Prevalence of Diabetes in African-American Communities:
Risk Factors and Prevention as a Social Disease

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Introduction

Diabetes is a chronic illness that affects blood sugar levels and insulin production in the body. Over 20 million Americans are diagnosed with some form of diabetes in their lifetime. Out of the three types of diabetes, almost 90% of diabetics have Type II diabetes, or non-insulin dependent diabetes (“National Diabetes Fact Sheet”, 2007, 5). Type II diabetes, together with high cholesterol, high blood pressure, and obesity are symptoms of Metabolic syndrome or Syndrome X (Grundy et al., 2004,3). Together these symptoms increase risks for health complications ranging from heart disease, kidney disease and erectile dysfunction. While diabetes is found in all communities in the US, rates of Type II diabetes are two to six times higher in minority groups such as African-American, Hispanic/Latinos and Native-Americans compared to other non-minority groups. The US Department of Health and Human Services state that African Americans are almost twice as likely to be diagnosed with diabetes as non-Hispanic whites. They are also more likely to suffer complications from diabetes, such as end-stage renal disease and lower extremity amputations ("The Diabetes Epidemic", 2008, 1-5). These populations also are closely associated with low socio-economic status (De-Navas- Walt et al., 4, 2008). Not only has race become a risk factor for diabetes, but also because at risk groups commonly live in poverty, the likelihood of proper intervention and lifestyle changes decreases significantly. It can be inferred that low-income African Americans are particularly vulnerable to diabetes and its health complications in comparison to the larger African American population.
Type II diabetes is said to be a complex “multifactorial” disease, not only, as some research report, the result of genetic susceptibilities triggered by an individual’s behaviors but also influenced by social, environmental, psychological, and cultural factors (Hansen T, 2002, 545; Chaufan, 2006). To gain a better understanding, then on the factors that contribute to the high prevalence of Type II diabetes in minority communities, this paper will show that it is essential to understand the social and environmental conditions found in at risk communities. These unique conditions found in at risk groups also have been reported to increase risk for Type II diabetes. Reviewing published studies and journal articles from scientific databases under the search terms of diabetes, prevention, risk factors, metabolic syndrome, health literacy, environment, food, health disparity and community, I show that Type II diabetes has to be considered a social disease as a means to decrease African American risk for and prevalence of Type II diabetes.

My argument is that Type II diabetes should be treated as a social disease, as risk for Type II is influenced not only by genetic predispositions but also from the interactions of cultural, psychological and environmental community conditions. Type II diabetes has been largely treated as a medical condition, overemphasizing genetics and individual responsibility as a cause for the high rates of Type II diabetes. However, this perception has allowed for the continued existence of conditions that increase risk for Type II diabetes, especially in African American communities. If Type II diabetes is treated as a social disease, prevention and intervention programs can address interpersonal and community-environmental risk factors and increase effectiveness of intervention. In the paper, I will show that interventions must incorporate cultural features appropriate to the targeted at risk groups but also, take into account the specific social and physical aspects found in minority communities. It is the thought that with
early intervention through education, lifestyle intervention and changing the food environment, the effectiveness of prevention programs will increase.

The prevalence of Type II diabetes thus cannot be seen as just as a reaction to medical predispositions but as an indicator of a larger social and health disparity found in all minorities groups. To study Type II diabetes in the context of health and social disparity, I decided to study prevention and risk in the African American community. Rates of Type II diabetes related mortality and morbidity are significantly higher in African American communities and so are ideal communities to study for the health experiences of at risk minority communities. Thus, the African American health experience can be used to comment on the larger health disparity that affects minority and minorities of low socio-economic status.

In this paper I begin with the Background section, which details the historical context of diabetes, the four types of diabetes and the risk factors associated with Type II diabetes, the focus of my paper. The inclusion of race as a risk factor allows for Type II diabetes to be incorporated in the larger conversation of health disparity and further as a social disease influenced by the specific features found in African American communities. In this section I discuss why Type II diabetes should be treated as a social disease, a condition of minority health disparity. As such I have organized my paper into two main sections: interpersonal level factors and communal-environmental level factors. The interpersonal level factors, I define, are created through community members and individual interactions in ethnic groups such as disease perception and lifestyle behaviors. The community-environmental level factors relate to the physical and social institutions and how they influence risk in communities, for example food resources. Together these factors will show that Type II diabetes should have been treated as a social disease, which would have allowed for better Type II diabetes intervention and prevention.
In the second section, Interpersonal Level Factor: Prevention Misperception, I detail the psychology of Type II diabetes, the misperceptions of Type II diabetes prevention and lack of individual awareness of risk. I show that misperceptions can decrease the likelihood that individuals’ at risk would engage in proper health behavior. The third section, Interpersonal Level Factor: Lifestyle, I discuss how lifestyle behaviors, specifically how body images, levels of physical activity, diet, are conditioned by cultural values and traditions but also the social and physical environment that African Americans exist in.

The fourth section, Community-Environmental Level Factor: Food Resource begins by discussing Type II diabetes in reference to the national health disparity found in minority communities. This section demonstrates how the lack of neighborhood food resources has to be seen as an indicator of the health disparity found in African American communities. In the final section, Conclusion, I discuss how it is difficult to address prevention without understanding the barriers in engaging in preventative behaviors that exist in African American communities. It is therefore important to look at the social context of disease to under disease risk and prevalence.

Background

Diabetes, unsurprisingly has had a long record in human history, and cannot be simply called a modern day disease. Almost three thousand years ago, the Ancient Egyptians recorded in the Eber’s papyrus, one of the oldest preserved medical documents, several diseases, among them a “polyuric syndrome” similar to modern day diabetes (Ebbel, 1937, 115). Later, Araetus of Cappadocia (81-138 BC) labeled the polyuric disease as “diabetes,” Greek for “run through or siphon” for the symptoms of “melting down of flesh and limbs into urine,” describing the

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1 Type II diabetes is not a modern day disease, and while rates have increased dramatically in the last two decades, history shows that Type II diabetes has been evident throughout human history.
diabetic symptom of frequent urination (Algaonker, 1972). An Arab physician Avicenna, (960-1037), described the characteristic sweet tasting urine of diabetics (Araetus, 1856, 138). Up into the 11th century, “water tasters” were employed to taste the urine of suspected diabetics because of its sweet taste. “Mellitus”, the Latin word of honey was added to the term “diabetes” because of the urine’s sweet taste. In the nineteenth century, the first chemical tests were used to measure sugar levels in urine. At that point, the causes of diabetes were not fully understood, but many speculated that the kidney was the cause. However in 1848, French researcher Claude Bernard not only discovered that the liver excreted sugar into the blood, but glucose, the body’s sugar was stored in another form called glycogen (Ekoe, Jean-Marie, Paul Zimmet, and Rhys Williams, ed., 2001, 7). Later, in 1889, scientists Joseph von Mering (1849-1908) and Osce Minkowski (1841-1904) discovered the role of the pancreas in diabetes, specifically its role in the production of insulin. Insulin, a hormone in the body, was found to regulate the body’s blood sugar levels. In 1869, Gustav Lagusse, identified the cells, islets of Langerhan, located in the pancreas as the culprit for diabetes (Von Mering J, Minkowski O, 1889). In an innovative paper “The Beneficial Influences of Certain Pancreatic Extracts on Pancreatic Diabetes” Federick Banting, in 1921, explained the role of insulin in diabetes treatment (Banting et al, 1922).

Up to this time, there had been no concise definition of diabetes. Indeed, it was not until 1980, when the WHO (World Health Organization) Expert Committee on Diabetes Mellitus and the National Diabetes Data Group, published the definition of diabetes still used today. Diabetes mellitus, the umbrella term for the four different types of diabetes, is defined as a “state of chronic hyperglycemia which may result from many environmental and genetic factors” with an instability in fat, carbohydrates, and protein metabolism (WHO Expert Committee on Diabetes Mellitus, 1980, 2). Hyperglycemia is defined as a high concentration of glucose in the blood.
Insulin, secreted by the islets of Langerhans, or the beta cells, in the pancreas regulates glucose levels in the blood. Hyperglycemia may result from lack of insulin or the de-sensitivity of the body to insulin. Common symptoms of diabetes are severe thirst, increases in urine volume, rapid weight loss, and sometimes coma. As previously reported, diabetes is characterized by the elevated blood glucose levels. Characteristic symptoms of late stage diabetes are ketoacidosis, or non-ketotic hyperosmolar state (the buildup of ketones in the body when fat is used as a fuel source instead of glucose), the development of diseases in the kidneys and the eyes, nervous system, and excessive arteriosclerosis (blockage of arteries by build-up of fatty acid). These complications can further lead to renal failure, retinopathy with potential blindness, neuropathy with risk of foot ulcers, increased risk for cardiovascular disease, peripheral vascular and cerebrovascular disease. If diabetes is left untreated, stupor, coma and eventually death will result (Ekoe et al ed., 2001; National Diabetes Data Group, 1979; Definition, Diagnosis and Classification of Diabetes Mellitus and its Complications, 1999).

The most consistent and well-recognized symptom of diabetes mellitus has always been high blood sugar levels. Testing for diabetes is usual after symptoms of increased thirst, increase in urine volume, drowsiness and coma are seen. The diagnoses of diabetes though, does not solely rely on diagnostic tests such as oral glucose tolerance test, as they can also give conflicting information. Diagnoses should take into account the individual’s risk for diabetes, based on diabetes risk factors and the symptoms exhibited by the individual. For persons under conditions of acute infective, traumatic, circulatory or other stress and have severe levels of hyperglycemia detected, for example, should not be diagnosed as diabetics and the blood sugar levels are simply considered transitory. For asymptomatic people (those not showing symptoms) more than one plasma/blood glucose test should be used. The oral glucose tolerance test, or the
fasting test, which is collected after an 8 to 10 hour fast are tested randomly anytime, or 2 hours after a 75 g oral glucose load test (Definition and Classification of Diabetes Mellitus, 1999, 10-13), (Ekoe et al ed., 2001, 7).

In that same 1980 WHO Expert Committee on Diabetes Mellitus, researchers categorized diabetes in two major classes: non-insulin dependent diabetes (NIDDM) and insulin dependent diabetes (IDDM). However because of confusion and high rates of misclassification of treatments, the terms Type I and Type II were introduced as a means of categorizing diabetes (Ekoe et al ed., 2001, 17). In 1997, the American Diabetes Association released a new classification of diabetes that included four classes of diabetes. The first class of diabetes is Type I diabetes or IDDM, which result primarily from pancreatic islet beta-cell destruction. This type of diabetes is an autoimmune disease where the body systematically destroys the insulin-producing beta cells in the pancreas. Without the insulin in the blood, there is no means of regulating blood sugar levels, and glucose remains in the blood instead of metabolized. Today, Type I accounts for 5%-10% of all cases of diabetes, and is usually diagnosed at adolescence. There is no way to prevent Type I diabetes. The second class of diabetes is Type II diabetes or NIDDM, the most common form of diabetes, affects 90% to 95% of diabetics. Insulin resistance and insulin secretion is characteristic of Type II diabetes. Unlike Type I diabetes in which there is little to no insulin produced by the body, insulin is produced in the body but does not decrease blood sugar levels in the body. Like a continuous loop however, the increase levels of glucose in the blood signals the pancreas to release more insulin into the blood. Because of this, sugar builds up in the blood causing hyperglycemia, and when the kidneys filter the blood, the result is Type II diabetes characteristic symptom of sweet urine. The third class is gestational diabetes, identified in women during pregnancy but is temporary condition. Blood sugar levels usually
return to normal after delivery. The fourth class, the less common type of diabetes, results from genetic defects (American Diabetes Association, 2009, S13; Guilliams, 2002, 1-2; Deshpande, Anjali D, Marie Harris-Hayes, and Mario Schootman, 2008, 1255).

Type 2 diabetes, the most common form of diabetes, is usually not diagnosed until complications arise, and unsurprisingly approximately one-third of all people with diabetes may be undiagnosed (Standards of Medical Care in Diabetes- 2008, 2008, S13). There are many risk factors for Type II diabetes. The most common indicator for diabetes is pre-diabetes, high blood glucose levels but not high enough to meet the criteria for diabetes. Pre-diabetics have either an impaired fasting glucose of 100 mg/dl to 125 mg/dl or impaired glucose tolerance of 140 mg/dl to 199 mg/dl. Levels of IFG and the IGT levels are one of many listed risk factors for diabetes and cardiovascular disease (Standards of Medical Care in Diabetes-2009, 2009, S13-S14). The other listed risk factors for Type II diabetes besides pre-diabetes are: BMI (Body Mass Index) of 25 kg/m (obese or overweight), being physically inactive, having a family history of diabetes, being over 45, being hypertensive, having high cholesterol, having gestational diabetes when pregnant, and having polycystic ovary syndrome—and being of African American, Hispanic, America Indian or Asian American and Pacific Islander ethnicity (American Diabetes Association, 2009, S14).

Many of the identified risk factors for diabetes are also symptoms of Metabolic Syndrome. Metabolic Syndrome, according to the National Cholesterol Education Program Adult Treatment Panel III (ATP III) is a cluster of individual symptoms: abdominal obesity, atherogenic dyslipidemis (high cholesterol), insulin resistance/ glucose intolerance (prediabetes or diabetes), proinflammatory (elevated C-reactive protein) state and prothrombotic (increased plasma plasminogen activator inhibitor and fibrinogen) state and high blood pressure, which are
all closely linked to cardiovascular disease (Grundy et al, 2004, 3). All the above-mentioned symptoms increase risks for health complications ranging from heart and kidney disease and erectile dysfunction. Evidence shows that insulin resistance, or hyperglycemia, may be the common cause for the various health factors of Metabolic Syndrome. Separately, these symptoms increase risk for developing CVD, (cardiovascular disease) but in combination, the risk increases dramatically. CVD in fact accounts for 65% of all deaths in people with diabetes. In addition more than 70% of people with diabetes have high blood pressure or are being tested with medications for hypertension (Desphande, 2008, 1258). It is imperative, therefore, for at risk community members to not only be aware of their potential diabetes status, but to be aware of the increased risk for cardiovascular disease incurred in combination with other medical conditions.

Diabetes is an expensive disease, with human life and medical care cost as its price. It is, in addition, rampantly decimating the American population as the seventh leading cause of death. With over 23.6 million people, 7.6 % of Americans, having some form of diabetes, diabetes mellitus is slowly but surely becoming a modern day epidemic. Women with gestational diabetes mellitus (GDM) are found to have a 40-60 % chance of developing Type II diabetes in the following 5-10 years (National Diabetes Fact Sheet, 2007, 2). Shockingly, 5.7 million American are undiagnosed and 1.6 million new cases of diabetics are diagnosed over the age of 20 each year. With complications of kidney disease, blindness, high blood pressure, and heart disease, diabetes is associated with many health diseases. Finally, treatment of diabetes and its complications is expensive: $116 billion for direct medical costs, and $58 billion for indirect costs (“Diabetes Fact Sheet”, 2007, 5).

This is even truer for the African American community, with disproportionately higher
rates of diabetes compared to other racial communities. As many as 11.8% of non-Hispanic blacks -3.2 million people – have been diagnosed with diabetes as compared to 6.6% of non-Hispanic whites, 7.5% of Asian Americans, and 10.4% Hispanics (National Diabetes Fact Sheet, 2007). In 2005, African-American women were reported to have the highest prevalence of diabetes, 8.3% compared to 8.0% of African American men, 7.5% in Hispanic men, and 5.4% in white men (Zimmet et al, 2001, 787). Diabetic retinopathy is said to be 40% to 50% more frequent in African Americans than in white Americans. African Americans are also much more likely to undergo a lower-extremity amputation than White or Hispanic Americans who have diabetes. Studies have shown that death rates for people who have diabetes are 20% to 40% higher in African Americans compared with white Americans (National Institute of Diabetes and Digestive and Kidney Diseases, 2002, 7). To make matters worse, it has been projected that the rates of diabetes in African Americans will triple by the year 2050, while the rates in whites has been estimated to only double (Narayan et al, 2006, 2215).

The inclusion of ethnicity, though, as a risk factor for Type II diabetes can be considered a double-edged sword. At the one hand, prevention and intervention programs can target at risk groups, those with the highest incidences of Type II diabetes. However, the inclusion creates a certainty that at risk groups will be diagnosed with Type II diabetes, regardless of their health choices. This can lead to a laissez-faire approach by at risk groups to Type II diabetes prevention; especially if they feel diagnoses of Type II diabetes is inevitable. It then becomes important to not only identify and but understand the risk factors of Type II diabetes before Type II becomes the condemnation of minority races.

Thus far, increased risk for and high rates of Type II diabetes in African American have been explained away as African Americans’ higher than usual genetic susceptibility and the
genes interactions with non-genetic determinants such as behaviors and environments. The inclusion of genetics as a factor for Type II diabetes as a risk nonetheless, has led to an overwhelming view that Type II diabetes is related to innate genetic differences linked to race. Racialized genetics has increasingly been used to sway research to only consider the individual biological factors of Type II disease, and therefore disregard the effects of environmental and social causes of diabetes risk (Paradies, et al, 2007, 206). Interestingly enough, out of the over 250 genes studied as a possible cause of Type II diabetes, less then 1% of the genes have been used to explain the prevalence of Type II diabetes (Paradies, et al. 2007, 217). Genetics cannot adequately explain the prevalence of Type II diabetes in at risk communities. Research in fact has shown that social and physical environment play a significant role in influencing prevalence of Type II diabetes. This means the non-genetic factors cannot be overlooked in relation to Type II diabetes risk (Maiorana et al, 2002, 861; Tuomilheto, 2001, 1344; Diabetes Prevention Program Research Group, 2002, 398).

According to both American Anthropological Association and the American Association of Physical Anthropologists, race is socially constructed and has little to do with the biological/genetic groupings of classifying human beings (Darity Jr, et al, 2010, 5). This means genetics plays an almost inconsequential role in race health disparity in comparison to how the social and physical environment affects race and health outcomes. For that reason when considering Type II diabetes risk, it is difficult to look simply at genetics as a means to study African American increased risk for Type II diabetes. Also, an overemphasis on genetics in

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2 The Thrifty Gene Theory states that non-European minorities, such as African Americans, have survivor genes that allow for food conservation and energy storage during natural disasters and famines or during food shortage. The modern food rich environment is said to set off the genes, causing a handicap to communities, increasing their risk for obesity and Type II diabetes (Egede and Dagogo-Jack, 2006, 952).
minority health outcomes have been seen to enhance preconceptions of genetically based racial inferiority views and lead to generalizations that can have a negative affect on understanding and addressing the health disparity found in African American health outcomes (Darity Jr, et al, 2010, 6). While genetics is a factor in Type II diabetes risk, it cannot by itself explain African Americans higher risk for Type II diabetes and the high prevalence of Type II in African American communities.

It makes sense then that a further understanding of the social and the environmental components of Type II diabetes can, not only explain African Americans increased risk for Type II diabetes, but also can provide a more practical means of Type II diabetes prevention. Type II diabetes, can therefore be considered a social disease, created by the social and environmental conditions that African Americans exist. Through this sensitivity, elements in at risk communities can be identified which have a more substantial explanation for the high prevalence of Type II diabetes in African Americans communities.

In the following section the first factor, the interpersonal level factor of perception of Type II diabetes risk will be introduced. As stated previously, without the perception of Type II diabetes risk, at risk community members are less likely to engage in preventative behaviors. Specifically in African American communities, perception of risk was found to be socially defined, and based mainly on family history of risk.

Interpersonal Level Factor: Prevention Misperception

The tragedy of Type II diabetes is that it is preventable. In 2002, the Diabetes Prevention Program Research Group studied 523 men and women at risk for diabetes. The participants were either placed in a control group where they were given basic health information or in
individualized intervention modification groups where they had to have a weight loss of 5%, total consumption of less than 30% of energy intake and a minimum of 30 minutes of physical activity every day over six years. The results showed a 58% decrease in incidence of diabetes in the intervention group (Tuomilheto, 2001, 1344). This suggests that Type II diabetes is a metabolic disorder with food intake, weight and physical activity directly influencing an individual’s glycemic load or carbohydrate concentration. Changes in lifestyle, weight, physical activity, and diet can reduce and prevent incidence of diabetes (Maiorana A et al, 2002, 861; Tuomilheto, 2001, 1344; Diabetes Prevention Program Research Group, 2002, 398). In a similar study, 3,234 pre-diabetics were randomly assigned metformin, an anti-diabetes medication or to a lifestyle-intervention group. The lifestyle modification group showed a reduction of 58% in incidences of diabetes while metformin only by 31% decrease. Lifestyle intervention then was shown to be more effective than anti-diabetes medication (Diabetes Prevention Program Research Group, 2002, 398). In these two studies, we can see that first, preventative care is effective, but secondly that the identified risk factors can reduce or eliminate risk for diabetes. Studies have been done and means of prevention were identified, yet still rates of Type II diabetes are still reaching towards epidemic proportions. The studies also suggest that by incorporating prevention in health care, individuals can have a better quality of life as well as reduce health care costs (Acury, et al., 2004, 2183).

In order to engage in preventative care, however, members of at risk groups need to know that they are at risk. Research has shown though, that members of at risk groups are often not fully aware of their high-risk status. As a result, individuals tend to underestimate their chances

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3 In a study of Hispanics and African Americans with family histories of diabetes, only 8% of parents and 5% of children identified weight loss as a means of diabetes prevention. When parents of at risk families were asked how their children could prevent diabetes, only 8%
for being diagnosed with diabetes. Studies show that African American were significantly more likely to report lower levels of self-perceived risk for diabetes compared to other racial groups (Gallivan et al., 2009, 165). In another study while 90% of 217 women with histories of gestational diabetes mellitus recognized that gestational diabetes was a risk factor for Type II diabetes, only 16% believed that they themselves had a high chance of developing diabetes. (Kim, 2007, 2281). Similarly, in another study, 78% parents of Hispanic and African American families at risk for diabetes recognized their risk for diabetes, but fewer thought that their children were at risk (Cullen and Buzek, 2009, 849). In a comparable study, only 10% of adult male children in Korea, with a family history of diabetes, perceived themselves at risk for diabetes (Kim, CJ and SH, 2002, 16). These studies make clear that individuals at risk often do not see their risk for diabetes, which can translate to improper health behaviors.

As seen previously there are means of reducing risk for diabetes through prevention. However without the knowledge and perception of diabetes risk, individuals in jeopardy not only are more likely to be inactive participants in preventing diabetes, but might also be putting themselves at further risk. The first step in diabetes prevention therefore must be an understanding of individuals’ knowledge and beliefs concerning chronic disease. Once at risk individuals’ health knowledge and beliefs are recognized, prevention programs can then be tailored to be both culturally sensitive and address the needs of particular communities (Skelly et al., 2006, 11).

correctly identified weight management (Cullen and Buzek, 2009, 839). Thirty-three percent of those adolescents and 79% of those parents reported BMI values above 25. (Cullen and Buzek, 2009, 840). Similarly, Hispanics at risk for diabetes did not believe that being overweight caused diabetes but were more concerned with the weight loss found in uncontrolled diabetes (Arcury, 2004, 2191).
Individual’s perceptions of disease risk become more important for diabetes prevention, because acknowledgement of risk increases the likelihood of earlier intervention. One method to study individual’s perceptions of health risk is to use explanatory models. Explanatory models are the beliefs and knowledge that specific cultures use to perceive and understand illnesses. A commonly used explanatory model used for diabetes is the Kleimmen model, which features both the individual’s and the groups’ understanding of disease (Kleimmen, 1980, 73). Skelly, using Kleimmen model as a blueprint, found in her study that most rural African American adults at risk did not have a well-developed explanatory model. Many did not know the symptoms, pathophysiology, and treatment of diabetes. Only a few respondents stated that diabetes was preventable. Startlingly, many did not understand the link between weight and physical activity as increasing risks for diabetes. Many responded that weight loss and physical activity influenced diabetes treatment rather then prevention (Skelly, et al., 2006, 25). In a similar study of undiagnosed rural Latino immigrants, researchers found that people had two explanatory models. The people that use the first explanatory model had little to no knowledge of diabetes- its causes, symptoms, or treatment, and therefore did not have a workable explanatory model. Using a similar explanatory health model, researchers showed that many participants felt diabetes was hereditary or inherent in everyone, and its expression was the result of strong emotion and bad blood (Acury, 2004, 2190) (Hunt, 1998, 962). In looking at African American and Hispanic explanatory models, it becomes clear that at risk groups do not have basic information about their health risk status and therefore their own increased risk for Type II diabetes. It becomes imperative to address education in prevention, because at risk populations both unaware of their risk status, but also that Type II diabetes is a preventable disease.
Alongside the general lack of diabetes knowledge are the low levels of self-perceived risk by at-risk persons. The research on the explanatory models used by African Americans and Hispanics show that at-risk communities may lack a sense of the severity and the high rates of diabetes that marks the African American and Hispanic communities. Other studies have shown that while there was general knowledge of the causes of diabetes in the African and Hispanic communities, most focused on having “too much sugar” and not how being obese or overweight can contribute dramatically to the high rates of diabetes found in minority communities (Acury, 2004, 2190; Skelly, et al., 2006, 25; Cullen and Buzek, 2009, 849). It becomes less likely, overall, that at-risk groups such as African Americans, would adopt risk-reducing healthy behaviors without vital health knowledge. Without a solid explanatory model, at-risk communities such as African Americans are treating diabetes not as a preventable disease, but rather an inevitable disease of minority.

Realizing that perception of Type II diabetes can be considered skewed by at-risk groups and may lead to improper health behavior, it is important then to consider how explanatory models by at-risk individuals are created. One way is to study the creation of explanatory models and how the social and ethnic settings influence their creation. Models, specifically explanatory health models, are said to be made by the individual through interaction with both their socio-cultural environment and their experiences (Kleimmen, 1980, 73). For African Americans, their family primarily influences their explanatory models. For example, most realized that they had an increased risk for diabetes when there was a family history of diabetes (Skelly, et al., 2006, 10; Gallivan et al, 2009, 165; Acury, 2004, 2184). Indeed, African Americans having a family history of diabetes have a better awareness of diabetes risk factors, had a higher daily consumption of fruits and vegetables, and participated more often in diabetes screening
It has been suggested that individuals’ with a family history of diabetes have a firsthand experience with complexity and severity of diabetes and therefore have a higher possibility would be more receptive to preventative strategies (Marrero and Ackermann, 2007, 206).

While it important to identify risk for a disease, it does not necessary mean at risk groups will engage in preventative behavioral changes. The Health Belief model states that there is a correlation between perceived risk and participating in behavioral changes. Research reports that over stating odds of diabetes risk increases the likelihood of engaging in healthier lifestyle. Under stating the risks of diabetes conversely, acts as a barrier for behavior modification (Janz and Becker, 1984, 3). However, there are debates whether this holds true for at risk diabetics (Baptiste-Roberts, 2007, 910). Pierce et al, showed that even though children of diabetics were aware of their increased risk status, few felt that they were in danger of being diabetic and did not necessarily engage in more health protective behaviors (Pierce et al., 2001, 198). In fact, studies show that at risk individuals’ engaged in behaviors that increased their risk for diabetes.

In a study of non-diabetic relatives of diabetics, many had higher fat and saturated fat diets compared to relatives with no family risks (Adamson et al., 2001, 986). In a similar study, overweight and obese adults did not perceive their weight as a health risk, and this perception was associated with lower prevalence of trying to lose weight, particularly among men (Gregory et al., 2008, 46).

It seems clear that the misperception of diabetes risk can contribute significantly to high rates of diabetes in at risk groups. Research has shown that the lack of factual knowledge relevant to diabetes risk, specifically diabetes prevention, cause, and risk factors, decreases the likelihood of preventative lifestyle changes and increase the likelihood of diabetes in at risk
groups. To make matters worse, at risk groups, such as African Americans, are not fully aware of their vulnerability for diabetes, and consistently underestimate their risk for diabetes. While there is evidence to show that family history of diabetes increases perceptions of risk, many other studies report low levels of self-perceived risk for diabetes. Diabetes prevention therefore must begin with dispelling common misperceptions of diabetes and increasing the awareness of prevention and controllable risk factors for diabetes. Preventive programs designed to be relevant to African American communities by approaching cultural perceptions of diabetes.

Education and community awareness plays a significant role in perceiving of Type II diabetes as a social disease. As seen in the perception of risk, formation and creation of explanatory models, and the likelihood of engaging in preventative activities, socio-cultural values play significant role in establishing African Americans health perceptions. This understanding of the psychology behind diabetes risk is an important feature of viewing Type II diabetes as a social disease. It was only through the understanding that the low awareness of self-perceived health risk status found in African Americans formed through socially construed incomplete explanatory models. Extensively low levels of community health education on health risk and prevention are the causes, rather then simply the individual’s lack of awareness.

Perception of risk as stated in the Health Belief Model does not necessarily translate to engagement in healthy preventative behaviors. In the following section, interpersonal level factor: life style, I will discuss the social and cultural barriers that exist in African American communities that make it difficult for members to engage in healthy behaviors.

Interpersonal Level Factor: Life style
Type II diabetes as stated previously is a preventable disease. By controlling an individual’s lifestyle—their weight, physical activity and diet—risk for Type II diabetes reduces significantly (Maiorana et al, 2002, 861; Tuomilheto, 2001, 1344; Diabetes Prevention Program Research Group, 2002, 398). Weight loss reduces blood glucose levels in non-diabetic overweight and obese individuals and decreases the likelihood of developing weight related health related complications. Sustained physical activity is shown to prevent weight regain and reduces the risk for cardiovascular and Type II diabetes beyond that of only losing weight alone. Eating healthy foods, research has shown, significantly reduces risk for diabetes by controlling the body’s glycemic load (“Definition and Classification of Diabetes Mellitus”, 1999, 10-13), (“Clinical Guidelines”, 14. 1998).

The first component of lifestyle discussed in this section will be weight. Studies show that the relative risk of diabetes increases by approximately 25% per each additional BMI unit after 22 kg/m². In a recent study of the US population, it had been estimated that an adult gaining 11 lb or 5 kg creates 27 % of the new cases of diabetes (“Clinical Guidelines of the Identification, Evaluation, and Treatment of Overweight and Obesity, 1998). As stated in the Introduction section, abdominal obesity, hyperglycemia, high cholesterol and a few other symptoms together make up Metabolic Syndrome. Weight and hyperglycemia are not mutually exclusive illnesses. While obesity is mainly responsible for the rising prevalence of Metabolic Syndrome, insulin resistance influences the risk factors (Grundy et al, 2004, 3).  

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4 BMI (Body Mass Index) describes an individual’s relative weight for height and is used to classify overweight and obese people. BMI measurement of 18.5- 24.9 kg/m² is said to be normal weight, BMI’s of 25.0 kg/m² to 29.9 kg/m² is defined as overweight and over 30 kg/m² is said to be obese

5 Metabolic Syndrome can be regulated by reducing and managing all its symptoms and by extension reduce risks for CVD and other potential health complications.
Currently more than two thirds of US adults and approximately one third of adolescents and US children are overweight and obese (Kuczmarski, 1997, 542) (WHO Expert Committee, 1995). Like diabetes, obesity is a preventable disease, but is listed as the second leading preventable cause of death, second only to smoking (Blixen, 2006, 290). Reports from the National Health and Nutrition Examination Survey (NHANES), which tracks prevalence of obesity trends, show that prevalence of obesity has increased dramatically over the last thirty years. In 2007-2008, the prevalence of obesity in United States was the highest yet, exceeding 30% for most age and sex groups (Flegal, Ogden, and Carroll, 2009, 239).

The greatest increase in obesity prevalence is seen in minority communities. Minorities had a higher combined prevalence of obesity compared to non-Hispanic whites by almost 10 percentage points. Sadly, the highest prevalence was seen in African American women. In 1999-2002, 20- to 39 year old Non-Hispanic Blacks women were seen to have a 70.3% prevalence rate of obesity and overweight, while Non-Hispanic whites were seen to have a prevalence of 49%. More than 50% of African American women over the age of 40 are obese and over 80% overweight. The prevalence of extreme obesity in African American women was more than twice than that of White and Mexican- American women. The trend for African American women obesity does not stop there. It has been projected that by 2015, the prevalence of obesity will reach 40.8 % for all Americans, but will be as high as 62.5 % among non-Hispanic Black women (Wang and Beydoun, 2007, 3).

Evidence suggests that these high obesity rates link to body image perceptions, which vary across ethnic groups. Perception results from the interactions of cultural values, societal perceptions, physical attractiveness, gender identity and media influences (Vartanian and Hopkinson, 2010, 86) (Jackson, 1992). Perceptions of physical appearance are primarily based
on their cultural and racial cues. For example, studies show that African Americans are more tolerant of and prefer heavier body weights. In a study of adolescent African-American and White girls attending public high schools, more African American girls reported wanting to gain weight, and fewer viewed themselves as overweight (Neff, et al., 1997, 464). In a similar study, African American girls were more likely then whites to try to gain weight mostly because their parents had told them they were too thin (Schreiber, et al. 2001). Likewise in a study of elderly African American women, many responded that their ideal body weight would be higher by 4.9 kg/m$^2$ which translated to roughly to BMI’s of 28.7 kg/m$^2$, categorizing as overweight (Stevens, Kumanyika, and Keil,1994, 1324). Perception and acceptance of heavier body weights by African American females positively relates to the high rates of obesity found in African American communities. Higher tolerance for weight can create perceptions that being overweight and obese are normal and acceptable, rather than a leading cause for health complications and death (Blixen, 2006, 290)$^6$.

African American women having this perception of weight, act both as models and sanction lifestyle behaviors that following generations will likely emulate (Hedley et al. 2004; Josenberg et al., 2003; Townsend et al., 2001;Kumanyika and Grier,2006, 197). For instance Black female adolescents, like many adolescents, were found to receive much of their weight control information from the media and family members, specifically from their mothers, and friends. (Desmond et al, 1989). It is therefore not surprising that childhood obesity and overweightness in African American communities have been on a rise. Among adolescent girls, 

$^6$This is not to say that all African American body images are inappropriate or dangerous. Ideal body appearances depend entirely on the cultural and ethnic experience, rather then to an “American” standard. The challenge though to the public health community is to encourage weight reduction, physical activity, and improving healthy diet, without forcing on to the African American community a negative self-image by comparing them to dominate European standards (Stevens et al., 1324, 1994).
24% of African Americans, 20% of Mexican Americans, and 13% of whites were obese. (Kumanyika and Grier, 2006, 188). The concern has been that childhood obesity will lead to obese adults who have obesity related health complications. However, it has already been seen. Obese children are suffering from the same health complications found in obese and overweight adults, such as Metabolic Syndrome, Type II diabetes, and sleep disordered breathing\(^7\) (Whitaker et al., 1997) (Kumanyika and Grier, 2006, 191).

Body image and awareness of body weight are established early in life. Efforts to reduce overweight and obesity in individuals then should not only target adults but also at risk adolescents. If as studies suggest, overweight and obese women are seen as ideal, motivation to control weight by adolescents can be changed by addressing weight control in adults. African American adolescent women, like adolescents from other ethnic and cultural backgrounds, may also consider themselves immune from adult health problems and may not understand why preventative efforts such as weight control are important (Jackson, 1990). In a study of overweight African American teenagers, for instance, many of the girls stated that they had been “conditioned” against hurtful, weight-related comments and were neither bothered by them or motivated to make changes to their diet and habits (Boyington, 2008, 3). However, as a number of studies show, learning healthy eating and exercising habits, during this time would allow for African American female adolescents to control their weight and reduce their risk for chronic diseases (Neff et al, 1997, 460; Kumanyika et al, 1993; Kumanyika, Wilson, Guilford-Davenport, 1993; Wilson, Sargent and Dias, 1994). Weight intervention, therefore has to address both adults and children concerns of weight and weight related risk.

\(^7\) Studies show that the development of diabetes has also been associated with weight gain after the age of 18 for both men and women (“Clinical Guidelines”, 1998).
Moreover, like the cultural acceptance of heavier body image, a higher tolerance for weight in the African American community is said to form because of a lower perception of social pressures to lose weight (Greenburg and LaPorte, 1996) (Powell and Kahn, 1995). Like the high rates of obese and overweight found in African American women, an increased likelihood of being exposed to overweight mothers and significant other adults as children has been said to encourage a higher tolerance for obesity in the African American community (Wilson, Saargent, & Dias, 1994). In a study of African American and White women’s experiences with weight loss methods, many African American women recalled being pressured by their families to accept being overweight (Davis et al, 2005, 1540). As seen in the explanatory models used for diabetes prevention, extended family and social expectations primarily influence African American health perceptions, instead of simply the nuclear family and the individual (Skelly, et al, 2006, 10; Gallivan et al , 2009, 165; Acury, 2004, 2184; Airhihenbuwa et al, 1995). With a higher tolerance for heavier weight found in families and social communities, ranges of healthy body images can therefore be influenced to accept larger and sometimes unhealthy body sizes (Kronenfield et al., 4, 2010). One study showed that among severely overweight African American women who had tried to lose weight, only 36% reported that their husband or boyfriend had thought that they were very overweight. In the same study, when asked if being overweight or obese had ever caused them difficulty in personal or family relationships, or getting a job, 81% and 96% respectively of the women checked ‘not to my knowledge’ (Kumanyika et al., 1993).

Studies have shown though, that cultural definitions of weight perceptions and weight related health complications are not so simple. Contrary to previously report studies, in a study of overweight and obese African Americans women, many recognized that they were obese and
overweight, and knew of their weight related health complications. Seventy-eight percent of severely overweight women perceived themselves as very overweight, and almost all saw themselves as overweight in some degree. When asked about weight related health problems, 80% knew that being overweight caused diabetes, and 81% knew that weight related to blood pressure (Stevens, Kumanyika, and Keil, 1994). This apparent contradiction is an example of the problem with over-generalizing weight perceptions trends in African American communities. It becomes difficult to state whether African Americans tolerate and are satisfied with body weight because heavier body are common and thus become viewed as normal. While it is important to look at cultural and racial factors as influences of body image, further factors such as media and health care practitioners’ advice influences community understanding and perception of weight and acceptable body images. Thus said, it becomes even further tricky to identify why heavier body images has been reported as more acceptable in the African American community and how this has translated to weight and weight related complications.

However, even though heavier weights are identified as increasing risk for health complications, many of the women still reported being satisfied with their weights. (Stevens, Kumanyika, and Keil, 1994, 1324; Neff, 1997, 460; Lovejoy, 2001). Similarly, another study showed that in a group of African American adolescent girls, many reported that their ideal weight or body size was influenced more by self-satisfaction then actual body size. Body weight, for them, had more do with being “comfortable with your weight” then being of acceptable sizes. (Boyington, 2008, 3). Indeed, Melnyk and Weinstein suggests that African American women may place less value on the cosmetic aspects of body weight, compared to White women, as their family and social roles change during their lifetimes. Body weight satisfaction and weight loss
for African American women, it has been said, had more to do with subjective cues\textsuperscript{8} such as sexual attractiveness, how their clothes fit and how they look in the mirror rather than health reasons alone (Melynk and Weinstein, 1994).

As previously stated, body satisfaction results from social expectations as well as self-perceptions both based on African American racial frameworks\textsuperscript{9}. For example, assessments of body satisfaction made using a silhouette-based approach, requiring respondents to choose silhouettes closest to how they currently perceive themselves and would prefer to look like, showed that African-American and “Other” race women reporting to prefer larger silhouettes than the White group even after controlling for BMI (Gipson, 225, 2005)(Kronenfeld et al., 2009). In a similar study of African American women and men college students, heavier African American women students tended to select larger silhouettes. Consistent with the previous research, Gipson et al concluded that young African American women were more tolerant of a variety of body sizes (Gipson et al., 223, 2005).

It would seem as if African Americans are more permissive towards heavier weight and larger body image, considering African Americans self-reported satisfaction and acceptance of heavier weights. However, as stated previously that African Americans are not interested in controlling their weight. Kumanyika et al in a study of whether African American women were

\textsuperscript{8}Kumanyika et al, on the other hand, suggests that objective cues such as changes in weight would be more reliable then subjective assessment for weight loss. Subjective assessments, they state are imprecise because they are made in a social context where being overweight is more prevalent then being of normal weight (Kumanyika, Wilson, Guillord- Davenport, 1993). In any case, African American communities do not necessarily perceive being overweight as being unattractive (Kumanyika, Wilson, Guillord- Davenport, 1993) (Melynk and Weinstein, 1994).\textsuperscript{9}African American men also reported overweight women to be more attractive and sexier than do White men (Melynk and Weinstein, 2010) (Gibson et al., 225, 2005). Similarly in a multiethnic Caribbean population, overweight adolescents were more likely to be satisfied with their body size, and 40% of the study subjects associated male overweight and obese silhouettes with happiness. The overweight African female adolescents also were reported to be satisfied with their body sizes (Simeon et al, 2003).
less motivated to control their weight because of culturally determined permissive attitudes toward obesity found that African American women want to be of normal health range, and were interested in weight loss (Kumanyika, Wilson and Guilford-Davenport, 1993). Similarly, in a study of the experiences of obese African American and White women weight loss programs, all the women, both African Americans and White women, expressed negative self body image views. Contrary to the perceived fatness theory, which states that African Americans are satisfied with heavier body weights, all the overweight African American women reported being dissatisfied with their weight and had even tried to lose weight (Davis, et al., 1541, 2005). When designing preventative programs, program coordinator should take into consideration, that while there is a higher tolerance for heavier body weight, it would presumptuous to think African Americans prefer to be of unhealthy weight range.

The growing trend of obesity and Type II diabetes clearly, is a cause for alarm in the African American community. As stated previously weight maintenance significantly increases risk for Type II diabetes. African Americans also were found to have the highest rates of being obese and being overweight. Research though, points to African Americans higher tolerance and satisfaction towards heavier body weight, allowing for perceptions that obese and overweight body types are normal. It would be wrong however, to state that Africans Americans are not interested in weight loss and are unaware of the various weight related health problems. African Americans though still reported lower social pressures to lose weight, which may tie to high proportion of overweight and obesity found in African American women.

It would be reasonable to state that African Americans became more permissive towards heavier body weights as more African Americans became obese and overweight. However, this does not explain why African Americans have become more at risk for obesity or weight related
illnesses. To state though, that racial and cultural values cause African Americans to be overweight and obese. This would discount factors ranging from socio-economic status, access to health services, levels of health education and food resources as they relate to body images formation and body weight tolerance. It is then imperative to consider weight and by extension Type II diabetes risk as influenced as much by socially constructed racial values and as well as by the socio-cultural environment in which African Americans exist.

Stating, therefore that Type II diabetes is a social disease, would allow for a broader understanding of disease risk, taking into account factors such as weight conditioning resulting from historical pressures of slavery, community pressures of socioeconomic status and institutional pressures of access to care and health education. An acknowledgement of these factors as well as the underlying racial and cultural values can lead to a better understanding of the Type II diabetes risk in African American communities and through this a fuller perception of the minority health disparity. In this way, prevention and intervention can be designed to incorporate these particular features and increase the effectiveness of the program in at risk communities.

The next component of lifestyle to be discussed is physical activity and diet. Physical activity has been shown to play a major role in weight loss and by extension diabetes prevention. Physical inactivity is said to better predict diabetes incidences, even when age and obesity are controlled for (Taylor et al., 1984). The most obvious benefit of physical activity and exercise is the reduction of body fat through energy expenditure (Lipman, Raskin and Lowe, 1972)(Bjorntorp, Berchtold and Grimby, 1972). For example, in a study of the development of chronic disease in men, Helmrich et al concluded that physical activity showed the greatest effect in men who were the greatest risk because of obesity, family history of diabetes and history of
hypertension (Helmrich et al, 1991). There are other benefits as well. For example, physical inactivity reduces tissue glucose tolerance and is associated with the development of insulin resistance. Physical activity is also said to prevent glucose intolerance through increased sensitivity to insulin in muscles and fat tissue. This becomes important because insulin resistance in the skeletal muscles and fat tissue significantly contributes to the onset of Type II diabetes (Horton et al, 1986, (Lipman et al., 1972).

African Americans are however found to be less likely to engage in physical activity as a means for Type II diabetes prevention. It as been shown that African Americans adolescents are more likely to watch television, engaging in sedentary behaviors while eating, increasing risk for weight gain and by extension risk for Type II diabetes (Kimm et al., 2001) (Wolf et al., 1993). However, lack of exercise facilities, preference for social exercise regimes, and culturally based attitudes towards exercise that differ from those of White women have been cited a reasons for the lower levels of physical activity in African American women (Kumanyika et al., 1992) (Lasco et al, 1989). It has been shown that poverty and general perceptions that the amount of physical activity during a normal course of their day also influences African American perceptions of the sufficient amount of physical activity required for weight loss. For example many women cite that if they feel that their daily work involves a significant amount of exercise, they may not be more likely to engage in further physical exercise (Melnyk and Weinstein, 1994).

Diet is pivotal to weight maintenance and diabetes prevention as it directly influences individuals’ glycemic load and therefore diabetes risk. Diet is also important because research has shown that African Americans consistently report that a significant barrier for weight control has been diet. They recall that “greasy food and plenty of it” was a staple of their childhood and
continued this tradition into their adulthood. In one study, African Americans talked more about “food cravings” and “family influence” as influencing weight loss than White women (Blixen et al., 2006, 296). In another, African Americans were found to consume less fruits and vegetables, dietary fiber, calcium, and potassium and to consume more high-fat pork products (e.g., bacon and sausage), luncheon meats, and dietary cholesterol (Kumanyika, 1990). Other studies show that energy intake of African American women appeared to rise slightly in adolescence, reflecting the trend of childhood obesity found in African American community. African American women were reported to also tend to have a higher preference for sweet foods, beverages, and reluctance to limit dietary fat intake (Kumanyika, 1987).

Cultural values and community pressures are also reported to be barriers to diet management. When African American women were asked what cultural factors influenced their diet control, weight management, and exercise, 56% of the women answered historical eating and cooking patterns. Emotional eating was also said to be in response to stressors such as concerns of low socioeconomic status, response to negative emotions such as depression, loneliness, and anxiety, and sexism and racism (Blixen et al., 296, 2006). Other research has shown that lack of education, using food as a means of comfort and to cope with stressful events and media were also identified as influencing their dietary behaviors. In addition, African American women reported that value of food closely tied to conflict resolution as well as historical food preferences as slaves (Melynk and Weinstein, 1994).

Physical activity and diet play a significant role in regulating and preventing risk for Type II diabetes. As witnessed, though, in the above-mentioned barriers, the likelihood that African Americans will engage in these healthy behaviors is low. Research shows that African Americans do want to participate in preventative health behaviors however and report having
tried to lose weight in the past (Davis, et al., 1541, 2005). The issue then becomes not only encouraging at risk African Americans to engage in preventative behaviors but also the maintenance of preventative health behaviors. Many of the self-identified barriers are culturally and racially defined such as historical food preferences and eating patterns, which would influence maintenance of diet and weight control. These barriers direct attention to a socio-cultural factor to prevention, which was seen as a running theme in weight management and perception of Type II diabetes risk.

As in weight management, cultural and racial values play a significant role in the likelihood of African Americans engaging but also staying in preventative programs. Thus, it is imperative to view Type II diabetes as a social disease, and not simply a medical condition because of the cultural and racial factors involved. Without identifying and understanding the social and racial values that act as barriers to engaging and maintaining healthy preventative behaviors, intervention and prevention program cannot effectively change African American lifestyle choices. Therefore, by addressing and accommodating to existing socio-cultural values in African American communities, diabetes prevention programs designed to address the African American value system and increase rates of at risk African American retention in behavioral intervention programs.

Many of the listed barriers in engaging in physical activities, however, relate to the physical environment such as lack of healthy food sources and the lack of exercise facilities. The environment though is not influenced by the socio-cultural values in the way that perception and behavioral choices are. In fact, the community environments are the conditions and institutions that prevent African Americans ability to engage in healthy behaviors. These physical barriers
have increased importance because it relates to elements in the community that has allowed for rates of Type II diabetes to exist and increase so dramatically in African American communities.

In the next section, communal-environmental level factor: food resources, I relate the above mention barriers to preventative health specifically in weight maintenance, diet management and physical activity to the environment that African American exist in through the lack of healthy food resources.

**Communal-environmental Level Factor: Food Resources**

There has been a long history of documented racial and ethnic disparities in health care and health outcomes as well as numerous recent efforts to combat these in the United States. Heckler, then Secretary of Health and Human Services, first brought national attention to minority health differences in a 1985 report, stating that a significant difference existed in the health status of four minority groups compared to Whites (“Report of the Secretary’s Task Forces on Black and Minority Health”, 1985). Soon after, in a 1990 *Healthy People 2000*, a national initiative for health promotion and disease prevention, the nation called for a need to focus preventative efforts more closely on racial/ethnic populations to reduce minority health disparities. Soon after, facing the increasing information detailing the differences in minority health status, the U.S. Congress required that NIH sponsor clinical trials to include enough women and minorities to conclude if medical treatments worked differently for women and minorities. Treatment and prevention efforts in minorities were then shifted to focus on the how race, ethnicity, and gender worked on the genetic/biological predispositions rather then how social conditions could increase incidence of disease (American Academy of Pediatrics Committee on Pediatric Research, 2000,1349). Similarly in 1998, President Clinton made a call...
for the elimination of health disparities found in minorities by 2010 (“The Initiative to Eliminate Racial and Ethnic Disparities in Health”, 1998). Since then, efforts have been made to understand minority health differences and explore programs and services to eliminate health inequalities (Walker, Mays, Warren, 2004, 507).

Rates of Type II diabetes frighteningly are mirroring the national trends of minority health disparity (National Diabetes Fact Sheet, 2007, 2). In the previous sections, I had listed the interpersonal level factors, misperceptions of diabetes prevention and lifestyle choices and how they play a role in increasing the overall diabetes risk in the African American community. Attention, has to be placed on these factors as they relate directly to African American community. However these factors alone can not fully explain the dramatic rise in diabetes and diabetes related complication in the African American community. As I have stated previously, Type II diabetes is a social disease, influenced by not only African American values and perceptions, but involves the social and physical community environment that African Americans exist in. These communal-environment factors plays a significant role in not only increasing risk for diabetes, but also directly shapes African Americans perceptions of disease risk, and unhealthy behavioral choices.

The study of the community level social factor will show how the environment, not only prevents engagement in healthy behaviors but leads to the public perception that diabetes is inevitable. In the following section, I will study one essential community-environmental level social factor, the disparities found in food resources and how this increase risk for diabetes in African American communities and by extension minority communities. To study African American food experience though, it is important to first to look at the general food environment, and how this has influenced the African American food experience.
Americans are consuming too much calories and with the increased availability of energy dense foods, it is no wonder that the American food environment is now considered “obesogenic” (Hill and Peters, 1998). Between 1977-1978 and 1994-1996, the U.S Department of Agriculture reports, the average daily food energy intake rose from 1854 calories to 2002 (Drewnowski and Specter, 2004). It is however, the expanding portion sizes and the growing shift towards eating away from home that has been cited as the cause for increases in weight and risk for weight related diseases. Since the 1970’s the American food portion size has increased dramatically. Studies show that except for sliced white bread, all of the commonly available food portions studied exceeded the US Department of Agriculture standard portions, sometimes to a great extent. For example, the largest excess over US Department of Agriculture standards occurred in the cookie category, with an excess of 700%, while cooked pasta and bagels exceeded standards by 480 % and 195 % respectively. For French fries, hamburgers and soda, the current portion sizes are 2-5 times larger than in the past (Young and Nestle, 2002).

Studies show though that with larger portion sizes, individuals are more likely consume more calories. In a study of energy consumption and buffet restaurant styles, individuals were found to increase the amount they ate based on the amount they were served (Mrdjenovic & Levitsky, 2005). The influence of growing portion sizes and increases in people’s energy intake are enhanced by the fact that more people are eating their meals away from home than they did thirty years ago (Nielson et al, 376, 2002). This is important because meals consumed outside homes because consumers typically know less about their food caloric content and outside food and therefore contribute to weight gain. In addition, meals eaten away from home have been shown on average to have lower fiber and calcium density, and high cholesterol density relative to meals eaten at home. Between 1977 and 1996, Americans were seen to increase the proportion
of total energy obtained from restaurants and fast-food establishments, and decreased the proportion eaten at home (Crawley, 72, 2006) (Nielson et al, 376, 2002).

Food choices and dietary quality therefore becomes important in regulating risk for weight related disease as portion sizes and food consumption increases. Availability and accessibility to food sources such as food stores then play a significant role in dietary quality and food choices and so has an important role in regulating risk for disease. Supermarkets are found to offer a greater selection of fresh healthy food items and heart healthy foods (Galvez, et al., 2007). They were seen to have 57-71% of the healthy target food items as compared to more than a third found in neighborhood grocery stores and less then 20% found in convenience stores. Convenience stores were also shown to have very few low-sodium, low fat foods (Sallis, JF., et al., 1986). Supermarkets had two times the amount of heart-healthy food then neighborhood grocery stores and four times the number of these foods in convenience stores (Morland et al, 2002). It is therefore not surprising that availability and accessibility to supermarkets negatively influence rates of overweight and obesity (Morland et al 2000). The benefits of having supermarkets seem clear, more healthy food choices and reduction in risk for chronic diseases.

Low income and predominately African American neighborhoods though, have poor access to healthy food resources (Zenk et al, 1, 2005). In a study of the prevalence of supermarkets by neighborhoods, Morland et al found that four times fewer supermarkets were located in African American neighborhood than in White neighborhoods (Morland, 2002). Similarly, African Americans neighborhoods were seen to have half as many chain supermarkets as compared to White neighborhoods (Powell, 2007). Reports show that black Americans consume one third more fruits and vegetables for every additional supermarket found in their
census tract (Morland et al., 2000).

Notably, many of the supermarkets found in African Americans have significant differences in the quantity and quality of healthy food items. It was found that, 30% of the food stores in high poverty, predominantly African American neighborhoods were seen to lack sufficient amounts of fruits and vegetables compared to predominantly White neighborhoods (Sloane, 2006). In a comparable study, nonwhite Albany residents lived in neighborhoods that lacked stores that contained low-fat milk or high-fiber bread (Hosler, 2006). Not only are supermarkets unavailable in African American communities, though but also inaccessible. One study found that the nearest supermarket was significantly farther away in predominantly African American neighborhoods compared to an predominantly White neighborhood (Zenk, 2005).

While supermarkets are by far the healthiest food sources, they are not the only ones. Another food source is fast food restaurants. Unsurprisingly, fast food consumption is associated with high fat content and by extension with high rates of obesity (Lewis et al, 2005). In contrast to supermarket packaged meals fat contents of 2-21g, fast foods had significantly higher fat content of 10-27g. It is difficult even to have an moderate energy density meal in fast food restaurants because all the single food items are have high energy densities. The average energy densities in three fast food outlets were found to be 2.5 higher or 145% more dense than the traditional African American diet (Prentice and Jebb, 2003). The nutritional values of fast food restaurants are clearly less than that of supermarkets. Earlier in this section studies show that high-energy foods contribute significantly to increases in obesity and weight-related illnesses in the American population. It is reasonable to assume that fast food restaurants with large number of energy dense foods have a significant role in weight related illnesses in America.

Unlike supermarkets though, fast food restaurants are found frequently in African
American neighborhoods. In a study in New Orleans, researchers found that in predominantly African American neighborhoods, there were 2.4 fast food restaurants per square mile compared to 1.5 fast-food restaurants found in White neighborhoods (Block et al., 215, 2004). It has been shown that full-service and fast-food restaurants were 58.2% and 59.3%, more available in predominantly African American neighborhoods respectively, compared to predominantly White neighborhoods (Powell et al, 2007). Lewis et al found that fast-food restaurants in African American communities heavily promoted unhealthy food options to attract residents to eat at their restaurant, and were significantly less likely to promote healthy items (Lewis et al, 625, 2005). Fast food restaurants are more common in African American communities, suggesting an unhealthy African American food environment.

Research shows that the media has been targeting African Americans to participate in unhealthy eating behaviors. Studies show that significantly fewer commercials advertise for healthier food and beverage products aimed specifically at African Americans compared to those targeted to audiences that are more general. Indeed, a considerable amount of advertisement for unhealthy beverages and food were aired specifically for African Americans viewers (Pratt and Pratt, 1995). African Americans, undeniably, have been targeted so much so that in an unprecedented case, General Foods settled a class action suit addressing the false claims of healthfulness of high-fat, high-sugar breakfast cereal that had been target specifically at low-income African American children (Hill and Peters 1998).

Socioeconomic status plays a significant role healthy food stores accessibility and availability. Distributions of food stores are said to follow the distribution of race and wealth, creating neighborhood environments with concentration of poor African Americans with insufficient number of supermarkets and high numbers of fast food restaurants (Zenk et al,
Studies suggest that migration of supermarkets to the suburbs and the lack of transportation available to low-income communities, contributes also to the health disparity found in the minority communities (“Urban grocery gap” 1992) (“Food Security in the United States”, 1987). The decrease in supermarkets are said also force residents to depend on smaller stores such as grocery and convenience stores which have less healthy food choices (Curtis and McClellan, 1995). However for the purpose of this paper, socio-economic status will not be discussed, only in that there is a relationship between socio-economic and the African American food environment.

African American communities have to be considered “food deserts”, as seen in the limited nutritional foods found in the low number of healthy food sources. Supermarkets are either inaccessible or do not contain sufficient heart healthy foods. Fast food restaurants seem to be ubiquitous in African American neighborhoods reinforcing unhealthy eating behaviors. It becomes, then, for African Americans difficult to have long-term healthy diets because of the decrease amount of healthy food choices (Lewis et al, 2005). While there are social interpersonal factors that apply to the African American food experience such as food preferences, eating habits and knowledge of food nutritional values, without the access to healthy food sources, the ability of African Americans to participate in healthy eating behaviors decreases significantly because their lack of access to healthy food sources (Zenk, et al, 2005).

The African American food environment shows that African Americans have unequal access to healthy food sources. As stated previously, the food environment plays a significant role in accessing African American ability to participate in healthy behaviors such as diet and weight management. If the African Americans community is surrounded by unhealthy food options and have low accessibility to moderately healthy food sources, then it is not the
individual level or interpersonal level that is being worked upon, but the physical and social environment that African Americans live in. The differences in food resources in minority communities not only then increase the health status difference between ethnic groups, but also increase the risk for chronic diseases such as obesity and Type II in at risk groups.

In considering Type II diabetes prevention in African American communities, the African American food environment is a major barrier to engaging in preventative care. Not only is there lack of access but the continual exposure of unhealthy food sources makes it difficult to maintain healthy eating behaviors. Therefore, the treatment of Type II diabetes as a social disease, not simply a medical condition makes it possible to address disease risk as a response to environmental and physical factors that increase disease risk. Without this sensitivity, the community-environmental risk factors will not only continue to exist, since it had been isolated and identified but also will increase risk and prevalence of Type II diabetes in African American communities.

Conclusion

Race and its relation to disease risk and prevalence has had long position in American health history. Differences in minority health outcomes have made race an increasingly important factor in assessing minority health. In some respects, this has allowed for care and prevention to target at risk groups. However, it has also allowed for unhealthy perceptions of race and disease risk to flourish. As race is a politically charged term, associations of disease risk and prevalence to race creates generalization that tie to historical and social inferiority beliefs that can be counter-productive in disease prevention and treatment. One such case is Type II diabetes in the African American communities. While it is true that African Americans suffer
from high rates of Type II diabetes, it is not true that because of innate genetic predispositions, African Americans are at higher risk for Type II diabetes.

Research points to another culprit in assessing African American and by extension minority risk - the social and physical environment. These factors, which range from misperception of disease risk, lifestyle choices and food resources, increases risk for Type II diabetes. The added benefits of looking at the social context of disease, especially for a preventable disease, are the capacity for behavioral and social changes and the relevancy to at risk communities. Studying the specific factors in at risk communities, allows for a better understanding of conditions that exists that act as a barrier to prevention, and to design interventions to address and incorporates these issues.

In the research though, I realized a significant factor to Type II diabetes risk is socio-economic status. While I did not discuss it in this paper, it plays a role in all the social factors identified in the paper. The problem though with socio-economic status is how to address this during prevention. Therefore one identifiable limit in my paper is not addressing socio-economic status in my paper and how it has affected the other listed social factors.
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