



## Obesity Contributing to Heart Disease and Stroke: Epidemiological Data and Logic Model

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### Abstract

Logic models are mechanism that can be utilized for evaluating, communicating, managing, describing, and planning health interventions or programs. A logic model is a visual representation depicting relationships between the intended effects of an intervention program and planned activities. In addition, logic model tools can be helpful in stating assumptions underlying expectations that a program can work. A logic model tool can frame the context in which programs operate. This discussion focuses on a data-driven approach to a strategic program design addressing the public health challenge of obesity which can be a contributing factor to heart disease and stroke. A logic model depicting epidemiological data supporting a strategic education intervention program is included.

**Keywords:** Obesity; Heart Disease; Stroke; Epidemiology; Education; Health Promotion; Logic Model; Behavioral Interventions; Childhood Obesity; Nutritional Disorders; Risk Factors; Community Obesity Education Program; Data-Driven Approaches

### Introduction

Obesity is a significant health issue faced by many individuals that can negatively impact community health and wellbeing [1,2]. Using a data-driven approach, health educators can develop strategies to address a public health challenge, such as obesity that could lead to other chronic conditions such as heart disease and stroke if not addressed and managed properly [1,2]. Three studies have been selected to review as supporting data regarding obesity and educational programs to identify appropriate strategies for intervention.

According to the Centers for Disease Control and Prevention 2017 through March 2020 data, the pervasiveness of obesity in the United States has reached 41.9% [1]. Conditions associated with obesity can include some types of cancer, heart disease, Type 2 diabetes, and stroke [1]. These types of health challenges can be the leading causes of premature and preventable death in the United

States [1]. Furthermore, obesity can affect certain groups more than others, for example, the obesity predominance is 39.8% of adults between 20 through 39, 44.3% of adults between 40 through 59, and 41.5% of adults 60 years and beyond [1]. In addition, 49.9% of adult African Americans had the highest predominance of obesity, adult Hispanics at 45.6%, adult Whites at 41.4%, and adult Asians at 16.1% [1].

In a study conducted by Onyeagoro (2022), a significant statistical association was found between childhood obesity and family structure. Study findings can affect affirmative social change by energizing additional research advancing quality improvements in childhood obesity management. The results of the study may strengthen health educators and professionals to develop and apply strategic management programs for childhood obesity acknowledging needed psychosocial and clinical services to increase the management and knowledge of childhood obesity [2]. According to Segal, *et al.* (2017) and Onyeagoro (2022), approximately

26% of children in the United States are obese and obesity is a widespread nutritional disorder in children. Thus, nutritional intervention programs and strategies can be effective for children to prevent obesity health problems.

According to Sanyaolu, *et al.* (2019), adolescent and childhood obesity in the United States have escalated to widespread levels. Approximately 17% of children are categorized as obese [4]. Overall physical health, cardiovascular health, and psychological health of children can be adversely affected by obesity making this a public health problem that should be addressed through educational intervention programs. Various studies point to risk factors and associations increasing the prevalence of children experiencing obesity problems more often [4]. A combination of psychological, physiological, exercise, and diet factors are critical in the prevention and control of obesity in children, therefore, education and prevention are necessary strategies for managing the public health concern.

Important first steps in prevention can involve targeting family and children with educational health programs aimed at encouraging appropriate exercise, diet, food choices, and behavioral interventions from childhood through adulthood [4]. Furthermore, secondary interventions targeting the prevention of childhood obesity continuing on into unhealthy behaviors and habits through adulthood should be addressed [4]. Primary and secondary prevention measures are critical to achieving better results. Sanyaolu, *et al.* (2019) examined health implications such as the management of adolescent and childhood obesity in the United States with prevention methods, risk, epidemiology, comorbidities, psychological, and physiological factors.

In a study conducted by Rosenthal, *et al.* (2017), quantitative data was analyzed via structured interviews presenting descriptive statistics about the public’s attitude regarding obesity. The study aimed to identify perceived barriers to weight loss, the consequences of obesity, struggles faced by Americans in obtaining treatment, and misperceptions in diagnosis and treatment of obesity [3]. Study findings identified many obese and overweight Americans do not consult doctors about weight issues [3]. Furthermore, findings concluded an increased awareness about the dangerous health consequences of obesity, however, a lack of understanding continues to persist regarding reasons for obesity and treatment options [3].

**Community obesity education program**

Based upon data-driven research related to obesity problems in the United States, a comprehensive community obesity education program can aid in effectively targeting populations in need. According to Rosenthal, *et al.* (2017), obesity in the United States continues to significantly advance. Understanding and awareness of the public health concern and treatment options for obesity seem to be lacking in many population groups [3]. However, researchers assert educational health programs, activities, and legislative policies designed for children and adults can mitigate an obesity epidemic in the United States [1-4]. The following graphic identifies health consequences and potential comorbidities related to childhood obesity.



**Figure 1:** Health Consequences and Potential Comorbidities Related to Childhood Obesity.

Adapted from Sanyaolu A, *et al.* “Childhood and adolescent obesity in the United States: A public health concern”. *Global Pediatric Health* 1.6.

The following logic model highlights how to achieve an intervention educational program with identified goals, objectives, assumptions, and contextual factors.

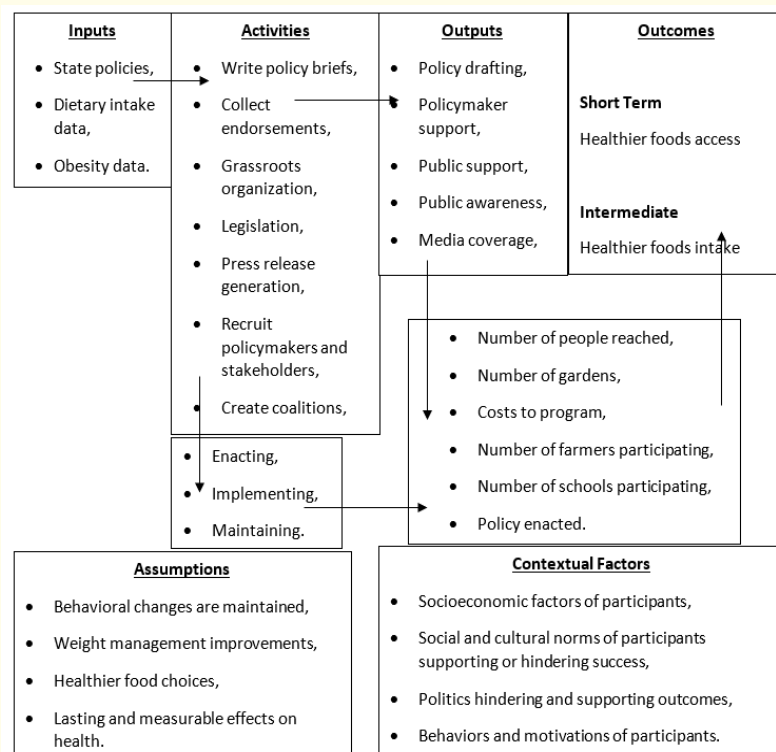


Figure 2: Logic Model - Community Obesity Education Program.

### Conclusion

Data-driven approaches, supportive educational health programs, activities, and legislative policies developed for children and adults that are culturally response to the needs of communities can mitigate an obesity public health concern [1-4]. A logic model tool can be helpful in framing how to address an obesity health issue with a comprehensive approach to designing health education programs and curriculum involving stakeholder support with legislative coalition action. Three studies were reviewed on obesity data to support educational programs for community interventions. Researchers and findings concluded strategic interventions can be developed to aid in combating obesity challenges in the United States with culturally sensitive approaches, addressing behavior, psychological, physiological, exercise, and diet factors [1-4].

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