

ORIGINAL ARTICLE

# Food and nutrition actions to face Noncommunicable Diseases from the perspective of Primary Health Care in Brazil: a scoping review

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## Abstract

**Introduction:** Noncommunicable Diseases (NCDs) are considered a major public health problem, which makes it essential to develop interventions for promotion, prevention and treatment.

**Objective:** To synthesize and evaluate the evidence on food and nutrition actions for coping with NCDs in adults and the elderly from the perspective of PHC in Brazil.

**Methods:** This is a literature scoping review, guided by JBI guidelines and following the steps of Preferred Reporting Items for Systematic Reviews and Extended Meta-Analyses for Scoping Reviews. The search took place in 5 electronic databases: MEDLINE, Web of Science, EMBASE, Central Cochrane Library and LILACS, and the gray literature, including the official government websites and the SUS Food and Nutrition Network.

**Results:** A total of 1844 articles were identified and only 42 articles met the eligibility criteria of the proposed methodology. It was identified that, among the available scientific evidence, food and nutrition actions in PHC are concentrated in education strategies and guidance on healthy habits for the treatment of NCD based on Public Nutrition Policies and Guidelines, mostly designated by a population composed of adults and a small proportion of elderly people.

**Conclusion:** there is a need for more studies published on food and nutrition actions in PHC, as the available scientific evidence does not correspond to 50% of the Brazilian states, being insufficient to positively impact the country's nutritional situation. In addition, more research with a preventive approach to NCDs is essential, since PHC is characterized by a set of health-related actions that have as their main focus the promotion and protection of health.

**Keywords:** Primary Health Care; Noncommunicable Diseases; Nutrition and Food Programs and Policies; Brazil.

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## Authors summary

### Why was this study done?

In view of the advance and significant increase in cases of Noncommunicable Diseases (NCDs) in Brazil, as well as the need for interventions for prevention and treatment, the need for actions in the field of food and nutrition in Primary Health Care (PHC) emerges. In addition, to date, there is no scope review that maps food and nutrition actions for the prevention and treatment of NCDs from the perspective of PHC in Brazil. And therefore, the pertinence of the present study is justified, in order to contribute to filling this gap in the literature.

### What did the researchers do and find?

Articles were selected, following the JBI protocol that fit as possible answers to the guiding question, at the end of all stages of the selection process, 42 articles were obtained. An extraction form was created where data were collected according to the JBI methodology. The findings showed that, among the available scientific evidence, food and nutrition actions in PHC are concentrated on education strategies and guidance on healthy habits for the treatment of NCDs based on Public Nutrition Policies and Guidelines. It was found that there is a need for more studies published in other regions of the country, due to their scarcity in other locations, and their lack of correspondence to 50% of Brazilian states.

### What do these findings mean?

According to the available scientific evidence, food and nutrition actions in PHC are concentrated on education strategies and guidance on healthy habits for the treatment of NCDs based on Public Nutrition Policies and Guidelines designated mostly by a population composed of adults and a reduced number of elderly people. However, there is a need for more nutritionists to lead the implementation of nutritional practices for the prevention and treatment of NCDs in PHC, since food and nutrition actions are often carried out by other health professionals, and it is also seen, in some cases, a multidisciplinary team with few professional nutritionists from the perspective of PHC in the Brazilian territory. More studies published in other regions of the country are needed, so that with the evaluation of other states, it is possible to fully analyze Food and Nutrition actions throughout the national territory, verifying compliance with Food and Nutrition Policies in the context of PHC.

## INTRODUCTION

In the current world scenario, Noncommunicable Diseases (NCDs) have established themselves as a serious public health problem both in Brazil and in the world, that is, both in emerging, underdeveloped and developed countries<sup>1</sup>.

According to the World Health Organization (WHO), the term NCDs refers to a variety of diseases, with emphasis on cardiovascular problems, stroke, cancer, chronic respiratory pathologies and diabetes<sup>2</sup>. In addition, visual impairment and blindness, hearing impairment and deafness, oral disorders and genetic disorders are other chronic conditions that contribute significantly to the global burden of disease<sup>3</sup>.

According to data released by the Ministry of Health, in 2019, in Brazil, there were 730,000 (54.7%) deaths and 1.8 million hospitalizations caused by NCDs<sup>4</sup>. According to WHO estimates, NCDs accounted for 73.6% of deaths recorded in 2019 worldwide, of which 56% were male and 44% female<sup>5</sup>.

Health costs are high and, in situations where there are few resources, the value may exceed the family income<sup>2</sup>. This fact occurs due to the greater risk to which they are exposed, which are: harmful products, unhealthy eating practices (exacerbated consumption of ultra-processed foods), access to public policies and limited health services<sup>2</sup>. This circumstance generates an increase in the demand for consultations in Primary Health Care (PHC)<sup>6</sup>.

NCDs demand a lot of attention and efforts from a large number of public policy instruments and people in general, focusing on the consequences that these conditions bring to the lives of those who suffer them, as they are caused by a combination of several determinants, which include the factors genetic, physiological, environmental and behavioral<sup>2,7</sup>.

In view of this, the National Food and Nutrition Policy (PNAN) stands out, first instituted in 1999 and

later restructured in 2006, as an important milestone in Brazilian politics, providing the guarantee of adequate and healthy food for the population<sup>8</sup>. Furthermore, it was developed as a nutritional tool within the scope of PHC and educational in the school environment<sup>9</sup>.

The National Primary Care Policy (PNAB) was instituted in 2006 with the aim of regulating health care systems, incorporating the health organization from its occupation segment to competences related to health services, the formation of an essential professional team to strengthening in PHC, in addition, the availability of resources and innovations for the program<sup>10</sup>.

In March 2006, the National Health Promotion Policy (PNPS) was predetermined with the aim of expanding and developing actions focused on health promotion, in order to offer better living conditions individually and collectively, provided through health services and in harmony with the principles of promotion, protection and recovery of well-being, in addition, providing the reduction of threats to health subsequent to political, socioeconomic, cultural and environmental factors<sup>11</sup>.

Also, the Ministry of Health instituted the Plan to Combat NCDs in Brazil for the years 2011 to 2022<sup>12</sup>. This has epidemiological data and the description of interventions related to NCDs, with the purpose of promoting and implementing public policies with the purpose of containing the advance and guaranteeing care aimed at NCD<sup>12</sup>.

Thus, given the progression and advancement of NCD in Brazil, it becomes necessary to develop interventions for promotion, prevention and treatment. Thus, this scope review aims to synthesize and evaluate the evidence on food and nutrition actions for coping with NCDs in adults and the elderly from the perspective of PHC in Brazil.

**METHODS**

**Study design**

This study is a literature scoping review, guided by JBI guidelines<sup>13</sup> and following the steps of Preferred Reporting Items for Systematic Reviews and Extended Meta-Analyses for Scoping Reviews (PRISMA-ScR)<sup>14</sup> (Supplementary File 1). In order to ensure the transparency and methodological reliability of this review, its Protocol was submitted for evaluation and registration with the Open Science Framework (OSF), obtaining approval with the link OSF.IO/8FQ6R.

**Table 1: Inclusion Criteria**

PCC Strategy	Criteria
P - Population	Adult [≥ 19 years old] and senior users
C - Concept	Food and nutrition actions to face NCDs
C - Context	APS in Brazil

NCDs: Non-Transmissible Diseases; APS: Primary Health Care. PCC: Population, Concept and Context.

**Search strategy**

From the definition of the guiding question and PCC strategy, the combination of controlled descriptors and keywords were determined, according to the indication provided in each electronic database and according to a pre-established mnemonic<sup>13</sup>. Subsequently, the search terms were combined using the Boolean operators “AND” and “OR”<sup>15</sup>. Thus, to search for articles in MEDLINE, we will use the Medical Subject Headings (MeSH) controlled descriptors, the Emtree for EMBASE and the DeCS-

**Guiding question**

The PCC strategy was used to formulate the review question (P – Population or Patients; C – Concept; C – context;), where P = Population (Adult Users [≥ 19 years of age] and elderly), C = Concept (Food and nutrition actions to face NCD) and C = Context (PHC in Brazil), which is shown in Table 1<sup>13</sup>. This strategy contributed to the elaboration of the following scoping review question: What scientific evidence is available on food and nutrition actions for coping with NCDs in adults and the elderly from the perspective of PHC in Brazil?

Descriptors in Health Sciences in the LILACS database.

The search was carried out in July 2022 and occurred in 5 electronic databases: Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed, ISI of Knowledge via Web of Science, EMBASE, CENTRAL Cochrane Library and Latin American and Caribbean Health Sciences Literature (LILACS), and gray literature, covering the official government websites and the SUS Food and Nutrition Network. And the complete search strategy in the respective databases is described in Chart 1.

**Chart 1: Search strategy in the five electronic databases**

MEDLINE/ PubMed	#1 (“Young Adult” [MeSH Terms] OR “Adult” [MeSH Terms] OR “Aged” [MeSH Terms] OR “Elderly” [All Fields] OR “Middle Aged” [MeSH Terms] OR “Middle Age” [All Fields] OR “Aged, 80 and over” [MeSH Terms] OR “Oldest Old” [All Fields])
ISI of Knowledge via Web of Science	#2 (“noncommunicable diseases” [MeSH Terms] OR “Noncommunicable Disease” [All Fields] OR “Non-infectious Diseases” [All Fields] OR “Non infectious Diseases” [All Fields] OR “Non-infectious Disease” [All Fields] OR “Non-communicable Diseases” [All Fields] OR “Disease, Non-communicable” [All Fields] OR “Non communicable Diseases” [All Fields] OR “Non-communicable Disease” [All Fields] OR “Noninfectious Diseases” [All Fields] OR “Noninfectious Disease” [All Fields] OR “Non-communicable Chronic Diseases” [All Fields] OR “Chronic Disease, Non-communicable” [All Fields] OR “Non communicable Chronic Diseases” [All Fields] OR “Non-communicable Chronic Disease” [All Fields] OR “chronic disease” [MeSH Terms] OR “Chronic Diseases” [All Fields] OR “Disease, Chronic” [All Fields] OR “Chronic Illness” [All Fields] OR “Chronic Illnesses” [All Fields] OR “Illness, Chronic” [All Fields] OR “Chronic Condition” [All Fields] OR “Chronic Conditions” [All Fields] OR “Condition, Chronic” [All Fields] OR “Chronically Ill” [All Fields] OR “diabetes mellitus, type 2” [MeSH Terms] OR “Diabetes Mellitus, Noninsulin-Dependent” [All Fields] OR “Ketosis-Resistant Diabetes Mellitus” [All Fields] OR “Diabetes Mellitus, Non Insulin Dependent” [All Fields] OR “Diabetes Mellitus, Non-Insulin-Dependent” [All Fields] OR “Non-Insulin-Dependent Diabetes Mellitus” [All Fields] OR “Diabetes Mellitus, Stable” [All Fields] OR “Stable Diabetes Mellitus” [All Fields] OR “Diabetes Mellitus, Type II” [All Fields] OR “Diabetes Mellitus, Noninsulin Dependent” [All Fields] OR “Diabetes Mellitus, Noninsulin Dependent” [All Fields] OR “Diabetes Mellitus, Maturity-Onset” [All Fields] OR “Diabetes Mellitus, Maturity Onset” [All Fields] OR “Maturity-Onset Diabetes Mellitus” [All Fields] OR “Diabetes Mellitus, Slow-Onset” [All Fields] OR “Diabetes, Type 2” [All Fields] OR “Maturity Onset Diabetes” [All Fields] OR “Maturity Onset Diabetes Mellitus” [All Fields] OR “Maturity-Onset Diabetes” [All Fields] OR “Maturity-Onset Diabetes Mellitus” [All Fields] OR “Noninsulin Dependent Diabetes Mellitus” [All Fields] OR “Noninsulin-Dependent Diabetes Mellitus” [All Fields] OR “Type 2 Diabetes” [All Fields] OR “Type 2 Diabetes Mellitus” [All Fields] OR “Type 2 Diabetes Mellitus” [All Fields] OR “Type 2 Diabetes Mellitus” [All Fields] OR “Type 2 Diabetes” [All Fields] OR “Adult-Onset Diabetes Mellitus” [All Fields] OR “Diabetes Mellitus, Adult Onset” [All Fields] OR “Obesity” [Mesh] OR “Abdominal Obesities” [All Fields] OR “Central Obesity” [All Fields] OR “Central Obesities” [All Fields] OR “Abdominal Obesity” [All Fields] OR “Obesity, Visceral” [All Fields] OR “Visceral Obesity” [All Fields] OR “Morbid Obesities” [All Fields] OR “Obesity, Severe” [All Fields] OR “Severe Obesity” [All Fields] OR “Morbid Obesity” [All Fields] OR “Obesity Management” [All Fields] OR “Management, Obesity” [All Fields] OR “Obesity Management System” [All Fields] OR “Obesity Management Systems” [All Fields] OR “hypertension” [MeSH Terms] OR “Blood Pressure, High” [All Fields] OR “Blood Pressures, High” [All Fields] OR “High Blood Pressure” [All Fields] OR “High Blood Pressures” [All Fields] OR “arterial hypertension” [All Fields] OR “systemic hypertension” [All Fields] OR “hypertension chronique” [All Fields])

Continuation - Chart 1: Search strategy in the five electronic databases

<p><b>MEDLINE/ PubMed</b> ISI of Knowledge via Web of Science</p>	<p>#3 ("primary health care"[MeSH Terms]) OR "Care, Primary Health" [All Fields] OR "Health Care, Primary"[All Fields] OR "Primary Healthcare" [All Fields] OR "Healthcare, Primary" [All Fields] OR "Primary Care" [All Fields] OR "Care, Primary" [All Fields] OR ("family practice"[MeSH Terms]) OR "Family Practices" [All Fields] OR "Practice, Family" [All Fields] OR "Practices, Family" [All Fields] OR ("community health services"[MeSH Terms]) OR "Community Health Service" [All Fields] OR "Health Service, Community" [All Fields] OR "Service, Community Health" [All Fields] OR "Services, Community Health" [All Fields] OR "Health Services, Community" [All Fields] OR "Community Health Care" [All Fields] OR "Care, Community Health" [All Fields] OR "Health Care, Community" [All Fields] OR "Community Healthcare" [All Fields] OR "Healthcare, Community" [All Fields] OR "Health Promotion" [All Fields] OR ("Health Promotion" [MeSH]) OR "Promotion, Health" [All Fields] OR "Promotions, Health" [All Fields] OR "Promotion of Health" [All Fields] OR "Health Promotions" [All Fields] OR "Promotional Items" [All Fields] OR "Promotional Item" [All Fields] OR "Wellness Programs" [All Fields] OR "Program, Wellness" [All Fields] OR "Programs, Wellness" [All Fields] OR "Wellness Program" [All Fields] OR "Health Campaigns" [All Fields] OR "Campaign, Health" [All Fields] OR "Campaigns, Health" [All Fields] OR "Health Campaign" [All Fields] OR "Health Centers" [All Fields] OR "Health Center" [All Fields] OR "Health Posts" [All Fields] OR "Community Health Centers" [All Fields] OR "basic health service" [All Fields] OR "Family Health" [MeSH] OR "Health, Family" [All Fields] OR "Family Health Strategy" [All Fields] OR "Family Health Program" [All Fields] AND "Brazil" [MeSH Terms])</p>
<p><b>ISI of Knowledge via Web of Science</b></p>	<p>#4 #1 AND #2 AND #3</p> <p>#1 (Adult OR Adults OR Young Adult OR Adult, Young OR Adults, Young OR Young Adults OR Middle Aged OR Middle Age OR Aged OR Elderly OR Aged, 80 and over OR Oldest Old)</p> <p>#2 (Noncommunicable Diseases OR Noncommunicable Disease OR Non-infectious Disease OR Non-communicable Chronic Diseases OR Chronic Disease, Non-communicable OR Non communicable Chronic Diseases OR Diabetes Mellitus, Type 2 OR Diabetes Mellitus, Noninsulin-Dependent OR Diabetes Mellitus, Ketosis Resistant OR Diabetes Mellitus, Non Insulin Dependent OR Diabetes Mellitus, Noninsulin Dependent OR Type 2 Diabetes Mellitus OR Obesity OR Hypertension OR Blood Pressure, High OR High Blood Pressure)</p> <p># 3 #1 AND #2</p> <p>#4 (primary health care OR Care, Primary Health OR Health Care, Primary OR Primary Healthcare OR Healthcare, Primary OR Primary Care OR Care, Primary OR family practice OR Family Practices OR Practice, Family OR Practices, Family OR Community Health Services OR Community Health Service OR Health Service, Community OR Service, Community Health OR Services, Community Health OR Health Services, Community OR Community Health Care OR Care, Community Health OR Health Care OR Community OR Community Healthcare OR Community Healthcares OR Healthcare, Community OR Healthcares, Community OR Health Promotion OR Promotion, Health OR Promotions, Health OR Promotion of Health OR Health Promotions OR Promotional Items OR Item, Promotional OR Items, Promotional OR Promotional Item OR Wellness Programs OR Program, Wellness OR Programs, Wellness OR Wellness Program OR Health Campaigns OR Campaign, Health OR Campaigns, Health OR Health Campaign OR Family Health OR Health, Family AND Brazil)</p> <p>#5 #3 AND #4</p>
<p><b>EMBASE</b></p>	<p>#1 Adult OR Adults OR Young Adult OR Adult, Young OR Adults, Young OR Young Adults OR Middle Aged OR Middle Age OR Aged OR Elderly OR Aged, 80 and over OR Oldest Old</p> <p>#2 Noncommunicable Diseases OR Noncommunicable Disease OR Non-infectious Diseases OR Non infectious Diseases OR Non-infectious Disease OR Non-communicable Diseases OR Disease, Non-communicable OR Non communicable Diseases OR Non-communicable Disease OR Noninfectious Diseases OR Noninfectious Disease OR Non-communicable Chronic Diseases OR Chronic Disease, Non-communicable OR Non communicable Chronic Diseases OR Non-communicable Chronic Disease OR Diabetes Mellitus, Type 2 OR Diabetes Mellitus, Noninsulin-Dependent OR Diabetes Mellitus, Ketosis-Resistant OR Diabetes Mellitus, Ketosis Resistant OR Ketosis-Resistant Diabetes Mellitus OR Diabetes Mellitus, Non Insulin Dependent OR Diabetes Mellitus, Non-Insulin-Dependent OR Non-Insulin-Dependent Diabetes Mellitus OR Diabetes Mellitus, Stable OR Stable Diabetes Mellitus OR Diabetes Mellitus, Type II OR Diabetes Mellitus, Noninsulin Dependent OR Diabetes Mellitus, Maturity-Onset OR Diabetes Mellitus, Maturity Onset OR Maturity-Onset Diabetes Mellitus OR Maturity Onset Diabetes Mellitus OR MODY OR Diabetes Mellitus, Slow-Onset OR Diabetes Mellitus, Slow Onset OR Slow-Onset Diabetes Mellitus OR Type 2 Diabetes Mellitus OR Noninsulin-Dependent Diabetes Mellitus OR Noninsulin Dependent Diabetes Mellitus OR Maturity-Onset Diabetes OR Diabetes, Maturity-Onset OR Maturity Onset Diabetes OR Type 2 Diabetes OR Diabetes, Type 2 OR Diabetes Mellitus, Adult-Onset OR Adult-Onset Diabetes Mellitus OR Diabetes Mellitus, Adult Onset OR Obesity OR Hypertension OR Blood Pressure, High OR Blood Pressures, High OR High Blood Pressure OR High Blood Pressures</p> <p># 3 #1 AND #2</p> <p>#4 primary health care OR Care, Primary Health OR Health Care, Primary OR Primary Healthcare OR Healthcare, Primary OR Primary Care OR Care, Primary OR family practice OR Family Practices OR Practice, Family OR Practices, Family OR Community Health Services OR Community Health Service OR Health Service, Community OR Service, Community Health OR Services, Community Health OR Health Services, Community OR Community Health Care OR Care, Community Health OR Health Care OR Community OR Community Healthcare OR Community Healthcares OR Healthcare, Community OR Healthcares, Community OR Health Promotion OR Promotion, Health OR Promotions, Health OR Promotion of Health OR Health Promotions OR Promotional Items OR Item, Promotional OR Items, Promotional OR Promotional Item OR Wellness Programs OR Program, Wellness OR Programs, Wellness OR Wellness Program OR Health Campaigns OR Campaign, Health OR Campaigns, Health OR Health Campaign OR Family Health OR Health, Family AND Brazil</p> <p>#5 #3 AND #4</p>



## Continuation - Chart 1: Search strategy in the five electronic databases

<b>CENTRAL Cochrane Library</b>	<p>#1 (Adult) OR (Adults) OR (Young Adult) OR (Adult, Young) OR (Adults, Young) OR (Young Adults) OR (Middle Aged) OR (Middle Age) OR (Aged) OR (Elderly) OR (Aged, 80 and over) OR (Oldest Old)</p> <p>#2 (Noncommunicable Diseases) OR (Noncommunicable Disease) OR (Non-infectious Diseases) OR (Non infectious Diseases) OR (Non-infectious Disease) OR (Non-communicable Diseases) OR (Disease, Non-communicable) OR (Non communicable Diseases) OR (Non-communicable Disease) OR (Noninfectious Diseases) OR (Noninfectious Disease) OR (Non-communicable Chronic Diseases) OR (Chronic Disease, Non-communicable) OR (Non communicable Chronic Diseases) OR (Non-communicable Chronic Disease) OR (Diabetes Mellitus, Type 2) OR (Diabetes Mellitus, Noninsulin-Dependent) OR (Diabetes Mellitus, Ketosis-Resistant) OR (Diabetes Mellitus, Ketosis Resistant) OR (Ketosis-Resistant Diabetes Mellitus) OR (Diabetes Mellitus, Non Insulin Dependent) OR (Diabetes Mellitus, Non-Insulin-Dependent) OR (Non-Insulin-Dependent Diabetes Mellitus) OR (Diabetes Mellitus, Stable) OR (Stable Diabetes Mellitus) OR (Diabetes Mellitus, Type II) OR (Diabetes Mellitus, Noninsulin Dependent) OR (Diabetes Mellitus, Maturity-Onset) OR (Diabetes Mellitus, Maturity Onset) OR (Maturity-Onset Diabetes Mellitus) OR (Maturity Onset Diabetes Mellitus) OR (MODY) OR (Diabetes Mellitus, Slow-Onset) OR (Diabetes Mellitus, Slow Onset) OR (Slow-Onset Diabetes Mellitus) OR (Type 2 Diabetes Mellitus) OR (Noninsulin-Dependent Diabetes Mellitus) OR (Noninsulin Dependent Diabetes Mellitus) OR (Maturity-Onset Diabetes) OR (Diabetes, Maturity-Onset) OR (Maturity Onset Diabetes) OR (Type 2 Diabetes) OR (Diabetes, Type 2) OR (Diabetes Mellitus, Adult-Onset) OR (Adult-Onset Diabetes Mellitus) OR (Diabetes Mellitus, Adult Onset) OR (Obesity) OR (Hypertension) OR (Blood Pressure, High) OR (Blood Pressures, High) OR (High Blood Pressure) OR (High Blood Pressures)</p> <p># 3 #1 AND #2</p> <p>#4 (primary health care) OR (Care, Primary Health) OR (Health Care, Primary) OR (Primary Healthcare) OR (Healthcare, Primary) OR (Primary Care) OR (Care, Primary) OR (family practice) OR (Family Practices) OR (Practice, Family) OR (Practices, Family) OR (Community Health Services) OR (Community Health Service) OR (Health Service, Community) OR (Service, Community Health) OR (Services, Community Health) OR (Health Services, Community) OR (Community Health Care) OR (Care, Community Health) OR (Health Care) OR (Community) OR (Community Healthcare) OR (Community Healthcares) OR (Healthcare, Community) OR (Healthcares, Community) OR (Health Promotion) OR (Promotion, Health) OR (Promotions, Health) OR (Promotion of Health) OR (Health Promotions) OR (Promotional Items) OR (Item, Promotional) OR (Items, Promotional) OR (Promotional Item) OR (Wellness Programs) OR (Program, Wellness) OR (Programs, Wellness) OR (Wellness Program) OR (Health Campaigns) OR (Campaign, Health) OR (Campaigns, Health) OR (Health Campaign) OR (Family Health) OR (Health, Family) AND (Brazil)</p> <p>#5 #3 AND #4</p>
<b>LILACS</b>	<p>#1 Adult OR Young Adult OR Middle Aged OR Aged OR Elderly OR Aged, 80 and over</p> <p>#2 Noncommunicable Diseases OR Diabetes Mellitus, Type 2 OR Obesity OR Hypertension OR Blood Pressure, High OR Blood Pressures, High OR High Blood Pressure OR High Blood Pressures</p> <p># 3 #1 AND #2</p> <p>#4 primary health care OR Care, Primary OR Care, Primary Health OR Health Care, Primary OR Healthcare, Primary OR Primary Care OR Primary Healthcare OR family practice OR Community Health Services OR Health Promotion OR Wellness Programs OR Program, Wellness OR Programs, Wellness OR Wellness Program OR Delivery of Health Care OR Community Health Centers OR Health Education OR Family Health Strategy AND Brazil</p> <p>#5 #3 AND #4</p>

Source: Own elaboration by the authors (2022).

It should be noted that there was no date or language restriction in the search strategy that was performed. In addition, the list of final references that appeared in the primary studies included was manually analyzed in order to find relevant studies to be added. The EndNote™ reference manager was used in this phase of the search strategy, with the aim of organizing searches and excluding duplicate articles.

### Study Selection Criteria

The inclusion and exclusion criteria of the scope review were prepared in line with the PCC mnemonic. This step was independently performed by two reviewers and a third reviewer was responsible for analyzing conflicting decisions. The Rayyan™ software was used in this step of inclusion and exclusion of articles<sup>16</sup>.

### Data Extraction

The data extraction step, from the included articles, was carried out by two independent reviewers and they used a table available in appendix 11.1 of the JBI Manual, containing the following information: I) Author(s); II) Year of publication; III) Origin/country of origin (where the source was published or conducted); IV) Objectives/purpose; V) Population and sample size within the source

of evidence (if applicable); VI) Methodology / methods; VII) Type of intervention, comparator and details of these (eg duration of intervention); VIII) Results and details of these (eg how measured); IX) Main findings related to the scoping review question(s)<sup>13</sup>.

### Data Analysis

The analysis was performed by extracting data from the articles, based on the guiding question of this review. From this, a descriptive analysis of the main findings of the literature that comprise the objective of this scope review was carried out. A narrative summary, developed from the in-depth reading of each article, accompanied the tabulated results<sup>13</sup>.

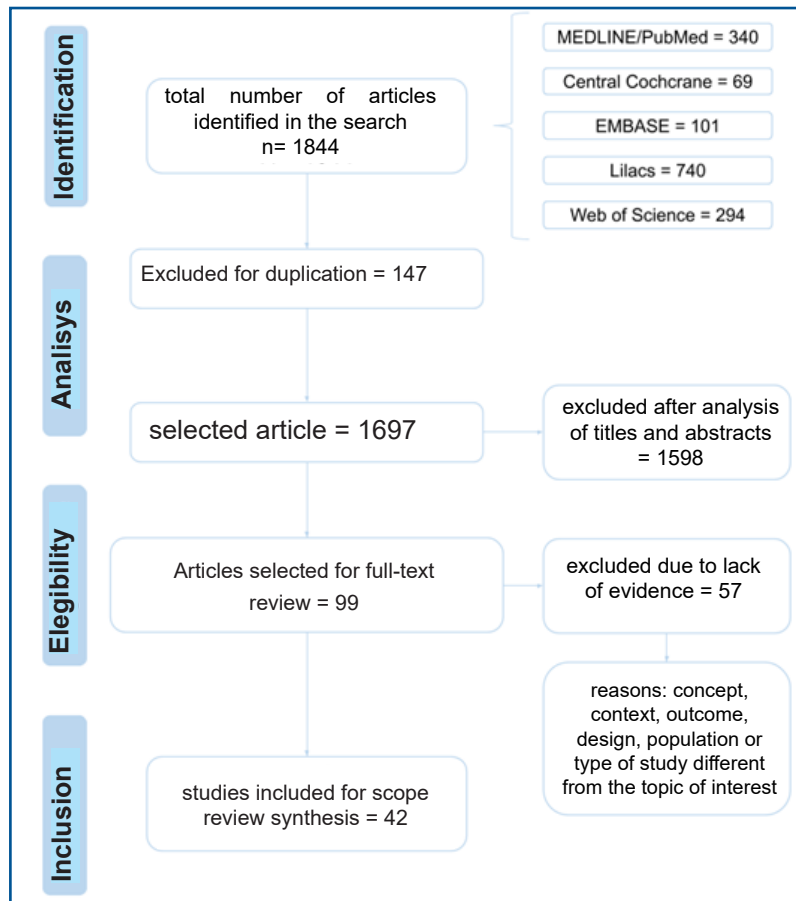
## RESULTS

### Selection of Studies

From the search strategies applied in each scientific database, a total of 1844 articles were identified and 147 duplicates were excluded. After analysis of titles and abstracts, 1598 articles were excluded, 99 articles underwent full reading of the content and 57 of them were excluded for lack of evidence and for not meeting the inclusion criteria. Thus, 42 articles met the eligibility criteria of the proposed methodology.

The research results are reported in full and presented according to the PRISMA-ScR<sup>14</sup> flowchart,

recommended by the Joanna Briggs Institute<sup>13</sup>, as shown in Figure 1.



**Figure 1:** PRISMA-ScR flowchart for study selection.

### Characterization of the studies

The 42 studies<sup>17-58</sup> chosen for review were published between 1991 and 2021, all of Brazilian origin. Of these, 17 studies were developed in the state of Minas Gerais and 9 in the state of São Paulo. In the analysis of articles published by region in Brazil, 63.4% belong to the Southeast region, 17.1% South, 17.1% Northeast, 2.4% Midwest and none in the North region. The sample size ranged from 6 to 341 individuals.

The selected studies obtained a time interval of 30 years from 1991 to 2021. Therefore, the quantitative of 1 study was published in each year respectively in the years 1991, 2002, 2009, 2010, 2011, 2015 and 2021, 4 studies in the years of 2012 and 2020, 9 in 2013, 2 in 2014, 6 in 2016, 7 in 2017 and 3 studies in 2018. The population of the included studies is 57.1% adults, 31.0% adults and elderly and 11.9% of elderly people. Furthermore, the population of the studies is characterized by hypertensive, pre-

diabetic and diabetic, overweight and obese individuals, with metabolic syndrome, cardiovascular diseases (CVD) and individuals without pathology.

The following study designs were identified: 5 Cross-sectional studies, 14 Intervention studies, 1 Longitudinal intervention study, 1 Randomized intervention study, 1 Cluster-randomized intervention study, 5 Quasi-experimental intervention studies, 1 Intervention study pre-test/post-test type, 1 Clinical trial, 2 Cluster-randomized clinical trials, 1 Randomized clinical trial, 2 Randomized controlled clinical trials, 1 Cluster-randomized clinical trial, 1 Non-randomized clinical trial, 1 Longitudinal, comparative study, of the community trial type, 1 Longitudinal study, 1 Longitudinal, intervention and comparative study and 1 Observational descriptive study. The characterization of the 42 studies included in this review is shown in Table 2.

**Chart 2.** Characterization of included studies according to authors, year of publication, study location, population and sample, study design. Vitória, ES, 2022.

	<b>Author/ Year</b>	<b>Local</b>	<b>Population</b>	<b>Sample Drawing</b>
1	Pedroni et al., 2013	MG	27 elderly of both sexes.	Cross-sectional study
2	Scain et al., 2013	RS	136 patients with DM2, with a mean age of 66(±9.38) years.	Cross-sectional study
3	Braga et al., 2020	MG	12 effective UBS nurses	intervention study
4	Giroto et al., 2013	PR	385 hypertensive individuals aged 20 to 79 years	Cross-sectional study
5	Macedo et al., 2017	MG	200 users aged between 30 and 79 years old.	Cluster-randomized clinical trial
6	Machado et al., 2016	MG	212 hypertensive patients monitored by the HIPERDIA Program.	Longitudinal, comparative, community trial type study
7	Vieira et al., 2017	MG	12 users diagnosed with DM2	Longitudinal intervention study, community-based, comparative, quantitative approach
8	Nascimento et al., 2017	SP	57 DM with baseline HbA1cs > 7.0%.	intervention study
9	Torres et al., 2016	MG	76 users with DM2, aged between 30 and 70 years.	intervention study
10	Cezaretto et al., 2012	SP	177 users aged between 18 and 79 years at risk for T2DM.	longitudinal study
11	Jaime et al., 2013	Não citado	Obese adults.	descriptive observational study
12	Silva et al., 2018	PB	15 women, with BMI >30Kg/m2.	intervention study
13	Siqueira-Catania et al., 2013	SP	180 adults aged between 18 and 79 years with pre-diabetic conditions and/or metabolic syndrome without diabetes.	intervention study
14	Machado et al., 2017	PI	100 elderly people with SAH.	intervention study
15	Mendes et al., 2015	CE	12 elderly people with cardiovascular diseases.	intervention study
16	Grillo et al., 2016	RS	Adult individuals (between 18 and 80 years old) with DM2 and HbA1c > 7%.	Randomized intervention study
17	Car et al., 1991	SP	23 people with SAH.	intervention study
18	Alves et al., 2018	SP	6 obese adults, with or without associated comorbidities.	intervention study
19	Cortez et al., 2018	MG	127 users with DM2.	Quasi-experimental intervention study
20	Becker et al., 2017	SP	63 elderly people with DM2.	clinical trial
21	Debon et al., 2020	RS	39 users aged between 19 and 77 years old diagnosed with SAH	Non-randomised, controlled, non-blinded clinical trial
22	Kuhmmer et al., 2016	RS	256 patients aged >40 years, with SAH and blood pressure levels above recommended. 128 - from the multidisciplinary program group and 128 - from the personalized care group.	Randomized and controlled clinical trial.

**Continuation - Chart 2.** Characterization of included studies according to authors, year of publication, study location, population and sample, study design. Vitória, ES, 2022.

	<b>Author/ Year</b>	<b>Local</b>	<b>Population</b>	<b>Sample Drawing</b>
23	Oliveira et al., 2013	MG	216 users with SAH	Intervention study, randomized, uncontrolled, prospective cohort type.
24	Cortez et al., 2017	MG	238 users aged between 30 and 80 years with DM2. 127 - in the intervention group 111 - in the control group.	Cluster randomized intervention study
25	Eik et al., 2016	PR	52 patients with DM2.	Randomized clinical trial
26	Torres et al., 2018	MG	341 users with DM2, age between 30 and 70 years. 171 - in the control group 170 - in the intervention group.	Cluster-randomized clinical trial
27	Brienza et al., 2002	SP	125 females, prevalent age group of 40 years.	intervention study
28	Ribeiro et al., 2012	MG	27 women aged between 45 and 60 years, with SAH.	intervention study
29	Gardone et al., 2012	MG	77 participants, aged between 21 and 81 years.	intervention study
30	Einloft et al., 2016	MG	212 adult participants with SAH.	Longitudinal, intervention and comparative study
31	Regne et al., 2021	MG	162 patients with SAH and/or DM.	Cross-sectional study
32	Arruda et al., 2020	PR	73 men aged between 40 and 70 years with DM2.	Cluster-randomized clinical trial.
33	Teixeira et al., 2013	SE	52 women aged 19 to 59 years.	The pre-test/post-test intervention study
34	Cezaretto et al., 2017	SP	129 individuals, aged 21 to 79 years and the presence of pre-diabetic conditions (impaired fasting glucose and/or impaired glucose tolerance).	intervention study
35	Pimentel, et al., 2010	SP	51 participants with impaired glucose tolerance and at least 1 other risk factor for T2DM. 30 - control group 21 - intervention group.	intervention study
36	Dantas et al., 2013	PB	70 men with SAH.	Cross-sectional study
37	Costa et al., 2009	BA	69 adult women.	Quasi-experimental, before-and-after intervention study
38	Ribeiro et al., 2011	MG	28 women with SAH.	Randomized and controlled study
39	Romeiro et al., 2013	DF	279 overweight or obese adults. 198 - intervention group 81 - control group.	Randomized and controlled study
40	Lima et al., 2014	MA	156 adult participants (119 women).	Randomized and controlled study
41	Mendonça et al., 2012	MG	167 individual users of Academia da Cidade aged 20 or over.	Randomized and controlled study
42	Freitas et al., 2020	MG	86 adult female participants, obese or overweight 51 - from the intervention group 35 - from the comparison group.	Randomized and controlled clinical trial

Acronyms: Bahia (BA); Ceara (CE); Diabetes Mellitus (DM); Diabetes Mellitus Type 2 (DM2); Federal District (DF); Systemic Arterial Hypertension (SAH); Glycated Hemoglobin (HbA1C); Body Mass Index (BMI); Maranhão (MA); Minas Gerais (MG); Paraíba (PB); Paraná (PR); Piauí (PI); Rio Grande do Sul (RS); Sao Paulo (SP); Sergipe (SE).



With the purpose of organizing the outcomes obtained in each study, a table was created (Supplementary File 2) presenting the following synthesized data: chronic diseases, type of intervention, prevention or treatment according to the approach of each study, health professional involved in the action, result of the action and main findings according to the research question.

Among the 42 articles included, they were divided into: DM (15 articles); Hypertension (13 articles); Obesity (9 articles); CVD (2 articles); DM and Hypertension (2 articles); DM, Hypertension and CVD (1 article).

The selected studies presented the following interventions quantitatively: 16 articles mentioned educational workshops, 9 nutritional counseling, 9 nutritional counseling and educational workshops, 3 nutritional counseling, 2 nutritional counseling and nutritional counseling, 1 nutritional counseling and educational workshops, 1 telephone nutritional counseling and workshops educational. The food and nutrition actions mentioned in the studies had a greater focus on treatment according to 29 articles, 7 had a prevention and treatment approach and 6 articles only prevention. About the professionals who carried out the actions: 13 studies cited the participation of the multidisciplinary health team, 9 nurses, 9 nutritionists, 8 cited health professionals, 1 community health agent, 1 nurses and nutritionists and 1 performance of doctors and nurses.

## ■ DISCUSSION

In analyzing the number of articles, it can be suggested that the concentration of publications from the year 2012 onwards was due to the foundation of the PNAB, linked to this, this policy was succeeded by the constancy in the control of child malnutrition, incentive practices to breastfeeding and to alerting about the handling of NCDs, such as Hypertension and DM<sup>59</sup>. At the same time, it has health promotion strategies and guidelines for healthy nutritional habits in line with Brazilian customs<sup>59</sup>.

Furthermore, parallel to the growing number of publications, dating from the institution of PNAN, in view of this, according to Santos *et al.*<sup>60</sup>, this policy stands out in its trajectory with the implementation and systematization of nutritional assistance, in order to prevent and monitor diseases of nutritional origin, likewise, it has the influence of healthy practices and the encouragement of public campaigns around eating habits. With these events, it induces the origin of new policies and studies according to the food and nutrition guidelines imposed by the PNAN<sup>60</sup>.

Due to the results obtained on the types of intervention among the included studies, nutritional guidance is mentioned, considered among the actions and plans in the PHC, which aims at health education and assistance to users in obtaining healthy behaviors related to food<sup>61</sup>.

This nutritional intervention explores the subject in the social and psychological scope, with the purpose of stimulating and challenging the conflicts generated in parallel with continuous healthy lifestyle habits and dietary adequacy<sup>61</sup>. With regard to Dos Reis *et al.*<sup>61</sup>, nutritional education has the potential to repress NCDs in the context of public health and in view of the health

strategies applied in dietary habits<sup>61</sup>.

Although the advantages of a healthy diet combined with physical activity for the prevention and management of NCDs are clear, there is a decline in the acceptance of healthy habits by Brazilians, and this fact emerges the lack of counseling in this context in health care. According to Prado *et al.*<sup>62</sup>, access to nutritional guidance during pregnancy has an impact on the healthy eating habits of pregnant women by contributing to reducing the consumption of ultra-processed foods and fast snacks, and confirms the importance of nutritional interventions during pregnancy<sup>62</sup>.

In the same study by Dos Reis *et al.*<sup>61</sup>, carried out in an ESF, through debates on topics related to the promotion of healthy habits with a group of 20 people with comorbidities, they were able to conclude that this type of mediation is considered a relevant strategy of health education in the control of NCD<sup>61</sup>. Thus, the ESF is the main PHC strategy in Brazil, being described as a lever for a transformation of the system as a whole, which has allowed an inversion of logic, which has always favored the treatment of the disease in hospitals<sup>63</sup>.

In view of the professionals involved in PHC, from the review of the included studies, we highlight the attendance of the multidisciplinary team, in addition to an emphasis on the performance of nursing and nutrition professionals. With regard to professionals, according to Rigon *et al.*<sup>9</sup>, the relevance of the role of nutritionists within the scope of the SUS is evaluated, with the pertinence of their action in the logistics of policies and, in view of the contribution to health services in prevention, promotion, therapeutic plan and recovery, in addition to working together with the multidisciplinary team<sup>9</sup>.

The national curriculum guidelines of the National Council of Education, of the Ministry of Education, for students of Medicine, Nursing and Nutrition<sup>64</sup>, describe the profile of the trainee/graduate of the undergraduate course in Nutrition, pointing out that the nutritionist must be able to act with a view to food safety and dietary care, in all areas where food and nutrition are fundamental for the promotion, maintenance and recovery of health and the prevention of diseases of individuals or population groups, therefore, it is inserted in the context of the ESF on APS<sup>63</sup>.

Despite the importance of the nutrition professional in food and nutrition actions, a reduced incorporation of the nutritionist in the SUS is identified and the specific attributions of these professionals are destined to the other categories of the health area<sup>9</sup>.

According to the Federal Council of Nutritionists (CFN) in published data from 2021, in the Regional Council of Nutritionists - 4th Region (CRN-4), jurisdiction comprising the states: Espírito Santo and Rio de Janeiro in 2018 there were a total of 17,465 nutritionists, and in Espírito Santo - State where this review was conducted - there were 2435 registered/acting nutritionists<sup>65</sup>.

According to Azevedo *et al.*<sup>66</sup>, the number of nutritionists active in the CFN and working in the SUS in the years 2009 to 2018 increased from 9,864 to 21,385 enrolled in this last year. This amount was more condensed in the Southeast region with 16,269 nutritionists,

consecutive of regions and number of subscribers: South with 7,224, Northeast 3,217, Midwest 2,638 and North with 877<sup>66</sup>. The North and Northeast regions had the lowest number of nutritionists working in the SUS per 100,000 inhabitants in 2009 and in 2018 there was a significant increase, with the Northeast region having the highest number of nutritionists<sup>66</sup>.

Food and nutrition actions in Primary Care consist of promoting healthy habits and preventing deficiencies related to the individual's nutrition, guaranteeing the right to adequate food, such as strategic assistance to individuals with comorbidities<sup>67</sup>. However, these health actions are directed individually and collectively in PC and must be performed by a multidisciplinary group within an established environment<sup>67</sup>.

According to a study carried out by Machado *et al.*,<sup>68</sup> low proportions of adequacy of structure and work process for food and nutrition actions were found in all units and health teams analyzed within the scope of PHC, in Brazil, and 35% of the UBS in the country had an adequate structure for food and nutrition actions, however, less than 8% of the health teams carry out an adequate work process, based on the actions selected for this study, which are promotion actions, prevention and care related to nutritional problems of greater magnitude<sup>68</sup>.

Machado *et al.*,<sup>68</sup> also found that among the reasons for the poor performance of food and nutrition actions by health teams - possibly associated - is the lack of permanent education actions that encourage the incorporation of current guidelines and protocols in the work process, the need for management measures that induce the realization of these actions and, however, the lack of processes aimed at monitoring and evaluating them. The high prevalence of chronic conditions, such as Hypertension, DM and obesity, require continuous surveillance, in order to enable preventive action on these disorders<sup>68</sup>.

Another result presented by Machado *et al.*,<sup>68</sup> points out that the health units did not have an adequate structure to carry out food and nutritional surveillance actions (lack of scales, anthropometric rulers, etc.), data recording in the information systems was not carried out by all health teams and approximately 30% of PHC teams did not carry out actions to promote healthy eating. This identified scenario corroborates that described in studies that indicate the low coverage of SISVAN, with regard to monitoring the nutritional status of the local population<sup>68</sup>.

A study conducted by Brandão *et al.*,<sup>69</sup> presented as evidence the main actions of food and nutrition in the PHC and the need to reinforce the PNAN as well as its actions in this environment, conceptualized among the main actions are: the Food and Nutritional Surveillance (VAN), the Promotion of Adequate and Healthy Food, in addition to the prevention and control of nutritional deficiencies and NCDs. Concomitantly with this, it investigated the other representatives and workers, correlated to the territory of the PHC among the regions of Brazil, in addition, it was possible to identify the highlight of the female nutritionist professionals, among other professionals, those in charge of the implementation of the research in the APS<sup>69</sup>.

However, despite the fact that the time for collecting information took place in an unhealthy environment with the contagion of COVID-19, the determination of new actions may interfere with the resolution of health management. In view of this, precision arises in circumstances of reintegration and strengthening of the necessary food and nutrition actions in PHC, in addition to the imposition and recognition of a broader health team, in order to attest to the access and fullness of health care to its users<sup>69</sup>.

## CONCLUSION

This review identified that, among the available scientific evidence, food and nutrition actions in PHC are concentrated on education strategies and guidance on healthy habits for the treatment of NCDs based on Public Nutrition Policies and Guidelines, mostly designated by a population composed of adults and a small proportion of elderly people.

However, there is a greater need for nutritionists to lead the implementation of nutritional practices for the prevention and treatment of NCDs in PHC, since food and nutrition actions are the responsibility of other health professionals or a multidisciplinary team with few nutritionist professionals from the perspective of PHC in the Brazilian territory.

However, the need for more studies published in other regions of the country emerges, as our results were 17.1% in the South region, 17.1% in the Northeast region, 2.4% in the Midwest region and none in the Midwest region. North, which does not correspond to 50% of the Brazilian states.. With the evaluation of the other states, it is possible to fully analyze the Food and Nutrition actions throughout the national territory, verifying compliance with the Food and Nutrition Policies in the context of the PA.

## Author contributions

All authors contributed to the manuscript. Isalla Silva de Freitas: Participated in the design of the study, literature search, analysis and writing of the text. Raquel Gomes Pereira de Sá: Participated in the design of the study, literature search, analysis and writing of the text. Luciana Bicalho Cevolani Pires: Participated in the design of the study, general orientation of the research, data collection phase and revision of the text. Camila Bruneli do Prado: Participated in the study design, general research orientation, data collection phase and text review. Virginia Maria Muniz: General orientation of the research and revision of the text. Luciane Bresciani Salaroli: Participated in the design of the study, general orientation of the research and revision of the text.

## Conflicts of interest

The authors declare that they have no conflicts of interest regarding the authorship and publication of this article.

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## Resumo

**Introdução:** as Doenças Não Transmissíveis (DNT) são consideradas um grande problema de saúde pública, o que torna fundamental o desenvolvimento de intervenções de promoção, prevenção e tratamento.

**Objetivo:** sintetizar e avaliar as evidências sobre as ações de alimentação e nutrição para o enfrentamento das DNT em adultos e idosos na perspectiva da APS no Brasil.

**Método:** trata-se de uma revisão de escopo da literatura, guiada pelas diretrizes do JBI e seguida as etapas de Itens de Relatórios Preferenciais para Revisões Sistemáticas e Extensão de Meta-Análises para Revisões de Escopo. A busca ocorreu em 5 bases de dados eletrônicas: MEDLINE, Web of Science, EMBASE, Central Cochrane Library e LILACS, e a literatura cinza, contemplando os sítios eletrônicos oficiais do governo e a Rede de Alimentação e Nutrição do SUS.

**Resultados:** foram identificados um total de 1844 artigos e apenas 42 artigos se enquadraram nos critérios de elegibilidade da metodologia proposta. Foi identificado que entre as evidências científicas disponibilizadas, as ações de alimentação e nutrição na APS, encontram-se concentradas em estratégias de educação e orientação de hábitos saudáveis para tratamento de DNT baseados em Políticas e Diretrizes Públicas de Nutrição designadas em sua maioria por uma população composta de adultos e uma parte reduzida de idosos.

**Conclusão:** há necessidade de mais estudos publicados sobre ações de alimentação e nutrição na APS, pois as evidências científicas disponíveis não correspondem a 50% dos estados brasileiros, sendo insuficientes para impactar positivamente a situação nutricional do país. Além disso, mais pesquisas com abordagem preventiva às DNT são essenciais, uma vez que a APS caracteriza-se por um conjunto de ações relacionadas à saúde que têm como foco principal a promoção e proteção da saúde.

**Palavras-chave:** Atenção Primária à Saúde; Doenças Não Transmissíveis; Programas e Políticas de Nutrição e Alimentação; Brasil

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