Original Article

# Prevalence of dental visits and its associated factors during prenatal care: a cross-sectional study with puerperal women in hospitals covered by the Brazilian National Health System, Santa Catarina State, Brazil, 2019*

doi: 10.1590/S1679-49742021000400019

**Katia Jakovljevic Pudla Wagner**[1] – orcid.org/0000-0002-3649-3121
**Manoela de Leon Nobrega Reses**[1] – orcid.org/0000-0001-9412-8299
**Antonio Fernando Boing**[2] – orcid.org/0000-0001-9331-1550

[1]Universidade Federal de Santa Catarina, Coordenadoria Especial de Biociências e Saúde Única, Curitibanos, SC, Brazil
[2]Universidade Federal de Santa Catarina, Departamento de Saúde Pública, Florianópolis, SC, Brazil

## Abstract

**Objective:** To assess the prevalence of dental visits and its associated factors during prenatal care. **Methods:** This was a cross-sectional study based on interviews conducted with puerperal women in 31 hospitals covered by the Brazilian National Health System (SUS) in Santa Catarina, Brazil, 2019. Sociodemographic, economic and prenatal-related data were collected. Multivariate analyses were performed using logistic regression to calculate *odds ratios* (OR). **Results:** 3,580 puerperal women and 41.4% (95% confidence interval [95%CI] 39.7;43%) underwent dental visits during prenatal care. Higher chance of dental visits was associated with higher education level (OR=1.35 – 95%CI 1.06;1.71) and a higher number of medical/nursing consultations (OR= 1.97 – 95%CI 1.47;2.65); this chance decreased when the puerperal women did not have paid work (OR=0.82 – 95%CI 0.70;0.96) and did not take part in education activities offered by the SUS (OR=0.63 – 95%CI 0.52;0.77). **Conclusion:** Factors related to schooling, employment, prenatal care and education activities increased the chance of dental visits during pregnancy in Santa Catarina State.

**Keywords:** Dental Care; Prenatal Care; Dental health education; Delivery of Health Care; Healthcare Disparities; Cross-sectional studies.

*The study received financial support from Fundação de Amparo à Pesquisa of the state of Santa Catarina (Fapesc): Process No 2017TR1364.

**Correspondence:**
**Katia Jakovljevic Pudla Wagner** – Centro de Educação Profissional Professor Enori Pozzo, Av. Advogado Sebastião Calomeno, No. 400, São Francisco, Curitibanos, SC, Brazil. CEP: 89520-000
E-mail: katia.wagner@ufsc.br

## Introduction

Dental care during pregnancy has potential positive results for mother and child health, such as the reduction in preterm births and low birth weight.[1-3] Educational and health promotion activities, including guidance on the importance of breastfeeding, eating habits and oral health, are suggested in the context of prenatal care.[2]

> *In addition to dental treatment during pregnancy, educational activities during prenatal care can contribute to reducing caries in early childhood.*

Receiving information about dental care during pregnancy can also help prevent dental caries in early childhood.[4] In addition, treatment of symptoms and common health problems during pregnancy such as pain, oral infection and bleeding gums is essential for pregnant women during health care process.[3]

Despite possible benefits, not all women have access to dental services during pregnancy. In Brazil, data from the National Program for Improving Primary Care Access and Quality (PMAQ-AB) showed that access to dental care during pregnancy provided by the Brazilian National Health System (SUS) increased between cycles I (2011-2012) and II (2013-2014), when the prevalence of 45.9% and 51.9% could be observed, respectively.[5] Thus, in general, only half of the women had dental visits during pregnancy.[5]

Determinants of dental care during pregnancy have been investigated, especially in North America, therefore their results cannot be automatically inferred to different regions and realities.[6] In Brazil, the pattern of use of dental services during pregnancy has already been analyzed, based on specific samples of pregnant women from municipalities in some states other than Santa Catarina.[7-9]

Given that disparities in oral health care make disadvantaged groups less likely to have access to this service,[10] and that population-based studies can support the planning and development of the service network, based on the hypothesis that oral health care for most pregnant women has not been a reality in the context of Primary Health Care yet, the objective of this study was to assess the prevalence of dental visits and its associated factors during prenatal care, in puerperal women attended at SUS hospitals in the state of Santa Catarina, Brazil, in 2019.

## Methods

### Study design and setting

This research is part of Rede Cegonha assessment study, a strategy launched by the federal government in 2011, aimed at providing women with health, quality of life and well-being during pregnancy, childbirth and postpartum period, and so on. In 2019, the study was conducted in 30 different municipalities in Santa Catarina State where the participating hospitals were located. They served women who were admitted to give birth and lived in hundreds of municipalities in the state.[11] This was a cross-sectional study, conducted with puerperal women living in the state of Santa Catarina whose children were born between January and August 2019, in one of the 31 hospitals in which more than 500 childbirths have been performed per year via SUS. Together, those hospitals accounted 86.2% of all SUS-funded births in the state in 2016.[12]

### Participants

We included women who lived in Santa Catarina throughout the entire gestational period, underwent prenatal care on the SUS or did not have prenatal care visits, whose children were born alive, weighting more than 500 g, and having at least 22 weeks gestation, or stillborn or dead within 48 hours postpartum.

The interviewers, responsible for data collection, approached all the puerperal women who met the inclusion criteria and, at that moment, were hospitalized after giving birth.

### Sample size

To calculate the sample size, we started estimating 50,000 births per year, based on data from the Live Birth Information System (Sinasc) in 2016, 95% confidence level, 1.6% margin of error and prevalence of 50%, we added 5% to the value obtained to allow for possible losses and refusals. The final sample was estimated at 3,665 puerperal women.[11]

### Variables

The research outcome was self-reported dental visit (yes; no).

The independent variables investigated were:

a) age group (in years: 13-17; 18-34; ≥35);
b) self-reported race/skin color (white; black and brown);
c) marital status (with a partner, without a partner);
d) schooling (in years of study: ≤9; 10-12; ≥13);
e) household income per capita (in tertile: 1st; 2nd; 3rd);
f) current paid work (yes; no);
g) parity [with other children; without other children];
h) trimester when prenatal care started (1st; 2nd; 3rd);
i) number of medical/nursing consultations (1-5; 6-7; 8-9; ≥10);
j) participation in educational activity offered by SUS (yes; no); and
h) reason for dental visits (routine dental check-up [cleaning, maintenance or prevention]; toothache; orthodontic treatment; tooth extraction; root canal treatment; gum disease; other reasons).

### Data source and measurement

Data were obtained from face-to-face interviews. The puerperal women were approached by 35 interviewers in 31 participating hospitals, located in the cities of Joinville, Florianópolis, São José, Lages, Itajaí, Blumenau, Chapecó, Balneario Cambour, Jaraguá do Sul, Criciúma, Tubarão, Araranguá, Rio do Sul, Mafra, Brusque, Caçador, Curitibanos, Xanxerê, Joaçaba, Içara, São Miguel do Oeste, São Bento do Sul, Indaial, Ibirama, Canoinhas, Concordia, Ituporanga, Imbituba, Videira and Timbó, in Santa Catarina State.[11]

The interviews were conducted in each hospital, proportionally to the number of births in 2016, between January and August 2019, the defined period for data collection. The interviewers had at least complete high school and had been previously trained. The interviews were conducted every day – including weekends and holidays – in the morning and afternoon. All births that occurred in each hospital during data collection period were included in this study. Birth volume in each unit was initially assessed and, based on this assessment, visit and hospital stay scales were organized in order to ensure complete coverage of births.

### Bias

Before data collection a pilot study had been conducted with 5% of the total sample, in three hospitals that were taking part in the study, with puerperal women who had met the same inclusion criteria. These interviews were used to verify the need for adjustments in the questionnaire, the time of application of the research questions and the logistics of sending the collected data. The portion of the sample that had taken part in the pilot study did not compose the final group of participants.

For data quality control, we drew a random sample that was comprised of 10% of the interviewees. They were once again contacted via phone call to answer a reduced questionnaire composed of eight questions. No possible interview simulations (invented, non-existent) conducted by the interviewers were identified, and all quality control variables showed good or almost perfect agreement: six of the eight variables analyzed presented Cohen's Kappa greater than 0.68. These interviews, which comprised quality control, were part of the final sample of the study.

### Statistical methods

The sample was described with its proportion and 95% confidence interval (95%CI). The multivariate analysis was performed using logistic regression, and the odds ratio (OR) adjusted by the independent variables was calculated. The results were considered statistically significant when they presented p-value $<0.05$. Multicollinearity was tested in the model through the analysis of the variance inflation factor (VIF). The analyses were performed using the statistical program Stata version 15.1.

### Ethical aspects

The research project was approved by the Human Research Ethics Committee of the Federal University of Santa Catarina: Opinion No. 1,599,464, issued on June 20, 2016 (Certificate of Submission for Ethical Appreciation No. 53671016.1.1001.0121). All participants signed a Free and Informed Consent Form, a requirement to grant interviews.

## Results

A total of 3,580 puerperal women took part in the study, which shows a response rate of 97.7%. The

sample flow, from the invitation to participate in the study to the outcome, is shown in Figure 1. The sample was comprised mostly of women aged between 18 and 34 years (80.8%), of white race/skin color (63.4%), who lived with a partner (80.5%), had 10 to 12 years of schooling (52.5%), with other children (60.8%), without paid work at the time of the study (54.0%). Most of the participants underwent ten or more prenatal consultations (41.7%), started prenatal care in the first trimester (81.8%) and did not take part in educational activity in Primary Health Care in the SUS (84.4%) (Table 1).

During prenatal care, 41.4% (95%CI 39.7;43%) of the women underwent dental consultations. Among the socioeconomic variables that showed an association with access to the dental care, women who had 13 or more years of schooling were more likely to access this service (OR=1.35 – 95%CI 1.06;1.71), compared to those with low education level, and women who had paid work were inversely associated with dental care, compared to those who had a different condition (OR=0.82 – 95%CI 0.70;0.96). As the number of medical/nursing consultations increased, there was a greater chance of having a dental consultation: those who underwent ten or more prenatal consultations were more likely to receive dental care (OR=1.97 – 95%CI 1.47;2.65), compared to those who had one to five consultations. Another characteristic associated with access to dental care was the fact of having taken part in educational activities offered by the SUS: those who did not take part in those activities were less likely (OR=0.63 – 95%CI 0.52;0.77) to have had dental visits (Table 2). The results of the VIF ranged between 1.02 and 1.25, discarding the presence of multicollinearity between the variables of the model.

Most consultations were motivated by routine dental check-ups, cleaning, maintenance or prevention (72.1%). Toothache (9.1%) and orthodontic consultation and treatment (6.7%) (Table 3) were also cited.

## Discussion

Less than half of the parturient who received care in the 31 hospitals of Santa Catarina and who took part in this study underwent dental consultations during prenatal care. The chance of undergoing dental consultation was higher among women with higher education level, who had a paid work, underwent more medical or nursing consultations during prenatal care and took part in an education activity offered by the SUS. Most dental consultations were motivated by routine dental check-up, cleaning and maintenance, or prevention of dental problems.

Self-reported data collection performed during postpartum hospitalization is among the limitations of this study. The information obtained is subject to recall bias, since women were questioned about events that occurred during pregnancy. However, data collection in the immediate postpartum period, sought to compensate for this fragility. Among the strengths of this study is the fact that the puerperal women who composed the sample were from different municipalities of Santa Catarina and gave birth and underwent prenatal care exclusively on the SUS.[11]

Less than half of the women used dental service during pregnancy. In countries in North America, Asia, Europe and Latin America, dental visits ranged between 17% and 83%.[6] Lower prevalence was observed in Greece in 2006 (27%), and in Malaysia in 2008 (29%).[6] In the United States and Canada, the prevalence of dental visits during pregnancy ranged from 33% to 68% between 2005 and 2015, while in France, it was 44% in 2013.[6] The highest prevalence observed was 83% in Colombia in 2012.[6] However, it is difficult to make a comparison of this prevalence among different countries, taking into consideration methodological differences (primary or secondary data; interviews with women in different pregnancy trimesters or puerperal women) and their health services or systems (public or private; hospitals, vaccination center or maternal and child health center).[6,13]

There was an increase in the prevalence of dental visits during prenatal care in Brazil, when comparing data from 2011-2012 with 2013-2014, from 46% to 52% in pregnant women who also received care on the SUS.[5] In the city of Canoas, in the state of Rio Grande do Sul, 50% of pregnant women underwent dental consultations during prenatal care.[8] In Rio Grande, also in the state of Rio Grande do Sul, in 2013, this proportion was 40%.[7] It is worth noting that there was a difference in this prevalence regarding prenatal care in the public or private health network: pregnant women assisted in the public health system were less likely to have dental visits, compared to those assisted in the private health network.[7]

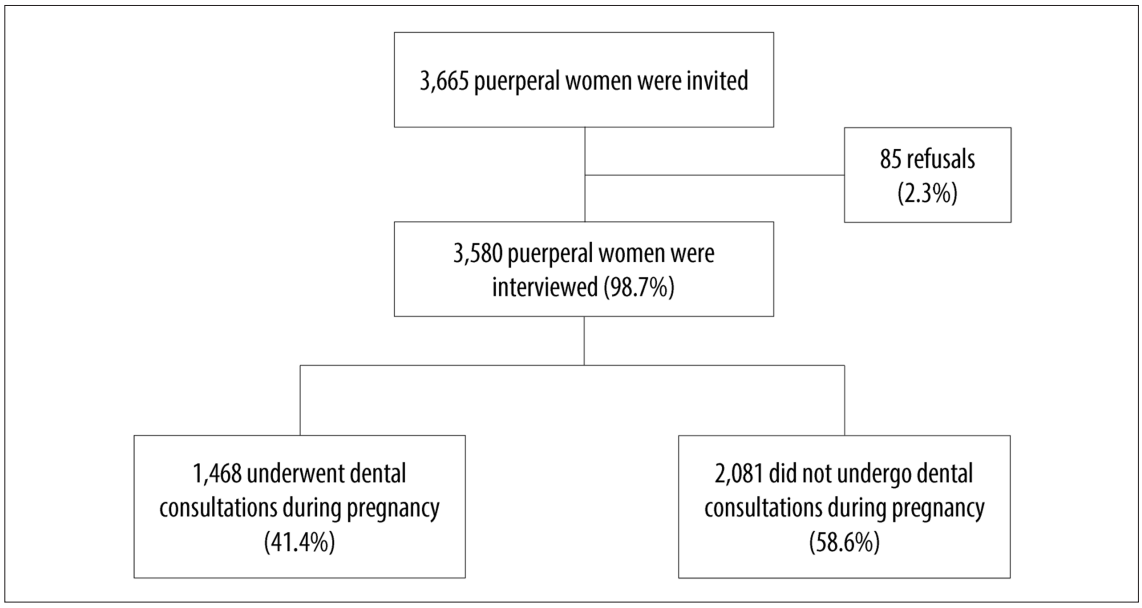


**Figure 1 – Selection process and inclusion of puerperal women in the study, Santa Catarina State, Brazil, 2019**

In Brazil, the access of the population to health and dental services,[15] including pregnant women,[5,7,14] is associated with higher income, education level and socioeconomic status. In this study, the variable 'income' did not have statistical significance in the adjusted analysis; however, women with higher education level and a paid work had greater access to dental services during prenatal care. Oral health conditions among pregnant women with higher educational level are better,[16] and greater access to dental services is one of the variables associated with this fact.[10] Lower socioeconomic groups use less health services and present a higher burden of disease, making them doubly penalized due to their oral health.[17,18] The present study did not find an association between pregnant woman's age and dental visits. In Rio Grande, according to the same study in 2013,[7] younger pregnant women underwent dental consultations most frequently, while in Hangzhou city, China, in 2011, older pregnant women had the highest number of dental visits.[19] The association between the variable age and the use of dental services is not clear, and the different cut-off points used for its classification are one of the reasons for this difference.[6]

A higher number of medical/nursing consultations during prenatal period and participation in education activities increased the chances of dental visits during pregnancy. This result corroborates those of other studies with the same theme,[7,14] showing that the greater the access to health services, the greater the possibility of access to dental care. In the city of Rio Grande, it could be seen that when there was a lower number of prenatal consultations, pregnant woman were less likely to seek dental care during this period.[7] In Grande Vitória, in the state of Espírito Santo, in 2010, it could be seen that prenatal care and the number of consultations, at different gestational ages, were statistically associated with dental care, allowing us to infer that the more pregnant women go to the healthcare center for prenatal check-ups, the greater the possibility of undergoing adequate dental care.[9,14] Oral health education activities and access to useful information are associated with greater use of dental services during pregnancy, and they are related to these two variables analyzed in this study.[6] Individual and/or collective education activities influence the quality of dental care during pregnancy, reinforcing the importance of health education actions offered by the SUS during prenatal care.[9,14] Oral health promotion actions based on the common risk factor approach may ensure further improvement in oral health conditions, given the discussion about the ineffectiveness of isolated

**Table 1 – Main characteristics of study's participants (n=3,580), Santa Catarina State, Brazil, 2019**

| Variable | n | % (95%IC[a]) |
|---|---|---|
| **Age group (years)** | | |
| 13-17 | 173 | 4.9 (4.2;5.7) |
| 18-34 | 2,847 | 80.8 (79.4;82.1) |
| ≥35 | 504 | 14.3 (13.2;15.5) |
| **Race/skin color** | | |
| White | 2,205 | 63.4 (61.8;65.0) |
| Black and brown | 1,271 | 36.6 (35.0;38.2) |
| **Marital status** | | |
| With a partner | 2,864 | 80.5 (79.1;81.7) |
| Without a partner | 695 | 19.5 (18.2;20.9) |
| **Schooling (years of study)** | | |
| ≤9 | 1,218 | 34.5 (33.0;36.1) |
| 10-12 | 1,853 | 52.5 (50.8;54.1) |
| ≥13 | 458 | 13.0 (11.9;14.1) |
| **Household income *per capita* (tercile)** | | |
| 1st | 1,134 | 33.4 (31.8;35.0) |
| 2nd | 1,147 | 33.8 (32.2;35.4) |
| 3rd | 1,114 | 32.8 (31.2;34.4) |
| **Parity** | | |
| With other children | 1,732 | 60.8 (59.0;62.6) |
| Without other children | 1,117 | 39.2 (37.4;41.0) |
| **Trimester when prenatal care started** | | |
| 1st | 2,829 | 81.8 (80.5;83.0) |
| 2nd | 576 | 16.7 (15.4;17.9) |
| 3rd | 52 | 1.5 (1.1;2.0) |
| **Number of medical/nursing consultations** | | |
| 1-5 | 382 | 11.1 (10.1;12.2) |
| 6-7 | 659 | 19.2 (17.9;20.6) |
| 8-9 | 958 | 28.0 (26.5;29.5) |
| ≥10 | 1,429 | 41.7 (40.0;43.3) |
| **Current paid work** | | |
| Yes | 1,630 | 46.0 (44.3;47.6) |
| No | 1,914 | 54.0 (52.4;55.6) |
| **Participation in education activities offered by Primary health care within SUS[b]** | | |
| Yes | 553 | 15.6 (14.4;16.8) |
| No | 2,991 | 84.4 (83.2;85.5) |

a)95%CI: 95% confidence interval; b) SUS: Brazilian National Health System.

**Table 2 – Prevalence and crude and adjusted *odds ratio* (OR) for dental consultation per pregnant women (n=3,580) during prenatal care, Santa Catarina State, Brazil, 2019**

| Variable | Total | Dental consultation n (%) | Crude OR[a] (95%IC[b]) | p-value[c] | Adjusted OR[a] (95%IC[b]) | p-value[c] |
|---|---|---|---|---|---|---|
| **Age group (years)** | | | | 0.633 | | 0.453 |
| 13-17 | 173 | 68 (38.7) | 1.00 | | 1.00 | |
| 18-34 | 2,847 | 1,200 (41.7) | 1.13 (0.83;1.55) | | 0.91 (0.65;1.29) | |
| ≥35 | 504 | 200 (40.2) | 1.06 (0.75;1.52) | | 0.81 (0.55;1.20) | |
| **Race/skin color** | | | | 0.289 | | 0.275 |
| White | 2,205 | 888 (40.6) | 1.00 | | 1.00 | |
| Black and Brown | 1,271 | 569 (42.4) | 1.08 (0.94;1.24) | | 1.08 (0.93;1.25) | |
| **Marital status** | | | | 0.941 | | 0.836 |
| With a partner | 2,864 | 1,179 (41.5) | 1.00 | | 1.00 | |
| Without a partner | 695 | 283 (41.3) | 0.99 (0.94;1.18) | | 1.02 (0.85;1.22) | |
| **Schooling (years of study)** | | | | <0.001 | | 0,048 |
| ≤9 | 1,218 | 453 (37.6) | 1.00 | | 1.00 | |
| 10-12 | 1,853 | 773 (42.1) | 1.21 (1.04;1.40) | | 1.09 (0.92;1.28) | |
| ≥13 | 458 | 222 (48.5) | 1.56 (1.26;1.94) | | 1.35 (1.06;1.71) | |
| **Household income *per capita* (tercile)** | | | | <0.001 | | 0.163 |
| 1st | 1,134 | 438 (39.1) | 1.00 | | 1.00 | |
| 2nd | 1,147 | 456 (40.0) | 1.04 (0.88;1.23) | | 0.98 (0.82;1.18) | |
| 3rd | 1,114 | 513 (46.3) | 1.35 (1.14;1.59) | | 1.16 (0.96;1.41) | |
| **Current paid work** | | | | <0.001 | | 0.014 |
| Yes | 1,630 | 731 (45.2) | 1.00 | | 1.00 | |
| No | 1,914 | 727 (38.3) | 0.75 (0.66;0.86) | | 0.82 (0.70;0.96) | |
| **Parity** | | | | 0.027 | | 0.774 |
| With other children | 1,732 | 492 (44.1) | 1.00 | | 1.00 | |
| Without other children | 1,117 | 975 (40.9) | 0.88 (0.75;1.02) | | 0.97 (0.82;1.16) | |
| **Trimester when prenatal care started** | | | | <0.001 | | 0.166 |
| 1st | 2,829 | 1,228 (43.5) | 1.00 | | 1.00 | |
| 2nd | 576 | 197 (34.3) | 0.68 (0.56;0.81) | | 0.83 (0.67;1.3) | |
| 3rd | 52 | 10 (19.2) | 0.31 (0.15;0.62) | | 0.67 (0.31;1.40) | |
| **Number of medical/nursing consultations** | | | | <0.001 | | <0.001 |
| 1-5 | 382 | 96 (25.1) | 1.00 | | 1.00 | |
| 6-7 | 659 | 249 (38.2) | 1.83 (1.38;2.41) | | 1.72 (1.26;2.35) | |
| 8-9 | 958 | 406 (42.6) | 2.21 (1.69;2.87) | | 1.91 (1.41;2.58) | |
| ≥10 | 1,429 | 655 (45.9) | 2.52 (1.96;3.25) | | 1.97 (1.47;2.65) | |
| **Participation in education activities offered by Primary Health care within SUS[d]** | | | | <0.001 | | <0.001 |
| Yes | 553 | 293 (53.0) | 1.00 | | 1.00 | |
| No | 2,991 | 1,171 (39.3) | 0.57 (0.48;0.69) | | 0.63 (0.52;0.77) | |

a) OR: *odds ratio*; b) 95%IC: 95% confidence interval; c) Wald Test; d) SUS: Brazilian National Health System.

**Table 3 – Reason for dental consultation by pregnant women (n=1,467) during prenatal care, Santa Catarina State, Brazil, 2019**

| Reason for dental consultation | n | % (95%IC[a]) |
|---|---|---|
| Routine dental check-up (cleaning, maintenance or prevention) | 1,057 | 72.1 (69.8;74.3) |
| Toothache | 134 | 9.1 (7.8;10.7) |
| Orthodontic treatment | 99 | 6.8 (5.6;8.1) |
| Tooth extraction | 31 | 2.1 (1.5;3.0) |
| Root canal treatment | 26 | 1.8 (1.2;2.6) |
| Gum disease | 39 | 2.6 (1.9;3.5) |
| Other reasons | 81 | 5.5 (4.5;6.8) |

a)95%CI: 95% confidence interval.

educational interventions.[20] Education activities aimed at pregnant women can address a series of themes related to maternal and newborn health, including oral health, and they represent a concrete example of the viability of this strategy.

The most cited reason for seeking dental care was routine dental check-ups for cleaning, maintenance or prevention. In Espírito Santo, data from 1,032 women assisted on the SUS, between April and September 2010, pointed out that the professional prophylaxis performed by the dentist was the most frequently reported activity by puerperal women, and that the percentage of women who received care for dental problems, such as pain and tooth extraction, was lower, in line with the results of this study.[14] Worldwide, studies that analyze routine consultations or dental cleaning during pregnancy have reported prevalence between 17% and 37%, and dental cleaning one of the most frequent of dental consultations in pregnancy.[6]

In conclusion, factors such as schooling, current paid work, medical and nursing consultations and education activities increased the chance of dental consultation among pregnant women who underwent prenatal care at Primary Health Care within the SUS in 2019. Taking into consideration that access to dental consultation during prenatal care has not been a reality for most women yet, and that disparities in access to this health service can be seen among different groups, it is necessary to recognize its importance for comprehensive prenatal care in the scope of SUS in Santa Catarina State.

## Authors' contributions

Wagner KJP collaborated with the analysis and interpretation of the results and drafting of the manuscript. Reses MLN collaborated with the interpretation of the results, drafting and critical reviewing of the manuscript. Boing AF collaborated with the study design, interpretation of the results and drafting of the manuscript. All authors have approved the final version of the manuscript and declared themselves to be responsible for all aspects of the work, including ensuring its accuracy and integrity.

## References


1. Silveira JLGC, Abraham MW, Fernandes CH. Gestação e saúde bucal: significado do cuidado em saúde bucal por gestantes não aderentes ao tratamento. Rev APS. 2016;19(4):568-74.
2. Ministério da Saúde (BR). Atenção ao pré-natal de baixo risco. Brasília, DF: MS; 2012.
3. Xiao J, Alkhers N, Kopycka-Kedzierawski DT, Billings RJ, Wu TT, Castillo DA, et al. Prenatal oral health care and early childhood caries prevention: a systematic review and meta-analysis. Caries Res. 2019;53(4):411-21. doi: https://doi.org/10.1159/000495187.
4. Riggs E, Kilpatrick N, Slack-Smith L, Chadwick B, Yelland J, Muthu MS, et al. Interventions with pregnant women, new mothers and other primary caregivers for preventing early childhood caries. Cochrane Database Syst Rev. 2019 Nov 20;(11):CD012155. doi: https://doi.org/10.1002/14651858.CD012155.pub2.

5. Gonçalves KF, Giordani JMA, Bidinotto AB, Ferla AA, Martins AB, Hilgert JB. Utilização de serviço de saúde bucal no pré-natal na atenção primária à saúde: dados do PMAQ-AB. Cien Saude Colet. 2020;25(2):519-32. doi: https://doi.org/10.1590/1413-81232020252.05342018.

6. Rocha JS, Arima LY, Werneck RI, Moysés SJ, Baldani MH. Determinants of dental care attendance during pregnancy: a systematic review. Caries Res. 2018;52(1-2):139-52. doi: https://doi.org/10.1159/000481407.

7. Konzen Júnior DJ, Marmitt LP, Cesar JA. Não realização de consulta odontológica entre gestantes no extremo sul do Brasil: um estudo de base populacional. Cien Saude Colet. 2019;24(10):3889-96. doi: https://doi.org/10.1590/1413-812320182410.31192017.

8. Ruiz LF, Uffermann G, Vargas-Ferreira F, Bavaresco CS, Neves M, Moura FRR. Use of dental care among pregnant women in the Brazilian unified health system. Oral Health Prev Dent. 2019;17(1):25-31. doi: https://doi.org/10.3290/j.ohpd.a41980.

9. Schwab FCBS, Ferreira L, Martinelli KG, Esposti CDD, Pacheco KTS, Oliveira AE, Santos-Neto ET. Fatores associados à atividade educativa em saúde bucal na assistência pré-natal. Cien Saude Colet. 2021;26(3):1115-23. doi: https://doi.org/10.1590/1413-81232021263.12902019.

10. Northridge ME, Kumar A, Kaur R. Disparities in access to oral health care. Annu Rev Public Health. 2020 Apr 2;41:513-35. doi: https://doi.org/10.1146/annurev-publhealth-040119-094318.

11. Boing AF, Lacerda JT, Boing AC, Calvo MCM, Saraiva S, Tomasi YT, et al. Methods and operational aspects of an epidemiological study and evaluation of Rede Cegonha. Rev Bras Epidemiol. 2021 Feb 15;24:e210010. doi: https://doi.org/10.1590/1980-549720210010.

12. Ministério da Saúde (BR). Sistema de informações sobre nascidos vivos [Internet]. Brasília, DF: MS; 2020 [acesso 12 maio 2020]. Disponível em: Disponível em: http://tabnet.datasus.gov.br/cgi/deftohtm.exe?sinasc/cnv/nvuf.def

13. Committee Opinion n. 569: oral health care during pregnancy and through the lifespan. Obstet Gynecol. 2013;122(2 Pt 1):417-22. doi: https://doi.org/10.1097/01.AOG.0000433007.16843.10.

14. Santos Neto ET, Oliveira AE, Zandonade E, Leal MC. Acesso à assistência odontológica no acompanhamento pré-natal. Cien. Saude Colet. 2012;17(11):3057-68. doi: https://doi.org/10.1590/S1413-81232012001100022.

15. Araújo CS, Lima RC, Peres MA, Barros AJD. Use of dental services and associated factors: a population-based study in southern Brazil. Cad Saude Publica. 2009;25(5):1063-72. doi: https://doi.org/10.1590/S1413-81232012001100022.

16. Deghatipour M, Ghorbani Z, Ghanbari S, Arshi S, Ehdayivand F, Namdari M, et al. Oral health status in relation to socioeconomic and behavioral factors among pregnant women: a community-based cross-sectional study. BMC Oral Health. 2019 Jun 17;19(1):117. doi: https://doi.org/10.1186/s12903-019-0801-x.

17. Batista MJ, Lawrence HP, Sousa MLR. Oral health literacy and oral health outcomes in an adult population in Brazil. BMC Public Health. 2018 Jul 26;18(1):60. doi: https://doi.org/10.1186/s12889-017-4443-0.

18. Cheng ML, Xu MR, Xie YY, Gao XL, Wu HJ, Wang X, et al. Utilisation of oral health services and economic burden of oral diseases in China. Chin J Dent Res. 2018;21(4):275-84. doi: https://doi.org/10.3290/j.cjdr.a41086.

19. Sun W, Guo J, Li X, Zhao Y, Chen H, Wu G. The routine utilization of dental care during pregnancy in eastern China and the key underlying factors: a Hangzhou City study. PLoS One. 2014 Jun 5;9(6):e98780. doi: https://doi.org/10.1371/journal.pone.0098780.

20. Sheiham A, Watt RG. The common risk factor Approach: a rational basis for promoting oral health. Community Dent Oral Epidemiol. 2000;28(6):399-406. doi: https://doi.org/10.1034/j.1600-0528.2000.028006399.x.

**Received 25/03/2021**
**Accepted 30/07/2021**

Associate Editor: Taís Freire Galvão – orcid.org/0000-0003-2072-4834