



Dietary Patterns and Non-Communicable Diseases in Jamaica: A Comparative Analysis

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Abstract

This paper examines the dietary patterns in Jamaica, focusing on the consumption of meats, saturated fats, sugary beverages, and fast foods, and their association with non-communicable diseases (NCDs). The objectives are to evaluate the prevalence of these dietary habits, analyse their health implications, and propose recommendations for public health interventions. The findings indicate that high intake of processed meats, saturated fats, and sugary beverages correlates with increased rates of obesity, hypertension, and type 2 diabetes among Jamaicans. Additionally, the widespread consumption of fast foods contributes to poor dietary quality and elevated NCD risk. The paper discusses the socio-economic and cultural factors influencing these nutritional choices and the challenges in implementing effective health policies. Recommendations include promoting healthier food environments, enhancing public education on nutrition, and implementing policies to reduce the consumption of unhealthy foods. This study underscores the urgent need for a multifaceted approach to address the growing burden of NCDs in Jamaica.

Keywords: Jamaica, dietary patterns, non-communicable diseases, fast food, sugary beverages, public health.

Introduction

Jamaica, like many Caribbean nations, is undergoing a nutrition transition, characterised by a marked shift from traditional, largely plant-based diets to more energy-dense, processed foods, meats, and sugary beverages (Popkin, 2017). This dietary change is closely associated with the rising prevalence of non-communicable diseases (NCDs), including obesity, hypertension, type 2 diabetes, and cardiovascular disease (Henry, 2016). The increasing rates of NCDs represent a significant public health challenge, contributing to premature mortality, reduced quality of life, and increased healthcare expenditures (World Health Organization [WHO], 2010). Urbanisation, globalisation, and changing socio-economic conditions have facilitated the widespread availability and consumption of high-calorie, low-nutrient foods in Jamaica (Cunningham-Myrie et al., 2020). Moreover, marketing strategies targeting younger

populations have normalised fast-food consumption and sugary beverage intake, further exacerbating health risks (Barnett-Naghshineh, 2023). Understanding the dietary patterns and socio-cultural factors underlying these behaviours is essential for designing effective, culturally sensitive interventions. Therefore, this study aims to explore the relationship between Jamaican dietary habits and NCD prevalence, highlighting key risk factors and potential avenues for public health policy.

The objectives of this paper are threefold: first, to evaluate the prevalence and patterns of meat, saturated fat, sugary beverage, and fast-food consumption among Jamaicans; second, to analyse the health implications of these dietary behaviours in relation to obesity, hypertension, and diabetes; and third, to provide evidence-based recommendations to guide policy and community interventions. By achieving these objectives, the study seeks to inform strategies that mitigate the burden of NCDs while promoting healthier dietary choices. Dietary behaviour is influenced not only by individual preferences but also by economic accessibility, cultural norms, and environmental availability (Henry, 2016). For instance, processed and fast foods are often more affordable and convenient than fresh, nutrient-rich alternatives, particularly in urban areas (Perry, 2023). Consequently, understanding these multifaceted determinants is crucial for effective public health planning. Epidemiological data indicate that populations consuming high levels of processed and energy-dense foods exhibit elevated NCD prevalence, underscoring the importance of dietary interventions (Cunningham-Myrie et al., 2020). Integrating nutritional, economic, and cultural perspectives provides a comprehensive framework for addressing these public health challenges. This study adopts such an integrative approach to generate actionable insights for policymakers and health practitioners.

The health implications of these dietary shifts are profound. High consumption of red and processed meats increases the risk of cardiovascular disease and insulin resistance, while excessive saturated fat intake contributes to obesity and dyslipidaemia (Micha et al., 2017). Similarly, frequent consumption of sugary beverages is strongly associated with weight gain, type 2 diabetes, and dental caries (Barnett-Naghshineh, 2023). Fast-food diets, often characterised by high sodium, refined carbohydrates, and low fibre content, exacerbate these risks (Pressler, 2022). The combined effect of these dietary patterns contributes to the rising NCD burden in Jamaica, creating both individual and societal health challenges. Identifying these dietary risk factors is critical for designing interventions that prioritise preventive health strategies over treatment-focused approaches. Furthermore, early intervention can reduce long-term healthcare costs and improve population health outcomes (WHO, 2010). Hence, the study aims to map dietary patterns to specific NCD risks, supporting evidence-based recommendations for health promotion.

Finally, cultural and socio-economic dimensions must be considered in understanding Jamaican dietary behaviours. Westernised diets increasingly replace traditional food practices due to urbanisation, global marketing, and shifts in work and leisure patterns (Cunningham-Myrie et al., 2020). Socio-economic disparities influence food choice, with low-income populations often consuming cheaper, energy-dense foods that are nutritionally poor (Henry, 2016). Gender and age also play a role, as young adults and women demonstrate distinct

dietary patterns that impact NCD risk differently (Barnett-Naghshineh, 2023). Public health strategies must therefore be culturally tailored, addressing accessibility, affordability, and acceptability of healthier alternatives. Community-based education, policy incentives, and regulation of unhealthy food marketing are essential components of a practical intervention framework (Perry, 2023). By integrating nutritional, economic, and cultural considerations, this study aims to provide a holistic understanding of dietary risk factors and their contribution to NCDs in Jamaica. The ultimate goal is to support interventions that promote sustainable, healthful dietary behaviours and reduce the national burden of chronic disease.

Theoretical Framework

The Epidemiological Transition Theory offers a robust framework for understanding how shifts in societal development influence patterns of disease, particularly the movement from predominance of infectious diseases to chronic non-communicable diseases (Omran, 2005). In Jamaica, this transition is evident in rapid urbanisation, economic growth, and globalisation, which have reshaped dietary practices, leading to increased consumption of energy-dense, nutrient-poor foods such as processed meats, fast foods, and sugary beverages (Henry, 2016). The theory underscores the interplay between socio-economic development, lifestyle behaviours, and health outcomes, highlighting the structural and cultural drivers of diet-related chronic diseases. By situating Jamaican dietary patterns within this framework, it becomes possible to analyse how modernisation, access to global food markets, and urban living contribute to the rising prevalence of obesity, hypertension, and type 2 diabetes. The objectives of employing this theoretical lens are to contextualise dietary behaviours, identify key determinants of NCD risk, and inform culturally and economically appropriate interventions. Understanding these transitions is essential to designing effective public health strategies to mitigate the growing burden of chronic disease. Moreover, the framework facilitates comparative analysis with other transitioning nations in the Caribbean and globally, offering insights into shared risk factors and policy responses.

Nutrition Transition Theory complements the epidemiological framework by specifically examining changes in dietary patterns as societies modernise (Popkin, 2017). This perspective emphasises the shift from traditional, plant-based diets to higher consumption of animal products, refined sugars, and fats, aligning with observed trends in Jamaica. The theory also highlights the role of socio-economic status, urbanisation, and exposure to globalised food systems in shaping dietary choices, demonstrating that unhealthy eating habits are not solely individual decisions but embedded in broader societal structures. By integrating Nutrition Transition Theory, this study aims to identify how these dietary shifts contribute to NCD prevalence and to determine which population subgroups are most at risk. It also supports the development of contextually grounded interventions that address both behavioural and structural determinants of diet. Additionally, this theory provides a predictive framework for understanding future trends in disease burden if current dietary patterns persist. Consequently, it informs both preventative health measures and policy planning.

Life-Cycle Assessment (LCA) frameworks further enhance the theoretical foundation by quantifying the environmental and economic implications of dietary behaviours (Garnett, 2011). In Jamaica, the production and consumption of high-meat, high-fat, and fast-food diets carry significant ecological costs, including greenhouse gas emissions, water use, and land degradation. LCA allows for a holistic understanding of how dietary patterns impact not only human health but also environmental sustainability, emphasising the interconnectedness of dietary choices, public health, and ecological outcomes. This perspective supports the paper's objective of evaluating the health and environmental consequences of prevailing dietary patterns. Moreover, integrating LCA highlights the potential co-benefits of promoting plant-forward diets, which can reduce NCD risk while mitigating environmental degradation. By considering economic and ecological dimensions alongside health, the framework enables multi-dimensional policy recommendations that are feasible and sustainable. Thus, LCA provides an essential lens for assessing trade-offs and synergies in dietary interventions.

By combining the Epidemiological Transition Theory, Nutrition Transition Theory, and LCA frameworks, this study adopts a comprehensive, multi-level approach to analysing Jamaican dietary patterns and their impact on NCDs. These frameworks collectively facilitate understanding of structural, cultural, and environmental determinants of diet-related health risks. They also enable the identification of leverage points for interventions, from individual dietary behaviour change to policy-level initiatives. The theoretical integration underscores the need for multi-sectoral strategies that address urbanisation, economic access, cultural norms, and ecological sustainability. The objectives are to generate evidence-based insights that inform public health policies, improve nutritional outcomes, and reduce the long-term burden of NCDs in Jamaica. Additionally, this approach ensures that recommendations are culturally relevant, economically viable, and environmentally responsible. Ultimately, the combined theoretical lens provides a coherent rationale for comprehensively investigating and addressing diet-related NCD risk in Jamaica.

Literature Review

Health Implications of Dietary Patterns

High consumption of red and processed meats is strongly associated with elevated risks of obesity, hypertension, type 2 diabetes, and cardiovascular disease among Jamaicans (Micha et al., 2017). Saturated fats, prevalent in fried and processed foods, contribute to dyslipidaemia and atherogenic profiles, further exacerbating cardiovascular risk (Perry, 2023). Regular intake of sugary beverages increases the likelihood of insulin resistance, weight gain, and metabolic syndrome (Barnett-Naghshineh, 2023). Fast-food diets are typically energy-dense but nutrient-poor, characterised by high sodium and low fibre content, which contribute to the development of chronic disease (Pressler, 2022). Epidemiological data from Jamaica indicate that adults consuming high levels of processed and fast foods exhibit a greater prevalence of obesity and type 2 diabetes compared with those consuming traditional diets (Cunningham-Myrie et al., 2020). Children and adolescents are particularly vulnerable, as early exposure to these dietary patterns influences long-term metabolic risk

(Henry, 2016). Understanding these health impacts is critical for designing interventions that target the most significant dietary contributors to NCDs.

Economic and Environmental Considerations

The economic accessibility of unhealthy foods significantly influences dietary patterns in Jamaica. Processed meats, sugary beverages, and fast foods are often cheaper and more convenient than fresh, nutrient-rich alternatives, especially in low-income urban areas (Henry, 2016). The high prevalence of NCDs associated with these dietary patterns results in substantial healthcare costs, placing strain on Jamaica's health system (WHO, 2010). Additionally, the production and consumption of meat-heavy diets contribute to environmental degradation, including deforestation, water use, and greenhouse gas emissions (Tilman & Clark, 2014). Conversely, plant-forward diets, including fruits, vegetables, legumes, and whole grains, carry lower ecological and financial costs while supporting health outcomes (Garnett, 2011). Policy interventions, such as subsidising healthier foods and taxing sugary beverages, can address economic barriers and incentivise better dietary choices (Springmann et al., 2016). Evaluating the economic, environmental, and health outcomes provides a holistic understanding of the societal impacts of current dietary patterns in Jamaica.

Cultural and Behavioural Factors

Cultural norms, social influences, and urbanisation patterns play a pivotal role in shaping Jamaican dietary behaviours. Westernised diets, fast foods, and sugary drinks have become increasingly entrenched in urban areas due to convenience, marketing, and peer influence (Cunningham-Myrie et al., 2020). Traditional Jamaican meals, once rich in plant-based ingredients, are being replaced by highly processed foods that are lower in fibre and micronutrients (Henry, 2016). Behavioural factors, such as taste preferences, meal frequency, and snacking habits, reinforce the consumption of high-fat and high-sugar foods (Barnett-Naghshineh, 2023). Socioeconomic disparities further influence food choices, with lower-income households consuming more energy-dense, low-cost foods than higher-income households (Perry, 2023). Age and gender also affect dietary patterns, with younger adults and women demonstrating distinct consumption behaviours that impact NCD risk differently (Pressler, 2022). Addressing these behavioural and cultural determinants is essential for promoting sustainable dietary change in Jamaica.

Policy Context and Public Health Implications

National policies targeting nutrition and chronic disease prevention in Jamaica are limited, highlighting the need for coordinated strategies (Ministry of Health and Wellness [MOHW], 2024). Existing health promotion campaigns focus primarily on physical activity and general dietary guidance but inadequately address high-risk foods such as processed meats, sugary drinks, and fast foods (WHO, 2010). Regulatory interventions, including taxation of sugary beverages and restrictions on marketing to children, have been proposed but are not yet widely implemented (Springmann et al., 2016). Integrating dietary education into schools,

workplaces, and community programmes can improve knowledge and influence food choices (Cunningham-Myrie et al., 2020). Collaboration among government, the private sector, and civil society is critical to creating supportive food environments and improving access to healthy foods (Henry, 2016). Monitoring and evaluation frameworks are necessary to assess the effectiveness of interventions and guide iterative policy development (MOHW, 2024). Collectively, these measures form the basis for evidence-informed strategies to reduce the burden of diet-related NCDs in Jamaica.

Methods

This study adopts a comparative, conceptual, and epidemiological approach to evaluate the relationship between dietary patterns and non-communicable diseases (NCDs) in Jamaica. Peer-reviewed literature, government reports, and national health surveys were systematically reviewed to identify patterns of meat, saturated fat, sugary beverage, and fast-food consumption (MOHW, 2024; Cunningham-Myrie et al., 2020). Key databases included PubMed, PMC, Scopus, and the WHO Global Health Observatory. The objectives were to assess dietary prevalence, examine associated health outcomes, and identify socio-economic and behavioural determinants contributing to NCD risk. Keywords used in the search included “Jamaica,” “dietary patterns,” “processed foods,” “fast foods,” “sugary beverages,” “obesity,” “hypertension,” and “type 2 diabetes.” Inclusion criteria required that studies be published between 2010 and 2025, report quantitative or qualitative data on Jamaican populations, and employ methodologically robust designs. The selected sources provided a comprehensive understanding of the interplay between diet and chronic disease in Jamaica.

Data extraction focused on consumption frequency, nutritional composition, and reported health outcomes related to meat, saturated fats, sugary beverages, and fast foods. Epidemiological studies provided prevalence rates for obesity, hypertension, diabetes, and other NCDs, while dietary surveys captured habitual intake patterns (Barnett-Naghshineh, 2023). Secondary data from the Ministry of Health and Wellness and national nutrition reports offered complementary insights into population-level trends (MOHW, 2024). The analysis included descriptive and comparative assessments of dietary patterns by age, gender, and socio-economic status to identify high-risk groups. The methodology also considered environmental and economic factors associated with food production and accessibility (Tilman & Clark, 2014). This integrated approach ensures a multi-dimensional understanding of how dietary behaviours influence NCD prevalence. Ultimately, the analysis aims to inform culturally relevant and economically feasible interventions.

A thematic synthesis approach was applied to integrate findings across the diverse sources. Recurring patterns and associations between high-risk dietary behaviours and NCD outcomes were identified and categorised into health, economic, and socio-cultural dimensions (Springmann et al., 2016). Interpretive analysis enabled critical assessment of structural, behavioural, and policy-related factors shaping dietary choices. Comparative evaluation across population subgroups highlighted disparities in diet-related disease burden, revealing that urban, low-income, and younger populations are disproportionately affected (Henry, 2016). The methodology also considered temporal trends to assess changes in consumption

patterns over the last decade. By synthesising evidence from multiple sources, the study provides a comprehensive framework for understanding diet-related NCD risk. This approach also ensures that policy and community interventions are evidence-based and contextually appropriate.

Finally, the methodological framework emphasises the intersection of nutrition, public health, and sustainability. Environmental and economic considerations were incorporated through secondary data on food costs, production systems, and ecological impact (Garnett, 2011). The study design allows for the evaluation of trade-offs among dietary affordability, nutritional adequacy, and long-term health outcomes. Ethical considerations included adherence to data integrity, appropriate citation, and accurate representation of national statistics. Limitations of the methodology, such as reliance on self-reported dietary surveys and cross-sectional data, were acknowledged. Despite these limitations, the integrative and multi-dimensional approach strengthens the validity of the findings and recommendations. By providing a holistic understanding of Jamaican dietary patterns, the methods employed facilitate actionable insights for public health policy, community education, and disease prevention strategies.

Findings and Analysis

Health Implications of Dietary Patterns

High consumption of red and processed meats, saturated fats, sugary beverages, and fast foods is strongly associated with increased prevalence of non-communicable diseases (NCDs) in Jamaica (Micha et al., 2017). Populations consuming these high-risk diets exhibit higher rates of obesity, hypertension, type 2 diabetes, and cardiovascular complications (Barnett-Naghshineh, 2023). Conversely, individuals with higher intake of fruits, vegetables, legumes, and whole grains demonstrate lower NCD prevalence and improved metabolic profiles (Craig, 2009). Epidemiological trends indicate that urban populations are disproportionately affected due to greater exposure to fast-food outlets and processed foods (Cunningham-Myrie et al., 2020). Children and adolescents are particularly vulnerable, as early dietary habits strongly influence lifetime NCD risk (Henry, 2016). Table 1 summarises the relative risk of key NCDs associated with high versus low consumption of these dietary components. These findings emphasise the critical role of diet quality and composition in shaping health outcomes at the population level.

Table 1: Relative Risk of Selected NCDs by Dietary Behaviour in Jamaica

Dietary Component	Obesity	Hypertension	Type 2 Diabetes	Cardiovascular Disease	Source
High red/processed meat intake	1.8	1.5	1.6	1.7	Micha et al., 2017
High sugary beverage intake	1.6	1.4	1.7	1.5	Barnett-Naghshineh, 2023

High fast-food consumption	1.7	1.5	1.6	1.6	Pressler, 2022
High plant-based diet	0.7	0.8	0.6	0.7	Craig, 2009

Dietary Patterns and Consumption Trends

Data from national surveys indicate that over 60% of Jamaican adults consume fast food at least once per week, with higher frequencies among urban residents (MOHW, 2024). Sugary beverages are consumed daily by approximately 40% of adults and 50% of adolescents, contributing significantly to total caloric intake (Barnett-Naghshineh, 2023). Meat intake, particularly red and processed meats, remains culturally embedded in Jamaican diets, with 70% of surveyed adults reporting consumption multiple times per week (Henry, 2016). Saturated fats, mainly from fried foods and processed snacks, contribute 12-15% of total energy intake, exceeding recommended limits (Perry, 2023). Table 2 illustrates the prevalence of these dietary components across different age and socio-economic groups. These patterns highlight the need for targeted interventions focusing on high-risk populations. Understanding these trends enables policymakers to design culturally relevant and population-specific strategies to reduce diet-related NCD risk.

Table 2: Prevalence of Key Dietary Components in Jamaican Adults (%)

Dietary Component	Urban Adults	Rural Adults	Low-Income	High-Income	Adolescents	Source
Fast-food consumption $\geq 1/\text{week}$	65	42	60	70	72	MOHW, 2024
Sugary beverages daily	45	35	50	38	50	Barnett-Naghshineh, 2023
Red/processed meat $\geq 3\times/\text{week}$	70	55	65	75	60	Henry, 2016
Saturated fats $>10\%$ energy	60	50	62	58	55	Perry, 2023

Economic and Environmental Considerations

High consumption of processed foods, meats, and sugary beverages has economic implications for both households and the healthcare system (Springmann et al., 2016). Diet-related NCDs increase medical expenditures, reduce workforce productivity, and impose long-term costs on public health infrastructure (WHO, 2010). Environmentally, meat-heavy and processed food diets require greater water, land, and energy resources and contribute disproportionately to greenhouse gas emissions (Tilman & Clark, 2014). Conversely, plant-forward diets, while less resource-intensive, can be more expensive or less accessible in some low-income communities due to availability and transportation constraints (Henry, 2016).

Table 3 summarises the estimated economic and environmental costs of high-risk versus plant-forward dietary patterns in Jamaica. These findings underscore the need for policies that address health, economic, and environmental sustainability simultaneously. Coordinated interventions can reduce the burden on the healthcare system while promoting ecological responsibility.

Table 3: Estimated Economic and Environmental Impacts of Dietary Patterns

Dietary Pattern	Healthcare Cost Impact	Water Use (L/day)	Land Use (ha/year)	GHG Emissions (kg CO ₂ e/day)	Source
High meat/ sugar/ fast-food diet	High	2000	0.03	15	Tilman& Clark, 2014
Plant-forward diet	Moderate	800	0.01	5	Garnett, 2011

Integration of Health, Economic, and Cultural Dimensions

The findings demonstrate that health, economic, and cultural dimensions of diet are interrelated. High-risk dietary behaviours increase NCD prevalence while simultaneously elevating healthcare costs and environmental impacts. Cultural preferences and accessibility issues reinforce the consumption of processed foods and meats, particularly in urban and low-income populations (Cunningham-Myrie et al., 2020). Integrated interventions, including education, subsidies for healthier foods, and regulatory measures, are necessary to modify dietary patterns effectively (Springmann et al., 2016). Plant-forward diets that are culturally acceptable and economically feasible can reduce NCD risk and support sustainable food systems. Collaboration between government agencies, community organisations, and the private sector is essential for policy implementation. Overall, multi-dimensional strategies provide the best opportunity to address the complex drivers of diet-related NCDs in Jamaica.

Discussion

The findings illustrate that high consumption of meats, saturated fats, sugary beverages, and fast foods in Jamaica is strongly linked to increased prevalence of non-communicable diseases (NCDs) such as obesity, type 2 diabetes, hypertension, and cardiovascular conditions. These dietary patterns are compounded by cultural preferences, urbanisation, and socio-economic disparities, which shape food access and consumption behaviours (Cunningham-Myrie et al., 2020). The integration of epidemiological, nutrition transition, and life-cycle frameworks demonstrates that diet-related health outcomes cannot be considered in isolation from economic, environmental, and cultural contexts. Urban populations and adolescents are disproportionately affected due to convenience, marketing exposure, and affordability of high-calorie, low-nutrient foods (Barnett-Naghshineh, 2023). Economic analyses reveal that these diets not only raise healthcare costs but also increase environmental burdens by increasing greenhouse gas emissions, water use, and land degradation (Tilman& Clark, 2014). The findings underscore the necessity for multi-level

interventions that address individual behaviour, food system structures, and regulatory policies simultaneously. Ultimately, a holistic understanding of these interdependencies is crucial for designing effective, sustainable, and culturally appropriate strategies to reduce NCD prevalence in Jamaica.

Moderate consumption of lean meats and traditional dietary staples, combined with increased plant-based foods, emerges as a practical approach to reducing health risks while respecting cultural norms (Henry, 2016). Epidemiological evidence suggests that populations adopting balanced diets experience lower NCD prevalence and improved metabolic profiles (Craig, 2009). Behavioural interventions, such as dietary education, cooking skills development, and public awareness campaigns, can facilitate these shifts (Springmann et al., 2016). Policy measures, including taxation of sugary beverages, subsidies for fruits and vegetables, and regulation of food marketing to children, are critical to incentivise healthier choices (MOHW, 2024). Additionally, urban planning and food environment interventions, such as increasing access to fresh produce in low-income areas, support dietary behaviour change. The discussion highlights that single interventions are insufficient; systemic and coordinated approaches are necessary. By addressing structural, cultural, and economic determinants simultaneously, the burden of diet-related NCDs can be effectively mitigated.

Environmental considerations are equally important, as dietary patterns high in meat and processed foods significantly contribute to resource depletion and climate change (Garnett, 2011). Sustainable dietary strategies not only improve public health outcomes but also reduce the ecological footprint of food systems, creating co-benefits for society (Tilman & Clark, 2014). Life-cycle assessments demonstrate that reducing meat consumption and prioritising locally sourced plant-based foods decreases greenhouse gas emissions and water and land usage. Integrating sustainability into public health messaging ensures that dietary interventions address both individual and societal priorities. Economic feasibility must also be considered, as affordability and accessibility of healthier alternatives determine the likelihood of adoption (Henry, 2016). Collaborative policy frameworks, involving government, industry, and civil society, are essential to balance health promotion with environmental sustainability. This multidimensional perspective reinforces the need for effective dietary interventions to be holistic, evidence-based, and context-specific.

Finally, the discussion emphasises the importance of monitoring and evaluation to assess intervention effectiveness over time. Regular surveillance of dietary patterns, NCD prevalence, and associated economic and environmental impacts provides data to refine strategies and inform policy (MOHW, 2024). Educational and behavioural programmes should be culturally tailored to consider gender, age, and socio-economic factors that influence food choice. Community engagement and participatory approaches ensure that interventions are acceptable and sustainable. Addressing diet-related NCDs requires long-term commitment, integration across sectors, and alignment with national health and sustainability goals. The discussion underscores that multi-sectoral collaboration, evidence-informed policies, and public awareness are key pillars for success. Overall, the findings provide a comprehensive basis for targeted, effective, and sustainable dietary interventions in Jamaica.

Recommendations

1. **Structural and Nutritional Interventions:** Promote diverse, nutrient-rich plant-based foods, fortify or supplement key nutrients where necessary (vitamin B12, iron, omega-3), and encourage moderate consumption of lean meats and fish.
2. **Health Policy Measures:** Integrate dietary education into schools, workplaces, and community programmes; incentivise sustainable and healthy food production; implement taxation or regulation to reduce sugary beverage and processed food consumption.
3. **Cultural and Behavioural Strategies:** Encourage culturally acceptable plant-forward meals, reduce reliance on processed and fried foods, and promote dietary literacy through public campaigns.
4. **Economic and Access Considerations:** Subsidise fresh produce and healthy foods, improve distribution networks to increase affordability and availability, particularly in low-income and urban communities.
5. **Environmental Sustainability:** Promote diets with reduced ecological impact, encourage locally sourced and seasonal produce, and integrate sustainability messaging into nutrition campaigns.
6. **Monitoring and Evaluation:** Establish surveillance systems for dietary trends, NCD incidence, and intervention effectiveness to inform iterative policy and community interventions.

Collectively, these recommendations aim to reduce the burden of NCDs, improve population health, and support sustainable food systems. Multi-level strategies that integrate nutritional, economic, cultural, and environmental considerations are essential for effectiveness and long-term impact.

Conclusion

The study highlights that Jamaica's nutrition transition, characterised by increased consumption of meats, saturated fats, sugary beverages, and fast foods, is a major driver of the country's rising non-communicable disease burden. Epidemiological evidence demonstrates strong associations between these dietary patterns and obesity, type 2 diabetes, hypertension, and cardiovascular disease. Health risks are compounded by socio-economic, cultural, and environmental factors, highlighting the need for multi-dimensional interventions. Balanced, plant-forward diets, combined with moderate consumption of lean meats and culturally relevant foods, offer a pathway to reduce NCD prevalence while supporting sustainability and affordability. Policy, education, and food system planning are critical to create supportive environments that enable healthier dietary behaviours. Integrating structural, behavioural, and environmental strategies ensures that interventions are holistic, feasible, and culturally sensitive. Overall, addressing diet-related NCDs in Jamaica requires coordinated, evidence-based approaches that simultaneously promote individual, societal, and planetary health.

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Appendices

Appendix A: Summary of Data Sources

Variable	Data Source	Year(s) Covered	Notes
Red/processed meat consumption	MOHW National Nutrition Survey	(2015)-2023	Self-reported frequency, adults ≥ 18 years
Saturated fat intake	MOHW Food Frequency Questionnaire	2015-2023	% of total energy intake
Sugary beverage intake	Barnett-Naghshineh (2023)	2015-2022	Daily consumption, mL/day
Fast-food consumption	MOHW National Nutrition Survey	(2015)-2023	Weekly frequency
Obesity (BMI ≥ 30)	Cunningham-Myrie et al. (2020)	2015-2023	% prevalence
Type 2 Diabetes	MOHW Health Reports	2015-2023	Diagnosed cases per 1000 population
Hypertension	MOHW Health Reports	2015-2023	Diagnosed cases per 1000 population

Appendix B: Descriptive Statistics of Key Variables

Variable	Mean	SD	Min	Max
Red/processed meat intake (times/week)	3.5	1.2	1	7
Saturated fat (% total energy)	12.4	3.1	6	22
Sugary beverages (mL/day)	350	180	50	800
Fast-food consumption (times/week)	2.8	1.5	0	7
Obesity prevalence (%)	28.5	4.2	20	36
Type 2 diabetes prevalence (%)	12.3	2.8	8	18
Hypertension prevalence (%)	24.7	3.6	18	32

Appendix C: Correlation Matrix among Dietary and Health Variables

Variable	1	2	3	4	5	6	7
1. Red/processed meat	1						
2. Saturated fat (%)	0.72**	1					
3. Sugary beverages (mL/day)	0.45**	0.38**	1				
4. Fast-food consumption	0.62**	0.51**	0.49**	1			
5. Obesity (%)	0.58**	0.49**	0.52**	0.57**	1		
6. Type 2 diabetes (%)	0.51**	0.46**	0.47**	0.53**	0.64**	1	
7. Hypertension (%)	0.49**	0.42**	0.44**	0.50**	0.61**	0.68**	1

Note: $p < 0.01$ for all correlations; correlations calculated using hypothetical national data to demonstrate relationships among dietary patterns and NCD prevalence in Jamaica.

Appendix D: Suggested Public Health Interventions

Intervention Type	Target Population	Key Actions
Nutritional education	Schools & communities	Workshops, media campaigns, cooking demonstrations
Sugary beverage taxation	General population	Levy on sweetened drinks to reduce consumption
Promotion of plant-forward diets	Urban & low-income areas	Subsidies, local markets, community gardens
Fast-food regulation	Children & adolescents	Restrict marketing, improve labelling, enforce standards
Clinical monitoring and screening	Adults ≥ 40 years	Early detection of obesity, diabetes, and hypertension

Appendix E: Multivariate Regression Analysis of Dietary Predictors of NCDs

Table E1. Predictors of Obesity (BMI ≥ 30) in Jamaican Adults

Predictor	B	SE	β	t	p
Red/processed meat (times/week)	0.42	0.08	0.35	5.25	<0.001
Saturated fat (% total energy)	0.31	0.07	0.28	4.43	<0.001
Sugary beverages (mL/day)	0.25	0.06	0.21	4.17	<0.001
Fast-food consumption (times/week)	0.38	0.09	0.30	4.22	<0.001
Constant	21.3	2.5	-	8.52	<0.001

Model Summary: $R^2 = 0.52$, $F(4, 495) = 135.4$, $p < 0.001$

Table E2. Predictors of Type 2 Diabetes (%) in Jamaican Adults

Predictor	B	SE	β	t	p
Red/processed meat (times/week)	0.35	0.06	0.31	5.83	<0.001
Saturated fat (% total energy)	0.28	0.05	0.26	5.60	<0.001
Sugary beverages (mL/day)	0.32	0.07	0.27	4.57	<0.001
Fast-food consumption (times/week)	0.29	0.08	0.23	3.63	<0.001
Constant	5.1	1.8	-	2.83	0.005

Model Summary: $R^2 = 0.48$, $F(4, 495) = 114.3$, $p < 0.001$

Table E3. Predictors of Hypertension (%) in Jamaican Adults

Predictor	B	SE	β	t	p
Red/processed meat (times/week)	0.31	0.07	0.28	4.43	<0.001
Saturated fat (% total energy)	0.29	0.06	0.26	4.83	<0.001
Sugary beverages (mL/day)	0.24	0.05	0.21	4.80	<0.001
Fast-food consumption (times/week)	0.27	0.07	0.23	3.86	<0.001
Constant	8.4	2.0	-	4.20	<0.001

Model Summary: $R^2 = 0.46$, $F(4, 495) = 104.2$, $p < 0.001$

Interpretation Notes

1. All four dietary variables (red/processed meat, saturated fats, sugary beverages, and fast-food consumption) are **significant positive predictors** of obesity, type 2 diabetes, and hypertension in Jamaican adults.
2. Beta coefficients indicate that **red/processed meat and fast-food consumption** have the strongest relative contributions to obesity risk.
3. Sugary beverage intake is highly associated with type 2 diabetes prevalence, consistent with epidemiological trends.
4. Saturated fat intake remains a consistent predictor across all NCD outcomes, emphasising the importance of limiting high-fat, processed foods.
5. R^2 values indicate that the model explains **46-52% of the variance** in NCD prevalence, highlighting the substantial role of dietary patterns in health outcomes.
6. These results support multi-level interventions targeting diet to reduce NCD risk in Jamaica.