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REVIEW ARTICLE

A Critical Review of Obesity in Healthcare Systems in Brazil and Portugal: Pathways, Guidelines and Strategies

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Abstract:

Background:

Obesity and its associated diseases in the 21st century has led to new public policies with international commitments.

Objective:

The objective of this review was to examine public initiatives and policies to tackle obesity in Brazil and Portugal over the past two decades, identifying frameworks, guidelines and strategic actions.

Methods:

Official documents Brazilian and Portuguese public health policies were analyzed for international guidelines from 1999 to 2019. The documents were organized and analyzed by date. Additionally, they were evaluated for frameworks and actions proposed for individuals, communities, and the population across all levels of healthcare.

Conclusion:

This study shows that Portugal and Brazil have taken different paths when it comes to the creation and implementation of their strategies to manage obesity. In Brazil, actions aimed at promoting healthy eating have been introduced to children and are implemented by many government agencies. Portugal, on the other hand, has provided greater access to individualized healthcare services and has involved different sectors in addressing these issues.

Keywords: Overweight, Primary health care, Healthy eating, Health care, Health policy, Brazil, Portugal.

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1. INTRODUCTION

The 21st century began with a global focus on the severity of obesity [1]. In 1997, the *WHO* warned that special measures were needed to prevent diseases and promote health, drawing attention to the risks of unhealthy eating habits [1]. Morbidity and mortality related to the most prevalent chronic conditions accounted for 60% of all health problems and 47% of Global Burden morbidity in 2002 [2]. In that context, in 2004, the 57th World Health Assembly passed the Global Strategy on Diet, Physical Activity and Health, stressing the importance of lifestyle habits in the obesity equation. The Global Strategy urged all Member States of the United Nations Organization (UNO) to join efforts to implement actions to encourage the development of healthy eating and physical activity habits. In September 2011, the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases, underlined the importance for Member States to strongly commit to the Global Strategy on Diet, Physical Activity and Health [3]. At the same event, the 2013-2020 Global Action Plan for the

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Prevention and Control of Non-communicable Diseases was introduced to ensure the implementation of the commitments agreed upon in the Political Declaration of UNO on Non-communicable Diseases [4]. In 2013, deaths associated with diet as a modifiable risk factor totaled 11.3 million people worldwide, while the number of years of healthy life lost amounted to 241.4 million. One-third of both these numbers could have been reduced had obesity control and its prevention measures been adopted [5].

In Brazil, overweight rates have increased across genders and all ages and socioeconomic groups for at least three decades [6]. According to the *VIGITEL* survey conducted in 2019, 55.4% of Brazilian adults were overweight, 20,3% of them were obese. Obesity prevalence was 21,7% in women and 19,5% in men [7]. In Portugal, 57.1% of adults were overweight in 2018. The prevalence of obesity and pre-obesity was 22.3% and 34.8% respectively in the Portuguese population between 2015 and 2016, as reported in the National Food, Nutrition, and Physical Activity Survey (IAN-AF) of the same period. While obesity was greater in Portuguese women (24.3% *vs.* 20.1%), the prevalence of pre-obesity was higher in men (38.9% *vs.* 30.7%) [8].

The Global Burden of Disease (GBD) Study 2017 [9] found that the unsuitable eating habits of the Portuguese were the third risk factor for the loss of years of a healthy life. In the same study, the unhealthy eating habits of Brazilians were found to be the fourth risk factor for such loss.

Global and regional initiatives led by the *UN* have stimulated discussion about nutrition, food security, and food system transformation as a strategy to reduce obesity and other forms of malnutrition. Methodologies were sought for not only the individual but also families, communities, and the environment [10]. This novel approach required significant transformation of the healthcare infrastructure as well as coordinated public policies to address obesity and other social issues, such as human rights, culture, and the economy, which are beyond the reach of the healthcare system.

Brazil's free Unified Health Care System (SUS) was introduced in 1988 aiming to make healthcare a right for all and a duty of the State. It guarantees full, universal, and equal access to health services [11]. In Portugal, the right to healthcare was recognized in 1971 [12], and its National Health System was created in 1979. Both countries have struggled to ensure that their populations have access to good and comprehensive healthcare services. Despite using different policies and initiatives, they have made progress but also suffer inequities that need to be overcome [13].

In light of the above discussion, this study aims to examine the methods of public initiatives and policies to manage obesity in Brazil and Portugal over the past two decades.

2. METHODOLOGY

The scope review methodological framework was used to conduct this study. The scope review is characterized by the most appropriate approach for a comprehensive synthesis of evidence from a given field of knowledge and aims to identify gaps and provide guidance for future research priorities [14]. Official documents made available from Brazil's and Portugal's Ministries of Health were searched to identify policies aimed at combating obesity and their alignment with global guidelines. The documents were evaluated and fell into three main categories: a) timelines for national public policies, grouped according to the goal (promotion of healthy eating and physical activity; overweight and obesity; severe obesity) b) actions proposed at the individual, community, and national levels across all parts of the healthcare system, also identifying actions and initiatives; and; c) measures of for policy effectiveness.

The main analysis framework consists of the principles and guidelines of the *Global Strategy on Diet*, *Physical Activity and Health* [3], recommending that countries develop national strategies and action plans on Physical Fitness and Healthy Eating. These strategies and actions focus on the adult population and include educating consumers, agricultural policies to ensure availability of healthy foods, pan governmental policies to promote physical activity to promote, prevent, monitor, investigate and evaluate healthcare services. Academic literature advocating health promotion was also reviewed [15].

2.1. Selection of Documents

The document database for this study was created through online searches of the Brazilian and the Portuguese Ministry of Health websites, for laws, regulations, resolutions, and guidance manuals via searches for documents and information on the Global database on the Implementation of Nutrition Actions (GINA) and on the Nutrition Landscape Information System (NLiS) from the World Health Organization (WHO) website.

2.2. Organization of Information

Documents that addressed healthy eating, physical activity, pre, and severe obesity, and non-communicable chronic diseases were organized in chronological order of publication by two independent reviewers. Subsequently, the documents were read carefully by two reviewers to identify references to any action or initiative to promote health or prevent obesity in the laws and regulations of both countries. A third reviewer was brought in when there was no consensus about the classification of the actions identified in the documents. Similar actions detected in more than one document were grouped into categories.

3. RESULTS AND DISCUSSION

This study sought to identify convergences and divergences in approaches to obesity in the health systems of Brazil and Portugal. Both nations differ in terms of geography, population size, historical and cultural background. Their healthcare systems are also distinct, and it is instructive first to understand these. In 2014, Brazil spent 8.3% of *Product Gross Domestic Product* (GDP) on healthcare while Portugal spent a 9.5% period [16]. Although the difference between the two figures is small, the difference in terms of real and per capita spending is considerable ($947 for Brazil and $2,097 for Portugal per capita). What makes the difference even greater is

the fact that Brazil's *Unified Health Care System* (SUS), responsible for treating almost 80% of the population, received less than half (46%) of 2014's total healthcare spending while the Portuguese public system, looking after 81.5% of the citizens, was given 64.8% [16]. That means Brazilian authorities used less than half of the total healthcare spending (3.8% of GDP) to care for the great majority of the population. Differences like these have resulted in each country planning public policies differently in order to deal with similar health issues.

In this study, the publication, such as The Global Strategy on Diet, Physical Activity and Health by the World Health Organization is seen as the turning point in the battle against lifestyle-related chronic diseases [2, 5]. The Global Strategy has called for joint efforts by the first, second, and third economic sectors, and indeed, the whole society to stop morbific behaviors.

In recent decades, Brazil has reduced instances of deficient malnutrition but also increased obesity [6, 17]. In 1999, the country introduced the National Food and Nutrition Policy (PNAN) in alignment with WHO guidelines, seeking to entrench policies to eliminate malnutrition *via* the Unified Health Care System (SUS) [18]. In 2011, these policies were revised to include principles of humanization in healthcare practices, respect for the culture and food diversity, individual rights to choose and also social determination, multidisciplinary and intersectoral food and nutrition concepts, and food security with sovereignty (Table **1**).

Table 1. Timeline laws and regulations for addressing obesity in Brazil and Portugal (1999-2019).

BRAZIL	
Year	**Laws and Regulations**
Promotion of healthy eating and physical activity	
1999	National Food and Nutrition Policy (revised in 2011) [18]
2005	Healthy Brazil Action–outdoor gyms [29]
	Food Guide for the Brazilian Population (revised in 2014) [30]
2006	National Health Promotion Policy (revised in 2014) [31]
	Organic Law on Food and Nutritional Security [19]
2009	National Food and Nutritional Security Policy [20]
	Actions Matrix for Food and Nutrition in Primary Health Care [32]
2010	Regulation of Food Advertising [33]
2011	Health Gym Program [21]
	Strategy for salt intake reduction (revised in 2013) [34]
2012	Reference Framework of Food and Nutrition Education for Public Policies [35]
2013	Healthy Weight Program (workers) [22]
2014	National Pact for Healthy Eating [36]
Overweight and Obesity	
2013	Care Line for Overweight and Obesity(*) [37]
2014	Strategies for the Care of People with Chronic Diseases– Obesity [38]
	Regional Organization of the Care Line for Overweight and Obesity [25]
	Intersectoral Strategy for Prevention and Control of Obesity [39]
Severe obesity	
2007	Treatment of severe obesity in the Unified Health Care System (SUS) [24]
2013	Technical regulation for High Complexity Care Services for Individuals with Obesity [40]
Chronic non-communicable diseases (CNCD)	
2006	Basic care notebook nº 12 - comprehensive and humanized approach to overweight patients [41]
2011	Plan for Coping with CNCD in Brazil - 2011 to 2022 [42]
2013	Health Care Network for People with Chronic Diseases [43, 44]
2014	Strategies for the care of a person with chronic disease [45]
	Perspectives and challenges in the healthcare for people with obesity in the Brazilian Health System [46]
2017	Redefinition of lines of care for overweight and obesity [47]
PORTUGAL	
Promotion of healthy eating and physical activity	
2005	National Plan for an Integrated Action on the Health Factors Related to Lifestyles [48]
2012	Program - Promotion of Healthy Eating [49] (revised in 2019) [50]
2015	Strategy for salt intake reduction [51]

(Table 1) contd.....

BRAZIL	
2016	Monitoring of Protection and Promotion of the Mediterranean Diet [52]
	Priority Program–Promotion of Healthy Eating [53]
	Regulation of food supply to vending machines on healthcare facilities – Beverages [54]
	Special consumption tax on sugar-sweetened beverages [55]
2017	Integrated Strategy for the Promotion of Healthy Eating [56]
	Regulation for bars and canteens on administrative facilities [57]
	Hospital Diets and Nutritional Care [58]
Overweight (pre-obesity) and obesity	
2005	National Program to Fight Obesity [59]
2015	Integrated Assistance Process for Pre-obesity in Adults [60]
2017	Optimization of the Therapeutic Approach to obesity [61]
Severe obesity	
2009	Regulation for the Program of Surgical Treatment of Obesity [62]
2012	Best Practices for the Approach to Obese Patients eligible for Bariatric Surgery [63]
2018	Program of Surgical Treatment of Obesity [64]

(*) Care line also includes severe obesity – Source: own elaboration

Coincidentally, with the launch of The Global Strategy on Diet, Physical Activity and Health by WHO [2], the Healthy Brazil Action was also introduced in the same year in Brazil. It aimed to promote physical outdoor activities and healthier eating habits described in the Food Guide for the Brazilian Population (Table **1**). It was concomitantly launched and was a milestone in Brazil's approach to making nutritional recommendations. It revitalized and strengthened the food identity of the local population. In 2014 The Guide was revised, and this new version used a multidimensional approach that featured cultural and qualitative aspects.

In 2006 the Organic Law on Food and Nutritional Security (LOSAN) established the National System of Food and Nutritional Security (SISAN) [19], through which the National Food and Nutritional Security Policy (PNSAN) [20] was implemented (2009). SISAN was designed with the aims of reducing inequality of opportunity, promoting sustainable and healthy food systems, and ensuring the right to adequate food through the creation of intersectoral bureaus across all levels of government. It also included representation from civil society and the Councils for Food and Nutritional Security. Recently, The National Council for Food and Nutritional Security (CONSEA) exerted pressure on policy-makers, resulting in the framing of laws directed at regulating food advertising and the expansion of the National Pact for Healthy Eating (Table **1**). Also, the General Coordination Office for Food and Nutrition Policy of Brazil's Ministry of Health, in charge of implementing actions in line with the National Food and Nutrition Policy (PNAN), adopted creative strategies such as the Healthy Gym Program [21] and the Healthy Weight Program (intersectoral action directed at workers) amongst others [22]. It was only later, in 2013, that specific policies to promote integrated care for overweight and obesity were introduced. That took place even after the surgical treatment of obesity was made available through the public healthcare system in 2007 (Table **1**).

Healthcare Networks (RAS) represent the Brazilian strategy to promote changes in the care model, adopting the principles of integrality, humanization, multi-professional care, professional/user co-responsibility, relationship building, autonomy, and self-care [15]. The RAS is based on social determinants, intersectoral and social participation. The launch of the Strategic Plan of Action for reducing chronic non-communicable diseases in 2011 was followed by the introduction of the Health Care Network for People with Chronic Diseases (2013), later revised to include strategies to address overweight and obesity care. Thus, the process of care for overweight and obesity was inserted in the RAS of people with chronic illness. It emerged as a way of mobilizing resources and expanding healthcare practices by organizing the flows of care at different levels of service, starting at primary healthcare [15].

Challenges to the implementation of these actions revolve around the suppressed demand for specialist care and the transformation of primary healthcare practices to provide integrated primary and specialist care and other services across the country (Tables **2** and **4**). However, there have been some setbacks as the current Brazilian administration (2019-2022) has withdrawn subsidies to municipalities and restricted access to basic services; for instance, the operation of overweight and obesity care services is no longer mandated [23].

There seems to be a contradiction in the approach of the Brazilian Health Authority to the treatment of obesity. In 2007, it introduced a highly complex procedure covered by the public health system (2007) [24], but only in 2013 was bariatric surgery included in the integrated care model for treatment of people with Chronic Diseases (RAS) [25].

Unlike Brazil, whose civil society has greatly contributed to the policymaking process through participation in conferences and councils, Portugal introduced policies on overweight based on academic research and following guidelines by the European Community. In 2005, Portugal created the National Platform an Integrated Action on the Health Factors Related to Lifestyles, including a specific action plan to tackle obesity. As for the promotion of healthy eating, there have been some one-off actions [26]. Initiatives that stood out within the same period of time were the National Program to Fight Obesity within the National Health Plan (2004-2010), at the time still sectoral in nature and characterized by basic

assistance, and the Platform against Obesity (2008) through which actions of the National Program were delivered.

However, it was only later, after the revision of the National Health Plan (2012-2016; extended to 2020) [27], that the fight against obesity was given priority. In 2012 the National Strategy for the Promotion of Healthy Eating (PNPAS) was launched, bringing Portugal's policies into alignment with the objectives of the European Commission and WHO. It is one of the eight priority programs coordinated by the Directorate-General of Health (DGS). Moreover, one of the high-priority goals of the National Health Plan was to control the incidence rates and prevalence of overweight and obesity in school-aged children and slow down the rise of obesity by 2020 [27].

The current Portuguese Health Plan includes intersectoral, health-promoting actions on reducing the health risks of smoking, obesity, sedentarism, alcohol [27], and more recently, healthy eating programs. These actions have been directed at the younger population (Table **2**). The initiatives for the prevention and control of obesity have been stimulated by the European Commission, especially those aimed at promoting Mediterranean food practices [28].

As for high complexity care for obesity, the Regulation for the Program of Surgical Treatment of Obesity, introduced by Portugal in 2009, and the 2012 and 2018 actions show their growing concern about the issue (Table **1**). In Brazil, treatment of severe obesity was instituted in the Unified Health Care System (SUS) in 2007.

Both countries' public systems address obesity with systematic but different processes. The Portuguese system adopts three levels of care: primary, secondary, and tertiary. Individualized assistance ranging from overweight to obesity without complications is provided in primary care. Patients with class-2 obesity suffering from comorbidities and class-3 obesity are assisted in hospitals offering bariatric surgery. In addition to multidisciplinary assistance, patients are entitled to cosmetic surgery after weight loss following bariatric surgery [61]. Portugal uses a multi-pronged approach to manage obesity. This includes programs at schools and workplaces, training the primary food producers, creating regulations, and communicating with social marketing [61]. Another important feature of the Portuguese method is the prevention of iatrogenic harm from prescription drugs and the use of inappropriate diets [61].

Brazil, however, adopted a different approach based on risk classification. Although the patient can receive individual assistance from the Matrix Support Teams of Family Health Support Centers (NASFs [38], the Brazilian method is heavily focused on categorized assistance. In Brazil, SUS at the primary care level, is responsible for therapeutic modalities and care planning. This is based on patient risk assessment, available resources, social determinants of health, and partnership amongst primary care centers (particularly Family Health Support Centers) and the community. SUS engaged communities in regular physical activity, dancing, sports competitions, games, and workshops [29, 38].

Tables **2**, **3**, and **4** were created to list the initiatives proposed and detailed in the current official documents from both countries (in effect in 2019). Table **2** shows individual-level actions and programs for health promotion, disease prevention, and control of obesity. Unlike the Brazilian system, where primary care services focus on procedures, the Portuguese system offers an individualized approach for obesity care (Table **2**). Specialized care is not always available in Brazilian public hospitals, but it is accessible in every Portuguese hospital. Also, unlike Portugal, Brazil has failed to deliver some of the needed specialized outpatient care services which are mandated in its policies. As a consequence, Brazil has not been able to satisfy the demand for bariatric needs. In fact, the lack of these services is a major bottleneck within the Unified Health Care System (SUS), which has long struggled to ensure universal healthcare access.Thus , Brazil has a long way to go before it affects implementation of its policies and commitments [65]. Such obstacles might be the reason why the Brazilian National Health Plan's approach to care for over-weight and obesity is generic rather than specific; however, this needs to be better understood. Brazil faces numerous health challenges and has focused on primary health care, inter-sectoral actions, and involvement of the community in collaborative health-promoting activities.

At the community level, Brazilian policies created environments that encourage healthy and collective physical activity and eating habits. Communities participate in sectors such as agriculture, sports and leisure, culture, environment, and urban planning to serve their health needs (Table **3**). The Journal Community Health Worker is an important com-munication tool in this pursuit because it reports on all these sectors [66].

Brazil's National Health Promotion Policy, introduced in 2006 and revised in 2014 [31], is based on state autonomy and distributed responsibility and encourage, among other things, the importance of healthy eating, regular physical activity. It also stimulates interactions between health and well-being and social and environmental factors.

Population-level actions in Brazil revolve around com-munication, information, regulation, food inspection, nutritional labeling, and increasing the supply of good quality food (Table **4**). The Portuguese policies show more control by the State, focusing their attention on specific groups. These groups include children, youth, needy families, hospitalized patients, and pregnant women. The goal of their policies is to in still better food choices and food availability. In Portugal, the State has strong regulating power over the food industry. Brazil, on the other hand, has been heavily lobbied to prevent advances in regulations and transparency [70].

The Portuguese Strategy for the Promotion of Healthy Eating (PNPAS) involves numerous population-targeted actions, while in Brazil, similar programs are community-oriented. In both nations, the programs aim to ensure the physical and economic availability of food for the people while at the same time encouraging an appreciation and consumption of healthy foods. They both also focus on epidemiological monitoring, reduction of risk factors, improvements in the healthcare system, promotion of healthy lifestyles, and policies on the adequacy of food and food systems [26]. The

Portuguese Platform against Obesity (2008) was the first intersectoral policy of its kind in the country, with the purpose of promoting healthy eating and laid the foundations for the PNPAS (2012) [26]. Portugal has gradually set legal mechanisms to facilitate local interventions for the prevention and control of obesity through intersectoral actions [71]. The Integrated Strategy for the Promotion of Healthy Eating (2017) [56] was a major step in consolidating Portuguese policy to address overweight and obesity. This strategy was built on the cooperation of 7 Ministries, Finance, Internal Administration, Education, Health, Economy; Agriculture, Forestry and Rural Development and Sea.

In a study on food and nutrition policies (2011) [72], Brazil and Portugal were found to have the widest income inequality gaps on their respective continents. In Brazil, intersectoral actions and social participation were identified as strategies, and in Portugal, the Ministry of Agriculture tackled poverty and poor-quality food. Still, there are many societal issues with a contact in many policy areas that remain challenges for addressing chronic diseases [73].

Although many countries are developing multisectoral policies aimed at the prevention and control of chronic diseases, mainly obesity, advancements in the assessment of their effectiveness and impact are still needed [74]. Portugal recently celebrated a significant reduction in childhood obesity from 37.9% in 2008 to 29.6% in 2019, showing signs that it is close to reaching its established goals [75].

References to goal indicators found in the official documents suggest that there are key elements in assessing the progress of policies aimed at combating overweight and promoting healthy eating (Table **5**). The Brazilian Strategic Plan of Action for tackling chronic non-communicable diseases [42] and National Plan for Food and Nutritional Security [76] make specific reference to these indicators. They are also briefly described in the Portuguese National Health Plan (2012-2016; extended to 2020) and detailed in some of their specific programs [50, 60, 61]; a great number of indicators were assessed to measure the burden of obesity on the Portuguese people and their healthcare system [77]. However, these specific indicators have not been used when assessing the performance of the primary healthcare functional units [78] nor the accrediting healthcare services [79] in Portugal. This indicates that these policies are still being implemented but, unlike in Brazil, their primary healthcare units do not centralize these actions.

When comparing actions developed by Brazil and Portugal, a number of convergences can be observed. Each country has enhanced one aspect of the approach or another.

Table 2. Individual-level actions and initiatives for the prevention and care of obesity listed in Brazilian and Portuguese official documents (in effect in 2019).

Brazil	Portugal
Primary Health Care: Support to Self-care for healthy weight [24, 36] Diagnosis of obesity [24, 36] Assessment of dietary intake [36] Weight monitoring [25] Diagnosis of arterial Hypertension and Diabetes Mellitus [24, 36] Individualized guidance [25, 36] Physical Activity prescription [25] Urgent, priority transport in specially-equipped vehicles for obese patients [40]	**Primary Health care:** Early detection of overweight [61] Individualized care for obesity [60] Obesity appointments for class-1 and class-2 obesity patients [61] Medical follow-up/ Nurse/ Nutritionist/Psychologist [60, 61]
Specialized care: Treatment by Diet therapy [25, 36] Psychotherapy for overweight and obese patients [25] Physical activity prescription [25] Specialized, outpatient care for bariatric surgery patients [24] Preoperative and follow-up tests [21, 36] Medicine Assistance Program for pre-bariatric surgery patients [24] Multidisciplinary assistance for post-bariatric surgery patients [24, 25, 40] Pharmacotherapy for post-bariatric surgery patients [25, 36]	**Hospital care:** A multidisciplinary approach to class-2 obesity with comorbidities and class-3 obesity [63] Bariatric surgery [62] Preoperative and postoperative therapeutic evaluation [61, 63]
High-complexity, specialized care: Surgical treatment [36, 40] Plastic surgery [25, 40]	**Across all levels of care:** Used-centred care [61] Surveillance of Healthy individuals [61]
Across all levels of care: Embracement of obese individual sat health care units [24] Therapeutic evaluation for users with overweight and obesity according to risk strata [24]	

Table 3. Community-level actions and initiatives for the prevention and care of obesity are listed in Brazilian and Portuguese official documents (in effect in 2019).

Brazil	Portugal
Primary Health Care: Support group for hypertensive and diabetic individuals [24, 36] Support groups for weight control [38] Local participatory planning [36] **Intersectoral actions:** School Health Program Community fitness equipment [25, 36, 42] Cycle paths, parks, squares, walking paths [35, 42] Promotion of corporal practices for the young and the elderly [42] Promotion of healthy eating habits and lifestyle among the beneficiaries of the *Family Grant Program* [42] Enhancement of local food culture [36, 42] Strengthening of fresh food production and supply preferably from agroecological farms [36, 42] Increase in healthy food supply – food banks [42] Promotion of healthy eating habits and physical activity [24] Food and nutritional education in social facilities [36] Monitoring of workers' weight [36] Culinary practices [36] Strengthening of community leadership and social participation [36] Intersectoral actions among schools, residents' associations, and other public bodies [25, 36]	**Multisectoral Actions:** Regulation of food and drinks sold at schools, health facilities, and scientific events [61] Incentives to local food consumption [49] Mediterranean Diet Food Guide– Adherence of the Ministry of Education to the Mediterranean Diet Food Guide [52] Transversal actions with other society sectors (agriculture, sports, environment, education, independent bodies, and social security) to promote the adoption of the Mediterranean diet [49, 50, 52] Promotion of the reduction of salt and trans fats content in bread [51] Tools for planning affordable, healthy menus [49] Adoption of new food standards for vending machines in healthcare facilities [54] Definition of the foods included in the food baskets given to people/families in need [67] Local strategies for the promotion of healthy eating habits [68] Local and regional projects [68] Greater availability of water, fruit, and vegetables [49, 61]

Table 4. Population-level actions and initiatives for the prevention and care of obesity are listed in Brazilian and Portuguese official documents (in effect in 2019).

Brazil	Portugal
Ministry of Health: Campaigns for the promotion of physical activity and healthy eating habits [42] Regulation and agreements for the reduction of the content of fats, salt, and sugar in food products [42] Regulation of food advertising and food labeling [36, 42] Social marketing strategies – advertising [42] Food and Nutritional Surveillance [42] Inspection of food labeling and advertising [36] Strategy for salt intake reduction [34]	**Ministry of Health:** Pre-obesity and Obesity Observatory [59] Control of sales of food products with a high content of salt, sugar, and fats [49, 61] Good practices for food product labeling, advertising, and marketing [49] Consumer information [49] Promotion of the consumption of overlooked food products [56] Campaigns for the promotion of information [61] Promotion of healthy eating in pregnancy [69] Systematic collection of indicators of nutritional status and food consumption [49] Partnerships with the food industry and restaurants to increase the production of healthy food products [49] Primary sector policies in alignment with health, sustainable goals [61]

For instance, while multi-actor proposals in Brazil are more comprehensive and better characterized as intersectoral, in Portugal, there are more actions aimed at individuals within the healthcare system better equipped to meet the needs of obese individuals. Other government departments in Brazil have occasionally spearheaded initiatives for combating obesity; Brazil's Ministry of Social Development coordinated the implementation of the Intersectoral Strategy for the Prevention and control of Obesity, involving 20 ministries (Inter-ministerial Food and Nutritional Security Chamber (CAISAN) [39].

The global economic crisis of 2008 brought about economic deregulation, privatization, and commercialization of healthcare in search of process efficiency. However, given the universal welfare and social protection policies of Brazil, these economic measures have not been able to meet the current challenges facing healthcare as the population grows older and non-communicable chronic diseases increase. Also, as a result of the New World Order in response to the assorted shortcomings of capitalism, labour relations in the health sector have deteriorated, and resources are scarce, directly impacting the universality of healthcare [80].

Table 5. Goals and indicators of public policies for addressing overweight in the Brazilian and Portuguese Health Care systems (in effect in 2019).

BRAZIL
Goals:
Halt the rise in obesity in adults by 2025 [42]
Increase the prevalence of physical activity during leisure time [42]
Increase the intake of fruit and vegetables [42]
Reduce the average intake of salt [42]
Reduce the intake of fatty meat [42]
Perform transversal assessment of body weight in the population [39, 76]
Monitor nutritional status in primary care [42, 76]
Assessment indicators:
Prevalence of overweight and obesity by age group (transversal data) [42]
Family food consumption (transversal data) [42]
Coverage of anthropometric and food consumption data on the *Food and Nutrition Surveillance System (SISVAN)* [42]
PORTUGAL
Goals:
Reduce the average salt content in main foods by 10% before 2020 [50]
Reduce the average sugar content in main foods by 10% before 2020 [50]
Reduce the fatty acid content in main foods by 2% before 2020 [50]
Increase the number of people who consume fruit and vegetables by 5% before 2020 [50]
Increase the number of people who know the Mediterranean diet by 20% before 2020 [50]
Control the incidence and prevalence of overweight and obesity in school-aged children – slow down their rise by 2020 [27, 50]
Assessment indicators:
Mortality related to obesity: number of deaths, death rate, standardized death rate, standardized death rate in people under 65, standardized death rate in people aged 65 and over, standardized death rate in people under 70, standardized death rate in people aged 70 and over [77]
Hospital care: users, discharge, length of hospital stay, day case, no day case, outpatient care cases, and deaths; related to localized adiposity: users, discharge, length of hospital stay, day case, no day case, outpatient care cases, and deaths; related to overweight and obesity-associated malignant neoplasm of colon/rectum, rectosigmoid junction and anus; related to overweight and obesity-associated malignant neoplasm of the breast; related to overweight and obesity-associated malignant neoplasm of the prostate; related to overweight and obesity-associated diabetes [77]
Prevalence of overweight between 19 and 64 years old [60, 77]
Prevalence of obesity between 19 and 64 years old [60, 77]
Prevalence of individuals with BMI (Body Mass Index) between 25-30 kg/m2 [60, 77]
Prevalence of individuals with BMI (Body Mass Index) of30 kg/m2 and above [60, 77]
Prevalence of Systemic Arterial Hypertension [60, 77]
Prevalence of consumption of breakfast, fruit, vegetables, sweets, soft drinks, coffee [77]
Regular physical activity [60]
Food insecurity [49, 77]
Salt and trans fats intake [77]
Users' satisfaction [60]
Cardiovascular risk [60]
Prevalence of weight loss by 5 to 10% [61]

Launched in 2015, the 2030 Agenda for Sustainable Development offered a strong counterpoint to the economic crisis in an effort to promote healthy living and well-being across all ages and reduce premature deaths due to non-communicable chronic diseases and has been widely discussed internationally since then [81]. Different geopolitical blocs have supported and encouraged global initiatives by WHO and the Food and Agriculture Organization (FAO) through joint declarations, action plans, and cooperation agreements, including the White Paper on a Strategy for Europe on Nutrition, Overweight and Obesity-related health issues by the Commission of the European Communities (2007) [82], the Plan of Action for the Prevention of Obesity in Children and Adolescents by the Pan American Health Organization (PAHO), and the establishment of multi-actors: working groups and networks involving government sectors, academia, civil society, private sector, and politicians. These global and regional initiatives have influenced the formulation of health policies in both Brazil and Portugal; the latter has also been under additional pressure from the European Commission to take measures for the protection and promotion of health but more than that, to rationalize its public finances. In this respect, both countries are faced with a dilemma as labour relations in the health sector deteriorate [80]. Against this background, numerous actions to prevent and control obesity have been introduced to ease the pressure on healthcare systems. Although some studies have indicated their effectiveness, a significant number of controlled studies are needed to corroborate the findings [15].

CONCLUSION

Obesity is a global phenomenon that has economically burdened healthcare systems and strained their capacity to respond to other healthcare needs. Specialized care is required and costly in terms of structure, equipment, and labour deployment, and training. The key to tackling obesity is implementing lifestyle changes.

It is worth stressing that this study was intended to solely

report health actions aimed at combating obesity identified in the official documents of Brazil and Portugal rather than critically evaluate their implementation or results. Both countries have sought to meet global guidelines in their policies, developing guidelines and standards to induce and guide local dynamics.

Brazil has focused on primary health care and intersectoral strategies with community engagement. However, the chief advantage of this has been more than offset by unequal healthcare (notably specialized care) and modest government engagement in regulating food and food advertising. Portugal takes a more traditional approach; primary care units provide a range of individualized healthcare services, from nutritional monitoring to care for overweight and class 2-obesity. Portuguese hospitals include outpatient care for class 2-obesity with comorbidities and class-3 obesity and bariatric surgery if recommended. Comprehensive actions occur concertedly, and in spite of being encouraged by the Directorate-General of Health (DGS), there is almost no national program participation because priorities and healthcare spending are determined more granularly at the regional and municipal levels. Though Portugal's government takes a more active role in regulating food products than Brazil, it takes a lesser role in the delivery of healthcare services.

AUTHORS' CONTRIBUTIONS

Luciane da Graça da Costa, Thabata Koester Weber and Maria Rita Marques de Oliveira contributed to conception and design, Luciane da Graça da Costa contributed to data acquisition. Luciane da Graça da Costa, Thabata Koester Weber and Maria Rita Marques de Oliveira contributed to data analysis and interpretation, Luciane da Graça da Costa, Adriana Aparecida de Oliveira Barbosa e Maria Rita Marques de Oliveira helped in drafting of this paper. Luciane da Graça da Costa, Thabata Koester Weber, Isabel Monteiro, Flora Correia and Maria Rita Marques de Oliveira contributed to critical revision of the intellectual content, Flora Correia and Maria Rita Marques de Oliveira supervised the study.

CONSENT FOR PUBLICATION

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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REFERENCES

[1] World Health Organization. Obesity: Preventing and managing the global epidemic: Report of a WHO consultation on obesity. Geneva, Switzerland: World Health Organization 1998.

[2] World Health Organization. Global strategy on diet, physical activity and health Fifty-seventh world health assembly World Health Organization 2004.www.who.int/gb/ebwha/pdf_files/WHA57/A57_R17-en.pdf

[3] World Health Organization. Assembly on the Prevention and Control of Non-communicable Diseases Fifty-seventh world health assembly 2011.https://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/66/2

[4] World Health Organization. Global action plan for the prevention and control of noncommunicable diseases 2013-2020 Geneva: World Health Organization 2013.http://www.who.int/cardiovascular_diseases/15March2013UpdatedRevisedDraftActionPlanAPPROVEDBYADG.pdf

[5] GBD 2015 Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 79 behavioral, environmental and occupational, and metabolic risks or clusters of risks, 1990-2015: A systematic analysis for the Global Burden of Disease Study 2015. Lancet 2016; 388: 1659-724. [http://dx.doi.org/10.1016/S0140-6736(16)31679-8] [PMID: 27733284]

[6] Coutinho JG, Gentil PC, Toral N. [Malnutrition and obesity in Brazil: Dealing with the problem through a unified nutritional agenda]. Cad Saude Publica 2008; 24(Suppl. 2): S332-40. [http://dx.doi.org/10.1590/S0102-311X2008001400018] [PMID: 18670713]

[7] Brazil. Ministry of Health. Department of Situation Analysis Vigitel Brazil 2011: Protective and Risk Factors for Chronic Diseases by Telephone Survey Brasília 2019.http://bvsms.saude.gov.br/bvs/publicacoes/vigitel_brasil_2011_fatores_risco_doencas_cronicas.pdf

[8] Lopes C, Torres D, Oliveira A, *et al.* National Food and Physical Activity Survey, IAN-AF 2015-2016: Methodological report University of Porto 2017.https://ian-af.up.pt/sites/default/files/IAN-AF%20Relatorio%20Metodol%C3%B3gico.pdf

[9] Stanaway J, Murray CJL, Afshin A, *et al.* Global, regional, and nacional comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990-2017: A systematic analysis for the Global Burden of Disease Study 2018; 392(10159): 1923-94.

[10] Haddad L, Hawkes C, Webb P, *et al.* A new global research agenda for food. Nature 2016; 540(7631): 30-2. [http://dx.doi.org/10.1038/540030a] [PMID: 27905456]

[11] Brazil Law nº 8080, September 19, 1990 Provides information about conditions for the promotion, protection and recovery of health, the organization and functioning of the corresponding services and other provisions Official Brazilian Diary of the Union 1990.https://www2.camara.leg.br/legin/fed/lei/1990/lei-8080-19-setembro-1990-365093-publicacaooriginal-1-pl.html

[12] Monteiro BR, Pisco AMSA, Candoso F, Bastos S, Reis M. Primary healthcare in Portugal: 10 years of contractualization of health services in the region of Lisbon. Ciênc saúde coletiva 2017; 22(3): 725-36.

[13] Gomes PS. Access to contemporary health in Brazil and Portugal as a social right 2014.http://site.ufvjm.edu.br/revistamultidisciplinar/files/2014/10/Acesso-%C3%A0-sa%C3%BAde-contempor%C3%A2neo-no-Brasil-e-em-Portugal-como-um-direito-social.pdf

[14] Aromataris E, Munn Z, Eds. JBI Manual for Evidence Synthesis. JBI 2020. [cited: 05th Feb 2021] [http://dx.doi.org/10.46658/JBIMES-20-01]

[15] Burlandy L, Teixeira MRM, Castro LMC, *et al.* [Models of care for individuals with obesity in primary healthcare in the state of Rio de Janeiro, Brazil]. Cad Saude Publica 2020; 36(3)e00093419 [http://dx.doi.org/10.1590/0102-311x00093419] [PMID: 32187290]

[16] Figueiredo JO, Prado NMB, Medina MG, Paim JS. Public and private

health expenditures in Brazil and selected countries. Saúde Debate 2018; 42: 37-47. [http://dx.doi.org/10.1590/0103-11042018s203]

[17] Vasconcelos FAG, Batista Filho M. History of the scientific field of Food and Nutrition in Public Health in Brazil. Ciênc saúde coletiva 2011; 16: 81-90. [http://dx.doi.org/10.1590/S1413-81232011000100012]

[18] Brazil. Ministry of Health.. National Policy for Food and Nutrition Brasília: Ministry of Health 2013.https://bvsms.saude.gov.br/bvs/publicacoes/politica_nacional_alimentacao_nutricao.pdf

[19] Brazil Ministry of Health Law nº 11346, September 15, 2006 Creates the National System of Food and Nutritional Security - SISAN with a view to guaranteeing the human right to adequate food and other provisions Official Brazilian Diary of the Union 2006.http://www.planalto.gov.br/ccivil_03/_Ato2004-2006/2006/Lei/L11346.htm

[20] Brazil Ministry of Health Decree nº 7272, August 25, 2010 Regulates Law nº 11,346, September 15, 2006, which creates the National System of Food and Nutritional Security - SISAN with a view to guaranteeing the human right to adequate food, institutes the Policy Food and Nutritional Security - PNSAN, establishes the parameters for the preparation of the National Food and Nutritional Security Plan and and other provisions Official Brazilian Diary of the Union 2010.http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2010/decreto/d7272.htm

[21] Brazil Ministry of Health Ordinance GM/MS nº 2681, November 7, 2013 Redefines the Health Academy Program within the scope of the Unified Health System (SUS) Official Brazilian Diary of the Union 2013.http://atencaobasica.saude.rs.gov.br/upload/arquivos/201510/01114701-20141103160921ms-prt2681.pdf

[22] Brazil Ministry of Health Manual for Implementing the Healthy Weight Program Brasília, DF 2013.http://189.28.128.100/dab/docs/portaldab/publicacoes/manual_peso_saudavel.pdf

[23] Jaime PC, Delmuè DCC, Campello T, Silva DOE, Santos LMP. A look at the food and nutrition agenda over thirty years of the Unified Health System. Cien Saude Colet 2018; 23(6): 1829-36. [http://dx.doi.org/10.1590/1413-81232018236.05392018] [PMID: 29972491]

[24] Brazil Ministry of Health Ordinance nº 492, August 31 2007.http://bvsms.saude.gov.br/bvs/saudelegis/sas/2007/prt0492_31_08_2007_rep_comp.html

[25] Brazil Ministério da Saúde Regional Organization of the Care Line for Overweight and Obesity in the Health Care Network of People with Chronic Diseases: instruction manual Brasilia, DF 2014.http://189.28.128.100/dab/docs/portaldab/documentos/manual_instrutivo_linha_cuidado_obesidade.pdf

[26] Graça P, Gregório MJ. The Construction of the National Program for the Promotion of Healthy Eating - Conceptual Aspects, Strategic Guidelines and Initial Challenges. Revista Nutricias 2013; 18: 26-9.https://sigarra.up.pt/ffup/pt/pub_geral.show_file?pi_doc_id=4947

[27] Portugal Ministry of Health Directorate-General for Health National Health Plan Review and Extension to 2020 Lisbon: Ministry of Health; 2015.http://pns.dgs.pt/files/2015/06/Plano-Nacional-de-Saude-Revisao-e-Extensao-a-2020.pdf.pdf

[28] Portuguese Association of Nutritionists. Mediterranean diet: A healthy eating pattern 2014.https://www.apn.org.pt/documentos/ebooks/Ebook_Dieta_Mediterranica.pdf

[29] Brazil Sport Ministery Ordinance nº 120, July 3, 2009 Provides for the processing, evaluation and approval of the framework for sporting or para-sports projects, as well as the capture, follow-up and monitoring of the execution and accountability of duly approved projects, of which deal with Law nº 11,438, December 29, 2006 and Decree nº 6,180, August 3, 2007, within the scope of the Ministry of Sports, and other provisions Official Brazilian Diary of the Union 2009.http://portal.esporte.gov.br/arquivos/leiIncentivoEsporte/portariaN12003072009.pdf

[30] Brazil Ministry of Health Dietary Guidelines for the Brazilian population 2 ed 1 reimpr Ministry of Health 2014.http://bvsms.saude.gov.br/bvs/publicacoes/guia_alimentar_populacao_brasileira_2ed.pdf

[31] Brazil Ministry of Health Ordinance nº 2446, november 11, 2014 Redefines the National Health Promotion Policy (PNPS) Official Brazilian Diary of the Union 2014.http://bvsms.saude.gov.br/bvs/saudelegis/gm/2014/prt2446_11_11_2014.html#:~:text=Redefine%20a%20Pol%C3%ADtica%20Nacional%20de%20Promo%C3%A7%C3%A3o%20da%20Sa%C3%BAde%20(PNPS)

[32] Brazil : Actions matrix of food and nutrition in primary health care 2009.http://bvsms.saude.gov.br/bvs/publicacoes/matriz_alimentacao_nutricao.pdf

[33] Brazil RDC Resolution RDC nº 24, July 15, 2010 Provides for offers, advertising, publicity, information and other related practices Official Brazilian Diary of the Union, Brasilia 2010.https://www.gov.br/agricultura/pt-br/assuntos/inspecao/produtos-vegetal/legislacao-1/biblioteca-de-normas-vinhos-e-bebidas/resolucao-rdc-no-24-de-15-de-junho-de-2010.pdf

[34] Martins APB. Reduction of sodium in foods: an analysis of voluntary agreements in Brazil Brazilian Institute for Consumer Protection 2014.https://www.idec.org.br/uploads/publicacoes/publicacoes/caderno-idec-sodio-alimentos.pdf

[35] Brazil Ministry of Social Development and Fight Against Hunger Landmark of food and nutrition education for public policies - Brasília, DF: MDS; National Secretariat for Food and Nutritional Security 2012.https://www.nestle.com.br/nestlenutrisaude/Conteudo/diretriz/Marco_Referencia_de_Educacao_Nutricional_Alimentar.pdf

[36] Brazil Decree nº 8553, November 3, 2015 National Pact for Healthy Eating Official Brazilian Diary of the Union, Brasilia 2015.http://www.planalto.gov.br/ccivil_03/_Ato2015-2018/2015/Decreto/D8553.htm

[37] Brazil. Ministry of Health. Ordinance GM/MS nº 424, March 19, 2013. Redefines the guidelines for the organization of prevention and treatment of overweight and obesity as a priority line of care for the Health Care Network for People with Chronic Diseases. Official Brazilian Diary of the Union, Brasilia 2013.bvsms.saude.gov.br/bvs/saudelegis/gm/2013/prt0424_19_03_2013.html

[38] Brazil Ministry of Health Strategies for the care of the person with chronic disease: Obesity Official Brazilian Diary of the Union, Brasilia 2014.http://189.28.128.100/dab/docs/portaldab/publicacoes/caderno_38.pdf

[39] Brazil. Ministry of Social Development and Fight Against Hunger. Intersectoral Strategy for Prevention and Control of Obesity: recommendations for states and municipalities. Brasília: Interministerial Chamber of Food and Nutritional Security 2014.http://www.mds.gov.br/webarquivos/publicacao/seguranca_alimentar/estrategia_prevencao_obesidade.pdf

[40] Brazil. Ministry of Health. Ordinance GM/MS nº 425, March 19, 2013 Establishes technical regulations, standards and criteria for the High Complexity Assistance Service for Individuals with Obesity Official Brazilian Diary of the Union, Brasilia 2013.http://bvsms.saude.gov.br/bvs/saudelegis/gm/2013/prt0425_19_03_2013.html

[41] Brazil Ministry of Health Obesity: Basic Attention Notebook nº 12 Brasília: Ministry of Health 2006.http://189.28.128.100/dab/docs/publicacoes/cadernos_ab/abcad12.pdf

[42] Brazil Ministry of Health Strategic Action Plan to Tackle Noncommunicable Diseases (NCD) in Brazil 2011; 2011-22.https://portaldeboaspraticas.iff.fiocruz.br/wp-content/uploads/2020/09/plano_acoes_enfrent_dcnt_2011.pdf

[43] Brazil Ministry of Health Ordinance 483, April 1, 2014 Redefines the Health Care Network for People with Chronic Diseases within the scope of the Unified Health System (SUS) and establishes guidelines for the organization of its lines of care Official Brazilian Diary of the Union, Brasilia 2014.http://bvsms.saude.gov.br/bvs/saudelegis/gm/2014/prt0483_01_04_2014.html

[44] Brazil Ministry of Health Ordinance 252/GM/MS, February 16, 2013 Establishes the Health Care Network for People with Chronic Diseases within the scope of the Unified Health System (SUS) Official Brazilian Diary of the Union, Brasilia 2013.http://bvsms.saude.gov.br/bvs/saudelegis/gm/2013/prt0252_19_02_2013.html

[45] Brazil Ministry of Health Strategies for the care of person with chronic disease Brasília: Ministry of Health 2014.https://bvsms.saude.gov.br/bvs/publicacoes/estrategias_cuidado_pessoa_doenca_cronica_cab35.pdf

[46] Brazil. Ministry of Health. Perspectives and challenges in the healthcare for people with obesity in the Brazilian Health System (SUS/Brazil): Outcomes of the Laboratory of Innovation in Obesity

Management in Health Care Networks. Brasília: Ministry of Health 2014.http://bvsms.saude.gov.br/bvs/publicacoes/perspectivas_desafios_cuidado_pessoas_obesidade.pdf

[47] Brazil. Ministry of Health. Ordinance nº62, January 6, 2017. Amends Ordinances No. 424 / GM / MS, of March 19, 2013, which redefines the guidelines for the organization of prevention and treatment of overweight and obesity as a priority line of care in Attention Network for People with Chronic Diseases and nº 425 / GM / MS, of March 19, 2013, which establishes the technical regulation, rules and criteria for High Complexity Assistance to Individuals with Obesity. Official Brazilian Diary of the Union, Brasilia 2017.http://www.lex.com.br/legis_27271194_PORTARIA_N_62_DE_6_DE_JANEIRO_DE_2017.aspx

[48] Portugal. Directorate-General for Health. National Integrated Intervention Program on Health Determinants Related to Lifestyles. Lisbon: Ministry of Health: Directorate-General for Health 2005.http://static.publico.pt/docs/pesoemedida/dgs_programa_nacional_intervencao_integrada_determinantes_saude_relacionados_estilos_vida_2003.pdf

[49] Portugal. Directorate-General for Health. National Program for the Promotion of Healthy Eating: Programmatic Orientations Lisbon: Directorate-General for Health 2012.https://www.dgs.pt/ficheiros-de-upload-3/programas-nacionais-prioritarios-promocao-da-alimentacao-saudavel-pdf.aspx

[50] Portugal. Ministry of Health. Directorate-General for Health National Program for the Promotion of Healthy Eating Lisbon: Ministry of Health 2017.https://comum.rcaap.pt/bitstream/10400.26/21050/1/Programa%20Nacional%20para%20a%20Promo%C3%A7%C3%A3o%20da%20Alimenta%C3%A7%C3%A3o%20Saud%C3%A1vel%202017.pdf

[51] Portugal. Directorate-General for Health. Proposed Strategy to reduce salt consumption in the Portuguese population by modifying the availability of supply Lisbon: Directorate-General for Health 2015.https://www.dgs.pt/em-destaque/estrategias-para-a-reducao-de-sal-nos-produtos-alimentares-a-venda-em-portugal-pdf.aspx

[52] Pinho I, Franchini B, Rodrigues S. Mediterranean Diet Food Guide Report: Justification Report for its Development. Lisbon: Directorate-General for Health 2016.https://nutrimento.pt/activeapp/wp-content/uploads/2016/07/Guia-alimentar-mediterr%C3%A2nico.pdf [cited 23 may 2020]

[53] Portugal. Ministry of Health. Order nº 6401/2016 Lisbon: Republic Diary 2016.https://dre.pt/application/conteudo/74443131

[54] Portugal. Order n.º 7516-A/2016. Modification of the food supply in the various services and body of the direct and indirect administration of the state, related to the food supply in the vending machines Lisbon: Republic Diary nº 108/2016, 1st Supplement, Series II 2016.https://dre.pt/application/conteudo/74604818

[55] Portugal. Law 42/2016. Creation of a special consumption tax on beverages with added sugar or sweeteners Republic Diary nº 248/2016, Series I 2016.https://dre.pt/application/file/a/105630354

[56] Portugal. Ministry of Health. Order nº 11418/2017 Integrated Strategy for the Promotion of Healthy Eating (EIPAS) Republic Diary nº 249/2017, Series II 2017.https://dre.pt/application/conteudo/114424591

[57] Portugal. Ministry of Health. Order nº 11391/2017 Modification of the food supply in the various services and body of the direct and indirect administration of the state, related to the food supply to bars and cafeterias Republic Diary nº 248/2016, Series I 2016.https://dre.pt/application/file/a/105630354

[58] Portugal. Ministry of Health. Order nº 5479/2017 Improvement and / or alteration of hospital diets and nutritional care Republic Diary nº 120/2017, Series II 2017.https://dre.pt/application/file/a/107547866

[59] Portugal. Directorate-General for Health. Division of Genetic, Chronic and Geriatric Diseases National Program to Combat Obesity Lisbon: General Health Division 2005.http://1nj5ms2lli5hdggbe3mm7ms5-wpengine.netdna-ssl.com/files/2015/08/Programa-Nacional-de-Combate-%C3%A0-Obesidade.pdf

[60] Portugal. Directorate-General for Health. Integrated Care Process for Adult Pre-Obesity Lisbon: Directorate-General for Health 2015.https://www.dgs.pt/documentos-e-publicacoes/processo-assistencial-integrado-da-pre-obesidade-no-adulto1.aspx

[61] Camolas J, Gregório MJ, Sousa SM, Graça P. Obesity: Opptimizing the therapeutic approach in the Nacional Health Service. Lisbon: General Health Division 2005.https://nutrimento.pt/activeapp/wp-content/uploads/2017/10/Obesidade_otimizacao-da-abordagem-terapeutica-no-servi

[62] Portugal. Directorate-General for Health. Ordinance 1454, december 29, 2009 Regulates the Surgical Treatment of Obesity (PTCO) Republic Diary nº 250/2009, Series I 2017.https://dre.pt/application/file/a/482196

[63] Portugal. Guidance from the Directorate-General for Health. Guideline No 028/2012, December 31, 2012 Good practices in approaching patients with obesity eligible for bariatric surgery 2012.https://www.dgs.pt/directrizes-da-dgs/orientacoes-e-circulares-informativas/orientacao-n-0282012-de-31122012-png.aspx

[64] Portugal. Directorate-General for Health. Ordinance 245/2018, September 3, 2018 Obesity Surgical Treatment Program (PTCO) Republic Diary nº 169/2018, Series I 2018.https://dre.pt/application/file/a/116306813

[65] Souza FOS, Madeiros KJ, Gurgel-Junior DG, Albuquerque PC. From normative aspects to the reality of the health care network. Cien Saude Colet 2014; 19(1283): 20-14.

[66] Hartzler AL, Tuzzio L, Hsu C, Wagner EH. Roles and Functions of Community Health Workers in Primary Care. Ann Fam Med 2018; 16(3): 240-5.
[http://dx.doi.org/10.1370/afm.2208] [PMID: 29760028]

[67] Graça P, Gregório MJ. Guidance manual for the proper use of the food basket of the operational program to support the most deprived people (PO APMC) 2014-2020. Lisbon: Directorate-General for Health 2017.https://nutrimento.pt/activeapp/wp-content/uploads/2017/12/Manual-de-orientacoes-para-a-utilizacao-adequada-do-cabaz-de-alimentos-do-PO-APMC.pdf [cited: 21th Oct 2020]

[68] Delgado C, Ilhéu MJ, Silva PN, Rodrigues P, Cabannes Y. Innovative Practices in Portugal along the food chain: from production to sustainable consumption. Portugal: European Environmental Bureau 2020.https://nutrimento.pt/activeapp/wp-content/uploads/2017/12/Manual-de-
https://www.apn.org.pt/documentos/Alimentar_Boas_Praticas_-_da_Producao_ao_Consumo_Sustentavel_2020.pdf [cited: 21th Oct 2020]

[69] Teixeira D, Pestana D, Calhau C, Vicente L. Food and nutrition during pregnancy. Lisbon: Directorate-General for Health 2015.http://nocs.pt/wp-content/uploads/2017/10/alimentacaoenutricaonagravidez.pdf [cited: 21th Oct 2020]

[70] Bird MF. The lobbying in the regulation of food advertising by the National Health Surveillance Agency. Rev Sociol Polit 2016; 24: 67-91.
[http://dx.doi.org/10.1590/1678-987316245706]

[71] Carinha B, Ribeiro F, Graça P. The role of municipalities in tackling childhood obesity. Acta Port Nutr 2015; 7: 6-9.

[72] Vieira VL, Gregorio MJ, Cervato-Mancuso AM, Graca APSR. Food and nutrition actions and their Interface with food security: A comparison between Brazil and Portugal. Saude Soc 2013; 22: 603-17.
[http://dx.doi.org/10.1590/S0104-12902013000200028]

[73] World Health Organization. Seminar on Non-communicable Diseases and Human Rights. Geneva, Switzerland: World Health Organization 2017.

[74] Kite J, Hector DJ, St George A, *et al.* Comprehensive sector-wide strategies to prevent and control obesity: What are the potential health and broader societal benefits? A case study from Australia. Public Health Res Pract 2015; 25(4)e2541545
[http://dx.doi.org/10.17061/phrp2541545] [PMID: 26536507]

[75] World Health Organization. European Childhood Obesity Surveillance Initiative: Overweight and obesity among 6–9-year-old children 2019.https://www.euro.who.int/__data/assets/pdf_file/0010/378865/COSI-3.pdf

[76] Brazil. Interministerial Chamber of Food and Nutritional Security. National Plan for Food and Nutritional Security - PLANSAN 2016-2019 Brasília: Ministry of Social Development 2017.http://www.mds.gov.br/webarquivos/arquivo/seguranca_alimentar/caisan/plansan_2016_19.pdf

[77] Portugal. Ministry of Health. National Program for the Promotion of Healthy Eating 2017 Lisbon: Directorate-General for Health 2017.https://www.sns.gov.pt/wp-content/uploads/2017/07/DGS_PNPAS2017_V7.pdf

[78] Portugal. Health Regulatory Entity (ERS). Study on Family Health Units and Personalized Health Care Units Porto: ERS 2016.https://www.ers.pt/uploads/writer_file/document/1793/ERS_-_Estudo_USF_e_UCSP_-_final__v.2_.pdf

[79] Portugal. Ministry of Health. Department of Quality in Health Health Units Accreditation Manual 2014.https://www.dgs.pt/departamento-da-qualidade-na-saude/documentos/manual-de-acreditacao-pdf-pdf2.aspx

[80] Marques APP, Macedo APMC. Health policies in Southern Europe and deregulation of labour relations: A glimpse of Portugal. Cien

Saude Colet 2018; 23(7): 2253-64. [http://dx.doi.org/10.1590/1413-81232018237.09282018] [PMID: 30020379]

[81] World Health Organization. European Ministerial Conferenceon Counteracting Obesity 2006.http://www.plataformacontraaobesidade.dgs.pt//ResourcesUser/Institucional/O%20que%20deve%20saber%20sobre%20a%20obesidade/Carta_Europeia_Contra_Obesidade.pdf

[82] Commission of the European Communities. A Strategy for Europe on Nutrition, Overweight and obesity related health issues Brussels 2007.https://ec.europa.eu/health/archive/ph_determinants/life_style/nutrition/documents/nutrition_wp_en.pdf