

Comparative cost of diets for low-income families in the Caribbean

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ABSTRACT

Objective. To assess the ability of low-income families to obtain a standard basket of healthy foods before and during the COVID-19 pandemic.

Methods. The costs of 191 food items were averaged from supermarkets, municipal markets, wholesalers, and community food outlets in high- and low-income areas in three Caribbean countries. The analysis compared foods not only by selecting high- and low-ranked commodities but by the proportions of those foods, by food group, that will be required to meet a low-cost, nutritionally balanced diet of 2 400 kcal.

Results. The main finding was that low-income households will need between 22% and 47% of their earnings to obtain a healthy diet. Despite higher food prices in Saint Kitts and Nevis, low-income households there will need a smaller proportion of their income to obtain a similar basket of foods than in Jamaica or Saint Vincent and the Grenadines.

Conclusions. While the COVID-19 pandemic has added economic stressors to low-income households the basic vulnerability of the poor to obtain a healthy diet remains. Despite country variations, the findings point to the need for an increase in the minimum wage, particularly in Jamaica. It is essential to embed policies that ensure reduced economic and social vulnerability at the household level.

Keywords

Diet; vulnerability analysis; health promotion; poverty; West Indies.

The cost of food is a major factor in assessing the economic vulnerability of a household and also plays a key role in the eating habits of families. Food prices are therefore central to healthy purchasing patterns. The lockdowns during the COVID-19 pandemic caused disruptions in economic activity and gave rise to unemployment and loss of income. The restrictions to prevent COVID-19 transmission were similar in the three countries: mainly curfews, mask wearing, and physical distancing. The impact was staggeringly different between high- and low-income earners (1). When income-earning capacities and purchasing power of households are diminished they are forced to switch to cheaper, less nutritious foods (2, 3).

Poverty and food insecurity are associated with lower food expenditures, low fruit and vegetable consumption, and lower quality diets. In practical terms, diets composed of refined

grains, added sugars, and added fats are more affordable than diets based on lean meats, fish, fresh vegetables, and fruit. These observations are well known within environmental and social constructs that may be well beyond individual control (2, 3). What is not often pointed out is that the cost factor plays a central role in food consumption patterns. This aspect of the obesity problem is not well recognized; however, there is a critical and compelling issue about obesity, low socioeconomic status, and food economics that will challenge the traditional recommended strategies to combat obesity. This issue relates to energy density and energy cost. Studies show that energy-dense diets usually represent the lowest-cost option to the consumer (2, 3). The cost of food therefore plays a crucial part in the genesis of obesity. Attempts to change dietary practices with an educational focus on nutrient content are unlikely to

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succeed if the cost of the recommended foods is not considered, particularly for the poor.

This study was conducted to compare the lowest possible cost to obtain a nutritionally balanced 2 400 kcal per day diet in high- and low-income areas in three Caribbean countries. To assess vulnerability, the analysis examined how the proportion of the minimum wage required to obtain that low-cost diet differed between the countries.

MATERIALS AND METHODS

Cross-sectional surveys were conducted before and during the COVID-19 pandemic periods in three Caribbean countries: Jamaica, Saint Kitts and Nevis, and Saint Vincent and the Grenadines. The prices of the same 191 food items were collected from high- and low-income areas in all the parishes across the three countries. The criteria for high- and low-income areas were based objectively on the size and quality of the homes, vehicles, and other assets in the community. Further, using key informants in the parish, the high- and low-income areas were categorized. A random selection of such communities was done. For the four surveys, prices were collected during the same months and on the same outlets in each of the countries. To collect the frequently consumed food items, prices were obtained from densely populated areas and from the vendors that were most popular among consumers in each parish. Data collectors lived in the communities studied and were familiar with the shopping outlets. In addition, the data collectors used local key informants to identify the frequently used shops. If more than one supermarket was present in a community, the average price for that food item was calculated and used. Prices were collected from popular supermarkets, wholesale/community shops, and municipal and open markets in each community. The communities studied were as follows: Jamaica, 28 communities – 14 high-income and 14 low-income; Saint Kitts and Nevis, 14 communities – 6 high-income and 8 low-income; Saint Vincent and the Grenadines, 9 communities – 2 high-income and 7 low-income. Trained data collectors were used for price collection and data entry.

This study used the Nutrient Cost Analysis program developed by the Caribbean Food and Nutrition Institute/Pan American Health Organization (4). The program calculates the cost of food energy and protein from different food sources. The program computes a diet/basket of 29 foods according to prescribed parameters based on the contribution of foods from the Caribbean Food Groups to total energy (kcal) and number of items from each food group (Table 1).

The program ranked foods within specified food groups in ascending order based on cost of energy and protein. In keeping with the goal of providing variety, the program selected from a reasonably wide range of food items and did not select certain items that are very similar within one food group. The program computed a diet/basket of foods that provides 2 400 kcal under the given parameters. The caloric distribution and the number of items selected were based on nutrition, health, and cost considerations. The parameters therefore provided a relatively low-cost food basket that was consistent with dietary guidelines and also provided a reasonable variety of foods from the food groups. The cheapest commodities by food group for a 2 400 kcal balanced diet were therefore chosen. The daily cost of the 2 400 kcal diet was multiplied by seven to obtain the weekly

TABLE 1. Nutrient cost program parameters in relation to the food groups

Food category	Percentage of energy contribution	No. of items in the low-cost diet
Cereals	30	3
Starchy fruits, roots, tubers	15	3
Sugar and syrups	10	1
Legumes	10	3
Vegetables	4	4
Fruits	6	4
Foods from animals	15	8
Fats and oils	10	3
Total	100	29

Source: Table prepared by the authors.

cost and then compared with the official weekly minimum wage. International currency (US\$) was used for country comparisons. The exchange rates per 1 US\$ at the time of the study were 131.8 Jamaican dollars for Jamaica and 2.7 Eastern Caribbean dollars for Saint Kitts and Nevis and Saint Vincent and the Grenadines. Four surveys were conducted in each country, in April 2019, October 2019, June 2020, and October–November 2020. Similar restrictive responses to the COVID-19 pandemic started in all three countries between the October 2019 and June 2020 surveys. In all three countries, tourism, commerce, and a general downturn in livelihoods had economic and social effects nationally and at the household level (1).

RESULTS

Table 2 compares the 2 400 kcal food basket costs across the three countries. In Jamaica the cost increased over the period April–October 2019, with the highest costs recorded in all areas in June 2020, shortly after the COVID-19 lockdown began, and remained high in October–November 2020. Apart from in June 2020, the cost of the basket was marginally higher in low-income areas. The price fluctuation ranged from 3% to 6%. The consumer price index for the entire period was 4.7%.

For Saint Vincent and the Grenadines, the cost of the basket increased between April 2019 and July 2020 and then declined in October–November 2020. This trend was generally in line with price movement in high- and low-income areas, the exception being low-income price movements between April and October 2019, showing a slight decline. There was a decline in prices in all areas between June and November 2020. Basket costs were higher in low-income areas over all time periods. The price fluctuation ranged from 7% to 15%. The consumer price index for the entire period was –1.1%.

There was a consistent increase in the cost of the basket for Saint Kitts and Nevis between April 2019 and June 2020. Thereafter a decline in prices occurred in October–November 2020. Low-income areas had higher food prices in the first and last surveys. The price fluctuation ranged from 14% to 33%. The consumer price index for the entire period was –1.4%.

Table 3 shows that the cost of the basket was highest in Saint Kitts and Nevis (US\$ 4.22–5.63) and lowest in Jamaica (US\$ 3.24–3.38). In this study, the cost of the 2 400 kcal basket was for one individual and was compared with the prevailing weekly

TABLE 2. Comparison of a low-cost, nutritionally balanced 2 400 kcal food basket in three countries (US\$)

Area	Apr 2019			Oct 2019			Jun 2020			Oct–Nov 2020		
	JAM	VCT	KNA	JAM	VCT	KNA	JAM	VCT	KNA	JAM	VCT	KNA
High income	3.2	3.4	3.9	3.2	3.8	5.6	3.4	4.2	6.0	3.3	4.0	4.6
Low income	3.3	4.7	4.6	3.3	4.6	5.2	3.4	5.0	5.3	3.3	4.6	5.0
Country average	3.3	4.0	4.2	3.2	4.2	5.4	3.4	4.6	5.6	3.3	4.3	4.8

Notes: JAM, Jamaica; VCT, Saint Vincent and the Grenadines; KNA, Saint Kitts and Nevis. Exchange rates per US\$: JAM, Jamaican \$ 131.8; VCT and KNA, Eastern Caribbean \$ 2.7.
Source: Table prepared by the authors from the study data.

TABLE 3. Comparison of the cost of a 2 400 kcal basket in relation to the minimum wage in the three countries

Country		Apr 2019	Oct 2019	Jul 2020	Oct–Nov 2020
Jamaica	Cost of basket (US\$)	3.25	3.24	3.38	3.29
	Basket as % of minimum wage	42.9	44.5	47.7	47.9
Saint Vincent and the Grenadines	Cost of basket (US\$)	4.03	4.24	4.60	4.30
	Basket as % of minimum wage	37.7	39.7	43.0	40.2
Saint Kitts and Nevis	Cost of basket (US\$)	4.22	5.39	5.63	4.80
	Basket as % of minimum wage	22.2	28.3	29.6	25.2

Source: Table prepared by the authors from the study data.

minimum wage in the three countries. Table 3 further shows that while the cost of the basket was highest in Saint Kitts and Nevis the percentage of the minimum wage required to purchase that basket was lowest in that country (22.2%–29.6%). Conversely, the cheapest basket was in Jamaica, but this required the highest percentage of minimum wage (42.9%–47.9%) to obtain the same 2 400 kcal basket.

The percentage of minimum wage needed to purchase a nutritionally balanced diet increased before the COVID-19 pandemic lockdown between April 2019 and October 2019. The increasing trend continued during the pandemic in July 2020 and then declined in October–November 2020 in Saint Kitts and Nevis and Saint Vincent and the Grenadines but remained high in Jamaica.

DISCUSSION

The cost of healthy eating is considered a major threat for diet-related chronic diseases and weight-related disorders among people across the world. Recent studies using different methodologies have highlighted the debate on whether healthy eating can be achieved and maintained by the poor (5–9).

The findings from this study indicated that across the four surveys the cheapest balanced diet that can be obtained in Jamaica ranged from US\$ 3.27 to 3.31. In Saint Vincent and the Grenadines the range was from US\$ 3.40 to 4.97 and for Saint Kitts and Nevis it was from US\$ 3.89 to 6.00. More importantly, the study showed an inverse relationship between cost of food and vulnerability, where minimum wage earners in Saint Kitts and Nevis were able to use a smaller proportion of their income to obtain the higher priced foods. The reverse occurred in Jamaica, where a higher proportion of minimum wage was needed for the lower priced foods. Despite these variations between the countries, the unmistakable finding is that an average of about 40% of income will be required to obtain a low-cost

balanced diet in poor households in the three countries. What this means is that there will not be sufficient funds left for non-food necessities such as fuel, water, transportation, housing, and child care, among many others.

The study shows the stark vulnerability of families earning the minimum wage, particularly those who have little support from the State or relatives at home or abroad. No doubt, remittances and social safety net programs allow many households to cope. These findings nevertheless suggest that increasing the minimum wage will allow low-income families to make better and healthier food choices, if they use the additional cash for that purpose. It is recognized that a minimum-wage increase will have ramifications for other sectors of the economy. This study nonetheless presents a compelling case for an increase in the minimum wage, particularly in Jamaica.

The assessment of economic vulnerability of families should consider the prevailing economic circumstances of the country. This study was done before and during the heights of the COVID-19 pandemic, where economic lockdowns were the norm. A previous report (1) showed that countries introduced COVID-19 relief programs but still experienced a decline in household food security. This study shows the pervasive high costs for food during the pandemic. The higher cost of food in low-income areas was noted in several parishes in the countries. This is explained by the “corner shop” effect, where prices are inflated compared with the bulk purchasing of supermarkets. Regardless of the cause, these higher prices are observed where incomes are already lower, creating a double burden on residents in these poor communities.

Many early studies have shown that when food budgets are small it is possible to spend less and eat more, especially if the extra energy comes from added sugar and added fat (10–14). Efforts to change dietary practices to improve health are therefore unlikely to succeed if the costs of the healthy options are not considered, particularly for the low-income families. These

points emphasize that obesity is the consequence of economic decisions that have much to do with social and economic resources, food prices, and diet costs.

Limitations

One limitation of this study is not identifying which food items in the basket contributed to the rising cost over time. Other studies have addressed the seasonal and spatial variation (13). Another limitation was the change in using a few alternative outlets in the low-income areas due to the COVID-19 lockdown.

Strengths

The robustness of the findings in this study is derived from the method used. Minimum wage is traditionally linked to the consumer price index, which reflects inflation in a country. The index can be altered if the weighting of the components of the basket of goods are changed. This manipulation therefore allows authorities to overstate or understate the consumer price index and hence the minimum wage threshold. Unlike those approaches to establish minimum wage, this study is unique in that it utilized a biological benchmark of consuming 2 400 kcal across the countries. The study is also unique in highlighting the need of low-income groups to consume healthy foods to avoid the consequences of obesity and chronic diseases. The analysis therefore compared foods not only by selecting high- and low-ranked commodities but by the proportions of those foods, by food group, that will be required to meet the Population Nutrient Goals of a standard diet of 2 400 kcal. It should be noted, however, that the low-income families do not necessarily select from the cheapest list of foods; hence, the basket cost will be even higher if their own preferences are considered. It is important to further point out that this food basket cost does not include the cost of preparing the meals in terms of fuel, time, and other ingredients.

Conclusion

The study concludes that households in low-income areas are impacted not only by generally lower purchasing power but also by the higher food prices in some of those areas. Further,

countries with higher food prices could be at lower risk of food insecurity if incomes are proportionally higher. Bold and sustained policy actions by government, non-government, and private entities are therefore required to create a buffer toward healthy eating. This will allow vulnerable communities to withstand the impacts of COVID-19-like crises as well as the regular environmental disasters that visit them disproportionately. Equitable access to healthy living can represent a major advance to well-being and better social cohesion in Caribbean communities.

Recommendations

Possible policy interventions include subsidies on health-promoting foods such as vegetables and fruits coupled with increasing excise taxes on health-retarding foods such as sugar-sweetened beverages. Limiting children's exposure to unhealthy foods and beverages through restrictions on marketing could also create healthy outcomes.

Author contributions. FJH conceptualized and executed the study. BL managed the data collection and quality control. MN performed the analyses and helped with interpretation. All authors reviewed and approved the final version.

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Conflict of interest. The authors declare no conflict of interest.

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Costo comparativo del régimen alimentario de las familias de bajos ingresos en el Caribe

RESUMEN

Objetivo. Evaluar la capacidad de las familias de bajos ingresos para obtener una cesta estándar de alimentos saludables antes y durante la pandemia de COVID-19.

Métodos. Se promediaron los costos de 191 alimentos en supermercados, mercados municipales, mayoristas y puestos de venta de alimentos en la comunidad en zonas de altos y bajos ingresos de tres países del Caribe. En el análisis se compararon los comestibles por grupo de alimentos mediante una selección de productos de alto y bajo rango, así como por las proporciones necesarias para tener un régimen alimentario nutricionalmente equilibrado de 2 400 kcal y de bajo costo.

Resultados. La conclusión principal fue que los hogares de bajos ingresos necesitan entre 22% y 47% de sus ingresos para tener un régimen alimentario saludable. A pesar de los elevados precios de los alimentos en Saint Kitts y Nevis, los hogares de bajos ingresos necesitarán una proporción menor de sus ingresos para obtener una cesta de alimentos similar en Jamaica o San Vicente y las Granadinas.

Conclusiones. La vulnerabilidad básica de las personas pobres para tener un régimen alimentario saludable persiste, a lo que se suma que la pandemia de COVID-19 ha agregado factores económicos estresantes a los hogares de bajos ingresos. A pesar de las variaciones entre países, los resultados apuntan a la necesidad de incrementar el salario mínimo, particularmente en Jamaica. Es esencial incorporar políticas que garanticen una reducción de la vulnerabilidad económica y social a nivel de los hogares.

Palabras clave

Dieta; análisis de vulnerabilidad; promoción de la salud; pobreza; Indias Occidentales.

Custo comparativo da alimentação para famílias de baixa renda no Caribe

RESUMO

Objetivo. Avaliar a capacidade das famílias de baixa renda de adquirir uma cesta básica de alimentos saudáveis antes e durante a pandemia de COVID-19.

Métodos. Calculou-se a média do custo de 191 produtos alimentícios em supermercados, mercados municipais, atacadistas e estabelecimentos comunitários em áreas de alta e baixa renda em três países do Caribe. A análise comparou os alimentos não apenas pela escolha de produtos classificados em posição alta e baixa, mas também pelas proporções desses alimentos, por grupo alimentar, necessárias para ter uma alimentação de baixo custo e nutricionalmente equilibrada, com 2 400 kcal.

Resultados. A principal constatação foi que as famílias de baixa renda precisarão gastar entre 22% e 47% de sua renda para ter uma alimentação saudável. Apesar do maior preço dos alimentos em Saint Kitts e Nevis, as famílias de baixa renda nesse país precisarão usar uma menor proporção da renda para comprar uma cesta de alimentos semelhante à adquirida na Jamaica ou em São Vicente e Granadinas.

Conclusões. Embora a pandemia de COVID-19 tenha agregado fatores de estresse econômico às famílias de baixa renda, persiste a vulnerabilidade subjacente das pessoas pobres em relação à obtenção de uma alimentação saudável. Apesar das variações entre os países, as constatações indicam a necessidade de um aumento do salário mínimo, sobretudo na Jamaica. É essencial a incorporação de políticas que reduzam a vulnerabilidade econômica e social no âmbito familiar.

Palavras-chave Dieta; análise de vulnerabilidade; promoção da saúde; pobreza; Índias Ocidentais.
