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CLINICAL RESEARCH:

Clinical Knowledge of Final-Year Dental Students Regarding the Dental Management of Pregnant Women: A Cross-Sectional Study in Public Universities of São Paulo, Brazil

Conocimientos clínicos de estudiantes de odontología del último año sobre el manejo odontológico de mujeres embarazadas: Un estudio transversal en universidades públicas de São Paulo, Brasil

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ABSTRACT: This study aimed to evaluate the clinical knowledge of final-year dental students from public universities in the state of São Paulo regarding the management of pregnant women in dental care. An observational, cross-sectional study was conducted with 63 final-year dental students from six public universities. A structured and self-administered questionnaire assessed sociodemographic variables, aspects of undergraduate training, and specific domains of clinical knowledge related to pregnancy management in dentistry (timing of procedures, anesthetic use, radiographic safety, medication prescription, and preventive care). Data were analyzed in JAMOVI using Fisher's exact test (α=0.05). Overall, students demonstrated intermediate to satisfactory levels of clinical knowledge. Most participants correctly recognized the importance of oral health during pregnancy (60.3%), identified the second trimester as the safest period for most procedures (47.6%), and selected lidocaine as the anesthetic of choice (82.5%). Furthermore, 60.3% indicated awareness of appropriate radiographic protection protocols, and 79.3% reported that fluoride use is safe during pregnancy. A statistically significant association ($p<0.05$) was found between knowledge of fluoride use and course duration, with higher accuracy among students enrolled in five-year programs. The findings indicate that final-year dental students from public universities in São Paulo possess a reasonable level of clinical knowledge regarding dental care for pregnant women, particularly concerning anesthesia, radioprotection, and preventive measures. Nonetheless, gaps persist in understanding the optimal timing of procedures and biological aspects related to oral health during pregnancy, underscoring the need for curricular reinforcement in these areas.

KEYWORDS: Knowledge; Oral health; Students; Pregnant women.

RESUMEN: Este estudio tuvo como objetivo evaluar el conocimiento clínico de los estudiantes de Odontología del último año de universidades públicas del estado de São Paulo respecto al manejo de mujeres embarazadas en la atención odontológica. Se llevó a cabo un estudio observacional y transversal con 63 estudiantes del último año provenientes de seis universidades públicas. Un cuestionario estructurado y autoadministrado evaluó variables sociodemográficas, aspectos de la formación de pregrado y dominios específicos del conocimiento clínico relacionados con el manejo odontológico durante el embarazo (momento adecuado para los procedimientos, uso de anestésicos, seguridad radiográfica, prescripción de medicamentos y cuidados preventivos). Los datos fueron analizados en JAMOVI utilizando la prueba exacta de Fisher (α=0,05). En general, los estudiantes demostraron niveles de conocimiento clínico entre intermedios y satisfactorios. La mayoría reconoció correctamente la importancia de la salud bucal durante el embarazo (60,3%), identificó el segundo trimestre como el período más seguro para la mayoría de los procedimientos (47,6%) y seleccionó la lidocaína como el anestésico de elección (82,5%). Además, el 60,3% indicó conocer los protocolos adecuados de protección radiográfica y el 79,3% informó que el uso de flúor es seguro durante el embarazo. Se identificó una asociación estadísticamente significativa ($p<0,05$) entre el conocimiento sobre el uso del flúor y la duración del curso, con mayor precisión entre los estudiantes matriculados en programas de cinco años. Los hallazgos indican que los estudiantes del último año de Odontología de universidades públicas de São Paulo poseen un nivel razonable de conocimiento clínico respecto a la atención odontológica de mujeres embarazadas, especialmente en relación con anestesia, radioprotección y medidas preventivas. No obstante, persisten lagunas en la comprensión del momento óptimo para realizar procedimientos y de los aspectos biológicos relacionados con la salud bucal durante el embarazo.

PALABRAS CLAVE: Conocimiento; Salud bucal; Estudiantes; Mujeres embarazadas.

INTRODUCION

Oral health is inseparably integrated with general health, and within the context of the Brazilian Unified Health System, the prevention and treatment of oral diseases are central guidelines (1), including the active search for pregnant women (2,3). Studying dental care during pregnancy is strategic, as there is evidence linking maternal periodontal disease to adverse outcomes such as preterm birth and low birth weight (4-8). In addition, pregnant women face physical, biological, and hormonal changes that may favor caries and gingivitis, as well as hypersalivation and nausea, requiring qualified guidance and timely follow-up (9-11).

In practice, barriers still persist. Some professionals postpone interventions due to concerns about radiographs and anesthetics, or uncertainty about which procedures should be performed (12-14). This scenario coexists with widespread beliefs, shared both among professionals and pregnant women (15-17). The insecurity of dentists has been attributed to training gaps during undergraduate education, which reinforces the need for curricula that prepare professionals to act as health promoters based on evidence (18).

From the perspective of pregnant women, the main priority is the baby's health; therefore, oral health care should begin during pregnancy and extend into the postpartum period, since

well-informed mothers are more likely to raise children with better oral health habits and conditions (19-21). At the academic level, studies conducted in Brazil and other countries report persistent myths among dental students - such as the contraindication of anesthesia, radiographs, or dental treatment during pregnancy - indicating gaps in knowledge and insufficient clinical exposure during training (22-26). These findings reveal a pattern of inconsistent knowledge that may compromise professional confidence and the quality of maternal care.

Clinical management should follow widely established safety principles. Radiographs should be avoided during organogenesis (4th-5th weeks) and, when indispensable, must be performed with a lead apron and proper technique (25,26). Medications should only be prescribed when necessary, with pharmacological knowledge to minimize fetal risks. Regarding local anesthesia, mastery of the solutions is essential; lidocaine shows the best safety profile during pregnancy (27,28).

As for the timing of care, procedures can be performed in all three trimesters, although the second trimester is the most recommended for the majority of interventions; in the first trimester, there is greater risk of intercurrences, and in the third trimester, it is important to manage chairside discomfort (postural adjustments, shorter sessions, avoiding mornings due to nausea/hypoglycemia) (29). Conservative, periodontal, endodontic, and simple extraction treatments are feasible and safe when clinically indicated (30).

Despite the availability of scientific evidence, studies have shown variability in students' knowledge across different years or curricula, but few have analyzed how course duration and curricular exposure influence clinical understanding. This gap justifies investigating whether longer training programs are associated with better assimilation of evidence-based practices related to pregnancy care.

Therefore, this study sought to answer the following research question:

What is the level of clinical knowledge among final-year dental students from public universities in São Paulo regarding the management of pregnant women in dental care, and does this knowledge vary according to course duration?

Given this scenario, it becomes crucial to understand how future dentists are being prepared to care for pregnant women-not only to demystify misconceptions but also to consolidate evidence-based practices, strengthen health education, and reduce maternal and infant risks. Thus, this study investigated the knowledge of final-year dental students from public universities in the state of São Paulo regarding dental care during pregnancy, providing input for curricular and organizational improvements.

MATERIAL AND METHODS

This observational, cross-sectional study was conducted with final-year undergraduate dental students enrolled in public universities in the state of São Paulo, Brazil. Participation was voluntary and conditioned on signing the Informed Consent Form (ICF), previously approved by the Research Ethics Committee of the coordinating institution (CAAE 69820123.3.0000.5416).

POPULATION AND ELIGIBILITY CRITERIA

The study population consisted of students regularly enrolled in the final year of Dentistry programs at seven public dental schools in São Paulo.

Inclusion criteria: students aged 18 years or older, currently in their last year of study, and who provided informed consent.

Exclusion criteria: students under 18 years of age, those not enrolled in the final year, or who did not agree to participate.

INSTRUMENT

Data were collected using a structured and self-administered questionnaire developed by the main researcher based on the validated instrument by Elias *et al*. (31) and supplemented with items from the literature on dental management during pregnancy.

The final instrument comprised 32 items, organized into four thematic domains:

1. Radioprotection (6 items) – knowledge of radiographic safety and protective measures;

2. Anesthesia and Pharmacology (8 items) – choice of anesthetic agents, medication safety, and pharmacological contraindications;

3. Clinical Management and Timing of Care (10 items) – recommended gestational periods, chair positioning, and procedures considered safe;

4. Prevention and Health Education (8 items) – guidance on fluoride, bacterial transmission, and maternal oral health education.

The questionnaire also included five sociodemographic questions (age, gender, institution, course duration, and previous clinical experience with pregnant women).

Responses were structured as multiple-choice questions and Likert-type items (ranging from "strongly disagree" to "strongly agree"), depending on the variable assessed. The estimated completion time was approximately 10-15 minutes.

VALIDATION AND RELIABILITY

A pilot test was conducted with 17 final-year students from one of the participating institutions to assess the clarity, comprehension, and applicability of the instrument. Based on participant feedback, redundant items and ambiguous wording were removed.

The refined version underwent content validation by a panel of three specialists in collective health and dental education, who evaluated relevance, clarity, and adequacy of each item. The Content Validity Index (CVI) of the final instrument was 0.89, indicating satisfactory agreement among judges.

Internal consistency was assessed using Cronbach's alpha coefficient, resulting in an overall value of 0.82, demonstrating good reliability for the set of knowledge-related items.

VARIABLES

Dependent variable: level of clinical knowledge about dental care for pregnant women, obtained from the total number of correct responses and categorized as low (≤50%), moderate (51-75%), or high (>75%).

Independent variables: sociodemographic and academic factors including age, gender, institution, and course duration (four or five years).

The theoretical rationale for analyzing course duration is based on prior evidence suggesting that longer curricula may provide broader exposure to maternal oral health topics, potentially influencing knowledge acquisition.

DATA COLLECTION PROCEDURES

After the pilot phase, the final questionnaire was distributed via Google Forms to students from the six remaining dental schools. Institutional authorization was obtained from each academic department, and invitations were disseminated via official email lists and class WhatsApp groups to maximize participation. Data collection was conducted over an eight-month period (April-November 2023).

SAMPLE SIZE AND STATISTICAL ANALYSIS

Given the exploratory nature of the study and the limited universe of final-year students across participating universities, a non-probabilistic convenience sampling approach was adopted. Although no formal power calculation was performed, the achieved sample (n=63) represents approximately 15-20% of the estimated eligible population.

Data were tabulated in Microsoft Excel® and analyzed using JAMOVI (version 2.4). Descriptive statistics were used to summarize frequencies and proportions. Associations between categorical variables were examined using Fisher's exact test, with a significance level of α=0.05 (95% confidence interval).

RESULTS

SAMPLE PROFILE

A total of 63 final-year dental students from six public universities in São Paulo participated in the study. Of these, 52 (82.5%) were female and 11 (17.5%) male, with a mean age of 23.4 years (SD=1.2; range 22-26). The vast majority were enrolled in five-year programs (n=56; 88.9%), while seven students (11.1%) were from four-year curricula.

Regarding institutional distribution, 30.5% of participants were from the Piracicaba School of Dentistry (UNICAMP), 30.2% from the Araraquara School of Dentistry (UNESP), 11.1% each from the Bauru and Ribeirão Preto Schools of Dentistry (USP), 9.7% from Araçatuba (UNESP), and 7.4% from São José dos Campos (UNESP). No respondents were obtained from the São Paulo School of Dentistry (USP).

OVERALL KNOWLEDGE LEVEL

The overall clinical knowledge score ranged from 41.0% to 89.7%, with a mean of 67.3% (SD=12.1; 95% CI: 63.1-71.5), indicating a moderate level of knowledge across the sample.

When categorized, 22.2% of students presented low knowledge (≤50%), *55.6% moderate (51-75%), and *22.2% high (>75%).

Students in five-year programs showed significantly higher average knowledge scores (68.1%, SD=11.4) than those in four-year programs (61.7%, SD=9.2; p=0.032, Fisher's exact test). No gender-based differences were identified (p=0.411).

DOMAIN-SPECIFIC ANALYSIS

The instrument evaluated four thematic domains: (1) radioprotection, (2) anesthesia and pharmacology, (3) clinical management and timing of care, and (4) prevention and health education. Performance varied considerably between domains.

1. RADIOPROTECTION

Knowledge in this domain was moderate (mean 61.5%, 95% CI: 57.1-65.9).

While 60.3% correctly recognized that radiographs can be performed during pregnancy with proper protection, 77.8% still believed such exposure could cause harm. Only 23.8% confidently indicated the correct combination of lead apron, thyroid shield, and high-speed film. This suggests a conceptual inconsistency between theoretical understanding and practical confidence.

2. ANESTHESIA AND PHARMACOLOGY

This was the strongest domain (mean 78.2%, 95% CI: 74.3-82.1).

A total of 82.5% identified 2% lidocaine with epinephrine (1:100,000) as the safest anesthetic, consistent with current clinical guidelines. Additionally, 68.3% selected amoxicillin and 63.5% paracetamol as appropriate drugs for prescription. Only 4.8% considered metronidazole and 6.3% acetylsalicylic acid safe, while none indicated tetracycline, reflecting good pharmacological discernment.

Despite this, 23.8% incorrectly believed all local anesthetics were potentially harmful, showing partial misconceptions about dosage and fetal safety.

3. CLINICAL MANAGEMENT AND TIMING OF CARE

Knowledge in this domain was the lowest (mean 58.7%, 95% CI: 54.0-63.4).

Although 47.6% correctly indicated the second trimester as the most appropriate for most dental procedures, 38.1% incorrectly stated that treatment could occur “at any time.”

When asked about procedures considered safe, high accuracy was found for restorations (90.5%), dental polishing (85.7%), and fluoride application (81.0%), whereas fewer correctly identified extractions (49.2%) and endodontic treatments (63.5%) as permissible. These data suggest that students are familiar with preventive care but remain uncertain regarding invasive clinical procedures.

4. PREVENTION AND HEALTH EDUCATION

The domain achieved a mean of 72.4% (95% CI: 68.6-76.2).

Most students (96.8%) rejected the myth that “tooth loss is normal during pregnancy,” and 79.3% affirmed that fluoride can be safely used. However, only 71.4% acknowledged vertical transmission of cariogenic bacteria from mother to child, and 9.5% were unaware of this relationship, showing gaps in microbiological unders-

tanding. Associations Between Knowledge and Academic Variables

Table 1 summarizes comparisons by program duration and gender.

A statistically significant association was found between course duration and fluoride-related knowledge (p=0.032), with students from five-year programs (94%) demonstrating higher accuracy than those from four-year programs (6%).

No statistically significant differences were observed in knowledge levels by gender (p = 0.411) or in relation to having previously treated pregnant patients (p=0.287).

Table 1. Comparison of overall clinical knowledge scores by gender and program duration.

Variable	n (%)	Mean Score (%)	95% CI	p-value
Gender				
Female	52 (82.5)	67.9	63.8-72.0	0.411
Male	11 (17.5)	65.4	59.3-71.5	
Program duration				
Four-year	7 (11.1)	61.7	54.2-69.1	0.032*
Five-year	56 (88.9)	68.1	64.1-72.2	

*Significant at p<0.05.

OVERALL INTERPRETATION

The findings reveal that final-year dental students from São Paulo's public universities possess moderate yet uneven clinical knowledge regarding dental care for pregnant women. Competence is stronger in pharmacological safety and preventive guidance, while radioprotection and timing of care remain the weakest domains.

The duration of academic training appears to positively influence knowledge acquisition, suggesting that curricular extension and exposure to clinical disciplines may enhance professional readiness.

These results highlight the importance of strengthening maternal oral health content in undergraduate curricula and promoting evidence-based clinical training to reduce uncertainty and misconceptions related to dental care during pregnancy.

DISCUSSION

METHODOLOGICAL CONSIDERATIONS AND LIMITATIONS

The use of an online, self-administered questionnaire enabled participation from multiple institutions, facilitating rapid data collection and cost efficiency. However, the online modality has intrinsic limitations that merit consideration. The response rate was relatively low despite repeated invitations, which is consistent with the findings of Vieira *et al*. (32), who observed that remote surveys often suffer from low participant engagement due to their impersonal nature and the absence of direct researcher-participant interaction.

The sample size (n=63), although sufficient for exploratory purposes, restricts external validity and statistical power. Moreover, the self-reported nature of the data may have introduced social desirability bias, as students could have overestimated their knowledge. The instrument, although based on validated models such as Elias *et al*. (31), was primarily descriptive and relied on objective items, which may limit deeper assessment of reasoning processes or clinical judgment.

Another relevant limitation concerns selection bias, since participation was voluntary and likely attracted students more interested in preventive and public health topics. Nevertheless, this multi-institutional approach provided valuable insights into the curricular performance of public

dental schools in São Paulo, offering a foundation for future longitudinal research.

RADIOPROTECTION

Although most students acknowledged that radiographic procedures can be safely performed during pregnancy with adequate protection, nearly 78% still perceived exposure as inherently risky. This inconsistency reflects persistent misconceptions regarding radiological safety and fetal risk, which remain common even among practicing professionals (25-28,33,34).

This ambivalence suggests that, while theoretical content on radiological protection is taught, it may not be adequately integrated into clinical reasoning or contextualized within obstetric care. Elias *et al*. (31) similarly observed that dental students often lack confidence when applying radiological safety principles to special populations. Additionally, Kelaranta *et al*. (27) demonstrated that fetal exposure during dental radiography is negligible when protective measures such as lead aprons and collimation are applied, reinforcing the safety of evidence-based practices.

These results highlight the need for interdisciplinary teaching strategies linking dental radiology, embryology, and maternal health. The incorporation of simulation-based training and case-based discussions can strengthen conceptual understanding and confidence in clinical decision-making.

ANESTHESIA AND PHARMACOLOGY

Students demonstrated robust knowledge of pharmacology and anesthetic safety, with 82.5% correctly identifying 2% lidocaine with epinephrine (1:100,000) as the anesthetic of choice-consistent with the recommendations of Andrade (35) and Vasconcelos *et al*. (36). This suggests that pharmacological instruction in dental curricula has effectively disseminated safe practices for pregnant patients, as also noted in similar studies (23,24).

However, nearly one-quarter of respondents expressed uncertainty regarding the fetal safety of anesthetic solutions, a misconception also reported by Pina and Douglass (12), Wali *et al*. (13), and Ahmed *et al*. (14), who found that both students and practitioners tend to overestimate teratogenic risks. Such insecurity reflects limited exposure to applied pharmacology and obstetric clinical contexts during undergraduate training.

To address these gaps, universities should reinforce contextualized pharmacological education, emphasizing maternal physiology, drug metabolism, and risk-benefit reasoning. Interprofessional discussions involving medical and nursing students, as recommended by the World Health Organization, could also enhance pharmacotherapeutic competence through collaborative learning.

FLUORIDE USE AND PREVENTIVE MEASURES

Knowledge regarding fluoride use during pregnancy was generally satisfactory, with 79.3% affirming its safety and preventive value. However, this domain showed a statistically significant association with program duration ($p=0.032$), as students from five-year programs demonstrated higher understanding than those from four-year programs.

This disparity may be attributed to greater curricular exposure to preventive and public health modules, often linked to the Family Health Strategy (ESF) and Primary Care training components (3,21,23,24). Similar findings were reported by García-Pola *et al*. (39) and Souza *et al*. (40), who noted that extended community-based programs foster more comprehensive conceptual and procedural knowledge regarding fluoride use.

Despite these encouraging outcomes, a minority of students still perceived fluoride as potentially harmful. This belief may stem from persistent public myths and misinformation surrounding water fluoridation policies, as discussed by Narvai (2020) and Codato *et al*. (15). Reinforcing critical thinking and scientific literacy in preventive dentistry courses could help dismantle misconceptions and strengthen adherence to evidence-based practices.

CLINICAL MANAGEMENT AND TIMING OF CARE

The lowest knowledge levels were observed in the domain of clinical management and procedural timing. Only 47.6% of students correctly identified the second trimester as the safest period for dental care, while 38.1% believed that treatment could occur at any time. Similar findings were described by Miguel *et al*. (19) and de Araújo Souza *et al*. (20), who highlighted gaps in dental students' understanding of gestational physiology and patient management.

Such conceptual fragility reflects a fragmented curricular structure, where obstetrics, pharmacology, and dental care are often taught independently.

Additionally, ergonomic and psychological aspects deserve emphasis. Kurien *et al*. (37) and Naseem *et al*. (30) advocate for shorter clinical sessions, adjusted patient positioning, and empathetic communication to minimize discomfort and anxiety. Introducing case-based seminars and practical workshops could reinforce confidence and bridge the gap between theory and practice.

CURRICULAR IMPLICATIONS

The significant difference observed between four- and five-year programs ($p<0.05$) warrants pedagogical interpretation. In Brazil, five-year curricula typically allocate more time to clinical practice, public health, and community integration, as recommended by the National Curriculum Guidelines (Diretrizes Curriculares Nacionais, 2021).

This longer duration allows for repeated reinforcement of key concepts and encourages vertical integration of theory and practice. In contrast, four-year programs, though efficient in theoretical instruction, may lack sufficient clinical immersion necessary to develop competence in maternal oral healthcare.

From a competency-based education perspective, these results highlight the importance of aligning curricula with longitudinal learning outcomes that combine clinical expertise, critical reasoning, and social accountability. Expanding modules on maternal and child oral health, risk communication, and evidence-based clinical management could further prepare students for comprehensive and humanized care.

LIMITATIONS AND FUTURE RESEARCH

This study presents certain limitations. The small sample size and cross-sectional design limit generalizability and prevent causal inference. The absence of students from private institutions restricts the scope of curricular comparison. Although the instrument demonstrated adequate internal consistency ($\alpha=0.82$), it was self-reported, which may introduce response bias.

Future research should employ mixed-method designs, combining quantitative assessments with qualitative interviews to explore decision-making processes, attitudes, and perceptions regarding dental care for pregnant women. Longitudinal studies could also track knowledge acquisition

and retention throughout undergraduate training, offering deeper insights into curricular effectiveness and professional readiness.

SYNTHESIS AND EDUCATIONAL IMPLICATIONS

In summary, final-year dental students from public universities in São Paulo exhibit moderate but uneven clinical knowledge concerning the dental management of pregnant women. Strengths were identified in pharmacology and preventive domains, while radioprotection and clinical management remain weaker areas.

The observed association between program duration and knowledge acquisition underscores the importance of extended, integrated, and experiential learning. These findings support the advancement of interdisciplinary, simulation-based, and evidence-driven curricula to ensure that future dental professionals are both clinically competent and socially responsible.

This perspective aligns with global movements for educational reform toward interprofessional collaboration, patient-centered care, and lifelong learning.. Strengthening maternal oral healthcare education contributes not only to professional qualification but also to improving public health outcomes and promoting equity in care.

CONCLUSION

This cross-sectional study revealed that final-year dental students from public universities in São Paulo demonstrated moderate but uneven clinical knowledge regarding the dental management of pregnant women. The most consistent results were observed in domains such as pharmacology and preventive care, while gaps persisted in areas like radioprotection and clinical management during pregnancy.

Although many students reported confidence in treating pregnant patients, the findings indicate that such perceptions may not fully correspond to the measured knowledge levels. Therefore, the results should be interpreted cautiously and within the limits of the study's design and scope.

The main limitations include the small sample size, cross-sectional design, and self-reported nature of responses, which may limit generalizability and introduce response bias. Future research involving larger and more diverse samples and mixed-method approaches could provide deeper insights into how curricular exposure influences competence development.

From a practical perspective, the findings reinforce the need to strengthen curricular integra-

tion of maternal oral health within dental education. Incorporating simulation-based learning, interdisciplinary teaching, and early exposure to prenatal care scenarios may enhance both conceptual understanding and clinical confidence. Additionally, expanding discussions on radiological safety, pharmacological management, and evidence-based preventive practices can further improve undergraduate training and prepare future dentists to deliver safe, comprehensive, and humanized care to pregnant patients.

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REFERENCES

1. de Farias Morais H.G., de Barros J.M., da Silva W.R., dos Santos A.A., Galvão M.H.R. Saúde bucal no Brasil: uma revisão integrativa do período de 1950 a 2019. Rev Baiana Saúde Pública. 2020; 44 (1): 181-196. doi: 10.22278/2318-2660.2020.v44.n1.a3177
2. Brasil. Ministério da Saúde. Saúde bucal. Brasília (DF): Ministério da Saúde; 2008. (Caderno de Atenção Básica n° 17).
3. Gonçalves K.F., Giordani J.M.D.A., Bidinotto A.B., Ferla A.A., Martins A.B., Hilgert J.B. Utilização de serviço de saúde bucal no pré-natal na atenção primária à saúde: dados do PMAQ-AB. Ciênc Saúde Colet. 2020; 25 (2): 519-532. doi: 10.1590/1413-81232020252.05342018
4. Sanz M., Kornman K.; Working Group 3 of the Joint EFP/AAP Workshop. Periodontitis and adverse pregnancy outcomes: consensus report of the Joint EFP/AAP Workshop on Periodontitis and Systemic Diseases. J Periodontol. 2013; 84 (Suppl): S164-S169. doi: 10.1902/jop.2013.1340016
5. Favero V., Bacci C., Volpato A., Bandiera M., Favero L., Zanette G. Pregnancy and dentistry: a literature review on risk management during dental surgical procedures. Dent J (Basel). 2021 Apr 19; 9 (4): 46. doi: 10.3390/dj9040046
6. Gallagher-Cobos G., Almerich-Torres T., Montiel-Company J.M., Iranzo-Cortés J.E., Bellot-Arcís C., Ortolá-Siscar J.C., Almerich-Silla J.M. Relationship between periodontal condition of the pregnant woman with preterm birth and low birth weight. J Clin Med. 2022; 11 (22): 6857. doi: 10.3390/jcm11226857
7. Montoya-Carralero J.M., Ávila-Villasmil R., Sánchez-Pérez A., Jornet-García A., Terrer-Alonso E., Moya-Villaescusa M.J. Relationship between periodontal disease and preterm birth: a systematic review and meta-analysis. Med Oral Patol Oral Cir Bucal. 2024 Nov 1; 29 (6): e857-e865. doi: 10.4317/medoral.26830
8. Medeiros U.V., Zevallos E.F.P., Rosiangela K. Promoção da saúde bucal da gestante: garantia de sucesso no futuro. Rev Cient CRO-RJ. 2000; 2: 47-57.
9. Rosell F.L., de Oliveira A.L.B.M., Tagliaferro E.P.S., Silva S.R.C., Júnior A.V. Impacto dos problemas de saúde bucal na qualidade de vida de gestantes. Pesq Bras Odontoped Clin Integr. 2013; 13 (3): 287-293. doi: 10.4034/PBOCI.2013.133.10
10. Yousefi M., Parvaie P., Riahi S.M. Salivary factors related to caries in pregnancy: a systematic review and meta-analysis. J Am Dent Assoc. 2020; 151 (8): 576-588. doi: 10.1016/j.aime.2020.04.021
11. Behluli E., Veseli E., Veseli A. Evaluation of oral health status in pregnant women and its correlation with calcium and phosphate

levels. Folia Med (Plovdiv). 2024; 66 (2): 203-212. doi: 10.3897/folmed.66.e119961
12. Pina P.M., Douglass J. Practices and opinions of Connecticut general dentists regarding dental treatment during pregnancy. Gen Dent. 2011; 59 (1): e25-e31.
13. Wali A., Siddiqui T.M., Sarwar A., Anjum A., Rao H. Perception and understanding of dental practitioners in provision of dental treatment to pregnant women in Karachi, Pakistan. Indian J Dent Sci. 2016; 8 (4): 199-204. doi: 10.4103/0976-4003.196816
14. Ahmed S., Shah H., Hussain A., Riafat S., Shaheen M.N., Qureshi N.A. Challenges in oral health referral during pregnancy: perspectives from antenatal and dental care providers. BMC Oral Health. 2025; 25 (1): 858. doi: 10.1186/s12903-025-06285-8
15. Codato L.A.B., Nakama L., Melchior R. The beliefs of pregnant women about dental care during gestation. Ciênc Saúde Colet. 2008; 13 (3): 1075. doi: 10.1590/s1413-81232008000300030
16. Maiorki P.A., Perotta M. Nível de conhecimento de um grupo de cirurgiões-dentistas sobre o atendimento odontológico de gestantes. Rev Bras Pesq Saúde. 2022; 24 (2): 55-63. doi: 10.47456/rbps.v24i2.37470
17. Vera-Carpio M.L., Carranza-Samanez K.M., Dulanto-Vargas J.A. Myths about oral health and associated factors in pregnant women in a public hospital in Peru. Oral Health Prev Dent. 2025; 23: 123. doi: 10.3290/j.ohpd.c_1845
18. Frey-Furtado L., Fonseca M., Melo P., et al. Oral healthcare access: self-perceived barriers faced during pregnancy-a systematic review. BMC Public Health. 2025; 25: 1394. doi: 10.1186/s12889-025-22593-8
19. Miguel A.J.S., Ferreira H.C.R., Carli G.C.C., Martins F., Ribeiro R.C.L. Importância do pré-natal odontológico para o diagnóstico de alterações bucais em gestantes. Ciência Atual. 2019; 13 (1): 1-12.
20. de Araújo Souza G.C., Medeiros R.C.F., Rodrigues M.P., Emiliano G.B.G. Atenção à saúde bucal de gestantes no Brasil: uma revisão integrativa. Rev Ciência Plural. 2021; 7 (1): 124-146. doi: 10.21680/2446-7286.2021v7n1ID23036
21. Ben David M., Callen Y., Eliasi H., Peretz B., Odeh-Natour R., Ben David Hadani M., Blumer S. Oral health and knowledge among postpartum women. Children (Basel). 2022 Sep 22; 9 (10): 1449. doi: 10.3390/children9101449
22. Dal Ponte G.L., da Rocha Tonhom S.F., Peres C.R.F.B., de Brito C.P. Cuidado odontológico: percepção das gestantes na Atenção Primária à Saúde. Saúde e Pesquisa. 2023; 16 (4): 1-20. doi: 10.17765/2176-9206.2023v16n4.e11121
23. de Lima Maciel D.M., Prado M., Pintor A.V.B. Pré-natal odontológico no sistema público de saúde no Brasil: revisão de literatura. Cuad Educ Desarro. 2025; 17 (5): e8320. doi: 10.55905/cuadv17n5-037
24. Ferreira S.M.S.P., Silva J.F., Silva R.V., Pinheiro E.S., Batista L.D, Fernandes C.G. Conhecimento em saúde bucal do bebê e expectativa relativa ao pré-natal odontológico: retrato de um município baiano de grande porte. Facul Odontol Lins. 2015; 25 (2): 19-30. doi: 10.15600/2238-1236/fol.v25n2p19-30
25. Moreira M.R., Santin G.C., Matos L.G., Gravina D.B.L., Faquim J.P.S. Pré-natal odontológico: noções de interesse. J Manag Prim Health Care. 2016, 16; 6 (1): 77-85. doi: 10.14295/jmphc.v6i1.234
26. Kelaranta A., Ekholm M., Toroi P., Kortesniemi M. Radiation exposure to foetus and breasts from dental X-ray examinations: effect of lead shields. Dentomaxillofac Radiol. 2016; 45 (1): 20150095. doi: 10.1259/dmfr.20150095
27. Schuch H.S., Furtado M., Chiavegatto Filho A.D.P., Elani H.W. Changes in use of prena-

tal dental care after Brazil's incentive policy. J Dent Res. 2024; 103 (9): 863-869. doi: 10.1177/00220345241258459
28. Saliba T.A., Custódio L.B.D.M., Saliba N.A., Moimaz S.A.S. Dental prenatal care in pregnancy. RGO Rev Gaúcha Odontol. 2019; 67:e20190061. doi: 10.1590/1981-86372019000612018003
29. Naseem M., Khurshid Z., Khan H.A., Niazi F., Zohaib S., Zafar M.S. Oral health challenges in pregnant women: recommendations for dental care professionals. Saudi J Dent Res. 2016 May; 7 (2): 138-46. doi: 10.1016/j.sjdr.2015.11.002
30. Kurien S., Kattimani V.S., Sriram R.R., Sriram S.K., Prabhakar V.K., Bhupathi A., Patil N.N. Management of pregnant patient in dentistry. J Int Oral Health. 2013; 5 (1): 88-97.
31. Elias R.C.F., Nogueira P.M., Vasconcelos M., Zina L.G. Tratamento odontológico durante a gestação: conhecimentos e percepções de estudantes de Odontologia. Rev ABENO. 2018; 18 (3): 114-126. doi: 10.30979/rev.abeno.v18i3.553
32. Vieira H.C., de Castro A.E., Schuch Júnior V.F. O uso de questionários via e-mail em pesquisas acadêmicas sob a ótica dos respondentes. In: Anais do XIII SEMEAD; 2010 Sep; São Paulo (SP), Brasil.
33. Polyzos N.P., Polyzos I.P., Zavos A., Valachis A., Mauri D., Papanikolaou E.G., et al. Obstetric outcomes after treatment of periodontal disease during pregnancy: systematic review and meta-analysis. BMJ. 2010 Dec 29; 341: c7017. doi: 10.1136/bmj.c7017
34. Sartório M.L., Machado W.A.S. A doença periodontal na gravidez. Rev Bras Odontol. 2001; 58 (5): 306-308.
35. Andrade E.D. Terapêutica medicamentosa em odontologia. São Paulo: Artes Médicas; 2014.
36. Vasconcelos R.G., Vasconcelos M.G., Mafra R.P., Júnior L.C.A., Queiroz L.M.G., Barboza C.A.G. Atendimento odontológico a pacientes gestantes: como proceder com segurança. Rev Bras Odontol. 2012; 69 (1): 120-124.