

Knowledge, Attitude And Practices Among Obstetricians Regarding Oral Health Of Expectant Mothers In Southern Rajasthan: A Descriptive Cross-Sectional Study

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Abstract

Background: Obstetricians, owing to their frequent contact with expectant mothers, are uniquely positioned to promote maternal oral health. **Aim:** To assess the knowledge, attitude and practices among obstetricians' regarding oral health of expectant mothers of Southern Rajasthan. **Methods:** A descriptive cross-sectional study was conducted among obstetricians registered with the National Medical Commission (NMC), Udaipur branch, Southern Rajasthan. A self-designed, structured, pre-tested, close-ended questionnaire comprising 18 items was administered through e-mail (Google Forms) following informed consent. Of 150 registered obstetricians (23 of whom participated in a prior pilot validation and were excluded from the main study), 90 completed the questionnaire. Data were analysed using SPSS version 20; Pearson's Chi-square test was applied to assess associations, with significance set at $p \leq 0.05$.

Results: Of the 90 respondents, 75 (83.3%) were female and 61 (67.7%) had more than 10 years of clinical experience. Good knowledge, good attitude and good practice were observed in 53 (58.9%), 53 (58.9%) and 69 (76.6%) of obstetricians, respectively. No statistically significant differences in knowledge, attitude or practice were found across age, sex or years of practice ($p > 0.05$ for all comparisons).

Conclusion: Obstetricians in Southern Rajasthan demonstrated satisfactory knowledge and a generally favorable attitude toward maternal oral health, but this awareness was not consistently reflected in routine antenatal practice. Structured interdisciplinary training and clinical guidelines are needed to bridge this gap...

Keywords: Obstetricians; Expectant mothers; Oral health; Knowledge, attitude and practice; Southern Rajasthan..

Introduction

Oral health is an integral component of general health.⁽¹⁾ For many years, the approach to oral disease has been to treat destructive effects and then initiate a preventive program. Contemporary guidelines recommend more emphasis on early professional intervention and primary preventive strategies for oral health, which are essential public health priority.⁽²⁾

Mothers play an important role in child's development; oral health counselling is especially important for the mother. Obstetricians, due to frequent contacts with family, are in an ideal position to provide guidelines for improving oral health care to the mothers^(3,4) Pregnancy is a time when a woman strives to be particularly aware of the need for health. Health information is of much interest to her and her family, and health professionals can more easily motivate her to follow guidelines towards a sound physical health.

Pregnancy is a good stage to instill appropriate oral hygiene practices in expectant mothers. In 1976, Nowak reported that parental exposure in prenatal counselling provides an excellent opportunity, for both parents, to establish their own oral health practice.⁽⁵⁾ There are additional reasons why health professionals should be involved in mothers' education and not leave preventable dental disease to chance. Maternal overt consumption of fluoride can cause dental fluorosis; periodontal disease in mothers can lead to pre-term, low birth weight babies, decay causing bacteria can be transmitted from the mother and the ingestion of tetracycline

antibiotics can cause staining of the developing primary dentition.^(6,7)

Thus by increasing the involvement of obstetricians during pregnancy care visits; they may be able to play an important role in improving the oral health for their patients.^(8,9)

However, it is unclear to what extent these medical professionals are really aware of preventive strategies and to what extent they impart preventive dental counselling as a part of pregnancy visits.

Therefore the present study was designed to assess the knowledge, attitude & practices regarding oral health of expectant mothers among the obstetricians practicing in Southern Rajasthan because it is the attitude and the knowledge of the obstetricians that may enhance or impede the implementation and eventual success of a preventive programme.

AIM AND OBJECTIVES:

Aim: To assess the knowledge, attitude and practices among obstetricians' regarding oral health of expectant mothers of Southern Rajasthan.

Objectives:

To assess the oral health knowledge, attitude and practices of obstetricians of Southern Rajasthan by using self-designed, structured, pre-tested close ended questionnaire.

To assess obstetrician's knowledge, attitude and practices of oral health as a risk factor in expectant mother.

Based on the findings of this survey, recommendations may be given/prescribed to obstetricians to increase their participation in oral health promotion of expectant mothers.

Materials & Methods:

Study design and setting

A descriptive cross-sectional questionnaire-based study was conducted among obstetricians practicing in Southern Rajasthan (comprising Udaipur, Banswara, Dungarpur, Rajsamand, Pratapgarh, Bhilwara and Chittorgarh districts), a region with a population of 12.23 million as per the 2011 Census.¹⁰

Study population and sampling

The study subjects were selected from the National Medical Commission (NMC), Udaipur branch register, which listed 150 obstetricians in Southern Rajasthan; all were eligible for inclusion. Inclusion criteria comprised obstetricians registered with the NMC, Southern Rajasthan. Exclusion criteria comprised obstetricians unwilling to participate, those who did not return the questionnaire despite repeated reminders, and those who had already participated in the pilot study.

Questionnaire development and pilot study

Questionnaire Items (Domain-wise)

S.No.	Questionnaire Item
1	How many times do you ask your patient to brush?
2	Do you advice your patients to use fluoridated tooth paste?
3	Do you think dental reference is important for your patients?
4	Do you refer your patients to Dentist?
5	Which dental problem you know more commonly?
6	Do you feel that examination of Oral cavity should be integral part of maternal health care?
7	Do you check oral cavity of expectant mothers?
8	Can certain drug create any type of oral side effects in foetus when taken during pregnancy?
9	Do any changes in dental health occur during pregnancy?
10	Do you feel that dental problems do not require immediate attention during pregnancy?
11	Do you advice major/minor surgery during pregnancy?
12	Which is the safest period in pregnancy to undergo dental procedure?
13	Do you think updating yourself with latest technology related to dentistry will benefit your practice?

S.No.	Questionnaire Item
14	Do you think attending conference on oral health is useful?
15	Do you advice diet counselling to your patient?
16	Do you advice patient to quit tobacco/alcohol?
17	Can Gum disease in the mother can affect the birth weight of child?
18	Do you think that patient's attitude towards dental care is related to maternal health?

A self-designed, structured, close-ended questionnaire of 18 items was developed, covering oral-health knowledge (items 5, 8, 9, 12, 17), attitude (items 3, 6, 10, 13, 14, 18) and practice (items 1, 2, 4, 7, 11, 15, 16) relating to oral health of expectant mothers. The questionnaire was pilot-tested on 23 gynaecologists (15% of the sampling frame) to assess feasibility, content and construct validity, and test-retest reliability (agreement = 0.89); no significant changes were required. Participants of the pilot study were excluded from the main study to prevent bias.

Data collection

The finalized questionnaire, together with an information sheet and informed-consent form, was administered as a Google Form and circulated by e-mail by the principal investigator over a one-month period (February 2025). Non-respondents were sent reminders weekly for three weeks. Participation was voluntary, and participants could withdraw at any point without providing a reason.

Ethical considerations

Ethical approval was obtained from the Institutional Ethics Committee, Sai Tirupati University, Udaipur, Rajasthan (Approval No. STU/IEC/2024/305, dated 02.04.2024). Written informed consent was obtained from all participants prior to enrolment, and confidentiality of responses was maintained throughout.

Statistical analysis

Data were exported from Google Forms to Microsoft Excel and analysed using SPSS software (version 20). Descriptive statistics (frequencies and percentages) were computed for all variables, and Pearson's Chi-square test was used to assess associations between KAP scores and demographic variables (age, sex, years of practice). A p-value ≤ 0.05 was considered statistically significant.

Results:

Of the 127 obstetricians eligible after exclusion of pilot-study participants, 90 completed and returned the questionnaire, giving a response rate of 70.9%.

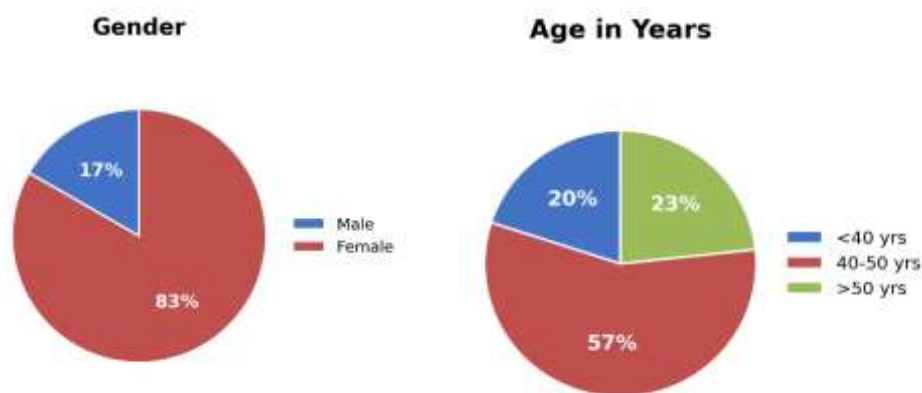


Fig. 1 distribution of obstetricians by gender.

Fig.2 distribution of obstetricians by age.

Figure 1 illustrates that out of 90 obstetricians, 15 (16.7%) obstetricians were male & 75 (83.3%) obstetricians were female. Figure 2 shows that out of the total 90 obstetricians, 18 (20.0%) were below 40 years of age, 51 (56.7%) were between 40-50 years and 21 (23.3%) were more than 50 years.

Years in Practice

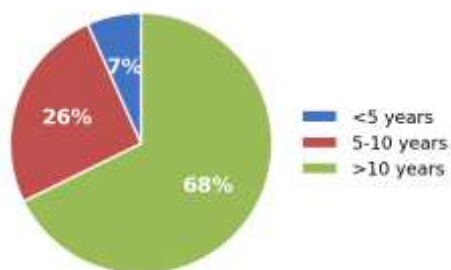


Fig.3 distribution of obstetricians by years of practice.

Figure 3 illustrates that 6 (6.7%) obstetricians were having experience less than 5 years, 23 (25.6%) were having experience between 5 to 10 years and 61 (67.7%) were having more than 10 years of experience. Further, the results of the questions asked are shown in Table 1.

Table 1: Distribution of obstetricians' responses (Yes/Always) to the questionnaire items.

Question	Response n (%)
Do you advise your patients to use fluoridated tooth paste?	38 (42.2%)
Do you think dental reference is important for your patients?	22 (24.4%)
Do you refer your patients to Dentist?	43 (47.8%)
Do you feel examination of Oral cavity should be integral part of maternal health care?	38 (42.2%)
Do you check oral cavity of expectant mothers?	57 (63.4%)
Can certain drugs create oral side effects in foetus when taken during pregnancy?	76 (84.4%)
Do any changes in dental health occur during pregnancy?	33 (36.7%)
Do you advise major/minor surgery during pregnancy?	17 (18.9%)
Do you think updating yourself with latest technology related to dentistry will benefit your practice?	72 (80.0%)
Do you think attending conference on oral health is useful?	75 (83.3%)
Do you advise diet counselling to your patient?	65 (72.2%)
Do you advise patient to quit tobacco/alcohol?	78 (86.6%)
Can Gum disease in the mother affect the birth weight of child?	79 (87.8%)
Do you think that patient's attitude towards dental care is related to maternal health?	62 (68.9%)

The result also shows that there is no significant difference between knowledge, attitude and practice with obstetricians' years of experience, age or gender ($P > 0.05$ for all comparisons).

Discussion:

Neglect of dental health during pregnancy remains common, in part due to nausea, physical discomfort, sensitivity related to pregnancy gingivitis, and misplaced fears about the safety of dental treatment during pregnancy. Many women, and at times their treating physicians, remain unaware of the link between oral health, systemic health and fetal outcomes. Very few studies have examined the oral-health awareness of obstetricians specifically, and little is known about the extent to which they participate in prevention and assessment during antenatal care.

In the present study, obstetricians generally demonstrated good knowledge, attitude and practice regarding maternal oral health, and the majority provided diet counselling to patients, consistent with the findings of Popli et al.⁵

Awareness of the adverse effects of periodontal disease (87.8%) did not coincide with the corresponding findings of Popli et al., although awareness regarding the effects of medications used during pregnancy was comparable.⁵ Similarly, 42.2% of obstetricians in the present study recommended fluoridated toothpaste and 63.3% advised twice-daily brushing, closely matching the findings of Popli et al.⁵

Karkera et al. reported that only 8% of gynaecologists discussed oral health during pregnancy with their patients, whereas 47.8% of obstetricians in the present study always referred patients to a dentist — a considerably higher rate.¹¹ Similarly, while only 45% of gynaecologists in that study agreed that periodontal disease may lead to pre-term, low-birth-weight delivery, 87.8% of obstetricians in the present study were aware of this association.¹¹

In contrast to the present study, in which 78.9% of obstetricians did not support major/minor surgery during pregnancy, Paneer et al.¹² reported that 60% of gynaecologists advised such surgery — a notable difference.

Patil et al.¹³ reported that 85.7% of gynaecologists never examined the oral cavity during routine check-ups, whereas only 22.2% of obstetricians in the present study reported never doing so, suggesting comparatively better clinical practice in the present cohort.

Despite generally adequate knowledge, notable misconceptions persisted: more than half of the obstetricians (54.4%) disagreed that dental-health changes occur during pregnancy, and 53.3% believed dental problems do not require immediate attention during pregnancy. These findings point to a gap between general awareness and clinical understanding of pregnancy-related oral changes such as pregnancy gingivitis, increased caries risk and enamel erosion, a gap also reported by Karkera et al.¹¹ and Morgan et al.¹⁴

Obstetricians aged 40–50 years demonstrated relatively better knowledge, possibly reflecting a combination of current training and clinical experience, while good knowledge was similarly observed among those with 5–10 years of practice; no meaningful difference by gender was evident. Obstetricians above 50 years of age showed a comparatively better attitude, possibly owing to greater exposure to varied clinical scenarios over their career.

Overall, the findings suggest that obstetricians in Southern Rajasthan understand the importance of maternal oral health and believe they have a role to play in its promotion, with considerable interest in continuing education on the subject. Strengthening obstetrician involvement in oral-health promotion during antenatal counselling could meaningfully improve maternal dental health, particularly in semi-urban and rural populations where access to dental care is limited — although obstetricians can never substitute for the care provided by dental professionals. These findings support the need for active participation of allied medical specialists, particularly obstetricians and paediatricians, in continuing dental-education programmes, along with incorporation of oral-health modules into obstetric training curricula, development of standardised clinical guidelines, and strengthened interdisciplinary collaboration between medical and dental professionals to improve maternal and fetal outcomes.

Conclusion:

Obstetricians in Southern Rajasthan demonstrated satisfactory knowledge and a generally favorable attitude toward oral health of expectant mothers, with awareness of the association between periodontal disease and adverse pregnancy outcomes such as low birth weight. However, this awareness was not consistently translated into routine antenatal practice: a considerable proportion did not consider oral-cavity examination integral to routine antenatal care, and misconceptions persisted regarding the safety and urgency of dental treatment during pregnancy. Practices such as diet counselling and tobacco/alcohol-cessation advice were relatively satisfactory, but routine dental referral and oral screening during antenatal visits remained suboptimal.

The absence of statistically significant differences in knowledge, attitude and practice by age, gender or years of experience suggests that the identified gaps are systemic rather than individual, underscoring the need for institutional and policy-level interventions. Incorporating oral-health education into obstetric training, promoting interdisciplinary continuing education, and developing clear clinical guidelines could help bridge these gaps and, in turn, improve maternal and child oral-health outcomes as part of comprehensive antenatal care..

References

1. Anunciacao BH, Azevedo MJ, Pereira MdL. Knowledge, attitudes, and practices of prenatal care practitioners regarding oral health in pregnancy—A systematic review. *Int J Gynecol Obstet.* 2023;162:449-461.
2. Bhandari N, Chacko LK, Shenoy RP, Kalladka PK. Pregnant Mothers Knowledge, Attitude, and Practice Toward Oral Health: A Cross-Sectional Study. *J Int Oral Health.* 2023;17(4):332-339.
3. Singh D, Prakash B. Oral Hygiene Knowledge and Practices among Rural and Urban Pregnant Women Attending Obstetrics and Gynecology Department in a Tertiary Care Hospital of Ajmer, Rajasthan, India. *J Indian Assoc Public Health Dent.* 2023;21(2):162-167.
4. Muhammad-Safwan NAS, Abdul-Mumin KH, Abdul Rahman H, et al. Knowledge, attitudes, and practices of healthcare professionals on oral care of pregnant women in Brunei Darussalam. *British dental journal.* 2023;9:35.
5. Popli HP, Kumar VD, Khatib MS, et al. Knowledge, Attitude and Practices among gynaecologists regarding Oral Health of Expectant Mothers of South Bengaluru, Karnataka. *Int J Clin Pediatr Dent.* 2022;15(1):85-89.
6. Javali MA, Saquib SA, Khader MA, Khalid I, AlShahrani AY, Kanji MA, Asiri E. Oral health knowledge, attitude, and practice of pregnant women in Deccan, South India: a cross-sectional prenatal survey. *J Med Life.* 2022;15(3):420.
7. Chawłowska E, Karasiewicz M, Lipiak A, et al. Oral health behaviours, knowledge, and literacy of expectant mothers: a cross-sectional study among maternity ward patients. *Int J Environ Res Public Health.* 2022;19(18):11762.
8. Lyu J, Zhang X, Nie X, Wei L, He H. A cross-sectional study of the knowledge, attitudes, and behaviours of obstetricians, gynaecologists, and dentists regarding oral health care during pregnancy. *Ann Palliat Med.* 2021;10(4):4242-4251.
9. Saldanha S, et al. Evaluation of knowledge, attitude, and practices of gynecologists regarding oral health of pregnant women in Mangalore, Karnataka. *J Indian Soc Periodontol.* 2021;25(3):246-251.
10. Census 2011. Districts of Rajasthan. Available from: <https://www.census2011.co.in/census/state/districtlist/rajasthan.html>
11. Karkera NK, Guttal KS, Burde KN, Nandimath K. Awareness, attitude, and practices toward maintenance of oral health among pregnant women and oral health awareness and attitude among gynaecologists in Hubli and Dharwad. *J Adv Clin Res Insights.* 2019;6:100-105.
12. Paneer S, Muthusamy N, Manickavel RP, Venkatakrishnan CJ, Rathnavelu P, Jayaram M. Evaluation of gynaecologists' awareness about oral health condition during pregnancy in Chennai city. *J Pharm Bioallied Sci.* 2019;11:S3314.
13. Patil S, Thakur R, Madhu K, Paul ST, Gadicherla P. Oral Health Coalition: Knowledge, Attitude, Practice Behaviours among Gynaecologists and Dental Practitioners. *J Int Oral Health.* 2013;5(1):8-15.
14. Morgan MA, Crall J, Goldenberg RL, Schulkin J. Oral health during pregnancy. *J Matern Fetal Neonatal Med.* 2009;22:733-739..