



Review

Review: Evaluating existing policies to address overweight and obesity in the Anglophone Caribbean: A narrative review of Barbados, Grenada, St. Lucia, and Trinidad & Tobago

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ABSTRACT

Overweight and obesity continues to be a burden to the health and well-being of Caribbean residents. The rise of childhood obesity and non-communicable diseases within the Caribbean is a major public health challenge for policymakers, educators and health professionals. These alarming rates of obesity also pose a threat to the sustainability of existing health systems particularly in small island developing states like the Caribbean. Therefore, it is crucial to evaluate existing policies and create policy solutions to address these problems and reduce the potential impact later on.

This systematic review explored existing policies among countries within the Anglophone Caribbean to identify trends within the region. The literature search focused on the following themes: (i) national policies (ii) school nutrition policies and programs (iii) physical activity among youth, and (iv) food import bill and food security. An analysis was conducted on literature from national, regional and international institutions including but not limited to the World Health Organization, Ministries of Health and the Healthy Caribbean Coalition.

Countries throughout the region has acknowledged the challenges with overweight and obesity in the region. Collectively decisions have been made to address food insecurity and promote healthy lifestyle behaviours through policy changes. There's still a need for Caribbean countries to work together to create effective policy solutions in collaboration with community service organizations and other stakeholders. As small island developing states grappling with the same issues, pooling resources to create effective regional policies can help to address this public health crisis.

1. Introduction

Obesity has become an extremely concerning phenomenon due to its association with various co-morbidities, its negative implications for a growing body, and its continued wreckage on one's health at different stages of the lifespan. By 2030, 1 in 5 women and 1 in 7 men will be living with obesity (BMI ≥ 30 kg/m²), which is equivalent to more than one billion people worldwide [1]. Globally, more than 340 million five to nineteen-year-olds in 2016 and over 39 million children below the age of five in 2020 were overweight or had obesity [2]. Although childhood obesity was initially seen as a problem endemic to developed countries, recent data has shown alarming rates in developing countries, including the Caribbean [3,4].

When looking at Caribbean youth, Caribbean Public Health Agency (CARPHA) highlights the increase in overweight and obesity by presenting results of nine studies that estimate a prevalence of overweight between 10.6% and 37% and a prevalence of obesity between 7.1% and 25.4% [5]. A 2011 report by The Caribbean Food and Nutrition Institute also stated that

27% of boys and 33% of girls aged 11 to 13 were considered to be overweight and had obesity [6]. Childhood obesity is a complex process owing to genetic, environmental, social, behavioral, psychological, and cultural determinants [7]. Obesity or overweight during childhood can pose significant short- and long-term repercussions. Children living with obesity are more likely to develop (1) psychological conditions like depression, anxiety, low self-esteem [8] (2) physiological issues such as asthma [9] liver issues [10], cardiovascular conditions [11] and musculoskeletal problems [12] and (3) are five times more likely to live with obesity in adulthood [13]. Obesity also has serious economic and social ramifications because of its negative impact on healthcare systems and economic advancement [14].

International and regional agencies, such as the World Health Organization (WHO), Pan American Health Organization (PAHO) and CARPHA have expressed concerns about the rising childhood obesity trends in the Caribbean. The purpose of this review is to identify the prevalence of obesity/overweight in four Anglophone countries, explore contributing factors and assess the effectiveness of existing policies to inform future intervention strategies and solutions.

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2. Methods

The Anglophone Caribbean includes 18 nations where English is the official language spoken. Barbados, Trinidad and Tobago (T&T), St. Lucia and Grenada were chosen based on availability of data, studies conducted and involvement in obesity-related programs and initiatives at the national level. Anglophone Caribbean nationals share similarities regarding economic status, politics, racial and ethnic background and cultural structures. A systematic review of the literature on obesity and its antecedents revealed the existence of a myriad of challenges that have been influencing its prevalence. These challenges include access to healthy foods, appropriate infrastructure for physical activity, nutrition policies and socio-cultural norms. The literature search focused on the following themes: (i) national policies (ii) school nutrition policies and programs (iii) physical activity among youth, and (iv) food import bill and food security. These themes were selected as the framework for data gathering and analysis given their centrality and prevalence in policy issues discussed by the respective Governments in the identified countries. The analysis was conducted on literature from national, regional and international institutions including but not limited to the World Health Organization, Ministries of Health and the Healthy Caribbean Coalition. The primary tools used for the literature search were Google Scholar, PubMed, and Government Information Services databases.

The Boolean terms used for the various databases include “obesity”, “overweight”, “school nutrition policy”, “food import bill” and “physical activity” cross-referenced with “Caribbean”, “Grenada”, “St. Lucia”, “Trinidad and Tobago”, “Barbados”, “Anglophone Caribbean”, “health policy” and “obesity policies”. The relevance of the articles was determined by their title, abstracts and conclusions. The inclusion criteria for the literature search included publications that are fully available that were published within the last twenty years. All the articles selected were written in English. Data sources were excluded if they were publications addressing clinical problems or the clinical biochemistry of overweight and obesity. A total of ninety-eight data sources were used in this literature review.

Each member of the research team was responsible for data gathering, data organizing and data analysis for one of the targeted countries. Once this step was completed, data from the various countries were triangulated to come up with regional findings and conclusions.

3. Results

Triangulation of the country findings based on the domains identified for data gathering and analysis shows that while these countries share a concern for child obesity and child nutrition, these concerns, in most countries, have not translated into policies with specific implementation requirements (see Table 1).

In terms of country policies aimed at addressing obesity, Barbados and St. Lucia have specific programs aimed at addressing nutrition and obesity. Grenada has had discussions regarding the issues and adopted a strategic health plan that includes addressing NCDs, obesity being one of them. T & T has no specific national policy. When it comes to school nutrition policies, all countries are implementing programs and strategies aimed at improving nutrition. Insufficient data were found regarding physical activity among children and youth. The data found indicates that children and youth are not engaged in adequate physical activity. Regarding the existence of policies to address the dependence on imported food, only Barbados has a national drive to increase local food production and hence decrease the high cost of imported food. While there is concern about this issue among the other countries, no initiatives have been launched to remedy this challenge. Food security policies are directly related to food import policies. Data shows that all countries would like to reduce their food import costs, but only Barbados has an initiative to reduce costs by increasing local production.

3.1. Trends in Barbados

The prevalence of obesity and overweight in Barbados increased dramatically from 8.52% in 1981 to 32.5% in 2010 [15]. Recent data shows that 34.7 adult women and 17.1% adult men are living with obesity [16]. 12.2% of Barbadian children less than 5 years are overweight [16]. The Government of Barbados continues to explore policies and programs due to this growing trend.

3.1.1. National policies

The Barbados National Commission on Chronic Non-Communicable Diseases (NCDs) was established in 2007 to advise the Minister of Health on NCDs policies and legislation [17]. The launching of a National Nutrition Improvement and Population Salt Reduction Program was endorsed by PAHO using the theme “Preventing Cardiovascular Disease in the Americas by Reducing Dietary Salt Intake Population-wide” [18]. This theme coincided with the goal of the Barbados Non-Communicable Disease (NCD) Committee to prevent and control NCDs in the population by informing food vendors, school canteen operators, opinion leaders, and children on nutritional information.

In 2015, the government introduced a 10% levy on sugar sweetened beverages (SSB). SSB sales were lower within the 59 weeks the 10% tax was imposed [19].

3.1.2. School nutrition policies and programs

The National Plan of Action for Childhood Obesity Prevention and Control (2015–2018): Barbados Childhood Obesity Prevention Program (B-CHOPP), Nutrition and Healthy Foods in Schools: Nutritional and Practical Guidelines for Barbados (NSNG); and Nutritious and Healthy

Table 1
Comparison of policies and programs among the countries aimed at addressing obesity.

Country	National Policy Nutrition	School Nutrition Policy	Physical Activity (youth)	Food Import Policy	Food Security Policy
Barbados	2 National Programs Tax on SSB	National Plan of Action for child obesity prevention Program; Nutrition and Healthy Foods in Schools: Guidelines for Canteen Operators	29.1% of adolescents engage in 60 min of physical activity per day	2019 Farmers' Empowerment and Enfranchisement Drive (reduce cost by 25% by 2025)	Aware of inability to meet local needs
Grenada	Has worked on policies but no adoption. The strategic health plan addresses NCDs	National Nutrition School Policy No sales of carbonated drinks in schools	No information found	Awareness of high cost	No information found
T & T	No information found	School-based interventions	20.5% of adolescents engage on daily physical activity	Awareness of high cost	Awareness of situation
St. Lucia	Nutrition Project: Reversing the Rise in Childhood Obesity The Infant and Young Child Feeding (policy)	School feeding program	Limited data Estimated 84.8% of children engage in insufficient physical activity	Discussion about need to reduce costs	Awareness of situation

Foods in Schools: Guidelines for Canteen Operators were documents assessed to help strategise and create a healthy learning environment for children [20]. The assessment, development and implementation period raised many concerns among school administrators. School administrators shared that investing time and finance into this approach was valuable; however, poor dietary habits, the cost of unhealthy foods compared to healthier options, and compliance of parents and students in choosing healthier foods for consumption, and the availability and access to unhealthy foods on and near school environments may disrupt schools' nutrition goals [20].

Over the years, a nutrition book for children and salt information booklet for opinion leaders was created and workshops held for school canteen operators and vendors [18] through PAHO and WHO.

3.1.3. Physical activities among youth

Findings of the 2011 WHO Global School-Based Student Health Survey found that in Barbados, just 29.1% of adolescent students reported engaging in physical activity for at least 60 min every day within a school week, regardless of the benefits it provides [21].

3.1.4. Food import bill and food security

The Farmers' Empowerment and Enfranchisement Drive (FEED) was launched in 2019 by the Government of Barbados to curb its food import bill of \$700 million and to address concerns over their food security [22]. Between 2019 and 2020, FEED is projected to cut imports of primary agricultural products by 25%–30%, and then another 10% yearly [23]. The Prime Minister of Barbados emphasized the importance of having a consistent supply of local foods to nationals to reduce the quantity of foods that are imported and to promote healthier eating choices. The Prime Minister further stated that effective measures are needed to foster reduction in unhealthy eating patterns in many households in Barbados [22]. Together with other CARICOM member states, Barbados has developed a comprehensive initiative with the aim of reducing the region's food import costs by 25% by 2025 [24].

3.2. Trends in Grenada, Carriacou and Petite Martinique

In Grenada, there is an ongoing concern about obesity and overweight among its population. The 2019 HCC Country Obesity Fact Sheet for Grenada reported that one in four children between the ages of 5–19 were living with obesity or overweight [25].

3.2.1. National policies

According to the WHO Global database on the Implementation of Nutrition Action (GINA), Grenada has worked on numerous policies to boost the consumption of nutrient-rich foods. These policies include School Nutrition Policy, Grenada Zero Hunger Challenge Initiative, Food and Security Policy and Plan of Action, National Chronic Non-Communicable Disease Policy and Multisectoral Plan for Grenada, CARICOM Regional Standard (Food labelling), Food Security Strategic Plan for Grenada and The Food and Nutrition Policy and Plan of Action for Grenada [26]. While most policies have not been fully adopted, the School Nutrition Policy has been a critical initiative for improving consumption habits among the younger population. Despite the low adoption of these policies, Grenada has an active commission on Chronic and Communicable Diseases, which serves as an advisory body to the Ministry of Health [27].

In addition to specific health policies, the Government of Grenada has established a strategic health plan (2018–2025). This plan focuses on six building blocks for health systems: leadership and governance, health services delivery, human resources for health, access to essential medicines and medical technology, and Financing and Health Information Systems [28]. Grenada's strategic plan for health highlighted the threat of NCDs and indicated that NCDs are the leading cause of morbidity and mortality in Grenada. While the document did not discuss obesity, overweight or nutrition in detail, it acknowledges the rising burden of NCDs.

3.2.2. School nutrition policy

The Government of Grenada established a National School Nutrition Policy in December 2015 [28]. Within that policy, six priority areas were identified: food preparation and services, physical activity, school curriculum, health promotion, school health service and school recognition. These strategic priorities were identified to improve the quality of food available on school premises while fostering an inclusive learning environment that supports healthy practices. This policy was also linked to other national policies such as the School Feeding Programme and the Education Policy to ensure linkages between the complementary approaches.

The Government of Grenada has implemented additional policies and programs to counteract childhood obesity. Effective January 1, 2020, the sale of carbonated beverages and sweet snacks was prohibited on school compounds [29]. The Minister of Education also announced that changes would be made to the school feeding program to reduce the preparation of processed foods and increase the consumption of healthy food in the school compound [30]. Evaluation of the effectiveness of these policy changes and their impact on consumption behaviours among school children while eating on the compound must be carried out.

3.2.3. Food import bill

In 2018, it was estimated that 70% of Grenada's food was imported at US\$400 million [31]. This ongoing increase in food imports has led to concerns about food quality and its impact on health outcomes. While data is limited in Grenada, it is crucial to investigate the impact of the food import bill on food security for residents of Grenada.

3.3. Trends in Trinidad and Tobago

In Trinidad and Tobago, a 2010 report by the Caribbean Food and Nutrition Institute showed that between 1999 and 2009, the prevalence of children with obesity and overweight in the 5 to 18-year-old group increased by 109% [32]. Moreover, in Trinidad and Tobago, the 2017 Global School-based Student Health Survey (GSHS) showed that 33.5% of students aged 13 to 15 were overweight, while 17.6% were obese [33]. This was an increase compared to the survey conducted in 2011, which showed 26.2% were overweight and 11.9% were obese in the same age group [34].

3.3.1. Food import bill

Economic determinants for the rising cases of obesity in Trinidad and Tobago can be explored by looking at the country's food import bill and its impact on eating patterns. Trinidad and Tobago's food import bill doubled from 2004 to 2008, and this trend of increasing food imports becomes more substantial with each passing year [35]. Researchers reported that Trinidad and Tobago's total food import bill between 2003 and 2016 was approximately USD\$8.91 billion or TT\$56.9 billion [36]. In 2013, the economic cost diverted toward food imports was about USD 364 million (about TT\$2.5 billion) [37]. This bill has now more than doubled to a value of approximately TT\$5.7 billion for 2021 [38]. This increase in the food import bill is a consequence of the rising prices of food imports and the increased demand for imported food which increased availability and accessibility of processed foods high in sugars and fats.

3.3.2. Food insecurity

Food insecurity is one of the known causes of undernutrition and stunting in children, but it has also been linked to obesity [39]. Food security involves "physical and economic access to sufficient, safe and nutritious food that meets [the] dietary needs and food preferences for an active and healthy life" [36]. Food security entails having access to sufficient nutritious food. According to a Food and Agriculture Organization study, while Trinidad and Tobago met the Recommended Population Goals (RPG) for total food calories and fats, RPG regarding fruits and vegetables was not met. Per capita consumption of fruits and vegetables

in Trinidad and Tobago was only 25% of the United States [35]. These trends point to Trinidad and Tobago surpassing total daily calorie requirements, giving an illusion of food security. Still, most of these calories come from increased consumption of fats and sugar, with an apparent lack of nutrient-dense foods [35].

3.3.3. Physical activity among youth

The documented trends in physical activity in Trinidad reveal that, on average, adolescents report engaging in physical activity for at least 60 min per day only two out of seven days per week, and only 20.5% of adolescents report physical activity every day of the week [40]. These figures are consistent with a minority (20.7%) of students who reported attending physical education classes five days per week [40]. Further, only 21.6% of the adolescents in the study by Aguilar-Farias et al. reported walking or riding a bicycle to and from school three out of the past seven days [40]. 43.8% of these students reported three or more hours per day of sedentary behaviour outside school. Other studies have found even higher numbers (49%) among 13-15-year-olds [40,41].

This data reflects an overall lack of existing infrastructure that encourages physical activity. One initiative that the country has implemented is Keep Moving Family and Fitness Sundays (formerly Streets for Wellness; a free community program that invites families to engage in various physical activities on a blocked-off section of the highway every Sunday morning [42,43]. Some researchers further recommended policy and planning to preserve green spaces, develop parks, and redevelop urban areas to promote walking and cycling while reducing traffic congestion and air pollution [44].

3.3.4. School nutrition programs

Various studies have measured the impact of meal programs and nutrition education within Trinidadian schools. One primary school-based intervention designed to increase dietary literacy and healthy eating behaviours in students for one month reported significant increases in daily fruit intake, vegetables eaten in the past 24 h, and nutrition knowledge scores [45]. While the intervention failed to generate significant increases in the daily vegetable intake or improved scores on the Children's Eating Attitude Test-26 [ChEAT26], these students did report substantial decreases in soda intake in the past 24 h, servings of fried food per day, and snacks high in fats, sugar, and salt [HFSS] [45]. Eighteen months after the intervention, the researchers found a sustained decrease in consumption of fried foods, sodas, and HFSS, as well as higher knowledge scores [46].

Perceptions of Trinidadian parents surrounding healthy eating after implementing the Caribbean Community (CARICOM) food and nutrition security project, whose goal was to improve participants' nutrition and health outcomes were analysed [47]. Although many parents mentioned the significance of specific nutrients and avoiding excess fat in the diet, none made associations to portion size or the need for a wide variety of fruits and vegetables, alluding to an overall lack of food literacy [47]. These findings led the authors to emphasise the school setting as a key operator in training students and their parents about healthy eating habits.

Despite the successes of the school-based nutrition programs, the number of children with obesity in Trinidad is progressively worrisome, increasing from 12% in 2001 to 51.5% in 2018 [41]. Researchers have recognised that the competitive snack foods sold within and around the school contribute to this escalating issue, often promoted in fundraising [48,49]. Indeed, meal program modifications and nutrition education can impact students' choices toward well-being only insofar as the other available options at school, at home, and within the community guide them toward consistent, health-preserving choices.

3.4. Trends in St. Lucia

In St. Lucia, 13.9% of adult men and 29.9% of adult women represent people living with obesity [50]. The burden of obesity on the healthcare

industry and the economy is undeniably high due to its linkage with many non-communicable diseases.

3.4.1. School nutrition policies and programs

The persistence of obesity into adulthood has made it critically necessary to intervene by modifying the school environment to promote healthier learning environments and positive behavioural responses among children. The Ministry of Health and the Ministry of Education collaborated with regional and international organizations such as CARPHA, CARICOM, the Pan American Health Organization (PAHO), the World Health Organization (WHO), and the United Nations International Children's Emergency Fund (UNICEF) to address obesity concerns. Reversing the Rise in Childhood Obesity, a nutrition-related project, led to restriction of soft drinks at schools, development of nutritional guidelines for schools and the Infant and Young Child Feeding (IYCF) policy [51]. In 2019, a series of consultations was held by Ministry of Education and Ministry of Health to discuss strategic plans for improving the school nutritional environment. The strategic plans encompass (1) making a pledge to sensitize the population on the negative implications of consuming high sugary, and nutrient-poor foods (2) illustrating the urgency of establishing regulations to decrease consumption within the school environment [52].

The creation of school gardens using greenhouse and irrigation technologies; upgrade of kitchen facilities and hosting educational sessions [53] and advocating for a sugar-sweetened beverages (SSBs) ban are ongoing initiatives to strengthen St. Lucia's school feeding program [25]. The HCC reported that some schools have banned unhealthy foods as well as discouraged teachers from bringing unhealthy foods to school [25].

3.4.2. Physical activities at school

While data is limited on policies related to physical activity within schools, the HCC estimates that approximately 84.8% of children in St. Lucia have insufficient physical activity daily [25].

3.4.3. Food import bill and food security

St. Lucia had an import bill of EC400 million with high probability of rising annually [54]. Discussions were held in 2012 by the Ministry for Agriculture, Food Production, Fisheries and Rural Development to direct efforts towards reducing the food import bill of over EC300 million dollars.

4. Discussion

Obesity-related challenges can be addressed at the policy level by implementing policies that assist with changing human behaviour. The WHO recommends implementing critical policies for a comprehensive approach to preventing childhood obesity [55]. These key policies include "taxation of sugar-sweetened beverages (SSBs), regulation of marketing to children, mandatory front-of-pack nutritional labelling, and school policies" [55].

Investing efforts into reducing the food import bill and increasing food security are also crucial steps to improving access to healthy foods which may influence prevalence of obesity. In the Caribbean Community (CARICOM), a food security policy promotes food security as a cross-sectoral issue requiring integrated attention and action [56]. However, this study, explained that the current top-down approach does not engage civil society groups and poses a challenge to the heads of Government within CARICOM in successfully achieving support and active participation.

Researchers highlighted some critical policies implemented in the United States and Latin America to address obesity [57]. These policies include Front-Of-Pack-Labels, Open Streets/Play Streets and the Baby Friendly Hospital Initiative [57], approaches that focus on consumer education and behavioural changes to improve health outcomes. These policies are similar to policies discussed in the wider Caribbean and

lessons that could be learned from neighbouring countries and regions to help address the ongoing crisis.

In 2021, CARPHA highlighted that front label packaging and warning labels with the 'high-in' format is strongly advised so that consumers would have information on the types and quantities of sugars, fats, and sodium in the foods they consume [51]. In 2021, The HCC, in collaboration with PAHO, facilitated a regional campaign advocating for Caribbean Community (CARICOM) member states to adopt Front of Package Warning Labels [27,58]. Additionally, CARPHA implemented their District Health Information Software 2 (DHIS2) to monitor nutritional status and indicators of health throughout the member states.

Addressing the challenges of obesity and related diseases requires incorporating different techniques and resources. Notably, many governments have begun to acknowledge the magnitude of the problem and the importance of early intervention. Although there has been some progress, many developing countries have been slow to implement such policies. Due to the long-term health and economic implications, Caribbean countries must advocate for enforcing policies that can effectively address the burgeoning and ubiquitous childhood obesity problem. Collaboration among Caribbean countries and other organizations can help nations to effectively utilize resources and data to create and implement evidenced-based policy solutions to reduce childhood obesity within the region.

5. Conclusion

A systematic review of the literature on child obesity for Barbados, Grenada, Trinidad and Tobago, and St. Lucia shows that while these countries have identified the need to address this health concern, they, perhaps except for Barbados, have not put forth a concerted effort to reduce this trend. Interventions and programs are being implemented through the school nutrition programs. Evaluations of these programs have shown they are of benefit. However, these are only touching on one facet of problem. A more systematic and comprehensive approach is needed to impact eating behaviors as well as local food production.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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