High prevalence of childhood overweight and obesity in ten Caribbean countries: 2018 cross-sectional data and a narrative review of trends in Trinidad and Tobago

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**ABSTRACT**

**Background:** There is an increasing prevalence of obesity among school-children globally, including the Caribbean region.

**Aim:** To obtain cross-sectional data on childhood obesity in the Caribbean, and to explore trends in prevalence of childhood overweight and obesity over the past two decades in Trinidad and Tobago.

**Methods:** The 2018 Caribbean Island Urinary Iodine Survey (CRUISE) was a multi-site, cross-sectional, primary school-based study in ten Caribbean countries, in which healthy school-children aged 6–12 years (n = 3040) from urban and rural clusters were selected to complete a questionnaire and obtain anthropometric data using standardised methods. Additionally, all reported studies among school-children (aged 5–18 years) in Trinidad and Tobago within the last 20 years were utilised in a narrative review of the trends in prevalence of childhood obesity and associated risk factors.

**Results:** All 10 Caribbean territories had a high prevalence of overweight (28 · 0–44 · 5%) and obesity (14 · 3–19 · 8%). The highest cumulative overweight and obesity percentage were in Dominica (60 · 1%) and the lowest in Grenada (43 · 0%). Trinidad and Tobago ranked fifth, but in this territory the combined percentage of overweight and obese school-children has been steadily increasing from 12% in 2001 to 51 · 5% in 2018. This corresponds with a notable decline in physical activity (29 · 2% to 20 · 5%) and increase in sedentary time (47 · 3% to 49 · 0%) from 2011 to 2017.

**Conclusion:** There is an alarmingly high prevalence of childhood obesity across the Caribbean. Within the last two decades, the percentage of overweight and obese school-children in Trinidad and Tobago has increased four-fold, likely reflecting a decline in physical activity and rise in sedentary behaviour.
Introduction

Childhood obesity is becoming increasingly prevalent and small island developing states are particularly vulnerable, accounting for 12 of the 24 countries with the highest prevalence worldwide (Sobers and Samuels 2019). Prior to the 1980s undernourishment was a major issue in these islands, however rates of paediatric obesity have sharply increased, from a mean of <5% in 1980 to 20% in 2015 (Sobers and Samuels 2019). The Caribbean region is amongst those with the highest mean body mass index (BMI) for the age groups 5–9 and 10–19 years worldwide. This is thought to be due to low levels of physical activity and large imports of processed foods and sugar-sweetened beverages enabled by the macroeconomic and policy environment (Sobers and Samuels 2019; Guthold et al. 2020).

Paediatric obesity is a major health problem, especially when it presents as the metabolic syndrome: the collection of abdominal obesity, dyslipidaemia, hyperglycaemia, and hypertension. Although obesity on its own is associated with a decreased life expectancy, the metabolic syndrome contributes to a two-fold increase in the risk of coronary artery and cerebrovascular disease, and a 1·5-fold increase in the risk of all-cause mortality (Engin 2017). An increased prevalence of obesity amongst adolescents is correlated with a rising incidence of type 2 diabetes mellitus, an impact that will continue to be felt for years to come (Engin 2017). Of even greater concern is the exaggerated effect of extreme obesity on mortality when it occurs amongst younger individuals (Mumena et al. 2018).

Because many small countries in the Caribbean do not have recent data on childhood overweight and obesity (O&O), a standardized study was undertaken across the Caribbean in 2018 (Giorgetti and Zimmerman 2019). Routine anthropometric data were obtained as part of a paediatric nutrition survey of 6–12 year olds, and this provided the opportunity to report on the prevalence of O&O across ten countries in the region. We also did a narrative review to determine the secular trends in Trinidad and Tobago, where data on childhood obesity have been collected over the last two decades.
Methods

**Anthropometric data obtained from Caribbean Island Urinary iodine survey (CRUISE) study (Giorgetti and Zimmerman 2019)**

This was a multi-site, cross-sectional, primary school-based study conducted between January to May 2018 (Giorgetti and Zimmerman 2019). The primary intention was to study iodine status in Caribbean children (Giorgetti and Zimmerman 2019). As the Caribbean countries investigated had no previous data on iodine status, the “rapid child surveys” concept of UNICEF was employed to collect data quickly and cost-effectively with a reduced sample size, thus enabling fast feedback to policy-makers (Giorgetti and Zimmerman 2019; UNICEF 2020). Although this strategy was not geared towards being nationally representative or providing detailed estimates, a cluster sampling strategy was developed with the local health and educational authorities, using the most recent census information, in a bid to obtain data across the varying geographical and socioeconomic areas of the country (Giorgetti and Zimmerman 2019; UNICEF 2020). For each island, when possible, we sampled from primary schools in coastal, inland, urban and rural clusters. A total of 3080 children were studied using the following strategy: in the three countries with the largest population (Jamaica, Trinidad and Tobago, and Belize) we aimed to sample 100 children from four or five clusters, in Barbados and St. Vincent & the Grenadines we aimed to assess 100 children from three clusters, and for the remaining islands, we aimed to sample 100 children from two clusters (Giorgetti and Zimmerman 2019).

Ethical approval was obtained from the ETH Zurich Ethics Committee, Zurich, Switzerland, and the Pan American Health Organization Ethical Review Committee, Washington DC, United States. Ethical review committees on many of the participating islands also provided approval, and permissions from the schools’ principals and staff were obtained at initial study site visits (Giorgetti and Zimmerman 2019). All students aged 6–12 years from randomly selected classes from the schools’ registers were invited to participate (Giorgetti and Zimmerman 2019). Students with a history of major medical illnesses (such as malignancy, diabetes mellitus, asthma, thyroid disease, haemoglobinopathies, or congenital genetic disorders), or those taking chronic medications for such diseases were excluded from the study (Giorgetti and Zimmerman 2019). Subjects were given an informative letter and consent sheet to take home to their guardians. The child was enrolled into the study only if the guardian and the child themselves gave informed written consent (Giorgetti and Zimmerman 2019).

Study investigators recorded demographic data (including gender which was self-reported) and each child was asked to complete a short questionnaire. Investigators then conducted anthropometric assessments using standardised methods and the same type of equipment (Giorgetti and
Zimmerman 2019). One investigator (MBZ) directly supervised the height and weight measurements at all study sites. Body weight was measured to the nearest 0 · 01 kg using digital scales calibrated with standard weights, after subjects attired with light clothing removed their shoes and emptied their pockets. Height was measured to the nearest 0 · 1 cm using a portable stadiometer.

Survey of secular trends in overweight and obesity in Trinidad and Tobago

Data were extracted from five previous cross-sectional studies containing demographic, anthropometric, nutritional, and physical activity findings for children in Trinidad and Tobago. These were: Batson (2001), Batson et al. (2014) and the Global School Health Surveys (GSHS) 2007, 2011 and 2017 (World Health Organization 2019). The CRUISE study regarding Trinidad and Tobago provided the most recent data (Giorgetti and Zimmerman 2019). As these studies had differing methodologies and sample demographics, no further statistical analyses were applied to their datasets; and rather a narrative review of their findings was conducted.

Data analysis

Values were expressed as medians with interquartile ranges (IQR) where appropriate. BMI was calculated as weight (kg) divided by height squared (m²). Obesity, overweight, underweight, and severely thin were defined by the WHO gender-specific BMI for age Z-scores for children 5–19 years (> +2SD, > +1SD, < −2SD, and < −3SD, respectively) (World Health Organization 2007). For the GSHS, all percentages were presented with a 95% confidence interval (CI). Data were analysed using IBM SPSS Statistics (IBM Company, New York, United States).

Results

Results from the ten countries studies (Giorgetti and Zimmerman 2019)

As seen in Table 1, the median (IQR) age across the Caribbean was 9 · 5 (9 · 4; 10 · 0) years. There were 1526 boys with a median (IQR) boys:girls ratio of 1 · 00 (0 · 92; 1 · 10) per country. Median BMI (IQR) was 17 · 1 (16 · 7; 17 · 5) kg/m² across the countries. The overall crude prevalence of overweight and obesity across the countries was 35 · 1% (range 28 · 0–44 · 5%) and 16 · 3% (range 14 · 3–19 · 8%) respectively (Table 1 and Figure 1). The
Table 1. Demographic and anthropometric data, and percentage prevalence rates of obesity, overweight, underweight and severe thinness from the 2018 Caribbean Island Urinary Iodine Survey (CRUISE) (Giorgetti and Zimmerman 2019) by country.

| Country         | n  | aAge, years | Boys: Girls ratio | aWeight, kg | aHeight, cm | aBMI, kg/m (Guthold et al. 2020) | Obesity % | Overweight % | Underweight % | Severe thinness % |
|-----------------|----|-------------|-------------------|-------------|-------------|----------------------------------|-----------|--------------|---------------|------------------|
| Dominica        | 192| (7.9;11.0)  | 1.09              | (28.0;44.0) | (129.0;146.0) | (16.4;20.6)                      | 18.2      | 15.6         | 44.5          | 2.9              | 0.0              |
| Jamaica         | 446| (7.5;10.9)  | 1.00              | (26.2;44.4) | (128.0;148.0) | (15.4;20.9)                      | 17.4      | 19.8         | 39.1          | 2.7              | 0.7              |
| St. Kitts & Nevis| 200| (8.8;11.4)  | 1.06              | (28.6;44.7) | (132.0;149.0) | (15.8;20.8)                      | 17.0      | 15.5         | 39.5          | 1.5              | 0.0              |
| Antigua         | 202| (8.4;11.3)  | 1.29              | (27.3;45.4) | (130.0;148.8) | (15.5;20.4)                      | 16.7      | 16.5         | 35.0          | 2.1              | 0.0              |
| Trinidad & Tobago| 417| (8.2;10.6)  | 0.90              | (25.7;41.8) | (128.0;145.0) | (15.4;20.4)                      | 17.1      | 16.7         | 34.0          | 2.0              | 0.3              |
| St. Vincent & the Grenadines | 300| (8.1;11.0)  | 0.94              | (27.1;42.2) | (130.0;147.0) | (15.4;19.9)                      | 15.1      | 15.1         | 32.9          | 2.1              | 0.2              |
| Belize          | 588| (8.0;11.3)  | 0.94              | (25.4;41.4) | (126.0;145.0) | (15.5;20.0)                      | 16.6      | 15.7         | 31.9          | 4.8              | 1.2              |
| Barbados        | 332| (7.8;10.4)  | 1.06              | (25.2;38.0) | (127.0;143.0) | (15.0;19.5)                      | 15.7      | 14.3         | 31.0          | 3.4              | 1.0              |
| St. Lucia       | 203| (7.9;10.8)  | 0.93              | (27.0;42.7) | (129.0;147.0) | (15.5;19.5)                      | 16.4      | 15.0         | 28.0          | 3.0              | 0.5              |
| Grenada         | 200| (7.6;10.7)  | 0.85              | (25.1;41.6) | (128.0;148.0) | (14.7;19.3)                      | 15.0      | 15.0         | 28.0          | 3.0              | 0.5              |

a as medians and interquartile ranges (IQR).
prevalence of underweight and severe thinness was $\leq 3 \cdot 0\%$ and $< 1 \cdot 0\%$, respectively, in all countries except for Barbados and St Lucia (Table 1).

**Results of secular trends analysis**

The combined totals of O&O prevalence in Trinidad and Tobago have increased steadily from 12% in 2001 to $51 \cdot 5\%$ in 2018 (Table 2). This is accompanied by a decline in physical activity ($29 \cdot 2\%$ to $20 \cdot 5\%$) and increase in sedentary time ($47 \cdot 3\%$ to $49 \cdot 0\%$) from 2011 to 2017 (Table 3).

**Table 2.** Showing the overall trend of cumulative percentage prevalence rates of obesity and overweight over the period 2001–2018 in Trinidad and Tobago.

| Study                                      | Year | Sample size | Age range of participants, years | Overweight % | Obese % | Combined overweight and obese % |
|--------------------------------------------|------|-------------|----------------------------------|--------------|---------|----------------------------------|
| Batson et al. 2001 (Batson 2001)           | 2001 | 1220        | 14–17                            | 7            | 5       | 12                               |
| GSHS 2011 (World Health Organization 2019) | 2011 | 2811        | 13–15                            | 26 \cdot 2   | 11 \cdot 9 | 38 \cdot 1                       |
| Batson et al. 2014 (Batson et al. 2014)    | 2014 | 2130        | 7–18                             | 17           | 15      | 32                               |
| GSHS 2017 (World Health Organization 2019) | 2017 | 3869        | 13–17                            | 32 \cdot 3   | 16 \cdot 2 | 48 \cdot 5                       |
| CRUISE Trinidad and Tobago (Giorgetti and Zimmerman 2019) | 2018 | 417         | 6–12                             | 35 \cdot 0   | 16 \cdot 5 | 51 \cdot 5                       |
Table 3. Anthropometric, nutritional, and physical activity percentage prevalence rates in the comparison of Global school-based student health surveys (GSHS) (World Health Organization 2019) over the period of 2007–2017.

|                         | 2007      | 2011      | 2017      |
|-------------------------|-----------|-----------|-----------|
|                         | 13–15 years | 13–15 years | 13–15 years |
| **%Overweight**         |           |           |           |
| T                       |            | 26.2 (23.8–28.8) | 33.5 (30.7–36.4) |
| B                       |            | 27.5 (24.4–31.0) | 32.9 (28.7–37.3) |
| G                       |            | 25.0 (21.9–28.3) | 34.1 (30.7–37.6) |
| **Obese**               |           |           |           |
| T                       |            | 11.9 (10.3–13.7) | 17.6 (15.0–20.4) |
| B                       |            | 13.2 (11.0–15.7) | 18.0 (15.0–21.5) |
| G                       |            | 10.7 (8.2–13.7)  | 17.1 (14.3–16.3) |
| **Soft drinks ≥1 time/day for past 30 days** | | | |
| T                       |            | 74.6 (70.0–78.7) | 55.2 (50.7–59.7) |
| B                       |            | 72.3 (66.3–77.5) | 57.3 (51.6–62.8) |
| G                       |            | 76.8 (71.1–81.8) | 53.3 (47.0–59.5) |
| **Physical activity ≥ 60 mins/day for 7 days per week** | | | |
| T                       | 19.0 (15.0–23.0) | 29.2 (24.6–34.2) | 20.5 (18.1–23.0) |
| B                       | 24.1 (19.1–29.1) | 36.0 (30.7–41.5) | 24.9 (22.4–27.5) |
| G                       | 13.9 (11.0–16.8) | 22.9 (19.0–27.3) | 16.3 (13.0–19.6) |
| **Physical education classes for ≥ 3 days per week** | | | |
| T                       |            | 29.5 (26.3–32.8) | 25.1 (21.6–28.9) |
| B                       |            | 29.0 (25.1–35.2) | 28.2 (24.3–32.3) |
| G                       |            | 29.2 (25.3–33.1) | 22.2 (18.3–26.7) |
| **Sedentary period ≥ 3 hours/day** | | | |
| T                       | 50.1 (47.0–53.2) | 47.3 (42.5–52.2) | 49.0 (46.1–52.0) |
| B                       | 46.9 (42.8–51.0) | 42.6 (34.2–51.5) | 43.4 (39.2–47.6) |
| G                       | 52.9 (48.8–57.0) | 52.0 (48.0–56.0) | 54.1 (49.9–58.3) |

T: Total, B: Boys, G: Girls
*percentage prevalence rates (with 95% CI).
Discussion

The CRUISE survey revealed that the overall crude prevalence of overweight and obesity across the Caribbean was 35 · 1% and 16 · 3% respectively (Giorgetti and Zimmerman 2019) with Dominica having the highest combined O&O prevalence at 60 · 1% and Trinidad and Tobago ranking fifth with 51 · 5% (Table 1 and Figure 1). By any standard, these prevalence rates are alarming, but not surprising. A study comparing worldwide trends in BMI from 1975 to 2016 revealed that in the Caribbean, like most regions, the mean BMI (standardized for age) had increased with time. The 2016 data further placed the Caribbean amongst the regions with the highest mean BMI for the ages 5–19 years (NCD-RisC 2017). Whilst we are cautious of interpreting the ranking of countries given the modest sample sizes based on our sampling frame, it is interesting to note that Grenada which had the lowest combined O&O prevalence had dedicated its “One Health One Caribbean One Love” project a few years earlier specifically towards reducing childhood obesity, whereas other Caribbean countries addressed other sustainable development goals (Oura et al. 2017).

Cumulative totals of O&O prevalence over the 17-year period in Trinidad and Tobago (2001–2018) have revealed a startling outcome: the trend increased three-fold from 12% to 38 · 1% over 10 years (2001–2011), and currently is 51 · 5% (2018) (Table 2). The 13–15 year old age group within the 2017 GSHS had higher percentages of O&O (Table 3), (World Health Organization 2019) which lends credibility to the statement put forward by Batson et al. that successive generations of our population are becoming increasingly O&O (Batson 2001).

In Latin American and the Caribbean, the overall prevalence of insufficient physical activity in adolescents aged 11–17 years in 2016 was 84 · 3 (95% CI: 79 · 9, 89 · 6) %, with higher rates in girls than boys (Guthold et al. 2020). This is in keeping with global trends, and inadequate physical activity is a likely contributing factor to the high rates of childhood O&O in Trinidad and Tobago, with fewer children participating in physical education classes per week (Table 3) (World Health Organization 2019; Guthold et al. 2020). It would seem that time is increasingly being devoted to sedentary activities, usually involving screen time (Table 3) (World Health Organization 2019). From the 2011 and 2017 GSHS, boys had a higher percentage prevalence of obesity, whereas girls became more overweight in 2017 (Table 3) (World Health Organization 2019). This is consistent with the results put forward by Batson (2001). The GSHS studies are congruent with the existing literature with boys being more likely to participate in physical activity (Table 3) (World Health Organization 2019) perhaps due to the societal bias associated with sports. As such, one would have expected girls to have a persistently higher prevalence of O&O. It is possible however that the method of defining
O&O using BMI for age, although gender-specific, does not fully account for adiposity and fat-free mass distribution (Wisniewski and Chernausek 2009; Nogueira et al. 2019).

Batson et al. reported the prevalence of obesity in East Indians increased from 17 · 0% to 23 · 8% after adjusting for bioimpedance, while the figure for Africans remained more or less unchanged from 23 · 2% to 23 · 5% after adjustment (Batson et al. 2014). Unfortunately, ethnic comparisons were not available for any of the other studies; although ethnic differences regarding both risk for and prevalence of obesity are well known (Haslam et al. 2006). There is the notion that parents in developing countries prefer children with a higher BMI, likely due to cultural and historical influences where families would have struggled to provide food for several hungry mouths (Hossain et al. 2019). Lutchmansingh et al. studied body image perception in 11–16 year old Trinidadian children and found that boys perceived their body image in agreement with their BMI classification, whereas girls tended to view their body image as heavier than their actual BMI classification (Lutchmansingh et al. 2014). A lack of appreciation for what is an unhealthy BMI is thus less likely to play a major role in the obesity epidemic.

The Ministry of Health in Trinidad and Tobago implemented the “Nutrition Standards for Food Sold to Children in Schools”, and the observed decrease in consumption of soft drinks between the 2011 and 2017 GSHS (Table 3) may be attributed to this (World Health Organization 2019; Ministry of Health of the Government of the Republic of Trinidad and Tobago 2019). This is heartening considering the positive association between daily consumption of sweetened drinks and mortality from either circulatory or digestive diseases (Mullee et al. 2019). Francis et al. found that among primary-school Trinbagonian children, imparting knowledge of the unhealthy effects of fast-foods and sweetened drinks, even over a short period, resulted in significant decreases in consumption (Francis et al. 2010). Interestingly, there was no change in consumption of fruits and vegetables, or any increase in physical activity (Francis et al. 2010). This is important, as the decline in intake of sweetened drinks from the GSHS was not sufficient to halt the rise in O&O, and even with that decline, more than half of children aged 13–15 years old still consumed sweetened drinks at least once daily in 2017 (Table 3) (World Health Organization 2019). This mirrors data on imports to Trinidad and Tobago over the period 2010–2017: expenditure for beverages has increased from 43 million USD in 2010 to 70 million USD in 2017, peaking at 97 million USD in 2015. Additionally, expenditure on sugar and sugar preparations was over 55 million USD in 2010, and 50 million USD in 2017 (Central Statistical Office of the Government of the Republic of Trinidad and Tobago 2019).

The Fel Longitudinal Study in the United States, which followed up children to the age of 18 years, showed an increase in BMI for both boys
and girls born from 1930 through to 1993, with a cumulative rise from 2% to 26%. (von Hippel and Nahhas 2013) The Caribbean is heavily influenced by the United States with regards to food, entertainment, and media. This is facilitated by their trading agreements and proximity within the Western Hemisphere, and so it is not surprising that the trends in childhood O&O in the two regions parallel each other. In the Republic of Seychelles, the combined percentage prevalence of O&O in children doubled from 1998 to 2016 (21 · 0% to 43 · 6%) (Aly et al. 2018). This island republic off the Eastern coast of Africa parallels the Caribbean islands in many ways, from its ethnic composition to a tourism-based economy; however, its location puts it farther from the reach of Western culture. Thus, it is evident that O&O remains a complex global issue, with a multitude of socioeconomic and other factors contributing to the fundamental problems of increased consumption of fats and sugars, and overall physical inactivity.

The well-established link between obesity and insulin resistance means that many of the children in our study may have un-diagnosed dysglycaemia (Fagot-Campagna 2000). Given that in 2000 an estimated 85% of children with type 2 diabetes mellitus were O&O at the time of their diagnosis, we can expect an increasing number of our younger population to be diagnosed with diabetes in the coming years (American Diabetes Association 2000). A study on the health effect of obesity in 195 countries over 25 years demonstrated that while O&O were more prevalent in adults, the rate of increase in children is higher (Afshin and Forouzanfar et al. 2017). More worryingly, the TODAY study showed that diabetes has a more aggressive course in youth, with approximately half of their patients being unable to maintain glycaemic control on metformin monotherapy despite adequate compliance (Linder et al. 2013). Their data on insulin resistance and secretion suggest early and rapid deterioration of β-cell function in youths compared to adults with newly diagnosed type 2 diabetes mellitus (Linder et al. 2013).

The high rates of childhood O&O in our study are expected to contribute to increasing rates of non-communicable diseases in the region. A recent analysis of population-based studies from 1980 to 2014 in the Americas found that adults in small Caribbean countries had the highest prevalence of cardiometabolic risk factors, namely elevated BMI and blood pressure, and diabetes mellitus (Risk Factor 2020). The authors emphasized that the limited ability of governments in the Caribbean region to respond to population health needs, and limited health-care funding may increase susceptibility to non-communicable diseases (Risk Factor 2020). Obesity not only leads to the metabolic syndrome and cardiovascular disease, but has been linked to various types of cancer, that is colorectal, breast, uterine, oesophageal, pancreatic, ovarian, kidney, thyroid, liver, gallbladder and other biliary cancers, and myeloma (Hackethal 2019). These cancers are now disproportionately rising in younger people, with the annual rates of new cases likely to be higher than non-obesity associated cancers (Hackethal 2019).
The Caribbean already sits in an unenviable position with heightened meteorological activity, economic impacts of trade decline, and the recent Venezuelan migrant crisis (Maharaj et al. 2019). We fear that rising obesity will worsen the climbing tally of premature deaths secondary to non-communicable diseases; resulting in a decline in production, and strain on the health sector and economy as our younger working population becomes affected by disease. We are also concerned about the relationship between these stressors to the region and obesity, considering that Dominica (with the highest overall prevalence of childhood O&O) was devastated by Hurricane Maria a year earlier, likely resulting in damaged infrastructure, closure of schools, and disruption in normal food supplies.

Our study has several limitations. Our sampling design in each country was not designed to be strictly nationally representative or to provide detailed regional estimates. However, we did collect data across varying geographical, urban/rural and socioeconomic areas of each country. Thus, we feel our data are likely to be fairly representative. The exclusion of children with major medical illnesses may have inadvertently excluded children who developed these diseases as a result of O&O. (Giorgetti and Zimmerman 2019) This would have resulted in our findings being an under-estimation of the presence of childhood O&O, but this would not change our fundamental conclusion and recommendations. Our review of trends in Trinidad and Tobago was limited by the varying methodologies and demographics of the studies examined, thus forfeiting a more in-depth analysis. Despite these limitations, we feel our study achieved the purpose of identifying childhood obesity as an emerging stressor in Caribbean society (Giorgetti and Zimmerman 2019; UNICEF 2020). As such, decision-makers should consider a multi-faceted public health strategy aggressively targeting this problem by employing policies that increase national awareness of the epidemic, educate on beneficial lifestyle changes, and control the availability or even tax unhealthy foodstuffs. To this regard, the Caribbean Community (CARICOM) has committed to more detailed labelling on packages that properly display calorie contents (CARICOM 2018). Strategies to increase physical activity at home, school (including physical education classes), and the community are warranted. CARICOM has commendably agreed to encourage health-friendly environments and initiatives in schools (CARICOM 2018). BMI screening in primary and secondary schools with blood glucose testing of O&O children, should be considered to facilitate early interventions. We also recommend that representative national surveys be conducted in the future to follow trends and assess the potential impact of national action plans.

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