Reasons for Fast Food Consumption and its Effect on Health

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Food choices are not only related to personal decisions and desires but are impacted by the social world around us. There are influences beyond an individual's control such as the number and type of food places prevalent in a neighborhood, to the quality of food an individual is able to afford to eat. All of these influences not only affect an individual's diet but also greatly impact a person's health. Having access to high-quality, healthy food is a form of preventative medicine, and preventative medicine has been shown to be an effective way to save billions of dollars and millions of lives (Maciosek et al. 2010). Better nutrition, such as reducing sodium intake to the daily recommended level could save between 280,000 to 500,000 lives in 10 years (Deitz, Douglas, and Brownson 2016). This is just one example of how better nutrition could save lives. Even with this information, there are societal factors that have an influence over the food that individuals are able to consume

Fast-food consumption and how it relates to the prevalence of certain diseases is important as food choices may be beyond an individual's control. The number of food establishments and the kinds prevalent in a neighborhood are largely impacted by the wealth of the neighborhood (Morland et al. 2002). Along with this, as the percentage of people of color increases within a neighborhood, the number of grocery stores available decreases (Morland et al. 2002). There tend to be more fast-food restaurants in low and middle-income areas, and Poelman et al. (2018) has shown that living closer to fast-food restaurants is related to an increase in cardiovascular disease and coronary heart disease. With this information being known, it leads to the question, “How do the reasons why people consume fast food affect the prevalence of food-related diseases?”

Based upon the unequal distribution of food places and the kinds of food available in neighborhoods, I believe that fast-food consumption does impact the health of individuals and

increases food-related diseases. For example, one reason that this likely occurs is there can be a discrepancy between the food label and the actual nutrition of the meal (Stender, Dyerberg, and Astrup 2007). Even while trying to make healthier food choices at fast-food restaurants, individuals still may be consuming worse food than they thought. Food insecurity is another issue that leads to those who consume fast food having the possibility of worse health outcomes (Van Der Velde et al. 2022). Fast food is often a cheaper option for individuals, sometimes the only option they are able to afford, which could lead to greater fast food consumption overall.

Knowing more about how food consumption, and specifically fast food consumption, affects health is important not only for each individual but also for population health. Since population health is the "distribution of outcomes within a group", knowing how fast food is more common within certain neighborhoods and how its prevalence affects health could help to improve the health within areas and provide better food options (Kindig and Stoddart 2003:381). This information will not only be helpful to improve personal health but it could be used to advocate for better distribution of food sources within a community. By using data from the 2007-2008 National Health and Nutrition Examination Survey (NHANES) publicly available data, I have explored the relationship between why individuals choose to consume fast-food, and the prevalence of any food-related diseases that they may have. Individuals decided to consume fast food for different reasons including its cost, nutritional value, taste, convenience, and its ability to help people socialize. I have explored if there is a relationship between these different reasons for consuming fast food and food-related disease prevalence. The relationship between the reason for consumption and health supports the argument for a more equitable distribution of food sources throughout a community.

LITERATURE REVIEW

Within the medical community, there has been a transition from preventative care to reactive care (Adams et al. 2010; Deitz, Douglas, and Brownson 2016). A similar phenomenon is occurring with individuals as Fryar et al. (2018) have determined that ⅓ of Americans consume fast food on a given day. This large consumption of fast food can be viewed as individuals moving away from a healthy diet being a form of preventative care. This trend is problematic as it allows individuals to become ill and need treatment, rather than preventing the illness or disease in the first place. The lack of preventative care, especially in terms of diet, is creating health disparities between different populations. These disparities not only come from within the medical system, but they also occur due to unequal food access which is largely based on race and income (Morland et al. 2002; Powell et al. 2007). Lack of preventative care, specifically relating to diet and unequal food access, is perpetuating health disparities.

The transition away from preventative care is connected to multiple structural factors. The transition away from preventative care and lack of behavioral/nutritional knowledge, in the medical community, begins in medical school (Adams et al. 2010; Deitz et al. 2016). While this lack of knowledge is problematic, increased knowledge will not help to address health inequalities until there is equal food access. Different social categories such as socioeconomic status put some individuals at greater risk of health inequalities (Link and Phelan 1995). Socioeconomic status, income, and race play a role in food access. This is evident as low-income, majority-black neighborhoods have less access to grocery stores and more access to fast food (Morland et al. 2002; Powell et al. 2007). This inequality affects personal health and denies people the option of a healthy diet as a form of personal health. What is frustrating about this is that preventative care is a cost-effective measure that would not only save billions of

dollars but would also save millions of lives (Craig and Robinson 2019; Maciosek et al. 2010). Society would not only see these benefits, but it is also a feasible way to begin to address health disparities (Woodward and Kawachi 2000).

All individuals deserve equal access to healthy food as a form of preventative care. Allowing for inequalities to occur within the medical field is indicating that some individuals deserve more care than others since we are capable of addressing the current healthcare disparities, and yet we allow them to continue. The place to begin is working on educating both individuals and physicians on how nutrition impacts health and how to make healthy food choices (Deitz et al. 2016). There is not only a need to focus on education but there is also a need to create more equal food access among different neighborhoods. Following this, there needs to be a transition back to preventative care. Preventative care is not only cost-effective but is effective in improving and maintaining population health (Craig and Robinson 2019; Maciosek et al. 2010).

Preventative Care and Nutritional Knowledge

Both physicians and individuals are responsible for keeping one healthy. To be able to do this, both physicians and individuals need to have knowledge about how nutrition affects one's health. Deitz et al. (2016) argue that there has been a shift from preventing behaviorally caused diseases (such as ones that a person gets through poor nutrition), to treating these diseases only after they occur. Similarly, Adams et al. (2010) argue that the shift from preventing diseases to treating diseases is also happening within the training that physicians receive in medical school. Physicians need training in behavioral change--i.e. teaching patients how to make better nutritional choices--to allow them to guide patients on how to make healthy decisions (Deitz et. al 2016). Without the knowledge of behavioral changes, physicians are not getting the proper

training in healthy nutritional decisions. One reason why this is occurring is that medical school students are regularly not receiving the recommended amount of nutritional education, as 25 hours of nutritional training is recommended to be able to provide adequate care, but on average only 19.6 hours were provided (Adams et al. 2010).

Since medical schools are not offering proper nutritional education to students, this offers an opportunity for medical schools to have an impact on patient health outcomes through nutrition. While medical schools can have an impact, grade schools can have an impact as well. Deitz et al. (2016) states that nutritional education should begin in the classroom. Young children spend about 35 hours outside of the household in the care of others, and this could be an opportunity to begin teaching proper nutrition (Deitz et al. 2016). While Deitz et al. (2016) are generally referring to individuals who are not in a healthcare classroom, more education could also be provided to medical students or healthcare workers in general. Since academic medicine is where health professionals are trained, it also provides an opportunity to address inadequacies (Betancourt 2006). It provides an opportunity to address health disparities between races and ethnicities, specifically with cultural competency; which is extremely important when it comes to behavior changes such as improving an individual's diet (Betancourt 2006). Medical schools have the opportunity to improve nutritional education as well as help eliminate healthcare disparities. Thus, to address health disparities within preventative care techniques that involve nutrition, medical schools could be the first step.

Food Access

Link and Phelan (1995) examine which social factors put someone at a "risk of risks" for developing diseases beyond individual factors. They argue that social factors are responsible and should be considered "fundamental causes of disease" as they limit the health resources that one

has available (Link and Phelan 1995). Social factors such as low socioeconomic status and low social support lead to worse health outcomes (Link and Phelan 1995). Not only are the social factors themselves responsible for worse health outcomes, but the stigma surrounding these social factors also influences an individual's health. Hatzenbuehler, Phelan, and Link (2013) argue that stigma based upon an individual's social factors such as income, access to healthcare, and neighborhood makeup allow for worse health outcomes, especially when it comes to mental health. It also allows for health disparities and inequalities to continue, and even possibly be passed generationally (Hatzenbuehler et al. 2013).

One important social determinant of health is food accessibility. Morland et al. (2002) determined the distribution and type of grocery stores within an area differ by the wealth of the community. Low-income neighborhoods only had 75% of the number of grocery stores compared to median-income neighborhoods (Powell et al. 2007). Low-income neighborhoods that have less access to grocery stores in the first place, also often have a higher density of residences (Morland et al. 2002). What this indicates is that more people have less access to grocery stores because the stores are not available within their neighborhood. This puts more people at risk of nutrition-related diseases as it is harder to access nutritionally sound food. Neighborhoods of less wealth also had a higher percentage of people of color (Morland et al. 2002). Disregarding income level, majority-Black neighborhoods had 52% fewer supermarkets available when compared to White neighborhoods (Powell et al. 2007). The opposite is true with alcohol establishments as they are inversely associated with wealth and race. Alcohol establishments are more common in low-income and majority-Black neighborhoods (Morland et al. 2002). Low access to supermarkets and grocery stores indicates that it is harder to access healthy food.

Another problem related to food access is the distribution of fast-food restaurants within different neighborhoods. There are more fast-food restaurants within low and median-income neighborhoods when compared to high-income neighborhoods (Morland et al. 2002). Poelman et al. (2018) determined that living closer to fast-food restaurants and having a higher density of them within your neighborhood is related to negative health outcomes. Living closer to fast-food restaurants was related to higher rates of cardiovascular disease and coronary heart disease (Poelman et al. 2018). Individuals who already suffer from a lack of access to healthy foods are more likely to be provided with more unhealthy options (i.e., fast food) which has been linked to negative health outcomes. One reason for the worse health outcomes could be due to the continuity between the stated nutritional values of an item compared to the actual nutritional values of the item served. Stender et al. (2007) determined that both McDonald's and KFC had calories vary by up to 40% when compared to the calorie value stated on the food label due to the fat content. Not only are those in low-income neighborhoods less likely to have access to grocery stores and more access to fast-food restaurants, but the nutritional information provided can be wildly inaccurate compared to the food served. Lack of access to grocery stores, increased access to fast food, and a lack of continuity in food labels all allow for continued health disparities that are food-related.

Why Use Preventative Care

As previously mentioned, healthcare has been transitioning from preventing diseases related to personal behavior to treating them after the fact (Deitz et al. 2016). This transition shows the change from preventative care to reactive care. One reason why this change is occurring is that physicians are not adequately trained in behavioral change health strategies (Deitz et al. 2016). Addressing the lack of knowledge on how to make sustainable behavioral

change, would allow physicians to better help keep their patients healthy rather than treating them once they are already sick. Behavioral changes are a part of preventative care because they would allow an individual to make the necessary changes in their life prior to needing medical care. Focusing on teaching physicians how to help patients make sustainable behavioral health changes would be the first step in transitioning back to preventative medicine rather than reactive medicine.

Preventative healthcare techniques will not only allow for better individual health outcomes but would also lead to better population health as well. Population health is the distribution of health among individuals in a prescribed group (Kindig and Stoddart 2003). An improvement in population health will not only allow for better lives for individuals, but it would also help to save money as healthcare costs continue to rise (Craig and Robinson 2019). Maciosek et al. (2010) determined that $3.7 billion dollars could have been saved in 2006 alone if preventative techniques were implemented rather than reactive ones. While this number is staggering, another 2 million people could have also still been alive in 2006 if they had received preventative care (Maciosek et al. 2010). Furthermore, saving 2 million lives would have all been possible without increasing the net cost of treatment received (Maciosek et al. 2010). Preventative care techniques are not only cost-effective, but they are life-saving measures that could be implemented to save millions of lives yearly.

There is another reason why there needs to be a focus on preventative care techniques rather than reactive care, and that is because of how much the population will continue to rise. As the population increases, there will be more of a need for preventative care (Craig and Robinson 2019). There are two reasons why Craig and Robinson (2019) argue for the increased use of preventive care. First, it is possible to allow there to be a renewed focus on preventative

care through policy changes (Craig and Robinson 2019). Second, it is cost-effective for improving health, and healthcare inequalities (Craig and Robinson 2019). Since we know that preventative care techniques would help to lessen healthcare inequalities, by not using them, we as a society are indicating that we are ok with healthcare inequalities continuing.

As mentioned, preventative healthcare techniques would allow us to lessen healthcare inequalities. Woodward and Kawachi (2000:923) argue that the reason why we should care about lessening healthcare inequalities is that "inequalities are unfair, inequalities affect everyone, inequalities are avoidable, and interventions to reduce health inequalities are cost effective." The most cost-effective measure explored is preventative care. Both Craig and Robinson (2019) and Maciosek et al. (2010) demonstrated that using preventive care techniques is cost-effective, necessary, and will save lives. Preventative healthcare will allow individuals to seek treatment prior to having exacerbated health problems which lead to worse health outcomes and a higher cost of care (Christiansen 2017).

There are disparities and inequalities within our current healthcare system. While this is a sad reality, it does not have to be this way as healthcare inequalities are avoidable (Woodward and Kawachi 2000). Three actionable steps are education, working towards equitable food access, and moving towards a model focused on preventative care rather than reactive care. Health education is the first step as it is something that can begin at a young age and be carried on through adulthood. As previously stated, children under six spend an average of 35 hours per week outside of parental care, often at an early childhood center, and this provides an opportunity to begin to teach young children about the importance of behavioral changes such as eating right and getting enough exercise (Dietz et al. 2016). Teaching children this is a form of preventative care, even if it is not presented in that light. Moving through life towards adulthood,

all schools--elementary, middle, and high--have the opportunity to continue to teach youth about nutrition. During adulthood, workplaces could implement policies that encourage healthy living (Dietz et al. 2016). To be able to make nutritional education worthwhile though, people must be able to act on it by having access to healthy foods. Morland et al. (2002:27) discovered that food choices are not completely personal and are "influenced by the availability of food stores and food services." With this being the case, there must be access to healthy options for individuals to be able to make healthy choices. Lastly, there needs to be a shift back to preventative care as it would save millions of lives and billions of dollars (Maciosek et al. 2010). Obesity screenings, which are highly related to diet, could save $5 per person per year for those who are screened compared to if they went without the screening (Maciosek et al. 2010). Not only is preventative care, such as obesity screenings cost-effective, but it will also save lives and improve individuals' quality of life.

THEORETICAL FRAMEWORK

The theory of Fundamental Causes of Disease evaluates what puts individuals at the "risk of risks" of developing certain diseases (Link and Phelan 1995). There has been a focus in epidemiology on individual causes of disease such as "diet, cholesterol, hypertension,... lack of exercise" while the social aspects of a person's life have largely been ignored as risk factors of disease (Link and Phelan 1995:80). This is largely based on the cultural ideals of individual responsibility rather than viewing what social factors may be influencing a person's health (Link and Phelan 1995). Individual responsibility, in regards to health, is the quality of choices that an individual makes that are within their control that impacts their health. Rather than blaming individual choice or behavior as the sole reason for bad health outcomes, one must understand why some individuals have more health risks and social conditions that negatively impact health.

The “risk of risks” is the social factors and conditions that affect one's health (Link and Phelan 1995). The “risk of risks” needs to be contextualized such as, does an individual know the healthier option to take, but perhaps does not have the resources available to take it, does the individual lack the knowledge to make decisions that impact health, or is there a lack of government responsibility in terms of protecting public health (Link and Phelan 1995). Without contextualization, one could argue the solution to preventing health issues is to inform individuals of a healthier diet and expect people to act on it, but this could be impossible for some due to the social factors around them such as a lack of money or lack of available food.

Fundamental causes of disease are those that show continual associations with health issues despite using different avenues to address them (Link and Phelan 1995). One such avenue is addressing certain risk factors that may have an impact on a disease, but without also addressing the social factors that impact the disease, it will not have a sustainable, long-term impact. The reason why social conditions are fundamental causes of disease is that they are directly related to accessible resources (Link and Phelan 1995). Resources are not just money, but could also be things like knowledge and power (Link and Phelan 1995). Those with more flexible resources tend to have greater health (Phelan, Link, and Tehranifar 2010). With a lack of access to resources, an individual may suffer worse health outcomes compared to an individual who has greater access to resources. Examples of social factors include socioeconomic status, race, gender, social structure, and social support (Link and Phelan 1995). There is also a concern that it could be health that affects social outcomes rather than social outcomes affecting health. While this can not be ruled out entirely, it has been shown that social conditions such as social support prior to a heart attack allow for better recovery when compared to individuals lacking

social support (Link and Phelan 1995). Other social determinants have similar outcomes on health.

The theory of Fundamental Causes of Disease is rooted in four main ideas. The first is that fundamental causes of disease impact many disease outcomes, not just one (Phelan et al. 2010). Next, it causes multiple risk factors (Phelan et al. 2010). Third, there is an association of access to resources that would assist with treatment and disease outcomes (Phelan et al. 2010). Lastly, the relationship between social causes and disease is continual and occurs even with greater medical advances (Phelan et al. 2010). With the fundamental causes of disease being social factors that limit access to resources, medical advances will just cause larger health disparities as those at the bottom still can't access resources while those at the top have access to continually improving resources (Phelan et al. 2010). Those with greater access to resources have more flexibility to make necessary health changes when compared to those with access to fewer resources (Phelan et al. 2010). In the end, those who have access to better, more reliable, and flexible resources, tend to have better health. This trend will continue until the societal inequalities that perpetuate health inequalities are addressed (Link and Phelan 1995).

DATA

I have used data from the 2007-2008 National Health and Nutrition Examination Survey (NHANES). This is a continual survey maintained by the National Center for Health Statistics which is a part of the Center for Disease Control. NHANES data is a representative study of the US population and does not include those who are institutionalized. It includes both in-person interviews and physical examinations of the participants. Even with this, not every participant participated in both the interview and the physical examination. Each year, approximately 5,000 individuals are selected to participate through multistage probability sampling. The primary

sampling units were 15 counties selected from around the United States. Next, census blocks from the 2000 census were selected, as this was the most recent census at the time of data collection. Individual households were next selected and then lastly, individuals from within each household were selected. From 2007 to 2008, four major groups of the population were oversampled. The four groups that were oversampled were Non-Hispanic Black persons, Hispanic persons, low-income white persons, and persons 80+. Oversampling of these four groups was selected to be able to distinguish more detailed information about them.

I used the 2007-2008 NHANES because it contains the specific questions (independent variables) related to fast food. With the sheer amount of information available in the data set, the data is broken down into specific files. The five files that I used are demographics, consumer behavior phone follow-up, blood pressure and cholesterol, diabetes, and medical conditions. These five files selected were used due to them containing demographics data, diet consumption data, and health data that is related to diet. Due to having five separate files, I combined the five files from 2007-2008 to create one data set to use.

Measures

Appendix A has the independent variables, dependent variables, and control variables that were used. The chosen variables were used due to their relationship to food, and or health. The independent variables all have to do with fast food consumption. All of the independent variables have been selected from the consumer behavior phone follow-up data file. The following six variables were selected as independent variables: if the respondent has eaten fast food in the past 12 months (1=yes, 0=no), eaten fast food because it is cheaper (1=yes, 0=no), eaten fast food because it is more nutritious (1=yes, 0=no), eaten fast food because of the taste (1=yes, 0=no), eaten fast food because it is convenient (1=yes, 0=no), and eaten fast food as a

way to socialize (1=yes, 0=no). An example of how an independent variable was recoded is CBQ525 which asks the question “do you buy food from fast food or pizza places because it is more convenient than cooking at home?”. CBQ525 is originally coded as “1=yes”, “2=no”, “7=refused”, “9=didn’t know.” All of the independent variables are coded in this way, making it so that all of the recodes were completed in the same manner. I recoded CBQ525 as “1=yes”, “0=no”, “7=.”, “9=.”. Seven and nine will be recoded as “.” to remove these data points from the data as they will not be included in the analysis. Following this, I generated a new variable known as “convenient.”

Dependent variables

All of the dependent variables came from the blood pressure and cholesterol, diabetes, and medical conditions data files. Not every variable within the data file was used for analysis. I selected the variables from these files due to their relationship with nutrition and its impact on an individual's health. The dependent variables selected are as follows: if the respondent has high blood pressure (1=yes, 0=no), if the respondent is taking a prescription for high blood pressure (1=yes, 0=no), if the respondent has had their cholesterol checked (1=yes, 0=no),if the respondent has high cholesterol (1=yes, 0=no), if the respondent has diabetes (1=yes, 0=no), if the respondent has been told they are prediabetic (1=yes, 0=no), if the respondent has been told they are at risk for diabetes (1=yes, 0=no), if the respondent has congestive heart failure (1=yes, 0=no), if the respondent has coronary heart disease (1=yes, 0=no), if the respondent has angina pectoris (1=yes, 0=no), and if respondent has had a heartattack(1=yes, 0=no). See Appendix A for a list of dependent variables selected, how they were originally coded, how they were recoded, and the question the variable represents.

All of the dependent variables were recoded in a similar fashion. As an example of a recode, take the variable BPQ020 which represents “ever told you had high blood pressure.” It is originally coded as “1=yes”, “2=no”, “7=refused”, “9=didn’t know.” To create the dummy variable needed to run a logistic regression, I recoded BPQ020 as “1=yes”, “0=no”, “7=.”, “9=.”. I generated a new variable known as “highbp” to represent this variable. All of the dependent variables had a similar recoding process.

For both diabetes and high blood pressure, I have created a variable representing if the individual has the disease, or if they are at risk for the disease. As an example, DIQ010 asks the participant “doctor told you you have diabetes.” It is originally coded as “1=yes”, “2=no”, “7=refused”, “9=didn’t know.” This variable was recoded as “1=yes”, “0=no”, “7=.”, “9=.” and I generated a new variable known as “diabetes”. To create the “at risk” variable for diabetes, I used DIQ160 (ever told you have prediabetes) and DIQ170 (ever told you have health risk for diabetes). Using these two variables, I generated a new variable known as “atriskdiabetes.” Both DIQ160 (dummy variable of prediabetes) and DIQ170 (dummy variable of riskdiabetes) were added together. The following code was used to do this: “gen atriskdiabetes = prediabetes + riskdiabetes.” By doing this, I created a “scale” with answers equaling 0 meaning the respondent answered “no” to both questions indicating no risk of diabetes, answers of 1 indicates that the respondent answered “yes” to one indication of diabetes while an answer of 2 indicates that the respondent has answered “yes” to both questions that indicate a risk of diabetes. A similar process was used to create the at-risk variable for high blood press (atriskhighbp1). There was only one risk variable associated with high blood pressure, which was high cholesterol. With this, a respondent answering yes to high cholesterol was coded as having one risk factor for being at risk for high blood pressure.

Control variables

Lastly, the control variables have been selected from the demographic data file. Please note that all of the control variables are presented as dummy variables based upon sex, age, race/ethnicity, education level, marital status, and annual household income.The dummy variable representing the control variable of sex is “male” (respondents sex).The dummy variable representing the control variable of age is “age2” (respondents age at time of screening), The dummy variables representing the control variable of race/ethnicity is: Other_Hispanic2 (respondent identified their ethnicity as “other Hispanic”), White2 (respondent identified their race as White), Black2 (respondent identified their race as Black), Other_Race2 (respondent identified as another race that had not been included). The dummy variables representing the control variable of education is: lesshs2 (respondent had less than a high school degree), hs1 (respondent had a high school degree but no further education). The dummy variables representing the control variable of marriage status is: marriage2 (respondent is currently married), nevermarried2 (respondent has never been married). The dummy variables representing the control variable of annual household income is: under25k2 (respondent makes under $25,000 a year), middleincome2 (respondent makes between $25,000 and $45,000 a year), highmiddleincome1 (respondent makes between $45,000 and $75,000 a year), and highincome1 (respondent makes greater than $75,001 a year). See Appendix A for a list of the control variables as they were originally coded, what they represent, and the dummy variables that now represent them.

All of the NHANES release cycles and methodology were approved by the National Center for Health Statistics Research Ethical Review Board prior to data collection and release.

METHODS

With the data set being quantitative, it was practical to use statistical analysis to analyze the data. Due to the data set and types of variables present, I used logistic regression as the primary form of data analysis. Furthermore, bivariate logistic regressions were the primary kind of statistical testing used since the majority of dependent variables are categorical with the options of 0 being "no" and 1 being "yes." This type of regression will allow me to compare the odds of being in one nominal category compared to another. I used multinomial logistic regressions to test the significance of the variable "atriskdiabetes" since there were three different options for it to be coded as (0 "not at risk", 1 "one risk factor," and 2 "two risk factors"). The results were considered significant if the probability value (p-value) was less than 0.05. This analysis was completed using STATA/BE 17.0 (StataCorp LLC, College Station, TX).

For each dependent variable, I ran seven different models. The first six models were a logistic regression of the dependent variable along with one of the independent variables (eatff, cheaper, nutritious, taste, convenient, socialize). The seventh model included the dependent variable, all six independent variables, and all of the control variables. As an example with diabetes as the dependent variable, the first model I ran had the independent variable of eatff (have you eaten fast food within the past 12 months). It was coded as "logistic diabetes1 eatff." The next independent variable I used was cheaper ("logistic diabetes1 cheaper"), and the pattern continued until I ran regressions using each independent variable with the dependent variable. For the 7th model example, I used "logistic diabetes1 eatff cheaper nutritious taste convenient socialize male age2 Other_Hispanic2 White2 Black2 Other_Race2 lesshs2 hs1 married2 nevermarried2 under25k2 middleincome2 highmiddleincome1" which includes dependent variable along with all of the independent variables and control variables. I used this same

process and codes for each dependent variable. The same process occurred with the only multinomial logistic regression I used which was for the dependent variable “atriskdiabetes”.

RESULTS

Descriptive Results

Table 1 shows descriptive statistics (the median, standard deviation, minimum and maximum value, and the number of respondents) for each independent, dependent, and control variable. The reasons why the respondents had reported eating fast food in the past 12 months include that it is cheaper, it is more nutritious, it tastes better, it is more convenient, and it is a way to socialize. Sixteen percent of the respondents reported eating fast food as it is cheaper than eating at home. Three percent of the respondents reported that they ate fast food as it was more nutritious than what they prepared at home. Fifteen percent of the respondents reported that they ate at fast food restaurants because it tastes better than what they prepare at home. Eighty-one percent of the respondents reported that they ate fast food within the last 12 months as it was more convenient than cooking at home. Lastly, 48% of the respondents reported eating fast food to socialize with others.

In regard to health problems, 32% of the respondents reported that they have high blood pressure (hypertension). Of those who do have hypertension, 88% take prescription medication for it. Seventy-four percent of the respondents reported that they had had their cholesterol checked. For those who had been checked, 46% of the respondents reported that they did have high cholesterol. For diabetes, 8% of respondents reported that they have been diagnosed with it. Lastly, in regard to cardiovascular health concerns, 4% of the respondents reported that they have congestive heart failure. Four percent of the respondents also reported that they have coronary heart disease. Three percent of the respondents reported that they have angina/angina pectoris

(temporary chest pain due to a temporary lack of blood flow to the heart). Lastly, 5% of the respondents reported that they had suffered from at least one heart attack.

The sample was 50% male with the median age of the respondents being 50 years old. The youngest was 20 years old while the oldest was 80 years old. Forty-one percent of the respondents were white while 22% were black, and 21% were Mexican American. Of the respondents, just over 86% reported that they had eaten fast food (including take-out pizza) within the last 12 months.

Table 1: Descriptive Statistics, National Health and Nutrition Examination Survey (NHANES) 2007-2008					
Variable	**Median**	**Standard Deviation**	**Minimum Value**	**Maximum Value**	**N**
Has eaten fast food in the last 12 months	1 (yes)	0.342	0	1	4817
Ate fast food due to its being cheaper	0 (no)	0.368	0	1	4163
Ate fast food due to its being more nutritious	0 (no)	0.178	0	1	4159
Ate fast food due to its taste	0 (no)	0.362	0	1	4160
Ate fast food due to it being convenient	1 (yes)	0.39	0	1	4161
Ate fast food due to it being a way to socialize	0 (no)	0.5	0	1	4156
Taking a prescription for hypertension	1 (yes)	0.321	0	1	2141
Has had cholesterol checked	0 (no)	0.441	0	1	5736
Has high cholesterol	0 (no)	0.498	0	1	4183
Is at risk for high blood pressure	0 (no)	0.498	0	1	4183
Has diabetes	0(no)	0.272	0	1	9657
Has prediabetes	0 (no)	0.192	0	1	6294
Has been told by physician they are at risk for diabetes	0 (no)	0.319	0	1	6390
Has been told they have prediabetes and are at risk for diabetes	0 (no)	0.396	0	2	6280
Has heart failure	0 (no)	0.188	0	1	5190
Has heart disease	0 (no)	2.03	0	1	5906
Has angina pectoris	0 (no)	0.164	0	1	5913
Has had a heart attack	0 (no)	0.213	0	1	5924
Male	1 (yes)	0.5	0	1	10149
Age	50	18	20	80	5935
Mexican American	0 (no)	0.409	0	1	10149
Other Hispanic	0 (no)	0.323	0	1	10149

Table 1, continued : Descriptive Statistics, National Health and Nutrition Examination Survey (NHANES) 2007-2008					
Variable	**Median**	**Standard Deviation**	**Minimum Value**	**Maximum Value**	**N**
White	0 (no)	0.491	0	1	10149
Black	0 (no)	0.412	0	1	10149
Other race	0 (no)	0.209	0	1	10149
Did not finish high school	0 (no)	0.464	0	1	5928
Has a high school degree	0 (no)	0.431	0	1	5928
Has a degree beyond high school	0 (no)	0.496	0	1	5928
Is married	1 (yes)	0.499	0	1	5931
Has been married, but no longer is	0 (no)	.427	0	1	5931
Has never been married	0 (no)	0.424	0	1	5931
Makes under $25,000 a year	1 (yes)	0.476	0	1	9422
Makes between $25,000 and $45,000	0 (no)	0.424	0	1	9422
Makes between $45,000 and $75,000	0 (no)	0.4	0	1	9422
Makes more than $75,001	0 (no)	0.289	0	1	9422

Multivariate Results

For the following results, Model 1 represents each independent variable ran alone with the dependent variable. Model 2 shows each dependent variable with all of the independent variables and controls added in.

Table 2 explores the relationship between eating fast food and having high blood pressure. The results of Table 2, Model 1 show that those with high blood pressure have 48.3% lesser odds of eating fast food within the last 12 months compared to those who do not have high

blood pressure. In terms of the reason for eating fast food, people with high blood pressure have 17.5% lesser odds to eat it with the main reason being taste. In Model 2, folks with high blood pressure have 43.3% lesser odds of eating fast food due to its nutritional value. In regards to age, every year accounted for a 6% increase in the odds of having high blood pressure. Black respondents have 143% greater odds of having high blood pressure relative to Mexican American respondents. Those who had never been married had 32.1% lesser odds of having high blood pressure compared to those who had been married before but are no longer married. No other results were significant.

Table 2: Logistic Regression showing relationship between eating fast food in past 12 months, cheaper, nutritious, taste, convenient, socialize, and having high blood pressure using NHANES 2007-2008

	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
Ate fast food in past 12 months	0.517	***	Omitted	
	(0.044)			
cheaper	1.09		1.26	
	(0.98)		(0.146)	
nutritious	1.11		0.567	*
	(0.207)		(0.137)	
taste	0.825	*	1.11	
	(0.079)		(0.137)	
convenient	1.08		1.07	
	(0.094)		(0.118)	
socialize	1.04		1.06	
	(0.07)		(0.086)	
male			0.966	
			(0.079)	
age			1.06	***
			(0.003)	
other Hispanic			1.09	
			(0.185)	

Table 2, continued: Logistic Regression showing relationship between eating fast food in past 12 months, cheaper, nutritious, taste, convenient, socialize, and having high blood pressure using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
White			1.26	
			(0.165)	
Black			2.43	***
			(0.349)	
other race			1.28	
			(0.335)	
less than high school			1.13	
			(0.114)	
high school			1.13	
			(0.114)	
married			0.914	
			(0.095)	
never married			0.679	**
			(0.094)	
makes under $25,000			0.979	
			(0.121)	
middle income			0.966	
			(0.115)	
high middle income			0.938	
			(0.111)	
CONSTANT			0.02	
			(0.005)	
Psuedo R-Squared			0.162	
N			3472	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3 shows the relationship between eating fast food and having a prescription for high blood pressure. Model 1 for respondents taking a prescription for hypertension (high blood pressure) shows that respondents taking hypertension medication had 56.6% lesser odds of eating at a fast food restaurant within the last 12 months and had 46.9% lesser odds of eating fast

food due to its taste compared to those who do not have a prescription for hypertension. In Model 2 for hypertension medication, each year increase in age represents a 9% greater odds of taking hypertension medication. Along with that, Black respondents had 192% greater odds of taking medication for hypertension when compared to Mexican American respondents. Married respondents had 126% greater odds to report taking a prescription for hypertension compared to those who had been previously married but no longer are. While those who make under $25,000 a year had 105% greater odds in the likelihood of taking prescription medication for hypertension when compared to those who were considered high income. No other results were significant.

Table 3: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having a prescription for hypertension using NHANES 2007-2008

	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
ate fast food in past 12 months	0.434	***	Omitted	
	(0.112)			
cheaper	1.21		1.59	
	(0.285)		(0.473)	
nutritious	0.946		0.452	
	(0.422)		(0.266)	
taste	0.531	**	0.778	
	(0.112)		(0.22)	
convenient	1.08		1.7	
	(0.232)		(0.482)	
socialize	1.01		1.19	
	(0.169)		(0.245)	
male			0.815	
			(0.17)	
age			1.09	***
			(0.009)	
other Hispanic			1.08	

Table 3, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having a prescription for hypertension using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
			(0.467)	
White			1.16	
			(0.372)	
Black			2.92	**
			(1.08)	
other race			0.586	
			(0.336)	
less than high school			1.33	
			(0.365)	
high school			1.07	
			(0.275)	
married			2.26	**
			(0.598)	
never married			1.38	
			(0.447)	
makes under $25,000			2.05	*
			(0.673)	
middle income			1.39	
			(0.426)	
high middle income			0.734	
			(0.209)	
CONSTANT			0.012	
			(0.008)	
Psuedo R-Squared			0.238	
N			1191	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4 represents the relationships between eating fast food and respondents having their cholesterol checked. Model 1 for having a respondent's cholesterol checked showed that eating fast food within the past 12 was not statistically significant in whether or not their cholesterol

had been checked. For those who had their cholesterol checked, they had 23.8% lesser odss of eating fast food due to it being cheaper, had 33.9% lesser odds of eating it due to its nutritional value, and had 47% greater odds of eating it due to fast food being convenient compared to those who had not had their cholesterol checked. In Model 2, respondents had 55.9% lesser odds of eating fast food due to its nutritional value compared to those who did not have their cholesterol checked. Those who had had there cholesterol checked had 35% greater odds of eating it due to its taste compared to those who hadn't had it checked. Males who had had their cholesterol checked had 34.6% lesser odds of eating fast food compared to females. In regards to age, each year of age increase indicated an 8% greater odds of having their cholesterol checked and eating fast food. Race was also statistically significant as White respondents had 58% greater odds and Black respondents had 94% greater odds to have consumed fast food and had their cholesterol checked compared to Mexican Americans. Respondents who had not completed high school had 48.8% lesser odds of having their cholesterol checked compared to those with a college degree, while respondents who had completed high school had 48.9% lesser odds compared to those with a college degree. Respondents who were married had 56% greater odds of having their cholesterol checked compared to those who had been previously married but are no longer. In regards to income, respondents making under $25,000 (65.3%), middle-income respondents (55.1%), and high-middle-income respondents (40.3%) had lesser odds of having their cholesterol checked as compared to high income earners. No other results were significant.

Table 4: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having cholesterol checked using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
ate fast food in past 12 months	0.836		Omitted	
	(0.088)			
cheaper	0.762	**	0.988	
	(0.077)		(0.13)	
nutritious	0.661	*	0.441	**
	(0.134)		(0.119)	
taste	0.876		1.35	*
	(0.095)		(0.19)	
convenient	1.47	***	1.19	
	(0.139)		(0.153)	
socialize	0.881		0.906	
	(0.067)		(0.086)	
male			0.654	***
			(0.063)	
age			1.08	***
			(0.004)	
other Hispanic			1.37	
			(0.238)	
White			1.58	***
			(0.214)	
Black			1.94	***
			(0.299)	
other race			1.27	
			(0.343)	
less than high school			0.512	***
			(0.063)	
high school			0.511	***
			(0.06)	
married			1.56	***
			(0.208)	

Table 4, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having cholesterol checked using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
never married			1.01	
			(0.152)	
makes under $25,000			0.347	***
			(0.051)	
middle income			0.449	***
			(0.067)	
high middle income			0.597	***
			(0.089)	
CONSTANT			0.156	
			(0.045)	
Psuedo R-Squared			0.258	
N			3376	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5 explores the relationship between eating fast food and respondents having high cholesterol. In Model 1 for respondents having high cholesterol, those with high cholesterol had 30.2% lesser odds of eating fast food and they had 30.1% lesser odds of eating fast food due to its taste compared to those who did not have high cholesterol. In Model 2, respondents with high cholesterol had 25.6% lesser odds of eating fast food because it is convenient when compared to those without high cholesterol. Males had 20% greater odds of having high cholesterol when compared to females. Each year increase in age had a 3% greater odd of having high cholesterol. No other results were significant.

Table 5: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having high cholesterol using NHANES 2007-2008

	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
ate fast food in past 12 months	0.698	***	Omitted	
	(0.071)			
cheaper	0.986		0.995	
	(0.109)		(0.126)	
nutritious	1.42		0.787	
	(0.341)		(0.214)	
taste	0.996		1.05	
	(0.114)		(0.134)	
convenient	0.699	***	0.744	*
	(0.073)		(0.089)	
socialize	0.954		0.949	
	(0.074)		(0.081)	
male			1.2	*
			(0.103)	
age			1.03	***
			(0.003)	
other Hispanic			0.874	
			(0.159)	
White			0.891	
			(0.124)	
Black			0.895	
			(0.134)	
other race			1.2	
			(0.329)	
less than high school			1.07	
			(0.126)	
high school			0.994	
			(0.106)	
married			0.911	
			(0.099)	

Table 5, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having high cholesterol using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
never married			0.841	
			(0.126)	
makes under $25,000			1.03	
			(0.133)	
middle income			0.887	
			(0.109)	
high middle income			0.982	
			(0.117)	
CONSTANT			0.209	
			(0.054)	
Psuedo R-Squared			0.054	
N			2502	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6 represents the relationship between eating fast food and having diabetes. Model 1 for respondents having diabetes indicated that those with diabetes had 46.5% lesser odds to have eaten fast food within the past 12 months. For those with diabetes who had eaten fast food though, they had 39% greater odds of eating it due to it being cheaper and 99% greater odds of eating it due to it being more nutritious when compared to those without diabetes. In Model 2, being one year older in age had 9% greater odds of being diabetic. Being White had 32.6% lesser odds of being diabetic as compared to Mexican Americans while being Black represented 73% greater odds of having diabetes compared to Mexican Americans. In regards to education, those respondents who had not completed high school had 62% greater odds of having diabetes compared to those with a four year degree. No other results were significant.

Table 6: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having diabetes using NHANES 2007-2008

	Model 1		Model 2	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
ate fast food in past 12 months	0.535	***	Omitted	
	(0.061)			
cheaper	1.39	*	1.34	
	(0.177)		(0.204)	
nutritious	1.99	**	1.1	
	(0.453)		(0.309)	
taste	0.901		1.07	
	(0.13)		(0.187)	
convenient	0.854		1.01	
	(0.107)		(0.147)	
socialize	1.12		1.1	
	(0.113)		(0.127)	
male			1.09	
			(0.127)	
age			1.09	***
			(1.27)	
other Hispanic			0.92	
			(0.212)	
White			0.674	*
			(0.124)	
Black			1.73	**
			(0.325)	
other race			0.543	
			(0.248)	
less than high school			1.62	***
			(0.237)	
high school			1.01	
			(0.151)	
married			0.951	
			(0.131)	

Table 6, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having diabetes using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
never married			0.742	
			(0.15)	
makes under $25,000			1.32	
			(0.244)	
middle income			1.23	
			(0.222)	
high middle income			1.23	
			(0.226)	
CONSTANT			0.007	
			(0.002)	
Psuedo R-Squared			0.12	
N			3474	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7 explores the relationship between eating fast food and having prediabtes. Model 1 for prediabetes did not show any statistical significance. For Model 2, being one year older in age indicated 3% greater odds of being pronounced as prediabetic. For respondents who had identified themselves as another race (not White, Black, Mexican American, or an Other Hispanic), had 205% greater odds of having been pronounced as being pre-diabetic when compared to Mexican Americans. No other results were significant.

Table 7: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having prediabetes using NHANES 2007-2008

	Model 1		Model 2	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
ate fast food in past 12 months	0.846		Omitted	
	(0.181)			
cheaper	0.807		0.914	
	(0.192)		(0.241)	
nutritious	0.406		0.182	
	(0.292)		(0.187)	
taste	0.723		0.89	
	(0.18)		(0.243)	
convenient	1.23		1.43	
	(0.272)		(0.364)	
socialize	0.876		1.01	
	(0.142)		(0.173)	
male			0.823	
			(0.145)	
age			1.03	***
			(0.006)	
other Hispanic			1.28	
			(0.492)	
White			1.2	
			(0.367)	
Black			1.24	
			(0.426)	
other race			3.05	*
			(1.38)	
less than high school			1	
			(0.237)	
high school			1.04	
			(0.22)	
married			0.958	
			(0.205)	

Table 7, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having prediabetes using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
never married			0.653	
			(0.207)	
makes under $25,000			1.3	
			(0.338)	
middle income			1	
			(0.255)	
high middle income			0.849	
			(0.225)	
CONSTANT			0.007	
			(0.004)	
Psuedo R-Squared			0.057	
N			3023	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8 represents the relationship between eating fast food and being told they are at risk for diabetes by their physician. For those who had been told they were at risk for having diabetes by their physician, Model 1 indicates that those at risk with diabetes had 41% greater odds of having eaten fast food within the past 12 months when compared to those who had not been told they were at risk. Respondents at risk had 61.4% lesser odds of eating fast food due to its nutritional value, but had 39% greater odds of eating it due to taste and 37% greater odds of eating it due to convenience when compared to respondents who were not at risk. In Model 2, those who had been told they were at risk for diabetes had 71.8% lesser odds of eating fast food due to its nutritional value, but still had 64% greater odds of eating fast food due to taste and had 41% greater odds of eating it due to convenience when compared to those not at risk. Males who are at risk for having diabetes had 37.2% lesser odds of eating it when compared to females. Respondents who had less than a high school diploma had 57% greater odds to be at risk for

diabetes when compared to those with a college degree. In regards to income, middle-income earners (28.4%) and high-middle-income earners (35.3%) had lesser odds of being at risk for diabetes when compared to high income earners. No other results were significant.

Table 8: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and being at risk for diabetes using NHANES 2007-2008

	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
ate fast food in past 12 months	1.41	*	Omitted	
	(0.22)			
cheaper	0.897		0.862	
	(0.125)		(0.143)	
nutritious	0.386	**	0.282	*
	(0.163)		(0.15)	
taste	1.39	*	1.64	**
	(0.175)		(0.241)	
convenient	1.37	*	1.41	*
	(0.198)		(0.228)	
socialize	0.993		0.949	
	(0.098)		(0.104)	
male			0.628	***
			(0.071)	
age			0.995	
			(0.003)	
other Hispanic			0.975	
			(0.207)	
White			0.883	
			(0.145)	
Black			0.883	
			(0.168)	
other race			1.5	
			(0.441)	
less than high school			1.57	**
			(0.225)	

Table 8, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and being at risk for diabetes using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
high school			1.08	
			(0.153)	
married			0.838	
			(0.124)	
never married			0.71	
			(0.129)	
makes under $25,000			0.803	
			(0.13)	
middle income			0.716	*
			(0.115)	
high middle income			0.647	**
			(0.105)	
CONSTANT			0.24	
			(0.076)	
Psuedo R-Squared			0.028	
N			3079	

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 9 represents the relationship between eating fast food and having heart failure. For individuals with heart failure, Model 1 indicated that they had 60.3% lesser odds to have eaten fast food with the last 12 months. Model 2 indicated that males had 116% greater odds of having heart failure when compared to females. For age, each year older indicated 7% greater odds in the chance of having heart failure. Race and income also played a role in the chance of heart failure. Black individuals had a 234% greater odds of having heart failure when compared to Mexican Americans. In regards to income, those who made under $25,000 (253%), middle-income earners (259%), and high-middle-income earners (160%) had greater odds of having heart failure when compared to high-income earners. No other results were significant.

Table 9: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having heart failure using NHANES 2007-2008

	Model 1		Model 2	
	Odds Ratio/ (s.e.)		Odds Ratio/ (s.e.)	
ate fast food in past 12 months	0.397	***	Omitted	
	(0.075)			
cheaper	1.52		1.31	
	(0.372)		(0.369)	
nutritious	1.96		0.887	
	(0.846)		(0.436)	
taste	1.14		1.16	
	(0.314)		(0.373)	
convenient	0.815		0.919	
	(0.199)		(0.251)	
socialize	0.811		0.837	
	(0.163)		(0.186)	
male			2.16	**
			(0.491)	
age			1.07	***
			(0.009)	
other Hispanic			0.963	
			(0.599)	
White			1.49	
			(0.698)	
Black			3.34	*
			(1.56)	
other race			2.66	
			(1.98)	
less than high school			1.08	
			(0.303)	
high school			0.901	
			(0.245)	

Table 9, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having heart failure using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
married			0.796	
			(0.203)	
never married			1.23	
			(0.448)	
makes under $25,000			3.53	**
			(1.58)	
middle income			3.59	**
			(1.57)	
high middle income			2.6	*
			(1.19)	
CONSTANT			0	
			(0)	
Psuedo R-Squared			0.163	
N			3463	

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 10 explores the relationship between eating fast food and having heart disease. Model 1 for heart disease indicates that respondents who have heart disease had 39.6% lesser odds of having consumed fast food within the past 12 months. In model two, males had 287% greater odds heart disease when compared to females. Each year increase in age also indicated 8% greater odds in the likelihood of heart disease. Respondents who identified as other Hispanics had 77.8% lesser odds of having heart disease while Black respondents had 56.9% lesser odds when compared to Mexican Americans. No other results were significant.

Table 10: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having heart disease using NHANES 2007-2008

	Model 1		Model 2	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
ate fast food in past 12 months	0.604	*	Omitted	
	(0.115)			
cheaper	0.932		0.659	
	(0.229)		(0.196)	
nutritious	1.68		0.635	
	(0.673)		(0.334)	
taste	1.17		1.15	
	(0.277)		(0.326)	
convenient	1.18		1.33	
	(0.279)		(0.356)	
socialize	0.949		1.1	
	(0.165)		(0.214)	
male			3.87	***
			(0.856)	
age			1.08	***
			(0.009)	
other Hispanic			0.222	*
			(0.144)	
White			0.804	
			(0.259)	
Black			0.431	*
			(0.175)	
other race			1.87	
			(1.01)	
less high school			1.28	
			(0.346)	
high school			1.26	
			(0.301)	
married			0.709	
			(0.162)	

Table 10, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having heart disease using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
never married			0.547	
			(0.231)	
makes under $25,000			0.905	
			(0.268)	
middle income			0.695	
			(0.203)	
high middle income			0.687	
			(0.211)	
CONSTANT			0	
			(0)	
Psuedo R-Squared			0.209	
N			3462	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11 represents the relationship between eating fast food and having angina pectorisis. In Model 1 representing respondents with angina pectorisis, those with angina had 42.6% lesser odds to have reported eating fast food within the past 12 months when compared to those who do not have angina. In Model 2, each year increase in the age of the respondents indicated 5% greater odds of having angina. Along with this, respondents making under $25,000 had 187% greater odds of having angina. No other results were significant.

Table 11: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having angina pectoris using NHANES 2007-2008

	Model 1		Model 2	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
ate fast food in past 12 months	0.574	*	Omitted	
	(0.132)			
cheaper	0.794		0.569	
	(0.259)		(0.215)	
nutritious	1.49		0.425	
	(0.773)		(0.323)	
taste	1.49		1.66	
	(0.408)		(0.511)	
convenient	1		1.1	
	(0.28)		(0.34)	
socialize	1.19		1.28	
	(0.256)		(0.298)	
male			1.53	
			(0.367)	
age			1.05	***
			(0.009)	
other Hispanic			0.597	
			(0.335)	
White			0.958	
			(0.372)	
Black			0.811	
			(0.367)	
other race			1.71	
			(1.18)	
less than high school			1.12	
			(0.338)	
high school			0.827	
			(0.248)	
married			1.17	
			(0.331)	

Table 11, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having angina pectoris using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
never married			0.837	
			(0.376)	
makes under $25,000			2.87	**
			(1.16)	
middle income			1.71	
			(0.71)	
high middle income			2.09	
			(0.848)	
CONSTANT			0	
			(0)	
Psuedo R-Squared			0.099	
N			3465	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 12 explores the relationship between eating fast food and having suffered from a heart attack. For respondents who indicated that they had suffered from a heart attack, Model 1 showed that they had 50.2% lesser odds of having consumed fast food within the past 12 months. In model two, males had 198% greater odds of having a heart attack when compared to females. Each year increase in age represented 7% greater odds of having a heart attack. Being White (123%) or another race (271%) had greater odds of having a heart attack when compared to Mexican Americans. No other results were significant.

Table 12: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having a heart attack using NHANES 2007-2008

	Model 1		Model 2	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
ate fast food in past 12 months	0.498	***	Omitted	
	(0.085)			
cheaper	1.31		1.05	
	(0.277)		(0.26)	
nutritious	1.27		0.433	
	(0.544)		(0.223)	
taste	1.15		1.21	
	(0.261)		(0.316)	
convenient	1.05		1.15	
	(0.227)		(0.28)	
socialize	1.02		1.09	
	(0.167)		(0.2)	
male			2.98	***
			(0.594)	
age			1.07	***
			(0.008)	
other Hispanic			1.48	
			(0.747)	
White			2.23	*
			(0.889)	
Black			2.04	
			(0.872)	
other race			3.71	*
			(2.26)	
less than high school			1.54	
			(0.37)	
high school			1.23	
			(0.282)	
married			0.793	
			(0.17)	

Table 12, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and having a heart attack using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
never married			0.821	
			(0.282)	
makes under $25,000			1.74	
			(0.505)	
middle income			1.07	
			(0.318)	
high middle income			0.905	
			(0.289)	
CONSTANT			0	
			(0)	
Psuedo R-Squared			0.176	
N			3470	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 13 represents the relationship between eating fast food and having multiple risk factors for diabetes.When comparing the likelihood of having one risk factor versus no risk factor for diabetes, those with one risk factor had 72.5% lesser odds to have eaten fast food due to its nutritional value. Males had 31% lesser odds of eating fast food compared to females. Lastly, high-middle-income earners had 31.5% lesser odds of having one risk factor compared to none when compared to high-income earners. Model 2, comparing two risk factors to no risk factors did not show any significance. Model 3, comparing two risk factors to one risk factor did not show any significance.

Table 13: Multinomial Logistic Regression Analysis of risk factors for diabetes using NHANES 2007-2008 (N=3020)						
	One risk factor for diabetes vs no risk factor		Two risk factor for diabetes vs no risk factor		Two risk factor for diabetes vs one risk factor	
	rrr/ (s.e.)		rrr/ (s.e.)		rrr/ (s.e.)	
ate fast food in past 12 months						
	Omitted		Omitted		Omitted	
cheaper	1.04		0.518		0.497	
	(0.167)		(0.249)		(0.247)	
nutritious	0.275	*	0		0	
	(0.146)		(0.001)		(0.002)	
taste	1.24		1.72		1.38	
	(0.195)		(0.602)		(0.513)	
convenient	1.31		2.41		1.84	
	(0.209)		(1.09)		(0.869)	
socialize	1		0.742		0.741	
	(0.109)		(0.201)		(0.211)	
male	0.69	***	0.59		0.857	
	(0.077)		(0.167)		(0.256)	
age	1.01		1.01		1	
	(0.004)		(0.009)		(0.01)	
other Hispanic	1.13		1.01		0.9	
	(0.242)		(0.548)		(0.512)	
White	0.993		0.934		0.94	
	(0.168)		(0.387)		(0.412)	
Black	0.993		0.809		0.815	
	(0.192)		(0.402)		(0.426)	
other race	1.72		2.73		1.58	
	(0.513)		(1.73)		(1.07)	
less than high school	1.3		1.67		1.29	
	(0.189)		(0.571)		(0.466)	
high school	1.02		1.11		1.09	
	(0.141)		(0.379)		(0.395)	
married	0.914		0.757		0.829	
	(0.135)		(0.249)		(0.29)	

Table 13, continued: Multinomial Logistic Regression Analysis of risk factors for diabetes using NHANES 2007-2008 (N=3020)						
	One risk factor for diabetes vs no risk factor		Two risk factor for diabetes vs no risk factor		Two risk factor for diabetes vs one risk factor	
	rrr/ (s.e.)		rrr/ (s.e.)		rrr/ (s.e.)	
never married	0.819		0.463		0.565	
	(0.15)		(0.214)		(0.275)	
makes under $25,000	0.852		1.32		1.56	
	(0.138)		(0.533)		(0.659)	
middle income	0.768		1.12		1.47	
	(0.122)		(0.448)		(0.615)	
high middle income	0.685	*	0.798		1.16	
	(0.11)		(0.009)		(0.52)	

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 14 represents the relationship between eating fast food and being at risk of high blood pressure. When looking at Model 1 for the risk of high blood pressure, those at risk for high blood pressure had 66.4% lesser odds of having eaten fast food when compared to those who are not at risk. Those who are at risk for high blood pressure had 31% greater odds of eating fast food in the past 12 months due to convience when compared to those not at risk. In Model 2, those who are at risk for high blood pressure had 25.6% lesser odds of having eaten fast food within the past 12 months due to its convenience when compared to those not at risk. Males had 20% greater odds of being at risk for high blood pressure when compared to females. Lastly, every year of age increase represents 3% greater odds of being at risk for high blood pressure. No other results were significant.

Table 14: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and being at risk for high blood pressure using NHANES 2007-2008

	Model 1		Model 2	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
ate fast food in past 12 months	1.29		Omitted	
	(0.184)			
cheaper	0.92		0.995	
	(0.121)		(0.126)	
nutritious	0.336	**	0.787	
	(0.142)		(0.214)	
taste	1.13		0.105	
	(0.142)		(0.134)	
convenient	1.31	*	0.744	*
	(0.169)		(0.089)	
socialize	0.956		0.949	
	(0.089)		(0.081)	
male			1.2	*
			(0.103)	
age			1.03	***
			(0.003)	
other Hispanic			0.874	
			(0.159)	
White			0.891	
			(0.124)	
Black			0.895	
			(0.139)	
other race			1.2	
			(0.329)	
less than high school			1.07	
			(0.126)	
high school			0.994	
			(0.106)	
married			0.912	
			(0.099)	

Table 14, continued: Logistic Regression showing relationship between eating fast food, cheaper, nutritious, taste, convenient, socialize, and being at risk for high blood pressure using NHANES 2007-2008				
	Model 1		**Model 2**	
	Odds Ratio/ (s.e.)		**Odds Ratio/ (s.e.)**	
never married			0.841	
			(0.126)	
makes under $25,000			1.03	
			(0.133)	
middle income			0.886	
			(0.109)	
high middle income			0.982	
			(0.117)	
CONSTANT			0.209	
			(0.054)	
Psuedo R-Squared			0.054	
N			2502	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

DISCUSSION

"How do the reasons why people consume fast food affect the prevalence of food-related diseases?" is the question that this analysis is trying to answer. The results have determined that race, income, and the highest level of education a person has all impact the prevalence of health-related disease when compared to individual fast food consumption. This has to do with the theory of the Fundamental Causes of Diseases as different social factors influence health outcomes (Link and Phelan 1995). As a general note, all comparisons of race are to respondents who identified themself as Mexican American. In regards to race, Black respondents had the greatest odds of having a disease that could be related to fast-food consumption. Black respondents had the greatest odds of being diagnosed with high blood pressure, and they had the greatest odds of being on prescription medication to help manage high blood pressure. Along

with this, Black respondents had over two times greater odds of having heart failure and greater odds of having diabetes. One reason why Black respondents may have a higher prevalence of nutritionally related diseases is that higher percentages of people of color within a neighborhood are inversely related to the number of grocery stores present (Morland et al. 2002). This means that as the percentage of people of color increases, there are fewer grocery stores available. This is one explanation for why Black respondents have a higher prevalence of nutritionally related disease because if they live within a majority Black neighborhood, they have less access to grocery stores which increases their chance of consuming fast food.

While Black respondents did have a higher prevalence of some diseases, others races also were likely to be at a greater chance of having certain diseases. Black respondents had the highest prevalence of diabetes, but respondents of other races (respondents who did not identify as Mexican American, Other Hispanic, Black, or White) had 205% greater odds of being prediabetic. One might expect that Black respondents would also have the greatest odds of being prediabetic, but this is not the case. Some factors that may influence the difference in the prevalence of prediabetes and diabetes among different races include a range of things such as financial resources and opportunities to change eating habits, food's role in one's culture (the type and health value of food eaten within one's culture), and access to healthcare. Those who lack access to resources to be able to change social habits, including limiting fast food consumption, have worse health outcomes (Link and Phelan 1995).

When looking at White respondents, they tended to have a lower prevalence of a nutritionally related disease. Out of all respondents, White respondents had the lowest odds of having diabetes. The only health problem that White respondents had a greater odds of when compared to Mexican Americans was having a heart attack (123% greater odds). Respondents

who identified as another race also had greater odds of having a heart attack when compared to Mexican Americans (271%). This shows an interesting outcome since White respondents had lesser odds of having diabetes while those who identified with another race category had the highest prevalence of prediabetes, while both White and respondents from another race had the highest percentage of having a history of a heart attack. What this indicates is that different health problems are present at different levels within different races, yet being of one race does not necessarily mean you would have fewer or less serious health problems. One race may tend to have fewer indicated diseases, but it may have a higher prevalence of a certain disease. This could be due to lifestyle differences that lend towards having one disease over another, or a lifestyle that lends towards having more diseases compared to others. This helps to show how Fundamental Causes of Disease including predetermined factors (age, race, sex, etc) and socioeconomic factors impact a person's risk for developing different diseases.

As determined by Link and Phelan (1995), being of a low socioeconomic status puts individuals at a higher risk of health inequalities, and in essence, a higher chance of health problems. For respondents who make under $25,000 a year, they had the greatest odds of having a prescription for hypertension, having angina pectoris, having heart disease, and having heart failure. While hypertension is not considered a cardiovascular disease, it is a contributing factor to having a cardiovascular disease which includes angina pectoris, heart disease, and heart failure. When considering those who make under $25,000 a year, you must consider what limitations their income makes on their lives. In this case, one must consider how such a low income impacts the availability of affording healthy food, but also just being able to afford food at all. According to Van Der Velde et al. (2022), food insecurity can lead to consuming more fast food. In turn, this consumption of a higher amount of fast food can also lead to worse health

outcomes. The amount of food places and the kind of food available is determined by the income of the local neighborhood (Morland et al. 2002). With this in mind, lower-income neighborhoods have more fast-food restaurants available (Poleman et al. 2018). When considering low-income respondents, it makes sense that they have a higher rate of cardiovascular disease compared to any other income as living closer to fast food restaurants is related to higher rates of cardiovascular disease and coronary heart disease (Poleman et al. 2018). Some of the reasons for this include not being able to afford more nutritious food, not being able to access it as food insecurity is related to transportation insecurity, and the convenience of access. The social influences, in this instance the accessibility of food around individuals, is affecting the respondents' health outcomes.

One other social determinant of health that must be considered when speaking of income is the ability to access healthcare, specifically being able to afford access to healthcare. When looking at the prevalence of heart failure, those who make under $25,000, middle-income, and high-middle-income were all had greater odds of being diagnosed with heart failure when compared to high-income individuals. Along with this, those making under $25,000, middle-income, and high-middle-income had significantly lesser odds to have their cholesterol levels checked. One reason the lower-income brackets have a higher prevalence of diseases and lesser odds of having their cholesterol levels checked is access to healthcare. Those in the high-income bracket generally have the ability to visit a doctor when needed as they are able to take time off of work without it affecting their income. Along the same lines, they are able to afford initial doctor visits, follow-up appointments, specialist appointments, etc. If individuals are unable to see a doctor due to their work schedule or are unable to afford care, they are less likely to have preventative care done, which in this case would be considered having their

cholesterol checked. Lack of access to preventative care perpetuates disease, seen in this instance as the higher rate of heart failure among those who are not in the high-income bracket. Access to preventative care such as cholesterol screenings is a cost-effective way to improve population health, and it also works to address healthcare inequalities. As seen here, a lack of access to resources leads to higher precedence of disease (Phelan et al. 2010).

Education is also highly linked to an individual's past income and earning potential. Thus, the level of education a person has is related to the diseases they have been diagnosed with. For those respondents who had not completed high school, they had 49% lesser odds of having their cholesterol checked when compared to those who had completed a four-year degree. Similar to those who had not completed high school, those who only had a high school diploma had again 49% lesser odds of having their cholesterol checked. Again, having access to cholesterol checks is a form of preventative care. While it can not be assumed that those who have not had their cholesterol checked do not have any access to healthcare, it could be understood that they may have less access to preventative care.

Based on this conclusion, it is understandable that those who have not finished high school, or those who have a high school diploma have greater odds of being diagnosed with diabetes. Those without a high school diploma had 62% greater odds, while those with a high school diploma had 57% greater odds of being diagnosed with diabetes when compared to those with a four-year degree. In regards to education, a higher chance of nutritional-related diseases could be linked to a few things. First off, those without a high school diploma or only with a high school diploma generally have less earning potential than those with a degree. With this in mind, they would more likely be a part of a lower or middle-income bracket that has already been shown to have a higher prevalence of diseases. Along with this, schools offer a chance to gain

more education about nutrition (Dietz et al. 2016). For those who do not have as much education, it is possible that they did not receive instruction about the importance of nutrition, and what is considered to be healthy. Again, relating income to education, those in a lower income bracket often may not be able to afford classes or services as an adult that would provide them with more education about nutrition and its effect on health.

One last idea that has yet to have been explored is how knowing that you have a nutritionally related disease would impact an individual's decision to consume fast food. For respondents to indicate that they suffer from a nutritionally-related disease means that they have had enough access to healthcare to have been diagnosed with the disease. It is possible that some respondents may have indicated that they do not have a nutritionally-related disease, even if they do because they have not been diagnosed with it. The knowledge of having a disease may impact if an individual decides to consume fast food.

Those who have been diagnosed with hypertension (high blood pressure), and who are taking medication for it have almost 57% lesser odds of having consumed fast food within the past 12 months. One possible reason for this is that they are aware that they are suffering from hypertension, and are taking steps to address this health problem. Even with this in mind, respondents taking prescription medication for hypertension reported that they had almost 50% lesser odds of eating fast food due to taste rather than for its nutritional value. This is similar for those who have high cholesterol as they had 30% lesser odds of eating fast food within the past 12 months and had 30% lesser odds of eating it due to its taste. What this may indicate is that individuals with diagnosed health problems may not choose fast food at all, but if they do choose it, they had lesser odds of choosing to it eat due to its taste.

Similar to those with hypertension and high cholesterol, respondents who have been diagnosed with diabetes had almost 47% lesser odds of having consumed fast food within the past 12 months. For those respondents with diabetes who had consumed fast food, they had 39% greater odds it due to considering it to be cheaper than cooking it at home, and 99% greater odds of eating it due to its nutritional value. One reason that respondents with diabetes may consider fast food to have a better nutritional value when compared to cooking at home is that the kinds of fast food restaurants are not delineated within this data. Respondents may be eating at restaurants that focus on providing healthier options, rather than a standard burger and fries meal that is often associated with fast food. Along with this, it does not take into account the cooking ability of the respondent, so compared to what respondents are capable of cooking, they may consider fast food to be the healthier option.

When considering respondents' fast food consumption compared to their risk factors for diabetes, those with one risk factor for diabetes had 73% lesser odds of eating fast food when compared to those with no risk factor for diabetes. What this may indicate is that respondents may make a behavioral change (change what they eat) when they become aware that their health is being negatively impacted by their food choices. With this in mind, those who were told they were at risk for diabetes by their physician had 41% greater odds of having eaten fast food. This may indicate that for individuals to make a behavioral change, they may need to be suffering from the disease, not just at risk for it. The risk factor alone might be enough for respondents to make changes, but a higher percentage of individuals with the disease did not report eating fast food within the past 12 months. What this indicates is that there is a need for physicians to be trained in assisting with changing patients' nutritional habits (Deitz et al. 2016). If physicians are

able to help patients while they are still at risk, it could help to prevent patients from developing the full disease.

Those who have been diagnosed with cardiovascular disease had lesser odds of having eaten fast food within the past 12 months. Respondents with heart failure had 60% lesser odds, respondents with heart disease had 40% lesser odds, respondents with angina pectoris had 43% lesser odds, and respondents who had suffered from a heart attack had 50% lesser odds to have eaten fast food. One possible reason why individuals with cardiovascular disease may have lesser odds of eating fast food is that they may consider heart conditions to be more serious when compared to other conditions such as diabetes. Poleman et al. (2018) discovered that living closer to fast food restaurants was related to higher rates of cardiovascular diseases. With this in mind, it could indicate that those suffering from cardiovascular diseases may have consumed more fast food sometime in the past due to living closer to the restaurants but have now stopped due to having knowledge about their diseases.

LIMITATIONS AND FUTURE CONSIDERATIONS

While it has been shown that fast food consumption is associated with a multitude of diseases, this research is not without limitations. Due to the wording of the question that was presented to the respondents, fast food consumption was only based on if they had eaten it within the past 12 months. This means that there is a possibility that an individual who had only eaten fast food once within the past 12 months and an individual who may eat it daily are considered within the same category. This large difference in the consumption of fast food would impact the diseases that an individual may have, thus how often a person consumes fast food was not considered in relation to the diseases that they have.

Other limitations apply directly to certain medical conditions and care. First, diabetes was not differentiated between type I and type II. Type I diabetes is related to a lack of function of the pancreas where it does not produce insulin. This is not nutritionally related, rather it is genetic. Type II diabetes is affected by an individual's nutrition, and would be impacted by their consumption of fast food. Since respondents with diabetes were not separated into type I and type II, it is possible that some respondents are type I diabetics and do not suffer from diabetes due to nutritional decisions. Another consideration that was not used was the impact of comorbidities. Comorbidity simply means having more than one disease at the same time. Respondents could have comorbidities such as having both diabetes and heart failure, but this possibility was not taken into consideration.

Lastly, the frequency of doctor visits was not considered for analysis. As mentioned earlier, it is possible that some respondents may be suffering from diseases that they are not aware that they have. This could be due to a lack of access to medical care, not being able to afford to see a doctor, lack of willingness to see a doctor, etc. Whatever the reason may be, some respondents would be more likely to regularly have medical care while other respondents would not.

As for future considerations of this work, the main aspect that I would want to explore is the frequency of fast food consumption and its relation to disease. As stated before, all fast food consumption in the past 12 months was grouped into the same category. To be able to better explore the relationship between fast food consumption and its effect on health, I would like to explore how often individuals consume fast food by breaking it down into the categories of daily, weekly, and monthly.

Along with this, I would also like to explore the convenience aspect of fast food more closely. Exploring the relationship between the distance between a respondent's housing to frequented fast food restaurants will allow me to see if proximity increases the likelihood of consumption. By examining the impact of proximity to fast food and nutritionally-related diseases, it could have a larger impact on public health overall as it could impact the placement of fast food establishments. Despite these limitations to my analysis, the results help to show that there is a relationship between the reasons why individuals decide to eat fast food and the medical problems that an individual may have.

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APPENDIX A: Variable Recodes

Original Variable	Description	Recode
CBQ505	In the past 12 months, did you buy food from fast food or pizza places?	eatff
CBQ510	First, do you buy food from fast food or pizza places because it is cheaper than cooking at home?	cheaper
CBQ515	Do you buy food from fast food or pizza places because the foods there are more nutritious than foods cooked at home?	nutririous
CBQ520	Do you buy food from fast food or pizza places because the foods there taste better than foods cooked at home?	taste
CBQ525	Do you buy food from fast food or pizza places because it is more convenient than cooking at home?	convenient
CBQ530	Do you eat at fast food or pizza places instead of cooking at home to socialize with family and friends?	socialize
BPQ020	Ever told you had high blood pressure (hypertension)	highbp

BPQ040A	Taking a prescription for hypertension	rxhypertension
BPQ060	Ever had cholesterol checked	cholescheck
BPQ080	Ever told you cholesterol was high	highcholes
DIQ010	Doctor told you you have diabetes	diabtes1
DIQ160	Ever told you have prediabetes	prediabetes
DIQ170	Ever told you have health risk for diabetes	riskdiabetes
MCQ160B	Ever told that you had congestive heart failure	heartfailure
MCQ160C	Ever told that you have coronary heart disease	heartdisease
MCQ160D	Ever told you had angina/angina pectoris	aginapectoris

MCQ160E	Ever told that you have had a heart attack	heartattack
RIAGENDR	Gender	male
RIDAGEYR	Age at screening adjusted	age2
RIDRETH1	Race/Ethnicity	Mexican_American1, Other_Hispanic2, White2, Black2, Other_Race2
DMDEDUC2	Education level - adults 20+	lesshs2, hs1
DMDMARTL	Marital Status	marriage2, nevermarried2
INDHHIN2	Annual household income	under25k2, middleincome2, highmiddleincome1, highincome1