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Research Article

PERCEPTIONS OF THE IDEAL AGE FOR PREGNANCY IN VIZIANAGARAM: A COMPARATIVE STUDY OF SCIENTIFIC EVIDENCE AND PUBLIC OPINION

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ABSTRACT

The biologically optimal age for pregnancy, widely recognized as 20–30 years, is linked to peak fertility and reduced maternal–neonatal risk, yet public perceptions are strongly shaped by sociocultural norms, educational exposure, family expectations, and career priorities. This cross-sectional mixed-methods study, conducted between July and December 2024 with 264 participants in Vizianagaram, examined awareness, beliefs, and knowledge of the ideal age for pregnancy in comparison with scientific evidence. The findings revealed that before exposure to scientific information, only 60.2% of the participants identified early-to-mid-twenties as the optimal window, but this percentage increased significantly after the intervention ($t(264) = 42.81$, $p < .001$). Awareness of fertility decline with age was reported by 71.2%, although only 14.4% recognized both early and late pregnancy risks. Internet and social media (26.1%) emerged as the most common information sources, surpassing schools and healthcare professionals, and younger adults (18–25 years) demonstrated significantly higher awareness levels ($F(3, 260) = 157.44$, $p < .001$). Thematic analysis highlighted career goals, family pressure, lack of awareness, and media portrayals as the dominant influences shaping perceptions. These results suggest that while public opinion in semiurban India often aligns with medical consensus, persistent misconceptions about fertility decline and reliance on assisted reproductive technologies indicate the need for culturally sensitive, demographically tailored educational strategies to support informed reproductive decision-making.

Keywords: Ideal Pregnancy Age, Fertility Awareness, Reproductive Health Education, Public Perception, Vizianagaram.

INTRODUCTION

The concept of the "ideal age for pregnancy" remains one of the most debated questions at the intersection of reproductive biology, public health, and societal norms. From a biological perspective, fertility is at its peak during the early to middle twenties, begins to decline gradually in the late twenties, and decreases more sharply after the age of 35, when maternal and neonatal complications also increase significantly (Leridon, 2022; World Health Organization [WHO], 2023). These biological realities are well documented across clinical and epidemiological research, yet public perceptions of the optimal childbearing age vary widely across cultural, socioeconomic, and geographic contexts. This divergence between scientific evidence and lived reproductive practices underscores the importance of exploring not only medical factors but also the social and cultural forces that shape reproductive decision-making. Over the past few decades, significant socioeconomic transformations have shifted reproductive timelines globally. Increasing educational attainment among women, increasing career aspirations, delayed marriages, and urbanization have collectively contributed to an increase in maternal age at first birth in many high- and middle-income countries (Rao *et al*., 2024; United Nations, 2023). This trend is particularly visible in urban centers, where modernization and access to resources enable women to postpone motherhood. Conversely, in rural and

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conservative communities, early childbearing continues to be normalized and even encouraged, often driven by family expectations, limited reproductive health literacy, and inadequate access to contraceptives (Kaur & Singh, 2023). These opposing trajectories of early pregnancies in rural settings and delayed motherhood in urban areas have created a widening gap between biological fertility patterns and sociocultural norms of reproductive timing.

The rise of assisted reproductive technologies (ART) has further complicated perceptions of the "right" time for childbearing. Medical advances such as in vitro fertilization, egg freezing, and surrogacy have expanded reproductive options and fostered the belief, particularly in urban populations, that fertility can be preserved or restored well beyond natural limits (Zhao *et al*., 2022). However, despite these advances, ART cannot fully compensate for the biological decline in oocyte quality, nor does it eliminate the heightened risks associated with advanced maternal age, including gestational diabetes, hypertensive disorders, and chromosomal abnormalities (ESHRE, 2024). Research has shown that both men and women often overestimate the effectiveness of ART, underestimating the biological constraints of age-related fertility decline (Sabarre *et al*., 2024). This misconception highlights the urgent need for improved fertility awareness education that balances optimism about medical possibilities with realistic expectations. Public awareness of the decline in fertility remains inconsistent across countries and demographic groups. Cross-national surveys indicate that more than half of women in high-income countries and nearly two-thirds in low- and middle-income countries significantly overestimate the age at which fertility begins to decline (Ushiroyama *et al*., 2023; Jones *et al*., 2022). Even among highly educated groups, studies from India and China have revealed that over 40% of respondents overestimate their reproductive lifespan and underestimate the risk of pregnancy complications after age 35 (Li *et al*., 2024; Chatterjee, 2023). These findings suggest that formal education does not necessarily translate into accurate fertility knowledge; instead, cultural narratives, media portrayals, and family expectations continue to play decisive roles in shaping reproductive choices.

Sociocultural determinants of reproductive timing remain especially powerful in low- and middle-income countries. In regions such as South Asia, Sub-Saharan Africa, and the Middle East, early marriage and early childbearing are often seen as markers of social stability and family honour, leading to persistently high rates of adolescent and young adult pregnancies (UNFPA, 2023). These practices, while culturally embedded, are linked to elevated risks of maternal anaemia, obstetric complications, and neonatal mortality (WHO, 2023). In contrast, delayed childbearing in urbanized societies is often rationalized as a strategy to secure financial independence, professional stability, and personal readiness before parenthood (Rao *et al*., 2024). However, urban delay is also shaped by modern cultural trends, including celebrity narratives of successful late-age pregnancies, which create a false sense of reproductive security and reinforce misconceptions that medical interventions can indefinitely extend fertility (Peterson & Marshall, 2023).

Gendered differences in reproductive health literacy further complicate the landscape. Women are generally more aware of fertility limitations than men are, yet misconceptions about ART success rates and the reversibility of reproductive aging persist across both genders (Sabarre *et al*., 2024). In many cases, reproductive decision-making is not entirely individual but is influenced by family expectations, societal pressures, and marital dynamics. Rural populations, in particular, often prioritize sociocultural norms over medical guidance, with decisions about childbearing shaped less by scientific evidence than by communal traditions (Kaur & Singh, 2023). These dynamics highlight the need for culturally sensitive health interventions that consider both biomedical knowledge and local sociocultural realities. Educational and community-based interventions have demonstrated measurable impacts on fertility awareness. School-based reproductive health modules, when implemented early, have been shown to improve knowledge retention and promote informed family planning decisions (Ahern *et al*., 2023). Similarly, community-level programs led by trained health workers have been effective in dispelling myths and encouraging timely reproductive decisions, especially in underserved rural areas (Singh *et al*., 2025). Nonetheless, systematic reviews reveal that most fertility awareness campaigns are fragmented, lack cultural tailoring, and fail to address structural barriers such as gender inequality, healthcare access, and the affordability of fertility services (Borges *et al*., 2023). Emerging digital platforms, including mobile apps, webinars, and social media campaigns, have shown promise in reaching younger demographics, although their effectiveness depends on the accuracy, credibility, and cultural relevance of their content (Vesala *et al*., 2022).

The tension between scientific recommendations and public perceptions of the ideal pregnancy age illustrates the broader challenge of aligning medical knowledge with sociocultural realities. Fertility specialists and public health experts consistently recommend that the biologically optimal age for pregnancy lies between 20 and 30 years, a period associated with the lowest maternal and neonatal risks (Leridon, 2022; WHO, 2023). However, these evidence-based guidelines often conflict with the lived realities of women whose reproductive decisions are shaped by career priorities, financial constraints, family expectations, and misconceptions about fertility preservation technologies. For many, especially in urban contexts, the reliance on ART reinforces delayed childbearing decisions, whereas in rural settings, cultural norms and limited access to education perpetuate early pregnancies. Both extremes too early or too late carry significant risks, highlighting the importance of balanced reproductive education that emphasizes not only biological timelines but also sociocultural constraints.

Bridging this gap requires an integrated, multisectoral approach that combines medical accuracy with cultural sensitivity. Scholars have suggested that strategies for improving fertility awareness should include professional

training for healthcare providers, curricular reforms to incorporate reproductive health education into secondary and tertiary education, culturally adapted messaging to address region-specific misconceptions, and digital engagement platforms that provide interactive, personalized fertility information (Kaur & Singh, 2023; Zhao *et al*., 2022; Ushiroyama *et al*., 2023). Furthermore, longitudinal monitoring is needed to assess how evolving socioeconomic and cultural dynamics influence perceptions of pregnancy timing over time (Rao *et al*., 2024).

Against this backdrop, the present study contributes by systematically examining public perceptions of the ideal age for pregnancy in Vizianagaram and comparing them with established scientific evidence. By analysing how education, geographic location, cultural background, and exposure to reproductive health information influence reproductive choices, this study addresses a critical gap in the literature, which has often examined biomedical or sociocultural aspects of fertility in isolation rather than in an integrated framework. The findings are expected to offer valuable insights for policymakers, educators, and healthcare providers, enabling the design of targeted interventions that promote timely, informed, and culturally sensitive reproductive decisions. Ultimately, aligning public understanding with scientific evidence is essential not only for reducing maternal and neonatal risks but also for empowering women to make reproductive choices that reflect both personal aspirations and biological realities.

MATERIALS AND METHODS

Study Design

This research adopted a mixed-methods, cross-sectional design that combined quantitative survey analysis with qualitative thematic exploration. The integration of methods allowed for both a statistical examination of public perceptions and a contextual understanding of the sociocultural influences shaping these perceptions. The study was implemented in two phases. First, a systematic literature review of peer-reviewed articles, demographic surveys, and reports from international health organizations was conducted via databases such as Scopus, PubMed, and Web of Science. Keywords such as “ideal age for pregnancy,” “fertility decline,” “maternal age,” and “reproductive health education” guided the search to establish a scientific baseline regarding the biologically optimal age for pregnancy. Second, an empirical survey was carried out via a structured questionnaire to collect primary data on public perceptions of the ideal pregnancy age, the reasons underlying these beliefs, and awareness of age-related fertility and health risks. This design facilitated direct comparisons between medical recommendations and public opinion.

Participants and Sampling Strategy

A total of 264 participants were recruited between July 2024 and December 2024 through stratified random sampling to ensure representation across age groups, genders, education levels, and urban–rural residences. Recruitment was achieved via institutional mailing lists distributed through universities and community organizations, online circulation through social media platforms, and collaboration with community health networks. Participants were eligible if they were aged 15 years and above and willing to provide informed consent. Individuals younger than 15 years or unwilling to share perceptions regarding pregnancy age were excluded. Respondents with no prior exposure to pregnancy-related information, such as very young adolescents without health education exposure, were also excluded from participation.

Research Approach and Implementation

The analysis was structured around three dimensions. First, scientific evidence was reviewed by collating medical guidelines and epidemiological data related to fertility, maternal health, and neonatal outcomes. Second, public opinion was analysed quantitatively by evaluating survey responses to determine trends, awareness levels, and patterns of belief. Third, comparative interpretation was undertaken to identify areas of convergence and divergence between public perceptions and scientific evidence, further stratified by demographic factors. Expert consultations with gynecologists, reproductive health educators, and public health officials complemented the findings by providing insight into the implications of misinformation and sociocultural pressures on reproductive decision-making.

Survey instrument

The survey instrument was designed to follow best practices in reproductive health research and was validated by a panel of three subject experts. It included close-ended questions assessing perceived ideal age for pregnancy, awareness of risks associated with early and delayed pregnancy, and common sources of reproductive health information. Likert-scale items were incorporated to capture levels of agreement with scientific guidelines and the influence of cultural, social, and technological factors. Additionally, open-ended questions allowed participants to elaborate on personal experiences and reasoning that shaped their beliefs. A pilot test with 15 participants ensured the clarity and relevance of the questionnaire, leading to minor revisions before full-scale deployment.

Data analysis

Data analysis was conducted via IBM SPSS Statistics Version 29. The quantitative data were summarized via descriptive statistics, including means, standard deviations, frequencies, and percentages. One-way ANOVA was applied to test for differences in perception scores across demographic categories such as age, gender, education, and location. Paired t tests were employed to evaluate changes in perceptions before and after exposure to brief educational prompts on fertility science, whereas Pearson correlation analysis was used to examine associations between awareness of scientific guidelines and perceived ideal pregnancy age. Qualitative responses, including open-

ended survey items and expert interview transcripts, were analysed thematically via Braun and Clarke's six-phase approach. Coding was independently reviewed by two researchers to enhance reliability, with discrepancies resolved through discussion and consensus.

Case Study Component

To provide further depth, a case-based comparative analysis was conducted by examining three participant clusters: individuals with high awareness supported by formal reproductive health education and healthcare access, communities predominantly influenced by cultural or religious norms encouraging early or delayed childbearing, and urban youth prioritizing lifestyle and career considerations in reproductive decision-making. Each cluster was analysed to identify dominant cultural narratives, primary sources of reproductive health information, and their alignment or misalignment with biological fertility timelines. This approach contextualized the survey results within specific sociocultural frameworks and highlighted the nuanced factors influencing perceptions of the ideal age for pregnancy.

RESULTS AND DISCUSSION

The present study surveyed 264 participants to examine their perceptions of the ideal age for pregnancy, their awareness of fertility risks, and the influence of sociocultural and informational factors. The analysis revealed that exposure to scientific information significantly shifted perceptions regarding the reproductive window, as confirmed by a paired samples t test, $t(264) = 42.81$, $p < .001$. This finding indicates that providing evidence-based fertility knowledge can substantially alter views, particularly among younger adults (18–25 years) and those with limited prior awareness of maternal health guidelines. While scientific consensus identifies the optimal pregnancy age as between 20 and 30 years, which is associated with peak fertility and lower complication risks, public perceptions vary. Some participants favoured 20–25 years, citing biological readiness and family stability, whereas others preferred 28–35 years to prioritize career and financial security. These findings align with earlier studies highlighting the biological advantages of earlier pregnancies (Leridon, 2022; WHO, 2023; Singh *et al*., 2025) while also reflecting the sociocultural determinants of delayed childbearing noted by Rao *et al*. (2024). As shown in Table 1, the mean perception scores were highest for the 20–25 years age group (M = 4.6), suggesting strong cultural reinforcement of early childbearing, which is consistent with the findings of Kaur and Singh (2023). In contrast, international data, such as those from China (Li *et al*., 2024), highlight an increasing preference for later pregnancies, underscoring the regional differences influenced by culture and the economy.

Table 1. Mean perception scores by preferred age group for pregnancy.

Preferred Age Range	Mean Score (1–5)	Preference Level
20–25 years	4.6	Very High
26–30 years	3.8	High
Below 20 years	2.1	Low
Above 30 years	2.4	Low

Awareness of age-related fertility decline was relatively high, with 71.2% acknowledging that fertility decreases with age (Figure 1), although 28.8% did not share this view. This mirrors the misconceptions documented in East Asia (Ushiroyama *et al*., 2023). Similarly, perceptions of delayed pregnancy risk were mixed: while 36.4% regarded pregnancy after age 35 as very risky (Table 2; Figure 2), nearly 21% dismissed it as slightly risky or not risky, and 12.9% remained unsure. These divided views echo Peterson and Marshall's (2023) findings that late pregnancies are often normalized in media portrayals.

Table 2. Distribution of perceived risks of pregnancy at age ≥35 years.

Perception	n	%
Very risky	96	36.36
Somewhat risky	72	27.27
Slightly risky	41	15.53
Not risky at all	21	7.95
Not sure	34	12.88

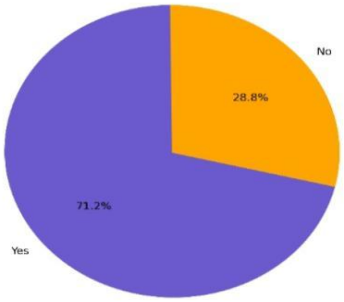

Figure 1. The incidence of fertility decreases with increasing maternal age.

Most respondents (71.2%) believed that fertility decreases with age, whereas 28.8% did not share this view.

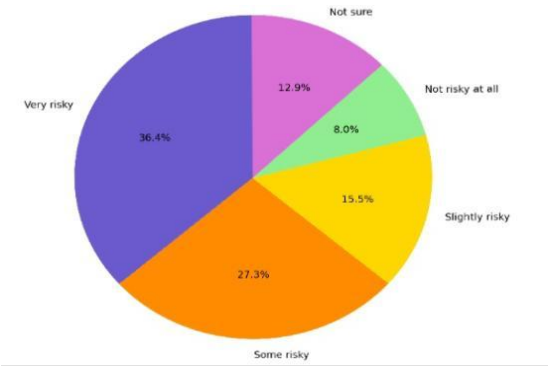

Figure 2. Perceived risks of delaying pregnancy until the age of 35 years or older.

A majority (63.6%) considered delayed pregnancy risky, whereas 12.9% were unsure.

Cultural preferences for early parenthood also emerged strongly: 55.3% of the respondents reported having children before age 25 (Figure 3), whereas 44.7% disagreed, citing financial or personal readiness. Comparable patterns have been reported by the UNFPA (2023) in South Asia, where family pressures often encourage early pregnancies, whereas urban youth tend toward postponement (Borges *et al*., 2023). The perceptions of maternal health risks were uneven across the domains. Only 45.8% believed that stress could increase miscarriage risk, whereas 54.2% did not (Figure 4), despite strong biomedical evidence linking stress to complications (Ahern *et al*., 2023). Similarly, mixed beliefs were reported regarding yoga and reproductive health: 52.7% considered it beneficial, whereas 47.3% did not (Figure 5). These results illustrate how traditional wellness practices coexist with, but sometimes diverge from, medical science.

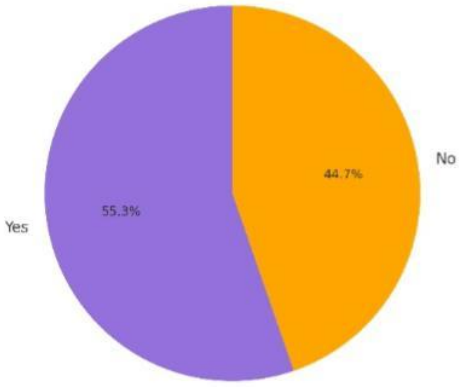

Figure 3. Opinions on whether having children younger than the age of 25 years are better.

Slightly more than half of the respondents (55.3%) favoured younger parenthood, whereas 44.7% disagreed.

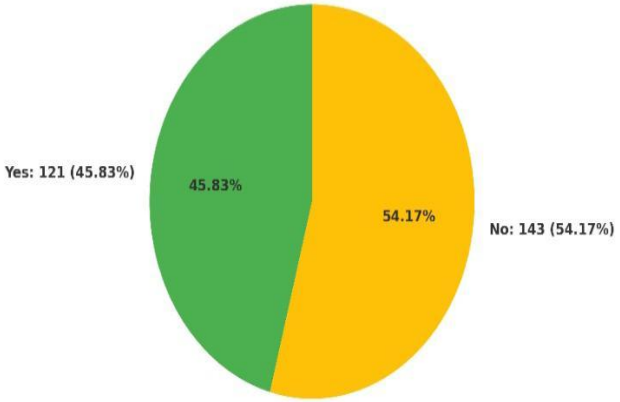

Figure 4. Beliefs about stress as a risk factor for miscarriage.

The responses were nearly divided, with 45.8% agreeing and 54.2% disagreeing that stress increases miscarriage risk.

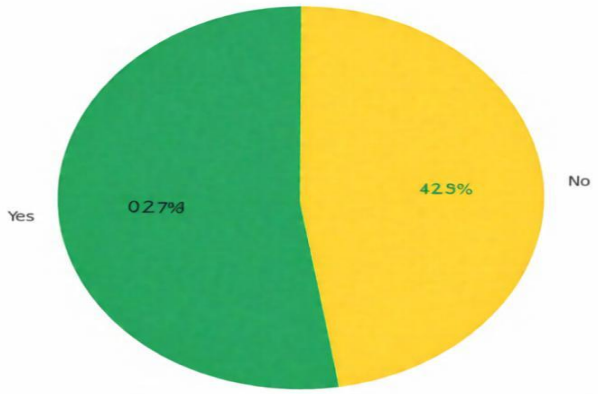

Figure 5. Beliefs regarding yoga and reproductive health maintenance.

A minority endorsed yoga as beneficial (0.27%), whereas 42.9% disagreed, and over half were neutral or uncertain.

Pregnancy-related complications were also self-reported by a notable minority. For example, 19.7% experienced bleeding during pregnancy (Figure 6), 18.9% reported amniotic fluid complications (Figure 7), 28.0% were advised to restrict physical activity (Figure 8), and 22.3% encountered recovery issues after caesarean delivery (Figure 9). Additionally, 18.6% had experienced miscarriage (Figure 10). These findings emphasize the lived realities of pregnancy beyond perception, highlighting the need for preventive care and counselling.

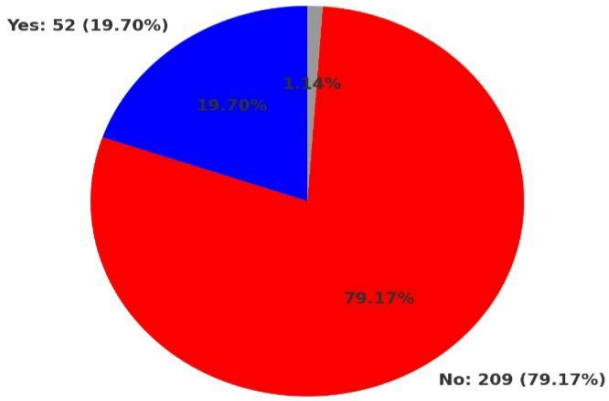

Figure 6. Self-reported experience of bleeding during pregnancy.

Most participants (79.2%) did not experience bleeding, whereas 19.7% did, and 1.1% reported other outcomes.

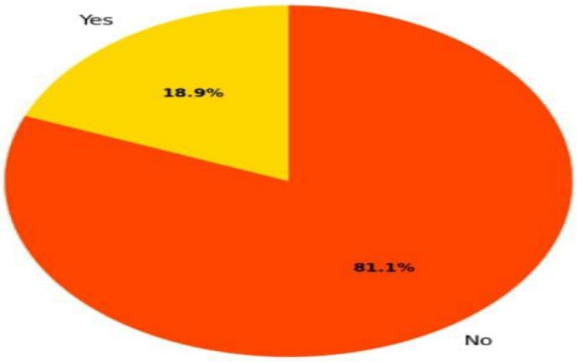

Figure 7. Experience of complications related to amniotic fluid levels.

While 81.1% reported no complications, 18.9% reported issues such as low or high fluid levels.

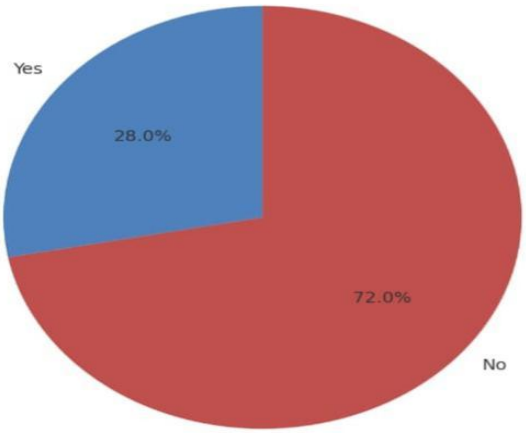

Figure 8. Advice was given to limit physical activity during pregnancy.

Nearly three-fourths (72.0%) were not advised to restrict activity, whereas 28.0% received such advice.

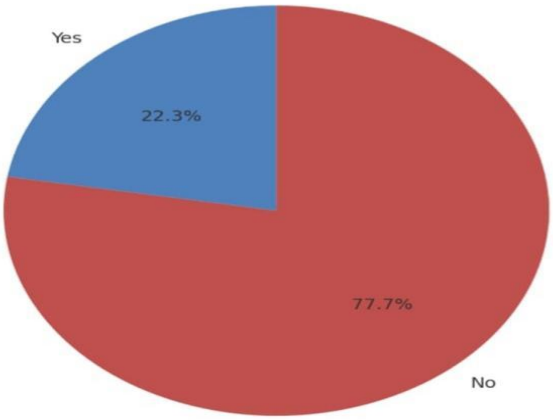

Figure 9. Complications faced during caesarean recovery.

Most respondents (77.7%) reported no complications, but 22.3% experienced issues such as infection or delayed healing.

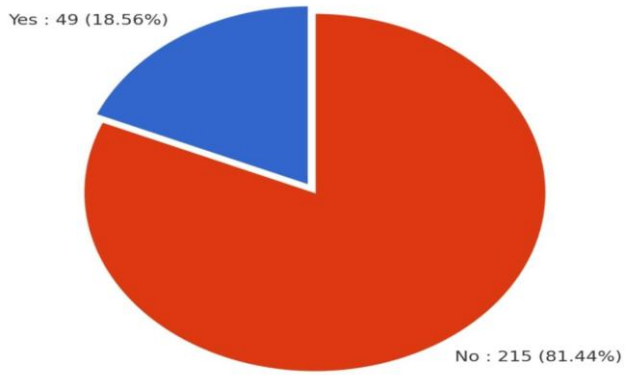

Figure 10. Self-reported experience of miscarriage.

Nearly one-fifth (18.6%) had experienced miscarriage, whereas 81.4% had not.

Awareness of the risks linked to pregnancy timing remained inadequate. Over half of the participants (53.0%) reported no awareness of early or late pregnancy risks, whereas only 14.4% recognized both (Table 3; Figure 11). These gaps resonate with earlier studies (Kaur & Singh, 2023; Ahern *et al*., 2023), which stressed the importance of structured reproductive health education.

Table 3. Awareness of pregnancy-related risks among participants.

Awareness Category	n	%
Aware of both early and late pregnancy risks	38	14.39
Aware of early pregnancy risks only	46	17.42
Aware of late pregnancy risks only	40	15.15
Not aware of any pregnancy risks	140	53.03

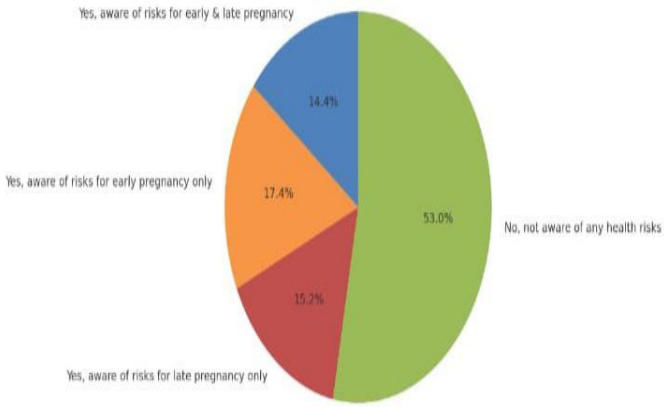

Figure 11. Awareness of health risks associated with pregnancy timing.

Half (50.0%) were unaware of risks, whereas 14.4% were aware of both early and late pregnancy risks.

The sources of fertility knowledge further explain these disparities: internet and social media (26.1%) were cited more often than were schools (22.7%) or healthcare professionals (20.5%) (Table 4). This finding reflects global patterns (Vesala *et al*., 2022), where digital platforms are primary sources of health information, although they are often mixed in quality. This underscores the importance of strengthening evidence-based health communication through digital media. Thematic analysis reinforced the survey findings, with career aspirations, family pressure, lack of awareness, and media influence emerging as key themes shaping reproductive decisions. Importantly, younger respondents (18–25 years) had significantly higher awareness scores than older participants did, $F(3,260) = 157.44$, $p < .001$, which was likely due to greater exposure to education and online resources. However, awareness alone did not guarantee accurate perceptions, as misconceptions about fertility

decline persisted in nearly one-third of the respondents. Taken together, the findings across Figures 1–11 and Tables 1–4 reveal a complex interplay between biological knowledge, cultural norms, and modern influences in shaping perceptions of pregnancy timing. In agreement with Leridon (2022) and the WHO (2023), these results confirm the general recognition that fertility decreases with age but also highlight persistent misconceptions similar to those observed globally (Ushiroyama *et al*., 2023; Li *et al*., 2024). Addressing these gaps requires interdisciplinary strategies that combine education, healthcare, and culturally sensitive communication to bridge the gap between scientific evidence and public perception, ultimately supporting informed reproductive decision-making. Sources of fertility knowledge further explain these disparities: internet and social media (26.1%) were cited more often than schools (22.7%) and healthcare providers (20.4%). A full overview of participant responses across all survey items, including sources of information, risk perceptions, complications, and awareness levels, is presented in Table 4.

Table 4. Summary of participant responses to key survey questions.

Question	Options	Percentage
Do you think that fertility decreases as a woman gets older?	A. Yes :188 B. No :76	71.21% 28.79%
Do you think delaying pregnancy until the age 35 or later is risky?	A. Very Risky :96 B. Some Risky :72 C. Slightly Risky :41 D. Not Risky at All:21 E. Not Sure :34	36.36% 27.27% 15.53% 7.95% 12.88%
Where did you learn most about pregnancy and fertility?	A. Schools :60 B. Parents and Elders:55 C. Internet/Social Media :69 D. Doctors/Health Professional:54 E. Personal Experience:	22.73% 20.83% 26.14% 20.45% 9.85%
What do you think having children at a younger age (below 25) is better or worse?	A. Yes:146 B. No:118	55.3% 44.7%
Can stress increase the risk of miscarriage?	A. Yes :121 B. No :143	45.83% 54.17%
Have you ever had to undergo a caesarean section?	A Yes :60 B. No :204	22.73% 77.27%
Did you experience bleeding during your pregnancy?	A. Yes:52 B. No :209 C. May Be :3	19.7% 79.17% 1.14%
Have you ever had a miscarriage?	A. Yes :49 B. No:215	18.56% 81.44%
Have you experienced any complication with your amniotic fluid levels?	A. Yes :50 B. No :214	18.94% 81.06%
Did you have any issues with foetal movement during pregnancy?	A. Yes :46 B. No :216 C. May Be	17.42% 81.82% 0.76%
Have you been advised to limit physical activity during pregnancy?	A. Yes :74 B. No :190	28.03% 77.65%
Did you face any complication during caesarean recovery?	A. Yes :59 B. No :205	22.35% 77.65%
Are you aware of any risks related to late pregnancy?	A. Yes, I Am Aware of Risks Related to Early and Late Pregnancy :38 B. Yes, I Am Aware of Risks Related to Early Pregnancy :46 C. Yes, I Am Aware of Risks Related to Late Pregnancy Only :40 D. No, I Am Aware of Any Health Risks :140	14.39% 17.42% 15.15% 53.03%
Do health concerns influence your idea of when it`s ideal to get pregnancy?	A. Yes :98 B. No :116	37.12% 62.88%
What do you think yoga is can maintain good reproductive health?	A. Yes :139 B. No:125	52.65% 47.35%

CONCLUSION

This study highlights that perceptions of the ideal age for pregnancy are shaped by a complex interaction of biological awareness, sociocultural expectations, educational exposure, career priorities, and family influence. While a majority of participants associated early-to-mid-twenties with optimal childbearing, in line with medical guidelines on peak fertility and lower maternal–neonatal risks, persistent misconceptions regarding fertility decline after 30 years and reliance on assisted reproductive technologies indicate significant knowledge gaps. The findings also show that exposure to scientific information can meaningfully shift perceptions toward evidence-based timelines, underscoring the importance of accessible and accurate reproductive health education. Variations across demographic groups further reveal that urban respondents are more influenced by career and lifestyle aspirations, whereas cultural norms and family pressures exert stronger influence in semiurban settings. Overall, bridging the divide between scientific consensus and public perception requires not only the dissemination of factual knowledge but also culturally sensitive, demographically tailored, and digitally enabled approaches that empower individuals to make informed reproductive decisions.

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CONFLICT OF INTERESTS

The authors declare no conflict of interest

ETHICS APPROVAL

Not applicable

FUNDING

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AI TOOL DECLARATION

The authors declares that no AI and related tools are used to write the scientific content of this manuscript.

DATA AVAILABILITY

Data will be available on request

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