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# ORAL HEALTH LITERACY AND PERIODONTAL DISEASE IN PREGNANT WOMEN

## *LETRAMENTO EM SAÚDE BUCAL E DOENÇA PERIODONTAL EM GESTANTES*

## *ALFABETIZACIÓN EN SALUD BUCODENTAL Y ENFERMEDAD PERIODONTAL EN MUJERES EMBARAZADAS*

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**ABSTRACT**
**Objective:** To evaluate how Oral Health Literacy is related to periodontal diseases in pregnant women. **Methods:** This is a descriptive, cross-sectional, quantitative study conducted with pregnant and non-pregnant women from two Basic Health Units in the municipality of Serra Talhada (Pernambuco) which assessed oral health literacy levels, using the "Health Literacy in Dentistry Scale" (HeLD-14) instrument, and evaluated participants' periodontal conditions through intraoral physical examinations, using the rates of the Community Periodontal Index (CPI) and the periodontal attachment loss (CAL). Data tabulated in SPSS 20.0 software were analyzed using Pearson's chi-square and Kruskal-Wallis tests at a p = 0.05 level. The study was approved by the Research Ethics Committee of the FIS University Center (Opinion No. 7.020.621). **Results:** Among a sample of 42 participants, a significant association between dental pain and periodontal disease was found. However, no statistically significant relationship was observed between oral health literacy levels and the occurrence of periodontal disease. **Conclusion:** The findings suggest no association between oral health literacy and periodontal disease. Additionally, pregnancy status did not influence oral health literacy levels in the studied population.
**Keywords:** *Health literacy; Periodontal diseases; Pregnant women; Epidemiology; Primary health care.*

**RESUMO**
**Objetivo:** Avaliar como o Letramento em Saúde Bucal está relacionado com as doenças periodontais em mulheres grávidas. **Métodos:** Trata-se de um estudo descritivo transversal de abordagem quantitativa, realizado com gestantes e não gestantes de duas Unidades Básicas de Saúde do município de Serra Talhada- Pernambuco, que mensurou os níveis de letramento em saúde bucal, através da aplicação do instrumento "*Health Literacy in Dentistry Scale*" (HeDL-14); e avaliou as condições periodontais das participantes através de exames físicos intraorais, através dos índices Comunitário Periodontal e de Perda de Inserção Periodontal. Os dados tabulados no software SPSS 20.0 foram submetidos aos testes de quiquadrado de Pearson e Kruskall-Wallis ao nível de p = 0.05. O estudo teve aprovação pelo Comitê de Ética em Pesquisa do Centro Universitário FIS (Número do parecer: 7.020.621). **Resultados:** Diante de uma amostra de 42 participantes, houve associação significativa entre a dor dentária e a doença periodontal; no entanto, não houve significância estatística entre os níveis de letramento em saúde bucal e a presença de doença periodontal. **Considerações finais:** Conclui-se que não existe associação entre letramento em saúde bucal e doença periodontal, e o fato de estarem gestantes não influenciou o nível de letramento bucal das mulheres.
**Descritores:** *Letramento em saúde; Doenças periodontais; Gestantes; Epidemiologia; Atenção primária à saúde.*

**RESUMEN**
**Objetivo:** Evaluar la relación entre la alfabetización en salud bucal y las enfermedades periodontales en mujeres embarazadas. **Métodos:** Se trata de un estudio descriptivo transversal con enfoque cuantitativo, realizado con mujeres embarazadas y no embarazadas de dos Unidades Básicas de Salud del municipio de Serra Talhada, Pernambuco. Se midieron los niveles de alfabetización en salud bucal mediante la aplicación del instrumento "Health Literacy in Dentistry Scale" (HeLD-14) y se evaluaron las condiciones periodontales de las participantes a través de exámenes clínicos intraorales, utilizando el Índice Periodontal Comunitario (IPC) y el Índice de Pérdida de Inserción Periodontal. Los datos,

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tabulados en el software SPSS 20.0, fueron analizados mediante las pruebas de chi-cuadrado de Pearson y Kruskal-Wallis (nivel de significancia p = 0,05). El estudio fue aprobado por el Comité de Ética en Investigación del Centro Universitario FIS (Número de dictamen: 7.020.621). **Resultados:** En una muestra de 42 participantes, se encontró una asociación significativa entre el dolor dental y la enfermedad periodontal. Sin embargo, no se observó una relación estadísticamente significativa entre los niveles de alfabetización en salud bucal y la presencia de enfermedad periodontal. **Consideraciones finales:** Se concluye que no existe asociación entre la alfabetización en salud bucal y la enfermedad periodontal, y el hecho de estar embarazada no influyó en el nivel de alfabetización en salud bucal de las mujeres.
**Descriptores:** *Alfabetización sanitaria; Enfermedades periodontales; Mujeres embarazadas; Epidemiología; Atención primaria.*

## INTRODUCTION

Originally in English, the term "Health Literacy" (*Letramento em Saúde* in Portuguese), has been broadened its concept to encompass the skills and abilities individuals have to access, comprehend, evaluate, and apply health information in their daily lives, thus preventing the onset of diseases and promoting health[1-2]. When applied to the field of dentistry, the term is characterized as Oral Health Literacy (OHL), a concept that contributes to patients' autonomy in caring for their oral health[3]. OLH is an indispensable mechanism in health promotion practices, and assessment tools can be used by professionals as a strategy to improve oral health outcomes. However, this topic remains under-researched in the Brazilian context[4].

Pregnant women are considered a priority care group within the *Sistema Único de Saúde* (SUS - Brazil's Unified Health System), given all the changes that occur during this period. Nevertheless, oral health is often treated with neglect[5]. A study carried out by Mesquita, Torres & Vasconcelos Filho[6] concluded that the distancing between pregnant women and the dental team stems from myths and beliefs associated with dental treatment during pregnancy, as well as the insufficient connection between healthcare teams and pregnant women.

Pregnancy entails a series of physiological changes specific to this period, among them hormonal alterations; the increase in sex hormones, estrogen and progesterone; along with vascular changes that increase the inflammatory response to local irritants[7]. These changes can aggravate pre-existing diseases or make pregnant women more susceptible to their onset, negatively affecting systemic health and representing a risk factor for preterm births and low birth weight. Among common diseases in pregnant women is Periodontal Disease (PD)[8].

The development of PD during pregnancy results from the combination of hormonal and vascular changes with the pregnant woman's own neglect of her oral hygiene. PD is characterized as an inflammation of the tooth-supporting periodontium, which may be classified as gingivitis, when the inflammation is restricted to the gingival tissue and is reversible with proper treatment; or periodontitis, which involves the progressive destruction of the dental attachment apparatus[9].

Some factors may be associated with the onset of PD, such as biofilm accumulation, smoking, dental caries, diabetes mellitus, and pregnancy. PD treatment consists of proper oral hygiene, scaling and root planing performed by the dentist, along with the elimination of harmful habits[10].

When PD is detected in pregnant women, treatment should be initiated immediately, also taking into account oral hygiene instruction and health education[7]. In their study, Costa & Silva[11] evaluated the prevalence of periodontal diseases in pregnant women at a specific *Unidade Básica de Saúde* (UBS - Basic Health Unit) and found that PD was present in more than half of the studied population, and that many pregnant women had the mistaken belief that dental treatment during pregnancy could be harmful to the fetus. This reinforces the need to strengthen health education during this period.

OHL remains an underexplored research field in Brazil; however, it is extremely important for understanding the population's health conditions. There is also a lack of studies aimed at assessing pregnant women's knowledge of their oral health conditions. This fact motivated the investigation of the association between this indicator and pregnant women's periodontal conditions. Therefore, this study may contribute to incorporating this indicator into the development of actions aimed at promoting health and autonomy in oral health among primary care users.

Given the above, the present study evaluated how OHL is related to periodontal diseases in pregnant women.

## METHODS

*STUDY DESIGN AND LOCATION*

This is a descriptive, cross-sectional study with a quantitative approach. The research was conducted at the *Unidades de Saúde da Família* (USFs - Family Health Units) Mutirão I and Mutirão II, located in the Mutirão neighborhood of Serra Talhada. This Brazilian municipality, in the state of Pernambuco, has a population of approximately 92,228 inhabitants and is located 415 km from the state capital, Recife.

*POPULATION AND SAMPLE*

The study included pregnant women registered at USFs Mutirão I and Mutirão II, totaling 26 women over 18 years of age, recorded between August and September 2024. For this group, a census sampling method was adopted, including all eligible pregnant women. In parallel, a control group was included with the same number of non-pregnant women during the same period, selected through sampling, and by convenience. These data were obtained from the units' own information systems with the assistance of the *Equipe de Saúde da Família* (ESF - Family Health Team).

*ELIGIBILITY*

The study included pregnant women aged 18 years or older, as well as non-pregnant women present in the waiting rooms of the USFs during the researcher's visit. Among all the women included in the study population, those with total edentulism were excluded.

*DATA COLLECTION*

*Calibration*

Data collection was carried out by a single researcher, previously calibrated regarding the theoretical-practical content related to the conditions under investigation.

*Clinical examination*

The clinical examination was the first stage of research data collection. This stage included a brief initial anamnesis aimed at identifying the sociodemographic profile, issues related to access to health services, self-reported oral morbidity, and women's self-perception of their oral health. After the anamnesis, the "Health Literacy in Dentistry Scale" (HeLD-14) questionnaire was administered to determine each participant's level of Oral Health Literacy.

The HeDL-14 was originally proposed in its initial version, in English, in 2014; in 2020, it was translated and validated for Brazilian Portuguese. This instrument comprises seven domains to be investigated: comprehension, communication, access, receptivity, support, utilization, and economic barriers[12].

The second stage consisted of an intraoral physical examination to assess the participant's periodontal condition. This examination was conducted through periodontal probing with an OMS probe (Golgran Millenium®). The Community Periodontal Index (CPI) and Periodontal Attachment Loss Index (PALI) were used to assess the participants' periodontal status. Index teeth were also selected for evaluation in each of the six sextants, as follows: 17/16 in the first; 11 in the second; 26/27 in the third; 37/36 in the fourth; 31 in the fifth; and 46/47 in the sixth. These teeth were probed at all six periodontal sites. The scoring criteria for these indices were incorporated from the "SB Brasil 2020"[13] and are summarized in Table 1.

**Table 1 - *Scoring criteria* for the CPI and PALI indices. Brazil, 2024**

| *Score* | Description for CPI | Description for PALI |
|---|---|---|
| 0 | Healthy sextant | Attachment loss (AL) between 0 and 3 mm |
| 1 | Bleeding | AL between 4 mm and 5 mm |
| 2 | Presence of calculus | AL between 6 mm and 8 mm |
| 3 | Pocket of 4-5 mm | AL between 9 mm and 11 mm |
| 4 | Pocket of 6 mm or more | AL of 12 mm or more |
| 9 | Sextant excluded | |

**Source:** Adapted from the Technical Manual of "SB Brasil 2020" (Brazil, 2019).

*Data collection instrument*

The data collected were recorded in a clinical examination form, developed based on the methodology of previous studies and on "SB Brasil 2020" itself[12-14].

*Variables*

One of the study's dependent variables was the presence of periodontal disease. This variable took into account the CPI and PALI indices obtained by the participant, which could be classified as "Without PD" (CPI = 0 and PALI = 0) or "With PD" (CPI ≠ 0). Furthermore, the severity of the existing PD could be classified as "mild" (CPI ≤ 2 and PALI = 0); "moderate to severe" (CPI ≥ 2 and PALI = 1); and "severe" (CPI ≥ 2 and PALI > 1)[15-17].

One of the study's independent variables was the total score obtained by the participant in the HeLD-14 instrument. This instrument, in turn, consisted of 14 questions with answers ranging from 0 – "No"; 1 – "With great difficulty"; 2 – "With moderate difficulty"; 3 – "With little difficulty"; or 4 – "With no difficulty at all." The participant's total score could range from 0 to 56. Participants were further categorized based on the median score (47.5) into “Low OHL” (HeLD-14 < 47.5) or “High OHL” (HeLD-14 > 47.5).

Other independent variables included: age in years, categorized based on the median (29); social benefit, which referred to the following question: “Did you receive any income from government social programs in the last year?”; knowing how to read and write; toothache, defined as having experienced pain in any tooth at least once in the past 6 months; self-assessment of oral health, which was categorized as “positive” (for the options “very good” or “good”) and “negative” (for the options “fair,” “very poor,” or “poor”) in response to the question: “In general, how would you rate the health of your teeth and gums?”; self-perceived need for dental treatment; regular access to a dentist, which was defined as at least one visit in the past 6 months; and negative impacts on oral health, referring to the question "Have you felt discomfort, difficulty, or have you been unable to perform any daily activity (eating, talking, brushing your teeth, playing sports, studying, working, sleeping, socializing, smiling) or experienced stress because of your oral health?" Finally, the sample was further divided into four subgroups: "non-pregnant women without PD"; "non-pregnant women with PD"; "pregnant women without PD"; and "pregnant women with PD."

*Community engagement*

The study population was reached and introduced to the research with the assistance of the Family Health Teams of the USFs between August and September 2024. All women, both pregnant and non-pregnant, were approached either within the physical premises of the Units or at their homes. Both the collection of self-reported information and the clinical examination were conducted in quiet and private environments to ensure maximum comfort for participants. In compliance with biosafety standards, both natural lighting and artificial LED lighting were used to aid in diagnosis.

*DATA ANALYSIS*

The collected data were tabulated using the statistical software SPSS 20.0 (IBM Chicago®) and subjected to descriptive statistical analysis to identify absolute and relative frequencies, as well as means, standard deviations, and minimum and maximum values. Nominal categorical variables were analyzed using Pearson's chi-square/Fisher's exact tests. The Shapiro-Wilk test identified an abnormal distribution pattern of the data ($p<0.05$); therefore, numerical variables were analyzed using the Kruskal-Wallis test. All tests adopted a 5% significance level.

*ETHICAL CONSIDERATION*

The study was approved by the Research Ethics Committee of the FIS University Center (CAAE: 80440724.0.0000.8267/Opinion Number: 7.020.621/2024), in accordance with resolution No. 466/12 and No. 580/18 of the Brazilian National Health Council. The study was approved by the Serra Talhada Municipal Health Department. All participants took part after signing the Free Informed Consent Form (FICF).

## RESULTS

The final sample of this study consisted of 42 women, given that 5 were lost from the pregnant group (19.2%) due to refusal to participate in the research. The sample was equally divided into 50% (n = 21) pregnant and non-pregnant women. Among the overall sample, 57.1% (n = 24) were aged up to 29 years; 69% (n = 29) were beneficiaries of social programs; 95.2% (n = 40) knew how to read and write; 33.3% (n = 14) had experienced toothache in the past 6 months; 61.5% (n = 24) self-rated their oral health as positive; 65% (n = 26) self-perceived the need for dental treatment; 59.5% (n = 25) had regular access to a dentist; 78.6% (n = 33) did not report negative impacts on oral health; and 52.4% (n = 22) had a high OHL level. PD was diagnosed in 76.2% (n = 32) of the women, with the "mild" form being found in 57.1% (n = 24). Women who reported toothache were significantly associated with the presence of periodontal disease ($p<0.05$) (Table 1).

**Table 1 - Bivariate analysis between the group belonging to the presence of PD in the research participants using Pearson's chi-square test (n = 42). Brazil, 2024**

| | Group | | | | p-value | PD | | | | dp value | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Non-pregnant women | | Pregnant women | | | Absent | | Present | | | | |
| | n | % | n | % | | n | % | n | % | | n | % |
| **Age (years)** | | | | | | | | | | | | |
| Until 29 | 12 | 50.0 | 12 | 50.0 | 1,000 | 7 | 29.2 | 17 | 70.8 | 0.347 | 24 | 57.1 |
| 30 or more | 9 | 50.0 | 9 | 50.0 | | 3 | 16.7 | 15 | 83.3 | | 18 | 42.9 |
| **Social beneficiary** | | | | | | | | | | | | |
| No | 7 | 53.8 | 6 | 46.2 | 0.739 | 2 | 15.4 | 11 | 84.6 | 0.391 | 13 | 31.0 |
| Yes | 14 | 48.3 | 15 | 51.7 | | 8 | 27.6 | 21 | 72.4 | | 29 | 69.0 |
| **Know how to read and write** | | | | | | | | | | | | |
| No | 1 | 50.0 | 1 | 50.0 | 1,000* | 0 | 0.0 | 2 | 100 | 0.418* | 2 | 4.8 |
| Yes | 20 | 50.0 | 20 | 50.0 | | 10 | 25.0 | 30 | 75.0 | | 40 | 95.2 |
| **Toothache** | | | | | | | | | | | | |
| No | 11 | 39.3 | 17 | 60.7 | 0.050 | 10 | 35.7 | 18 | 64.3 | 0.010 | 28 | 66.7 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yes | 10 | 71.4 | 4 | 28.6 | | 0 | 0.0 | 14 | 100 | | 14 | 33.3 |
| **Oral health self-assessment (n = 39)** | | | | | | | | | | | | |
| Negative | 6 | 40.0 | 9 | 60.0 | 0.265 | 5 | 33.3 | 10 | 66.7 | 0.384 | 15 | 38.5 |
| Positive | 14 | 58.3 | 10 | 41.7 | | 5 | 20.8 | 19 | 79.2 | | 24 | 61.5 |
| **Self-perceived need for dental treatment (n = 40)** | | | | | | | | | | | | |
| No | 7 | 50.0 | 7 | 50.0 | 0.816 | 6 | 42.9 | 8 | 57.1 | 0.056 | 14 | 35.0 |
| Yes | 14 | 53.8 | 12 | 46.2 | | 4 | 15.4 | 22 | 84.6 | | 26 | 65.0 |
| **Regular access to dentist (n = 40)** | | | | | | | | | | | | |
| No | 6 | 35.3 | 11 | 64.7 | 0.116 | 3 | 17.6 | 14 | 82.4 | 0.439 | 17 | 40.5 |
| Yes | 15 | 60.0 | 10 | 40.0 | | 7 | 28.0 | 18 | 72.0 | | 25 | 59.5 |
| **Negative impacts on oral health** | | | | | | | | | | | | |
| No | 15 | 45.5 | 18 | 54.5 | 0.259* | 10 | 30.0 | 23 | 69.7 | 0.058 | 33 | 78.6 |
| Yes | 6 | 66.7 | 3 | 33.3 | | 0 | 0.0 | 9 | 100 | | 9 | 21.4 |
| **OHL Classification** | | | | | | | | | | | | |
| Low | 7 | 35.0 | 13 | 65.0 | 0.064 | 3 | 15.0 | 17 | 85.0 | 0.201 | 20 | 47.6 |
| High | 14 | 63.6 | 8 | 36.4 | | 7 | 31.8 | 15 | 68.2 | | 22 | 52.4 |
| **PD** | | | | | | | | | | | | |
| Absent | 5 | 50.0 | 5 | 50.0 | 1,000 | - | - | - | - | - | 10 | 23.8 |
| Present | 16 | 50.0 | 16 | 50.0 | | - | - | - | - | | 32 | 76.2 |
| **PD Severity** | | | | | | | | | | | | |
| Absent | 5 | 50.0 | 5 | 50.0 | 1,000* | - | - | - | - | - | 10 | 23.8 |
| Mild | 12 | 50.0 | 12 | 50.0 | | - | - | - | - | | 24 | 57.1 |
| Moderate to Severe | 4 | 50.0 | 4 | 50.0 | | - | - | - | - | | 8 | 19.0 |
| Severe | 0 | 0.0 | 0 | 0.0 | | - | - | - | - | | 0 | 0.0 |
| **Group** | | | | | | | | | | | | |
| Non-pregnant women | - | - | - | - | - | 5 | 23.8 | 16 | 76.2 | 1,000 | 21 | 50.0 |
| Pregnant women | - | - | - | - | | 5 | 23.8 | 16 | 76.2 | | 21 | 50.0 |
| **Total** | **21** | **50.0** | **21** | **50.0** | | **10** | **23.8** | **32** | **76.2** | | **42** | **100** |

*Fisher's Exact Test.

**Source:** Prepared by the author.

The mean HeDL-14 score was 46.10 (±6.963), with no significant difference between pregnant and non-pregnant women (p>0.05) (Table 2).

**Table 2 - Comparative analysis between the HeDL-14 score and the participant group using the Kruskall-Wallis test (n = 42). Brazil, 2024**

| Group | n | Average | PD | Med. | Min. | Max. | p-value |
|---|---|---|---|---|---|---|---|
| Non-pregnant women | 21 | 48.62 | 4,006 | 49.00 | 41 | 55 | 0.058 |
| Pregnant women | 21 | 43.57 | 8,364 | 46.00 | 28 | 55 | |
| No PD | 10 | 46.10 | 10,027 | 50.50 | 32 | 55 | 0.314 |
| With PD | 32 | 46.09 | 5,910 | 47.00 | 28 | 55 | |
| Non-pregnant women without PD | 5 | 51.00 | 2,739 | 53.00 | 48 | 53 | 0.134 |
| Non-pregnant women with PD | 16 | 47.88 | 4,113 | 48.50 | 41 | 55 | |
| Pregnant women without PD | 5 | 41.20 | 12,598 | 32.00 | 32 | 55 | |
| Pregnant women with PD | 16 | 44.31 | 6,964 | 46.50 | 28 | 52 | |
| **Total** | **42** | **46.10** | **6,963** | **48.00** | **28** | **55** | |

Med. = median; SD = standard deviation.

## DISCUSSION

Due to the unique nature of pregnancy, pregnant women are considered a priority care group within the SUS, as the human body during this stage becomes more susceptible to oral and systemic changes and to the development of pathologies such as PD[7, 18]. By measuring the oral health literacy level of this population, it is possible to develop strategic action plans aimed at promoting health in vulnerable contexts, such as providing oral health education to individuals with different literacy levels, in order to prevent diseases. Given this context, the present study aimed to evaluate the association between OHL and the occurrence of PD in pregnant women receiving primary care. Thus, it was observed that literacy level does not influence the presence of the disease.

When comparing OHL levels between the studied groups, pregnant women had lower scores, although not statistically significant. A similar finding was reported by Afshar *et al.*[19], who observed inadequate OHL levels in most of the pregnant women participating in their study. However, in the present study, pregnancy was not significantly associated with OHL level. When assessing how OHL is associated with PD, it was observed that there was also no relationship between these indicators. This finding differs from the literature, which shows that individuals with lower literacy levels tend to have more severe periodontal conditions and that this is linked to sociodemographic and behavioral factors[20].

In the present study, most women with low OHL were pregnant, and PD prevalence was higher in individuals with the lowest level of the classification used, which corroborates the findings of Bado *et al.*[20]. The authors reported that poor periodontal health status was associated with Primary Health Care (PHC) service users

with low levels of oral health literacy. These findings suggest that an individual's literacy level can interfere with their ability to make judgments and decisions about their oral health; and pregnant women, in turn, may hold misconceptions that lead to an increased risk of PD and lack of access to dental treatment during pregnancy. All of these factors become barriers to comprehensive patient care and may negatively affect their oral health.

The results also showed that PD was significantly associated with toothache. A similar finding was reported by Aranha *et al.*[21], who, analyzing the factors associated with toothache in Brazilian adults, found that periodontal alterations such as gingivitis or dental calculus predispose to a higher risk of odontalgia. According to Macedo *et al.*[22], toothache is also related to PD and other conditions, such as caries and low family income. They also note that toothache is more prevalent in women, possibly due to female hormones, which can influence the pain threshold. It is known that alterations in the oral cavity, such as gingival bleeding and toothache, worsen affected individuals' quality of life[23].

Therefore, it can be inferred that pain and PD can have significant impacts on public health, as they lead to an increased demand for dental care and, consequently, higher costs for the healthcare system, since curative actions require more financial resources than preventive measures. Moreover, it increases the risk of these individuals developing systemic health problems, which can negatively affect the quality of healthcare services offered, as well as people's quality of life.

Although not statistically significant, in this study, the data suggest that age may influence the occurrence of PD, as participants showed a higher prevalence of the disease as they aged. According to these findings, Lima *et al.*[24] argue that socioeconomic conditions and age are major PD risk factors. In line with these authors, the present study also observed a higher prevalence of PD in women receiving social benefits. One possible explanation for these findings is tissue changes due to aging, combined with poor hygiene habits throughout life, and greater exposure to the disease risk factors among people with lower socioeconomic status. Studies with larger and broader samples are needed to confirm this finding.

The literature shows that more than two-thirds of the adult population in Brazil evaluates their oral health positively and that socioeconomic factors may influence this perception[25]. According to Salvador & Toassi[26], a positive self-perception of oral health is linked to aesthetics and the number of teeth in the mouth. In the present study, most participants rated their oral health positively, although PD was prevalent among them. Despite the apparent inconsistency of these results, given that PD was present in most of these participants, this may reinforce the findings of Salvador & Toassi[26], which indicate that a positive perception of oral health is linked to tooth count, even when they are unhealthy, that is, as long as aesthetics are not visibly affected.

In this study, most women reported perceiving the need for dental treatment. This finding is consistent with the study by Reis, Carvalho & Carvalho[27], who analyzed the self-perceived oral health of dental service users and found that 90.85% of individuals reported needing treatment for their teeth and gums. In this study, PD was present in most participants who perceived such a need. One possible explanation for

these findings is the fact that most participants were women who were already seeking care at the Basic Health Unit. Regarding the high prevalence of PD, it suggests that, despite having access to dental services, inadequate oral hygiene habits persisted among these women.

When assessing regular dental care, most women who did not attend the service were pregnant, and most of them had PD. A similar finding was reported by Deghatipour *et al.*[28], who found that pregnant women were less likely to access dental care. In Brazil, a study evaluated the prevalence of PD in pregnant women at a UBS in Natal, Rio Grande do Norte, and found that dental calculus was present in 4 of every 6 sextants examined, suggesting lack of dental visits and inappropriate oral hygiene habits even before pregnancy, as well as absence of treatment during prenatal care[11].

The lack of dental appointments may be due to fear and misconceptions about dental treatment during pregnancy. The prevalence of PD in these women without regular access to dental care may be explained by the lack of use of basic health services, as these services aim to prevent and treat oral conditions.

All women reporting negative oral health impacts had PD. Hong *et al.*[29] found in their study that women with the disease had lower oral health-related quality of life compared to those without. This suggests that PD negatively affects people's quality of life, as it can lead to toothache, halitosis, tooth mobility, and even tooth loss.

The oral health of pregnant women is essential to prevent complications during pregnancy and promote the overall health of both mother and baby, highlighting the importance of dental care for this population[30]. Thus, the present findings underscore the need for strategies to improve oral health indicators among pregnant women included in this study.

The study had some limitations, such as its cross-sectional design, which does not allow causal inference, and the convenience sampling method. However, a satisfactory number of pregnant women was obtained, and comparison with an equal number of non-pregnant women was possible. To date, no studies assessing pregnant women's OHL and its association with PD had been conducted in the Pernambuco hinterland (*sertão pernambucano* in Brazilian Portuguese).

## FINAL CONSIDERATIONS

From this study, it was possible to conclude that there was no association between PD and OHL level, nor between this indicator and pregnancy. It was also possible to observe that PD is associated with the presence of toothache, regardless of pregnancy status.

The research highlights the importance of considering individuals' literacy levels, especially among pregnant women, in public oral health actions. This will ensure that health information is delivered clearly and accessible to people with varying levels of understanding. Furthermore, social and demographic factors to which these patients are exposed should be considered so that health services are provided equitably and comprehensively. The high PD prevalence found in this study also highlights the need for public health education initiatives and reinforces the importance of regular dental visits and treatment.

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