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Oral health surveys of traditional peoples and communities in Brazil: a scope review

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ABSTRACT

Objective The objective of this review was to map the available evidence on oral health surveys of traditional peoples and communities (TPC) in Brazil, addressing the question, 'What evidence is available on oral health surveys of traditional peoples and communities in Brazil?'.

Design Scoping review according to the Scoping Review extension for the Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Data sources MEDLINE/PubMed, Scopus, Web of Science, Embase and Latin American and Caribbean Literature in Health Sciences were searched up until June 2023.

Eligibility criteria Studies involving individuals from indigenous groups, quilombolas, riverside communities and Romani communities, all included in TPC in Brazil, were included without any age restrictions.

Data extraction and synthesis Data were extracted by two independent reviewers, and studies were categorised considering the author and year of publication, the traditional group, study type, geographical location, age group, sample size, data collection method and the main oral health condition assessed.

Results After the searches, 39 studies were included in the review, and 2 studies were manually added. The studies included in the review were published between the years 1968 and 2023. Of the total, 31 studies investigated the oral health condition of indigenous peoples, 7 were studies on quilombola communities and 3 studies focused on riverside communities. No studies on Romani people were found in the search. The majority of studies were located in the Northeast region (n=12) of the country, with dental caries being the main oral health issue assessed (n=13) through clinical examinations (n=25), with a high prevalence observed among TPC (n=11).

Conclusion This review reveals that in Brazil, studies on the oral health of TPC are ongoing, although they occur in an isolated and independent manner, indicating a considerably high prevalence of oral health problems in these communities.

INTRODUCTION

Dental health problems, despite being preventable, remain highly prevalent in the population.[1–4] In this context, the WHO has developed a global action plan to address dental health issues, aiming to formulate policies for prevention and health promotion.[5]

Brazil is internationally recognised for having a universal healthcare system that includes oral health and advocates for the collection of epidemiological data as a model for health surveillance to create policies.[6 7] Throughout the history of oral health in Brazil, four major epidemiological surveys of oral health have been conducted, but they did not include traditional peoples and communities (TPC) in a representative manner.[8–11]

In 2018, there was planning for a national oral health survey for indigenous peoples; however, it was not implemented. Even in 2023, the current ongoing oral health survey in Brazil also does not include TPC.

TPC constitute 20.7% of the Brazilian population[12] and have targeted health policies.[13 14] However, data on the oral health of TPC are scarce, and there is no information system on the health conditions of quilombolas, riverside communities, indigenous peoples and Romani communities in Brazil. Additionally,

the National Oral Health Policy and Law 14.572/23 does not include any specifics regarding the oral health of TPC. The epidemiological invisibility related to the oral health of TPC hampers the formulation of health promotion policies and strategies, contributing to an increased social vulnerability for these populations.[15] Moreover, these groups are affected by social determinants related to poverty, social exclusion and a lack of access to health services.[16]

The lack of specific data on the oral health of these communities hinders the development of targeted public policies and the implementation of actions that could improve the living and health conditions of these populations. By mapping the oral health status of TPC, it becomes possible to plan more suitable strategies for promotion, prevention and care that align with their realities, thus contributing to the reduction of health inequities.

Therefore, the aim of this review was to map the available evidence on oral health surveys of TPC in Brazil through primary studies, addressing the following question: 'What evidence is available regarding oral health surveys of traditional peoples and communities in Brazil?'.

METHODOLOGY

This scoping review followed the recommendations of the Joanna Briggs Institute.[17] The Problem, Concept and Context acronym was employed, as described below. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension checklist was used to report the review (table 1).[18] The review was conducted from July to September 2023.

The final review protocol was registered on the Open Science Framework (https://doi.org/10.17605/OSF.IO/BQ5J3) and was pre-published.[19]

Participants and context

Studies involving individuals from indigenous groups, quilombolas, riverside communities and Romani communities, all included in TPC in Brazil, were included without any age restrictions. This review focused exclusively on research conducted with these populations in Brazil.

Concept

Inclusion prioritised observational studies addressing epidemiological data related to oral health in these populations, emphasising key oral health issues such as dental caries, periodontal disease and tooth loss. Qualitative studies, studies that were not specific to TPC or not representative of these communities, were not considered in this review.

Search strategy

The search strategy incorporated MeSH (Medical Subject Headings) terms, synonyms and relevant terms related to epidemiological research on oral health involving Brazilian TPC. This search strategy was initially developed for the MEDLINE (PubMed) database by the research group (as detailed in table 1) and later adapted for the Latin American and Caribbean Literature in Health Sciences, Scopus, Web of Science and Embase databases (online supplemental material). Grey literature identification was based on the identification of theses, dissertations, official documents and other studies, relying on the reference lists of included articles and a review of the first 100 records on the Google search engine. Only two records were included manually.

There were no established restrictions regarding data, language, topic or research type in the databases. Bibliographic searches were updated until June 2023.

Study selection

In the study selection process, the first step involved searching and importing citations into the Rayyan Reference Manager, followed by the removal of duplicates and the evaluation of publications based on their titles, abstracts and keywords. In the second stage, the selected studies underwent a detailed reading conducted by two trained, independent and blinded reviewers, according to the eligibility criteria defined in the protocol. In cases of disagreement between reviewers, a third reviewer was consulted. Full studies that did not meet the inclusion criteria were excluded, and the reasons were recorded and reported in the scoping review.[17]

Table 1 Search strategy developed for the MEDLINE (PubMed) database and adapted for other databases

Search	Query
#1	("quilombola"(Title/Abstract)OR "indigenous"(Title/Abstract)OR "gypsy"(Title/Abstract)OR "riverside communit*"(Title/Abstract)OR "quilombola populatio*"('Title/Abstract)OR "indians"(Title/Abstract)OR "romani people"(Title/Abstract)OR "sinti"(Title/Abstract)OR "calon"(Title/Abstract))
#2	("oral health survey"(All Fields] OR "oral health status"(All Fields] OR "dental caries"(All Fields] OR ("periodontal"(All Fields] OR "periodontally"(All Fields] OR "periodontically"(All Fields] OR "periodontics"(MeSH Terms] OR "periodontics"(All Fields] OR "periodontic"(All Fields] OR "periodontitis"(MeSH Terms] OR "periodontitis"(All Fields] OR "periodontitides"(All Fields]) OR "tooth loss"(All Fields] OR "missing teeth"(All Fields] OR "DMF Index"(All Fields] OR "dental health survey"(All Fields])
#3	("Brazil"(Title/Abstract)OR "Brazilian"(Title/Abstract))

Data extraction

The included studies were categorised considering the author and year of publication, the traditional group (indigenous, riverside communities, Romani peoples and quilombola communities), study type, geographical location (federal units), age group, sample size, data collection method (clinical examination, questionnaire application, etc) and the main oral health condition assessed.

Analysis and presentation of data

The detailed data can be found in the extraction table (online supplemental material). Additionally, bibliometric data related to the author network and keywords used in the studies included in the review were generated using the similarity visualisation method through the VOSviewer software[20].

RESULTS

In the first stage of the study selection process, a total of 401 records were identified. Among these, 211 were removed due to duplication. Based on title, abstract and keywords, 136 studies reporting secondary data or being non-specific and unrepresentative of TPC were excluded. In the second stage of selection, 61 studies were read in full, and 39 were included in the review. The manual addition of two studies not captured by the search strategy occurred; however, they were located and included during the literature review of this study (figure 1).

The studies included in the review were published between the years 1968 and 2023. The methodological details and the main results of the included studies are presented in the extraction table (online supplemental material). Out of the total, 31 studies investigated indigenous peoples,[21–50] 7 studies investigated quilombola communities[50–57] and 3 studies investigated riverside peoples.[58–60] No studies on the Romani peoples were located in the search. All studies were of the cross-sectional type, with TPC located in the Northeast (n=12)[28 31 33 35–37 41 46 48 49 55] and Midwest regions of the country (n=8).[21 22 27 32 34 39 42 50]

The sample size of the studies varied between 17 and 2246 individuals. Regarding age groups, only a few studies (n=12) used any of the index ages.[28 30 32 38 39 43–45 47 50 54 55]

Among the included studies, dental caries (n=13),[22 24 27 28 33 36 38–40 43 46 47 53] periodontal disease (n=7)[31 32 34 41 48 49 52] and tooth loss (n=6)[29 30 35 37 59 60] were the considered oral health conditions. However, some studies (n=13)[21 23 25 26 42 43 45 50 51 54 56–58] assessed more than one of these conditions. Clinical examination was the primary method used for data collection (n=25),[21–29 31–34 36 38–40 44 45 49 50 53 58 59] and the second most commonly used data collection method was the combination of questionnaire application and clinical examination (n=13).[30 35 37 41–43 46–48 51 54 56 57]

Regarding the assessed oral health conditions, in general, the majority of studies showed a high prevalence of dental caries in TPC (n=10),[22 24 27 28 36 40 43 46 47 53] a high prevalence of periodontal disease (n=5)[31 32 34 52 55] and a high prevalence of tooth loss (n=7).[26 29 30 35 37 59 60]

Among studies involving indigenous populations, most assessed dental caries (n=12),[22 24 27 28 33 36 38–40 43 46 47] revealing a high prevalence of this condition in this group (n=10).[22 24 27 28 36 38 40 43 46 47] Regarding the oral health of riverside communities, a high prevalence of tooth loss was observed (n=2),[59 60] with no studies conducted on the prevalence of dental caries in this group. The oral health of quilombola communities, as indicated by studies in this review, was marked by a high prevalence of tooth loss (n=3).[51 54 56] In this group, only two studies assessing the prevalence of dental caries were found, and it was high.[53 57]

Through bibliometric analysis, it was possible to examine the keywords provided by authors of articles with more than five occurrences. Out of 169 keywords, 17 reached the threshold. The most frequently appearing keywords were "dental caries" and "poverty" (figure 2). Additionally, 246 authors were identified. Santos RV was responsible for publishing three articles, followed by Rebelo MAB. with two published articles (figure 3).

DISCUSSION

The results of this scoping review indicate that studies on the oral health of TPC in Brazil are still in their early stages and focused primarily on indigenous populations. There are no population-based or representative studies of the Brazilian population that report the prevalence of oral health conditions in these communities. The main oral health condition studied was dental caries, aligning with the majority of epidemiological studies on oral health, given that dental caries is a global public health issue.[2 61]

The high prevalence of dental caries observed in indigenous populations may be a result of the dietary transition process undergone over the years, stemming from the potential reduction of territory and increased consumption of processed products associated with food insecurity.[47 62]

Indigenous people are often the focus of studies conducted in other countries worldwide, such as Australia, Canada, New Zealand, the USA and in Latin American countries like Venezuela, Ecuador and Chile.[15 63] There is an interest in highlighting health inequities that arise as a result of the colonisation process.[64] Most of these studies receive support from funding agencies and government entities, which could explain the high number of studies focused on this population. However, the same does not happen for other population groups.

Despite the possibility of self-declaration as indigenous in the epidemiological surveys conducted in Brazil,[8–11] data on the oral health of the indigenous population end up being invisible in national datasets because they are not representative of this portion of the population.[15] The absence of data contributes to the perpetuation of
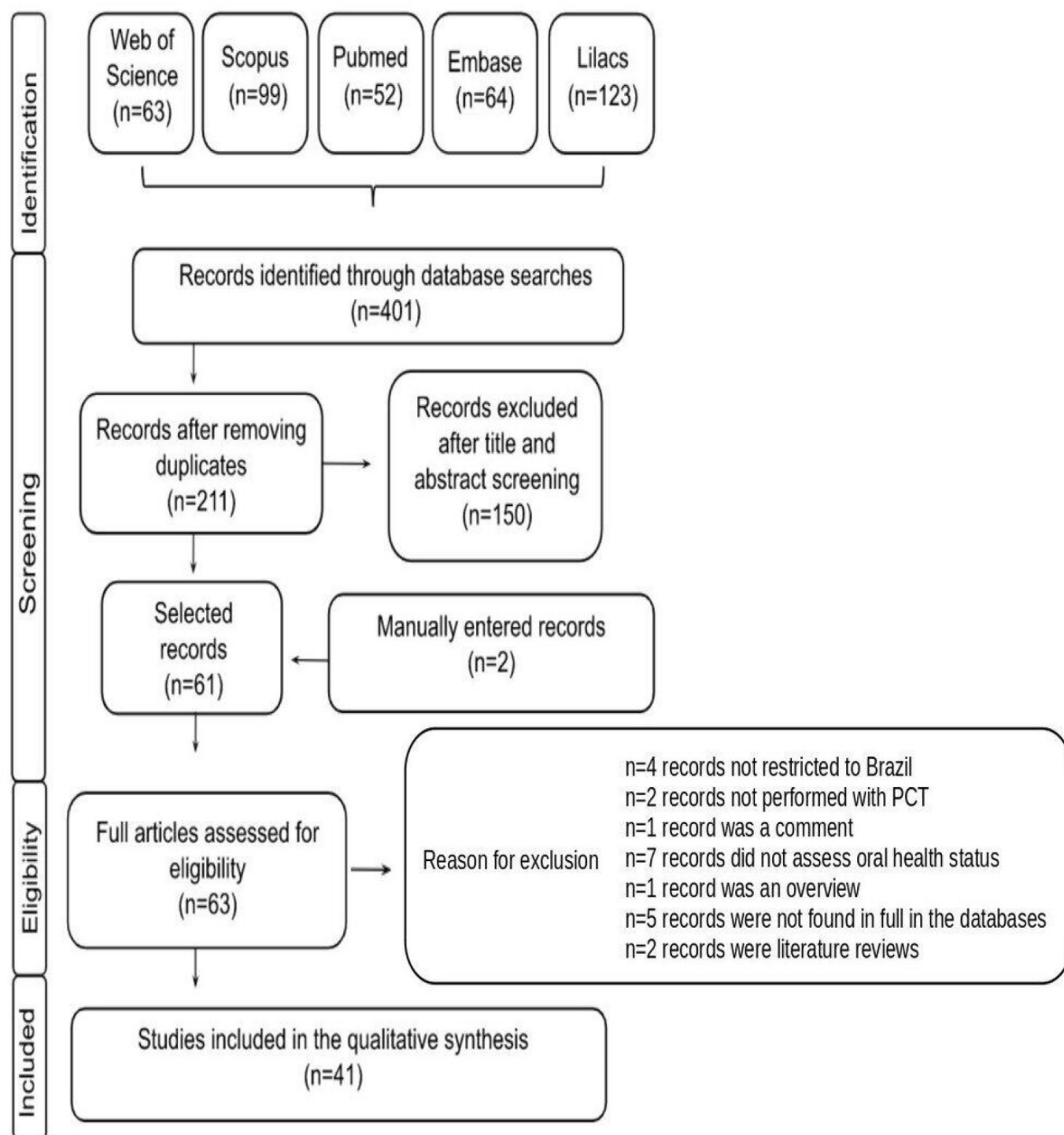
Figure 1 Study selection flowchart. LILACS, Latin American and Caribbean Literature in Health Sciences.

inequities, also evident and exacerbated in other countries worldwide with indigenous populations.[15 63]

All Brazilian regions were covered in research on oral health of TPC, according to the results of this review. A significant portion of the indigenous population is located in the Northern region of the country; however, most studies conducted with this group occurred predominantly in the Northeast and Midwest regions. A possible justification for this is that the Northeast is marked by the worst oral health indicators, according to the last population survey conducted in the country,[8] contributing to a greater focus on TPC in this region. Additionally, indigenous people located in the Northern region of the country are more challenging to access, and the low number of institutions and researchers in the North may have contributed to the low number of publications involving people from that region. In this case, one must take into account the territorial context, sociocultural characteristics and historical aspects of the region that have implications for the health of populations.[65]
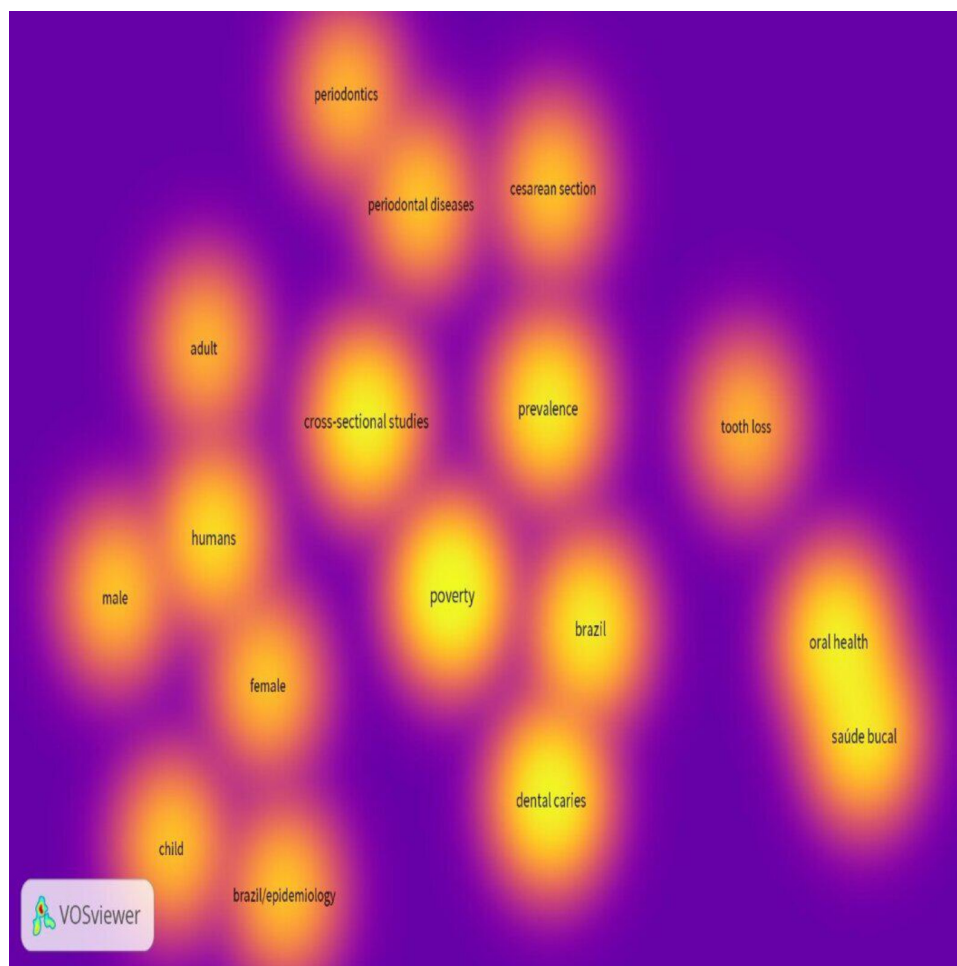
**Figure 2** Density of the keywords.

The National Policy for the Integral Health of Rural and Forest Populations, which includes the health of quilombolas and riverside communities, is relatively recent, dating back to the year 2011. Despite the commitment to produce stratified data on TPC and keep national health information systems updated, this does not apply to oral health,[13] reinforcing the invisibility of data. Updated and accurate epidemiological data are essential for understanding health disparities, particularly in vulnerable populations. The invisibility of these groups in information systems hinders scientific research and the identification of risk factors and gaps in healthcare services, among others. Such data are also crucial for the formulation of public policies, enabling the development of more equitable health strategies tailored to local realities.

The quilombola population represents approximately 0.62% of the total population of Brazil, according to data from the last census conducted by the Brazilian Institute of Geography and Statistics.[66] Regarding geographical distribution, the Northeast region of the country is home to 68.19% of quilombolas,[66] yet most studies with quilombolas were conducted in the Southeast region (n=7). As for the riverside population, all studies included in this review were conducted in the Northern region of the country (n=4), even though there are riverside peoples in the Midwest and Northeast regions of the country.

Dental caries was assessed in two studies with quilombolas, and it was not evaluated in the riverside population. This result reaffirms the lack of visibility of information related to the primary oral health problem, further emphasising that these populations face health inequalities more prominently due to contextual factors that may negatively impact oral health.[60] Evidence regarding the oral health of riverside peoples indicates a high prevalence of tooth loss, possibly due to the lack of access to preventive treatments resulting from the limited availability of health services in the region, low population dispersion and geographic access barriers.[60] The Northern region of the country, where the studies with riverside populations included in this review were conducted, has the worst rates of health service utilisation in the country.[67]

The bibliometric data presented in this review reflect the scarcity of available studies on TPC in Brazil. In addition to the limited author participation, it is observed that these studies tend to occur independently. In other words, studies on the oral health of TPC, for the most part, result from individual initiatives of researchers, without prior
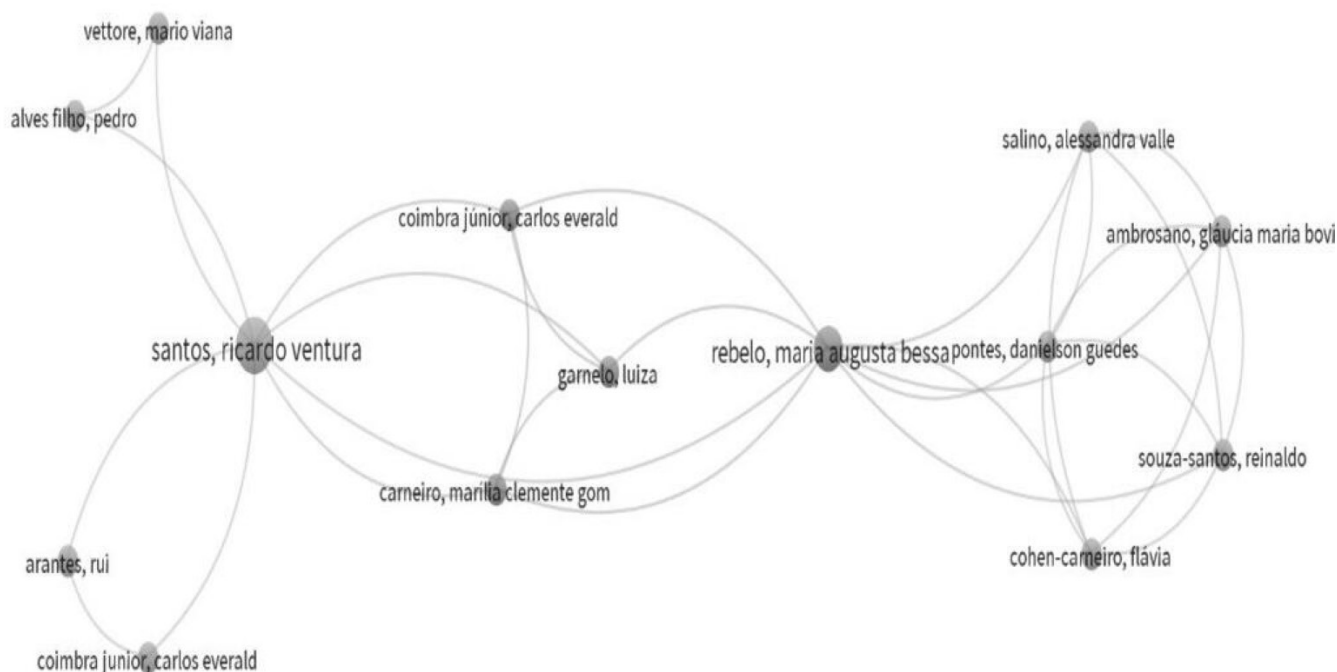
Figure 3 Co-authorship map.

induction or national coordination of research activities. Unlike national oral health surveys, there is no specific agenda for the oral health of TPC in Brazil. Although research with indigenous peoples involves a more bureaucratic process to obtain the necessary authorisation, this did not prevent the majority of studies from being concentrated in this group. However, the studies have diverse methodologies and were conducted at different times and with specific groups.

Regarding the keywords submitted for bibliometric analysis, the absence of specific terms related to TPC stands out. During the process of developing the search strategy for this review, it was noted that the terms "quilombola" and "ribeirinhos" are not even considered as MeSH terms. However, these terms were retained in the search strategy to facilitate the identification of studies related to these population groups. It is important to mention that there are other TPC in Brazil that were not specifically addressed in this review. Only indigenous peoples, quilombolas, riverside communities and Romani were included. Nonetheless, no studies were identified regarding the oral health of Romani people.

The cross-sectional design used in the included studies can elucidate the prevalence of major oral health conditions. However, it is considered a limited design as it does not allow for determining cause and effect and absolute risks for a health condition.[68] Additionally, cross-sectional studies are linked to the temporality in which the data were collected, requiring new surveys to report updated data on these populations. While observational cross-sectional studies may serve as a quicker method to generate information about the oral health of these groups, these investigations could be enhanced by incorporating diverse methodologies, such as mixed-methods studies[69] and implementation science studies.[70]

When undertaking a scoping review centred on a particular population, such as the TPC of Brazil, it is crucial to acknowledge that the results may not be generalisable to the rest of the world due to distinct cultural and contextual factors, geographic and environmental variations, socioeconomic factors and heterogeneity among different populations.

These findings highlight ongoing research in Brazil related to the oral health of TPC, representing a significant step forward in overcoming epidemiological invisibility

in this context. However, such studies are not under the coordination of a national research initiative. Therefore, it is necessary for national research coordination to focus attention on the need to implement a comprehensive research plan that includes TPC in national oral health epidemiological surveys. The findings of this review can encourage and drive the design of new primary studies on the oral health conditions of TPC in Brazil.

The high prevalence of oral health issues in these groups underscores the need to identify factors associated with these conditions, possibly arising from the health inequities faced, in order to minimise them. Population-based studies should be promoted by research funding agencies as well as government bodies, with the aim of influencing the development of policies for health promotion and prevention of oral health conditions, in addition to the provision and organisation of dental services.

CONCLUSION

The conducted review reveals that studies on the oral health of TPC are underway in Brazil, although they occur in an isolated and independent manner. The obtained results indicate progress in collecting data on the main oral health problems faced by these groups.

So far, the majority of research has focused on analysing the prevalence of dental caries, especially among indigenous peoples, demonstrating that the prevalence of oral health issues is considerably high in these communities. However, it is essential to conduct additional studies covering other TPC throughout the Brazilian territory to reduce the epidemiological invisibility surrounding these groups, as it contributes to oral health inequality.

Therefore, it is also important to recognise and strengthen the potential of primary healthcare (PHC) in Brazil, integrating dental efforts with the comprehensive approach of PHC, aiming to contribute to overcoming inequalities and promoting equitable oral health throughout the Brazilian population.

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