BrJP. 2025, v.8:e20250022 • https://doi.org/10.63231/2595-0118.20250006-en

BrJP
Brazilian Journal of Pain

ORIGINAL ARTICLE

Surveillance of toothache in primary health care in Brazil: time series 2014-2023

Vigilância da dor de dente na atenção primária à saúde no Brasil: série temporal de 2014-2023

Letícia Araújo Moncôrvo Lima1, Anny Karlen Brito da Silva[1], Alcir José de Oliveira-Júnior[2], Temístocles Damasceno Silva[1], Haroldo José Mendes[1], Manoelito Ferreira Silva-Junior[1]

[1.] Universidade Estadual do Sudoeste da Bahia, Departamento de Saúde I, Jequié, BA, Brasil.
[2.] Ministério da Saúde, Coordenação Nacional de Saúde Bucal, Brasília, DF, Brasil.

Correspondence to:
Manoelito Ferreira Silva-Junior
manoelito.junior@uesb.edu.br

Submitted on:
August 30, 2024.
Accepted for publication on:
November 26, 2024.
Conflict of interests:
none.
Sponsoring sources:
none.

Associate editor in charge:
Luci Mara França Correia

ABSTRACT

BACKGROUND AND OBJECTIVES: Toothache is a marker of failure in care and resolution, and therefore it is an indicator of oral health surveillance in Primary Health Care (PHC). The objective of the present study was to analyze the toothache notification in PHC among the Brazilian states and geographic regions over ten years.

METHODS: The ecological study used secondary data extracted in April 2024 on toothache surveillance, through the Health Information System for Primary Care, referring to the annual data (January-December) from 2014 to 2023. Population data were extracted from the Brazilian Institute of Geography and Statistics. The occurrence, annual rate, and annual percentage variation were calculated.

RESULTS: In ten years, pain was reported in 46,514,494 teeth. The lowest annual rate was 2.63 teeth per 1,000 inhabitants/year in 2014, and the highest 35.81, in 2023. The lowest rates were in the following states: RO, RR, RJ, and DF, and the highest in AC, AL, RN, and TO. Among the geographic regions, the lowest rates were in the Southeast and South, and the highest rates in the Northeast and North. There was a percentage increase in toothache in Brazil, with the exception of 2020 (-23.3%). Among the regions, a reduction was only observed in the Southeast between 2017-2016 (-14.9%).

CONCLUSION: Toothache had a high rate of occurrence and an annual increase in PHC in Brazil, except for 2020, with marked disparities between states and Brazilian regions.

KEYWORDS: Primary Health Care, Toothache, Public Health Surveillance.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A dor de dente é um marcador de falha na assistência e na resolutividade, e por isso é um indicador da vigilância de saúde bucal na Atenção Primária à Saúde (APS). O objetivo deste estudo foi analisar a notificação de dor de dente na APS entre as Unidades Federativas (UF) e regiões geográficas brasileiras ao longo de 10 anos.

MÉTODOS: O estudo ecológico utilizou dados secundários sobre a vigilância da dor de dente extraídos em abril de 2024, por meio do Sistema de Informação em Saúde para a Atenção Básica, referente aos dados anuais (janeiro-dezembro) de 2014 a 2023. Os dados populacionais foram extraídos do Instituto Brasileiro de Geografia e Estatística. Foi calculada ocorrência, taxa anual e variação anual percentual.

RESULTADOS: Em 10 anos foi notificado dor em 46.514.494 dentes. A menor taxa anual foi de 2,63 dentes por 1.000 habitantes/ano em 2014, e a maior 35,81, em 2023. As menores taxas foram nas UFs: RO, RR, RJ e DF, e as maiores no AC, AL, RN e TO. Entre as regiões geográficas, as menores taxas foram no Sudeste e Sul, e as maiores taxas no Nordeste e no Norte. Houve aumento percentual da dor de dente no Brasil, com exceção do ano de 2020 (-23,3%). Entre as regiões, verificou-se redução apenas no Sudeste, entre 2017-2016 (-14,9%).

CONCLUSÃO: A dor de dente apresentou alta taxa de ocorrência e aumento anual na APS no Brasil, com exceção do ano de 2020, com disparidades marcantes entre as UFs e as regiões brasileiras.

DESCRITORES: Atenção Primária à Saúde, Odontalgia, Vigilância em Saúde Pública.

HIGHLIGHTS

- There was a high annual occurrence rate of toothache notification in Primary Health Care in Brazil in the time evaluated.
- The annual occurrence rate of toothache notification decreased only in 2020, as a result of the COVID-19 pandemic, but from 2021 onwards it returned to higher rates than in the pre-pandemic period
- There were clear disparities in the rate of notification of toothache occurrence between the states and geographic regions of Brazil, with lower rates in the South and Southeast, and higher rates in the North and Northeast

INTRODUCTION

In Brazil, dental care has historically been marked by an approach focused on mutilating, curative and technical treatments. This was due to the practices adopted by professionals in the field and the lack of public health policies[1]. Thus, actions were concentrated on priority groups and limited procedures, such as tooth extractions, which were often used to solve patients' oral problems[1]. This scenario is reinforced by the fact that the demand for oral health services is still related to pain, emergencies or the need to treat cavities and periodontal diseases[2,3].

In Brazil, since 1990, with the implementation of the new Public Health System (*Sistema Único de Saúde* - SUS), the aim has been to reduce the challenges and guarantee comprehensive and universal care[1], including oral health. In 2001, oral health teams (*equipes de Saúde Bucal* - eSBs) were created within the Family Health Strategy (*Estratégia de Saúde da Família* - ESF), and in 2004 the National Oral Health Policy (*Política Nacional de Saúde Bucal* - PNSB) was implemented. These advances led to the expansion of the eSBs and the reorganization of services with a focus on Primary Health Care (PHC)[4-6], highlighting the importance of expanding the population's access to oral health promotion, prevention and recovery actions, especially with the inclusion of dental surgeons in the multi-professional teams of health units throughout the country[4].

Considering the dynamics of the model established by SUS, which is based on Health Surveillance[7], it can be seen that PHC has used indicators, including oral health indicators, to monitor and develop more effective interventions. It is worth noting that the aim of oral health surveillance is to analyze the epidemiological profile of diseases and problems, enabling factors that affect the population's quality of life to be identified, understood, discussed and tackled[8].

In order to properly recognize the process of health and disease, it is essential to use tools that gather information on the individual and collective health conditions of SUS users. The Primary Care Health Information System (Sistema de Informação em Saúde para a Atenção Básica - SISAB), created in 2013 and made compulsory from January 2016, has made it possible to simultaneously collect data both for organizing the financing of services and for adherence to the programs and strategies of PNSB. This includes the use of indicators that show toothache as the main reason for seeking dental care[8].

Therefore, the aim of this study was to analyze the notification of toothache in PHC among the Brazilian states (*Unidades Federativas* - UFs) and geographic regions over ten years.

METHODS

Study design and ethical aspects

This time-series study used secondary data made available by the Brazilian Ministry of Health through SISAB[9], as well as data from the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* - IBGE)[10,11]. As the secondary data is public domain, this study did not require the approval of a Research Ethics Committee.

Source of data extraction

The data was extracted by two researchers in April 2024 from two different databases. For the toothache variable, the absolute number of reported annual cases (January to December) of toothache between 2014 and 2023 was extracted from the SISAB website[9].

SISAB is an integrated Primary Health Care information system responsible for collecting data that municipalities are obliged to provide. This data is obtained through different platforms, such as the Simplified Data Collection (*Coleta de Dados Simplificada* - CDS - available online and offline), the Electronic Citizen Record (*Prontuário Eletrônico do Cidadão* - PEC), Android® devices or through proprietary systems using Apache THRIFT transport technology. For more details on the data validation process, see the Technical Note on data sent to SISAB[12].

When filling out the user's electronic medical record, the professional should check the box referring to the oral health surveillance conditions perceived at the time of the clinical consultation[13]. The Ministry of Health recommends six oral health surveillance indicators in PHC, namely: alveolar tooth abscess, soft tissue alteration, toothache, cleft lip-palate, moderate/severe dental fluorosis and dento-alveolar trauma. However, given the specific characteristics of each indicator, this study opted to research only one of them, toothache.

Population data was taken from the population estimate for the years 2014 to 2021, while for the years 2022 and 2023 data from the IBGE's 2022-2023 Census[10] was used.

Data analysis

The raw data was organized in Excel spreadsheets (Microsoft). The data was presented using absolute frequency, annual rate and annual percentage variation. The annual rates of notified cases of toothache in PHC were calculated as follows (Equation 1):

$$Annual\ rate = \frac{Absolute\ value\ of\ reported\ cases\ of\ toothache}{Annual\ population} \times 1.000 \quad (1)$$

The constant (× 1.000) was standardized considering that there was at least one annual reference rate expressed as an integer. The annual percentage change in the absolute values of Primary Care dental production was calculated as follows (Equation 2):

$$Annual\ change\ (\%) = \frac{Annual\ rate\ (current\ -\ previus)}{Annual\ rate\ previus} \times 100 \quad (2)$$

RESULTS

Over a 10-year period, pain was reported in 46,514,494 teeth in Brazil. The lowest annual rate recorded was 2.63 teeth per 1,000 inhabitants in 2014, while the highest rate, 35.81, occurred in 2023. During this period there was a percentage increase in the number of toothache cases, except in 2020, when there was a decrease of 23.3% (Figure 1).

The lowest state rates were: Rondônia (RO), Roraima (RR), Rio de Janeiro (RJ) and the Federal District (DF). On the other

hand, the highest rates were Acre (AC), Alagoas (AL), Rio Grande do Norte (RN) and Tocantins (TO - Figure 2).

Among the geographical regions, there were lower rates in Southeast (2014-2015 and 2017-2023) and South (2016), and higher rates in Northeast (2014 to 2022) and North (2023 - Figure 3).

In the initial years analyzed (2015 and 2016), the annual percentage change was significant, with increases of over 100%. The only negative variation occurred in 2020, compared to 2019, affecting all of Brazil's geographic regions. In addition, the Southeast region also recorded a negative percentage change between 2016 and 2017, with a drop of 14.9% (Table 1).

DISCUSSION

This study revealed a significant increase in notifications of toothache in PHC over the years. Although epidemiological data indicates a reduction in the prevalence of oral diseases such as caries and periodontal disease, toothache is still very common in the Brazilian population[14,15]. This shows that, despite efforts at prevention and health promotion, the demand for emergency dental care is still frequent in public oral health services[3,16].

The increase in the number of toothache notifications may reflect factors other than the actual increase in cases. Since 2016 there has been a significant increase in the notification rate for toothache, which may be related to improvements in registration processes, and not necessarily to an actual increase in occurrences. Although SISAB began to replace the Primary Care Information System (*Sistema de Informação da Atenção Básica* - SIAB) as of Ordinance GM/MS No. 1,412 of July 10, 2013, it was in January 2016 that the transition was consolidated[17]. As of that date, Ordinance No. 1113 of July 31, 2015[18] came into effect, making it mandatory to send data exclusively via SISAB, which became the official Primary Care information system, essential for funding purposes and adherence to the programs of the National Primary Care Policy. In this context, the Brazilian Ministry of Health determined that Basic Health Units

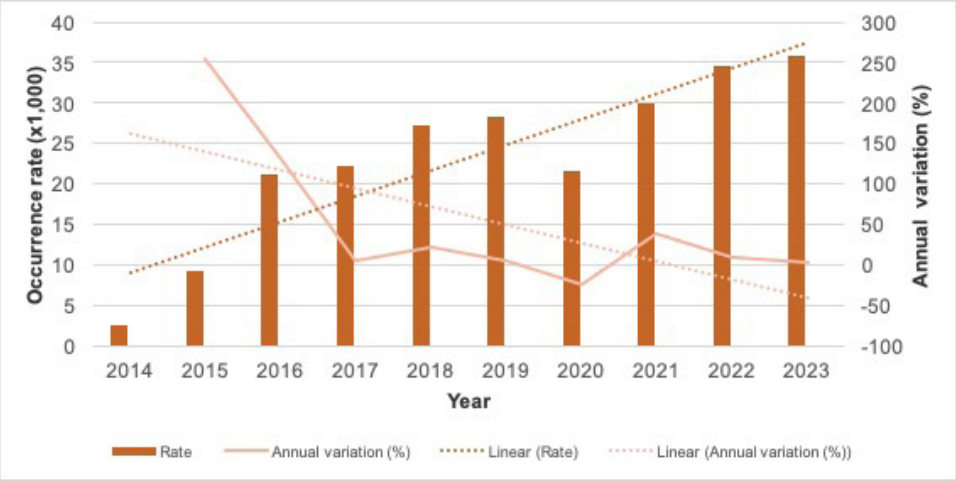

Figure 1. Time series of annual occurrence rate and annual percentage change of toothache notification in Primary Health Care in Brazil between 2014-2023. The Federal District only showed results after 2016.
Source: Brazilian Ministry of Health[9], Brazilian Institute of Geography and Statistics[10].

Table 1. Annual percentage change in the absolute number of notified cases of toothache in Primary Health Care by Brazilian geographic region 2014-2023.

Brazilian geographic region	Annual variation (%)								
	2015-2014	2016-2015	2017-2016	2018-2017	2019-2018	2020-2019	2021-2020	2022-2011	2023-2022
South	367.4	117.0	28.9	9.3	1.1	-9.0	46.1	2.0	4.8
Southeast	339.6	251.5	-14.9	29.8	8.9	-25.3	37.6	13.1	2.4
Midwest	294.6	123.5	8.6	31.3	1.2	-23.1	37.4	18.4	10.3
Northeast	195.5	63.4	23.7	16.7	2.5	-24.2	40.8	6.0	1.8
North	240.1	95.2	24.7	26.8	6.6	-27.3	36.4	14.5	7.0
Total (Brazil)	253.7	130.7	6.3	22.6	5.0	-23.3	39.5	10.0	3.6

Source: Brazilian Ministry of Health[9], Brazilian Institute of Geography and Statistics[10].

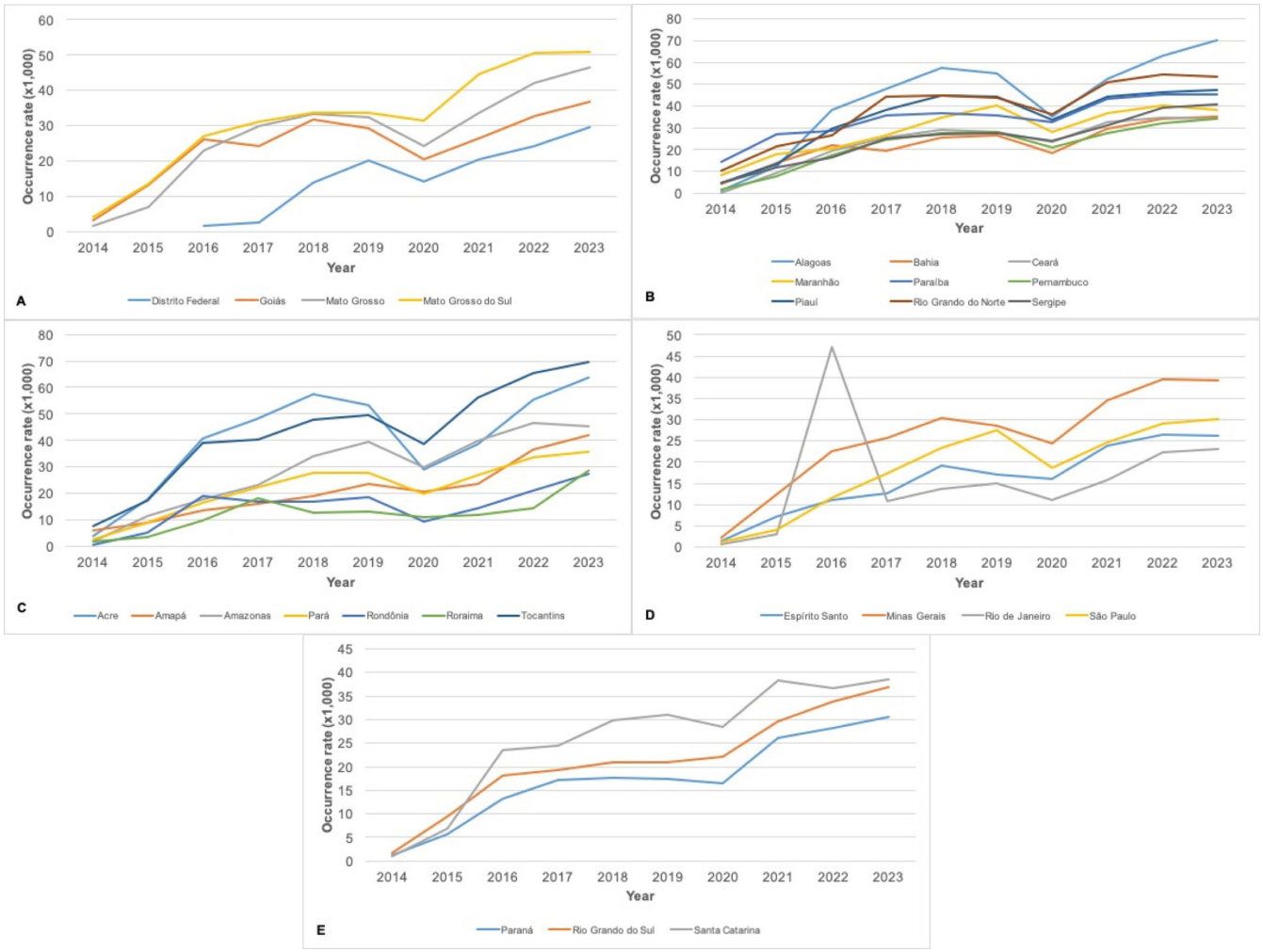

Figure 2. Time series of the annual occurrence rate of toothache notification in Primary Health Care by state in Midwest (A), Northeast (B), North (C), Southeast (D) and South (E); 2014-2023. *The Federal District only showed results after 2016.
Source: Brazilian Ministry of Health9, Brazilian Institute of Geography and Statistics[10].

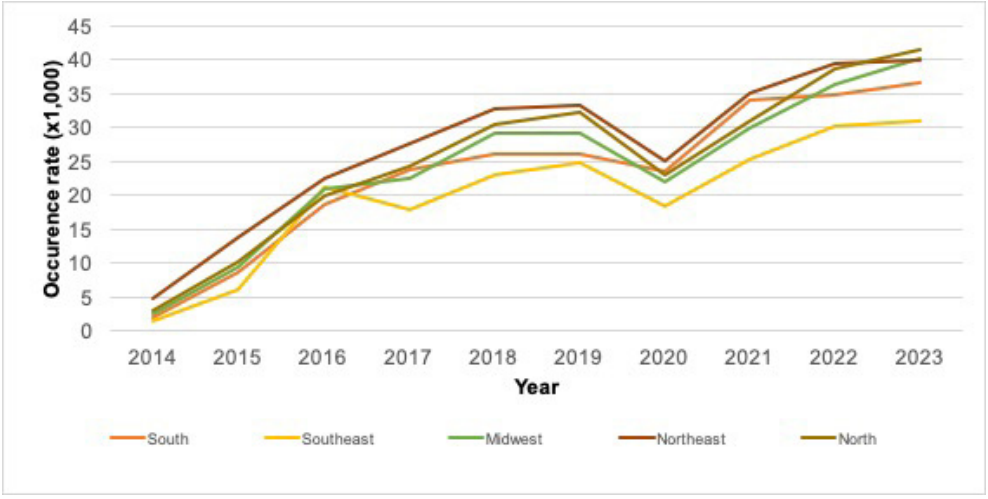

Figure 3. Time series of the annual occurrence rate of toothache notification in Primary Health Care by Brazilian geographic region 2014-2023. Data from the Federal District is not included in the Midwest region for 2014 and 2015, since data is not presented in the Information System.
Source: Brazilian Ministry of Health[9], Brazilian Institute of Geography and Statistics[10].

should adopt the e-SUS PHC system, using CDS, PEC or mobile applications. Failure to comply with this requirement would result in the loss of SUS transfers to Primary Care[19]. This process may have encouraged the adoption of technological resources, improvements in the connection and training of teams, contributing to the increase in SISAB notifications.

The increase in the number of reported cases of toothache over time may also be related to the expansion of oral health teams. One study showed that oral health coverage in PHC grew more than the population over the same period[20]. This means that increased coverage led to more care. Although the expansion has occurred mainly among the oral health teams of the Family Health Strategy, including a historically excluded population, it is important to consider that many seek the service in situations of pain[3,16].

Difficulties in access and high demand for dental consultations and preventive procedures or initial treatments can lead to demand for urgent or emergency care[3]. One study pointed out that between 2008 and 2018, there was a downward trend in collective actions, individual preventive actions, restorations and exodontia in SUS, while prosthetic procedures increased[21]. These data reinforce the need to rethink the logic of care, going beyond simple quantitative expansion and also focusing on improving the quality and resolutiveness of SUS services.

This study found that only in 2020 was there a reduction in the number of reported cases of toothache in Brazil, both in geographical regions and the states. This is in line with the impact of the COVID-19 pandemic on dental production, provision and care, including in PHC[22].

Although dental care during the pandemic has been restricted to urgent or emergency cases, including toothache, other factors have further reduced care capacity. These factors include the dismissal of professionals due to risk or contamination, relocation to the front line, a shortage of materials, a decrease in service capacity due to physical distancing and an increase in the interval between appointments, as well as the creation of more distant service points[22,23]. These elements probably influenced many users' decision not to seek public services in the first year of the pandemic. In addition, the impact was variable between locations, due to the gradual return of activities, which depended on the decisions of local health managers, based on the epidemiological situation in each region[24].

This study found that the highest toothache notification rates occurred in the North and Northeast regions, especially in the states of Acre (AC), Alagoas (AL), Rio Grande do Norte (RN) and Tocantins (TO). On the other hand, the lowest rates were recorded in states such as Rondônia (RO), Roraima (RR), Rio de Janeiro (RJ) and the Federal District (DF). It is important to note that the Federal District did not release data in the first two years of the analysis, which may have led to underreporting for the Midwest. In addition, the Midwest was the region that expanded its oral health teams the least, as pointed out by another study[6].

The inequalities between Brazil's federal units can be explained by various geographical, economic, social, cultural and political factors. The tripartite format for financing and managing the SUS also contributes to this variation, since adherence to Ministry of Health policies depends on local management capacity and the financial and training counterparts of municipalities and states[25,26]. In this context, health surveillance plays an important role in reducing these inequalities, as evidenced by the indicators.

As for geographical regions, the North and Northeast had the highest toothache notification rates, while the South and Southeast had the lowest. This disparity may be linked to both the availability of services and the more unfavorable epidemiological conditions in areas of greater socioeconomic vulnerability, such as the Northeast, which has the highest occurrence rates. Although the Northeast has the highest population coverage of oral health teams in PHC linked to ESF, the region also faces the greatest oral health needs, due to greater dependence on SUS, high epidemiological demand and precarious socioeconomic conditions[27]. This highlights the importance of specific strategies to expand access and adequately serve this population.

On the other hand, the Southeast, despite having low coverage of the ESF[28], has the lowest notification rates and the highest prevalence of oral health teams carrying out preventive procedures, in line with the sanitary model aimed at the well-being of the population[29]. This region also has a high Human Development Index (HDI) and better socio-economic conditions, in contrast to the North and Northeast regions, where socio-economic conditions are more unfavorable. This disparity shows how socio-economic inequalities are directly reflected in health inequalities[30].

The literature shows that SUS is still influenced by a curative-biomedical model, which reduces the health-disease process to a predominantly physiological perspective[31]. This highlights the need to rethink the oral health care model offered. As the results of this study indicate, the intention of ESF as a way of reorganizing the care model, with a focus on prevention and health promotion, is not being fully met. Even in regions or states with extensive ESF coverage, a high number of people with toothache were observed, suggesting that the system is acting in a more curative than preventive way. This reveals a lack of resolution, as it only treats the disease and does not consider the user in an integral way.

This study has limitations because it is a survey using secondary data, provided by the Brazilian Ministry of Health, with limited information available. Although the results are nationwide, there is no certainty about the process of training professionals to fill them in correctly, especially since health surveillance indicators are not compulsory, and so the data may be underreported.

In addition, this study uses data from electronic medical records filled out by dental surgeons linked to oral health teams, considering only SUS PHC users who sought dental care. This excludes information on individuals who were not seen or who sought other types of public services, such as Emergency Care Units (*Unidades de Pronto Atendimento* - UPAs) or Hospital Units. Despite this limitation, this study provides a valuable overview of toothache surveillance in PHC and highlights the importance of incorporating new data sources and points of care that address this condition.

It is important to note that data on toothache is extremely relevant for monitoring the oral health of the population, as it provides crucial information for assessing the organizational structure of PHC. In addition, these data can contribute to the implementation of new health policies, taking into account contextual factors that affect the population's quality of life, such as socioeconomic and

behavioral aspects related to oral and general health. This will strengthen actions to promote, prevent and recover the health of individuals. However, future studies could more accurately assess the implementation of public oral health policy from the perspective of dental pain health surveillance.

CONCLUSION

The rate of toothache was high in Brazil and there was an annual increase in the notification of cases in Primary Health Care, except in 2020, which was due to the COVID-19 pandemic.

In relation to the Brazilian states and geographical regions, disparities are evident, with the lowest state rates in South and Southeast, and the highest in North and Northeast.

REFERENCES

1. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. A saúde bucal no Sistema Único de Saúde. Brasília: Ministério da Saúde; 2018.
2. Bastos LMC, Guaitolini AF, Aguiar AD, Rocha RPO, Barros Miotto MHM. Epidemiologia das perdas dentárias e expectativa de reposição protética em adultos e idosos. Rev Enfermagem Atual In Derme. 2023;98(1):e00234257.
3. Silva MF Jr, Batista MJ, Sousa MLR. Correction: risk factors for tooth loss in adults. A population-based prospective cohort study. PLoS One. 2019;14(12):e0226794. http://doi.org/10.1371/journal.pone.0226794. PMid:31841552.
4. Cayetano MH, Carrer FCA, Gabriel M, Martins FC, Pucca GA Jr. Política Nacional de Saúde Bucal Brasileira (Brasil Sorridente): um resgate da história, aprendizados e futuro. Univ Odontol. 2019;38(80):1-23. http://doi.org/10.11144/Javeriana.uo38-80.pnsb.
5. Silva NCGBS, Rocha MP, Aragão GCA, Feres ABS, Marques TB, Silva EBS. Inclusão da Saúde Bucal na Estratégia de Saúde da Família: dificuldades e potencialidades / inclusion of oral health in the family health strategy. Id On Line Rev Psicol. 2019;13(48):243-53. http://doi.org/10.14295/idonline.v13i48.2158.
6. Pucca GA Jr, Gabriel M, Paludetto M Jr, Lucena EHG, Melo NS. Acesso e cobertura populacional à saúde bucal após a implementação da política nacional de saúde bucal "Brasil Sorridente". Tempus. 2020;14(1):29-43.
7. Teixeira CF, Paim JS, Vilasbôas AL. SUS, modelos assistenciais e vigilância da saúde. Inf Epidemiol. Sus. 1998;7(2):7-28. http://doi.org/10.5123/S0104-16731998000200002.
8. Diniz FC. Vigilância da dor de dente no Brasil: um estudo a partir dos dados do SISAB [monografia]. Belo Horizonte: Universidade Federal de Minas Gerais; 2023 [citado 2024 abr 30]. http://hdl.handle.net/1843/61316
9. Brasil. Ministério da Saúde. Sistema de Informação em Saúde para a Atenção Básica. Versão 2.1.240516. Brasília: Departamento de Informação e Informática do Sistema Único de Saúde; 2024 [citado 2024 abr 30]. https://sisab.saude.gov.br/
10. Instituto Brasileiro de Geografia e Estatística. Estimativas da população. Rio de Janeiro: IBGE; 2024 [citado 2024 abr 30]. https://www.ibge.gov.br/estatisticas/sociais/populacao/9103-estimativas-de-populacao.html
11. Instituto Brasileiro de Geografia e Estatística. Censo demográfico. Rio de Janeiro: IBGE; 2024 [citado 2024 abr 30]. https://www.ibge.gov.br/estatisticas/sociais/trabalho/%2022827-censo-demografico-2022.html
12. Brasil. Ministério da Saúde. Secretaria de Atenção Primária à Saúde. Departamento de Saúde da Família. Coordenação Geral de Informação da Atenção Primária à Saúde. Sistema de Informação em Saúde para a Atenção Básica – SISAB. Nota técnica explicativa: relatório de validação. Brasília: Ministério da Saúde; 2021 [citado 2024 maio 15]. https://sisab.saude.gov.br/resource/file/nota_tecnica_relatorio_validacao_210219.pdf
13. Brasil. Ministério da Saúde. Secretaria de Atenção Primária à Saúde. Departamento de Saúde da Família. Coordenação Geral de Informação da Atenção Primária à Saúde. Sistema de Informação em Saúde para a Atenção Básica – SISAB. Nota técnica explicativa: relatório de saúde (produção). Brasília: Ministério da Saúde; 2021 [citado 2024 maio 15]. https://sisab.saude.gov.br/resource/file/nota_tecnica_relatorio_saude_producao_210802.pdf
14. Hugo FN, Bailey JA, Stein C, Cunha AR, Iser BPM, Malta DC, Giordani JMA, Hilgert JB, Abreu LG, Kassebaum NJ. Prevalence, incidence, and years-lived with disability due to oral disorders in Brazil: an analysis of the Global Burden of Disease Study 2019. Rev Soc Bras Med Trop. 2022;55(Suppl I):e0284. http://doi.org/10.1590/0037-8682-0284-2021.
15. Brasil. Ministério da Saúde. Secretaria de Atenção Primária à Saúde. Secretaria de Vigilância em Saúde. SB Brasil 2010: Pesquisa Nacional de Saúde Bucal: resultados principais. Brasília: Ministério da Saúde; 2012.
16. Silva-Junior MF, Sousa ACC, Batista MJ, Sousa MDLR. Condição de saúde bucal e motivos para extração dentária entre uma população de adultos (20-64 anos). Cien Saude Colet. 2017;22(8):2693-702. http://doi.org/10.1590/1413-81232017228.22212015. PMid:28793083.
17. Brasil. Ministério da Saúde. Portaria nº 1.412, de 10 de julho de 2013. Institui o Sistema de Informação em Saúde para a Atenção Básica (SISAB). Diário Oficial da União; Brasília; 2013.
18. Brasil. Ministério da Saúde. Portaria nº 1.113, de 31 de julho de 2015. Altera o prazo do envio obrigatório ao SISAB para a partir de janeiro de 2016. Diário Oficial da União; Brasília; 2015.
19. Barbosa DV, Nóbrega WFS, Silva GCBD, Melo Neto OM, Feitosa FSQ. Prontuário eletrônico do cidadão: aceitação e facilidade de uso pelos cirurgiões-dentistas da atenção básica. Arch Health Invest. 2020;9(5):414-9. http://doi.org/10.21270/archi.v9i5.4795.
20. Santos PO, Pereira PPS, Pontes DO, Almeida RMF, Sabini AAC, Dias AGA. Cobertura de saúde bucal no Brasil, região Norte e Rondônia de 2010 a 2020: Saúde bucal no Brasil: 2010 a 2020. Rev Bras Prom Saúde. 2023;36:9. http://doi.org/10.5020/18061230.2023.14007.
21. Souza GCA, Mourão SA, Emiliano GBG. Série temporal da produção odontológica no Sistema Único de Saúde, Brasil, 2008-2018. Epidemiol Serv Saude. 2022;31(1):e2021213. http://doi.org/10.1590/s1679-49742022000100007. PMid:35319645.
22. Chisini LA, Costa FS, Sartori LRM, Corrêa MB, D'Avila OP, Demarco FF. COVID-19 pandemic impact on Brazil's Public Dental System. Braz Oral Res. 2021;35:e082. http://doi.org/10.1590/1807-3107bor-2021.vol35.0082. PMid:34287465.
23. Danigno JF, Echeverria MS, Tillmann TFF, Liskoski BV, Silveira MGSES, Fernandez MDS, Silva NRJD, Laroque MB, Silva AER. Fatores associados à redução de atendimentos odontológicos na Atenção Primária à Saúde no Brasil, com o surgimento da COVID-19: estudo transversal, 2020. Epidemiol Serv Saude. 2022;31(1):e2021663. http://doi.org/10.1590/s1679-49742022000100015. PMid:35544869.
24. Brasil. Ministério da Saúde. Secretaria de Atenção Primária à Saúde. Departamento de Saúde da Família. Guia de orientações para atenção odontológica no contexto da Covid-19. Brasília: Ministério da Saúde; 2021. 84 p.
25. Albuquerque MV, Viana ALA, Lima LD, Ferreira MP, Fusaro ER, Iozzi FL. Desigualdades regionais na saúde: mudanças observadas no Brasil de 2000 a 2016. Cien Saude Colet. 2017;22(4):1055-64. http://doi.org/10.1590/1413-81232017224.26862016. PMid:28444033.
26. Amorim DA, Mendes A. Financiamento federal da atenção básica à saúde no SUS: uma revisão narrativa. J Manag Prim Health Care. 2020;12:1-20. http://doi.org/10.14295/jmphc.v12.970.
27. Rocha ES, Gomes AA, Santos LGS, Ribeiro FP, Silva APB, Lima DM. A evolução da cobertura do número de equipes de saúde bucal nos estados do Nordeste do Brasil. Res Soc Develop. 2022;11(7):e14311729703. http://doi.org/10.33448/rsd-v11i7.29703.
28. Gomes CBS, Gutiérrez AC, Soranz D. Política Nacional de Atenção Básica de 2017: análise da composição das equipes e cobertura nacional da Saúde da Família. Cien Saude Colet. 2020;25(4):1327-38. http://doi.org/10.1590/1413-81232020254.31512019.

29. Martins PHS, Amaral OL Jr, Faustino-Silva DD, Torres LHN, Unfer B, Giordani JMA. Desigualdades na distribuição das equipes de saúde bucal no Brasil. Stomatos [revista eletrônica]. 2017 [citado 2024 maio 15];21(45):4-13 [citado 2024 jul 9]. http://fi-admin.bvsalud.org/document/view/5wvck

30. Pinho JRO, Souza TC, Bôas MDV, Marques PC, Neves PAM. Evolução da cobertura das equipes de saúde bucal nas macrorregiões brasileiras. Rev Assoc Paul Cir Dent [revista eletrônica]. 2015 [citado 2024 maio 15];69(1):80-95. http://revodonto.bvsalud.org/scielo.php?script=sci_arttext&pid=S0004-52762015000100013

31. Sousa C, Fenandes VC. Aspectos históricos da saúde pública no Brasil: revisão integrativa da literatura. J Manag Prim Health Care. 2020;12:1-17. http://doi.org/10.14295/jmphc.v12.579.

AUTHORS' CONTRIBUTIONS

Letícia Araújo Moncôrvo Lima: Data Collection, Conceptualization, Writing - Review and Editing
Anny Karlen Brito da Silva: Methodology, Writing - Preparation of the Original, Writing - Review and Editing
Alcir José de-Oliveira-Júnior: Conceptualization, Project Management, Writing - Review and Editing
Temístocles Damasceno Silva: Conceptualization, Methodology, Writing - Review and Editing
Haroldo José Mendes: Project Management, Writing - Review and Editing, Supervision
Manoelito Ferreira Silva-Junior: Statistical Analysis, Data Collection, Conceptualization, Methodology, Writing - Preparation of the Original, Writing - Review and Editing, Supervision