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Sociopolitical determinants of nutritional profiles and food insecurity among indigenous peoples in contemporary Brazil

Determinantes sociopolíticos dos perfis nutricionais e de insegurança alimentar entre povos indígenas no Brasil contemporâneo

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ABSTRACT

Objective
To review malnutrition, hunger, anemia, food insecurity and obesity conditions of indigenous peoples in Brazil from 2013 to 2023.

Methods
The study combines a sociohistorical approach in the analysis of available government and civil society documents and websites and a bibliographical search in Web of Science, PubMed and Scopus databases, on malnutrition, hunger, anemia, food insecurity and obesity among indigenous peoples in Brazil, from 2013 to 2023.

Results
The living conditions scenario is unfavorable for indigenous peoples in Brazil, in absolute and comparative terms with the non-indigenous people, revealing great inequities in health. In the political and socioeconomic framework, the dismantling of state actions and public policies concerning food and nutritional security, the worsening of territorial violence and other important setbacks in environmental issues and on the fundamental rights of indigenous peoples stand out.

Conclusion
The inequalities in health profiles and living conditions of indigenous and non-indigenous people in this country and globally, refer to historical-colonial trajectories marked by violence, racism and marginalization. In contemporary Brazil, the possibility of implementing the Human Right to Adequate Food and Nutrition, Food and Nutrition Security and food sovereignty of indigenous peoples has as a structural condition the discontinuation of systematic violations of their lives and territories, as well as a set of specific rights, including health rights, participatively and strenuously obtained in the wake of the country's redemocratization.

Keywords: Health status disparities. Indigenous peoples. Public policy.

RESUMO

Objetivo
Analisar o cenário de desnutrição, fome, anemia, insegurança alimentar e obesidade entre os povos indígenas no Brasil no período de 2013 a 2023.

Métodos
O estudo combina a abordagem analítica sociohistórica na análise de documentos disponíveis nas páginas governamentais e de organizações da sociedade civil à busca de artigos científicos nas bases de dados Web of Science, PubMed e Scopus, sobre desnutrição, fome, anemia, insegurança alimentar e obesidade entre povos indígenas no Brasil, de 2013 a 2023.

Resultados
O cenário deste conjunto de agravos se apresenta francamente desfavorável para os povos indígenas no Brasil, em termos absolutos e comparativos com o segmento não indígena, revelando grandes iniquidades em saúde. No contexto político e socioeconômico, destacam-se o desmonte das ações estatais e das políticas públicas concernentes à segurança alimentar e nutricional no país, o agravamento da violência territorial e outros importantes retrocessos nas questões ambientais e de reconhecimento de direitos fundamentais dos povos indígenas.

Conclusão
As iniquidades entre perfis sanitários e condições de vida de indígenas e não indígenas no país e globalmente remetem à trajetória histórico-colonial marcada pela violência, racismo e marginalização. No Brasil contemporâneo, a possibilidade de realização do Direito Humano à Alimentação e Nutrição Adequadas, da Segurança Alimentar e Nutricional e soberania alimentar de indígenas tem como condição estrutural o fim das violações sistemáticas de suas vidas e territórios, como de um de corpo de direitos específicos, inclusive de saúde, participativamente conquistados na esteira da redemocratização do país.

Palavras-chave: *Disparidades nos níveis de saúde. Povos indígenas. Política pública.*

INTRODUCTION

Over the last three decades, the assessment of the dietary and nutritional profile of indigenous peoples in Brazil has shown the permanence of some elements that, for different reasons, indicates the relevance of the topic. In this connection, the scarcity of data, the magnitude of the problems identified and the significant distance that separates the nutritional indicators recorded between indigenous and non-indigenous people should be pointed out; specifically the nutritional indicators comparison shows a strong disadvantage for indigenous peoples. As a whole, these elements and their very persistence cannot be dissociated from the social and historical condition of profound inequities that have affected indigenous peoples in this country.

In single papers or in literature reviews, studies reveal many gaps in this field, and an unavailability of information that, in contrast to existing data for other segments of the country's population, still reveal an unacceptable and damaging "demographic and epidemiological invisibility", as reported by Coimbra Junior and Santos [1]. It is from the first decade of the 21st century that the outlook begins to reverse, due to the efforts of institutions, research groups and organizations

of indigenous and non-indigenous people, particularly during the COVID-19 epidemic [2-5]. However, the situation is not only a Brazilian issue. In other parts of the world, the scarcity of specific data and information systems on indigenous peoples are epiphenomena of a similar situation of marginalization within nation-states that have different income and development profiles, aiming at the invisibilization of their indigenous peoples. This configuration has immediate effects on their health and well-being conditions [6-9].

In the mid-1980s, faced with high mortality rates associated with epidemics and an assimilationist and "developmentalist" indigenous policy, anthropologists and demographers projected the disappearance of indigenous peoples as a differentiated segment of the population in Brazil [10,11]. Today we know that there are more than 300 different indigenous peoples in the country and their population estimates, which in the 2010 Census indicated just over 850,000 people in all the federative units [12] living between urban spaces and indigenous lands with different degrees of recognition by the Brazilian state, actually more than doubled and exceed one million and six hundred thousand people, according to the 2022 Census [13].

The general scenario is largely unfavorable to the indigenous peoples, whose health profiles and "living conditions" highlight systematic inequities that in Brazil assume an ethnic-racial character [14-16]. The literature indicates significant occurrences that are usually higher than those recorded among non-indigenous people, such as child malnutrition, anemia in children and in women of reproductive age, obesity, diabetes mellitus and high blood pressure among adults [17-20]. As an example, the First National Survey of Indigenous People's Health and Nutrition in Brazil recorded, in 2008/9, height and weight-for-age deficits in 25.7% and 5.9% of children under 5 years; similar cases reached 40.1% and 11.1%, respectively, in the North region [21]. In addition, anemia affected 51.0% of children in this age group as well as one third of women of reproductive age [22]. In parallel, an equally complex morbidity and mortality profile existed caused by infectious and parasitic diseases; chronic non-communicable diseases such as diabetes mellitus, high blood pressure and obesity were also widespread [16,23,24].

It is not surprising that, from time to time, the mainstream media issues visible alarming news about the deaths of indigenous children due to malnutrition, accompanied by disturbing images of emaciated children's bodies, so often occurring among Guarani-Kaiowá children in the state of Mato Grosso do Sul, Central Brazil [25] and, recently, in what was declared a *Emergência de Saúde Pública de Importância Nacional* (ESPIN, Health Emergency of National Importance) due to lack of health care among the Yanomami people, in the state of Roraima, Northern Brazil [26]. These situations, unfortunately and as we have already indicated, are not facts separated from specific historical, socio-political and ethnic-racial contexts.

Our view is that an approach to this framework cannot be dissociated from a non-deterministic, historical-dialectical, multidimensional perspective that encompasses the sociopolitical and economic trajectories and conjunctures of indigenous peoples in the face of Nation-states. They are marked by exterminatory epidemics, marginalization, structural racism and violence, denial or disfigurement of rights, notably territorial rights [27-30]. The interaction between racism and health inequities among indigenous peoples is recognized, disseminated both in epidemiological studies of ethnic-racial data obtained through public information systems, and in broad reviews on the topic [5,31].

We especially highlight the analysis by Paradies [29], which records the influence of different levels of racism – "internalized, interpersonal, or systemic" – on the living conditions and health of indigenous peoples, although little measured and often neglected. Still, according to the author, if racism determines the disproportionate, unfair and avoidable distribution of "in power, resources,

capacities, or opportunities centered on ethnic, racial, religious, or cultural differences", in the case of indigenous peoples it is inseparable from colonization processes, some still currently on the go. In addition, in the Brazilian case, this exercise cannot be done without delving into the dynamics and facts that make the last decade a unique and particularly turbulent period in the country's history, with profound consequences for the present and future lives of indigenous peoples [32].

Therefore, our aim was to review malnutrition, hunger, anemia, food insecurity and obesity conditions among the indigenous peoples in Brazil from 2013 to 2023. As we mentioned, this understanding is inseparable from the sociopolitical and economic outlook and processes experienced by the indigenous peoples during this same period.

METHODS

This is a study that uses a combined methodology between a sociohistorical analytical approach (used in studies on the history of public health) and a search for information and literature cross-references in order to set up an analytical overview of indigenous nutritional profiles in Brazil and their determination processes from 2013 to May 2023, especially with regard to recent sociopolitical aspects [33,34]. A set of health problems associated with food and nutrition of indigenous peoples was selected from the field literature and further reviews highlighting their epidemiological importance [17-20]. Malnutrition, hunger, anemia, food insecurity and obesity were included. From this selection, a search for scientific articles was carried out in the Web of Science, PubMed and Scopus databases, using the following keywords, their combinations and Boolean terms: Malnutrition AND indigenous AND Brazil; Hunger AND indigenous AND Brazil; Anemia AND indigenous AND Brazil; "Food insecurity" AND indigenous AND Brazil; Obesity OR "Excess weight" AND indigenous AND Brazil. The searches also included reviewing the bibliographic references of the selected articles (cross search).

Publications in English and Portuguese from 2013 to May 2023 were retrieved. The following articles selection steps were taken: 1) title assessment; 2) reading the abstracts; 3) reading the manuscript in full. Review works, duplicate papers, articles which did not have a direct relationship with the main objects of the research or which did not include indigenous peoples as a specific category of analysis were excluded.

The data from selected literature papers were compiled into tables (Microsoft Word 2013® Software). For works associated to malnutrition, anemia, overweight and obesity, the information collected was: bibliographic reference, ethnicity, territorial base, age group, type of nutritional condition, diagnostic criteria and prevalence of the condition. This information, in table format, is presented in the results section in Tables 1, 2 and 3. With regard to articles on food insecurity and hunger, the data extracted were: bibliographic reference, ethnicity, territorial base, sample, methodology/instrument and main results. A summary of the studies is presented in Table 4.

The second procedure, essentially qualitative and adopted by landmark studies that have been discussing the complex scenario of indigenous health in this country [3,5], consisted in assessing materials from websites of indigenous and indigenist organizations, as well as public and non-governmental institutions, to characterize the broader framework in which the topic is set, especially when we consider the complexity of sociopolitical, socioeconomic, environmental aspects, among others, involved in determining the health of indigenous peoples in Brazil and in the world [35]. The reports of the *Conferências Nacionais de Saúde Indigena* (National Indigenous Health Conferences) and the *Acampamentos Terra Livre* (Free Land Camps), publications by the *Conselho Indigenista Missionário* (Indigenous Missionary Council), the *Organização pelo Direito Humano à Alimentação*

e à Nutrição Adequadas (Organization for the Human Right to Adequate Food and Nutrition) and the *Ministério do Desenvolvimento e Assistência Social, Família e Combate à Fome* (Ministry of Development and Social Assistance, Family and Combat Against Hunger) were assessed.

The presentation of the results and discussion of this work was structured into three sections: (I) Multiple nutritional disorders: dimensions of the inequity among indigenous peoples in contemporary Brazil – which summarizes epidemiological data on the main nutritional disorders that have affected indigenous peoples in Brazil, such as malnutrition, anemia and obesity; (II) Food insecurity: from indigenous forums to assessment and measurement attempts – which points to debates over time about food insecurity, as well as indigenous protagonism in this process, the difficulties of measuring hunger and food insecurity and data scarcity on this topic; (III) The sociopolitical determinants of the indigenous peoples health profile in Brazil – which contextualizes the scenario recorded among indigenous peoples in the previous sections into the sociopolitical and economic scenarios that have developed in recent decades.

RESULTS AND DISCUSSION

In this section we present an analytical synthesis of the publications available on selected nutritional problems and food insecurity among indigenous peoples in this country, from 2013 to 2023. Despite the limitations and specificities of the studies, these data allow measuring essentially the magnitude of the gaps in the food and nutritional reality of indigenous peoples in Brazil. Tables 1, 2, 3 and 4 summarize these findings. In total, our searches identified 244 scientific articles. After excluding those that did not meet the inclusion criteria and those that were duplicated, 21 articles remained, which were reviewed in the present manuscript.

Multiple nutritional problems: dimensions of inequity among indigenous peoples in contemporary Brazil

For children under five years old, the literature records significant height and weight deficits among different indigenous ethnicities, with prevalence rates varying from 7.9% to 57.5% for underweight, and even more strikingly, the height deficit that affects 83.8% of Yanomami children (Table 1) [21; 36-38]. Among the five studies published in the last decade, one presents results from the First National Survey of Indigenous People's Health and Nutrition [21,23]. The prevalence of a very significant low height-for-age and low weight-for-age, compared to non-indigenous children is not uncommon [21,36,37,39], also suggesting an intergenerational nutritional impairment between maternal and child indices [40] (Table 1).

Table 1 – Prevalence of selected nutritional disorders in indigenous children <5 years old, according to the author, ethnicity and territorial basis. Brazil, 2013-2023.

Reference	Ethnicity	Territorial base	Nutritional problem	Prevalence (%)
Horta et al. [21]	Several	Brazil	Stunting	25.7
			Underweight	5.9
Barreto et al. [36]	Guarani	Rio de Janeiro; São Paulo	Stunting	50.4
			Underweight	7.9
Pantoja et al. [38]	Yanomami	Amazonas/Roraima	Stunting	80.5
			Underweight	57.5
Orellana et al. [37]	Yanomami	Amazonas/Roraima	Stunting	83.8
			Underweight	50.0
Fávaro et al. [44]	Xukuru Do Ororubá	Pernambuco	Excess weight	9.9*

Note: *Prevalence referring to children aged ≥2 and <5 years. Stunting: height-for-age z-scores <-2; Underweight: weight-for-age z-scores <-2.; Excess weight: z-scores ≥2.00 and <3.00.
Source: World Health Organization reference [93].

Regarding anemia, with the search criteria applied, only three studies were identified (Table 2) [22,36,41]. The First National Survey data revealed an average prevalence of anemia among indigenous children under five years old that was five times higher (51.2%) [22] (Table 2) compared to the condition recorded among non-indigenous children (10.1%) [42]. In the North region of Brazil, the prevalence among indigenous children is even higher, reaching 66.0% [22]. Among the women evaluated in the First National Survey, 33.0% were anemic in the country as a whole, a prevalence that reaches 46.3% in the North region [43] (data not presented in tables).

Studies have also detected ongoing nutritional transition processes, yielding overweight and obesity recorded both among children [44] and adults [45-51]. Among adults (Table 3), excess weight (Body Mass Index ≥25 Kg/m^2) reaches alarming numbers, as is the case of Xikrin women in the state of Pará, Northern Brazil, who presented a prevalence of 84.4% [49]. In the First National Survey, among women of reproductive age, the prevalence of excess weight at a national level was 46.2% [50]. Coimbra Junior et al. [50] point out that it is possible that these rates result from "higher socioeconomic indicators, market-integrated living conditions and less reliance on local food production".

Table 2 – Prevalence of anemia in indigenous children according to the author, ethnicity, territorial base and age group. Brazil, 2013-2023.

Reference	Ethnicity	Territorial base	Age group (years)	Prevalence (%)
Leite et al. [22]	Several	Brazil	<5	51.2
Barreto et al. [36]	Guarani	Rio de Janeiro; São Paulo	<5	65.2
			<2	88.9
Ferreira et al. [41]	Xavante	Mato Grosso	<2	81.4
			<10	46.8

Note: Anemia: hemoglobin <11g/dL.

Table 3 – Prevalence of selected nutritional problems in indigenous young people and adults, according to the author, ethnicity, territorial base, age group and gender. Brazil, 2013-2023.

Reference	Ethnicity	Territorial Base	Age group (years)	Nutritional problem	Gender	Prevalence (%)
Fávaro et al. [45]	Xukuru do Ororubá	Pernambuco	19-59	Overweight	Male	36.6
					Female	31.2
				Obesity	Male	7.5
					Female	21.0
Boaretto et al. [46]	Kaingang	Paraná	18-45	Overweight	Male	38.8
					Female	45.9
				Obesity	Male	8.8
					Female	21.7
	Guarani	Paraná	18-45	Overweight	Male	36.8
					Female	25.0
				Obesity	Male	0.0
					Female	8.3
Bresan et al. [47]	Kaingang	Santa Catarina	≥18	Overweight	Male	33.3
					Female	34.5
				Obesity	Male	22.9
					Female	41.1
Soares et al. [48]	Xavante	Mato Grosso	≥20	Excess weight	Male	81.2
					Female	81.9
Barbosa et al. [49]	Xikrin	Pará	≥18	Overweight	Male	46.2
					Female	37.5
				Obesity	Male	23.7
					Female	46.9
Coimbra Jr. et al. [50]	Several	Brazil	14-49	Overweight	Female	30.4
				Obesity	Female	15.8
Gomes et al. [51]	Munduruku	Amazonas	18-80	Overweight	Both	38.3
				Obesity		14.4

Note: Overweight: Body Mass Index (BMI) ≥25 kg/m^2 and <30 kg/m^2. Obesity: BM I≥30 kg/m^2. Excess weight: BMI ≥25 Kg/m^2.

The set of studies examined here reveals a significantly unfavorable situation both in absolute terms and in comparison with the non-indigenous segment of the Brazilian population. In this connection, the First National Survey [52] confirmed the evidence that specific studies had been accumulating and continued to emerge over the following years. The Survey data showed precarious socioeconomic and sanitary conditions, with health and nutrition indicators consistently worse than those recorded for the non-indigenous population in the country [23]. This scenario is consistent with the morbidity and mortality profiles pointed out by other sources: a cohort study that followed 19 million births between 2012 and 2018 recorded the highest risk of death among indigenous children due to different causes, and associated the differences found with the effects of racism [53]. The main causes of morbidity and mortality among indigenous peoples are infectious and parasitic diseases and, at the same time, non-communicable diseases and external causes, such as suicide [23,47,49,50,54].

The interactions between the historical, sociocultural dimensions and the Brazilian indigenist policy are particularly complex. These interactions affect the indigenous peoples' living and health conditions in multiple ways and outline the background of such conditions as well as that of hunger and food insecurity (Tables 1, 2, 3 and 4). We consider that, although usually addressed separately in the studies, including with regard to their determination, these outcomes have profound interactions and similarities between them [55]. Therefore, they are particularly significant as a cluster. We reckon that ultimately the way they are configured reflect the position and the inequities regarding health, food, nutrition, and others that are set aside for those peoples in the national framework.

Food insecurity: from indigenous forums to the assessment and measurement attempts

It is worth noting, at the outset, the recognized difficulty of defining and measuring the phenomenon of hunger, as well as the long history of methodological efforts aimed at assessing food insecurity. These efforts have been yielding several versions of psychometric food insecurity scales, including the *Escala Brasileira de Insegurança Alimentar* (EBIA, Brazilian Food Insecurity Scale) [56].

Since its genesis, the discussions of indigenous and indigenous representatives and leaders, indigenous and indigenist organizations regarding the "health" of Brazilian indigenous peoples have demonstrated their broad and inseverable character with regard to the recognition, preservation and right to their territories. In this connection we acknowledge that ideas about food and nutritional insecurity were also systematically present in important indigenous mobilization forums, since the First National Indigenous Health Conferences, notably those of 1986 and 1993 [3,57]. They were also present in the debates and demands of the so-called *Acampamentos Terra Livre* (Free Land Camps) which are indigenous mobilization events and indigenous rights struggle episodes that have been taking place annually in Brasília since 2004 [58]. Hunger in indigenous lands is also the subject of the first and second Hunger Maps among Indigenous Peoples in Brazil [59]. Published in 1994, just one year after the release of the emblematic *Mapa da Fome I* (First Hunger Map), by the Institute of Applied Economic Research [60], the documents showed that around one third of indigenous lands were already facing difficulties in ensuring their people's food sustenance [59].

A brief detail may be useful to recognize the degree of scarcity of information on the current situation of food insecurity among indigenous peoples in Brazil: over the last ten years, only four studies carried out with indigenous communities, belonging to four ethnicities, were found [61-64] (Table 4). One study took place in the South region, two in the Southeast and one in the Central-West region of Brazil. Faced with a universe made up of more than three hundred different indigenous peoples, the limitations of the current knowledge about the indigenous situation become clear.

Three other studies examined national databases, without, however, defining ethnicity or Indigenous Land [65-67] (Table 4). Considering the aforementioned social diversity that characterizes this population segment, the inclusion of the race/skin color variable constitutes a necessity; however, it is insufficient to ensure the representativeness of the plurality of indigenous cultures and their ways of living in the country.

Despite methodological differences, studies consistently point to important limitations in access to food, which affected all [61] or almost all indigenous dwellings assessed [64]. The review of the national databases, in turn, revealed more serious situations than those recorded among non-indigenous people; in fact, self-declared indigenous individuals appear associated with the occurrence of hunger or food insecurity including more severe degrees of food insecurity [65-67].

Table 4 – Summary of research that measured food insecurity or hunger among indigenous peoples in Brazil according to the author, ethnicity, territorial base, sample, methodology/instrument and main results. Brazil, 2013-2023.

Reference	Ethnicity	Territorial Base	Sample	Methodology/Instrument	Main results
Vargas et al. [62]	Guarani Mbya	Espírito Santo	25 households from 1 village: Boa Esperança.	"EBIA previously adapted by the research group" (p.7). There is no more specific mention of the validation process.	Mild FI in 9% of households, moderate FI in 41% and severe FI in 41% of them.
Wood et al. [65]	Information not available in analyses.	Brazil	Data from PNDS 2009. Representative sample of dwellings from all regions of the country (part of which are indigenous), in rural and urban areas.	EBIA	A total of 47% Indigenous-headed dwellings had moderate or severe FI. After controlling for region, urban/rural residence, household per capita income, age and gender of the household head, the chances of moderate and severe FI were, respectively, 66 and 73% higher among indigenous dwellings when compared to those headed by self-declared white.
Franceschini [61]	Guarani Mbya	Mato Grosso do Sul	75 households from 3 communities in the recovery area: Guaiviry, Ypo'i and KurusuAmbá.	EBIA/ "Indigenous EBIA". There is no more specific mention of the instrument or the validation process.	At the time of the survey, all families from the three communities were suffering from some degree of FI: mild FI, 13.3%; moderate AI, 58.7%; Severe FI, 28% of households.
Segall-Corrêa et al. [63]	Guarani Mbya	São Paulo	111 households in Indigenous Lands Rio Silveira, Piaçaguera, Boa Vista e Ubatuba.	EBIA-G validated after testing two versions.	Mild FI in 28.7% of households, moderate FI in 28.7% and severe FI in 31% of them.
Soares et al. [64]	Kaingang	Rio Grande do Sul	107 Kaingang adults aged 35-44 belonging to 97 households in the Guarita Indigenous Land. were interviewed. It does not specify the community(ies).	EBIA	About 95% of participants belonged to families with AI. Severe FI was recorded in 58% of households.
Amorim et al. [66]	Information not available in analyses.	Brazil	Data from PeNSE 2015. Representative sample of students in the 9th year from all regions of the country, urban and rural.	The occurrence of hunger was assessed using the question "How often in the last 30 days have you felt hungry because you didn't have enough food at home?" Hunger was considered reported when the answer given was "sometimes", "most of the time" or "always".	13.5% of indigenous students reported hunger, being the race/skin color group most affected.
Ribeiro et al. [67]	Information not available in analyses	Brazil	Data from HBS 2017-2018. Representative sample of households headed by Brazilian adults >= 60 years old, from all regions of the country (part of which are indigenous), in rural and urban areas. Information not available in analyses.	EBIA	Around 10% of the dwellings had severe or moderate Food Insecurity. A quarter of these were led by indigenous people.

Note: Modified from Athila & Leite [68]. EBIA: *Escala Brasileira de Insegurança Alimentar*; FI: Food Insecurity; PNDS: *Pesquisa Nacional de Saúde*. POF: *Pesquisa de Orçamento Familiar*; PeNSE: *Pesquisa Nacional de Saúde do Escolar*.

The data are, to a large extent, consistent with the scenario described in the next section, and which point to a truly hostile situation for indigenous existences in this country.

Finally, regarding the use of the EBIA, in validated versions or not within local contexts, several studies have expressed reservations regarding the use of this instrument and its capacity both to measure hunger among indigenous peoples and to capture a potential polysemic phenomenon. These studies point to the diversity of sociocultural configurations found in this segment [68-70] and, more specifically, to the need to discuss the concept of "food insecurity" in connection with indigenous epistemologies and food systems [68].

The sociopolitical determinants of the health profiles of indigenous peoples in Brazil

As we have previously indicated, the nutritional epidemiological review in connection with the trajectory of food insecurity among indigenous peoples requires that we go back in time, beyond the last ten years. It is necessary to understand how the claims and actions of civil society are interconnected with the implementation of social and economic policies drawn up by the State. In this conflicting scenario there is a permanent dispute between the construction and the patent deconstruction of the fundamental and specific rights of indigenous peoples, involving also their strenuous resistance [3,4,71]. If in the first decade of the 21st century specific formally participatory policies with intended effects on the health and nutrition of indigenous peoples were consolidated, from the middle of the second decade of the century onwards a movement took place in the opposite direction, starting with the impeachment of former president Dilma Rousseff and the rise of the extreme right political parties to power, during the Michel Temer and Jair Bolsonaro governments. Without the possibility of dealing in details here, we may refer to a few milestones and events that allow us to understand such back and forth flows. From 2003 onwards, the Brazilian government adopted a series of public policies aimed at "social development", the eradication of "hunger" and "extreme poverty", and in this context the *Conselho Nacional de Segurança Alimentar e Nutricional* (National Council for Food and Nutritional Security) was reactivated [72-74]. A timeline of the main events highlighted in our analysis can be seen in Figure 1.

In 2004, a merger of the "social assistance" and "food security" portfolios formed the *Ministério do Desenvolvimento Social e Combate à Fome* (Ministry of Social Development and Fighting Hunger), within which the *Comissão Nacional de Desenvolvimento Sustentável de Povos e Comunidades Tradicionais* (National Commission for the Sustainable Development of Traditional People and Communities) was created [75]. Because they had "the worst food security rates", indigenous peoples were given priority by the "social protection policies" of the new Ministry, with the challenge of drawing programs and set public services accessible to indigenous peoples, within the country's constitutional guidelines [76]. In 2006, the *Sistema de Vigilância Alimentar e Nutricional Indígena* (Indigenous Food and Nutrition Surveillance System) was created [77]. In the same year, the *Sistema Nacional de Segurança Alimentar e Nutricional* (National Food and Nutritional Security System) was created by Law nº 11,346, and regulated in 2010 by Decree nº 7,272, which also established the *Política Nacional de Segurança Alimentar e Nutricional* (National Food and Nutritional Security Policy). Following state strategies to combat hunger and poverty, in 2011 the *Plano Brasil sem Miséria* (Brazil without Extreme Poverty Plan) was launched.

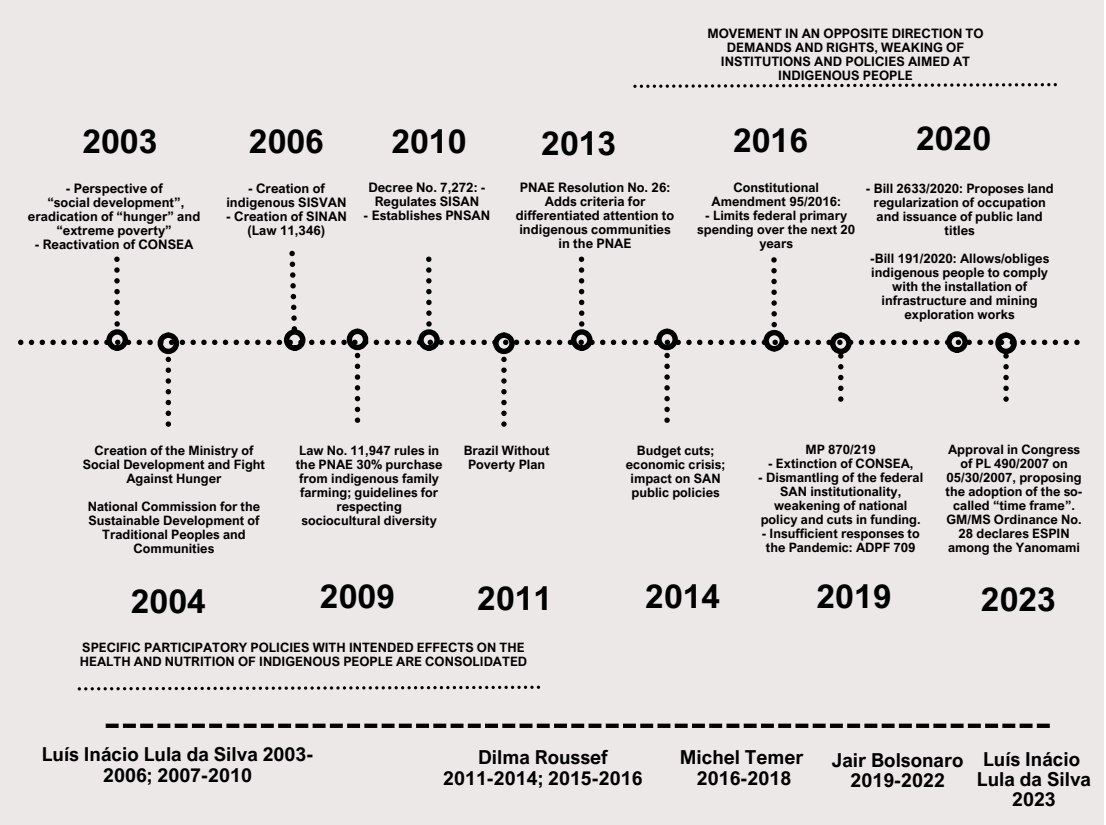

Figure 1 – Scenario of public food and nutrition policies for indigenous peoples. Brazil, 2003-2023.

Note: CONSEA: *Conselho Nacional de Segurança Alimentar e Nutricional*; ESPIN: *Emergência em Saúde Pública de Importância Nacional*; PNAE: *Programa Nacional de Alimentação Escolar*; PNSAN: *Política Nacional de Segurança Alimentar e Nutricional*; SAN: *Segurança Alimentar e Nutricional*; SISAN: *Sistema Nacional de Segurança Alimentar e Nutricional*; SISVAN: *Sistema de Vigilância Alimentar e Nutricional*.

More specifically, efforts towards the formalization and institutionalization of particular attention to indigenous peoples appear in the norms of the *Programa Nacional de Alimentação Escolar* (National School Feeding Program), which established criteria that give priority to the acquisition of products from indigenous gardens and complying with the sociocultural specificities in the set up of meals menus, among other aspects [78,79]. However, ethnographic studies point to a huge gap between the formulation of the Program and its implementation at the local level [80-83].

With the budget cuts implemented in 2014, as a result of the economic and political crises installed shortly after Dilma Rousseff's re-election, public policies related to food and nutritional sovereignty and security, as well as poverty reduction, were seriously affected. After Michel Temer took office as President of the Republic, even more drastic changes occurred. Constitutional Amendment 95/2016 limited federal primary spending along the following 20 years and fiscal austerity policies between 2014 and 2017 inhibited especially the programs related to the Food and Nutritional Security, with a reduction of 85.0% of the program budget [84]. The situation got worse with the rise of Jair Bolsonaro to the presidency. On the first day of his mandate, through Provisional Executive Order nº 870/2019, the government extinguished the *Conselho Nacional de Segurança Alimentar e Nutricional* and began the dismantling of the *Segurança Alimentar e Nutricional* (Food and Nutritional Security) federal institutionality, changing and weakening national actions and policy with an actual reduction of funds allocated for this purpose [85]. The Forum of Presidents of the *Conselhos Distritais de Saúde Indígena* (District Indigenous Health Councils), an important space for indigenous social control of health care, was also deactivated in the same year. For Muller [86]: "Public policies are

more than tools or instruments of the State, they are the very essence of the State", as they reflect the points of view of society and show who the State actually serves. Thus, the dismantling of public policies converge with the actions of the federal government and the *Frente Parlamentar da Agropecuária* (Parliamentary Agricultural Front), which advocates economic growth at any cost, including deforestation, intensive use of natural resources, increased environmental impacts and usurpation of indigenous territories.

In parallel with the appreciation of agricultural commodities and the guidelines of economic policy towards the exploitation and trade of exhaustible natural resources, pressure on indigenous lands and attempts to deface and revoke constitutional rights grounded in the original occupation and the exclusive indigenous usufructe of their lands increased. With actions close to neocolonial extractivism, the expansion of agro-industry and mining and the respective infrastructure works, caused an intensification of deaths and violent conflicts and degradation in and around indigenous territories, in an unprecedented way and contrary to the Brazilian regulatory frameworks and the international pacts entered into by Brazil [87]. These activities, together with the use of pesticides and mercury, have jeopardized the integrity of territories and the availability of fundamental ecosystem resources, such as water, hunting, fishing, collecting and adequate cultivation of fields by the indigenous communities [88-90].

At the legislative level, with the participation of the rural congressmen caucus and with the support of the executive, old Bills of Law (Projetos de Lei, PL) are reissued, while others quickly multiply, all aimed at impacting criteria and procedures involved in the constitutional obligation of the Brazilian State to recognize indigenous territories, and intended to revoke their right to the exclusive use of their land and subsoil resources and social participation mechanisms [91]. Violations simultaneously affect their specific constitutional rights and human rights [92]. As an example, PL 490/2007, approved by the Federal Congress on 05/30/2023, transfers to the National Congress the competence to demarcate indigenous lands, proposing the adoption of the so-called *Marco Temporal* thesis (a "Time Frame" thesis that limits State recognition of indigenous territories to those occupied by indigenous peoples on October 5, 1988, date of enactment of the Brazilian Constitution). With this, the always violent processes of expulsion, pillage and denial of representation historically imposed on indigenous peoples are endorsed, while the exploitation of their extractive resources by external agents and the suppression of consultation mechanisms are invested with legality. We also highlight PL 2633/2020, commonly known as "*PL da grilagem*" (illegal land occupation Draft Law), proposing to enhance regularization of illegal land occupation and issuance of public land titles, especially impacting criminal usurpations in the Amazon, and PL 191/2020, which in general terms allows/forces indigenous peoples to accept the installation of infrastructure and mining exploration works in their territories.

At the same time, government institutions and mechanisms for monitoring and repressing socio-environmental crimes, including the "*Bases de Proteção Etnoambientais*" (Ethno-environmental Protection Bases), maintained by the then *Fundação Nacional do Índio* (National Indian Foundation) in vulnerable indigenous territories, are voided [71]. The *Secretaria Especial de Atenção à Saúde Indígena* (Special Secretariat for Indigenous Health) and other federal indigenous institutions were brutally affected in their structures, human resources and financing, at the same time that there was a drain on social participation and the militarization of institutions [71]. This institutional configuration and the regulatory threats, by themselves, allow and encourage violence and illegal exploitation of indigenous lands, and simultaneously reduce the protection and instruments of participatory management of indigenous peoples.

Indigenous organizations and non-governmental organizations have been pointing out and denouncing in different international human rights forums and courts, the intentional slowness and lack of responses or even the government encouragement to an array of situations that threatened and continue, in different measures, to threaten indigenous existences [71,92]. In this connection, the insufficient state responses to the COVID-19 pandemic among indigenous peoples can be mentioned, which led to the *Arguição de Descumprimento de Preceito Fundamental* (Claim of Noncompliance with a Fundamental Precept) nº 709, filed by the *Articulação dos Povos Indígenas do Brasil* (Articulation of Brazil Indigenous Peoples) with the *Supremo Tribunal Federal* (Federal Supreme Court) and which extended throughout the precautionary measure granted to APIB, such as the legal measures in favor of the Yanomami indigenous population [26]. We also highlight the significant contingent of indigenous peoples living or transiting through urban and peri-urban regions and indigenous lands not recognized by the State, with poor access to the Government's *Sistema Único de Saúde* (Universal Health Care System) who were left out of most health actions, without integrating skin color/ethnicity-specific registration systems into the national health systems data [71].

FINAL CONSIDERATIONS

Addressing any health inequities among indigenous peoples, whether as part of a national or comparative approach between different countries with indigenous peoples among their population, implies considering the articulations of a set of dimensions that unfold in their epidemiological profiles. They range from historically unfavorable conditions regarding the social determination of diseases, situations of ethnic-racial recognition, access to specific rights, including territorial and health rights, to the participation of indigenous peoples and their worldviews in the development and direction of public policies geared towards them.

In a manner compatible with the ways in which these articulations have been configured in this country, the data presented here highlight important health inequities in two fundamental aspects. First, the indicators are consistently worse in the indigenous segment, which adds an ethnic-racial dimension to these inequities. Second, a restatement of this dimension refers to the availability of information on the topic, with a significant asymmetry between indigenous peoples and the rest of the country's population. This scenario seems to ultimately translate into a systematic dynamic of invisibilization and consequent "silencing" of inequities. Therefore, it is necessary to point out and challenge the broad and profound effects of racism in the construction and maintenance of these inequities. In this connection, public policies aimed at the insurance of racial equality are essential, including health and indigenous participation and protagonism in these instances. In contemporary Brazil, the possibility of implementing the Human Right to Adequate Food and Nutrition, Food and Nutritional Security and food sovereignty of indigenous peoples has as a structural condition the end of systematic violations of their lives and territories, as well as a set of specific rights, including health rights, participatively and strenuously obtained in the wake of the country's redemocratization.

The demographic and epidemiological visibility of this Brazilian population segment should be a priority objective not only in the design of demographic and health research, but also in health information systems and social program databases, such as the Single Registry (CadÚnico) for the government social programs. In addition to the necessary inclusion of the race/ skin color variable in the analyses, indigenous peoples must constitute specific categories of analysis and should not be grouped with other race/skin color categories. The sampling designs of studies considered national must guarantee minimal representation in terms of different regions of the country and through rural and urban areas. Furthermore, the country's recognized indigenous social diversity

must be taken into account, which translates into more than three hundred indigenous peoples, two hundred languages spoken and different trajectories of interaction with the national society, as well as diverse land situations that impact their health, food and nutrition profiles.

In this article we seek to interpret the outlook of the main nutritional problems among indigenous peoples in Brazil as a whole, and in their different dimensions, movements, power relations and contradictions, usually not explained in the statistical analyses outlined by the social determinants of health. This scenario occurs in concrete social spaces where different development ideas and ideological disputes are at play. Understanding this is the first step towards building inclusive policies and more supportive relationships with the environment and with people.

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CONTRIBUTORS

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