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Awareness and practices regarding preventive oral healthcare among pregnant women: A narrative review

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Abstract
Pregnancy brings hormonal and behavioural changes that heighten vulnerability to gingival inflammation and dental caries, yet preventive oral care is frequently overlooked during antenatal care. This narrative review synthesises recent literature (2023–2026, supplemented by one earlier India-focused review) on pregnant women's awareness of oral health, their preventive practices, and the effectiveness of interventions designed to improve both. A scoping review of 67 studies and recent surveys from Saudi Arabia and northern India show that knowledge is often limited, especially regarding the link between oral health and pregnancy outcomes and the safety and timing of dental treatment. Once-daily brushing and problem-driven dental visits predominate, and education and income consistently predict better behaviour. Prenatal care providers generally acknowledge the importance of oral health but seldom translate this into clinical action. Educational and primary-care interventions improve knowledge, behaviours, and some clinical indicators, although evidence of effects on birth outcomes remains inconclusive and many studies carry a high risk of bias. Cost, fear, misconceptions, and weak collaboration between obstetric and dental services are the main barriers. Integrating oral health screening and tailored, theory-based counselling into routine antenatal visits is recommended.

Keywords: Pregnancy, preventive oral healthcare, oral health awareness, health education, antenatal care, oral health literacy

Introduction

Pregnancy is a period of marked physiological change. Raised oestrogen and progesterone levels increase gingival blood flow and alter the oral microbiota, making pregnant women more susceptible to gingivitis and, if inflammation is left untreated, more severe periodontal disease (Hebbal *et al*., 2025) [6]. Poor maternal oral health is also relevant to the child: cariogenic bacteria carried by the mother can raise the infant's risk of early caries, and some studies link maternal oral disease to preterm birth and low birth weight (Hebbal *et al*., 2025) [6]. Preventive oral healthcare during pregnancy, namely effective daily hygiene, fluoride use, dietary control, and timely dental check-ups, is therefore a low-cost way to protect two generations at once.

Despite this, uptake is poor in many settings. A systematic review of Indian cross-sectional studies concluded that pregnant women had low knowledge and awareness of oral health and urged education and motivation through health promotion programmes (Gambhir *et al*., 2015) [5]. More recent work suggests the gap persists (Nikki *et al*., 2025) [7]. This paper reviews what current evidence says about pregnant women's awareness and practices, the approaches used to improve them, how well those approaches work, and what stands in the way of implementation.

Review Approach

This is a narrative review rather than a registered systematic review. Literature was identified in October 2026 through web-based searches combining terms such as pregnant women, oral health, knowledge, attitudes, practices, awareness, education intervention, and randomised trial, and the records were then checked against publisher and PubMed pages. Priority was given to systematic reviews, scoping reviews, randomised trials, and large recent surveys published between 2023 and 2026. One earlier systematic review (2015) was retained because it is the principal synthesis on Indian pregnant women. Findings were extracted and paraphrased by the author, and only sources whose details could be verified are cited. Because the search was not run across multiple bibliographic databases with a formal protocol, relevant studies may have been missed, and the conclusions should be read as an evidence-informed overview rather than an exhaustive synthesis.

Awareness, Practices, and Approaches to Promotion

1. Awareness and oral health literacy

The most comprehensive recent synthesis is a scoping review by Tenenbaum and Azogui-Levy (2023) [8], which covered 67 studies: 52 examined knowledge, 27 attitudes, 54 practices, and only six oral health literacy. Women with lower literacy tended to score worse on dietary habits and oral hygiene behaviour, indicating that understanding, rather than mere exposure to information, shapes behaviour. Because literacy has been studied far less than knowledge, the authors argued that it deserves more attention in prenatal education.

Single-site surveys echo this picture. In a cross-sectional study of 1,120 pregnant women in Riyadh, about 60% had very poor and a further 24% poor oral health knowledge, and knowledge scores rose with education and income (Hebbal *et al*., 2025) [6]. In Meerut, India, 74% of 150 women reported gingival swelling, yet only 13.3% knew which trimester was appropriate for dental care (Nikki *et al*., 2025) [7]. The Indian review by Gambhir *et al*. (2015) [5] similarly found low awareness across seven cross-sectional studies, although results varied between samples. Taken together, women appear to experience the symptoms of pregnancy-related gum change but lack the framework to interpret them or to know that treatment is safe.

2. Preventive practices and use of dental services

Knowledge deficits translate into modest practice. In Riyadh, two-thirds of women had poor oral health practices; roughly 40% never used dental services during pregnancy and most others did so only occasionally, mainly for emergencies or occasional cleaning (Hebbal et al., 2025) [6]. Knowledge, practice, and service use were positively but weakly correlated ($r \approx 0.25–0.27$). In Meerut, 62% of women brushed once daily and just over half had visited a dentist during pregnancy; strikingly, 90% of women aware of trimester-specific dental safety had attended, compared with 30.7% of those who were unaware (Nikki *et al*., 2025) [7]. Information sources also matter: in the Riyadh sample only about 15% received information about oral conditions from health professionals, and gynaecologists were the source for barely 1% (Hebbal *et al*., 2025) [6].

3. The role of prenatal care providers

Antenatal providers are the natural channel for preventive messages, but their contribution is inconsistent. A systematic review of prenatal care practitioners' knowledge, attitudes, and practices found that obstetricians, family physicians, and nurses broadly recognise the importance of oral health in pregnancy, yet this knowledge does not appear in clinical routines; in one included study, for example, most nurses did not recommend dental visits (Anunciação *et al*., 2023) [1]. The finding shifts part of the explanation for poor maternal practice from the woman to the system: advice that should be routine is simply not being given.

4. Models and practices for promoting preventive care

Three broad approaches recur in the literature. The first is the knowledge–attitude–practice (KAP) framework, which underpins most surveys and, in the scoping review, was extended to include literacy and socioeconomic determinants (Tenenbaum & Azogui-Levy, 2023) [8]. The second is theory-driven education. A recent randomised trial in China used a Health Belief Model-based programme combining lectures, video calls, and online follow-up over four weeks, and reported gains in oral health self-efficacy, healthier habits, and clinical status compared with a single face-to-face session (Chen *et al*., 2026) [4]. The third is integration into existing maternal services, in which oral health counselling is delivered during routine antenatal visits by trained providers, supported by peer and community channels and tailored to women's education and income (Hebbal *et al*., 2025) [6].

Evidence on Effectiveness

A 2026 systematic review and meta-analysis of community and primary-care maternal oral health interventions found consistent improvements in knowledge, behaviours, service utilisation, and some clinical indicators. In contrast, pooled randomised evidence showed non-significant reductions in preterm birth (risk ratio 0.80, 95% CI 0.60–1.05) and low birth weight (risk ratio 0.76, 95% CI 0.51–1.13), and the authors cautioned that most included studies were non-randomised and several were at serious or critical risk of bias (Authors to be added, 2026) [2]. The direction of the birth-outcome estimates is encouraging, but the confidence intervals include no effect.

The individual trial by Chen *et al*. (2026) [4] is consistent with these conclusions: self-efficacy scores rose from baseline immediately after the intervention. However, the trial was small, with 39 women in the intervention and 26 in the control group, and was conducted at a single community health centre, so generalisability is limited. Overall, the evidence supports education as an effective way to change what pregnant women know and do, while the claim that such education improves pregnancy outcomes remains unproven.

Barriers and Challenges to Implementation

Barriers operate at the level of the woman, the provider, and the health system. For women, misconceptions about the safety of dental treatment, fear, cultural beliefs, time constraints, and the cost of care reduce service use; qualitative work in Iran also reported reluctance among dentists to treat pregnant women and weak interprofessional collaboration (Bahramian *et al*., 2018 [3], as summarised by Hebbal *et al*., 2025) [6]. Socioeconomic gradients are visible in practice: in Riyadh, lower income and education were associated with poorer practice, and only a small proportion of women had health insurance (Hebbal *et al*., 2025) [6].

For providers, the gap between knowing and doing described by Anunciação *et al*. (2023) [1] suggests that time pressure, unclear responsibility, and lack of referral pathways may be as important as knowledge. At the system level, dental and antenatal services are commonly delivered separately, so a woman who receives advice in one setting may have no practical route to care in the other. Finally, the research base itself constrains implementation: most evidence on awareness comes from cross-sectional, self-reported surveys, with limited longitudinal follow-up and few trials in low-resource settings (Gambhir *et al*., 2015 [5]; Tenenbaum & Azogui-Levy, 2023) [8].

Discussion and Implications

Across settings and study designs, three conclusions emerge. First, awareness is consistently low where it has been measured, and it is patterned by education and income, so universal messages are unlikely to close the gap on their own. Second, awareness matters for behaviour: the Meerut and Riyadh data both show that better-informed women practise better and seek care more often, although associations were modest and cannot establish causation. Third, health professionals are an under-used lever.

For practice, oral health questions and brief counselling should be built into routine antenatal visits, with clear referral routes to dental services and training for obstetricians, midwives, and nurses on the safety and timing of treatment. Education should be simple, repeated, and designed for lower literacy, using theory-based content, digital follow-up, and peer or community support where feasible. For policy, coverage or subsidy for pregnancy-specific dental care would address the cost barrier, and joint maternal–oral health programmes would address fragmentation. For research, adequately powered randomised trials with longer follow-up and standardised outcomes are needed, particularly in India and other low- and middle-income settings, to determine whether improved practice translates into better maternal and child outcomes.

Conclusion

Pregnant women commonly have limited awareness of preventive oral healthcare, and their practices reflect this, with irregular dental attendance and minimal professional guidance. Education delivered through antenatal and primary-care channels reliably improves knowledge and behaviour, but its impact on birth outcomes is not yet established. Closing the gap requires action on several fronts at once: better-informed women, better-prepared providers, and better-connected services.

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