WEB SEARCH TRENDS RELATED TO ORAL HEALTH ISSUES DURING THE COVID-19 OUTBREAK IN BRAZIL: AN INFODEMIOLOGICAL SURVEY

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Palavras-chave: Saúde Bucal. COVID-19. Epidemiologia. Odontologia.

RESUMO

Objetivo: Comparar as tendências de pesquisa na web relacionadas a problemas de saúde bucal durante o surto de COVID-19 com o ano anterior, com foco em trauma dentário (TD), bruxismo (BX) e dor de dente (DD). **Materiais e Métodos**: Foi um estudo infodemiológico realizado com a ferramenta Google Trends. Termos populares relacionados aos problemas de saúde bucal investigados foram usados em português para recuperar os volumes relativos de pesquisa (RSV) normalizados pelo algoritmo. O período do caso consistiu em dados referentes ao intervalo de 12 de dezembro de 2019 a 12 de dezembro de 2020, enquanto o período de controle referiu-se ao intervalo de 11 de dezembro de 2018 a 11 de dezembro de 2019. **Resultados**: Nos períodos de caso e controle, os termos populares relacionados à DD foram significativamente mais pesquisados na web, seguidos pelos termos BX e TD (todos os valores de p<0,05). Houve maior RSV para todos os termos populares relacionados aos problemas de saúde bucal investigados durante o surto de COVID-19 do que no ano anterior (todos os valores de p<0,05), especialmente no terceiro e quarto trimestres. As frequências médias foram significativamente maiores no período do caso para todos os problemas de saúde bucal (todos os valores de p<0,05). **Conclusão**: No Brasil, foi possível observar que as tendências de buscas na web relacionadas aos problemas de saúde bucal investigados foram maiores durante o surto de COVID-19 do que no ano anterior.

Keywords: Oral Health. COVID-19. Epidemiology. Dentistry.

ABSTRACT

Objective: To compare the web search trends related to oral health issues during the COVID-19 outbreak with the previous year, focusing on dental trauma (DT), bruxism (BX) and toothache (TA). **Materials and Methods**: It was an infodemiological study carried out using Google Trends tool. Popular terms related to oral health issues investigated were used in Portuguese to retrieve relative search volumes (RSV) normalized by the algorithm. The case period consisted of data relating to the interval from December 12, 2019 to December 12, 2020, while the control period referred to the interval from December 11, 2018 to December 11, 2019. **Results**: Within the case and control periods, popular terms related to TA were significantly more searched on the web, followed by BX and DT terms (all p-value <0.05). There were higher RSV for all popular terms related to oral health issues investigated during the COVID-19 outbreak than in the previous year (all p-value <0.05), especially in the third and fourth quarters. The mean frequencies were significantly higher in the case period for all oral health issues (all p-value <0.05). **Conclusion**: In Brazil, it was possible to observe that the web search trends related to oral health issues investigated were greater during the COVID-19 outbreak than in the previous year.

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INTRODUCTION

The internet has become an increasingly frequent tool in the search for information related to health worldwide, being the fastest and most widespread source. Every day millions of people carry out health-related searches on the web. Trends in these web searches can be applied to understand the health behaviors of a population and serve as a parameter for health surveillance actions. During the COVID-19 outbreak, the internet has become a recurring source of information, mainly due to the need to stay at home and fulfill the social distancing.[1-3]

It is important to recognize that the COVID-19 outbreak had repercussions on dentistry and related areas. Concerns about oral health and the provision of dental care during this period have been investigated.[4,5] Due to the risk of contamination and social distancing measures, dental care was often restricted to emergency cases, such as toothache and dental trauma. The Federal Council of Dentistry of Brazil produced a guideline to evaluate these cases during COVID-19 outbreak. However, considering the reduction in the frequency of regular professional dental care, oral health issues, including dental caries and periodontal diseases, may become more frequent.[5,6]

Investigations based on web searches related to oral health have been carried out during the COVID-19 outbreak to explore this new context.[7,8] These infodemiological approaches have great relevance due to the significant increase in web access in this period, whether for searches, works or entertainment, as a tool to deal with the emotional consequences of social distancing.[3,9] However, only one of these investigations evaluated web contents related to oral health during the COVID-19 outbreak in Brazil, whose data collected refer to the months between March and May 2020 on Twitter, with focus on dental treatment needs during the COVID-19 outbreak.[7]

In fact, during the COVID-19 outbreak, changes in the occurrence and treatment of oral health issues have been reported.[10,11] The consequences of social distancing seem to influence the occurrence of dental trauma,[12,13] as well as the mental health implications seem to influence the manifestation of emotion-related conditions, such as bruxism.[14,15] Lastly, regarding the COVID-19 outbreak impacts on oral health and dental care, considering the aforementioned context about health-related web searches, the question arose: was there a change in web search trends for terms related to oral health in Brazil during the COVID-19 outbreak?

The objective of this study was to compare the search trends related to oral health issues during the COVID-19 outbreak with the previous year, focusing on dental trauma, bruxism and toothache. Hence, the investigated hypothesis in this study considered that there was an increase in web search trends related to oral health issues during the COVID-19 outbreak in Brazil when compared to the previous year as a control, without a pandemic scenario.

MATERIALS AND METHODS

This was an infodemiological study with quantitative and exploratory approaches carried out using the Google Trends tool. The checklist produced and published by Nuti *et al*.[16] to report infodemiological investigations using Google Trends in health sciences was adopted. Data collection was performed by a single investigator using a notebook on January 22 and 23, 2021 (https://trends.google.com.br/trends). As these are secondary data previously available on the web, without any reference to the participants, the appreciation and approval from the Research Ethics Committee was waived.

The Google Trends tool was chosen because it provides free and real-time relative search volume on the Google platform, analyzing part of the billions of daily searches, providing valid and relevant data for the long-term understanding of the information searched on the web regarding the health of a specific population. This context becomes even more important when considering that health-related terminologies are among the most recurrent on the web.[16-18]

Through this tool, it is possible to select a location and a period to study the web search trends for one or more terminologies. In addition, it is important to conceptualize for methodological purposes that search trends (also known as relative search volume, RSV) are expressed in continuous values between 0 and 100, normalized by the relative volume of the highest peak of interest in a predefined period. Therefore, it is only possible to compare metrics recovered within the same search, whereas terms with the same popularity in different locations can have different total search volumes which can only be normalized when searched simultaneously on the platform, becoming relative search volumes.[16-18]

Initially, database searches were carried out to identify studies that evaluated popular terminologies to compose the search strategy to retrieve the relative volumes in the Google Trends tool. Studies carried out in Brazil or published in Portuguese with this objective were not found. Yanagisawa *et al*.[19] presented the approach closest to the desirable. However, the language and oral health issues investigated here were not considered by these authors and the study can not be used as a starting point to determine the most appropriate popular terminologies.

Hence, to define the popular terminologies to be inserted in the Google Trends tool to generate the data, the authors consulted the *Descritores em Ciências de Saúde* platform (from *Biblioteca Virtual em Saúde* - Brazil: https://decs.bvsalud.org/) to extract the most appropriate and validated terminologies as a starting point, considering that the searches was carried out in Portuguese. Additionally, the authors (dentists, native speakers of Portuguese and who live in Brazil) included popular terms, based on their personal, clinical and academic experiences. Figure 1 shows the search strategies applied on the Google Trends tool, including full

search input, combination and quotation marks.

The data collected regarding the COVID-19 outbreak in Brazil refers to the custom period from December 12, 2019 to December 12, 2020, a period whose data was fully available on the Google Trends tool. To compare data from this period, as a control period without a pandemic scenario, another search with the same parameters and terms was carried out, whose custom period was from December 11, 2018 to December 11, 2019. The data for both periods were extracted on the same day. Moreover, the main topics related to these searches were checked in both groups, seeking to elucidate possible associations between terms related to oral health issues and other search trends.

Lastly, data from each state of Brazil regarding the relative frequency of web searches in the case and control periods for the investigated terms were extracted, in order to assess homogeneity. The objective of this approach was to assess in each Brazilian state the proportion of searches for oral health issues investigated in the case and control periods, identifying whether the searches were regular for all terms or whether a specific problem was sought more or less frequently than others in the same state.

Operationally, the Google Trends tool was accessed and the search strategies were inserted sequentially in the designated spaces. Then, the option "custom period" was selected and the dates aforementioned for both groups were inserted. Then, the filter of search location was switched to Brazil and the options "all query categories" and "web searches" were selected. To perform the temporal analysis between the same terms in different years, the procedures were similar, applying only the dates mentioned above in each pair. At the end of these steps, the data was automatically normalized by the algorithm and was ready to be imported for subsequent analysis.

Therefore, the primary outcome was the relative search volumes, acquired for a pre-pandemic (2019) and pandemic period (2020). The RSV, based on search trends, was collected to allow the comparison of a set of popular terms related to oral health issues between 2019 and 2020. As secondary outcomes, we acquired the search frequency as a percentage for each state in Brazil, as well as related terms that were searched by the same users.

Statistical analyses were performed using the jamovi software (version 1.6.16, Sydney, Australia, 2020). Descriptive (mean, standard deviation and sum) and inferential (median comparisons) statistics were performed according to the normality of the data sets verified by the Shapiro-Wilk test. Due to the non-normal distribution of the data, the means between two unpaired groups were compared using the Mann-Whitney test. The median comparisons between three or more unpaired groups were performed using the Kruskal-Wallis test, followed by the Dwass-Steel-Critchlow-Fligner (DSCF) test as a *post hoc* approach. The comparison between proportions expressed in frequencies was performed using Pearson's chi-square test (x^2) after checking the expected values (all higher than five).

To facilitate the data analyses and the applicability of the information provided, the 52 weeks data set was grouped into four groups of 13 weeks, corresponding to the 4 quarters of the year in case and control period. This grouping did not interfere in the analyses that considered relative search volumes throughout the years in case and control periods. The level of significance adopted was 5% ($\alpha = 0.05$).

It is important to highlight that the algorithm of the Google Trends tool presented the results synthesized in weeks. Therefore, there was a short variation in the initial dates used to recover the data sets and the reference week informed by the algorithm. In the case period, the date entered to recover the data set was December 12, 2019 and the algorithm grouped the results from the date December 15, 2019 (a difference of three days). In the control period, the data entered to retrieve the data set was December 11, 2018 and the algorithm grouped the results from the date December 16, 2018 (a difference of five days). However, all data sets imported presented the same day reference in each week, without day differences between them. This difference probably occurs due to the availability of the data sets in relation to the standard weeks of the algorithm.

RESULTS

Table 1 shows the relative search volumes for each set of popular terms related to oral health issues within the case and control periods, compared by Kruskal-Wallis test with DSCF *post hoc* test. In these analyses, no comparisons between the case and control periods were made and only the differences within each group were evaluated. It was possible to observe that the popular terms related to toothache were the most searched on the web during the COVID-19 outbreak and in the previous year, followed by terms related to bruxism and dental trauma. This pattern was observed both in the analysis for the entire period and in the analysis by quarters, considering that all *p*-values were <0.05 in the pairwise comparisons.

Table 2 shows the general and stratified relative search volumes in the case and control periods for each oral health issue. In overall analyses, using Mann-Whitney test, all popular terms had higher relative search volumes during the COVID-19 outbreak when compared to the previous year in Brazil, considering all *p*-values <0.001. When comparing the relative search volumes between the case and control periods for each oral health issue, also using Mann-Whitney test, only the popular terms related to toothache had *p*-values <0.05 in all quarters. However, in the third and fourth quarters, all issues investigated were significantly more searched on the web during the COVID-19 outbreak than in the previous year in Brazil, considering *p*-values <0.05. These quarters correspond to the period from June 14, 2020 to December 6, 2020 (case period) and June 16, 2019 to December 8, 2019 (control period).

Table 3 shows the proportion of web searches

frequencies for each oral health issue investigated in relation to the case and control periods. After Pearson's chi-square test, it was observed that in all states of Brazil with available data there were no significant discrepancies between frequencies, indicating homogeneity in web searches between popular terms related to the oral health issues (all *p*-value >0.05). On the other hand, comparing the search trends between the case and control periods for each oral health issue investigated in all states, using Mann-Whitney test, it was observed that the mean frequencies in the case period were higher than control period, reinforcing a greater number of web searches during the COVID-19 outbreak (*p*-value <0.001 in all comparisons).

Figure 2 shows the relative search volumes of correlated terms or expressions that were also searched by users who carried out searches related to the oral health issues investigated, both in the control and case periods. It is observed that in relation to dental trauma in both the case and control periods, users often also searched for "dreaming about teeth", although it is not a topic of interest for this analysis. Regarding bruxism, most of the correlated searches referred to the plate for bruxism treatment. Lastly, in relation to toothache, users often searched for remedies for this issue in both groups.

***Table 1**: Relative search volumes in case and control periods for the investigated oral health issues sourced from Google Trends tool.*

Periods	**Case period**			***p*-value**	**Control period**			***p*-value**
	DT	**BX**	**TA**		**DT**	**BX**	**TA**	
Week 1 to 13	December 15, 2019 March 8, 2020				December 16, 2018 March 10, 2019			
Median	10[a]	19[b]	83[c]	<0.001*	10[a]	18[b]	77[c]	<0.001*
Q1	10	18	79		9	15	74	
Q3	12	21	86		10	20	85	
Sum	137	243	1.082		129	228	1.037	
Week 14 to 26	March 15, 2020 June 7, 2020				March 17, 2019 June 9, 2019			
Median	11[a]	20[b]	92[c]	<0.001*	10[a]	23[b]	85[c]	<0.001*
Q1	10	19	90		9	20	81	
Q3	12	25	95		11	25	87	
Sum	139	274	1.202		130	299	1.090	
Week 27 to 39	June 14, 2020 September 6, 2020				June 16, 2019 September 8, 2019			
Median	12[a]	28[b]	86[c]	<0.001*	12[a]	24[b]	83[c]	<0.001*
Q1	11	25	80		10	23	81	
Q3	13	30	90		13	28	87	
Sum	156	363	1.106		152	324	1.092	
Week 40 to 52	September 13, 2020 December 6, 2020				September 15, 2019 December 8, 2019			
Median	10[a]	23[b]	84[c]	<0.001*	10[a]	22[b]	83[c]	<0.001*
Q1	10	23	78		10	21	75	
Q3	11	25	86		11	23	85	
Sum	138	314	1.067		140	283	1.062	
Overall	December 15, 2019 December 6, 2020				December 16, 2018 December 8, 2019			
Median	11[a]	23[b]	86[c]	<0.001*	10[a]	22[b]	82.5[c]	<0.001*
Q1	10	20	80		9	19	78	
Q3	12	25	90		12	24	86.3	
Sum	570	1.194	4.457		551	1.134	4.281	

*Note: DT: dental trauma related terms; BX: bruxism related terms; TA: toothache related terms; [a/b/c]: statistical differences within groups; *: p-value less than 0.05; Q1: first quartile; Q3: third quartile.*

Oral health issues	Applied search strategy
EN: Bruxism - PT: *"Bruxismo"*	["*dor de dente*" + "*dente doendo*"]
EN: Toothache - PT: *"Dor de dente"*	["*bruxismo*" + "*ranger os dentes*" + "*apertar os dentes*" + "*apertamento dental*"]
EN: Dental trauma - PT: *"Traumatismo dentário"*	["*dente quebrado*" + "*dente fraturado*" + "*dente trincado*" + "*dente rachado*"]

***Figure 1**: The search strategies applied on the Google Trends tool in Portuguese. EN: English; PT: Portuguese.*

***Table 2**: General and stratified relative search volumes in the case and control periods for each oral health issue.*

Periods	Dental trauma		Bruxism		Toothache	
	Case	Control	Case	Control	Case	Control
Week 1 to 13	December 15, 2019 to March 8, 2020 (CA) December 16, 2018 to March 10, 2019 (CO)					
Median	73[a]	68[a]	47[a]	39[b]	81[a]	73[b]
Q1	64	57	44	38	78	70
Q3	81	71	49	45	85	78
Sum	950	843	619	527	1.076	951
p-value	0.117		0.014*		0.003*	
Week 14 to 26	March 15, 2020 to June 7, 2020 (CA) March 17, 2019 to June 9, 2019 (CO)					
Median	77[a]	64[b]	58[a]	48[a]	90[a]	74[b]
Q1	74	62	43	46	85	69
Q3	85	66	66	51	92	77
Sum	1.006	816	725	632	1.156	952
p-value	<0.001*		0.238		<0.001*	
Week 27 to 39	June 14, 2020 to September 6, 2020 (CA) June 16, 2019 to September 8, 2019 (CO)					
Median	87[a]	71[b]	71[a]	55[b]	89[a]	76[b]
Q1	77	69	66	53	85	72
Q3	92	76	74	60	90	77
Sum	1.078	948	949	737	1.133	979
p-value	<0.026*		<0.001*		<0.001*	
Week 40 to 52	September 13, 2020 to December 6, 2020 (CA) September 15, 2019 to December 8, 2019 (CO)					
Median	78[a]	67[b]	62[a]	49[b]	81[a]	70[b]
Q1	73	64	59	46	79	69
Q3	80	73	69	52	86	74
Sum	976	864	828	632	1.070	923
p-value	0.012*		<0.001*		<0.001*	
Overall	December 15, 2019 to December 6, 2020 (CA) December 16, 2018 to December 8, 2019 (CO)					
Median	77.5[a]	66.5[b]	62[a]	48.5[b]	85[a]	74[b]
Q1	69.8	61.8	47	43.5	80	69.8
Q3	86.3	72	69	53.3	90	77
Sum	4.010	3.471	3.121	2.528	4.435	3.805
p-value	<0.001*		<0.001*		<0.001*	

*Note: CA: case period; CO: control period; []: 95% confidence interval, lower and upper; *: p-value less than 0.05; [a/b]: statistical differences between the case and control periods for each oral health issue investigated; Q1: first quartile; Q3: third quartile.*

Oral health issues	Trends (relative search volume)	
EN: Dental trauma PT: *"Traumatismo dentário"*	**Case period** *"sonhar dente quebrado"*(100) *"sonhar com dente quebrado"*(97) *"sonhar com dente"*(93)	**Control period** *"sonhar dente quebrado"*(100) *"sonhar com dente"*(98) *"sonhar com dente quebrado"*(92)
EN: Bruxism - PT: *"Bruxismo"*	**Case period** *"placa bruxismo"*(100) *"o que bruxismo"* (61) *"placa de bruxismo"*(58)	**Control period** *"bruxismo placa"*(100) *"placa de bruxismo"*(53) *"placa para bruxismo"*(37)
EN: Toothache - PT: *"Dor de dente"*	**Case period** *"para dor de dente"* (100) *"dor de dente remedio"*(36) *"remedio de dor de dente"*(36)	**Control period** *"para dor de dente"* (100) *"remedio dor de dente"*(47) *"remedio de dor de dente"*(46)

***Figure 2**: Web search trends correlated to the oral health issues investigated.* EN: English; PT: Portuguese.

***Table 3**: Distribution of search trends frequencies for the oral health issues investigated in the case and control periods in each Brazilian state.*

Regions/states	Dental trauma		Bruxism		Toothache		*p*-value(x^2)
	Case	Control	Case	Control	Case	Control	
			%				
North							
Acre	NI	NI	NI	NI	39	61	-
Amapá	NI	NI	NI	NI	53	47	-
Amazonas	50	50	53	47	54	46	0.840
Pará	49	51	49	51	57	43	0.425
Rondônia	51	49	53	47	48	52	0.776
Roraima	NI	NI	NI	NI	56	44	-
Tocantins	NI	NI	60	40	53	47	0.318
Northeast							
Alagoas	54	46	50	50	59	41	0.440
Bahia	53	47	53	47	56	44	0.886
Ceará	59	41	57	43	52	48	0.590
Maranhão	44	56	51	49	55	45	0.289
Paraíba	59	41	53	47	53	47	0.615
Pernambuco	53	47	53	47	55	45	0.947
Piauí	56	44	58	42	56	44	0.947
Rio Grande do Norte	48	56	55	45	52	48	0.610
Sergipe	62	38	62	38	54	46	0.413
Midwest							
Distrito Federal	55	45	59	41	51	49	0.523
Goiás	56	44	56	44	55	45	0.986
Mato Grosso	59	41	53	47	54	46	0.658
Mato Grosso do Sul	58	42	47	53	57	43	0.225
Southwest							
Espírito Santo	52	48	55	45	55	45	0.886
Minas Gerais	57	43	52	48	53	47	0.754
Rio de Janeiro	56	44	54	46	55	45	0.960
São Paulo	53	47	54	46	54	46	0.986

***Table 3**: Distribution of search trends frequencies for the oral health issues investigated in the case and control periods in each Brazilian state.*

Regions/states	Dental trauma		Bruxism		Toothache		*p*-value(x^2)
	Case	Control	Case	Control	Case	Control	
			%				
South							
Paraná	56	44	56	44	55	45	0.986
Rio Grande do Sul	52	48	57	43	53	47	0.754
Santa Catarina	53	47	54	46	53	47	0.986
Overall							
Median	54[a]	46[b]	54[a]	46[b]	54[a]	46[b]	-
Q1	52	43.5	53	43.8	53	45	
Q3	56.5	48	56.3	47	55	47	-
p-value	<0.001*		<0.001*		<0.001*		

*Note: x^2: Pearson's chi-square test; %: relative frequency; NI: there was no information; []: 95% confidence interval, lower and upper; *: p-value less than 0.05; [a/b]: statistical differences between the case and control periods for each oral health issue investigated; Q1: first quartile; Q3: third quartile.*

DISCUSSION

This study investigated web search trends related to oral health issues during the COVID-19 outbreak in Brazil, focusing on dental trauma, bruxism and toothache. Toothache is a major oral health problem. In our results, popular terms related to toothache showed significantly more searches when compared to the other problems investigated. During the COVID-19 outbreak in Brazil, another study using data from Brazilian users on Twitter concluded that there was a relationship between tweets related to dental pain and the need for dental treatment.[7] In the same perspective, an international study using Google Trends also identified the increase in searches related to dental pain in other countries during the COVID-19 outbreak,[8] as well as another study with the Google Trends tool in periods prior to the pandemic also reported an increase in searches for this oral health issue in the last decade on Google and YouTube platforms.[20]

It is necessary to consider that many patients may have postponed their dental needs, considering the social distancing measures adopted and the fear of going to dental services. This delay in dental care may have caused the worsening of oral health issues,[7,8] which would justify the significant increase in web searches for popular terms related to toothache and related searches to medications/remedies for toothache made by the same users, as shown in Table 2 and Chart 2, respectively.

In addition, the expansion of internet access in several countries and financial difficulties to pay for dental care may be other factors that contribute to the understanding of the increased web search for these popular terms during the COVID-19 outbreak.[7,20] Moreover, the impacts on mental health (anxiety, stress and depression) can be related to worse oral health outcomes, as well as the social distancing influenced the exposure of individuals to the internet and social media increasingly loaded with information about the COVID-19 outbreak, which can contribute to the emergence of mental health problems.[7,21,22]

In fact, anxiety, stress and depression were common mental responses in individuals during the COVID-19 outbreak. However, they can also be understood as factors associated with the bruxism occurrence, but this topic is still controversial, although there is already evidence that the psychosocial impacts of the COVID-19 outbreak may have aggravated the symptoms in some individuals.[14,15,23] This association becomes even more relevant when considering the dental care settings during the COVID-19 outbreak previously discussed and the increase in the web search trends for popular terms related to bruxism in Brazil, as shown in Table 2.

Regarding dental trauma, some studies have shown different patterns of traumatic oral and maxillofacial injuries. A Chinese study reported a significant increase from 35% in 2019 to 89.5% in 2020 of traumatic dental injuries caused by falls, with a reduction in those caused by traffic accidents in the same period (36.7% in 2019 to 7.9% in 2020).[13] On the other hand, an American study reported a decrease in oral and maxillofacial fractures caused by falls between 2020 and 2019 (29% versus 38%, respectively).[12] However, social distancing may underestimate the real occurrence of oral diseases in 2020, such as dental trauma and other oral health issues, as it is likely that individuals may not have sought dental care during the outbreak.[2,3,8]

Ultimately, it has already been described that the number of dental procedures was reduced in Brazilian public health services in 2020, including preventive and elective

procedures. In addition to supporting public health policies and strategies, the reduction in the amount of procedures can increase socioeconomic disparities in oral health, overload health services and impact collective oral health indicators, especially when considering that approximately 75% of the Brazilian population uses the Unified Health System.[24,25]

As limitations to the application of these results in future research and actions, it is important to report that these data come from a single search platform on the web, although it is the most accessed.[16-18] In addition, the quantification of these search trends is based on an algorithm. Therefore, it is not possible to identify the total volume of searches and the relative search volume retrieved from Google Trends algorithm was used in statistical inferences as a parameter to this outcome. Also, although a small variation in days was generated by the Google Trends tool, it does not represent a smaller number of days in the comparisons between periods by weeks, besides being a very subtle difference if we take into account the number of days in a year.

In addition, due to the cultural and regional variability in Brazil, it is possible that more specific terminologies related to the oral health issues investigated were not included. Also, although internet access and digital inclusion strategies have increased over time in Brazil, it was estimated that in 2019, approximately 82.7% of all Brazilian households have internet access. In households located in rural areas, this rate drops to 55.6%.[26,27] Then, the results presented are limited to individuals with internet access and we can hypothesize that they have different socioeconomic and demographic characteristics when compared to individuals without internet access, whose web interest related to oral health issues was not retrieved.

CONCLUSION

During the COVID-19 outbreak, evaluating data sets sourced from Google Trends tool, it was possible to conclude that there was an increase in relative search volumes of popular terms related to oral health issues investigated in Brazil when compared to the previous year, without a pandemic scenario.

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