

Contribution to the *Journal Ciência & Saúde Coletiva* on Food and Nutrition in Brazil

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Abstract *A systematic review conducted in January 2020 using SciELO database with the objective of analyzing the scientific production from 1996-2019, of the Journal Ciência & Saúde Coletiva in the area of food and nutrition. We selected 509 out of the 904 articles screened by titles and abstracts. We grouped the articles into ten themes and discussed the most frequent ones: Nutritional Status Assessment (n=142), Food Intake (n=111), Food and Nutrition Policies and Programmes (n=105) and Breastfeeding (n=35). The publications were mostly original articles (75.6%) employing quantitative method (81.6%) and, among these, 18.8% used a probabilistic sampling. We assembled a wide range of topics and subthemes, a relevant production and repository of data and knowledge for health professionals and managers. As gaps, there was a scarcity of publications focused on micronutrient deficiency; the promotion of the Food Guide for the Brazilian Population; supporting the rise of breastfeeding, the impact and analyses of the disruption of the National Food and Nutrition Security Policy and its multi sector interactions with social policies to fight hunger.*

Key words *Food and Nutrition, Scientific Production, Literature Review, Journal Ciência & Saúde Coletiva*

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Introduction

Nutrition as a science, as subject of public policies and as a career emerged in Brazil in the early 1930s. Nutrition constitutes a complex and multidisciplinary field even though the professional training is historically part of the health sector and centred on biological sciences approaches^{1,2}.

Over the last three decades, the Brazilian society has faced profound economic, political and social changes with repercussions in the nutrition profile of the country. Among these can be underlined those related to the nutritional epidemiological scenario that began to be configured in the country from the 1990s. On one hand we had nutritional diseases related to poverty and socio economic inequalities (protein energy malnutrition, vitamin A deficiency, iron deficiency anaemia, etc.), already prevalent in the 1930s when nutrition emerged as a scientific field. On the other hand, we observed a rise of nutritional diseases associated with lifestyle, wealth, technological advances and modernity (obesity, diabetes, dyslipidaemias, hypertension, certain types of cancer, etc.), more prevalent in the current context³⁻⁷.

The first paper on the Nutrition field dates from 2002. The *Journal Ciência & Saúde Coletiva* (C&SC) vol. 7, number 2, adopted the modality of a *debate* titled “for the critique of nutritional transition”⁸. This concept appeared in the country in mid-1990s and indicated the need of agreeing upon new explanatory and interventional paradigms appropriate to the new Brazilian food and nutritional reality^{2,5}.

Some studies have investigated the scientific production of the nutrition field, published in national journals, using diverse objectives, conceptual approaches and methodological procedures^{9,10}. Olinto *et al.*⁹ listed and ranked 20 journals with the highest numbers of publications by the Post Graduate Programs in Nutrition. From 2007 to 2009, the three highest were The Brazilian Journal of Nutrition (n = 100), *Cadernos de Saúde Pública* (n = 63) and C&SC (n = 63). A more recent review of the Scientific Electronic Library (SciELO) until September 2016, Vasconcelos¹⁰ listed 779 articles published in 85 journals. The five journals with the highest number of publications were The Brazilian Journal of Nutrition (n = 177), *Cadernos de Saúde Pública* (n = 84), *Saúde Pública Journal* (n = 60), C&SC (n = 50) and The Journal of Paediatrics (n = 36)¹⁰.

This article aims to analyse the scientific production of (SCHJ) on Food and Nutrition from

1996 to 2019, seeking to conduct a brief dialogue with the scientific literature in the international scenario.

Methods

This is a systematic review of articles published in the C&SC in the area of Food and Nutrition, since its creation in 1996 up to the end of 2019.

We conducted this search using the SciELO database in January 7th, 2020 and the C&SC filter. After a brainstorming among the authors, we searched for subjects and indexes to capture a maximum number of words related to Food and Nutrition. We searched strategically for those with similar roots and added prefixes and suffixes, in Portuguese, Spanish and English.

These words were intrinsically inclusive and tracked articles contained them in their title or abstract. We included the following key words: “NUTRICAÇÃO or NUTRICIÓN or NUTRICIONAIS or NUTRICIONAL or NUTRICIONISTA or NUTRIENTES or NUTRIENTS or NUTRITION or NUTRITIONAL or NUTRITIONIST or NUTRITIVE or NUTRITIVOS or NUTRIZ OR MICRONUTRIENT or MICRONUTRIENTE or MICRONUTRIENTS or MICRONUTRIENTES or ALIMENTA or ALIMENTAÇÃO or ALIMENTACION or ALIMENTADA or ALIMENTAM or ALIMENTAN or ALIMENTANDO or ALIMENTAR or ALIMENTARAM or ALIMENTAREM or ALIMENTARES or ALIMENTARIA or ALIMENTARIO or ALIMENTARIOS or ALIMENTARIUS or ALIMENTARY or ALIMENTICIOS or ALIMENTO or ALIMENTOS or ALIMENTOSA or DIET or DIETA or DIETARIA or DIETARY or DIETARYRISK or DIETAS or DIETETIC or DIETETICA or DIETETICAS or DIETETICO or DIETETICOS or DIETETICS or INGESTA or INGESTÃO or INGESTION or FEED or FEEDING or CONSUMO or CONSUMPTION or FOOD or FOODBORNE or FOODCONTROL or FOODS or FOODSERVICE or OBESIDAD or OBESIDADE or OBESITY or SOBREPESO or OVERWEIGHT or DESNUTRICAÇÃO or UNDERNUTRITION or ANTROPOMETRIA or ANTHROPOMETRIC or ANTHROPOMETRY or AMAMENTAÇÃO or AMAMENTADAS or AMAMENTADOS or AMAMENTANDO or AMAMENTAR or AMAMENTARAM or AMAMENTOU or BREASTFED or BREASTFEED or BREASTFEEDING”.

The search returned 904 publications. After reading the titles and abstracts, we excluded 395 publications deemed not suitable to the Food

and Nutrition sphere, resulting in the inclusion of 509 articles.

These publications contained information on year of publication, themes and, key words; type of article (original article; narrative review; systematic review; editorial; opinion; review; letter); type of study (quantitative, qualitative or qualitative-quantitative); study group (neonates, infants, schoolchildren, adolescents, adult women, adult men, adults of both sexes, elderly, pregnant women, breastfeeding, puerperal and maternal-infant); minority groups (native, *quilombolas*, rural population settlements and refugees); probabilistic sample (yes or no) and country of the study.

We grouped the publications were grouped into ten themes: Nutritional Status Assessment (A), Food Consumption (B), Food and Nutrition Policies and Programmes (C), Breastfeeding and Complementary Feeding (D), Behavioural Nutrition (E), Nutritional Education (F), Nutritional Care of population groups (G), Nutritionist's Profession (H), Food Hygiene (I) and Food Technology (J). We discussed the articles according to their historical, social and cultural contexts, compared with the international literature, and presented them in tables and graphs. Given the magnitude and diversity of the area, we chose to focus the discussion of the results to the themes A, B, C and D that concentrated the largest number of publications.

In order to conduct a brief dialogue between the scientific production of *C&SC* in the area of Food and Nutrition and the scientific literature in the international scenario, we carried out a bibliographic search using PubMed, the U.S. database of the National Library of Medicine, U.S. National Institutes of Health. This search had as a time frame the period from 1996 up to the end of 2019 using specific the key words to select the four most frequent themes already specified above (A, B, C and D).

Results

Bibliometric characteristics of articles in the Food and Nutrition area

Food and Nutrition articles represent 11.5% of the 4414 *C&SC* publications in the period. The topics most addressed in the journal were Nutritional Status Assessment (27.9%), Food Consumption (21.8%), Food and Nutrition Policies and Programmes (20.6%), Breastfeeding

and Complementary Feeding (6.9%). Within these themes, the main groups of publications addressed assessment of nutritional status and its determinants (26.7%), food consumption or food groups (16.1%) and food security and nutrition (14.5%) (Table 1).

Three quarters of the publications, (75.6%) are original items and 81.6% of these are quantitative. Among the quantitative studies, 18.8% used probabilistic samples. The articles present a balanced distribution of population groups, 28.5% focused on adults and 21.8% on children, both infants to schoolchildren. Few publications targeted minority groups (5.1%) and 95.1% were conducted in Brazil (Table 2).

The first publication in the *C&SC* on Food and Nutrition took place in 2002, six years after the creation of the journal. Subsequently, publications appeared on average 3.5 articles/year until 2009. Since 2010, the number of publications increased remarkably, maintaining an average of 47.7 articles per year until 2019. Until 2006, the journal appeared quarterly, from 2007 to 2010 bimonthly and in 2011 became a monthly journal. There was on average a threefold increase in the frequency *C&SC* per year whereas the number of publications on Food and Nutrition were 13 times higher over the same period. The highest number of publications occurred in 2014 ($n = 61$) and 2019 ($n = 63$) (Figure 1).

Discussion

The articles published on the assessment of nutritional status

We divided the publications on assessment of nutritional status into two groups: assessment of nutritional status and its determinants (95.8%) and methods of nutritional assessment (4.2%) (Table 1).

Studies on nutritional assessment methods, sought to evaluate, concisely, the validity and accuracy of different methods in the nutritional assessment of different population groups. Regarding the assessment of nutritional status and its determinants, publications in *C&SC* began in 2007 and represented 26.7% ($n = 136$) of all of articles on Food and Nutrition (Table 1). This number is quite substantial and contributed, together with other journals, to the nutritional diagnosis of the Brazilian population.

Studies on this theme are particularly important for nutritional surveillance and as guidance

Table 1. Frequency of articles published in the area of Food and Nutrition in the *Journal Ciência & Saúde Coletiva* by themes, 1996-2019.

Themes	n	% of total	% of themes
A. Assessment of Nutritional Status	142	27.9	
Assessment of Nutritional Status and its determinants	136	26.7	95.8
Methods of Assessment of Nutritional Status	6	1.2	4.2
B. Food Consumption	111	21.8	
Nutrients/micronutrients consumption	16	3.1	15.8
Food consumption and Food Groups	82	16.1	81.2
Consumption of ultra-processed foods	3	0.5	3.0
Methods of Consumption Assessment	10	2.0	62.5
C. Food and Nutrition Policies and Programmes	105	20.6	
Nutrition and Food Security	74	14.5	70.5
School Feeding	26	5.1	24.8
Labourers' Health	5	0.9	4.8
D. Breast feeding and complementary foods	35	6.9	
Breast-feeding	28	5.5	80.0
Weaning foods/complementary feeding	7	1.4	20.0
E. Behavioural Nutrition	35	6.9	
F. Nutritional Education	23	4.5	
G. Nutritional care of population groups	20	3.9	
H. Profession of the Nutritionists	19	3.7	
Nutritionists professional practices	10	2.0	52.6
Nutrition history	9	1.7	47.4
I. Food Hygiene	13	2.6	
J. Food technology	6	1.2	
Total	509	100	

to health professionals and managers. Nutritional Surveillance orients modifications of the Food and Nutrition agenda of the Unified Health System (SUS). These practices and adjustments become the basis of official guidelines to promote adequate and healthy foods. Ten steps to a healthy diet¹¹; New food guide for the Brazilian population¹²; and the Food guide for children under 2 years¹³, are straightforward examples of practical uses of publications on Food and Nutrition.

Research on this theme focused mainly on obesity and/or excess weight, representing 47% of the articles. On the other hand, articles focused on the study of protein-caloric malnutrition and low weight totalled only 10%. The profile of these publications reflects the nutritional transition in Brazil, with a decline in the prevalence of underweight and increased obesity across regions, regardless of gender, age and socioeconomic factors^{5,8,14}. According to data from the National Health Survey, 56.9% of the Brazilian adult pop-

ulation were overweight in 2013, and 2.5% for the same group had a weight deficit¹⁵. Around the world, the prevalence of obesity has doubled in 35 years and people with overweight account for a third of the world's population¹⁶.

The publications beheld obesity from different perspectives. Some explored the social and cultural aspects, substantiating how inequalities influence access to means of prevention and tackling obesity, especially among women. Others gave an overview of the prevalence of obesity in Brazil, with population-based data and often observing the variation of the disease over time and, among different population groups. Additionally, a variety of articles explored factors potentially associated with overweight, mainly lifestyle and socioeconomic variables, and birth weight, waterborne induced endocrine conditions and intergenerational transmission.

The search in PubMed using the key word *nutritional status* resulted in 5,686 articles, showing

Table 2. General bibliometric characteristics on Food and Nutrition published in the *Journal Ciência & Saúde Coletiva*, 1996-2019.

	n	%
Article Type		
Original Article	385	75.6
Descriptive Revision	47	9.2
Systematic Revision	50	9.8
Editorial	9	1.8
Opinion	9	1.8
Synopsis	2	0.4
Letter	3	0.6
Debate	1	0.2
Press release	3	0.6
Type of study ^a		
Quantitative	314	81.6
Qualitative	64	16.6
Quali-quantitative	7	1.8
Probabilistic sample ^b		
Yes	59	18.8
No	255	81.2
Population group/Age band ^c		
Children	111	21.8
Adolescents	72	14.1
Adults	145	28.5
Seniors	52	10.2
Mixed ages	53	10.4
Not applicable	92	18.1
Minority group		
Yes	26	5.1
No	483	94.9
Accomplished in Brasil		
Yes	484	95.1
No	25	4.9

^aOnly original articles; ^bOnly quantitative articles; ^cThey do not add up to 100% because some studies appeared in more than one group and tallied twice.

to be most frequent theme in the international literature, in as much as in the *C&SC*. The search for *obesity* and *malnutrition* generated 124,028 and 41,436 results, respectively. Thus, the major interest on studying specifically obesity as a subject and not as part of malnutrition seems to be an international trend over the last 25 years.

It is noteworthy that micronutrient deficiencies, especially iron deficiency anaemia, in children and women of childbearing age, is still a cause for concern in Brazil¹⁴. It is estimated that more than 40% of Brazilian children have iron deficiency anaemia, reaching a prevalence greater than 70% among under two years' old, a serious

public health problem¹⁷. Only 6% of the articles on assessment of nutritional status and its determinants focused on micronutrient deficiencies. Half of them were studies on children and/or adolescents and only one included pregnant women. This may indicate that the theme deserves greater attention from *C&SC*.

Approximately one third of the studies published on the assessment of nutritional status did not have as its centre a specific nutritional problem, but rather described multiple results and mainly related to anthropometric measurements. The studied population groups were chiefly patients with diseases (dementia, chronic kidney disease, leprosy, cystic fibrosis and breast cancer), children, adolescents, women and the elderly. Some studies aimed at minority groups, such as *quilombolas*, natives, beneficiaries of the family basket and rural populations.

Articles published on food consumption

Publications on food consumption first appeared in 2003 and during 16 years the *C&SC* published 16 articles on nutrient and micronutrient intake, 82 on food consumption and food groups and 3 on ultra-processed foods.

The articles that evaluated the intake of nutrients and micronutrients were limited to specific population groups. In children, the studies evaluated the association between linear growth and iron and vitamin A intake, improved nutritional status of pre-schoolers supplemented with micronutrients and the impact of vitamin A supplementation on breast milk. As for the adolescents, they assessed the association between excess body weight and food consumption and adequacy of nutrients in public schools. They drew attention to a risk of iron and calcium deficiency. In adults, they focused on the evaluation of high-fat diets and risk of cardiovascular diseases, and in interventions using nutritional education and physical activity.

The articles on food consumption and food groups targeted the evaluation of eating habits, food availability, alcohol consumption, healthy eating and diet quality, marketing of food products and street foods in specific population groups (pregnant women, elderly, adolescents, rural population, natives, labourers and children). There has been an expressive growth in the number of publications of these themes in recent decades. Minayo and Gualhano¹⁸ pointed to the quality of food production and consumption as the greatest challenges of contemporary public health.

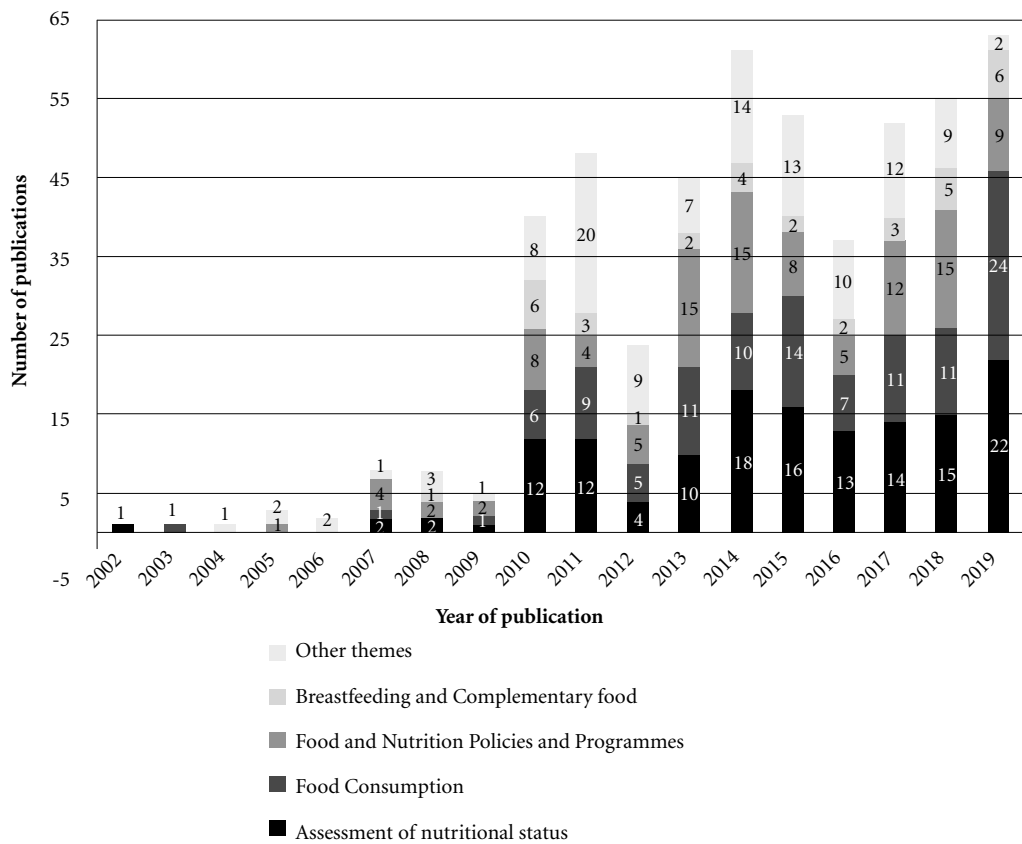


Figure 1. Annual distribution of articles published on Food and Nutrition in the *Journal Ciência & Saúde Coletiva* according with the main themes, 2002-2019.

When food intake was evaluated in relation to social, demographic and economic variables, the analysis of data from the National Demography and Health Survey (PNDS), children of mothers with higher educational level, aged 2 to 5 years, showed higher consumption of healthy diet¹⁹. The same survey showed a direct relationship between the consumption of soft drinks and social and economic status among adolescents. In the same group, the consumption of beans in the last large meal (62.6%) featured across all socioeconomic groups²⁰. Some authors singled out beans as a positive marker of a healthy Brazilian diet. Consumed with rice, this traditional combination is associated with healthy habits and less overweight. Among low-income adults, individuals have a higher intake of carbohydrates as opposed to higher lipid intake among those with high income²¹. Studies have observed greater difficulty in adopting a healthy diet among the

elderly, causing deficiencies in nutrient intake²². In vulnerable groups, such as pregnant, nursing mothers, pregnant and obese women, there is a clear need to review strategies to stimulate adequate diets²³, to have a broader understanding of historical, social and cultural aspects that hamper food choices²⁴, and the need to conduct studies with a more comprehensive approach²⁵.

Regarding the 755 articles published in PubMed since mid-1990s, they have explored the theme of micronutrients, the context of their antioxidant and protective functions and impact on chronic-degenerative diseases and other diseases. From 2000 onwards, other topics emerged, such as micronutrients and genomic integrity, use of micronutrients associated with polyunsaturated fatty acids and probiotics, as well as research on micronutrients supplementation for the elderly, children, pregnant and menopausal women. In 2010, other topics appeared such as genomic nu-

trition and growth, therapeutic prevention and immunity, prevention of congenital anomalies, DNA repair and infertility. Between 2011/2012, there was an increase in the volume of systematic reviews. They focussed on the use of supplementation for various age groups and pathologies, as well as flour fortification, epigenetic programming, oxidative stress, brain function and neurodevelopment, metabolic interactions between micronutrients and the use of applications to guide intake.

Over the last 25 years, international publications on food consumption and food groups have also increased. In the 1990s, many studies included estimating daily food consumption of several age groups and countries, discussing income and, the role of eating habits and types of food in degenerative diseases, particularly cancer. Since 1996, there were studies on food additives, pesticides, flavonoids, fibres and body image in schoolchildren. At the end of this decade, there was a shift to evaluate economic growth and income in relation to food consumption in different population groups. Since 2003, studies highlighted fast food, diet quality, nutritional transition, maternal education and the economic and social impacts on food consumption. In the following years, discussions emerged on the association between watching television and overweight in children and evaluation of the pattern of food consumption.

There was a rise in publications on consumption of sugar, fast food, junk food, snacks on school meals and consumption patterns associated with mortality from cardiovascular diseases and cancer. Since 2010, studies on consumption in low-income populations, social inequalities and the Food Basket Programme (PBF) in Brazil stood out²⁶.

Between 2000 and 2010, many publications have turned the discussions to “guidelines”, lifestyle, consumption of fruits and vegetables, consumption of whole grains, obesogenic foods and food allergies. Since 2015, debates about food intolerances and impulsive eating, use of smartphone to aid eating behaviour, identification of emotions in consumption, organic food and sustainability, genotype and multifaceted analysis associated with consumption have grown. In 2019, with the democratic crisis, a review of publications analysed the relationship between socioeconomic status and food consumption in large national surveys, underscoring social inequalities and consumption patterns in Brazil²⁷.

Since 2011, in the wider international context, publications on ultra-processed foods

caught up^{28,29}. These publications contemplated the impact of the consumption of these foods on the quality of the diet, the repercussions on chronic diseases, and on specific age groups (the most vulnerable, children and adolescents). The *C&SC* published three articles on this theme, focusing on the evaluation of the early introduction of these foods to children under 2 years of age, consumption of sugary drinks in pre-schoolers and increased consumption of these foods in families with higher purchasing power.

Articles on Food and Nutrition Policies and Programmes

We divided the articles on Food and Nutrition Policies and Programmes (n = 105) into 3 major groups: Food Security and Nutrition, School Feeding and Worker’s Health, representing 70.5%, 24.8% and 4.8% of the production respectively (Table 1).

FSN publications started in 2005 and major growth in the number of publications occurred between 2014 and 2017. In the discussion between the articles evaluated in *C&SC* (n = 74) and those published in PubMed (n = 404), we noted that the international publications also evaluated the association of FSN with diseases such as asthma, HIV, breastfeeding, social capital, climate change, and nutritional supplementation among others.

Throughout the 20th century, several government programs targeted to combating hunger. The FSN concept emerged in 1985 with the elaboration of the proposal for a National Policy³⁰. In 2006, the publication of the FSN Organic Law (LOSAN) was published that created the National FSN System^{3,4,6,7,30}.

In 2005, Stoppelli and Magalhães³¹ published the first study aimed to evaluate the preventive actions to minimize the effects of pesticides, such as greater supervision in the commercialization and use of chemicals, simplification of labels on packaging and greater adequacy of protective equipment. In spite of a substantial increase in the use of pesticides in recent decades in Brazil, this subject appeared sparsely in *C&SC*. The use of pesticides increase further in 2019, with the approval of more than 52 pesticides by the current government. This was a setback in regulating and limiting pesticide use and detrimental to the health and nutrition of the Brazilian population. Brasil took the world’s lead in the use of pesticides³².

The theme of Food Security and Nutrition Policies across sectors also appeared in the

C&SC. There are still major obstacles to overcome on this issue. Progress is needed to obtain coordinated and articulated actions that use the existing resources in each sector more efficiently, directing them to actions that comply with a scale of priorities established together to achieve an effective Health and Nutrition^{3,4,6,7,30}.

The impact of income transfer programs, particularly the Family Basket, on Food and Nutrition were also among the published articles. Sperandio et al.³³ observed that the beneficiaries of the PBF in the Northeast and Southeast regions consumed less processed and ultra-processed foods. However, the consumption of fresh or minimally processed foods was higher in the Northeast region than in the Southeast³³. A cross-sectional population-based study observed food insecurity in 81.6% of the recipient families of the Family Basket. The authors emphasized the relevant role of conditional transfer of income and its interplay in the social protection of the population³⁴.

Other articles underscored the challenge of linking conditional income transfer programs to other programs that promote access to social rights (health services, education, professional training, income and employment generation, sanitation, drinking water and housing). The across sector policies, seeking to combat food insecurity and, socioeconomic inequalities might guarantee social rights to the most excluded^{34,35}.

In relation to Food Security and Nutrition, the articles uncovered a high prevalence of food and nutritional insecurity among minority groups, *quilombolas*, natives, farmers, settlers, among others. These results suggest that the scope of Nutrition and Food Security must include the right, the access to resources, the means to produce safe and healthy foods thus allowing the consumption of a diet suited to the habits and practices of the region³⁶.

Family farming considered extremely relevant for Nutrition and Food Security policies, local development, the reduction of rural exodus and the commercialization of the vast majority of its production to the local and regional markets weighed low among the publications³⁷.

Regarding School Feeding, the first publication in C&SC occurred in 2010. There were 26 articles constituting 5% of the publications on Food and Nutrition. School feeding is a primary factor to promote healthy eating practices aimed at Nutrition and Food Security.

The journal integrates this theme in parallel with the progress of the National School Feeding

Programme (NSFP/PNAE), Law No. 11,947 of June 16, 2009 and resolution No. 26, of June 17, 2013, part of the National Fund for Development and Education. The NSFP, in addition to fostering the development of eating habits, nurtures trade, local food production and the commercialization of food from family farming, hence a fundamental strategy to ensure Nutrition and Food Security and the attainment of the human right to adequate food³⁸.

In Brazil, this programme envisioned universal coverage of government schools throughout the country and had a significant social impact. In 2015, it reached 41.5 million students. International strategies involve projects located in certain schools, municipalities and regions^{39,40}.

The articles published by the C&SC highlighted the importance of NSFP as a policy that supports child development and the improvement of students' cognitive abilities through adequate nutrition. In addition, the analysis associated the NSFP in Brasil with organic food, family farming, nutritional recommendations, and food waste, Nutrition and Food Security, food consumption, nutritional status and eating habits.

Relating the articles that evaluated school feeding in the C&SC and those found in PubMed (n = 132), 69.5% of international publications come from emerging countries with developing economies and only 22.8% come from Europe or North America^{41,42}. Brazil had the highest number of publications on this theme in South America, totalling 20 manuscripts.

Articles published on breastfeeding and complementary feeding

Publications on breastfeeding began in 2008, representing 5.5% of the articles (n = 28) in the Food and nutrition area (Table 1). They were regularly frequent and showed a pike between 2010 and 2018. During this period, several strategies to advocate breastfeeding were adopted including the creation of the Brazilian Breastfeeding Network⁴³, implementation of the Breastfeeding and Feed Brazil Strategy and the establishment of the National Policy for Integral Child Health Care (2015)⁴⁴.

The most prevalent subjects were weaning, and determinants associated with breastfeeding (32.1%), followed by primary health care, promotion, protection and support for breastfeeding (25%). Other topics addressed the impact of breastfeeding on new-born's health, sucking habits, cross-feeding, human milk substitutes,

breastfeeding versus complementary feeding, child-friendly hospital initiative, adolescence and breastfeeding, and low birth weight prematurity and breastfeeding.

The search on *breastfeeding* in PubMed with the descriptor gathered 36,898 results. The main themes of the publications discussed promotion, protection and support to breastfeeding; child growth and development; prematurity; weaning and associated factors; maternal health; relationship between breastfeeding and development of chronic non-communicable diseases; nutritional composition of human milk.

From 2006 the prevalence of exclusive breastfeeding in children, under six months of age and of breastfeeding in children under 24 months of age was stable. This was in fact a warning sign calling for a potential review and strengthening of policies and programs to promote, protect and support breastfeeding, and breastfeeding indicators resume the upward trend⁴⁵.

With regard to infant's complementary feeding, publications began in 2010 with 1.4% (n = 7) of the articles on Food and Nutrition (Table 1). The most prevalent themes were the introduction of nutritious food and healthy eating, and the relationship between breastfeeding and complementary feeding. The search for "complementary feeding" in PubMed resulted in 1,517 publications addressing healthy eating, breastfeeding versus complementary feeding and food introduction practices.

The first publication of the Food Guide for Brazilian Children under 2 years old appeared in 2002. A revised version appeared in 2010 when publications in the *C&SC* began. In 2019, the year with the highest number of publications, the new Food Guide for Brazilian children under 2 years old was launched¹³.

Final considerations

From this review, it was possible to have a wider portrayal and the framework within which Food and Nutrition publications evolved in the *C&SC* over its 25 years of existence. A comprehensive range of topics substantiated a production with commitment and relevance to development and public policy agendas.

In the first six years of existence, the SCHJ did not focus Food and Nutrition publications. This field gained space in the journal from 2002, un-

derscoring works on nutritional assessment, food consumption and Food and Nutrition policies and programs. The articles, mostly original and quantitative, studying diverse population groups, constitute an important repository of data and knowledge for health professionals and managers.

The main limitation of this article was the evaluation of articles published in PubMed, given that in certain topics, such as nutritional assessment, the quantity of articles was quite expressive, hindering the delimitation of the international panorama on the aforementioned issue. We made an effort to evaluate international articles from other topics, such as food security and food consumption.

It is noteworthy that due to the size limit of this article we chose to centralize the analysis and discussion in the four most frequent themes. As seen in Table 1, given the editorial scope of *C&SC*, we added publications on other domains deemed relevant to Food and Nutrition over the 25-year history of the journal.

The most frequent theme was the assessment of nutritional status, which is of paramount importance to define the agenda of the Unified Health System (SUS) on Food and Nutrition. There was a tendency to separate obesity from the general theme of malnutrition, reflecting the upward trend in the prevalence of obesity in Brazil and worldwide. The publications on the theme of food consumption followed the international trend in the literature focusing on the quality of the diet, its repercussions on chronic diseases, and demographic, socioeconomic, cultural and behavioural aspects in specific population groups. Among the publications on programs and policies, Nutrition and Food Security stood out, including the use of pesticides, links across social and economic sectors, the impact of income transfer programs and associated determinants.

C&SC could have explored further other topics like micronutrient deficiency, family farming, the National School Feeding programme (PNAE), diagnoses and critical analysis of the recent disruptions in the implementation of the National Nutrition and Food Security policies and their multi sector interfaces with social policies to prevent and fight hunger. In addition, publications that promote and popularize the Food Guide for the Brazilian population can be a powerful tool to increase the systemic dissemination of this information.

Collaborations

VM Fonseca, D Marano, FAG Vasconcellos and F Rebello participated in the conception, method design, literature review, analysis and elaboration

of the discussion. AD Abranches and YN Villarsa do Amaral collaborated with the literature review, analysis and elaboration of the discussion. VM Xavier collaborated with the graphics and the revision of the material.

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