giving a reason. Written or audio-recorded informed consent was obtained prior to the start of the interview. Interviews were recorded and analysed in anonymized form, and all data were used solely for academic purposes and stored securely. When discussing sensitive experiences related to reproductive health, infertility anxiety or workplace discrimination, the researcher reminded interviewees that they were free to skip any questions that made them feel uncomfortable.

Results

The findings identified four themes: 1) workplace "ideal worker" norms; 2) embodied work-related strain; 3) insufficient multi-level support, and 4) strategic postponement of childbearing.

Workplace "ideal worker" norms

Across different types of organizations, interviewees described their workplaces as operating around an implicit "ideal worker" norm. Of the 26 women interviewed, 20 explicitly stated that a "good employee" in their unit is expected to be "always available and not talk too much about family", although this norm varied across enterprises, public institutions and government agencies. Women in enterprises emphasized performance targets, client demands and constant online availability; those in public institutions highlighted publication counts, teaching evaluations or medical performance indicators; and those in government agencies stressed responsiveness to leaders' tasks, policy campaigns and various inspections. Despite these sectoral differences, the underlying expectation was similar: a good worker is someone who puts work first and is minimally constrained by caregiving responsibilities.

Among the 9 interviewees working in public institutions, 7 directly linked this norm to relatively fixed promotion ladders and

professional title systems. Teachers and doctors repeatedly described the period before obtaining a particular title or a secure post as a "window during which you cannot get pregnant", because pregnancy might disrupt teaching schedules, research output or surgical rotes. 10 enterprise employees tended to explain delayed childbearing in terms of project-based and market pressures. Eight of them mentioned quarterly performance targets, client deadlines and ad hoc overtime as reasons for repeatedly postponing pregnancy. For these women, the perceived risks were not only missing a promotion round but also being sidelined from core projects or, in more precarious positions, losing their job altogether. Among 7 interviewees working in government agencies, five frequently referred to "performance assessments" and organizational discipline. They described campaign-style work rhythms, late-evening meetings scheduled at short notice, inspections and the constant need to keep their phone switched on. Some worried that pregnancy or childcare demands would be interpreted as a sign of being "insufficiently disciplined" or not fully reliable.

18 women reported that long working hours and unpredictable schedules compressed the time and energy they felt they could devote to pregnancy, childbirth and childcare. Many found it hard to imagine how they could both meet expectations of constant availability and attend regular antenatal check-ups or cope with pregnancy-related fatigue. Childbearing was often framed as a disruption to carefully planned career trajectories—whether in the form of missing a promotion window, losing key clients or being moved away from core positions.

Embodied work-related strain

Among the 26interviewees, 21 did not treat work pressure merely as an abstract "mental burden" but repeatedly described it as something that "enters the body and accumulates there". Chronic fatigue, poor sleep, headaches and digestive problems were frequently mentioned complaints. More than two-thirds of the women reported working late into the night, continuing to respond to messages after leaving the office, and waking up in the morning "more exhausted than before going to bed".

Menstrual irregularities and gynecological discomfort were also common in their narratives: 16 out of 26 women mentioned irregular cycles, increased menstrual pain or gynecological inflammation, yet these symptoms were often downplayed or their treatment postponed. Several recalled being advised by doctors to "think about the timing of childbearing" but found it difficult to schedule follow-up visits because of heavy workloads. As one enterprise employee put it, "The doctor told me I really shouldn't delay any longer, but that happened to be a key project period. I thought I'd wait until that was over, and then one busy phase just followed another." At the same time, most interviewees were well aware of the risks of advanced maternal age: 18 women could roughly state the age threshold for "high-risk pregnancy" and expressed concern about infertility, pregnancy complications and potential impacts on the child's health.

Above all, this theme reveals a key tension: on the one hand, work pressure is "embodied" and heightens women's sensitivity to reproductive risks; on the other hand, in the absence of enabling conditions, this awareness does not translate into earlier childbearing, but is continually "pushed back" – women acknowledge the problem, yet repeatedly postpone responding to it under the constraints of their everyday realities.

Insufficient multi-level support

Interviewees' decisions to delay childbearing were shaped not only by individual stress and career considerations, but also by their assessments of how "reliable" support from workplaces, partners and extended families would be. Among the 26 interviewees, 22 explicitly said that, when thinking about whether and when to have a child, they

weighed together "how my career is going, whether my husband is dependable, and whether my parents can actually help". Overall, these three layers of support were experienced less as a solid safety net and more as something "partial and patchy", "good on paper but weak in practice", or simply "unpredictable".

At the workplace level, especially in public institutions and government agencies, formal maternity protections (such as maternity leave and breastfeeding breaks) were in place. Among the 19 interviewees employed in state-sector organizations, 15 commented that the written regulations "look very good on paper". At the same time, they pointed out that making full use of these entitlements often came with hidden career penalties—for example, being moved away from core positions after returning from maternity leave, losing out on promotion to male or childless colleagues with similar qualifications, or being informally labelled as "burdened by family responsibilities" and "less reliable".

Support from partners was even more uneven. Of the 26 interviewees, 20 reported that their husbands would say things like "you can have a baby whenever you want" or "if you want to have one, I'll help", yet 14 of these women admitted that in practice their husbands' contribution to housework and childcare was "very limited" or "on and off". Most women anticipated that, even if their partner "helped", the bulk of unpaid care work would still fall on them, which made them cautious about stepping into the role of mother under current conditions.

Extended families, especially parents and parents-in-law, were seen as an important potential source of childcare support. Eighteen of the 26 interviewees said that "if the grandparents can help, the pressure would be much lower", but they also stressed that this resource was constrained by age, health, geographic distance and the older generation's own obligations. Some parents were still working or in poor health and could not provide long-term, intensive care for grandchildren; in other cases, differences in childrearing beliefs or decisions about whether to live together created additional tensions. For the nine interviewees whose parents lived in another city or province, both "bringing the parents in" and "sending the child back to the hometown" raised emotional and practical concerns. As a result, even when they "wanted a child in principle", many interviewees repeatedly arrived at the conclusion that "now is not the right time".

Strategic postponement of childbearing

Under the combined influence of "ideal worker" norms, bodily strain and insufficient support, Interviewees were not simply "giving up on childbearing". Instead, 19 of the 26 women explicitly described postponing childbearing as a pragmatic "strategic compromise": a way to safeguard career security under current conditions while still keeping open the possibility of becoming a mother in the future.

Some women can be characterized as "career-first planners". In the narratives of 11interviewees, childbearing was placed clearly after specific career milestones—"finish this step at work, then think about having a baby"—such as passing a professional exam, securing a permanent post, obtaining a promotion or completing a major project. As new opportunities continued to arise, these "key milestones" were repeatedly pushed back, and the timing of childbearing was postponed accordingly.

14 women repeatedly emphasized that they would only seriously consider pregnancy once "conditions were in place", especially regarding housing, income and childcare. For them, having a child was understood as a major project that required a full set of resources; if any one dimension was judged as "not good enough" or "not stable enough", it became a reason to continue waiting.

And other women were in what might be termed a "postponement-with-self-reassurance" mode. Nine interviewees acknowledged that they were fully aware of getting older, yet they also relied on narratives such as "medical technology is very advanced now" or "we can still try later" to comfort

themselves, repeatedly deferring a final decision in a state of muted anxiety and ambivalence. It is also noteworthy that even among those who said things like "maybe I won't have children" or "one child is enough", 6 women stressed that such statements functioned mainly as a defensive posture to fend off questions and social pressure from relatives and colleagues, rather than a complete absence of childbearing desire. Beneath these narratives often lay a sense of powerlessness in the face of structural constraints and a degree of quiet disappointment.

Overall, postponed childbearing is presented as a "rational choice" under constrained conditions: a way of managing career and family risks through delaying decisions, protecting one's career trajectory and maintaining a sense of dignity and control—even though the women were well aware that this strategy exposes them to the reproductive health risks associated with advanced maternal age.

Discussion

The first theme shows that, for urban professional women in Hebei, delayed childbearing is primarily a response to workplace "ideal worker" norms. Participants from enterprises, public institutions and government agencies all reported that a "good employee" is expected to be constantly available, to prioritize work and to minimize the visible impact of family responsibilities. This finding concretizes prior discussions of "ideal worker" norms and the "motherhood penalty": existing research has highlighted how employers assume ideal workers to be unencumbered by care, and how mothers systematically face disadvantages in hiring, pay and promotion[18,19]. This study demonstrates how "ideal worker" expectations operate as an implicit regulatory mechanism that disciplines reproductive timing, rather than merely shaping attitudes toward work–family balance.

The second theme suggests that work-related stress is not experienced merely as abstract "anxiety" or "tension", but is perceived in embodied forms such as chronic fatigue, sleep problems, menstrual disturbances and gynecological discomfort, closely intertwined with worries about reproductive health. Most participants were well aware of the medical risks associated with advanced maternal age, subfertility and pregnancy complications, yet felt unable to "respond in time" to bodily signals because of long hours and unpredictable work schedules. In line with clinical and demographic studies linking delayed childbearing to higher risks of infertility and adverse pregnancy outcomes[25,26], this study documents women's heightened sensitivity to these risks. Importantly, the findings highlight a gap between reproductive health knowledge and women's capacity to act on that knowledge, revealing how workplace demands can undermine timely health-protective decision-making even among highly informed and health-conscious women.

The third theme indicates that the multi-level support system made up of workplaces, partners and grandparents is often experienced by urban professional women as partial, fragmented or unreliable, encouraging them to view childbearing as something that they will have to "carry on their own". At workplace level, formal provisions such as maternity and breastfeeding leave are widely available, but many participants described them as rights that "cost too much" to fully use, given the career penalties attached. At partner level, verbal assurances frequently failed to translate into sustained sharing of housework and childcare. At family level, grandparental care was constrained by age, health, distance and divergent views on childrearing. These findings resonate with prior research showing that childcare provision, parental leave and more equal divisions of unpaid work can support higher fertility[42,43], and they also reinforce evidence from China on the importance of grandparental care for additional childbearing and maternal employment.[44,45] Together, these suggest that the effectiveness of support systems depends not only on their formal existence, but on their reliability, predictability and

perceived legitimacy within women's everyday life courses.

The fourth theme shows that "delayed childbearing" is widely constructed in women's narratives as a pragmatic, strategic compromise rather than as simple "low fertility desire" or a decision to forego children altogether. Many participants located themselves on trajectories such as "have children after completing key career milestones", "wait until conditions are more stable" or "postpone for now and reassess later", using postponement to preserve career security, hedge against weak support systems and keep open a future window for motherhood. This strategic deferral is consistent with previous research showing that highly educated, high-skill women are more likely to delay childbearing and, in doing so, expose themselves to greater health risks.[18,19] This finding challenges binary interpretations of fertility behavior that equate delayed childbearing with declining fertility intentions, and instead underscores postponement as a temporally flexible strategy shaped by uncertainty and constraint.

These four interrelated themes illustrate how urban professional women in Hebei construct delayed childbearing as a rational response at the intersection of ideal worker norms, embodied work stress and insufficient multi-level support. On the one hand, the findings corroborate existing literature on the effects of reproductive health risks, gendered labor regimes and support systems on fertility. On the other hand, they add a process-oriented perspective by showing how women actively navigate these structural constraints. Rather than treating them simply as a "low fertility intention group", this study portrays them as agents who, under unfavorable structural conditions, use postponement as a way to maintain career trajectories, self-respect and a sense of control over their life course. From a policy perspective, these findings suggest that interventions aimed at raising fertility cannot rely solely on exhortations or biomedical awareness campaigns but must address the organizational and relational conditions that shape women's ability to translate reproductive intentions into action.

Recommendations

Based on the above findings, this study argues that delayed childbearing among urban professional women in Hebei province is closely linked to workplace "ideal worker" norms, the embodied effects of work-related stress, and gaps in multi-level support systems. In response to these structural pressures at the institutional level, it proposes three areas of policy action: 1) Building fertility-friendly workplaces; 2) Addressing embodied work stress and reproductive health, and 3) Expanding gender-equitable family and childcare support.

Building fertility-friendly workplaces

For many urban professional women in Hebei, delayed childbearing is not simply a private choice, but a way of aligning themselves with an implicit "ideal worker" norm that rewards constant availability and penalizes caregiving. Policies that only encourage births, without touching assessment and promotion rules, are unlikely to shift behavior. At the organizational level, employers in enterprises, public institutions and government agencies could move beyond a culture of long hours and "always on call" by introducing more predictable scheduling, limiting routine overtime, and recognizing output and quality rather than physical presence as key performance indicators. Promotion and appraisal criteria should explicitly protect employees—women and men—from penalties linked to pregnancy, parental leave or temporary adjustments in workload. Transparent anti-discrimination procedures and internal complaint channels for pregnancy- and parenthood-related disadvantage are also essential.

In addition, workplace experiments with flexible working arrangements—such as flexible start and end times, limited remote work, phased return after maternity leave, and

temporary redistribution of tasks around late pregnancy and early childcare—could help match the "timing" needs of reproduction with the rigid temporal organization of work. Crucially, these arrangements should be framed as rights and options for all workers, not as special concessions for "problematic" mothers, to avoid reinforcing stigma.

Addressing embodied work stress and reproductive health

The women in this study did not experience work stress only as abstract "pressure", but as chronic fatigue, sleep problems, menstrual disturbances and gynecological symptoms that they often postponed addressing because of work demands. At the same time, they were acutely aware of the reproductive risks associated with advanced maternal age yet felt unable to act on this knowledge. Health systems and employers could respond by making routine reproductive health information and counselling more accessible to working women in their late 20s and 30s. This may include workplace-based health education sessions on fertility, age-related risks and contraception; easier access to gynecological check-ups during working hours; and referral pathways between occupational health services and specialized reproductive health care. Importantly, such initiatives should avoid framing women as solely responsible for "managing their fertility" and instead highlight the structural work conditions that make timely care difficult.

Given the strong bodily dimension of work-related strain, mental health and stress-management support should also be linked to reproductive health. For example, counselling services could explicitly address how chronic stress, overwork and sleep deprivation affect menstrual cycles, fertility and pregnancy, and support women in negotiating realistic adjustments with employers and partners.

Expanding gender-equitable family and childcare support

Decisions to delay childbearing are shaped not only by workplace constraints, but also by expectations that they will carry the bulk of unpaid care, even when partners and grandparents are nominally "supportive". Policies that seek to encourage births without addressing the gendered division of labor risk leaving this basic calculus unchanged. At the household level, public campaigns and community-based programs can promote more equal sharing of housework and childcare, targeting men as well as women. Parenting education, premarital counselling and workplace seminars could all include components on negotiating fair divisions of unpaid work and recognizing the impact of unequal arrangements on women's health and fertility decisions.

Expanding affordable, good-quality childcare is critical for reducing women's perceived need to "wait until everything is perfect" before having a child. Municipal governments and employers could co-invest in workplace-adjacent childcare centers, neighborhood-level nurseries and after-school programs that specifically serve full-time working parents. Maternity and paternity leave policies should be designed to encourage fathers' real participation—for example through non-transferable "use-it-or-lose-it" paternity leave—so that care responsibilities do not automatically default to mothers or grandparents.

Intergenerational care, which plays a major role in China, also requires policy attention. Support measures might include respite services for older caregivers, transportation or housing assistance for families who need grandparents to relocate, and guidance for managing tensions over parenting styles. By stabilizing and valuing grandparents' contributions, such measures

could make support more predictable, while still recognizing that older family members have their own health limits and needs.

Conclusion

This study has shown that delayed childbearing among urban professional women in Hebei is not simply the result of weak fertility intentions, but a rational response to overlapping structural pressures. Across sectors, women confront workplace "ideal worker" norms that compress the time available for childbearing, experience work-related stress as an embodied strain with implications for reproductive health, and navigate incomplete or unreliable support from employers, partners and extended families. Within this configuration, postponing births becomes a pragmatic strategy to protect career security, manage scarce support resources and preserve a sense of control over life trajectories, even as women remain acutely aware of the health risks associated with advanced maternal age. By foregrounding women's own narratives and the process through which work stress is translated into delayed childbearing, the study contributes a mechanism-oriented perspective that links reproductive health concerns, gendered labour regimes and multi-level support systems in China's low-fertility context.

Several limitations should be noted. The study draws on a qualitative sample of 26 married professional women in urban Hebei and does not include men, employers or women who have already exited the labour market; its findings therefore cannot be generalized statistically and reflect only one regional and occupational context. In addition, the analysis relies solely on in-depth interview data and does not triangulate participants' accounts with survey, administrative or clinical data. The data are based on self-reported narratives collected at a single point in time, which may be shaped by retrospective rationalization or current concerns,. Future research could build on these insights through larger-scale and longitudinal designs that track how work conditions, support arrangements and fertility timing co-evolve over time.

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Authors' contribution

Xiangzhuo Wang: Conceived and designed the study and drafted the entire initial manuscript. Jingwen Wang and Renyuan Cui contributed to data collection and collaborated in revising and refining the manuscript. Hamza Iftikhar provided language editing and stylistic polishing. All authors reviewed and approved the final version of the manuscript.

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