



## **CHILDHOOD OBESITY**

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### **Introduction**

Louisiana has one of the highest rates of childhood obesity in the country. In the 2016–17 National Survey of Children’s Health, 19.1 percent of Louisiana children ages 10 to 17 were obese, which is much higher than the national average of 15.8 percent. For children and adolescents aged 2-19 years ([www.cdc.gov > obesity > data > childhood](http://www.cdc.gov/obesity/data/childhood)). The prevalence of obesity was 18.5% and affected about 13.7 million children and adolescents. Obesity prevalence was 13.9% among 2- to 5-year-olds, 18.4% among 6- to 11-year-olds, and 20.6% among 12- to 19-year-olds. Fighting the high rate of childhood obesity in Louisiana and across the United States is key to preventing many of the deadliest and most destructive diseases affecting communities today and in the future. A report from the U.S. Centers for Disease Control and Prevention (CDC) states that obese children are more likely than children of normal weight to have high blood pressure, high cholesterol, and other cardiovascular risks. Obese children are also at greater risk of Type 2 diabetes, asthma and other respiratory problems, and bone and joint pain. Individuals who have severe obesity, i.e., a body mass index (BMI) of 40 or higher, are at higher risk of severe illness from coronavirus disease (COVID-19).

The two most effective factors in preventing childhood obesity are a nutritious diet and regular exercise. Ensuring children have access to healthy foods is particularly challenging in Louisiana because so many families live far from farmers’ markets and other sources of fresh, nutritious foods. Since we cannot control the amount of exercise they receive, we can look at food intake.

The health of the public depends on the ability of communities to create environments in which all of their members are able to live a healthy life. The struggle to ensure that children living in Louisiana have access to nutritious foods and the opportunity to lead active lives requires a concerted effort by families, community groups, public agencies, healthcare providers, educators, and private industry.

There are no simple answers to the problem of childhood obesity, yet many relatively easy steps are available that can help parents and children turn the tide against the growing crisis of obesity in children. It is our hope that this study will shed some light on the importance of socio-demographics, self-esteem, ethnicity, acculturation, and food choices on prevention or reduction in child obesity.

Because of campus shut downs and safety measures due to COVID-19, we were unable to host the two youth summer programs to work with the “youth” (age 6-15) study group this year. We have delayed our plans to host the two youth programs this summer 2021. However, we will still work with the young adults (age 19-21) during the 2021 summer and into the 2021 fall semester. This will allow us to continue our comparative study between youth participants’ and undergraduates’ dietary habits and activity levels with the goal of generating a PSA aimed at raising youth awareness about factors contributing to obesity.

We prepared the questionnaires and surveys on diet and acculturation and sent out 45 to young adults with a return of 41 (91%). As we begin to normalize our lives and return to campus, we are implementing a plan to recruit more undergraduate participants. The diet history questionnaire I (DHQ) is a freely available food frequency questionnaire (FFQ) for use with adults

19 or more years of age. It will help us to see the types of foods they choose, how it is prepared for/by them, the seasonings they add, when they eat, how much they eat, and how much they think they should weigh.

The survey on acculturation will establish the process of social, psychological, and cultural change that stems from the balancing of two cultures while adapting to the prevailing culture of the society. The survey examines participants' belief and attitudes about religion, families, racism, Black people, white people and health. We will describe the development, reliability, and validity of the African American Acculturation Scale. This 47-item scale has good construct and concurrent validity. The eight subscales, assessing eight dimensions of African American culture, have high internal consistency and reliability.

African Americans' scores on the scale will be unrelated to social class, gender, and education. This scale will measure eight dimensions of African American culture: (1) religious beliefs and practices, (2) traditional family structure and practices, (3) family values, (4) racial segregation, (5) preference for African American things, (6) interracial attitudes, (7) superstitions, and (8) traditional health beliefs and practice. This scale also measures within-group variability in the level of acculturation/cultural identity continuum based on degree of Afrocentricity. It indicates a student's level of involvement in traditional African American culture or the core African-oriented culture. The assessment will evaluate components of acculturation, including language use, values, social behaviors, social networks, religious affiliation and practice, home community, education, ancestry, and cultural identification. Additionally, we will also survey them about their knowledge the coronavirus and if they have been infected, which is a life-threatening infection for child with obesity.

It is our hope, the pandemic is gone and it is safe by the spring semester, we will begin to on-site measure body mass index (BMI). Body mass index (BMI) is a measure used to determine childhood overweight and obesity. Overweight is defined as a BMI at or above the 85th percentile and below the 95th percentile for children and teens of the same age and sex. Obesity is defined as a BMI at or above the 95th percentile for children and teens of the same age and sex.

We are aware that for many people, culture has an even greater influence than biology on eating habits and attitudes toward food and body weight. The diet history surveys and acculturation questionnaires for these students who grew up with eating habits based on ethnic, religious, location or other cultural traditions, hopefully will allow us to determine if correlations exist between socioeconomics, media, stressors, cultural self-identity and "Americanism" (acculturation) on food choices in African American young adults and youth.

It is still our intention to educate youth and undergraduate participants about African diaspora food choices, acculturation, dietary and lifestyle modifications that could prevent overweight/obesity and obesity-related conditions.

The two most effective factors in preventing childhood obesity are a nutritious diet and regular exercise. Ensuring children have access to healthy foods is particularly challenging in Louisiana because so many families live far from farmers markets and other sources of fresh, nutritious foods. It has been reported that also, only 26.1 percent of middle schools and high schools in Louisiana had salad bars.

The health of the public depends on the ability of communities to create environments in which all of their members are able to live a healthy life. The struggle to ensure that children living in Louisiana have access to nutritious foods and the opportunity to lead active lives requires a concerted effort by families, community groups, public agencies, healthcare providers, educators, and private industry.

There are no simple answers to the problem of childhood obesity, yet many relatively easy steps are available that can help parents and children turn the tide against the growing crisis of obesity in children. This guide examines the state of childhood obesity in Louisiana, the ongoing efforts to combat the problem, and strategies and techniques that families and communities in the state can adopt to help the children of Louisiana be as healthy as they can be.

## **GOALS**

Addressing the obesity epidemic is a Healthy People 2020 leading health indicator, with a number of goals set for weight and nutrition including:

1. Reducing the proportion of adults who have obesity by 10%
2. Increase the proportion of adults at a healthy weight
3. Preventing inappropriate weight gain in adults ages 20 and older

### **WHY DOES THIS MATTER?**

People who have severe obesity, i.e., a Body Mass Index (BMI) of 40 or higher, are at higher risk of severe illness from coronavirus disease (COVID-19). The costs associated with obesity and obesity-related health problems are staggering. One study estimated the medical costs of obesity to be \$342.2 billion (in 2013 dollars). Beyond direct medical costs, the indirect costs of decreased productivity tied to obesity are estimated at \$8.65 billion per year.

### **WHO IS AFFECTED?**

Obesity is a complex condition that can affect anyone. Contributing factors to obesity include the social and physical environment, genetics, medical history and behaviors such as poor diet and physical inactivity. Childhood maltreatment has also been identified as a risk factor for obesity.

### **Statistics Regarding Childhood Obesity**

According to the CDC, a child or adult is considered obese if the person has a body mass index (BMI) that is at or above the 95th percentile. An adult or child is deemed overweight when their BMI is at or above the 85th percentile but below the 95th percentile. Based on this standard, one in three children in Louisiana is obese or overweight, according to research published in the Journal of the American Medical Association.

### **Childhood Obesity in Louisiana**

The CDC's Division of Nutrition, Physical Activity, and Obesity highlights the greater prevalence of childhood obesity in Louisiana than is present in most other states.

1. Louisiana students in grades nine through 12 whose body mass index (BMI) places them at or above the 85th percentile (the levels considered overweight and obese): 35.2 percent
2. Louisiana families participating in the U.S. Department of Agriculture Food and Nutrition Service's Special Supplemental Nutrition Assistance for Women, Infants, and Children (WIC) as of April 2019: 101,304
3. Children ages 2 to 4 participating in WIC in Louisiana as of 2014 who were overweight or obese: 28.4 percent
4. Change in WIC participation by Louisiana families since April 2018: 7.6 percent decline

### **Childhood Obesity Across the Country**

The CDC's 2017 Youth Risk Behavior Survey, "The Obesity Epidemic and United States Students," reports on the health of U.S. high school students:

1. High school students at or above the 85th percentile in body mass index (BMI), which is the threshold for "overweight" and "obesity": 30.4 percent
2. Did not eat any vegetables in the seven days prior to the survey: 7.2 percent
3. Were not physically active for at least one hour total in each of the previous seven days: 15.4 percent

The CDC's National Center for Health Statistics reports on obesity by age, sex, and ethnicity. The incidence of obesity in children ages 2 to 19 in the most recent report of 2015-2016 includes the following statistics:

1. Adolescents (ages 12 to 19) whose BMI places them in the "obese" category: 20.6 percent
2. School-aged children (6 to 11) who are obese: 18.4 percent
3. Preschool-aged children (2 to 5) who are obese: 13.9 percent
4. Non-Hispanic African American children (ages 2 to 19) who are obese: 22 percent

## **Health Effects of Childhood Obesity**

Confirming the importance of addressing childhood obesity at a young age is research reported in the New England Journal of Medicine that found 5-year-olds who are overweight are four times more likely to be overweight at 14 years old than 5-year-olds of normal weight. The journal Acta Pharmacologica Sinica published a report that found the increased risk of disease for obese children extends into adulthood, making them more likely to suffer ailments that include arterial hypertension, fatty liver disease, and cardiovascular disease.

These are among the health risks to obese children that the CDC has identified:

1. Hypertension
2. Elevated cholesterol levels
3. Asthma, sleep apnea, and other respiratory problems
4. Joint pain and muscle aches
5. Gallstones
6. Heartburn (gastroesophageal reflux)
7. Anxiety and depression
8. Low self-esteem
9. Difficulty socializing

## **WHAT WORKS?**

Weight loss is effective at preventing or improving obesity-related chronic diseases. Behavioral changes to diet and physical activity can produce weight loss. Some individuals with morbid obesity for whom behavioral changes are not effective at losing and maintaining weight may use bariatric surgery. Decreasing the number of youth who experience sexual or physical abuse may lower the prevalence of obesity. At the population level, physical environment, health promotion and food policy, and regulations can support healthy behaviors and help prevent obesity.

### **1. Healthy Diet**

Like many human activities, people tend to fall into a pattern of eating that they repeat regularly. The U.S. Department of Health and Human Services' Dietary Guidelines 2015-2020 indicate that three-fourths of the U.S. population eat too few vegetables, fruits, dairy, and healthy oils, while greater than half consume too much added sugar, saturated fat, and salt. The guidelines recommend that people adopt new, healthier eating patterns over time as the best way to reach and maintain a normal weight and to ensure they receive the nutrients they need to help prevent chronic illnesses.

The most effective way to replace unhealthy eating patterns with more nutritious alternatives is to start with small healthy food choices at one meal or snack each day, then expanding to two or three such choices over the course of a day or week, and gradually choosing the healthy alternative at nearly every opportunity. The Healthy U.S.-Style Eating Pattern is one of three Food Patterns devised by the U.S. Department of Agriculture to ensure people consume "nutrient-dense" foods in the appropriate amount. It is based on the foods and serving sizes people in the U.S. are accustomed to, but it is presented at 12 different calorie levels based on age, sex, weight, height, and physical activity level.

## 2. Exercise and Fitness

Along with a healthy diet, the best way to prevent chronic illness is by staying active. The CDC states the matter very clearly: regular physical activity could prevent one of every 10 premature deaths, one of eight cases of breast cancer and colorectal cancer, one in 12 cases of diabetes, and one in 15 cases of heart disease. For children, staying active for at least one hour each day offers a range of benefits:

1. Less likely to suffer from depression
2. Better aerobic capacity and muscle strength
3. Improved academic performance and attentiveness (from regular physical activity at school)

For school-aged children and adolescents (ages 6 to 17), the guidelines recommend at least one hour of physical activity each day at moderate or vigorous intensity. The activities should focus on improving aerobic capacity and strengthening bones and muscles. Free play and unstructured activities often are sufficient to meet the guidelines for young children, who tend to be highly active by nature. As they reach adolescence, however, children's activity patterns change, so structured activities may be more effective in helping them stay physically active on a daily basis. The guidelines note that girls in particular tend to reduce their level of physical activity when they reach adolescence.

## YEAR ONE DATA

### BODY MASS INDEX (BMI)

The purpose of conducting a nutritional assessment is to determine the degree of balance between nutrients ingested versus the required nutrients. Anthropometric measures evaluate growth, development, and body composition, which include height and weight measurements. The outcome for calculating these two components gives you a body mass index (BMI). The BMI is calculated by measuring a person's weight in kilograms divided by the square of height in meters. A high BMI can be an indicator of high body fatness. BMI can be used to screen for weight categories that may lead to health problems but it is not diagnostic of the body fatness or health of an individual.

### ADULTS (COLLEGE STUDENTS)

For adults 20 years old and older, BMI is interpreted using standard weight status categories. These categories are the same for men and women of all body types and ages. The standard weight status categories associated with BMI ranges for adults are shown in the following table. Obesity in adults is defined as a body mass index of 30 or greater.

Here are the weight ranges, the corresponding BMI ranges, and the weight status categories for a person who is 5' 9". Therefore, the weight ranges of a person who is 5' 9" is calculated below:

Height	Weight Range	BMI	Weight Status
5' 9"	124 lbs. or less	Below 18.5	Underweight

125 lbs. to 168 lbs.	18.5 to 24.9	Normal or Healthy Weight
169 lbs. to 202 lbs.	25.0 to 29.9	Overweight
203 lbs. or more	30 or higher	Obese

The BMI is interpreted differently for children and teens, even though it is calculated using the same formula as adult BMI. Children and teen's BMI need to be age and sex-specific and differs between boys and girls. The CDC BMI-for-age growth (charts take into account these differences and visually shows) BMI as a percentile ranking. Obesity among 2-19 year-olds is defined as a BMI at or above the 95th percentile of children of the same age and sex. For example, a 10-year-old boy of average height (56 inches) who weighs 102 pounds would have a BMI of 22.9 kg/m<sup>2</sup>. This would place the boy in the 95th percentile for BMI – meaning that his BMI is greater than that of 95% of similarly aged boys in this reference population – and he would be considered to have obesity. Addressing the obesity epidemic is a Healthy People 2020 leading health indicator, with a number of goals set for weight and nutrition including:

- Reducing the proportion of adults who have obesity by 10%
- Increase the proportion of adults at a healthy weight
- Preventing inappropriate weight gain in adults ages 20 and older

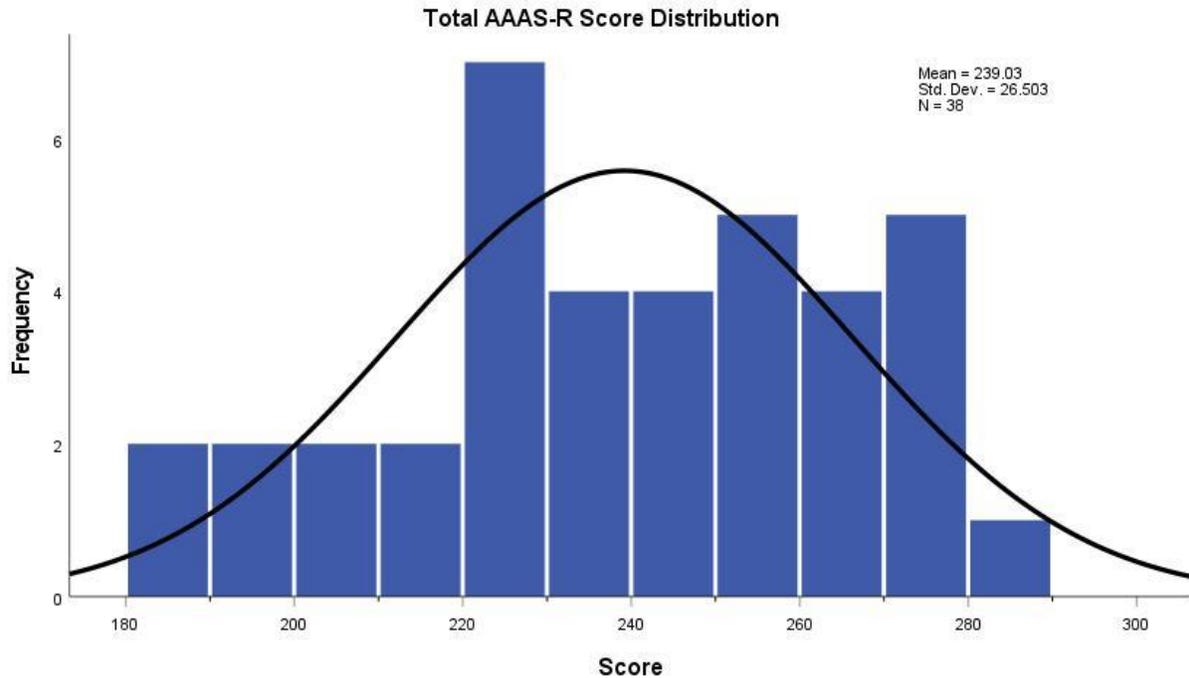
## BMI

INTERPRETATION - N = 41  
 UNDERWEIGHT = 1  
 WITHIN NORMAL LIMITS = 19  
 OVERWEIGHT – 14  
 OBESE - MORBID OBESITY = 7

Information received from 41 self-reports of young adults in this study indicate the same outcomes. A body mass index (BMI) was calculated for each subject. The chart below indicates the interpretations of the BMI measurements for each group. Findings indicate that more than half of the adolescent females (53.47%) are overweight.

BMI Indicator	Number	Percentages
UNDERWEIGHT	1	2.44%
WITHIN NORMAL LIMITS	19	46.34%
OVERWEIGHT	14	34.15%
OBESE	5	12.19%
MORBID OBESITY	2	4.88%

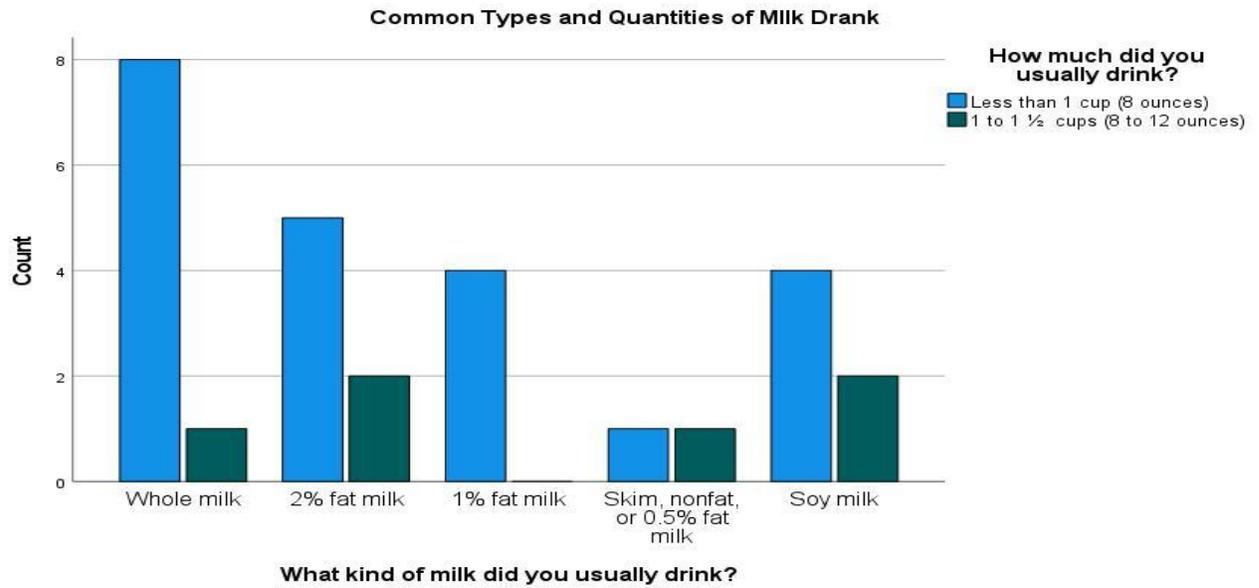
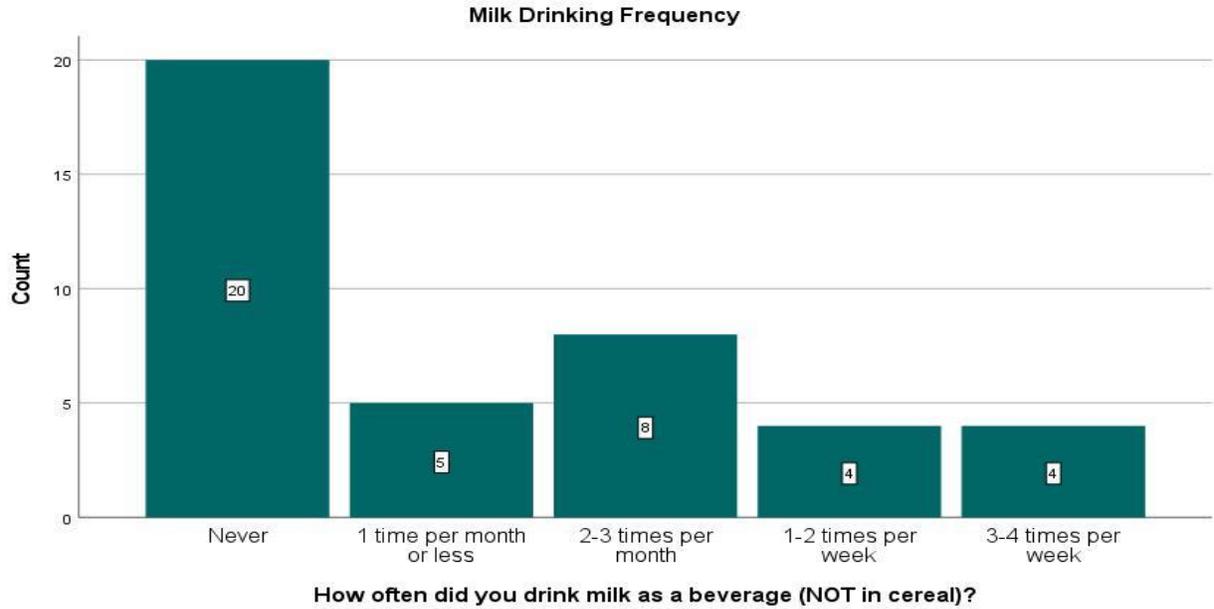
**TABLE 1: AFRICAN AMERICAN ACCULTURATION SCALE.**



Higher scores correlate with higher perceived African American acculturation

This distribution chart represents how students scored on the African American Acculturation Scale. The score was a summed value from each sub-scale. The eight sub-scales were religious beliefs and practices, preferences for things African American, interracial attitudes, family practices, health beliefs and practices, cultural superstitions, racial segregation, and family values.

**TABLE 2: DIET HISTORY SURVEY**



Question One of the Diet History survey. The first graph shows the frequency of how often milk was drunk as a beverage, and the second describes the types of milk that students drank and

how much was drank per instance. The majority of students did not drink milk as a beverage or drank it very seldom. These graphs are examples of how frequency data can be shown for all Diet History questions.

**TABLE 3: FREQUENCY SODA INTAKE****How often did you drink soda or soft drink?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	5	12.2	12.2	12.2
	1 time per month or less	9	22.0	22.0	34.1
	2-3 times per month	15	36.6	36.6	70.7
	1-2 times per week	3	7.3	7.3	78.0
	3-4 times per week	5	12.2	12.2	90.2
	5-6 times per week	3	7.3	7.3	97.6
	1 time per day	1	2.4	2.4	100.0
	Total	41	100.0	100.0	

**Each time you drank soda or soft drink, how much did you usually drink?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 12 ounces or less than 1 can or bottle	13	31.7	35.1	35.1
	12 to 16 ounces or 1 can or bottle	22	53.7	59.5	94.6
	More than 16 ounces or more than 1 can or bottle	2	4.9	5.4	100.0
	Total	37	90.2	100.0	
Missing	System	4	9.8		
Total		41	100.0		

The two tables above show data on how often students drank soda during the past year and the quantity of soda normally drank (question two from the Diet History survey). This is a tabular method of describing frequency data compared to the graphs of milk consumption.

**Methodology**

The methodology of the study will be adjusted, specifically regarding data collection, due to the COVID-19 pandemic. The CDC guidelines will be adhered to while still attempting to ensure the validity and, consequently, practical significance relative to the finding of the study. The necessity to consult with legal and university administration is imperative and will be implemented.

**Summary**

The objective of this study, which examines childhood obesity, is to provide much-needed information on the impact of the perceived self-identity related to foods, food choices and obesity in African-American youths and adolescents (ages 6-21) in Louisiana. This study is especially relevant given growing concerns about the increased incidence of Type 2 diabetes and obesity

among African American youth and the perceived reluctance to change modern dietary habits that are heavily rooted in self-identity. The study will also examine the historical narrative and social and cultural consumption patterns and the impact of an educational intervention. Qualitative and quantitative methods will be used.

### **Research Design**

The study is exploratory and uses mixed-methods – both qualitative and quantitative. This design facilitates the merging or diverging of the participants' narratives and stories with the empirical evidence.

### **Limitations of the Study**

The measures that were going to be taken on younger kids (grades 1-10) did not happen because of the COVID-19 pandemic. Other limitations will arise as the epidemic is still impacting the broader economy and day-to-day teaching, learning, and research. Our sampling was limited; we only had a small cross sector and biased due to their interest and involvement with Dillard/higher education.

The **objective** of this study, which examines childhood obesity, is to provide much-needed information on the impact of the alleged self-identity foods on food choices and obesity in African-American youths and adolescents (6-21) in Louisiana.

### **Goals and Desired Outcomes**

#### **GOALS:**

1. Determine if correlations exist between socioeconomics, media, stressors, cultural self-identity and “Americanism” (acculturation) on food choices in African American youth.
2. Educate youth and undergraduate participants about African Diaspora food choices, acculturation, dietary and lifestyle modifications that could prevent overweight/obesity and obesity- related conditions.
3. Evaluate measurable differences after culturally-attuned intervention and interactive programs (differences in BMI, dietary logs, food waste, aerobic activity).
4. Create a comparative study between youth participants and undergraduates' dietary habits and activity levels that results in a peer generated PSA aimed at raising youth awareness about factors contributing to obesity.

The desired outcome, we believe is a comprehensive college/camp health programs are to enable all students to achieve and maintain an optimal state of health and well-being, reach their full academic potential, and develop into healthy productive adults who take personal responsibility for their own health. We envision this program might be able to achieve these optimal outcomes in three general areas: (1) student outcomes, (2) programmatic and organizational outcomes, and (3) community outcomes.

The outreach program for Pre-freshman Engineering Summer Program: The aim of the program is to strengthen skills in the sciences, mathematics, and computer science and introduce engineering for middle and high school students, as well as sharpen individual communication and critical thinking skills. Participants will be introduced to courses in mathematics, general biology/chemistry, English, and computer science. Throughout the six-week summer program, students will participate in scientific demonstrations and experimentations, mathematical reasoning, computer science training, Science and Engineering Fairs; as well as exposure to various fields of Science and Engineering field trips. The Young Scholars Environmental Camp is

designed to meet the unique needs and interests of children and youth. Young campers will participate in their favorite sports promoting health and the development of important social skills; explore environmental interests that could lead to rewarding careers; get an early taste of college life and the value of academic achievement; engage in dynamic, hands-on learning experiences that enable growth and success; be involved with environmental demonstrations by guest speakers; participate in environmental science field trips; meet peers with similar interests and build new friendships and have fun and create memories to last a lifetime.

Carnegie Foundation defined college health as "...the caring intersection between health and education. It is a community with a shared vision and common cause. College health cannot be separated from the physical, social, emotional, political or cultural influences, nor from fostering a sense of belonging and value. College health is developmentally appropriate, educationally effective, medically expert, accessible, and convenient."

Dillard University is actively involved in determining the design of a health program and in supporting and reinforcing the goals of the program. This design will include assurance of safety, and an environment conducive to learning and health promotion. We will use a seven-step model:

1. Health education will consist of planned K–12 curricula that addresses the cultural, physical, mental, emotional, and social dimensions of health.
2. Physical education will be a planned K–12 curriculum promoting physical fitness and activities that all students could enjoy and pursue throughout their lives.
3. Health services will focus on prevention and early intervention, including the provision of emergency care, and referral to community health service.
4. Nutrition services will provide access to a variety of nutritious and appealing meals that are cultural congruent, an environment that promotes healthful food choices, and support for nutrition instruction in the classroom and cafeteria.
5. Counseling, psychological, and social services will include school-based interventions and referrals.
6. Healthy school environment will address both the physical and the psychosocial climates
7. Parent and community involvement will engage a wide range of resources and support to enhance the health and well-being of students.

## **CONCLUSION:**

During the first year of the grant, we were able to complete/lay groundwork for year one objectives in spite of COVID-19. We have established a framework for understanding obesity in children and youth.

Childhood obesity has become one of the nation's most serious health problems. Overweight and obese children are likely to stay obese into adulthood and more likely to develop non-communicable diseases like diabetes and cardiovascular diseases at a younger age. Overweight and obesity in childhood are known to have significant impact on both physical and psychological health with several lifelong co-morbidities, including cardiovascular disease, type 2 diabetes, hypertension, osteoarthritis, cancer, and psychosocial burdens.<sup>1-4</sup> Over the past 3 decades, obesity rates have increased threefold among U.S. children and adolescents aged 2 to 19 years, 5.6% rising to 17%.

The prevalence of obesity is greatest in lower-income and racial/ethnic minority populations, as well as, in communities with limited access to healthy, affordable foods or safe places to walk, bike, and play. It is proposed that this obesity epidemic resulted from small, cumulative environmental changes that altered children's physical activity and dietary patterns creating an accrual of small increases in children's daily energy gap—the excess of calories consumed over calories expended.

Our framework for understanding obesity in children and youth in general, is that overweight and obesity is assumed the results of an increase in caloric and fat intake. On the other hand, there are supporting evidence that excessive sugar intake by soft drinks, increased portion size, and a steady decline in physical activity have been playing major roles in the rising rates of obesity. Childhood obesity can profoundly affect children’s physical health, social, and emotional well-being, and self-esteem. Childhood obesity is also associated with poor academic performance and a lower quality of life experienced by the child.

The African American Acculturation Scale presented is a good representation of how students scored after tally. It shows a relatively normal distribution curve with most students falling somewhere in the middle based on how much they related to the acculturation questions.

The food choices survey data provided frequencies of each food choice answer. This data will be aggregated to form a more cohesive understand of eating habit.

Gathering students’ BMIs, in the aggregate, can help monitor the success of obesity prevention efforts. Screening students’ BMIs for individual health assessment purposes is more controversial and requires schools/colleges/universities to address privacy, among other issues. Because of the COVID pandemic, we had to resort to self-reported data. We note that environmental factors, lifestyle preferences, and cultural environment also played pivotal roles in the rising prevalence of obesity worldwide.

Finally, we have completed the following in year one objectives: surveys (psychosocial and behavioral considerations), and self-reported heights and weights to calculate BMIs. We will also visit balancing food intake and physical activity. As we complete these, we will also move into objectives for year two. These will be concurrent activities.

**Delta Sigma Theta Sorority, Inc.: Distinguished Professor Endowed Chair Award**

**Project Timeline**

**Year 1**

<b>Activities</b>	<b>Fall 2019</b>	<b>Spring 2020</b>	<b>Summer 2020</b>
Research	Framework for understanding survey distribution	Diet History Questionnaire and Acculturation Survey	Research (Self-reported data): Height and Weight
		Balancing Food Intake (Research)	Balancing Food Intake (Research)
	Optimum BMI and Healthy Weight (Research)		
Evaluation		Formative Assessments	Summative Assessment
Dissemination	OBESITY Website	OBESITY Website	Preparation of Manuscript for Environmental Journal and Obesity Conference

**Year 2**

<b>Activities</b>	<b>Fall 2020</b>	<b>Spring 2021</b>	<b>Summer 2021</b>	<b>Fall 2021</b>
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Research	Diet History Questionnaire and Acculturation Survey	Acculturation and Food Choices Survey Analysis	Research aimed at ages 6-15	Evaluate measurable differences and culturally attuned intervention programs
	Research (Self-reported data): Height and Weight	Prep for Summer Camps & Create Public Service Announcement(PSA) aimed at education youth participants	Physical activity and benefits associated with physical activity (p.a.)	Compare undergraduate results to youth participant results
Evaluation	First Annual Report & Acculturation and Food Choices Survey Analysis	Formative Assessments	Summative Assessment	Final report
Dissemination	Wiki and Online Module	Presentation at National Meeting(s)		
		Publication. Attend Obesity conference(s). Update OBESITY Website.	Publication. Attend Obesity conference(s). Update OBESITY Website.	

### REVISED PLAN

Dr. Broadway will have primary responsibility for the research and shared responsibility with Dr. Henry Nuss for the organization and operation of project monitoring and evaluation. Dr. Herbert-Magee has been dismissed as Co-PI due to COVID-19. She will be replaced by Dr. Henry Nuss at Louisiana State University Health Science Center, School of Public Health, Behavioral and Community Health Sciences. Dr. Nuss is Nutritional Scientist with a strong background in childhood obesity. (Curriculum vitae attached).

Dr. Willie Kirkland is no longer with the university, and will be replaced with an outside evaluator, Dr. Barbara Duncan from the University of Kentucky. She has extensive background in evaluating research progress and has worked closely with Dr. Broadway on several other grants.

<b>Project Goal 1</b>	Determine if correlations exist between socioeconomics, media, stressors, cultural self-identity and “Americanism” (acculturation) on food choices in African American youth.
<b>Measurable Objective</b>	Create a data set on the above variables in relation to food choices as a baseline.
<b>Assessment Tool(s)</b>	Survey Assessments

<b>Population/Population Size</b>	~ 41 undergraduate students from the New Orleans area, ages 18-21
<b>Frequency of Collection</b>	Beginning of Year 1
<b>Strategies to Meet This Objective</b>	<p>Surveys will be informed by related courses of study—Introduction to Nutrition (Black self-identity and cultural food associations);</p> <p><b>PBH 201 - Principles of Nutrition:</b></p> <p>An introductory course on nutrition providing students with a foundation of the nutrients required by the body and how the body utilizes these nutrients. Emphasis is placed on understanding food selection and eating habits and how they relate to the prevention of chronic disease and promotion of good health. Emphasis is given to nutrition throughout the life cycle and specific, diet-related diseases in each stage of the life cycle. Fall 2020</p>

	<p><b>F S 200 - Introduction to Food Studies:</b></p> <p>This course introduces the connections between food, culture, society and traditions, looking at the role of food in the construction of identity, race, gender in food production, policy and the building of communities. We also examine food traditions and systems from the African Diaspora and Africa by considering globalization, commerce and technology. The course introduces analytical approaches and methods to a growing field of research in Food Studies. Fall 2020.</p> <p><b>Biol. 418 – Human Physiology</b></p> <p>This course is a comprehensive study of the functioning of the major organ systems of humans and the mechanisms involved in their operation. It also discusses how acculturation and marketing of “western” high fat, high sugar, low fiber diets to African American youth; the effects on the body. Fall 2020</p> <p><b>Biol. 400 – Cellular and Molecular Biology</b></p> <p>This course is a study of the relationship between structure and function at the cellular and molecular level. It will also discuss Glucose receptors and insulin production, signaling pathway, insulin resistance secondary to lipid and sugar overload leading to type-2 diabetes in African American youth and how to inhibit the pathway. Spring 2021</p> <p>This will be completed with undergraduate students ages 18-21. We will conduct these surveys with youth ages 6-15 in summer 2021.</p>
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<b>Project Goal 2</b>	<p>Educate youth and undergraduate participants about African Diaspora food choices, acculturation, dietary and lifestyle modifications that could prevent overweight/obesity and obesity-related conditions.</p> <p>To be completed Fall 2020 and Spring 2021 in Introduction to Food Studies for undergraduates; Summer 2021 and 2022 for ages 6-14.</p>
<b>Measurable Objective</b>	Student participants' knowledge and awareness of these areas will improve
<b>Assessment Tool(s)</b>	Pre and post assessments
<b>population and population size</b>	~100 plus African American youths from the greater New Orleans area, age 6-14, and ~100 undergraduate students
<b>Frequency of Collection</b>	Beginning of Year 1 and end of Year 2
<b>Strategies to Meet This Objective</b>	<p>The ~100 outreach youths will be engaged in an integrative curriculum that involves peer-teaching by Dillard-enrolled Maximizing Access to Research Careers (MARC-NIH) and Deeper Student Learning (DSL-NSF) students and mini "STEM" research projects centered on obesity or any of the associated conditions. Fall 2020, and Spring 2021 and Fall 2021.</p> <p>The youth (ages 6-14) in the Pre-Freshman Engineering Summer Program and the Young Scholars Environmental Camp will also be engaged in summer project centered around obesity or any of the conditions associated with Obesity. Summer 2021</p>

<b>Project Goal 3</b>	Evaluate measurable differences after culturally-attuned intervention and interactive programs (differences in BMI, dietary logs, food waste, and aerobic activity). Fall 2021
<b>Measurable Objective</b>	Positive changes in BMI, recorded diet, and activity levels Fall 2021

<b>Assessment Tool(s)</b>	BMI will be measured before and after program and diet/activity logs will be completed by students with support from instructors and parents
<b>Population/Population Size</b>	~100 African American youths from the greater New Orleans area, youth age 6-14
<b>Frequency of Collection</b>	Beginning of Year 2, End of Year 2, Summer Year 3
<b>Strategies to Meet This Objective</b>	<p>The ~100 outreach youths will be engaged in an integrative curriculum that involves peer-teaching by Dillard-enrolled MARC and DSL students and mini “STEM” research projects centered on obesity or any of the associated conditions.</p> <p>Fall 2020 and Spring 2021</p> <p>The youth (ages 6-14) in the Pre-Freshman Engineering Summer Program and the Young Scholars Environmental Summer Camp will also be engaged in an integrative curriculum that involves peer-teaching by Dillard and New Orleans Public School teachers</p> <p>in a summer project centered around obesity or any of the associated conditions associated with Obesity. Summer 2021</p>

<b>Project Goal 4</b>	Create a comparative study between youth participants and undergraduates’ dietary habits and activity levels that results in a peer generated PSA aimed at raising youth awareness about factors contributing to obesity. Fall 2021
<b>Measurable Objective</b>	<ol style="list-style-type: none"> <li>1) Exploring obesity and dietary habits/activity levels with interdisciplinary undergraduates and youth participants</li> <li>2) Create a PSA aimed at educating our youth participants.</li> </ol> <p>Fall 2021, Spring 2021 and Summer 2021</p>
<b>Assessment Tool(s)</b>	Pre and post assessments
<b>Population/Population Size</b>	~100 undergraduate participants and ~100 youth participants Fall 2021
<b>Frequency of Collection</b>	Beginning of Year 1 and mid-way through Year 2 Fall 2021

<p><b>Strategies to Meet This Objective</b></p>	<p>The participating students enrolled in Introduction to Food Studies will express on pre- and post-semester questionnaires their expectations for culturally-attuned education for obesity and obesity-related conditions at risk AA youth; this will be turned into a PSA announcement.</p> <p>Dillard Outreach programs are the Pre-Freshman Engineering Summer Program and the Young Scholars Environmental Camp. The aims of the youth outreach program, Pre-Freshman Engineering Summer Program is to strengthen skills in the sciences, mathematics, and computer science and Language Arts for middle and high school students, as well as sharpen individual communication and critical thinking skills.</p> <p>The Young Scholars Environmental Camp is designed to meet the unique needs and interests of children and youth. Young campers will participate in their favorite sports promoting health and the development of important social skills.</p> <p>A simplified version of the Diet History questionnaire will be given to the younger participants (Pre-Freshman Engineering Summer Program participants and the Young Scholars Environment Camper) with visuals supplementing each question. This version will contain all questions about kinds of foods consumed and their frequencies but will omit portion size questions. The survey will be given orally to a small classroom of children so that they understand the questions. Along with the survey, educational materials on diet and lifestyle choices to prevent obesity will be given throughout the program. At the onset of the fall 2021 and conclusion of spring 2022 semesters, the Distinguished Professor Endowed Chair (DEPC) and participating faculty will compare quantitative student learning outcome data from the Outreach youth, the impact of peer-teaching to measure the impact of knowledge, peer-influence, and positive cultural food association on food choices and obesity prevention in African American youth. Spring 2022</p>
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