
RESEARCH ARTICLE

Guyana's Strides: Food Security, Agriculture Productivity and Public Health Management

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ABSTRACT

The paper examines the strides the Government of Guyana has made in the drive towards food security and the roles of agriculture in food security towards the promotion of public health. This research was conducted using the qualitative approach through literature review and content analyses. The data were obtained from secondary open access sources. Data were collected, interpreted and analyzed from existing literature, on food security, agriculture productivity and public health in Guyana. The Agriculture and Health sectors have been working collaboratively to reduce the prevalence of factors leading to non-communicable diseases that are modifiable. Hence, these sectors are very active in the inclusion of food security through agriculture productivity towards public health management. An examination of some of the most recent strides that Guyana has made in ensuring that food security is enhanced and the promotion of public health, are; the establishment of the school feeding programme where local farmers are tasked with providing produce for the programme, alignment of the National Development Pathway to focus on food security, a decrease in the number of Guyanese who are unable to afford a healthy diet and the reduction in the prevalence of undernourishment. Guyana has included in its constitution the right to food for all Guyanese, the establishment of the "One Health Approach" where food safety is at the helm of the initiative, the construction of Guyana's first food hub, increase in the production of traditional and non-traditional crops, high-value and value-added products through the use of technology and the development of infrastructure to enable farmers to access markets with their fresh produce. Guyana's government has been making strides to ensure that food security is well established through collaborations with local, regional and international agencies. The impact of agriculture productivity on food security is critical and ultimately influences public health. The interplay of Agriculture Productivity and Food Security is very critical for the survival of the country's population while at the same time ensuring that the health status of the population is maintained by the reduction in the prevalence of diseases, decrease in mortality rates and access to nutritious foods.

KEYWORDS

Agriculture Productivity, Food Security, Nutrition, Public Health

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1. INTRODUCTION

Agricultural production is one of the mechanisms by which countries can alleviate food insecurity (Parekh, 2023). In countries where there are limited arable lands for the production of crops and the rearing of livestock through traditional methods, other methodologies have been utilized with the inculcation of different and modern approaches to agriculture production (Gell & Paige, 2023; Marzo, 2020; Ren et al., 2021). The world's population is on the increase and is expected to continue on the same trajectory for decades to come (United Nations, 2024). As the world's population increases, there is a greater demand for food security (Zhou, 2019). "Food security is defined as a situation that exists when all people, at all times, have physical, social and

economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (Peng & Berry, 2019). In order for food security to exist in any geographic location, there are pillars or dimensions to food security that should be taken into consideration namely, "availability, access, utilization, and stability," more recently the pillars of agency and sustainability have been included (Estrellas, 2024; Guine et al., 2021; FAO, 2024).

The availability of food in a geographic location is directly linked to agricultural practices that provide sufficient food to feed all the inhabitants of that geographic space. In cases where the country cannot directly provide food for its citizens, the availability of food can be in the country's ability to garner foods from other suppliers outside of the geographic space to feed its citizens (Kerr, 2023). The access to food at the global level is dependent on the availability of foods for citizens to purchase which can be accessed through free trade with other countries. In many instances citizens are directly involved in agricultural practices that will enable those citizens to have foods available for ready consumption (Babu & Gajanan, 2022). Utilization in the context of food security is the consumption of foods according to needs, gender, age, developmental stage, specific nutrient requirements and having all the essential macro and micronutrients to supply the nutritional needs of the people (Sarkar, 2021). Food stability is one of those essential pillars when food security is taken into consideration. The ability to access available foods for utilization according to needs can only be realized at all times as a result of food stability. Food stability always focuses on access to food regardless of the weather or, climatic conditions or other extraneous conditions (Fisher, 2017). The agency pillar focuses on those organizations that make decisions in food security, while sustainability focuses on the long-term supply of foods without hindrance to other factors that will affect the next generation (Food and Agriculture Organization, 2024).

Moreover, Guyana's economy is heavily dependent on the agricultural sector which is a major contributor to the country's Gross Domestic Product. "In 2022, the agriculture sector contributed approximately 25 percent to non-oil Gross Domestic Product. The Government of Guyana views agriculture as important for the diversification of the economy. The Government of Guyana is working to revive sugar production and is making significant investments to boost rice, corn, and soybean production. The Government of Guyana views investment in agriculture as critical for addressing food security and diversifying the economy away from oil and gas" (International Trade Administration, 2023). Guyana's agriculture sector is very competitive when compared to other South American and Caribbean countries (Bubbico et al., 2020). The discovery of oil reserves in Guyana in 2019 has boosted the country's capacity to cater for the needs of its citizens to ensure food security and better health care services as two of the most important areas of focus. The World Bank, in reference to Guyana's economy stated that "The country is expected to remain one of the fastest growing economies with double-digit growth rates in 2023 and 2024 as additional oil fields start operation" (World Bank Group, 2022).

Further, The Department of Public Information, Guyana (2024) indicated that "Guyana's Gross Domestic Product (GDP) is estimated to have grown by 49.7 percent in the first half of 2024, driven by the government's strategic planning and prudent financial policies." The need for food security and improved public health has been at the forefront of the planning and development sectors in Guyana. Food safety and public health involves the coordinated efforts of several sectors in Guyana to ensure that its citizens are in receipt of the best quality foods which in turn will contribute to better health of its citizens. The Ministry of Agriculture and the Ministry of Health are working in coordination with the Ministry of Tourism, Industry and Commerce to ensure that there is food security, and that the food produced or imported is safe for human consumption. Guyana is very active in promoting food safety which in turn will safeguard public health. There have been several regulations, training and monitoring systems set up to ensure that there is consistent quality assurance across the supply chain (Barton, 2024). Food security, agriculture productivity and public health are three areas that are critical for the survival of Guyana's population.

2. LITERATURE REVIEW

Food insecurity is directly related to various health conditions that affect the physical health of the population and is responsible for the exacerbation of many chronic diseases such as diabetes, obesity and heart disease. The lack of certain types of food or the excess of specific nutrients arising from the food that is consumed is directly related to chronic diseases (Shahnaz et al., 2024). These chronic diseases may arise from eating foods that are readily available but which may lack essential nutrients. The deficiency of nutrients in diets may also result in compromised or weakened immune systems, malnutrition and stunted growth. These conditions are especially prevalent when there is a shortage of nutritious foods (Fanzo & Davis, 2021). During pregnancy, expectant mothers need adequate and nutritious foods to ensure that the unborn child can grow and develop normally. In instances where there is a lack of nutritious foods, both the mother and unborn child may suffer from anemia, while the unborn child may be susceptible to diseases and in extreme cases, birth defects may arise (Benson et al., 2024). Diets that lack the necessary nutrients may also lead to poor oral health with the increased incidences of gum diseases and tooth decay (Azzolino et al., 2019).

To add, food insecurity can create an environment of discomfort for families who are unable to provide nutritious foods for their family members or even have access to nutritious foods. In such cases, the mental health of the population may be affected negatively by the increase in cases of depression, anxiety, chronic stress, behavioural problems and overall increase in other

health issues (Stanton et al., 2019). The lack of nutritious foods or the lack of access to nutritious foods can increase feelings of hunger which will decrease attention span and overall concentration among school aged children (Cogan, 2023). When students are experiencing feeling of hunger, their metabolic activities would decrease resulting in them becoming lethargic and in extreme cases, there can be fainting spells coupled with the inability to effect movement (Diaz, 2024). There can be a lack of motivation and extended periods of hunger can lead to death. Nutritious foods are necessary for the proper functioning of human metabolic activities, thereby maintaining a state of homeostasis.

Further, food insecurity can severely affect communities; society as a whole can be impacted by the burden of providing health care services to a greater number of persons who are experiencing varying degrees of illnesses (Almalki, 2022). There can be financial strain on the economy and, to a greater extent a burden on the health care system. This is especially so when the population is plagued by chronic diseases that are as a direct result of the foods that are consumed (Jung et al., 2022). The economic burden of food insecurity may result in increased health care costs, thus hindering economic productivity with a reduced work capacity of affected populations. Food insecurity can exacerbate the vulnerability of populations to hunger and famine in extreme circumstances (Pat, 2021). Societal instability can expose vulnerable populations to risky behaviours which will further degrade community standards. The impact of food insecurity can severely affect societies and populations can be displaced in search of food for survival leading to societal instability. Food insecurity can create a cycle where populations are exposed to poor health. They are unable to work, poor income generation and making it even more difficult to break the cycle (Soldavini & Miller, 2024).

Therefore, agriculture plays a fundamental role in food security by the production of nutritious foods that the population can have access to by making food available (Islam, 2025). The impact of agriculture productivity on food security has a direct impact on the reduction of undernourishment and increased access to healthy diets. Agriculture is considered as the primary source of food. The production and availability of nutritious foods are critical for the proper health of the population (Fanzo & Davis, 2021). Agriculture is one of those practices which also increases income for the population especially countries like Guyana. The multifaceted role of agriculture in food security and public health is major in ensuring that not only there are adequate nutritious foods that are accessible and available, but also contributes to income generation, increased productivity and food diversification (Mihrete & Mihretu, 2025). Agriculture is a means by which the food needs of the population are catered for by the production of crops and livestock to feed the nation's population. Agro food processing is a major activity which is practiced so as to ensure that produce is preserved in order to be available on a continuous basis (Sharma & Kumar, 2022).

As a result, the interplay of agriculture, food security and nutrition which influences public health, cannot be overlooked (Rukhsana & Alam, 2021). The food that is produced as a result of agriculture takes into consideration the culture of the people, the nutrient composition and the safe agricultural production practices that ensure food safety (Panghal et al., 2018). Food security can be realised by the deliberate and strategic intervention of agriculturists in the production of quality foods that caters for the nutritional needs of the society, thus ensuring that there is nutritional well-being and food safety (Brennan, 2023). The core dimensions of food security must be considered in the perpetuation of food security namely; availability, accessibility, utilization, stability, agency and sustainability (Guine et al., 2021). The promoting of good nutrition practices by the health sector is also very crucial for improved public health. In order to realize the holistic drive to ensure that a country is food secured, focus must be on agriculture productivity which would contribute not only to food security but improved public health.

3. METHODOLOGY

This research was conducted using the qualitative approach through literature review and content analyses. The data were obtained from secondary open access sources (reports, online publications and journal articles published during the last five years). Data were collected, interpreted and analyzed from existing literature, on food security, agriculture productivity and public health in Guyana. The online publications, reports and journal articles from local, regional and international websites in relation to Guyana were examined. The recent strides that were made to ensure food security through agricultural productivity towards better public health were highlighted.

4. FINDINGS AND DISCUSSION

The sources that were accessed were information on Guyana's recent strides in ensuring food security, agricultural productivity and good public health were The Ministry of Agriculture, Guyana, Food and Agriculture Organization of the United Nations, World Bank Group and Centre Guyana (Centre.gy). In some instances, one source yielded several strides at different time periods during the same year. The main extracts can be found in Table 1.

Table 1

Guyana's Recent Strides in Ensuring Food Security, Agricultural Productivity and Public Health

Agencies/ Sources	Strides
Ministry of Agriculture, Guyana (2024).	<p>-The development of roads, bridges and other infrastructure to ensure that farm produce reaches the local and regional markets in a timely manner.</p> <p>-Guyana's School Feeding Programme is facilitated by the International Fund for Agricultural Development (IFAD) and the Food and Agriculture Organization (FAO). The establishment of links with local farmers is made to provide local nutritious produce for the School Feeding Programme.</p> <p>- "The Government of Guyana has aligned the country's National Development Pathway to focus on priority areas such as food security, climate change, and agriculture financing as it works towards achieving the United Nations Sustainable Development Goal (SDG 2), Zero Hunger."</p> <p>- "Reduction of high food-import bill, and ensure all Guyanese have access to sufficient, safe, and nutritious food."</p>
Food and Agriculture Organization of the United Nations (2024).	<p>- "A remarkable decrease in those unable to afford a healthy diet – from 42 percent in 2019 to 18.5 percent in 2021– places Guyana below the regional average for Latin America and the Caribbean of 22.7 percent."</p> <p>- "Annual reductions in the prevalence of undernourishment, decreasing from 7.1 percent – between 2004 and 2006 – to under 2.5 percent from 2020 to 2022."</p> <p>- "Guyana is one of 15 Latin American and Caribbean countries that explicitly recognize the right to food in its Constitution. Article 40(1) of Guyana's Constitution establishes: "Every person in Guyana is entitled to the basic right to a happy, creative and productive life, free from hunger, ignorance and want."</p>
World Bank Group (2024)	<p>-The establishment of the "One Health Approach." This approach aims "to support national and sub-national prevention, preparedness, and health system resilience," with food safety at the helm of the initiative.</p>
Centre.gy Magazine (2023)	<p>-Increase in production and productivity of non-traditional and traditional crops and livestock through the use of technology and best practices.</p> <p>-Promoting high-value and value-added products through agro-processing and enhancing food security.</p> <p>-Construction of Guyana's First Food Hub.</p>

The following figures (**Figure 1 and Figure 2**) highlight the percentages of persons in Guyana who were unable to afford a healthy diet and the prevalence of undernourishment in Guyana, respectively, during specific periods.

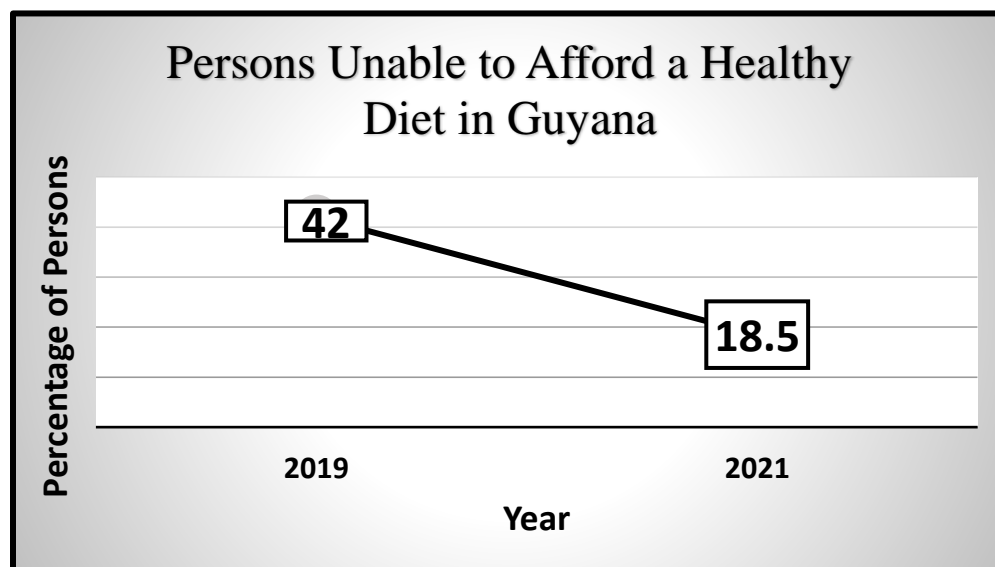
Figure 1: Percentages of persons unable to afford a healthy diet in Guyana

Figure 1 shows the Percentages of Persons in Guyana who were unable to afford a Healthy Diet, decreased by 23.5%, from the Year 2019 to 2021.

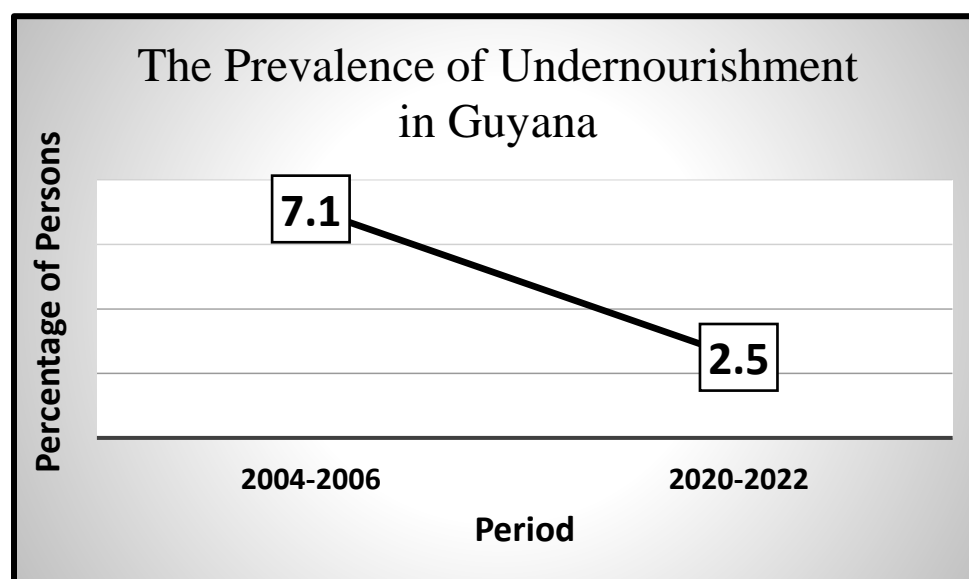
Figure 2: The Prevalence of Undernourishment in Guyana

Figure 2 shows the Prevalence of Undernourishment dropped from 7.1% in (2004-2006) to under 2.5% in (2020-2022).

Guyana has made many strides in fulfilling its food and nutrition security strategic plan. Food security under the six pillars (availability, access, utilization, stability, agency and sustainability) is one of the most important components in ensuring a healthy Guyanese population. The Government of Guyana's mandate is to ensure that its citizens are food secure which will lead to the reduction of many health-related issues that are affected by poor nutrition. Guyanese have challenges with both communicable and non-communicable diseases. Many of the non-communicable diseases are related to poor diet/nutrition intake. In a study conducted by (Sockalingam et al., 2021), titled "The Rise in Cardiovascular Risk Factors and Chronic Diseases in Guyana: A Narrative Review," it was found that cardiovascular disease was the leading cause of death of 55.3% of the Guyanese population. According to the researchers, "The main causes of the increased prevalence of non-communicable diseases are modifiable risk factors (e.g. obesity, hypertension, elevated cholesterol, unhealthy dietary patterns) and non-modifiable risk factors (e.g. age and genetics)." Guyana has been collaborating with local, regional and international agencies to curb the diseases that are most prevalent. An examination of the "One Health Approach/Initiative" shows that Guyana through its local agencies and in collaboration with regional and international bodies "is dedicated to enhancing Guyana's ability to prevent and

prepare for current and future health challenges which emerge from the human-animal-environment interface" (World Bank Group, 2024). The Agriculture sector and the Health sector have been working together to reduce the prevalence of factors that are related to non-communicable diseases that are modifiable. Hence, these sectors are very active in the inclusion of food security through agriculture productivity towards good public health. An examination of the most recent strides that Guyana has made in ensuring that food security is enhanced and the promotion of good public health, are highlighted as follows: -

1. The establishment of the school feeding programme where local farmers are tasked with providing produce for the programme to prepare nutritious meals for the pupils.
2. The development of infrastructure to enable farmers to access markets with their fresh produce so that the consumers can obtain produce that is of the highest quality.
3. Alignment of the National Development Pathway to focus on food security.
4. A "decrease in the number of Guyanese who are unable to afford a healthy diet – from 42 percent in 2019 to 18.5 percent in 2021 which places Guyana below the regional average for Latin America and the Caribbean of 22.7 percent."
5. The "reduction in the prevalence of undernourishment, decreasing from 7.1 percent – between 2004 and 2006 – to under 2.5 percent from 2020 to 2022."
6. Guyana has included in its constitution the right to food for all Guyanese.
7. The establishment of the "One Health Approach" where food safety is at the helm of the initiative.
8. The construction of Guyana's first food hub.
9. Increase in the production of traditional and non-traditional crops, high-value and value-added products through the use of technology.

5. CONCLUSION

The impact of Food Security, Agricultural Productivity and Public Health Management on a country's population cannot be overemphasized. Guyana's government has been making many strides to ensure that food security is well established through collaborations with local, regional and international agencies. There is improved access to nutritious food, strengthening agricultural infrastructure and market access, policy and legal commitment to food security, health-centered food and agriculture initiatives and the adoption of the One Health Approach prioritizing food safety. Agriculture productivity is fundamental in ensuring food security, which ultimately influences public health.

Study Limitations: The utilized secondary open access sources to arrive at the findings of this research.

Suggestions for Future Research: Researchers may implement a qualitative approach through semi-structured interview to obtain primary data where Agriculture and Public Health stakeholders can be interviewed directly.

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