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Socioeconomic Status and Physical Activity Levels in Obese and
Non-Obese African Americans

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Socioeconomic Status and Physical Activity Levels in Obese and
Non-Obese African Americans

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Abstract

A lack of physical activity has become a major problem in the United States with no signs of relief coming anytime soon. More specifically, the African American community continues to remain among the most inactive. While many factors may contribute to inactivity, major contributors include genetics, diet, socioeconomic status, and obesity. The purpose of this study is to evaluate the differences in socioeconomic status and physical activity between obese and non-obese individuals in the African American community. The research hypothesis states that both socioeconomic status and physical activity will be lower among obese African Americans when compared to non-obese African Americans. Forty African American participants completed an online survey to determine their current height, weight, physical activity levels, household income, education level, and additional demographic information. The results indicate that obese African Americans do have significantly lower levels of physical activity than non-obese African Americans. No difference in income or education was observed between obese and non-obese African Americans. Thus, the hypothesis was partially supported. These results indicate that obese African Americans should be targeted for physical activity interventions. Future research should focus on the design and implementation of effective physical activity interventions for obese African Americans.

Introduction

Background and Significance

Many factors impact the mental and physical health of the individuals in this country. Two of the major issues that we face are obesity and inactivity. The incidence of obesity has been on a significant incline over the past few decades and remains among the most talked about health detriments in the U.S. On average, a third of adults over the age of 20 can be identified as obese (Kirby et al., 2012). Obesity can be defined as having a Body Mass Index (BMI) of 30 kg/m² or greater. BMI is calculated as body weight (in kilograms) divided it by the square of height (in meters). Various studies estimate that between 112,000 and 300,000 deaths in the U.S. are caused by obesity; second to only tobacco usage (Kirby et al., 2012).

Sedentary lifestyle behaviors play a large role in the development of obesity. Physical activity serves as a contributing factor to cardiovascular disease (CVD), hypertension, and type 2 diabetes (Hu, 2003). According to the Physical Activity Guidelines for Americans (PAG) the recommendation for activity in healthy individuals are at least 150 minutes to 300 minutes a week of moderate – intensity, or 75 – 150 minutes of vigorous – intensity of aerobic physical activity (PA) or equivalent (U.S. Department of Health and Human Services [USDHHS], 2018). Many contributing factors play a role in the lack of physical activity. Understanding these contributing factors could be the solution to increasing physical activity within the U.S. According to a study conducted by Van Domelen et al. (2011) there are three main components and ways to accomplish physical activity daily: (1) occupational physical activity which includes any type of physical activity done while at work; (2) household physical activity which includes yard work and cleaning; and (3) leisure-time physical activity such as structured exercise or participation in a sport. This study demonstrates the ability to engage in some sort of

physical activity can help slow the incline in obesity and potentially the CVD previously mentioned.

While there may not be many studies directly aimed at observing the incidence of physical activity and the African American (AA) community, it is widely assumed that AA individuals do not participate in physical activity as regularly as other ethnicities. A study conducted by Bell et al. (2013) on the correlation between physical activity and CVD within the AA community found that AAs were 20% less likely to engage in physical activity than white individuals. Furthermore, a dataset collected and analyzed by Williams et al. (2018) found that AA youth reported 33% to 52% of engaging in some sort of physical activity and 27% to 52% of AA adults reported not ever participating in physical activity. Bell et al. (2013) found that an increase in physical activity resulted in fewer incidences of health-related disease within the AA community during this study. While both obesity and physical activity affect every ethnic group, it is no secret that some ethnic groups suffer disproportionately more than others. According to Kirby et al. (2012) about 50% of AA women can be identified as obese as opposed to only 33% of white women. This disparity is influenced by many factors such as income, educational level, access to food, and transportation, all of which can be viewed as immovable barriers, depending on the individual and their circumstances. Obesity is not only a chosen detriment from poor decisions; it can also result from genetics. Srivastava et al. (2016) found that obesity is, in fact, influenced by genetics. While this study would support the idea that obesity appears inevitable for certain individuals, it does not support a choice to not engage in physical activity.

The decision to engage or not engage in physical activity appears to be one made based on certain environmental factors such as limited or no access to parks, walking or biking trails, and affordable gyms. These particular barriers are often associated with socioeconomic status

(SES). Kershaw et al. (2013) examined the constraints of living in an area low on resources. Their study found that ethnic minorities living in low-income areas have less accessibility to social and economic advantages. This information supports the urgency to evaluate and understand the relationship between SES, physical activity, and obesity in the AA community.

Hypothesis and Purpose

The primary purpose of this study was to evaluate the differences in SES and physical activity between obese and non-obese individuals in the AA community. A secondary purpose was to explore relationships between SES, physical activity, and obesity as measured by BMI. The primary research hypothesis was that both SES and physical activity will be lower among obese AAs when compared to non-obese AAs. The null hypothesis stated that there would not be a difference in SES or physical activity between obese and non-obese AAs.

Limitations, Delimitations, and Assumptions

The primary limitation of this study was the potential of participants not providing accurate information on the survey and leaving questions unanswered. This is a common limitation with survey-based research study involving information being collected in a self-reported format. There are no real ways to prevent this issue from occurring. Survey-based research has to be built around trust in order assure the highest quality of data. Another limitation to this study was participants potentially having a hidden agenda. It is not outside of the realm of possibility for a participant to view this study in one way, or the other, and create their own narrative, and skew the data. This is also not uncommon for survey designed research.

A delimitation of this study was the specific group of participants chosen by the researcher to participate in this study. By limiting the participants to only AA, that can cause the data to look identical and slightly skew the observation. Another delimitation of this study

included limiting potential participation to one group of people. Such as the single church the researcher used for recruitment of participants. The selection of variables is also a delimitation. Obesity is likely influenced by many more factors than SES and physical activity; however, due to design limitations this study is delimited to SES, physical activity, and obesity.

Assumptions for this research study were that all participants will remain honest in this study for optimal data to evaluate. The types of questions asked may elicit feeling of shame or embarrassment making participants slightly more likely to want to hide their true responses. It is also assumed that participants will provide an accurate measure of their body weight and height following detailed instructions given by the researcher.

Operational Definitions

Socioeconomic Status – The social standing of an individual or a group of individuals. Often categorized by income, educational level, or job status.

Food Desert – A populated area lacking food shopping or healthier eating options.

Physical Activity – Can be defined as any movement of the body that requires energy expenditure.

Exercise – An activity that requires physical effort with the intention to improve health and fitness.

Obesity - Having a Body Mass Index (BMI) of 30 kg/m^2 or greater. BMI is calculated as body weight (in kilograms) divided it by the square of height (in meters).

Literature Review

Introduction

Socioeconomic status (SES) and obesity have become connected among the African American (AA) community for quite some time. Obesity numbers within this community are growing rapidly, with an apparent link to SES and a lack of physical activity participation. Generally speaking, the lower an individual is placed on the socioeconomic scale, the higher their chances of being sedentary and obese (Srivastava et al., 2016). These issues are prevalent in the AA community due to their relationship with cardiovascular disease (CVD), diabetes, and other diseases that could potentially occur from inactivity and obesity. Obesity is without a doubt, a real issue among every ethnicity and the approach is generally the same, but it is highest among women in the AA community according to Srivastava et al. (2016)

According to the Center of Disease Control (CDC), obesity can be defined as an individual accumulating weight that is higher than normal for that individual's given height. These measurements are done through calculating body mass index (BMI) which is assessed by calculating height and weight. BMI ranging from 25 to 30 kg/m² is considered overweight, and 30 kg/m² and greater is considered obese. According to the U.S. Department of Health and Human Services Office of Minority Health (2020), a 2018 survey concluded that AA were 1.3 times as likely to become obese than whites. More specifically, AA women have the highest rates of obesity among any other group which is 50% higher than white women. Additionally, four out of five AA women are obese. This trend in both men and women begins in the home and during childhood. This literature review explores the relationship between obesity, SES, and physical activity in the AA community. Additional factors such as genetics, misinformation, and lack of access to healthy foods will be explored as well.

Methodology

The database search criteria for this literature review included publications from PubMed Central, Public Library of Science, ProQuest Central Health and Medicine Collection, Elsevier Science Direct Journals, Sport Discus, Wiley Online library, EBSCOhost, Ovid Journals, SAGE JOURNALS, and BMC Public Health. The key terms that were focused on and used within this study were: *obesity in the U.S., obesity in the African American community, cardiovascular disease in the U.S., risk factors for obesity, obesity and physical activity, food stamps among the African American community, physical activity among the African American community, education among African Americans on obesity, socioeconomic status among minorities, socioeconomic impact on obesity among minorities, and obesity interventions among minorities.*

The search yielded more than needed information to use for the purpose of this literature review. The researcher used the keywords to narrow the searches down and to find the necessary information to evaluate. The researcher focused on studies directly relating to AA individuals that focused on survey responses and not necessarily studies focusing on detriments to health in response to not eating right and not engaging in physical activity.

The inclusion criteria consisted of AA individuals, age ranged from 10 - 70 years of age, individuals (mainly African Americans) who are overweight by BMI standards, and individuals who have not worked out in 6 months or more. There was not much exclusion criteria due to the idea of including AA of all socioeconomic statuses, obesity levels, and education levels. The reason was to gain a complete understanding of the issues that surround obesity in the AA community and to fully accomplish this goal, individuals on both ends of the spectrum needed to be evaluated. When evaluating SES and physical activity, the majority of the information was

collected by surveys. In order to obtain information for these factors as accurately as possible, the best way to evaluate information is through surveys.

The quality standard for articles found were labeled as low to mid in terms of quality. Low quality articles for the purposes of this study presented statistical data that were unclear and hard to read, and studies that were created around surface level AA community information. Thus, some studies just gave basic statistical information regarding the AA community but did not dive into the issue regarding the reasons for the statistical data. There were not a lot of articles that specifically focused on the AA population and its relation to obesity and education of obesity; therefore, the literature review had to shift to articles centered more towards the education of obesity, with no exclusion attached. The articles that were selected were based around surveys and mostly qualitative studies as stated before. The inclusion criteria were centered around the intended population, obesity, cultural influences, physical activity participation, and miseducation. As previously stated, there were not many articles relating to the miseducation of obesity among the AA community, so articles relating to the topic of ethnicity were considered for use. The way the question is phrased, the research benefitted in terms of evaluation by evaluating studies involving a mixed method design.

Results

Obesity within the AA community

Obesity is one of the most detrimental health issues in the U.S. and more specifically within the AA community. This issue could potentially cause mortality closely associated with cardiovascular disease (CVD), type 2 diabetes, and cancer. CVD is arguably the most dangerous of all risk factors and is the leading cause of death in the U.S. of preventable diseases. Aycock et al. (2015) suggests that AA are twice as likely to suffer a stroke, which could lead to a higher

mortality rate caused by disease. Obesity could also cause flare ups with chronic diseases such as hypertension, arthritis, and rises in high cholesterol. Among these chronic diseases, Litwin (2014) acknowledges three key factors obesity influences within chronic disease: dyslipidemia, elevated blood pressure, and insulin resistance. All of these factors are recognized in both adults and children and should be treated and cared for the same.

Detriments to health are not the only motivating factors to eliminate obesity. Body image could also be a driving force to help eliminate unhealthy eating habits and the cause of obesity. Boyington et al. (2008) conducted a study on the perceptions of body image among AA girls by recruiting twelve overweight AA girls between the ages of 12 -18 years and found that despite living unhealthy lives, AA girls were satisfied with their bodies. This small sample size does not speak for the entire community, but it does provide insight on what is important when evaluating body perception within the AA community.

A survey conducted by Dawkins et al. (2007) on the perception of obesity among AA who were enrolled in a nutrition program found that perception was more affected by gender, age, and income, but there was no relationship between knowledge and gender. There is no difference in these individual characteristics that can alter one's ability to obtain the adequate amount of knowledge to eat better.

Maintaining your body image can be very difficult. Understanding what to eat and how to prepare your food are key components. Very few studies have been conducted on the fruit and vegetable intake of AA individuals and its relationship to obesity until Dubowitz et al. (2008) conducted a study on the neighborhood socioeconomic impact on fruit and vegetable intake. Through the usage of data from the U.S. census and analyzing data from the Health and Nutrition exam survey, the study concluded that AA consumed 0.42 fewer servings of

vegetables and fruit on a daily basis than any other racial group. The study affirms the important need for a healthier diet as obesity continues to grow and the mortality rate as a result also continues to rise.

As mentioned before, one of the only ways to prevent obesity from occurring and maintaining that trend is to interfere at a young age. Childhood obesity is probably the least talked about but most important aspect of eliminating obesity as an issue into adult life. Among the population, AA girls are among the likeliest of any other group to become obese (Boyington et al., 2008). There are multiple factors that influence obesity in younger children. A few have been discussed, but the genetic impact on obesity appears to be the one that is often neglected. There is not much to be done about genetic obesity as it is a relatively unknown issue as there has not been much research that explains higher BMI. What is known however is that children born with higher chances for obesity, are susceptible to having a tougher time avoiding environmental factors, that contribute to losing weight. Obesity begins before the age of 12, which increases someone's chances of becoming labeled overweight or obese by 11% to 30% in adolescent adulthood (Thompson et al., 2007).

Miseducation of Obesity Among AAs

As with majority of other avoidable health issues, the education behind obesity and obtaining a great deal of understanding play a huge role in the elimination of obesity. One may not be able to avoid or treat these health issues without the proper education and awareness of the subject. The miseducation of obesity among the AA community may contribute to the rising obesity rates. There are many different ways to observe the dynamics of education surrounding healthy eating that could aide in the prevention of obesity. This section will explore the thought process behind healthier eating habits within the AA community.

The miseducation of healthier eating among AA individuals is definitely an issue worth examining. Lucan et al. (2011) conducted an interview survey among AAs living in low income areas to examine the concepts of healthy eating. They found that participants held a common understanding on the broad nutritional diet principles that were consistent with national dietary recommendations. The disagreements came from understanding the healthfulness of certain foods; however, during a follow up study, these same participants reported eating fast foods, and less fruits and vegetables in subsequent days after displaying the knowledge of what foods are healthier to consume. This study shows a direct example of AA individuals having the knowledge but ignoring the ramifications of a poor diet. The relationship behind attaining education of the mortality rates behind obesity and other risk factors as a result of a poor diet is a different conversation but one in the same. A study conducted by Cohen et al. (2013) found that over 70% of deaths among AA women will correlate with obesity among AA women by our current year of 2020. This study also found that the relationship between BMI and mortality was different among various education levels for AA individuals. (Cohen et al., 2013). These findings tell us that the previous study was supported in the research conducted that individual characteristics are not what separates the level of understanding, but the level of education does.

The level of obtaining information and the ability to process that information varies between an individual carrying a college degree, high school diploma, or no education at all. Upon examining obesity trends that expand through four decades, Yu (2016) found that individuals that did not attend college saw increases in obesity as opposed to those that did attend college for four years or more. Yu (2016) predicted there to be a 10% decrease in obesity as a result if the educational trends continue to elevate. A developed mindset on eating habits among the AA populations are driven by culture. What is passed down in terms of learning how

to cook could be attributed to generations of tradition. It is obvious that intervention efforts could be useful in reversing the obesity trend.

Interventions with the goal of enhancing knowledge around healthy eating methods and centered around specific dietary goals, cultural beliefs, educational background, specific individual needs, and preferences could be implemented to slow this trend. This intervention idea is only as strong as the potential retention rate. For example, transportation, childcare, comfort and familiarity among the research staff, convenience of meeting times, and location all could be considered barriers to a successful healthy eating intervention program (Hartlieb et al., 2015). It is extremely difficult to get the correct information to the ones who need it the most if these barriers exist. Hartlieb et al. (2015) recruited 186 families by way of clinics, community, and informatics to conduct a nine-month study on the retention and recruitment strategies for weight loss as a potential intervention to obesity. All three were found to be successful.

Obesity and Socioeconomic Status

When trying to understand the hardships for obtaining a healthier lifestyle, and maintain healthier eating options, one must attempt to identify with what is referred to as social determinants of health. According to The World Health Organization (WHO, 2022) a social determinant to health can be defined as the conditions in which people live, work, and age with an emphasis on education, social, economic, and health care of those places. Social determinants are issues for the disenfranchised and provide sometimes overwhelming barriers to living a healthy lifestyle. SES plays a role in obesity, and it is a known fact that healthier eating options cost more and several barriers may arise while trying to obtain these foods. These areas are considered “food deserts.” Food deserts are described as populated neighborhoods with limits in food retail (Raja et al., 2008). In contrast, Lebel et al. (2016) developed a study examining food

environments in rural areas and the food, and the food product quality found in those areas.

Lebel et al. (2016) found an association with what is considered high quality foods and estimated that interventions were severely needed in order to make those counties healthier.

There is no real way to acquire a direct answer from chain supermarket stores, as to why they strategically place their stores in certain areas. Potentially low profit gain could be one reason as they fear lower income families might not be able to afford most of the food. The usage of food stamps would appear to offset any concerns about profit loss. The Supplemental Nutrition Assistance Program (SNAP) is a federal nutrition assistance program for individuals equivalent or under \$24,000 gross monthly income, for four or more individuals. This is a program for individuals who cannot afford to feed large families. The families are issued a set amount and is distributed to them on a monthly basis. With the benefit of essentially free money to grocery shop, along comes the program's inability to mandate certain food requirements. SNAP does not use any standards to uphold food recommendation lists. This could potentially be a direct contribution towards the obesity rate of AA individuals (Leung et al., 2013). Without guidelines, there is no way to hold people accountable receiving federal benefits. Leung et al. (2013) of low SES, about 1/3 of all children were obese or overweight. In the sample survey, all participants were found to have consumed fewer servings of grains, fish, fruits, vegetables, nuts, seed, potassium, and dietary fiber, and did not meet the national dietary guidelines. In support, it has been suggested that early adolescent children that live and grow up in higher SES households where at least one parent has an undergraduate degree, are less likely to become obese (Fradkin et al., 2015).

The SNAP program benefits appear to increase obesity by increasing the amount of food being consumed. As a result, Baum (2011) suggests that the idea of food stamps promote binge

eating. Additionally, Baum (2011) stated on the relationship between obesity and food stamp usage found that food stamps do, in fact, increase obesity in participants. After examining the role of food stamps within AA individuals that live in food deserts, one could argue the implementation of a racial residential construct through neighborhoods SES and its relationship to obesity. Pertaining to the food deserts Kershaw et al. (2013) state that through systematically sorting ethnic minorities into poor neighborhoods, it limits their opportunity for social and economic mobility. Directly relating to racial residential construct, there has not been much research done until Kershaw et al. (2013) completed an observational study on this matter and found that there was no relationship between racial segregation and obesity among AA men but did, however, find a relationship amongst AA women. These findings are consistent with previous statistics on the extremely high rate of obesity among African American women, but it does not support racial segregation being a factor for obesity. In contrast, a study conducted by Chang (2006) examined the relationship between racial residential segregation, through the measurement of rural living and weight status in the U.S. There was a positive relationship between racial residential segregation and BMI, weight, and obesity. Although both arguments have been made for and against racial segregation, one cannot narrow it down to just one factor. SES likely plays a large part in obesity among all ethnicities.

Obesity and Physical Activity

Knowing what to eat, how to grocery shop, and how to properly prepare food can be argued in many ways, but the impact of physical activity and the relationship to obesity cannot be disputed. For decades it was believed that physical activity alone could remedy obesity, but that would prove to not be the case. Sedentary lifestyles and a lack of physical activity remains to be an issue in the AA community. For years, AA individuals have been known to not engage

in much exercise and physical activity of any sort. Lavizzo-Mourey et al. (2001) evaluated the beliefs and attitudes that surround AA and exercise, in particular, older AA. Questions for the survey included: what do you consider exercise, what makes exercise difficult for you, how can exercise be beneficial to you and what types of exercises do you like to do? This type of survey is a great way to gain an understanding of how to engage this community and get them active. Getting AAs to become more active and help decline obesity rates, lies the correlation between the physical activity and exercise among the AA community. The relationship with obesity remains the most important factor in decreasing early mortality risk factors among AA. One of the biggest challenges for AAs and physical activity is Television (TV) viewing time. Time spent watching TV is said to be among the most prevalent sedentary activities with an estimated 50% to 70% of Americans spending an average of 6 or more hours in a single day, sitting stationary, and 20% to 30% of people watching an average of 4 or more hours of TV per day (Imran et al., 2018). This activity independently contributes to the obesity rate. At the conclusion of this study and the observation of TV viewing time, it was found that excessive TV viewing time was associated with mortality.

Further research indicates that majority of these individuals were consuming a poor diet during this observation. This could have played the biggest part in the cause of mortality, but the participants were also inactive. This study also did not consider genetic attributes as well as any other factors that could have played a part in mortality. An idea to help stop some of these mortalities is the implementation of physical activity and leisure time and what that should look like as far as recommendations on activities and ideal time spent being physically active. Physical Activity Guidelines for Americans (PAG) the recommendation for activity in healthy individuals are at least 150 minutes to 300 minutes a week of moderate – intensity, or 75 – 150

minutes of vigorous – intensity of aerobic physical activity or an equivalent (USDHHS, 2018). To put it in perspective, that is an average of 30 minutes a day for 5 days out of the week. Some activities that could help satisfy the recommendations from an exercise standpoint are a brisk walk, biking, swimming laps around a standard pool, playing pick-up basketball, weight training, and water aerobics. For individuals who may not have access to a gym, some examples include gardening, dancing, yardwork, or something as simple as cleaning the garage at a decent pace.

Since AAs are at the top of the list as far as racial groups are concerned for having the most significant number of preventable diseases, these activities will aid in the prevention of those diseases. A study done by Bell et al. (2013) focusing on physical activity and the relationship to atherosclerosis found a strong inverse relationship between the two factors. In a parallel study, Grisolia et al. (2013) also surveyed individuals on dietary choices, their physical activity level, and assessed the responses to better understand the relationship to health detriments. Grisolia et al. (2013) found that when individuals understand the ramifications surrounding their health, they are more likely to engage in physical activity. Pregnant women specifically have the most to gain from physical activity and exercise and decreasing their chances of CVD. Swift et al. (2017) conducted a study relating cardiorespiratory fitness and the relationship to CVD, finding an almost 50% increase in cardiorespiratory fitness, which would decrease chances for CVD. In detail, Swift et al. (2017) also suggests for every 1 MET increase, an equal 15% decrease in exposure to CVD.

It can be very easy for one to make their own argument of how they move around at the job a lot and that is their physical activity for the day. In certain cases that would be true. A study done by He & Baker (2005) found that ethnic minorities have a greater chance to be

employed through a job with great physical demand that can also sometimes be hazardous, the likelihood physical activity recommendations met are enhanced. The general mindset around physical activity among minorities is slightly skewed due to numerous reasons and the obvious advantage to physical activity is not always enough. The self-reported levels of physical activity from AA individuals are extremely low and therefore support the need for similar studies.

Discussion

The negative impact of obesity in the AA community is well documented. For years, the AA community has fallen behind in comparison to other ethnicities. The solution comes in various forms as mentioned earlier: The lack of physical activity, having a lower than desirable SES, and the miseducation of how to eat. All three of these contributing factors to obesity can also provide short- and long-term solutions to the obesity issue within the AA community.

The general idea around what is healthy to eat and what is not can almost be agreed upon across any ethnicity. The idea behind examining the miseducation aspect of this literature review was to observe different perspectives on what obesity is and the level of understanding behind the issue. Among the AA community, the miseducation was found not to be the largest issue. Referring to the article within the miseducation section, Lucan et al. (2011) concluded that the overall issue was not that AAs located within low-income areas did not know what to eat, it was that they were not always consistent in their eating habits. One could point to discipline for being the culprit for not being able to put action towards the knowledge of obesity and healthy eating.

A potential change in healthier eating as the familial generations begin to shift. Older family members may begin to move on, and so do their recipes and unhealthy cooking ways. Younger generations are generally a little more open minded as referenced in this study by the

surveyors. Lucan et al. (2011) followed up with another post survey and found that while the younger generations were more educated than from an overall standpoint than older generations but found it to be more difficult to eat healthier foods because of not wanting to give up on their heritage and culture. This finding is huge in terms of understanding the mindset behind why it would appear that AAs struggle in terms of maintaining a healthy diet. It has been shown that education was not the issue but now we know that there are personal factors that play into this as well. The main point behind this study suggests that a lack of physical activity and lower SES were found to be some of the main causes of obesity. The numbers suggest that there has to be accountability on the lack of physical activity among the AA population.

This study certainly has limitations. Sample size and selected location for the study would be of those limitations. As noted, only 33 participants took part in this study. Statistically speaking, the smaller the sample size, the greater the percentage for an error to occur in data. The small sample size could be argued to be the result of the condensed area. The study was limited to just one low-income area in Philadelphia, PA. Despite the two noticeable limitations, there was still valuable information gathered.

Other limitations of this study would be the nine-year gap in between the study and now. That does not necessarily discredit the study; however, it does present the opportunity to establish new studies. Ideas for new and future studies include: Developing initiatives for AA individuals on maintaining healthy eating. Ideas on how to educate low-income communities on how to shop for and prepare healthier foods, ways to educate the youth on healthier eating choices, and examining the food selection in the public-school system and ways to improve.

In contrast to the findings of miseducation not being the sole cause for unhealthy eating, there still needs to be the furthering of education on how to prevent obesity within the AA

community. Obesity remains an issue and cannot only be fixed through healthier eating. Lucan et al. (2011) speaks about establishing creative ways to advertise healthier eating options such as more produce campaigns and implementing healthier eating options among AA families in the home to help establish healthier habits. The way that the studies shown within this section were conducted were done, the best way to find the best possible reasoning for the lack of understanding on the ramifications of obesity. By actually finding individuals within the targeted community and assessing their feedback, the results and conclusions found could not have been properly assessed.

In addition to education, SES was also found to have a huge impact on obesity in the AA community. Every article reviewed, pointed to the fact that money and location impacted obesity almost more than anything else. One of the largest factors within the SES prospective would be food deserts. Food deserts set the tone for what the individuals in that area will consume. If there are no healthy eating options, they will resort to the unhealthier fast-food chains that are sure to flood those areas. Conventional wisdom would lead one to believe that in areas where there are grocery stores, the health is better of the individuals in that area.

Raja et al. (2008) discussed the issues of food deserts and what they mean for the community. This article observed the question whether food environments in neighborhoods of color differed from predominately white neighborhoods. Raja et al. (2008) used a cross-sectional regression model and concluded that there was a huge disparity in healthy food environments between the two heavily ethnic populated areas. They also found that there were smaller convenience stores and smaller grocery stores planted within some of these AA communities. The difference in these stores was that quality of food was not comparable with the higher graded food being found in the predominately white neighborhoods. There is no way to entice

larger grocery store chains to invest in stores within AAs and other minority communities. The only recommended solution to food deserts would be to somehow figure out a way for the smaller stores already in those neighborhoods to begin to carry fresher produce, and up to date fruits and meats.

The SNAP program also proved to be an indicator for obesity. While the program helps immensely with families of low income, it could also contribute to obesity due to the large amounts of free money given to recipients. Referring back to the study conducted by Baum (2011), there was a direct correlation to obesity and SNAP utilization. Baum (2011) found a 10% increase in obesity among males that received SNAP benefits, which is on the low end as opposed to female recipients. SNAP benefits are government issued, therefore making them go away is not an option and neither is regulation. Instead, education and perhaps benefits of some sort could also be cursor to elimination to obesity.

As noted, not every AA is a recipient of SNAP or any other governmental assistance. There are some AAs that do not qualify for these programs, yet still fall below the poverty line, and live in these designed food deserts. The individuals that make up this population are equally deserving of an opportunity to reverse obesity trends as well. Baum (2011) found that 28% of eligible recipients of SNAP are obese as opposed to only 17% of people that are not eligible recipients of the program. This finding would lead you to believe that being on governmental assistance does increase your chances of becoming obese, but that does not take away from the alarming rates of obesity that continue to rise.

There is no way to monitor what SNAP recipients buy and if they are meeting the recommendations for healthy eating while shopping. The recommendation for a solution to this issue is related to the above-mentioned education. Not assuming that all AA individuals are

recipients of SNAP, but the same educational implementation can be utilized here. The universal belief with these two issues is that they both can be fixed in a similar way.

The studies done in this section directly relate to the actual issues being faced within certain AA households. In order to better understand the financial ramifications relating to obesity, governmental assistance and location are the two biggest areas to be viewed. The relevance to this issue of obesity holds the most weight to finding a solution in terms of social construct. There were not many glaring limitations to the studies mentioned in this literature review, except the fact that information can get lost in translation. Some individuals may naturally forget to include important information detrimental to the study but that is to be expected. The given information was enough to make assumptions. Future recommendation for study of the SES factors among AAs include examining why larger grocery store chains do not locate in the lower income areas when a decent amount of the individuals in that community do receive governmental assistance and why unhealthy food chains are being placed in lower income areas.

Physical activity appeared to have the similar impact as the previous issues and is just as crucial to the prevention of obesity in the AA community. With many obstacles in between maintaining a healthier lifestyle through exercise. Exercise is among the least favorite activities within the AA community. The reasons are unknown to statistics, however the reasons could range from not understanding what to do in a gym, cannot afford a trainer, no gyms in my area, to just not having an adequate amount of time; however, the study conducted by Imran et al. (2018) found that AA individuals are spending that time watching television and becoming more sedentary. Television viewing time and the relationship to mortality was assessed. Although a significant relationship was found between the two, conventional wisdom would lead one to

believe that television time was not the biggest factor for mortality among AA. Since this was a self-reported questionnaire, there were many limitations when trying to find a common solution, but it is safe to say that there has to be many contributing factors to the mortality rate among this surveyed group. Factors such as unhealthy eating, sedentary occupations away from home, and no other physical activity or leisure activities being had played just as big of a part to the mortality.

Increasing physical activity within the AA community may call for a group effort. Finding ways to start group exercise sessions that hold each other accountable and ensure participation. Lavizzo -Mourey et al. (2001) conducted a study as mentioned previously in this research that examined ways to increase exercise within the AA community. Ideas such as group exercise, incorporating music into the workout, carpools to and from the gym, rewards, etc. The individuals in this study appeared to respond better when approached with these ideas. Regardless of how it is done, physical activity and exercise must remain a top priority in the AA community.

Some limitations to the studies done in the physical activity section of this review were that none of them included a hands-on approach to evaluating the physical activity performance or accountability. There was no way to actually tell if the surveyors are being truthful although this can be said of any qualitative approach to a research study. The study done by Lavizzo-Mourey et al. (2001) has a 20-year gap between then and now, but it was truly one of the best in depth studies that was used for this literature review. It was the only one reviewed that actually went to the source and conducted a questionnaire on what will actually make AA individuals want to get out and exercise and become more active. This is a true example of utilizing and making good practical application in a research study.

In conclusion, the universal agreement from this literature review is that obesity is a huge issue within the AA community and one can even argue the importance can be considered a top priority. The studies done here all support that mortality rates can be reduced through physical activity, exercise, and healthier eating. SES was found to be among the greatest obstacles for defeating obesity, but it is hard to find a solution for that factor. The mention of grocery stores being placed in low-income areas was explored but without proper financial backing, that is hard to accomplish as well. However, the education on physical activity, SES, and obesity can stand to increase as well. AA individuals will start to find themselves in better standing with obesity rates once the education on the subject is increased. There are major gaps in research regarding cultural influence among AA individuals regarding physical activity and obesity. Therefore, the purpose of this research study is to examine difference in SES and physical activity between obese and non-obese AAs.

Methodology

The primary purpose of this study was to evaluate the differences in SES and physical activity between obese and non-obese individuals in the AA community. A secondary purpose was to explore relationships between SES, physical activity, and obesity. The primary research hypothesis was that both SES and physical activity will be lower among obese AAs when compared to non-obese AAs. The null hypothesis states that there was not a difference in SES or physical activity between obese and non-obese AAs. While many factors influence obesity, this study will focus on SES and physical activity.

Participants

The participants in this study were AA adults over the age of 25 years. The reason this study included individuals of all ages is to gather as much information as possible to gain the best generalization of the population. The exclusion criteria consisted of anyone not AA or under the age of 25. The participants were recruited from members of Antioch Baptist Church in Tulsa, Oklahoma through church email and social media announcements. The researcher's goal was to receive as much participation as possible. The initial recruitment goal was at least 50 participants. Given that this study was conducted during a global pandemic, the researcher felt that 50 participants would be a realistic number to analyze and evaluate. All participants indicated informed consent form before participation in the study.

Instrumentation

The primary means of data collection for this study was an online survey. The variables measured include demographic information such as race/ethnicity. SES was measured by income and education levels. Physical activity was measured through survey and obesity was assessed by asking participants to measure and record their own height and weight.

Socioeconomic Status (SES)

SES questions were taken from the Behavioral Risk Factor Surveillance System (BRFSS) conducted by the Center of Disease Control (CDC). The questions revolved around household income earnings, number of occupants in each home, level of education, which ethnic group the participant belongs to, and a general idea of the participant's living area. The reason for placing an emphasis on SES is that financial status potentially plays a part in the onset of obesity and a lack of physical activity. A study conducted by Jevitt (2019) determined that when certain conditions affect over half a population, causation needs to be determined beyond personal choices while taking into consideration social and systemic and environmental factors that could contribute to obesity and a lack of physical activity (Jevitt, 2019).

Physical Activity

Physical activity was measured by the International Physical Activity Questionnaire (IPAQ) short form survey for assessing physical activity which measures self-reported weekly physical activity. This survey sought to gain information about the participant's physical activity habits such as the amount of physical activity completed on a weekly basis, intensity of activity, and sedentary time. The IPAQ short form enlists three specific types of activities that will be assessed and scored. Those activities are walking, moderate-intensity activities and vigorous intensity activities. Frequency (days per week) and duration (time per day) were collected separately for each specific type of activity. Although the data collected for this section was dependent on self-reports, the researcher relied on honest answers and accountability from participants. In a study centered around physical activity in US adults, Tucker et al. (2011) found that self-reported physical activity levels through surveys are among the most reliable options for obtaining information to determine physical activity among individuals, although

social desirability may be the cause of overestimation in reported physical activity levels estimating 1 – 3% variance in self-reported physical activity levels.

Obesity

Obesity was measured through the calculation of body mass index (BMI). Obesity can be defined as having a BMI of 30 kg/m² or greater. BMI was calculated as body weight (in kilograms) divided it by the square of height (in meters). BMI is one of the most widely used methods of body weight classification within the general population. BMI has both advantages and disadvantages. For advantages, it is easy to calculate, easy to administer in a wide range of settings and populations, and it is most commonly used method of classifying obesity. Some disadvantages are the inability to differentiate fat mass and fat free mass and the potential for over- or under-estimation when using self-reported height and weight. BMI is one of the most universally used body composition metrics used according to a study conducted by Nickerson et al. (2018).

Procedures

Participants were recruited through email and social media by the church through utilization of a maintained email and social media lists. The email included a link to the online survey. The first question on the survey was the informed consent document. Those providing informed consent were then asked to complete the demographic, SES, and physical activity questions. Finally, they were given instructions for self-assessing and recording their own height and weight. At the end of the online survey, participants were thanked for their participation.

Design & Analysis

The design of this study was a cross-sectional analysis of differences between two groups (obese and non-obese AAs). The independent (or grouping) variable was obesity as

defined by BMI calculated from self-assessed and self-reported height and weight. Individuals with BMI between 18 and 29.9 kg/m² were considered non-obese, while those with BMI > than 30 kg/m² were considered obese. Those with BMI < 18 kg/m² were excluded. The dependent variables of SES and physical activity were assessed using online surveys. Data were analyzed using independent samples t-tests and Mann Whitney U to evaluate differences between groups. Pearson's correlation coefficient was used to examine relationships between physical activity and BMI, while Spearman's correlation coefficient was used to examine relationships between SES, BMI, and physical activity.

Results

The purpose of this study was to evaluate the differences in socioeconomic status (SES) and physical activity between obese and non-obese individuals within the AA community. The hypothesis stated that both socioeconomic status and physical activity would be lower among obese AAs when compared to non-obese AAs. To gain a better understanding of the characteristic differences in obesity and non-obese, this study also examined other variables such as education levels, marriage status, and living proximity. The study was sent to members of one specific church located in a historically AA neighborhood in a small city in the Midwest. The survey was distributed through church email and social media accounts by church leaders. Forty-four individuals responded to the survey. Of those 44 participants, four were removed from analysis due to either incomplete survey responses, not being AA, or not agreeing to the informed consent.

Socioeconomic Status

Of the 40 participants that completed the survey, 14 reported earning \$75,000 or more a year, 11 participants reported \$50,000 to \$74,999, 13 reported \$25,000 to \$49,999 making up the largest percentage of the sample, and two participants reported making less than \$25,000 (see Table 1).

Table 1

Frequencies and Percentages for Income

Variable	Frequency	Percentages
\$75,000 or greater	14	35.0%
\$50,000 - \$74,999	11	27.5%
\$25,000 - \$49,999	13	32.5%
Less than \$25,000	2	5.0%

Education

One participant reported a completing only high school as a graduate resulting in 2.5% of the sample size, ten participants reported completing one to three years of college but not graduating which resulted in 25% of the sample size, ten reported graduating from college making up another 25%, 18 individuals reported earning a master's degree making up the largest amount at 45%, and one person reported earning a doctorate degree (see Table 2).

Table 2

Frequencies and Percentages for Education

Variable	Frequency	Percentages
Grade 12 (HS Grad)	1	2.5%
College (1-3 Years)	10	25.0%
College Graduate	10	25.0%
Master's Degree	18	45.0%
Doctorate Degree	1	2.5%

Employment

Twenty-nine participants reported being employed full time accounting for the largest percentage at 72.5%, only one participant reported working part time accounting for 2.5%, one other participant reported unemployment and not currently looking for work making up 2.5%, five participants reported they were retired making up the second largest population of 12.5%, three participants reported being active students accounting for 7.5%, and one person reported being disabled for the remaining 2.5%. (Table 3)

Table 3*Frequencies and Percentages for Employment*

Variable	Frequency	Percentages
Full-time	29	72.5%
Part-time	1	2.5%
Unemployed, not looking	1	2.5%
Retired	5	12.5%
Student	3	7.5%
Disabled	1	2.5%

Gender

The largest sex represented in this study were females making up 77.5% of the study with 31 participants. Eight males participated making up 20%. One person did not report their gender for the remaining 2.5% (see Table 4).

Table 4*Frequencies and Percentages for Gender*

Variable	Frequency	Percentages
Female	31	77.5%
Male	8	20.0%
Missing	1	2.5%

Body Mass Index

Upon completion of this survey, each participant was asked to measure and report their height and weight. A BMI predictor equation was used from the Center of Disease Control (CDC) to compute BMI. Twenty-one participants were classified as “obese” accounting for the

largest population at 52.5%. Nineteen individuals were classified as “overweight” making up the other 47.5% (see Table 5).

Table 5

Frequencies and Percentages for Body Mass Index (BMI) Classification

Variable	Frequency	Percentages
Non-obese	19	47.5%
Obese	21	52.5%

Note. Obese is defined as BMI of 30kg/m² or higher. Non-obese is defined as BMI less than 30kg/m².

Physical Activity Levels

Physical activity was self-reported by the participants as reported days and times for vigorous, moderate, and walking activities. After days and times were configured, total physical activity levels were configured by first converting the reported number of hours into minutes, then applying each of those to the International Physical Activity Questionnaire (IPAQ) scoring equation. For the vigorous intensity category, 14 participants reported 60 minutes or more making up 35%, one person reported 40 to 50 minutes making up 2.5%, and eight participants recorded 30 to 20 minutes making up 20% of the population, one person recorded engaging in less than 20 minutes resulting in 2.5%, and the largest population of 16 participants reported no vigorous time rounding out the remaining 40%.

For moderate intensity activities, eight participants reported five or more days accounting for 20% of the sample size for this category, seven participants reported participating in three to four days of moderate activity accounting for 17.5%, eight more individuals reported participating in one to two days resulting in 20%, and the remaining seventeen participants reported not participating in any type of moderate exercise accounting for the remaining 42.5%

of the population. Nine participants reported engaging in sixty minutes of moderate activity, two participants reported 40-50 minutes a week to moderate exercise, five participants reported 20-30 minutes, two participants reported less than 20 minutes of moderate activity, and 19 participants reported participating in no moderate activity.

Lastly, 21 participants reported five or more days of walking, seven reported three to four days of walking, nine participants reported only to two days of walking, and three participants reported no walking at all. For walking time, fourteen participants reported participating in 60 or more minutes, five participants reported 40-50 minutes, six participants reported 30-20 minutes, and five participants reported less than 20 minutes. The remaining 11 participants either didn't answer, provided no accurate time, or reported no walking time. As a result, 17 individuals reported 0 to 1,000 MET minutes per week representing 42.5% of the sample. Six participants recorded 1,001 to 2,000 MET minutes per week which equals 15%, one participant reported 2,001 to 3,000 MET minutes per week, six more participants reported 3,001 to 4,000 MET minutes per week resulting in 15% of the sample, and the remaining 25% came from ten individuals reporting 4,000 or more MET minutes per week.

For obese individuals, the mean (\pm SD) vigorous physical activity was 628.57 (\pm 993.83) MET minutes per week, for moderate physical activity was 403.81 (\pm 869.96) MET minutes per week, for walking physical activity was 577.50 (\pm 820.00) MET minutes per week, and for total physical activity the mean was 1611.79 (\pm 2,126.24) MET minutes per week. For non-obese individuals, the mean (\pm SD) for vigorous physical activity was 1,848.95 (\pm 1,997.84) MET minutes per week, for moderate physical activity was 1,115.79 (\pm 1,493.92) MET minutes per week, for walking physical activity was 1,275.71 (\pm 1,207.90) MET minutes per week, and total physical activity was 3,922.69 (\pm 2,573.12) MET minutes per week (Table 6).

Table 6*Means and Standard Deviations for Physical Activity by Group*

Variables	Obese			Non-Obese		
	N	Mean	Std. Dev	N	Mean	Std. Dev
Vigorous PA	21	628.57	993.83	19	1,848.95	1,997.84
Moderate PA	21	403.81	869.96	19	1,115.79	1,493.92
Walking PA	21	577.50	820.00	19	1,275.71	1,207.90
Total PA	21	1,611.79	2,126.24	18	3,922.69	2,573.12

Note. Physical activity levels are measured in MET minutes per week. Obese is defined as BMI of 30kg/m² or higher. Non-obese is defined as BMI less than 30kg/m².

Marital Status

Of the 40 participants, 10 reported being married making up the second largest percentage of 25%, 4 reported being widowed at 10%, five reported being divorced at 12.15%, and 21 reported never being married 52.5% (Table 7).

Table 7*Frequencies and Percentages for Marital Status*

Variables	Frequency	Percentages
Married	10	25%
Widowed	4	10%
Divorced	5	12.5%
Never married	21	52.5%

Home Ownership

Table 8 shows home Ownership was split in half with twenty participants reporting being homeowners and twenty reporting not owning their home.

Table 8

Frequencies and Percentages for Home Ownership

Variables	Frequency	Percentages
Own	20	50%
Rent	20	50%

Fried Foods

Table 9 shows the frequencies and percentages for fried food consumption. Of the 40 participants, 22 reported eating fried food at least 1-2 days per week, 8 reported eating fried foods 2-3 days per week, 5 reported eating fried foods 4 or more days per week, and 4 participants reported never eating fried foods (see Table 9).

Table 9

Frequencies and Percentages for Eating Fried Foods

Variable	Frequency	Percentages
1-2 days	22	55%
2-3 days	8	20%
4 or more days	5	12.5%
Never	4	10%

Fast Foods

Table 10 shows the frequencies and percentages of participants and fast food consumption. Twenty participants reported eating fast food 1-2 days a week, 11 reported eating fast food 2-3 days per week, 6 reported eating fast food 4 or more days per week, and 1 person reported never eating fast food (see Table 10).

Table 10

Frequencies and Percentages for Eating Fast Food

Variable	Frequency	Percentages
1-2 days	20	50%
2-3 days	11	27.5%
4 or more days	6	15%
Never	1	2.5%

*Missing information on two participants

Differences in Physical Activity by Group

For this study, the confidence level was set to .05 as the alpha. There was a significant difference between obese and non-obese individuals for vigorous physical activity ($t = 2.58, p = .014$; Figure 1), moderate physical activity ($t = 1.86, p = .014$; Figure 2), and total physical activity ($t = 3.31, p = .002$; Figure 3). Although there was a trend toward a difference, the difference in walking physical activity was not significant between obese and non-obese individuals ($t = 2.16, p = .070$; Figure 4). For all physical activity variables, the non-obese group reported higher levels of physical activity. See Table 6 for means and standard deviations.

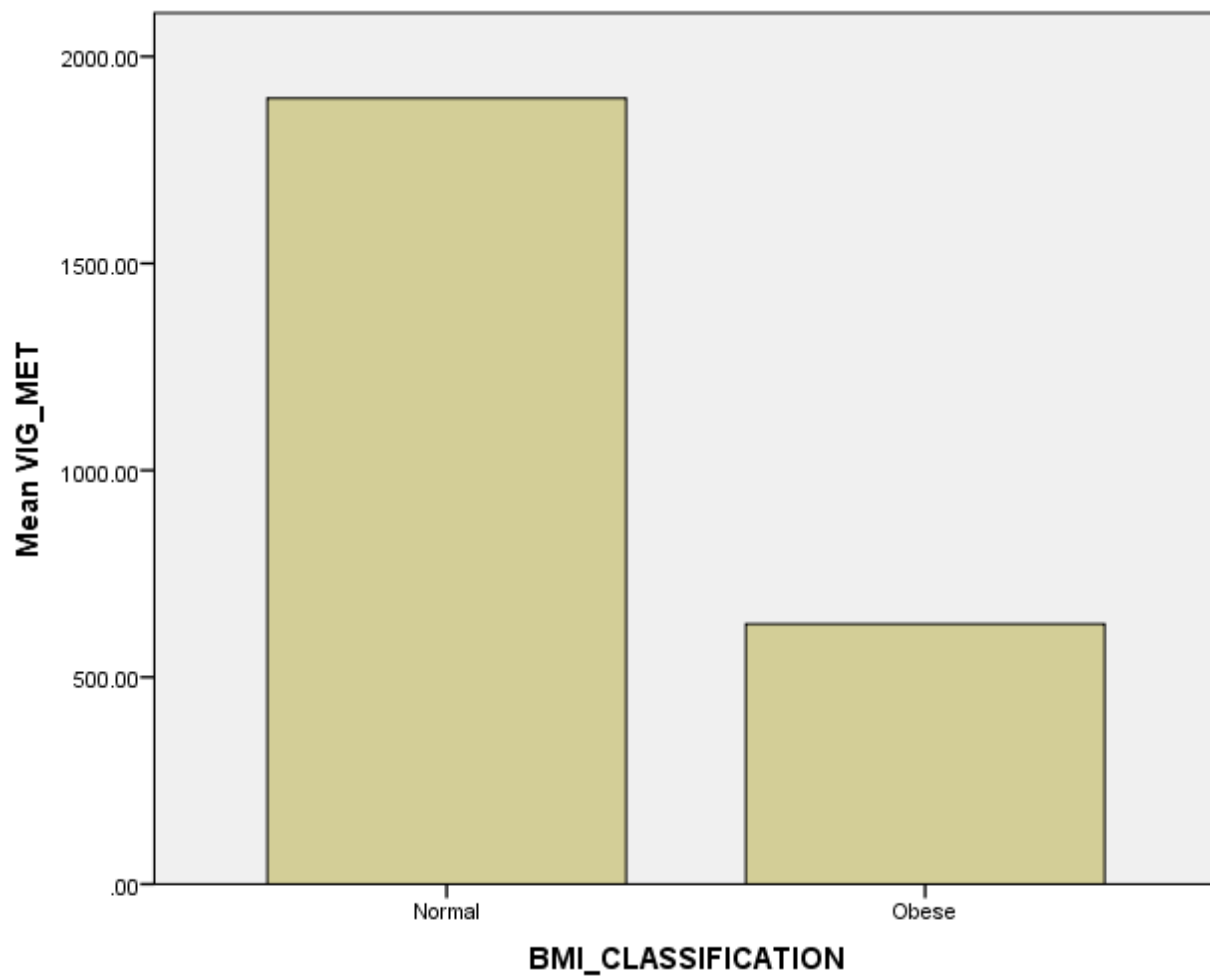


Figure 1. Bar graph showing the difference in vigorous physical activity levels for non-obese (labelled as normal) and obese individuals

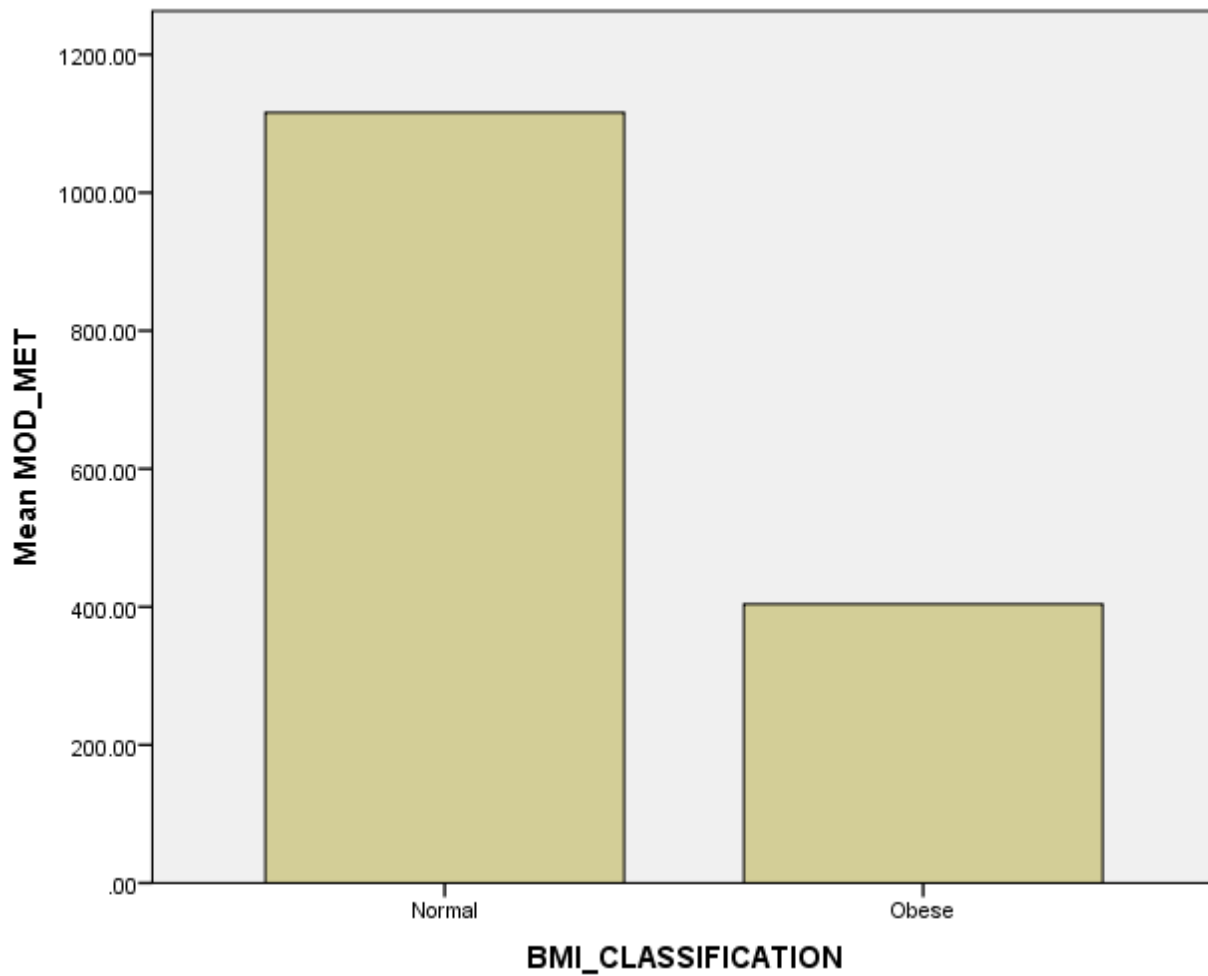


Figure 2. Bar graph showing the difference in moderate physical activity levels for non-obese (labelled as normal) and obese individuals

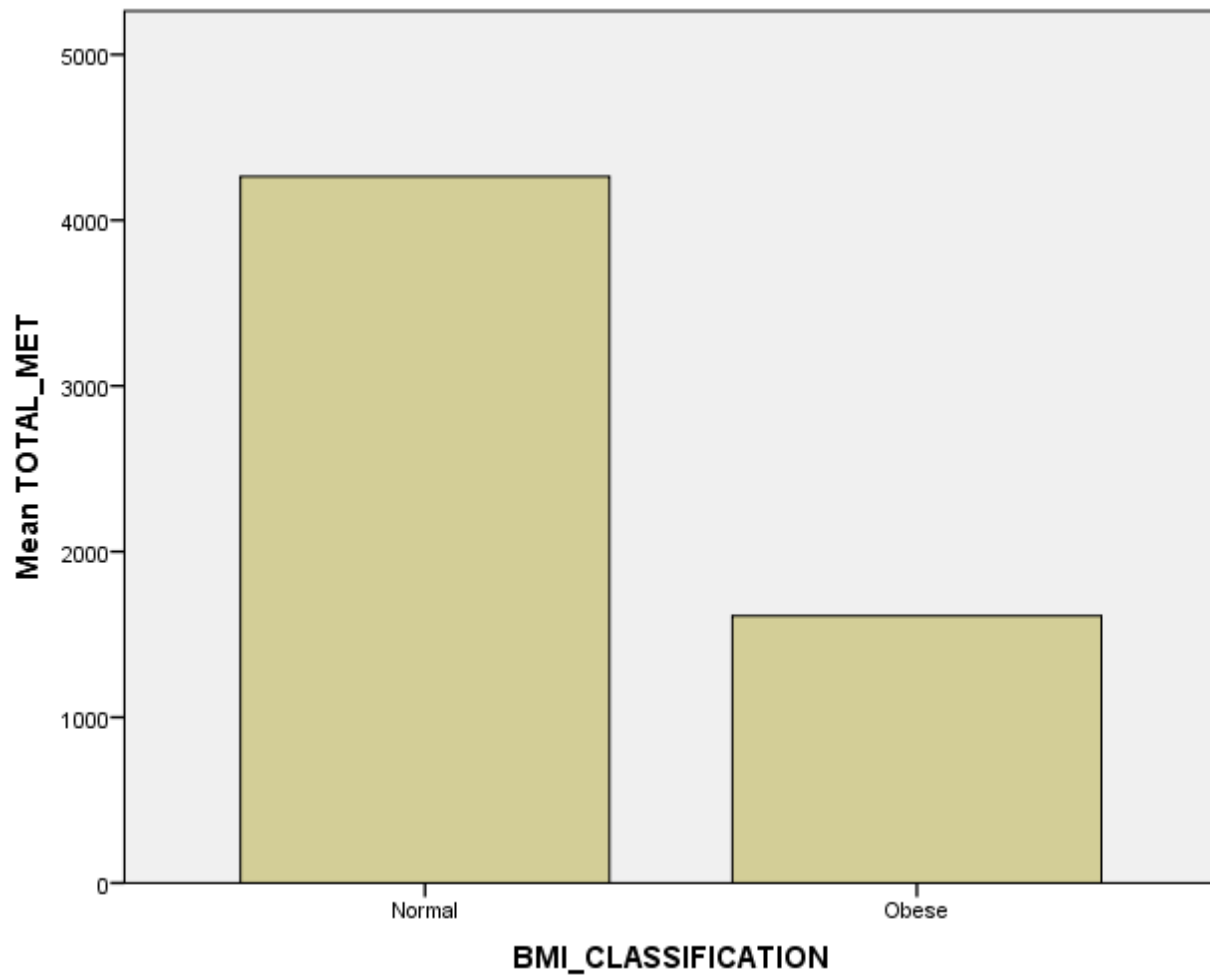


Figure 3. Bar graph showing the difference in total physical activity levels for non-obese (labelled as normal) and obese individuals

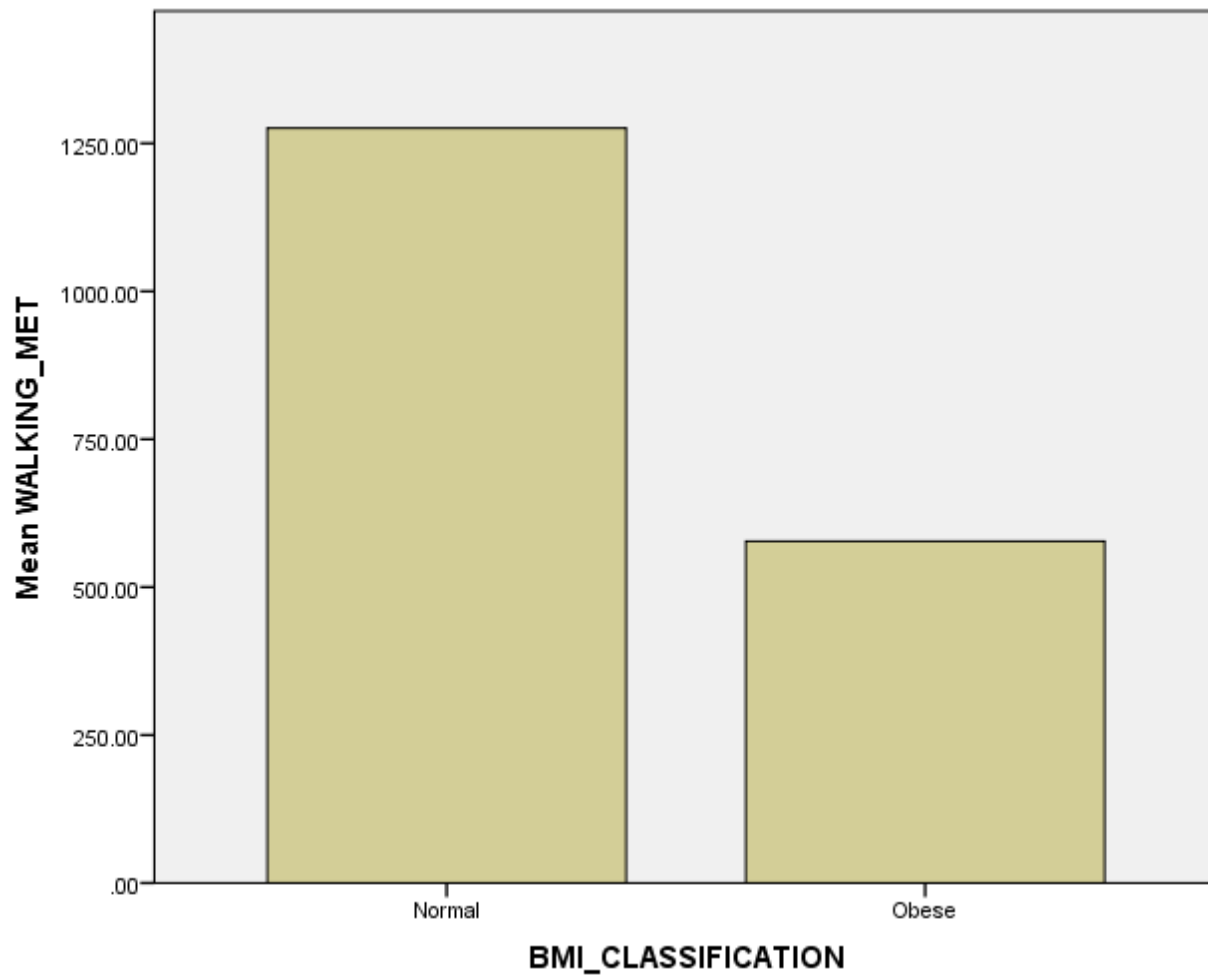


Figure 4. Bar graph showing the difference in walking physical activity levels for non-obese (labelled as normal) and obese individuals

Differences in SES by Group

SES was assessed as income and education which are non-parametric variables; therefore, a Mann-Whitney U test was conducted. The difference in income between obese and non-obese AA individuals was not significant ($p = .120$). Similarly, the difference in education between obese and non-obese AA individuals was not significant ($p = .739$).

Relationships Between Variables

Education was not related to vigorous physical activity ($r = -.114, p = .484$), moderate physical activity ($r = .099, p = .545$), walking physical activity ($r = .049, p = .766$) or total physical activity ($r = -.006, p = .972$). Likewise, income was not related to vigorous physical activity ($r = -.128, p = .431$), moderate physical activity ($t = -.116, p = .474$), walking physical activity ($r = -.053, p = .744$), or total physical activity ($r = -.044, p = .785$). A moderate, significant relationship was observed between education and income ($r = -.382, p = .015$). (See Tables 11 and 12)

BMI was moderate correlated with all physical activity variables (Table 13). The relationship was significant between BMI and vigorous physical activity ($r = -.387, p = .014$), BMI and walking physical activity ($r = -.330, p = .037$), and BMI and total physical activity ($r = -.451, p = .004$), but not significant between BMI and moderate physical activity ($r = -.289, p = .070$).

Within physical activity variables, several significant relationships existed (Table 13). Vigorous physical activity was significantly associated with total physical activity ($r = .738, p = .000$), but not moderate physical activity ($r = .225, p = .162$) or walking physical activity ($r = .070, p = .666$). Moderate physical activity was significantly related to both walking physical

activity ($r = .532, p = .000$) and total physical activity ($r = .709, p = .000$). Walking physical activity was also significantly associated with total physical activity ($r = .602, p = .000$).

Table 11

Relationships Between Education and Physical Activity (PA) Variables

Variables	N	Spearman Correlation	Sig
Education			
Vigorous PA	40	-.114	.484
Moderate PA	40	-.099	.545
Walking PA	40	-.049	.766
Total PA	40	-.006	.972

Table 12

Relationships Between Income and Physical Activity (PA) Variables

Variables	N	Spearman Correlation	Sig
Income			
Vigorous PA	39	-.097	.559
Moderate PA	40	-.053	.744
Walking PA	40	-.116	.474
Total PA	40	-.128	.431
Education	40	-.382	.015

Table 13*Correlation Matrix for Body Mass Index (BMI) and Physical Activity (PA) Levels*

	Vigorous	Moderate	Walking	Total	BMI
Vigorous					
Pearson	1	.225	.070	.738	-.387
Sig 2 Tailed	X	.162	.666	.000	.014
N	40	40	40	39	40
Moderate					
Pearson	.225	1	.532	.709	-.289
Sig 2 Tailed	.162	X	.000	.000	.070
N	40	40	40	39	40
Walking					
Pearson	.070	.532	1	.602	-.330
Sig 2 Tailed	.666	.000	X	.000	.037
N	40	40	40	39	40
Total					
Pearson	.738	.709	.602	1	-.451
Sig 2 Tailed	.000	.000	.000	X	.004
N	39	39	39	40	39
BMI					
Pearson	.387	-.289	-.330	-.451	1
Sig 2 Tailed	.014	.070	.037	.004	X
N	40	40	40	39	40

Discussion

The purpose of this study was to evaluate the differences in socioeconomic status and physical activity between obese and non-obese individuals within the AA community. The hypothesis stated that both SES and physical activity will be lower among obese AAs when compared to non-obese AAs.

SES and Obesity

The results in this study indicate no differences in SES measured as household income and education between obese and non-obese AAs. The hypothesis that SES would be lower among obese AAs was not supported. The researcher expected to observe a difference between SES and obesity due to the previously noted literature in this study that clearly states SES is an important factor in the development of obesity with food deserts contributing to poor eating habits (Leung et al., 2013). It is commonly reported that individuals in lower income areas do not have access to healthy eating, often live in food deserts, and may not be educated on the importance of physical activity. This perception led to the assumption that SES would be lower among obese AAs. It should be noted that this sample group reported a relatively higher than expected SES status, with only one individual reporting earning less than \$25,000 a year (Table 1). Not only did this group report higher income numbers than expected, but the group also reported achieving higher levels of education than expected (Table 2). The numbers from this sample tell a completely different story in that SES does not appear to be an important factor in the development of obesity especially when SES levels are high. A sample that included AAs of a wider SES status would likely show a difference result.

Physical Activity and Obesity

As expected, physical activity was higher among non-obese AAs, specifically total, vigorous, and moderate physical activity (See Figures 1-3). This supports the original hypothesis. These findings are consistent with the idea that individuals who engage in physical activity levels on a consistent basis are less likely to be obese. Some explanation for physical activity being higher in non-obese individuals might be a continued long history of engaging in physical activity and the motivation to continue living a healthy lifestyle (Grisolia et al. 2013). A moderate, inverse relationship was also observed between BMI and total physical activity indicating that those who engaged in higher levels of physical activity levels also reported a lower BMI (Table 13). The reasons for not engaging in physical activity were not asked to the participants in this study but one can assume lack of time and lack of motivation are major factors for not engaging in physical activity for obese individuals. Another reason for non-obese individuals to have higher levels of physical activity as opposed to obese individuals are feeling overwhelmed and judged by someone in the weight room, or not fully understanding activities of daily living and not knowing how house chores can count as “workouts.” It is not as widely understood as one may not think that house chores or just going for a walk is considered increased physical activity.

Diet

Tables 9 and 10 report fried food and fast food selection trends for this sample group. These results indicate that 42.5% reported eating fast food 2 or more days per week, while 25% report eating fried food 2 or more days per week. The explanation behind the consumption of fast food being a point of emphasis for one of the leading causes of obesity, reaches a lot further than fast food eating, and the consumption of fried foods (Lucan et al., 2010). The researcher

believed this topic to be among one of the most important issues when attempting to solve some of the issues within the AA community in terms of becoming a healthier community. There are several issues in every community, but for the purposes of this study research was condensed to start finding solutions. It is recommended that dietary factors be considered in future research.

Limitations

It should also be noted that self-reported BMI was used as indicator for obesity. Some of the potential limitations of this method could be dishonesty about height and weight. Since all the participants height and weight were done through a survey submitted online, there is no viable way to assure that all the reported heights and weights are accurate. Accountability was left solely to the participant. Another limitation with using BMI as the indicator for determining obesity is that BMI only considers height and weight and not body fat percentage, as explained earlier in this study. This limitation will cause some individuals to be labeled as obese, who have low body fat percentage and high lean mass, thus, higher body weight. Those individuals could also be in great physical shape. Other issues with utilizing BMI as the sole indicator for obesity are that it also does not account for gender, fat distribution, age, or bone structure. These are all important factors in determining obesity.

Self-reported eating, income, and physical activity habits faces the same issues as self-reported height and weight when it comes to honesty of the participant. All three of these topics provide important information for this study and being dishonest about any of the information would not provide much benefit. This issue would remain as such even if the survey was administered in person. There is no way to verify someone's eating habits without following them around and recording their food intake. The same goes for income and physical activity

habits. This study does not have the authority to obtain bank statements to verify how much each household brings in.

This study started out in the proposal phase which took place before the onset of the Covid-19 outbreak. Originally this study was planned to be conducted in person with body weight and height being measured. During the active COVID-19 quarantines, the researcher decided to adjust and make the entire survey available online and without human-to-human contact interaction. This idea would immediately come with limitations. The researcher had originally planned to actually measure height and weight which are likely more accurate than self-assessed and self-reported height and weight. The researcher had also planned to recruit and complete surveys in person which may have resulted in a more diverse SES group. This pandemic also may have affected the participant's eating habits, physical activity levels, and potentially the development of obesity. Although the impact of the pandemic is not yet well understood, it is likely that quarantine changes diet and physical activity patterns of many individuals.

Practical Application

This topic is important and very relevant to understanding the issue of obesity and a lack of physical activity among the AA community. As stated before, there are many contributing factors, and this study attempted to touch on as many of those issues as possible. This study will at the very least spark the conversation to begin finding those solutions. There is some level of accountability that remains within the AA community to fix some of the issues that are within their reach. While some of the issues with obesity are community or state level issues such as food deserts and income, many can be addressed at the individual level (making healthy choices). There are still ways to educate yourself to eat healthier within your financial means. The

real issue is that obese AA are getting much less physical activity than non-obese, according to the survey done in this study. As stated earlier, there are many possible reasons for the lack of physical activity in obese individuals, but the solution could drastically alter the landscape for obesity among the AA community. This can only be done through continued education and support for the urgency to engage in some sort of physical activity daily. This matter must be addressed quickly for the AA community to reverse the trends of generational obesity.

Areas for Future Research

The areas of future research should be centered around the reasoning for potential poor eating habits, a lack of physical activity, and food deserts. These issues are a much more complex than a survey would be able to handle. Understanding food deserts could be a tricky situation. There are hundreds of potential reasoning for that and would probably require a separate study within itself; however, the reasoning for poor eating habits and a lack of physical activity is something that can and should be studied. There would have to be in person interviews, actual observation of grocery store activity, cooked food preparation, among others. to begin the process of understanding this issue. The primary issue that needs further research would be the reasons for a lack of physical activity and active ways to combat the low levels of physical activity in the AA community. Increased physical activity could begin the process of reversing obesity trends within the AA community as well as bringing the many other benefits of physical activity. Shifting the focus of attention to trying to understand why there is a lack of physical activity would be an important usage of time and energy. Once the reasons for not regularly engaging in physical activity has been better understood, programs addressing these reasons can be put in place to increase physical activity levels in the AA community. There is also room for further research on educating the AA community on healthier eating options with

limited resources and money. When options are low, people will eat what is convenient, thus settling for less healthier options. If there was a way to stay somewhat healthy with fewer options, education could be eliminated from the determining factors for obesity and viewed as contributing factor for eliminating obesity moving forward.

Conclusion

The findings of this study indicate that obese AA engaged in significantly less physical activity than non-obese AAs. This demonstrates the importance of physical activity interventions targeted to obese AAs to help reduce the rate of obesity within that community.

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Appendix A
IRB Approval Letter



April 22, 2021

IRB Application #: 2021-030

Proposal Title: The Relationship Between Socioeconomic Status, Physical Activity, and Obesity in African Americans

Type of Review: Initial Review-Expedited Exempt

Investigator(s):

DaMarques Potter
Melissa Powers, Ph.D.

Dear Mr. Potter and Dr. Powers:

Re: Application for IRB Review of Research Involving Human Subjects

We have received your materials for your application. The UCO IRB has determined that the above named application is APPROVED BY EXEMPT REVIEW. The Board has provided expedited review under 45 CFR 46.110, for research involving no more than minimal risk and research category (2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

Date of Approval: April 22, 2021

If applicable, informed consent (and HIPAA authorization) must be obtained from subjects or their legally authorized representatives and documented prior to research involvement. A stamped, approved copy of the informed consent form will be made available to you. The IRB-approved consent form and process must be used, where applicable. Any modification to the procedures and/or consent form must be approved prior to incorporation into the study.

Please let us know if the IRB or Office of Research Integrity and Compliance can be of any further assistance to your research efforts. Never hesitate to contact us.

Sincerely,

Kevin Fink, Ph.D.
Assistant Chair, Institutional Review Board
University of Central Oklahoma
100 N. University Dr.
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Appendix B
Qualtrics Survey

The Relationship Between Socioeconomic Status, Physical Activity, and Obesity in African Americans

Start of Block: Default Question Block

Q1 Informed Consent **Title of Research:** Factors Influencing Obesity in African Americans **Principle Investigator:** DaMarques Potter, dpotter@uco.edu **Faculty Mentor:** Melissa Powers, PhD., mpowers3@uco.edu, 405-974-5309 **Institutional Contact:** Institutional Review Board, University of Central Oklahoma, irb@uco.edu; 405-974-5397

Purpose of the Study The purpose of this study is to explore the influence of physical activity, diet, and socio-economic status on obesity among the Africa American community. **Description of the Research** In this study, you will be asked to complete an online survey which asks questions about your demographics including zip code and income as well as height, weight, diet, and physical activity habits. This online survey should take no more than 15-20 minutes to complete.

Potential Risks and Discomforts The risks associated with this study are not more than what you might experience in your daily life. **Potential Benefits** While there is no personal benefit to you, the results of this study will help us better understand the factors that influence obesity among African Americans. **Confidentiality** Your responses are completely anonymous. No personally identifying information will be collected about you. All data will be stored on password-protected computers and completely destroyed at the end of this study. **Statement of Voluntary Participation** Your participation in this study is completely voluntary. You are under no obligation to participate. You may withdraw your participation at any time. **AFFIRMATION BY RESEARCH SUBJECT** I hereby voluntarily agree to participate in the above listed research project and further understand the above listed explanations and descriptions of the research project. I also understand that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time without penalty. I acknowledge that I am at least 18 years old. I have read and fully understand this Informed Consent Form. I sign it freely and voluntarily. **If you would like to keep a copy of this consent form, please print this page before proceeding.**

After reading this information, do you consent to participate in this research study?

- Yes (1)
- No (2)

Skip To: End of Survey If Informed Consent Title of Research: Factors Influencing Obesity in African Americans Principle... = No

Page Break

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April 22, 2021
UCO IRB

Q37 What is your current age in years?

Q2 Are you Hispanic, Latino/a, or Spanish origin?

Yes (1)

No (2)

Q3 Which of these groups would you say best represents your race?

White (1)

Black or African American (2)

American Indian or Alaska Native (3)

Asian (4)

Native Hawaiian or Pacific Islander (5)

Other (6)

Q4 How would you best describe your marital status?

Married (1)

Widowed (2)

Divorced (3)

Separated (4)

Never married (5)

Q5 What is the highest grade or year of school you completed?

- Grades 1 through 8 (Elementary) (1)
 - Grades 9 through 11 (Some high school) (2)
 - Grade 12 (High school graduate) (3)
 - GED (4)
 - College 1 year to 3 years (Some college or technical school) (5)
 - College 4 years or more (College graduate) (6)
 - Masters Degree (7)
 - Doctorate Degree (8)
-

Q6 Do you own or rent your home?

- Own (1)
 - Rent (2)
-

Q36 What is the zip code where your home is located?

Q7 How would you best describe your employment status?

- Employed full time (1)
 - Employed part time (2)
 - Unemployed looking for work (3)
 - Unemployed not looking for work (4)
 - Retired (5)
 - Student (6)
 - Disabled (7)
-

Q8 How would you best describe your annual income?

- \$75,000 or more (1)
 - \$50,000 - \$74,999 (2)
 - \$25,000 - \$49,999 (3)
 - Less than \$25,000 (4)
-

Page Break

Q9 How would you identify your gender?

- Male (1)
 - Female (2)
 - Non-binary / third gender (3)
 - Prefer not to say (4)
-

Q10 What is your height in feet/inches? For example, if you are 5 feet and four inches, write 5'4"

Q11 What is your current weight in pounds? (Please remove your shoes and weigh yourself if you have access to a scale. If you do not have access to a scale, please insert your most accurate estimate for your current weight)

Page Break

Q12 During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?

Think about only those physical activities that you did for at least 10 minutes at a time.

- 7 days (1)
- 6 days (2)
- 5 days (3)
- 4 days (4)
- 3 days (5)
- 2 days (6)
- 1 day (7)
- None (8)

Skip To: Q14 If During the last 7 days, on how many days did you do vigorous physical activities like heavy lifti... = 4 days

Q13 How much time did you usually spend doing vigorous physical activities on one of those days? (Please insert hours and/or minutes into the text box)

Q14 During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking. Again, think only about those physical activities that you did for at least 10 minutes at a time.

- 7 days (1)
- 6 days (2)
- 5 days (3)
- 4 days (4)
- 3 days (5)
- 2 days (6)
- 1 day (7)
- None (8)

Skip To: Q16 If During the last 7 days, on how many days did you do moderate physical activities like carrying li... = 4 days

Q15 How much time did you usually spend doing moderate physical activities on one of those days? (Please insert hours and/or minutes into the text box)

Q16 During the last 7 days, on how many days did you walk for at least 10 minutes at a time? This includes walking at work and at home, walking to travel from place to place, and any other walking that you did solely for recreation, sport, exercise or leisure.

- 7 days (1)
- 6 days (2)
- 5 days (3)
- 4 days (4)
- 3 days (5)
- 2 days (6)
- 1 day (7)
- None (8)

Skip To: Q17 If During the last 7 days, on how many days did you walk for at least 10 minutes at a time? This inc... = 4 days

Q33

How much time did you usually spend walking on one of those days? (Please insert hours and/or minutes into the text box)

Q17

The question is about the time you spent sitting on weekdays while at work, at home, while doing course work and during leisure time. This includes time spent sitting at a desk, visiting friends, reading traveling on a bus or sitting or lying down to watch television.

During the last 7 days, how much time in total did you spend sitting? (Please insert hours and/or minutes into the text box)

Page Break

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April 22, 2021
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Q18 How often do you eat fast food per week?

- Never (1)
 - 1 - 2 days (2)
 - 2 - 3 days (3)
 - 4 or more (4)
-

Q19 How often per week do you eat meat?

- Never (1)
 - 1 - 2 days (2)
 - 2 - 3 days (3)
 - 4 or more (4)
-

Q20 How often per week do you eat fish/seafood?

- Never (1)
 - 1 - 2 days (2)
 - 2 - 3 days (3)
 - 4 or more (4)
-

Q21 How often do you eat raw vegetables or fruit?

- Never (1)
 - 1 - 2 days (2)
 - 2 - 3 days (3)
 - 4 or more (4)
-

Q35 How many eggs do you eat per week?

- None (1)
 - 1 - 2 (2)
 - 2 - 3 (3)
 - 4 or more (4)
-

Q23 How often do you eat sweets per week? (cakes, candy, artificially flavored drinks)

- Never (1)
 - 1 - 2 days (2)
 - 2 - 3 days (3)
 - 4 or more (4)
-

Q22 How often do you eat fried foods per week?

- Never (1)
 - 1 - 2 days (2)
 - 2 - 3 days (3)
 - 4 or more (4)
-

Q24 How often do you drink water per day?

- Never (1)
 - 1 - 2 times per day (2)
 - 2 - 3 times per day (3)
 - 4 or times per day (4)
-

Q25 How many meals do you have per day?

- 1 (1)
 - 2 (2)
 - 3 (3)
 - 4 or more (4)
-

Q26 How often do you eat breakfast per week?

- 1 - 2 days (1)
 - 2 - 3 days (2)
 - 4 - 5 days (3)
 - 5 or more (4)
 - Never (5)
-

Q27 How important is it to you to eat healthy?

- Extremely important (1)
- Very important (2)
- Moderately important (3)
- Slightly important (4)
- Not at all important (5)

End of Block: Default Question Block
