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ASSESSING THE FEASIBILITY OF THE EMPLOYER AS A HEALTH ADVISOR FOR TYPE 2 DIABETES PREVENTION

by

SIDDHARTHA ROY

(Under the Direction of Andrew Hansen)

ABSTRACT

Type 2 diabetes has become a serious issue affecting millions of Americans, especially in the southern United States. Georgia is one southern state where diabetes rates are high. Diabetes is exacerbated in rural areas where many communities are medically underserved. Therefore, diabetes prevention interventions that target rural communities in the South are needed to address this issue. Traditional methods of addressing diabetes in the South have not been effective. Innovative methods, such as worksite prevention programs, must be developed to combat the problem. The purpose of this study was to assess the feasibility of the employer as a health advisor for type 2 diabetes prevention within small, locally-owned businesses in a rural community. This study focused on barbershops and sought to determine if a diabetes prevention education intervention where the owner of the barbershop is trained to educate his barbers about diabetes prevention could be implemented in the barbershop setting. Twenty in-depth interviews were conducted with the owners (n = 5) and barbers (n=15) of five barbershops in Statesboro, GA, to determine the feasibility of the intervention. This qualitative study used a grounded theory approach where codes were developed from the transcripts and themes emerged and were operationalized into theories. The results of this study showed that the owners and barbers all felt that the intervention was feasible and could be implemented in the barbershop. The owners and barbers felt that diabetes was an important issue in their community. The owners felt

comfortable educating their barbers about diabetes prevention, and the barbers were receptive towards the idea of being educated by their employer. They also provided suggestions on how to improve the program. In order for this intervention to be effective, it must be tailored to fit within the barbershop environment. This intervention addresses known health disparities that exist in the African-American community and underscores the need for additional worksite health promotion programs in medically underserved communities.

INDEX WORDS: Type 2 diabetes, Rural community, Underserved, Prevention, Worksite prevention programs, Barbershop, African American, Feasibility, Barber, Health advisor, Qualitative, Grounded theory, Intervention, Health disparities

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TYPE 2 DIABETES PREVENTION

by

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B.S., Georgia Institute of Technology, 2009

M.P.H., Augusta University, 2012

A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in

Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PUBLIC HEALTH

STATESBORO, GEORGIA

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Committee: Levi Ross
Rebecca Larson

Electronic Version Approved:
May 2016

DEDICATION

I would like to dedicate this study to those who take action to help improve the lives of others. Mahatma Gandhi says: “Be the change that you wish to see in the world.” It is important to not only have the desire to help others but to take action in order to help better the lives of others. Action can take many forms including volunteering in underserved communities, mentoring individuals from disadvantaged backgrounds, or just being there for an individual in need. Living a life focused on helping others provides a true purpose and will go a long way towards living a happy, fulfilling life. Always help others in need.

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CHAPTER 1

INTRODUCTION

Type 2 diabetes is becoming increasingly prevalent in the United States. Estimates indicate that 1 in 3 U.S. adults will have this form of diabetes by 2050 (CDC, 2012). Type 2 diabetes is a disease characterized by higher than normal blood glucose (sugar) levels, also known as hyperglycemia ("Type 2," 2014). The disease is also characterized by insulin resistance, where the human body does not use insulin properly ("Type 2," 2014). Initially, the pancreas produces extra insulin to make up for the misuse of insulin by the body. Over time, the pancreas is not able to produce enough insulin to compensate for the amount of insulin being misused and, consequently, is unable to make enough insulin to sustain normal blood glucose levels ("Type 2," 2014). Type 2 diabetes accounts for 90 to 95% of the 26 million Americans with diabetes (CDC, 2012). The disease is usually associated with older age, but rates among children and young adults have increased at an alarming pace (CDC, 2012). Additional risk factors for the disease include obesity, physical inactivity, family history of type 2 diabetes, and a personal history of diabetes (CDC, 2012).

Type 2 diabetes has been found to develop more often in individuals living in the southern United States (CDC, 2009). According to the Centers of Disease Control and Prevention (CDC), southern U.S. states have diabetes rates above 11 percent versus 8.5 percent for the rest of the country (CDC, 2009). Fifteen states in the southern U.S., including Georgia, make up what is known as the "diabetes belt" because of the high diabetes rates associated with the region compared to the rest of the country. Data has shown that individuals living in the diabetes belt are more likely to be African American. African Americans make up 23.8% of the population in diabetes belt counties versus 8.6% of the population in the rest of the country

(CDC, 2009). Minority populations, such as African Americans, American Indians, Alaskan Natives, Hispanic/Latinos, and Asian/Pacific Islander adults, are twice as likely as white adults to develop type 2 diabetes (CDC, 2012). Individuals living in the diabetes belt are more likely to be obese and more likely to live a sedentary lifestyle as well (CDC, 2009). Data has also shown that 24.1% of people in the diabetes belt have a college degree compared to 34.3% in the rest of the country, indicating an overall lower average education level for those living in the diabetes belt. This data illustrates that traditional methods of educating this population about diabetes prevention have been ineffective. More innovative approaches, such as worksite health promotion programs, are needed to address the issue within this population. Healthy People 2020 has developed objectives that aim to "increase the proportion of worksites that offer an employee health promotion program to their employees" with a specific emphasis on worksites with fewer than 50 employees (U.S. Department of Health and Human Services, 2016). These objectives illustrate the importance of developing and implementing these programs at various worksites.

Innovative approaches are particularly necessary in the state of Georgia, which is part of the diabetes belt and suffers from high diabetes rates. Almost ten percent (9.8%) of Georgians had diagnosed diabetes in 2010, which is up from 4% in 1995 (CDC, 2009). This jump is a 145% increase in the number of Georgians with type 2 diabetes. Only Oklahoma and Kentucky had larger increases in the number of cases of diabetes during this period (CDC, 2009). Therefore, innovative interventions that target diabetes prevention are needed in Georgia to reduce diabetes rates in the state.

Rural areas typically suffer from higher rates of diabetes than urban areas (O'Connor & Wellenius, 2012). According to a study conducted by O'Connor & Wellenius, the prevalence

rates of diabetes for residents living in rural areas were 8.6% higher than urban areas (2012). Therefore, more worksite diabetes prevention interventions should target rural areas in order to address the diabetes epidemic in these areas. Recent research has shown that rural employees who work for small (less than 50 employees) and locally-owned companies have the greatest level of organizational commitment, indicating loyalty to their organization (Halbesleben & Tolbert, 2014). For rural workers, working for a small and locally-owned company supersedes job satisfaction as the most important factor that determines organizational commitment (Halbesleben & Tolbert, 2014). The study found that 61.4% of individuals who worked for small and locally-owned companies had high commitment scores compared to only 38.7% of individuals who worked for large, local businesses (Halbesleben & Tolbert, 2014). In rural areas, friends and neighbors are also more likely to work for each other, leading to greater employee commitment (Halbesleben & Tolbert, 2014). Higher levels of employee commitment to the organization result in less absenteeism, lower turnover, and increased respect for the organization (Halbesleben & Tolbert, 2014). In addition, loyalty and respect for their supervisor or employer is an important component of organizational commitment for employees (Halbesleben & Tolbert, 2014). Therefore, employees who work for small and locally-owned companies would be more willing to listen to their employer and trust them. This concept forms the basis of a worksite diabetes prevention intervention focused on barbershops in a rural area in which the employer, who is defined as the owner of the barbershop, educates his employees or barbers about diabetes prevention. Barbershops were targeted because African Americans, a population that suffers from high diabetes rates, make up the majority of individuals who go to barbershops. Barbershops also fit the description of small, locally-owned organizations.

Targeting small businesses, such as barbershops, for health interventions is important because small businesses are considered to be the backbone of the economy and make up about half of all private-sector employees (Harris et al., 2014). The United States has more than 5.7 million small workplaces, making up 99.8% of all workplaces (Harris et al., 2014). Small businesses are less likely to offer health promotion programs and more likely to employ low-wage employees who report more cases of chronic disease than other employees (Hannon et al., 2012; Laing et al., 2012; Harris et al., 2014). Small businesses are typically under-resourced; therefore, disparities exist within small businesses and with low-wage earners (Hannon et al., 2012; Harris et al., 2014). Low-wage employees are also more likely to have low education levels and low literacy levels (Harris et al., 2014). In addition, they report higher levels of tobacco use and lower physical activity levels, indicating the need for health interventions in this population (Hannon et al., 2012; Laing et al., 2012; Harris et al., 2014). Overall, small businesses are underserved in the worksite wellness market.

Statement of the Problem:

Type 2 diabetes can be prevented and/or controlled with lifestyle modifications such as healthy eating, regular physical activity, and maintaining a healthy body weight (CDC, 2012). Engaging in these healthy behaviors will help maintain the health status of those who are already healthy and improve the health of those who are classified as pre-diabetic. Individuals with pre-diabetes are at higher risk of developing type 2 diabetes because their blood glucose levels are higher than normal but haven't reached the levels associated with the disease ("Basics about Diabetes," 2012). An estimated 79 million U.S. adults were reported to have pre-diabetes in 2010 ("Basics about Diabetes," 2012). Those with pre-diabetes who are able to engage in at

least 150 minutes a week of moderate physical activity and lose 5% to 7% of their body weight can reduce their risk of developing type 2 diabetes by 58% ("Basics about Diabetes," 2012).

Developing healthy eating habits is an essential component of type 2 diabetes prevention among everyone at risk. Engaging in the nutrition recommendations, which involves eating a variety of nutritious foods and adhering to regular mealtimes, can help with the process of prevention ("Diabetes Diet," 2013). This diet is rich in nutrients, low in fat, low in calories, low in saturated and trans fats and cholesterol, and emphasizes the consumption of fruits, vegetables, and whole grains ("Diabetes Diet," 2013). These recommendations avoid excess consumption of calories and fat and allow those with pre-diabetes to reduce their blood glucose levels to normal. Potential consequences of an unhealthy diet and resulting high blood glucose levels include chronic complications such as nerve, kidney, and heart damage ("Diabetes Diet," 2013). One component of the recommended diet is eating healthy carbohydrates. Healthy carbohydrates include fruits, vegetables, whole grains, legumes (beans, peas, and lentils), and low-fat dairy products ("Diabetes Diet," 2013). A second component of the diabetes diet includes fiber-rich foods. Fiber can help decrease the risk of heart disease and control blood sugar levels ("Diabetes Diet," 2013). Fiber-rich foods include vegetables, fruits, nuts, legumes, whole-wheat flour, and wheat bran ("Diabetes Diet," 2013). Eating heart-healthy fish at least twice a week is also a part of the recommended diet ("Diabetes Diet," 2013). Cod, tuna, halibut, salmon, mackerel, sardines, and bluefish are considered heart healthy. Fried fish and fish containing high levels of mercury, such as tilefish and swordfish, should be avoided ("Diabetes Diet," 2013). Furthermore, this diet emphasizes the consumption of "good" fats, such as monounsaturated and polyunsaturated fats. Foods containing these types of fats include avocados, almonds, pecans, walnuts, olives, and canola ("Diabetes Diet," 2013). These foods can lower cholesterol levels.

Foods that can be a detriment to a heart healthy diet include foods containing saturated fats, trans fats, cholesterol, and sodium. Foods with saturated fats include high-fat dairy products and animal proteins such as beef, hot dogs, sausage, and bacon ("Diabetes Diet," 2013). Foods with trans fats include processed snacks, baked goods, shortening, and stick margarines ("Diabetes Diet," 2013). Sources of cholesterol include high-fat dairy products, high-fat animal proteins, egg yolks, shellfish, and liver ("Diabetes Diet," 2013). In addition, sodium intake should be less than 2,300 milligrams per day ("Diabetes Diet," 2013). Adhering to this diet can help those with pre-diabetes substantially reduce their risk of developing type 2 diabetes by reducing their blood sugar levels to normal levels.

Regular physical activity is also an essential part of preventing type 2 diabetes. Physical activity decreases insulin resistance as cells become more sensitive to insulin allowing them to work more efficiently ("Exercise and Type 2 Diabetes," 2014). These cells also remove glucose from the blood, resulting in lower blood glucose and hemoglobin A1c levels from physical activity ("Type 2," 2014). Exercise can also help decrease the risk of cardiovascular disease by decreasing blood pressure, cholesterol levels, and body fat ("Exercise and Type 2 Diabetes," 2014). Three types of physical activity are recommended to produce health benefits and reduce the risk of type 2 diabetes. These types of physical activity are cardiovascular exercise, resistance training, and flexibility ("Exercise," 2014). Cardiovascular exercise includes activities such as walking, running, water aerobics, and cycling ("Exercise," 2014). A minimum of 1,000 kilocalories (kcal) expenditure is recommended through physical activity each week ("Exercise," 2014). Resistance training activities should be performed at least two days a week, focusing on major muscle groups ("Exercise and Type 2 Diabetes," 2014). A minimum of one set of 10 to 15 repetitions of each exercise at a low to moderate intensity is recommended for resistance training

("Exercise and Type 2 Diabetes," 2014). The third type of physical activity, flexibility, involves performing stretching exercises at least two to three days per week ("Exercise and Type 2 Diabetes," 2014). Major muscle groups should be stretched for 15 to 30 seconds, and two to four repetitions of each stretch should be completed ("Exercise and Type 2 Diabetes," 2014). These exercise recommendations will help achieve the desired goal of expending a minimum of 1,000 calories per week via physical activity and produce health benefits or 2,000 calories per week for weight loss in order to become healthy and reduce the risk of developing type 2 diabetes.

Type 2 diabetes prevention is also important due to the economic impact that the disease presents. The total costs, both direct and indirect, associated with diabetes in 2007 were estimated to be $174 billion ("Basics about Diabetes," 2012). Direct medical costs in 2007 were estimated to be around $116 billion ("Basics about Diabetes," 2012). Indirect costs or costs related to disability, work loss, or premature death totaled $58 billion ("Basics about Diabetes," 2012). Medical costs for individuals with diabetes are typically more than twice as much as the costs associated with individuals without diabetes ("Basics about Diabetes," 2012). The total cost of diabetes has increased by 41% in a 5 year period from $174 billion in 2007 to $245 billion in 2012 ("Employers," n.d.). The cost can be attributed to the increasing number of individuals with diabetes as opposed to the rising medical costs associated with the disease ("Employers," n.d.). One hundred and seventy-six billion dollars of the $245 billion was said to be from direct medical costs, while approximately $69 billion was due to decreased productivity ("Employers," n.d.). Direct medical costs have a large, negative impact on businesses. Data from 2012 showed that the average amount for medical expenditures among individuals with diabetes was approximately $13,700 ("Employers," n.d.). Care for individuals who have been diagnosed with diabetes account for more than 1 in 5 health care dollars in the United States

("Employers," n.d.). More than half of these costs were directly attributable to diabetes. Health care costs for individuals with pre-diabetes and diabetes according to one large insurer in 2009 consisted of $5,000 for a member with pre-diabetes, $12,000 for those with previously undiagnosed diabetes, $10,000 for those with diabetes who did not have complications, and $30,000 for those with diabetes with complications ("Employers," n.d.). As mentioned previously, the onset of diabetes among employees results in decreased productivity. Estimated costs associated with decreased productivity due to diabetes totaled $69 billion for U.S. businesses in 2012 ("Employers," n.d.). The cost breakdown of the $69 billion consisted of $5 billion for missed workdays, $20.8 billion for reduced performance on the job, $21.6 billion for the inability to work as a result of the disease, $18.5 billion for lost productive capacity due to early mortality, and $2.7 billion for reduced productivity for those not in the labor force ("Employers," n.d.).

Purpose of the Study:

The overall purpose of this study is to assess the feasibility of the employer (owner) as a health advisor for type 2 diabetes prevention within the barbershop setting. The results from this study may lead to the implementation of an intervention that assesses the effectiveness of the employer as a health advisor for type 2 diabetes prevention in a rural setting. The workplace setting is an integral part of everyday life for many people and is a place where they can be reached. Barbershop owners and barbers will be identified and interviewed regarding the administration of a type 2 diabetes prevention education intervention using an evidence-based, adapted curriculum that will be shown during the interview. Barbershop owners were chosen to administer the potential intervention rather than external diabetes experts due to the potential for cost savings and the potential for intervention sustainability, especially for small and locally-

owned companies. Small and locally-owned companies may not have the money/resources to hire an external diabetes expert to administer the intervention. In addition, employees of small and locally-owned companies are more likely to listen to their employer than an external individual due to the employees' high levels of organizational commitment and loyalty to their employer discussed previously. If the study finds the proposed intervention to be feasible and the intervention is eventually implemented, owner/employee discussion about diabetes prevention will likely continue following the completion of the intervention due to proximity, empowerment, and respect for the owner. The proposed intervention could also help build and improve employer-employee relationships, resulting in the increased likelihood of organizational success.

Research Questions:

This study will focus on four primary research questions:

1) What are the employers' and employees' attitudes and perceptions towards participating in a type 2 diabetes prevention education intervention disseminated by the employer?
2) What are the facilitators and challenges that affect the employers' and employees' willingness to participate in a type 2 diabetes prevention education intervention disseminated by the employer?
3) What are the similarities and differences regarding the employers' and employees' views of the feasibility and preference for this intervention?
4) What are the employers' and employees' overall views regarding the feasibility of the intervention?

Research Design:

This exploratory, feasibility study will be employing a qualitative research design examining the potential implementation of a diabetes prevention education intervention in the barbershop. In-depth interviews will be conducted with the owners and barbers individually to determine if an intervention where the owners of the barbershop serve as health advisors to their barbers can be implemented in the barbershop setting. Demographic information, such as age, gender, race, and education level of participants, will also be collected from the owners and barbers. The data collected will help determine the feasibility of the proposed intervention within the barbershop setting.

Hypothesis/Expected Outcomes:

The results of this study should elucidate the attitudes and perceptions of the owners and barbers towards participating in a type 2 diabetes prevention education intervention disseminated by the employer, identify the facilitators and challenges that affect the employers' and employees' willingness to participate in a type 2 diabetes prevention education intervention, determine the similarities and differences regarding the owners' and barbers' views of the feasibility and preference for the intervention, and understand the owners' and barbers' overall views regarding the feasibility of the intervention. The owners and barbers of barbershops in a rural setting are believed to have favorable attitudes and perceptions towards this type of intervention and be receptive to participating in this type of intervention in the future. This study is being conducted with the intention to implement the intervention in the future and, ultimately, improve health outcomes and prevent the onset of diabetes within the target population.

CHAPTER 2

LITERATURE REVIEW

This literature review assesses and analyzes pertinent and relevant information and identifies themes from studies that focus on type 2 diabetes prevention. The themes that were identified include the factors that contribute to the development of diabetes, return on investment, program sustainability, effectiveness of the workplace setting as a venue for diabetes prevention interventions, cultural competence, financial incentives, gender, employment status, health education in general, diabetes education, utilization of the lay health worker, social support, cognitive behavioral training, online diabetes prevention interventions, characteristics of diabetes prevention interventions in rural areas, and feasibility. Search engines, including Google Scholar and PubMed, were used to identify relevant articles to include in the literature review. Examples of search terms/phrases that were used included "diabetes prevention workplace" and "diabetes prevention employee." Over 40,000 articles were initially identified by the search engines as being relevant to the search terms. However, upon the incorporation of inclusion and exclusion criteria, the number of relevant articles was reduced to forty-two. The inclusion criteria consisted of: 1) studies that implemented a diabetes prevention intervention 2) studies that implemented a diabetes prevention intervention in the workplace and 3) studies that were published after the year 1999. No relevant studies were found prior to the year 1999. 4) Studies that took place within organizations in the United States were included in the study. Exclusion criteria consisted of all studies that did not meet all of the inclusion criteria.

Factors Contributing to the Development of Diabetes:

One common theme found among many articles was the identification of the factors that contribute most to the risk of developing diabetes (Aldana et al., 2006; Barham et al., 2011;

Morgan et al., 2011). These factors included sedentary lifestyle, poor diet, and excessive body weight. A sedentary lifestyle is associated with a lack of physical activity by individuals. A lack of physical activity can be due to a multitude of factors. For example, individuals may not have the time to engage in consistent physical activity over a long period of time (Skerrett, 2010). Americans are often bogged down in work-related activities and other activities and do not make physical activity a priority. Americans also often do not have the desire or discipline to engage in consistent physical activity (Skerrett, 2010). They would rather participate in more sedentary activities, such as watching television, rather than exert the amount of effort required to engage in physical activity (Skerrett, 2010). In addition, individuals might not have the resources necessary to participate in physical activity, such as access to a fitness center. The environment where individuals live might not promote physical activity (Skerrett, 2010). For example, a lack of sidewalks, green space, and safety can discourage individuals from engaging in physical activity (Skerrett, 2010). Individuals must have the desire to engage in physical activity but also be enabled by their environment in order to participate in physical activity on a consistent basis (Skerrett, 2010). In addition, environmental factors also contribute greatly to a poor diet that is synonymous with many Americans who are diabetic or pre-diabetic (Skerrett, 2010). Access to healthy foods may be difficult and expensive for those living in certain environments such as rural environments (Yousefian et al, 2011). The increased emergence of fast food restaurants and advertising for these restaurants give individuals an easy, quick, and inexpensive way to eat (Yousefian et al., 2011; Pereira et al., 2005). Given how busy many Americans are with work and other activities, this option is often times more appealing than taking the time and effort to eat healthy. These unhealthy foods are high in calories and take an increased amount of physical activity to offset (Pereira et al., 2005). Additionally, many people believe healthy foods are

often less tasty and more time consuming to prepare. Poor diet and physical inactivity often leads to excessive body weight (Pereira et al., 2005). Excess body fat creates insulin resistance (Pereira et al., 2005). The larger the amount of body fat, the more insulin resistant the individual becomes (Pereira et al., 2005). Other factors that can contribute to an increased risk of diabetes include having a family history of diabetes and belonging to a specific ethnic minority group, such as African American, Asian American, or Hispanic/Latino American (CDC, 2012).

Return on Investment (ROI):

In addition to improving employee health, another common theme among the articles found is the concept of return on investment (Aldana et al., 2006; Carnethon et al., 2009; Rolando et al., 2013; "Healthier Americans," 2011). The return on investment indicates the payback employers gain for investing in workplace wellness programs such as a diabetes prevention intervention (Carnethon et al., 2009). Indicators associated with return on investment include decreased direct healthcare costs, improved healthcare utilization, increased performance measures, lower rates of absenteeism, a reduced prevalence of chronic disease, and overall employee productivity (Carnethon et al., 2009). If the intervention is successful in improving the health of employees, then the amount of money spent on the intervention by the employer is considered to be a good investment. Values for return on investment ranged from $3 to $15 for each dollar invested (Carnethon et al., 2009). Results from meta-analyses have shown substantial benefits to companies who have implemented successful health interventions including a 28% average reduction in sick leave absenteeism, a 26% reduction in health care costs, and a 30% decrease in workers' compensation and disability management claims costs (Carnethon et al., 2009). Additional benefits to companies include recruitment and retention of quality employees and improved corporate image. Employee health and employee productivity

go hand in hand. Healthy individuals often have more energy and an increased focus that they use towards completing work-related tasks ("Healthy Lifestyle: Fitness," 2014). Exercise and physical activity, common components of healthy individuals, deliver oxygen and nutrients to the tissues allowing the cardiovascular system to work more efficiently, resulting in more energy ("Healthy Lifestyle: Fitness," 2014). On the contrary, unhealthy individuals often feel lethargic and lack the necessary energy and focus to complete the required tasks. Their health can become a distraction and can lead to an increased number of sick days taken from work ("Increase Productivity," 2013). Employees can also be on the job but impaired due to a health issue. Employees who suffer from poor emotional health and engage in high percentages of adverse behaviors have higher rates of lost workdays and lower productivity. The literature estimates that organizations are losing $225.8 billion per year or $1685 per employee per year from health-related productivity losses (Carnethon et al., 2009). Employee productivity can not only have a positive impact on the organization, but also have a positive impact on the employee (Cooper, 2012). Employees can recognize when they are being productive and engaged in work-related activities, which can result in decreased levels of stress, increased personal satisfaction, and improved overall attitudes (Cooper, 2012). These characteristics will likely produce an improved work environment for all employees. Ultimately, employees feel like they are making a contribution to the organization, leading to further increases in employee productivity and performance (Cooper, 2012). The organization reaps the benefits of this improved employee productivity (Cooper, 2012).

Program Sustainability:

Several studies discussed the long-term sustainability of their intervention and the inability of participants to maintain the positive health outcomes achieved from the intervention

after the intervention was complete (Aldana et al., 2006; Carnethon et al., 2009; Rolando et al., 2013). Aldana et al (2006) noted that several of the measures used in their study were no longer indicating significant improvement over the baseline values after the two year program was complete. The intervention provides the participants with structure, and without this structure, participants often revert back to pre-intervention habits. Many lifestyle (physical activity and healthy eating) intervention programs often fall short of producing long-term change among participants as these interventions do not allow participants to build their own healthy habits and find their own motivation and inspiration for engaging in these healthy habits (Aldana et al., 2006). Often times, this motivation and inspiration is provided by the program and not fully embraced by the participants, resulting in a lack of motivation and inspiration to continue to engage in continuous physical activity and healthy eating among participants after the completion of the program. The intensity of the intervention, along with the complacency program participants feel after achieving the desired levels of health outcomes from the intervention, are additional contributing factors as to why the positive health outcomes achieved from the intervention are not sustained post-intervention (Aldana et al., 2006). Furthermore, many environments across the United States promote the availability of unhealthy, inexpensive, and tasty foods making it difficult for individuals to maintain the discipline necessary to continue engaging in healthy eating and physical activity (Aldana et al., 2006). This environment is further damaging to individuals due to the aggressive marketing by food agencies and lack of sidewalks and safe walking paths needed to promote healthy lifestyle habits (Skerrett, 2010). These barriers caused by the lack of a built environment often require policy changes to overcome, initiated by the community. In addition, Americans often work long hours and find themselves very busy with work and other activities that keep them from engaging in healthy

behaviors on a consistent basis (Pereira et al., 2005). Social support via friends and family can help overcome the multitude of barriers associated with healthy living but is not sufficient by itself to overcome these barriers (Umberson & Montez, 2010). Policies and environments that support healthy living are also necessary to improve the long-term sustainability of healthy behaviors and combat the increasing prevalence of diabetes around the country (Carnethon et al., 2009; Scheirer & Dearing, 2011). Carnethon et al. (2009) suggested, based on previous literature, that environmental modification and policy changes would be more successful than education and screening programs at producing sustained behavior change.

Effectiveness of Workplace Setting:

Many articles also described reasons as to why workplace settings are effective environments for diabetes prevention interventions (Aldana et al., 2006; Christensen et al., 2011; Schmittdiel et al., 2013; "Employers are Working," n.d.; Oberlinner et al., 2008). Most adults spend the majority of their time at work engaging in work-related activities, eating, and interacting with others. Aldana et al. (2006) noted that many worksites have resources, such as qualified staff, equipment, and facilities, which promote health promotion and the implementation of health interventions. The workplace environment is a familiar setting to employees where employees can feel comfortable learning about healthy living. Additionally, co-workers can offer social support to each other and encourage each other to participate in the program or to continue to engage in healthy behaviors throughout the intervention. Social support has a powerful impact on the ability to produce behavior change among individuals. In addition, businesses are encouraged to offer a diabetes prevention intervention in their workplace due to the burden of health care costs that affect them and result from individuals with diabetes. Employers, especially those who are self-insured, have to shoulder the burden of employee-

related health care expenses. Therefore, these organizations have extra incentive to offer diabetes prevention programs that target their employees, especially those who are more susceptible to the disease (Aldana et al., 2006).

Cultural Competence:

Given that type 2 diabetes affects minority populations disproportionately, it is important to develop culturally sensitive interventions to benefit these groups (Carnethon et al., 2009). Cultural barriers within and outside the workplace can be obstacles in the effort to produce weight loss. Catering program materials to meet the needs of minority groups first involves understanding the needs, beliefs, values, facilitators, and barriers that aid or hinder minority populations in their effort to produce consistent behavior change. Minority populations will be more engaged and more likely to adhere to the requirements of the program if they can relate to the material being taught to them. For example, incorporating culturally appropriate physical activity exercises and healthy dietary options can help keep minorities engaged. Minority employees will also gain trust and respect for the intervention if it is culturally competent, which is a key component to producing sustained behavior change. Cultural competence training sessions can help others understand the needs of minority groups. Minority employees can also provide input into what kinds of culturally relevant information would help in understanding and engaging in activities that can prevent the onset of diabetes. Culturally competent interventions can also improve the long-term sustainability of healthy behaviors among minority populations due to their increased understanding and willingness to engage in healthy behaviors. Failure to incorporate cultural competence into diabetes prevention interventions can alienate minority populations and substantially decrease the likelihood of achieving positive health outcomes among minority employees, a key demographic for diabetes prevention interventions. Therefore,

program materials for a diabetes prevention intervention must take into account cultural competency in order to maximize its success (Carnethon et al., 2009).

Financial Incentives:

The literature is mixed on the effectiveness of financial incentives on program participation and behavior change (Carnethon et al., 2009; "Policy Platform," 2007, Rolando et al., 2013). Behavior change takes a certain amount of commitment that must be present throughout the process in order to achieve the desired outcomes. Participants tend to be very excited and enthusiastic about the intervention initially, but that excitement tends to wear off as the intervention progresses, resulting in less participation during the middle and latter stages of the intervention. Financial incentives can be used to motivate these individuals to continue to participate in the program and achieve the desired health outcomes. These incentives provide participants with an immediate, tangible reward for their participation in the program and increase the likelihood of behavior change. Long-term behavior change has shown to result from incentives given to the employee. Modest financial incentives have been shown to motivate overweight employees to lose weight. Different types of incentives include price reduction, monetary incentives, awards, and prizes. Incentives may have a negative effect on long-term behavior change as well. Upon completion of the program, individuals could revert back to their previous unhealthy behaviors due to the cessation of incentives. These individuals tend to lose motivation to continue to engage in healthy behaviors. In addition, incentives may simply not be enough to motivate individuals to engage in behavior change. Therefore, financial incentives can have a positive or negative effect on employee participation and behavior change in a workplace setting (Carnethon et al., 2009; "Policy Platform," 2007; Rolando et al., 2013).

Gender:

Although diabetes prevention programs primarily focus on male employees, female employees are an important and often overlooked part of the diabetes equation (Carnethon et al., 2009; Schmittdiel et al., 2013). Women experience challenges, such as pregnancy, family responsibilities, and menopause, specific to their gender. These challenges often lead to poor health outcomes, such as increased risk of cardiovascular disease, glucose intolerance, and/or obesity. Women also experience many external pressures associated with time, such as balancing professional, family, and personal commitments. It is important to take these factors into account when designing a workplace health intervention that includes women. The development and implementation of workplace policies that incorporate child care and flexible schedules can help alleviate some of the pressures that women experience in the workplace and allow them to participate in diabetes prevention interventions (Carnethon et al., 2009; Schmittdiel et al., 2013).

Employment Status:

An additional theme brought up by the studies collected from this literature review is the concept of employment status (Rolando et al., 2013). Employment status can be classified as hourly or salaried. Hourly employees were more likely to be sedentary and develop diabetes than those employees who were salaried. Few salaried employees were sedentary. Keeping hourly employees engaged in diabetes prevention practices in the workplace can be quite a challenge. Hourly employees often do not see themselves as an integral part of an organization and, therefore, might not fully participate in workplace activities to the same extent as salaried employees would. Hourly employees typically do the work-related activities required of them during the hours that they work and do not engage in any additional work-related activities.

Salaried employees, on the other hand, feel an increased sense of belonging to their organization compared to hourly employees and tend to participate in all work-related activities enthusiastically (Rolando et al., 2013).

Health Education:

An important component of the diabetes prevention intervention in the workplace is the health education or health coaching program that educates employees on healthy living, active lifestyles, and weight loss (Schmittdiel et al., 2013). These coaching sessions can be done in person or over the phone. Health coaching to encourage healthy eating and an active lifestyle is considered a population-based approach to diabetes prevention and is becoming an increasingly popular component of workplace diabetes prevention interventions. These coaching sessions typically use non-physician health care providers to provide program participants with support, information, and the skills needed to improve self-efficacy and increase participation in healthy behaviors (Schmittdiel et al., 2013). Health coaching is a critical component of a diabetes prevention intervention primarily due to the resources and motivation that it provides to employees with pre-diabetes. Many employees with pre-diabetes might be aware of the necessary components associated with diabetes prevention, such as healthy eating and physical activity, but not be aware of how to go about engaging in these healthy behaviors or not be motivated to do so. Health coaching can go into specifics about how to eat healthy, and local resources are available that contain healthy foods at inexpensive prices. In addition, health coaching can provide tangible benefits, such as reductions in weight, from engaging in these healthy behaviors, which can motivate employees to participate or continue to participate in the program. Health coaching can empower employees by providing them with knowledge about preventing diabetes and increase their confidence and desire to take action to prevent the disease.

Health coaching can also provide recommended physical activity levels to employees, identify local resources for physical activity, and provide ways to make physical activity fun. The ultimate goal of health coaching is to increase levels of physical activity and increase the consumption of healthy foods in order to produce positive health outcomes for program participants.

Diabetes Education:

Seven articles were found to incorporate diabetes education into a diabetes prevention intervention (Diabetes Prevention Program Research Group, 2002; Ackermann et al., 2008; Diabetes Prevention Program Research Group, 1999; Diabetes Prevention Program Research Group, 2004; Diabetes Prevention Program Research Group, 2006; Absetz et al., 2007; Jiang et al., 2013). In six of the seven articles, a curriculum was used to help guide different components of the intervention and help participants achieve the desired goals (Diabetes Prevention Program Research Group, 2002; Ackermann et al., 2008; Diabetes Prevention Program Research Group, 1999; Diabetes Prevention Program Research Group, 2004; Diabetes Prevention Program Research Group, 2006; Jiang et al., 2013). The curriculum consisted of 16 sessions that covered various topics, such as diet, exercise, and behavior modification. Other topics included building knowledge and skills for goal setting, self-monitoring, problems solving, and relapse prevention training (Ackermann et al., 2008; Diabetes Prevention Program Research Group, 1999). Each educational session often lasted between 60 and 90 minutes (Ackermann et al., 2008). The curriculum was taught by case managers, lifestyle coaches, or dietitians in both group and one-to-one settings and were developed to ensure flexibility, cultural sensitivity, and individualization (Diabetes Prevention Program Research Group, 2002; Diabetes Prevention Program Research Group, 2006; Jiang et al., 2013). The curriculum, along with other

components of the intervention, helped to produce positive health outcomes, such as fifty percent of intervention participants achieving their desired weight loss goal (Diabetes Prevention Program Research Group, 2002). Other types of health education incorporated into diabetes prevention interventions include health education leaflets, exercise instructions, and recipes for healthy cooking (Absetz et al., 2007).

Four articles were found to incorporate a diabetes education component into a worksite diabetes prevention intervention (Bachar et al., 2006; Barham et al., 2011; Wood & Jacobson, 2005; Conn et al., 2009). Weekly educational and support activities were incorporated into diabetes worksite wellness programs to help provide participants with an additional avenue for achieving their goals (Bachar et al., 2006; Conn et al., 2009). These motivational or educational sessions were a primary component of many diabetes prevention worksite studies and were found to be effective (Conn et al., 2009). In addition, lifestyle sessions based on the Diabetes Prevention Program curriculum were developed for county employees as the primary component of the intervention (Barham et al., 2011). Another important aspect of diabetes education associated with the workplace is employee perceptions of diabetes education needs (Wood & Jacobson, 2005). Important educational topics that were identified by employees included healthier food choices when eating out, increasing activity, and recognizing the importance of obesity among children (Wood & Jacobson, 2005). The employees also stated that they were willing to attend group meetings but not pay for them (Wood & Jacobson, 2005).

Lay Health Worker:

Three studies that incorporate lay health workers in diabetes prevention interventions were found in the literature (West et al., 2011; Ruggiero et al., 2011; Katula et al., 2011). Lay health workers are also known by many other names including lay health educators and

community health workers. Lay health workers receive training to deliver the intervention program (West et al., 2011; Ruggiero et al., 2011; Katula et al., 2011). They are often trained in all aspects of the delivery of the intervention program, including recruitment methods and techniques for conducting effective group sessions (West et al., 2011). Lay health workers have been found to be successful in the delivery of diabetes prevention interventions based on the positive health outcomes produced by these studies (West et al., 2011; Ruggiero et al., 2011; Katula et al., 2011). Lay health workers have also been identified as particularly helpful in rural areas due to the limited health care resources and close-knit communities that are associated with rural communities (West et al., 2011; Ruggiero et al., 2011). Many other diabetes interventions have incorporated lay health workers, but those were not included in this literature review because they focused on diabetes management rather than prevention.

Social Support:

Social support is an additional component of diabetes prevention interventions identified by studies as playing a key role in the effectiveness of an intervention (Christensen et al., 2011; Morgan et al., 2011; Umberson & Montez, 2010). Social support helps motivate employees to fully participate in intervention activities and engage in healthy behaviors. Social support provides a support system for employees. Employees support and motivate each other to engage in healthy behaviors and complete the intervention. Social support also produces a close-knit bond between the employees and increases the likelihood of employee engagement in the intervention as well as the overall success of the intervention. Employees will help each other achieve the desired health outcomes and avoid dropping out of the program, thereby increasing the effectiveness of the program and producing positive outcome measures associated with the study. Therefore, social support is emphasized in many studies to help ensure the effectiveness

and success of the intervention (Christensen et al., 2011; Morgan et al., 2011; Umberson & Montez, 2010).

Cognitive Behavioral Training:

One study included a cognitive behavioral training component as part of a workplace based intervention to reduce body weight (Christensen et al., 2011). The study pointed out that the key to maintaining adequate levels of physical activity involves cognitive procedures that will help intervention participants develop a mindset of long-term weight control. This study used the cognitive behavioral training component in addition to a dietary change and physical exercise component. Cognitive behavioral training also addresses challenges associated with weight loss. The training identifies negative attitudes and coping behaviors associated with weight loss and discusses alternative, healthy ways to address these attitudes. This training helps employees incorporate these alternatives into their routines. Examples of cognitive behavioral training include helping employees set weight loss targets, identify strategies to assuage hunger, continue engaging in healthy behaviors, and coping with social situations such as alcohol consumption or excess food intake.

Online:

One study also included an online component in its workplace weight loss program (Morgan et al., 2011). A website for the study was created that was associated with weight loss. Intervention participants were taught how to use the website by study leaders. Study participants used the website by entering their weight once each week online and were required to submit daily eating and exercise diaries for the first four weeks of the study and submitted them less often as the study progressed. Feedback was given to participants via email by the research team. Examples of feedback given by the research team included recommendations to address

weight loss, reduce energy intake, and increase energy expenditure. Participants were also able to email the research team with any questions they had about the intervention or information given during the intervention and responses were emailed back to them. There was a low compliance rate with the online component for this study; therefore, an online component for workplace health interventions may not be advisable. Compliance with an online component may also depend on the age of the participants. Older individuals tend to be less computer savvy than younger individuals. However, further research is needed to determine the overall effectiveness of an online component for a health intervention in a workplace setting (Morgan et al., 2011).

Rural:

Four studies were identified in the literature that implemented a diabetes prevention intervention in a rural area (Vadheim et al., 2010; Davis-Smith, 2007; Perri et al., 2008; Bachar et al., 2006). Diabetes prevention interventions are targeted towards rural areas because studies have shown that the prevalence of diabetes is higher in rural areas versus urban areas in the United States (Vadheim et al., 2010; Perri et al., 2008). Rural residents have been found to be more inactive compared to urban residents primarily due to a lack of facilities (Vadheim et al., 2010). An additional barrier associated with rural areas is the distance to health care centers, making community interventions in rural areas even more important (Perri et al., 2008). Women from rural areas have expressed concerns related to preparing and cooking low-calorie southern-style dishes, coping with a lack of family support for weight loss, and eating healthy away from home (Perri et al., 2008). Diabetes prevention programs implemented in rural communities have been found to be feasible, well-accepted, and effective (Vadheim et al., 2010; Davis-Smith,

2007; Perri et al., 2008; Bachar et al., 2006). In addition, a shortened adaptation of the Diabetes Prevention Program can be translated into a rural setting (Davis-Smith, 2007).

Feasibility:

Four studies were found to describe and assess the feasibility of diabetes prevention interventions implemented in the community for underserved populations (Bowen et al., 2009; Whittemore et al., 2009; Jaber et al., 2011; Dodani & Fields, 2010). Feasibility studies produce findings that shed light on whether an intervention should be implemented to determine its efficacy (Bowen et al., 2009). Feasibility studies should address eight areas of focus: acceptability, demand, implementation, practicality, adaptation, integration, expansion, and limited-efficacy testing (Bowen et al., 2009). These eight areas make up the construct of feasibility and can help answer research questions associated with feasibility as well as determine the viability of an intervention. Feasibility studies should also incorporate cultural and social preferences in order to enhance implementation and lead to improved health outcomes and the prevention of chronic diseases (Whittemore et al., 2009; Jaber et al., 2011; Dodani & Fields, 2010). Culture plays a large role in shaping health promotion behaviors. In addition, incorporating educational components in feasibility studies was found to be extremely important for increasing participation in a potential intervention (Jaber et al., 2011). For example, seventy-eight percent of individuals in a study conducted by Jaber et al. initially did not want to participate in a lifestyle intervention; however, they all agreed to participate following an educational intervention addressing knowledge gaps and misconceptions (2011). Feasibility studies also help determine the reach of a potential intervention and its future impact (Whittemore et al., 2009). These studies should successfully reach their target population and address their needs. Examples of target populations that these interventions address include

diverse racial and ethnic groups and adults with low to moderately-low income needs (Whittemore et al., 2009; Jaber et al., 2011; Dodani & Fields, 2010).

Three studies identified challenges associated with the implementation of health promotion programs within small organizations (Hannon et al., 2012; Liang et al., 2012; Harris et al., 2014). Small organizations that have declined to participate in health promotion programs have done so for a variety of reasons. One reason stems from a perceived capacity issue where organizations believe that they do not have the manpower and economic stability to implement the program (Hannon et al., 2012; Liang et al., 2012; Harris et al., 2014). Another reason given by employers, a popular one among employers and a major barrier to intervention implementation, is that they do not have the time to commit to implementing the program (Hannon et al., 2012; Liang et al., 2012; Harris et al., 2014). Employers are also concerned about meddling in their employees' lives or telling their employees what to do outside of work (Harris et al., 2014). Other challenges associated with implementing health promotion programs within small organizations include lack of employee interest, lack of perceived effectiveness of the program by the employer, and lack of confidence by the employer in their ability to help their employees manage their health (Harris et al., 2014). Although small organizations have concerns about implementing a health promotion program within their workplace, most believe that health and wellness is an important issue for them and their employees (Hannon et al., 2012; Liang et al., 2012; Harris et al., 2014).

Summary:

This literature review has illustrated the potential of community-based and, specifically, workplace-based diabetes prevention interventions. All of the studies in this literature review produced positive health outcomes for at least a portion of employees. These interventions

produced varying degrees of success associated with dietary behavior change, physical activity behavior change, and body weight. This literature review could be expanded to include all health interventions implemented in the workplace, such as tobacco control or alcohol consumption interventions. Only forty-two studies were identified as satisfying the inclusion criteria due to the limited number of studies conducted on the topic of diabetes prevention interventions in the workplace setting. Many of the studies found were published very recently within the past few years, which illustrates the growing importance of diabetes prevention interventions in the workplace. The focus of this literature review is on diabetes prevention interventions in the workplace, and much of the information identified in this literature review can be used in the development of future interventions on this issue.

CHAPTER 3

METHODS

OVERVIEW

Purpose of the Study:

The overall purpose of this exploratory study was to assess the feasibility of a type 2 diabetes prevention intervention in which the employer or owner of the barbershop would be trained as health advisors and educate his barbers about diabetes prevention. This study targeted owners and barbers of five barbershops in rural Statesboro, GA. The viability of the employer as a health advisor for diabetes prevention among employees working in a rural area was assessed via data obtained from in-depth interviews with the owners and barbers. This study helps to determine if the proposed intervention can be implemented successfully in the barbershop. The results of this study could lead to the implementation of the intervention and potentially decrease diabetes risk and produce positive health outcomes among the target population as well as increase organizational productivity.

Research Questions:

1) What are the employers' and employees' attitudes and perceptions towards participating in a type 2 diabetes prevention education intervention disseminated by the employer?
2) What are the facilitators and challenges that affect the employers' and employees' willingness to participate in a type 2 diabetes prevention education intervention disseminated by the employer?
3) What are the similarities and differences regarding the employers' and employees' views of the feasibility and preference for this intervention?

4) What are the employers' and employees' overall views regarding the feasibility of the intervention?

Study Design:

This study was a cross-sectional, feasibility study where data was collected throughout a three month period. The study used a qualitative approach. Qualitative data was collected during the in-depth interviews that were conducted to help answer the research questions proposed. The in-depth interviews were conducted with both the owners and barbers individually to gain a better understanding of their attitudes and perceptions towards the proposed intervention. A convenience sample was used to identify participating barbershops and participants for the study.

Theoretical/Conceptual Framework:

This study used a grounded theory approach due to the exploratory nature of the study. Codes were developed from the transcripts and themes emerged, which were then operationalized into theories. The Social Ecological Model emerged as a framework to help examine the feasibility of the intervention. Constructs from the Health Belief Model, Social Cognitive Theory, Organizational Development Theory, and the Diffusion of Innovations Model were found to be relevant as well.

Data Collection:

In-depth one-on-one interviews lasting no longer than 60 minutes were conducted with the owners and barbers at their barbershop. The interview consisted of the researcher who asked the questions and the owner/barber who answered the questions. Interview questions assessed the overall feasibility of the intervention by asking questions regarding the employers' and

employees' attitudes and perceptions about the intervention, facilitators and barriers regarding implementation of the intervention, and willingness to participate in the intervention. The interview question set can be found in Appendix E. These interviews were conducted from November 2015 through January 2016. Twenty interviews total were conducted with the owners (n=5) and barbers (n=15). The inclusion criteria for the barbershops were as follows: 1) Owner works at site; 2) Less than 50 employees; 3) Locally-owned; 4) Ability to understand English; and 5) Shop located in Statesboro, GA. Employees of these barbershops could have been full- or part-time employees and must have been at least 18 years of age in order to participate in the study. The exclusion criteria included: 1) Owner does not work at site; 2) Greater than or equal to 50 employees; 3) Not locally-owned; 4) Unable to understand English; and 5) Shop not located in Statesboro, GA.

Data Analysis:

The interviews were audio recorded and transcribed verbatim in Microsoft Word by the researcher and an outside vendor. They were analyzed at the phrase level. Qualitative analysis was done using QSR NVivo 10 software. Two coders were used to code the data in order to assess the reliability of the data through inter-coder agreement. Four of the twenty transcripts (20%) were randomly selected using a random number generator for the two coders to independently code. A consensus approach was used where initial disagreements were identified and resolved and 100% agreement between the coders was reached. Inductive thematic analysis was used to analyze the data. First, the transcripts were read and re-read to become familiar with the data, paying close attention to patterns within the data. Notes were made during this process and initial codes were generated. The initial codes were examined and modified prior to the development of the final codebooks. The codebooks for the owners and barbers can be found in

Appendix H. Following the coding process, code reports were developed, which consisted of quotes from the participants, and themes were identified from the reports.

DEVELOPMENT OF FEASIBILITY ASSESSMENT

Human Subjects Protection:

A priority of this study was to protect the participants from any harm or discomfort while participating in the study. Participants were told that participation in this study was strictly voluntary and that they were free to withdraw from the study at any time. They were told that they could choose not to answer any questions during the interview that they did not want to answer. Participants were encouraged to ask questions about the study and told not to hesitate to ask if they had questions at any point during the study. There were no known risks to those who took part in the study; however, possible anxiety among employees could have occurred when discussing their boss's abilities during the interview. In order to mitigate this concern, confidentiality of the data was emphasized to the participants as well as the fact that the results obtained from this study would be reported at the business level and not the individual level. The results would not be able to be traced back to any individual. As previously mentioned, confidentiality of the data was a point of emphasis for this study. The recording devices that were used to record each interview were securely stored in a locked file cabinet in the researcher's office. These devices were cleared of all data after the transcription process was complete. Hard copies of the transcripts were kept securely in the file cabinet as well. The data was stored securely on a password protected computer in the researcher's office. There was no personal identifying data used for the interviews. An identification number was assigned to each owner and barber once they agreed to participate in the interview. Only personnel involved in the study had access to the computer and file cabinet. After the analysis was complete and the

manuscripts written, access to the de-identified data files will continue to be limited to study personnel and maintained for a period of 5 years following the publication of manuscripts. The data will then be completely deleted from the institutional server, and all hard copies of the data will be shredded and confiscated.

Description:

The steps in the process of conducting this feasibility assessment included the recruitment of owners and barbers, curriculum building, interview guide development, and conducting the in-depth interviews with the participants. Conducting these steps helped to determine whether the owners would be willing to implement the intervention in their barbershop, whether the owners would be willing to be educated on diabetes prevention, whether the owners would be willing to educate their barbers about diabetes prevention, and whether the barbers would be willing to learn about diabetes prevention from their employer. The recruitment of the owners and barbers for participation in the in-depth interviews occurred at the location of the barbershop by speaking to the owner. The curriculum that was shown during the interview was an adapted version due to time and resource constraints on the barbershops. The adapted version was developed based on previous studies utilizing adapted versions of the same curriculum. Each in-depth interview was conducted based on the same procedures to ensure the reliability and validity of the data obtained from the interviews. The interview guide and protocol for conducting the interviews helped to ensure that each interview was being conducted the same way each time. In-depth interviews were chosen over focus groups due to the low number of barbers in each barbershop and their inability to all take time out of their schedule to participate at the same time.

Recruitment:

Employer:

Five barbershops were recruited to participate in this intervention based on their size and level of ownership. Small and locally-owned barbershops were targeted for participation due to research that shows that employees of these businesses typically have high levels of organizational commitment. The owners of the barbershops were approached about the possibility of being interviewed and having their barbers interviewed for the study. The owners were given information about the study and how the study benefited them. There were no direct benefits to owners for this study, but they were able to see the results of the study after the data had been analyzed. Also, they were given an opportunity to help determine the feasibility of a community program and received an incentive for participating in the form of a $25 Wal-Mart gift card. An information packet (employer narrative) was given to the owner at this introductory meeting outlining these benefits as well as introducing the study, stating the purpose of the study, the need for the study, why the intervention will be effective, the logistics of the study (specifics about interviews, etc.), and outlining the employer tasks associated with the study. The employer narrative can be found in Appendix C. When explaining the employer narrative to the owner, an emphasis was placed on healthy eating and physical activity, as opposed to diabetes prevention only, in order to increase the study's appeal. Healthy eating and physical activity impact many different types of chronic diseases.

Employees:

The recruitment of the barbers was based on owner approval and the barbers' desire to participate in the study. All barbers 18 years of age and above were eligible to participate in the interview. After receiving permission to recruit the barbers from the owners, the barbers were

approached individually by the researcher and flyers were used to help recruit them for the study. The flyer can be found in Appendix D. The owner was not used to help recruit the barbers due to the potential for coercion and pressure to participate in the study from the owner. Incentives in the form of $25 Wal-Mart gift cards were given to each barber who participated in the interview to aid the recruitment process for barbers.

Curriculum Building:

The curriculum that was shown to the owners and barbers during the interviews was an evidence-based curriculum used for the Diabetes Prevention Program (DPP), which is a clinical research study led by the National Institutes of Health and supported by the Centers for Disease Control and Prevention. This curriculum contained information on healthy eating habits, recommendations to increase physical activity, positive thinking, the process of lifestyle change, managing stress, and ways to stay motivated. The CDC Diabetes Prevention Program curriculum was intended for lifestyle coaches and organizations that would deliver a lifestyle change program in the community. The sixteen chapters that made up the curriculum are below:

- Chapter 1: Welcome to the National Diabetes Prevention Program
- Chapter 2: Be a Fat and Calorie Detective
- Chapter 3: Three Ways to Eat Less Fat and Fewer Calories
- Chapter 4: Healthy Eating
- Chapter 5: Move Those Muscles
- Chapter 6: Being Active – A Way of Life
- Chapter 7: Tip the Calorie Balance
- Chapter 8: Take Charge of What's Around You

- Chapter 9: Problem Solving
- Chapter 10: Four Keys to Healthy Eating Out
- Chapter 11: Talk Back to Negative Thoughts
- Chapter 12: The Slippery Slope of Lifestyle Change
- Chapter 13: Jump Start Your Activity Plan
- Chapter 14: Make Social Cues Work For You
- Chapter 15: You Can Manage Stress
- Chapter 16: Ways to Stay Motivated

Only four of these chapters were shown to the owners and barbers during the interviews due to time and resource limitations. These four chapters were chapters 2, 3, 5, and 6. These chapters were chosen due to previous literature that used an adapted version of this curriculum and emphasized the importance of these chapters (Candela et al., 2012; Kramer et al., 2013; Porterfield et al., 2008). These previous studies stressed the importance of these four chapters, used them for their adapted curriculum, and emphasized the importance of educating participants on nutrition and physical activity, the two primary components of diabetes prevention. Two of the four chapters (2 & 3) emphasized nutrition while the other two (5 & 6) emphasized physical activity. These chapters provided the owners and barbers with enough information to help determine if they would like to see the education intervention implemented in their barbershop.

The content for these four chapters were presented to the owners and barbers during the interview in a clear and concise manner. The participants first had an opportunity to view all of the content from each of the four chapters. While viewing the content, the interviewees were given a brief overview of the content including the name of the chapter first, followed by the parts that make up the chapter, how long each part would take if the intervention was

implemented, the description for each part, an example from each part, and the learning objectives that provided barbers with tasks that they should be able to do after the chapter is taught. The learning objectives were presented last for each chapter because they provided a good summary for each chapter and broke the information down in a simple manner for the interviewees. This format was intended to give the owners and barbers a good idea about the content that would be taught while not overwhelming them with too much information. The format and content for the four chapters that were presented to the owners and barbers can be found in Appendix F.

Interview Guide Development:

The interview guide was developed to cover a wide range of topics assessing the feasibility of the proposed diabetes prevention intervention. These topics included initial thoughts on the intervention, facilitators and barriers associated with implementing the intervention, thoughts on the curriculum, likes and dislikes regarding the intervention, preference for intervention implementation in the barbershop, feasibility of implementation in the barbershop, intervention sustainability and perceived effectiveness of the intervention. The guide was developed based on previous literature that discussed eight areas of focus that should be addressed by feasibility studies (Bowen et al., 2009). These areas of focus, as mentioned previously in the literature review, included acceptability, demand, implementation, practicality, adaptation, integration, expansion, and limited-efficacy testing. The questions from the interview guide were developed with these areas in mind. The questions were all open-ended allowing for a greater perspective from the participants and more meaningful data. Demographic questions were asked at the end of the interview to each participant. Additional questions were also asked regarding organizational commitment. An organizational commitment scale adapted

from Halbesleben & Tolbert (2014) was used to develop these questions. The order of the interview guide questions was determined based on a logical flow of conversation with the first question asking about the participant's initial thoughts about the intervention and the last few questions asking about the feasibility of implementation and program sustainability. The questions were also ordered from general questions that were asked in the beginning of the interview to more specific questions that were asked throughout the middle and latter stages of the interview.

Two different sets of questions were developed for the owners and barbers. The questions for the owners and barbers were mostly identical but differed in certain areas. For example, a question that was asked to the owners about their thoughts on the format of the curriculum was not asked to the barbers due to its relevance. Additionally, the question regarding the concept of the owner as a health advisor and the question regarding curriculum content were phrased differently for the owners and barbers. Both sets of questions totaled 14 each for the owners and barbers. All of the questions were developed to better understand the feasibility of a potential diabetes prevention education intervention implemented in the barbershop. The interview guides can be seen in Appendix E.

In-depth Interviews:

The interviews began with the researcher thanking the participant for agreeing to participate in the interview. Next, the researcher went over the informed consent document with the participant. The informed consent document for the owners and barbers can be found in Appendix B. Following the explanation of the informed consent document, an introduction to the proposed diabetes prevention intervention was given to the participant to provide some context for the questions that were asked. The actual interview began following this

introduction. Following the completion of the interview, demographic questions were asked to collect some basic information from the participant. Additional questions regarding organizational commitment were also asked only to the barbers. The researcher then thanked the participant once again for his time and asked the participant if he had any questions. The researcher then provided the participant with the gift card upon filling out the gift card receipt form. A summary of the interview process can be found below:

- Become familiar with the interview guide.
- Organize and label all documents (informed consent, interview guide, gift card receipt)
- Test recording equipment
    - Turn on device after informed consent process is complete.
    - Turn off device after interview is complete before demographic questions are asked.
- Greet participant in friendly manner.
- Go over informed consent form.
    - Give participant two copies – one to sign and give back and the other to keep
- Provide introduction to intervention.
- Conduct interview according to interview guide.
- Ask demographic questions.
- Ask organizational commitment questions to barbers only.
- Give participant opportunity to ask questions.
- Thank participant again for his time.
- Have participant fill out gift receipt form.
- Distribute gift card to participant.

CHAPTER 4

RESULTS

This chapter begins with a summary of the demographic characteristics of the participants, including their gender, age, race/ethnicity, marital status, health insurance status, years of education, and household income levels. The next section of the chapter focuses on organizational commitment which shows the barbers' dedication and commitment towards their barbershop. The third and final section of this chapter seeks to provide answers to the four research questions proposed. This section compares and contrasts the viewpoints of the employers (owners) and employees (barbers) with regards to the feasibility of the study.

Demographic Characteristics of Study Participants:

The table below gives more information about the characteristics of the study participants (owners and barbers).

Table 1: Demographic characteristics of employers (owners) and employees (barbers).

	Employers		Employees	
Characteristic	Number (n = 5)	Percent	Number (n = 15)	Percent
Gender				
Male	5	100	15	100
Race/Ethnicity				
African American	4	80	14	93
Other	1	20	0	0
Missing	0	0	1	7
Age				
20-29	0	0	3	20
30-39	3	60	6	40
40-49	2	40	5	33
50+	0	0	1	7
Health Insurance				
Private	4	80	7	46
Government	0	0	3	20
Other	0	0	2	13
None	1	20	3	20
Marital Status				
Single	1	20	3	20
Married/Living Together	4	80	11	73
Divorced	0	0	1	7
Education Level				
Less than High School	0	0	2	13
High School/GED	1	20	2	13
Some College	3	60	8	53
Bachelor's Degree	1	20	3	20
Household Income				
$9,999 or less	0	0	0	0
$10,000 - $19,999	0	0	4	27
$20,000 - $29,999	0	0	1	7
$30,000 - $39,999	0	0	1	7
$40,000 - $49,999	2	40	4	27
$50,000 - $59,999	2	40	0	0
$60,000 - $69,999	0	0	1	7
$70,000 - $79,999	0	0	1	7
$80,000 and over	1	20	3	20

This table examines the characteristics of the employers (owners) and employees (barbers) who participated in the study. There were 20 participants who took part in this study, including five employers and 15 employees. All of the participants were male, with a majority identifying as African American, including 80% of the employers and 93% of the employees. Most of the employers and employees were between the ages of 30 and 39. Sixty percent of the employers fell within this age bracket compared to 40% of the employees. Only one study participant (employee) was over the age of 50. In addition, the majority of employers (60%) and employees (33%) identified as having private insurance. There were three participants who reported having employer health insurance indicating that they were working another job in addition to the one in the barbershop since the barbershop does not offer health insurance. Also, there were four participants who did not have any form of health insurance. The majority of participants were married/living together, including 80% of the employers and 73% of the employees. Eighty percent of the employers and 73% of the employees had more than 12 years of education, which was the majority for both groups. Therefore, most of the participants completed a high school education and participated in additional schooling beyond high school. The household income level for the employees ranged from the $10,000 - $19,999 bracket to the $80,000 and over bracket. The majority of employees fell within the $10,000 - $19,999 and $40,000 - $49,999 brackets. There were no employers who were below the $40,000 threshold. The majority of the employers were in the $40,000 - $49,999 and $50,000 - $59,999 range.

Organizational Commitment of Employees:

The organizational commitment of the employees is an indicator of how loyal and committed the barbers are to their employer/barbershop. Previous research has shown that rural employees who work for small and locally-owned organizations have the greatest level of organizational commitment to their employer (Halbesleben & Tolbert, 2014). The concept of organizational commitment is especially important for this study since the feasibility of the study is dependent on communication and teamwork between the owner and the barbers. The organizational commitment scale consists of four statements. Employees were told to choose a number (1 – 4) that corresponded to their level of agreement where "1" indicated a strong disagreement with the statement and "4" indicated a strong agreement with the statement. The first statement read as follows: "I really feel as if this organization's problems are my own." The second statement was: "I feel a strong sense of belonging to my organization." The third statement was: "I feel emotionally attached to my organization." The fourth statement was: "This organization has a great deal of personal meaning to me." Only the employees (barbers) were instructed to write responses to these statements. Table 2 below shows the results of the organizational commitment scale as it pertains to the barbers:

Table 2: Percentage distribution of organizational commitment scale scores among participating employees (n=15).

Commitment Scale	%
4 – 7	0
8 – 11	20
12 – 16	80
Total	100

As shown in Table 2, the organizational commitment scale ranges from 4 to 16. The table shows that 80% of the employees scored in the highest commitment category, indicating a very high level of organizational commitment. The remaining 20% of the barbers scored in the middle commitment category while no barbers scored in the lowest commitment category. The high organizational commitment scores by the barbers indicate that they are very committed to their barbershop and have a high level of respect and loyalty to their employer.

Research Question Results:

Research Question #1:

What are the employers' and employees' attitudes and perceptions towards participating in a type 2 diabetes prevention education intervention disseminated by the employer?

Employers

Owner Attitudes

All of the owners interviewed had very favorable attitudes toward the intervention upon learning about it and expressed their willingness to participate in the intervention. The owners liked the idea of the intervention. One owner stated:

> "I think it's great as far as healthy eating that's always a plus. I'm quite sure at a certain age all guys get concerned with their health. I know I do so I think it's a great idea."

Another owner expressed his enthusiasm for the study and wanted to begin the program as soon as possible. The unique aspect of the study is what stood out to him the most:

> "I think that'd be something great for barbers in general because I've never seen it. I've been in the barbering business for over 30 years, so I think it'd be something

great. So it's very appealing to me. It's a wonderful thing, and I want y'all to get this going real quick."

In addition, owners expressed their affinity towards the structure and organization that the program provides. They felt that the study could be successful because of these components and the guidance that the program provides. For example, one owner stated:

"I really like the structure, I like the way it's patterned out, I like the way you can see order and organization in it, I like that a lot, how you have the different lessons and this is what we're trying to do, this is how we do it, and these are the results, you know, it's like you have your objective, so that's always good to have your goals and then how are we going to achieve these goals. That's always good, because people like to see it. If they can visually imagine it happening, they're more prone to try to do it. So that's what I really like about it."

Furthermore, all of the owners said that they did not have any dislikes regarding the proposed intervention. They liked what the intervention had to offer and felt that it would be successful in the barbershop setting. Upon going over the specific content of the education modules with the owners, it was found that the owners liked the information that would be taught and felt like it would be easy to understand. Owners stated:

"I think it's great information. Great information."

"I like the breakdown of it, too. I mean it's - ______ be good too – it's like it won't be so hard to obtain, either – the information. So that sounds pretty good."

> "I think it's straight to the point and that it's cut and dried and the information, it follows each other. It follows each other for the information that we need to know."

One owner also mentioned that there was nothing that should be changed regarding the information that would be taught:

> "I don't see anything that needs to be changed; it was well documented and explained real good so I don't see anything that needed to be changed then. It looks good to me, you know?"

The owners emphasized the importance of making sure the information would be easy to understand in order to effectively educate the barbers. Owners also expressed the idea that barbers would find the study appealing as well and want to participate:

> "I think barbers would take interest in it and I think that would work towards it because if you're a barber, the average, I'm gonna say the average barber they just stand around and they service a client and then after that they go home. They don't feel like doing anything, but if you start doing a little something, you'll probably see a little bit more doing it, because they, a lot of say, people say, I don't have time to go to the gym, but as you stated before, just parking a little further. Just the little things. If you drink five sodas, try to drink three, and then drink two, and then, otherwise, you're gonna be weight problem. I think it can help."

One owner mentioned that he would encourage his barbers to participate in the study if it was implemented:

> "I love it because I'm already health conscious and I need some – I would want something like that in my business, and I will encourage the other barbers to be involved with it. I would definitely encourage them."

Owners also expressed their eagerness to learn more about the study and the information that the study provides:

> "I think it's a great study that I'm peculiar about so I would love to know more."

Importance

The owners expressed on numerous occasions the importance of the issue of diabetes and its relevance to the African-American community. One owner stated regarding the relevance of diabetes within the African-American community:

> "I think it's good, I mean whenever you talk about diabetes, and we're looking at – you're dealing with barbershops, African American barbershops, diabetes is a big thing in the African American community."

Another owner stated:

> "I know that it's similar for almost every African American family, because this is a problem that really follows our – I don't know why, you know, but our gene pool, somehow, some way, we're more prone to these types of things."

The owners also identified the issue of diabetes as being a personal one that could affect themselves and/or family members:

> "It does sound appealing. Why? Because I have diabetes. My mother has diabetes. My grandmother had diabetes. Her mom had diabetes."

> "It's true. It's prevalent, and it's relevant. Diabetes is killing people, bro. And most people know somebody in their family that has it. So that's a easy one."

In addition, one owner felt like barbers could relate to the issue of diabetes given that they experience health issues associated with unhealthy eating and lack of physical activity from time to time:

> "I actually got one that has had some issues with his health and he had to lose a lot of weight, you know, some concern there was something going on with his heart, so yeah, I think because you have certain barbers that might have went through some things."

The owners voiced their understanding about diabetes being a problem in their community and the need to address the issue. They agreed that "everybody needs to know about their health" and expressed understanding about the importance of physical activity and healthy eating and how to incorporate it into their daily lives. They also identified the southern United States as an important target for these types of interventions. One owner also believed that others were beginning to realize the overall importance of health:

> "Yeah, they should be 'cause, like I say, everybody is concerned about health. That's the big thing now, everybody's concerned about health."

Ultimately, the owners saw the importance of the intervention and the health issue it addresses and believed that the barbershop would be a great place for this program:

> "Because it's needed, it's needed, and to pick barbers, which is the pillar of the community, it's a great choice."

Benefits

An additional component of the owners' attitudes toward the intervention was the benefits of the intervention expressed by the owners. The owners found the benefits of the program to be very appealing. The owners saw the value of an intervention that promoted physical activity and healthy eating through the benefits it provides, such as feeling better:

> "Because once you start exercising, eating right or getting healthy, you feel better, and then when you go back to it, to the ways that you're used to, you start feeling bad and your body lets you know it. I think they'll be able to get back on track."

This owner also points out the fact that once the benefits are realized, the commitment to the process increases. Owners also pointed out the potential larger impact of the program and the populations it could benefit including the barbers:

> "So I will say this will change the way society has their eating habits, and what they eat, and watching what they eat and what they drink, and their activities outside. Maybe more people start going to the park once they see what you guys have. I know barbers gonna, if you guys implement in barbershops. I know barbers will, 'cause barbers gotta look good."

The owners also believed that the program could bring the barbers closer together as it would provide a commonality for the barbers to talk about and focus on together. The owners are aware that there are inherent differences between the barbers that may result in different perspectives between them, but they believed that this program would help all the barbers develop a similar mindset and grow together as a group. One owner stated:

> "Plus a lot of barbers – we have a lot in common by cutting hair, but our mindset is different. Something like this would put us on the same path, because he might be ready to go to the track and race some cars. He might be ready to go hang out

> with his wife early and go see a movie. I might wanna stay here all night and work. So now that's gonna put us, give us the same train of thought every day."

Another owner stated:

> "Yeah see 'cause once you get outta here you got things on your mind, and if we got this, this is gonna keep us like that close knit group for something that's in common."

Based on their comments, the owners were aware of the potential benefits of the intervention and expressed a willingness to participate in the intervention because of these benefits.

Empowerment

The owners also believed this intervention would empower them and their barbers to help themselves and others become healthy. They expressed the desire to learn the information associated with the intervention and use the information to make a difference in their lives and the lives of others, such as customers and family members. One owner stated:

> "So my thing is: knowledge is power, maybe? The more you know, the better I can break the cycle for my children having it."

The owners mentioned that the information that they would be learning would be "good knowledge" for them to know. They talked about not being aware of some of the information that was introduced to them through the education modules and how they could use the information to become healthier. They also talked about the importance of being educated on this information as it would help them stay committed to being healthy. The owners noted that the power of information was part of what made the program very appealing. However, they believed that learning this information would be a continuous process and not one that would have an end point. They believed in the need to be continuously informed about this issue due to

the ever-changing nature of information associated with being healthy. One owner emphasized the need to be continuously informed:

> "No, just keeping everybody informed, everything new. It's stuff always revolving about different things you can use and help. Just keep everybody informed about something new or anything that changes that they can do differently. Some people may have difficult times doing this or they may have difficult times doing this activity. Maybe another activity they can do less strenuous that they can get results with."

The owners noted that this information could be useful to the customers also as parents could become empowered and educate their children about the importance of being healthy and encourage them to be healthy. According to the owners, the impact of this intervention would have the potential to be far-reaching. The potential of this intervention increased their enthusiasm for participating.

Motivation

The owners also identified motivation as a factor that would influence their willingness to participate in the program. One aspect of motivation that the owners pointed to was family. Family, such as parents, wife, and kids, can play a large role in motivating individuals to be healthy. One owner stated:

> "Any time you bring people's families into it, like for me, one of the big motivations for me is my children are growing up and I want to see their children and their children's children, and I want to be active, I want to be, you know, able to play all the different sports with my kids and always beat them, you know, as old as I get, I want to be active, so that's my motivation."

Seeing family members affected by diabetes can be a strong motivating factor to be healthy as well:

> "For me, as far as looking at my family, looking at uncles and aunts, great aunts and great uncles, you know, hearing how they had to cut off a toe, and then the toe went to the leg, and the leg went to – and they wouldn't stop eating crazy stuff, you know, some of them ate themselves to death, I think, because of the condition they created."

Another owner mentioned the importance of family to African Americans:

> "Family is going to be big with this. With African Americans, family is a big thing, so yeah, yeah, that's about it. I'll tell you something that would be good."

Another aspect of motivation that was identified by the owners was the individual. The owners felt that the decision to be healthy is ultimately determined by the individual. They felt that the individual may experience a personal health issue that motivates him/her to be healthy. The individual also may decide that he/she would like to have a better quality of life now and in the future. The owners mentioned that many factors may play into this decision, but the individual must be the one to take action. One owner explained how actions now can influence quality of life later on in life:

> "Well, they might not have any, but they might want some, or just the quality of life, the quality of your later life, I like the way that sounds. We want you to live a high quality later life. In other words, you're old now, but how you live right now dictates how you live later on."

The owners believed that this concept of quality of later life would resonate with the younger population since they pointed out that individuals tend to become more health conscious as they

grow older. In addition, the owners identified social support as an aspect of motivation that could play a role in participating in the program and becoming healthy. The owners talked about how the barbers could motivate each other to eat healthy and exercise. The barbers could push each other and hold each other accountable when they see one of them not engaging in healthy activities regularly and falling behind the rest of the group. The owners would be able to encourage the barbers and hold them accountable as well. One owner expressed his thoughts about the impact that social support could have on the program:

> "So with that being implemented, I think it's gonna create the excitement, and the drive between us in this barbershop."

The owners mentioned that they talk with the barbers periodically about health; therefore, it would feel normal to encourage and offer support to each other throughout the program. The owners also mentioned the competitive nature of the barbers and how that could lead to the barbers pushing each other to become healthier. Other motivational factors identified by the owners that would increase their likelihood of participating in the study include developing a habit and having structure. The owners discussed the difficulty of getting started with the process of becoming healthy but mentioned that once they got started, they would be able to continue because it would become a habit for them. They felt that they would also begin to feel and see the benefits of becoming healthy, which would provide further motivation to continue. The owners also pointed out that having the structure that the program provides would motivate and help them get started on the path to becoming healthy.

Owner Responsibilities

The owners also felt a responsibility to the barbers as the leader in the barbershop to provide the barbers with the resources to be successful in the barbershop and in life. The owners

felt that part of their responsibility was to make sure that the barbers were healthy and living healthy lifestyles. One owner stated:

> "I see my role in their life as being more than just an employer, I see it as kind of like a success coach, so we talk about pretty much everything; you know? If I see them doing some things that are not beneficial to their health, you know, I let them know, you know, you need to try this or do this."

The owners cared very much about the barbers' health and well-being and felt that the program would benefit the barbers by improving their health. The owners also understood the importance of having happy and healthy employees and how that would contribute to having a successful business.

Employees

Barber Attitudes

The employees or barbers found the intervention to be very appealing and thought it was a good idea because they saw the potential the program had to help people. One barber expressed these thoughts when discussing his likes and dislikes regarding the program:

> "Well, my likes about it is: it's a good study, man, because you're actually opening the people eyes to hazards that they can get, you know what I mean? And how to help themselves in more of a healthier and physical way of being. So I like that about the study. I really don't have any dislikes about the study because it's all concerning about building the person up. I agree. I like the study."

Another barber stated:

> "Yeah. I'd like to see the study done. I mean, just because it is more help, you know what I mean? It's helping the people, versus just trying to get something out

> of the people. It's actually trying to get the people to help themselves. Yeah. I mean, I know I ain't doing much physical stuff, or eating that well, you know what I mean?"

An additional barber expressed similar sentiments when discussing why he thought the intervention sounded appealing:

> "Yeah. It's appealing, because it's help, you know? It's not just something that somebody's just out here trying to do to make money or whatever like that. It's actually a study to get out there and try to tap into the people of eating a more healthier lifestyle, or getting them a little more physical – some exercise to build themselves up. So I think it's prosperous. I think they can prosper off of it, you know what I mean? 'Cause it's a build-up study. It's a build-up of the individual, you know what I mean? So I think it's a good study."

Barbers felt like the barbershop would be very conducive to an intervention such as this one due to its compassionate and caring environment:

> "I think the idea's a pretty good idea because working in an environment like this, you pretty much look out for one another. And if you see that certain things are changing in a customer or in a barber, and then by us running a Christian-based barber shop, I think it'd be a positive thing to acknowledge things like that. Especially as far as you seeing 'em get overweight and things of this nature, or you see 'em start going down, seem like something wrong with 'em. So it's best to always show concern, showing leadership, you know? So that'd be a good thing."

Barbers also emphasized the need to realize that becoming healthy is a process, and that the program would not produce significant positive results overnight. Some barbers would gravitate towards the study quicker than others, but patience would be essential to the process. One barber stated:

> "So it's just like this, it takes time, it's baby steps, it's a work in progress. I mean it, well for one, for some it may be that one person may, it may not be a problem. For the other one it takes, it may take time, you know? That's just how I look at it 'cause the mindset of a person, you just don't ever know. You know if you have gotta a person's willing to want to do this, they got to want to do this, it's choice, they gotta want to do it."

Barbers also felt that the information that would be taught was very informative and easy to understand. They liked the structure of the plan that was presented as well as the specifics of the plan and felt like it would produce results if followed. They liked the goal-setting aspect of the plan as well and thought that the entire plan was well mapped out. The barbers felt that having this plan in place would provide motivation and help them get started with living a healthy lifestyle. They also talked about the importance of having the right teacher in place to educate them and felt like the owner of the barbershop was a perfect choice:

> "The teacher is the key to the whole thing. Picking the right teacher but as far as information, I feel it is very informative. I feel like you will actually, with following the steps that you have and how everything is outlined and everything, it's real easy to understand I mean as far as the process of going about doing it. So I feel it's able to be taught."

The barbers felt comfortable with the owner of their barbershop educating them on being physically active and eating healthy because they knew and trusted the owner to give them good information. They also felt that it was easier to listen to someone who was living a healthy lifestyle, which was the case with many of the owners:

> "It's easier to relate to a person that you know or take instructions from somebody that you know that YOU KNOW is living the lifestyle that they're teaching versus you just meeting someone and they oh I can do this but we never actually saw it or seen it. Yea man, I feel like it's easy to listen to somebody that you know and relate to versus just any Joe Blow."

One barber mentioned another important characteristic of a good teacher: positivity. He felt that the owner of his shop was a very positive person and would do well as a teacher for the barbers:

> "Cause I'm here and I would love to learn from this. I would like to see [OWNER] in action. And I know [OWNER] is the type of person who would push you, you know what I'm saying, into being a better you. And, oh that's another thing too man, positive person. [OWNER] is a positive person. I mean, I'm sure that's another thing that also that you guys would was look into as if you were teaching…having teaching someone the program actually that they was a real positive person. [OWNER] is a positive person."

As seen in the quote above, this barber talked about his desire to learn the information that would be taught, which was a desire shared by other barbers as well:

> "I mean, just, you know, just knowledge man. I crave knowledge and information. If it's sound, I would love to learn it and I can tell this is sound from what I've seen."

Some of the barbers also expressed the idea of not limiting the study to just barbers but including others to participate as well, such as the customers of barbers. The barbers mentioned that customers could be included in the study through conversations they have with the barbers while getting a haircut. One barber stated:

> "Yeah I mean, I think so, because barbers – See, like, especially in the black community, we're like – A barber's just like a therapist. You know what I'm saying? People come and they get advice from us, they talk about their problems, they talk about what they went through, so I think, you know, that's a conversation that's easy to get on in a barbershop. Anyway, but yeah, I think it's pretty good 'cause you can hit a lot of people like that. 'Cause a lot of people coming in and out of barbershop. You got more than one barber here. You got clientele for each barber, so just imagine all them people coming in, if you just speak something to them about what you learn, you know, if you just trickle down to them, you know, it could be a domino effect, yeah."

However, the barbers emphasized not to force the issue with the customers if they were not interested in discussing diabetes.

Importance

The barbers also stressed how important the issue of diabetes is in the African-American community, including the barbershop, and the overall importance of being healthy through physical activity and healthy eating. The barbers felt that everyone should be interested and concerned about their health. Part of the appeal of this intervention was the focus on improving individuals' health according to the barbers. One barber stated:

> "Because, like I said before, it's your health. And if you're not concerned about your health or how you're living, then this program is not for you but I think common sense should make some anybody interested in what they're doing as far as health wise instead of paying a large medical bill for something they could have took care of or prevented from happening. Strokes and diabetes and all that yes."

Another barber found the study appealing because he felt that it would increase awareness of the issue of diabetes in the African-American community and positively impact many people in the community:

> "I think that's a great idea. I mean, we all want to be healthier so I think it would help it would help a lot of people. I think a lot of African Americans in particular don't take that serious. They don't realize the ramifications of diabetes or what it can do to you. You know what I mean? So I think it's a great idea."

Barbers also felt that people might not be interested in changing their unhealthy habits but once they learn how important the issue is, they will want to change:

> "But as far as just being disciplined, as far as learning the what's good fat, bad fat, physical activity. A lot of people don't want to do it. They just have to realize that it's important to do it. So, that's about it. Yea, that's about it."

Another barber stated:

> "I believe after that, that it could be implemented if we understood the importance or the symptoms of type II diabetes and why we should start before we even get to that point."

This sentiment was further emphasized when one barber discussed the direct correlation between the potential longevity of the study and understanding the importance of diabetes:

> "Just – You know, just asking questions or you know, understanding the signs of, you know, not exercising or – you know, just weight problems and just the whole nine yards when it comes down to type II diabetes. You know, getting them to understand what it is, because I know for me as a man, if I understood what I'm at risk of, that'll kinda put the brakes on so I can, you know, stop and go another route, you know, instead of just not knowing what I'm talking about and trying to implement something because it's not gonna last long if you don't understand it. So to me, everything is pretty much based on understanding what you're doing and why you're doing it."

The barbers realized that diabetes is a problem, especially among African Americans, and expressed the importance of learning more about the issue in order to become healthier and avoid health issues in the future. They realized the need for others to become more aware and informed of how important diabetes is and the risk it poses. As a result, the barbers were interested in being educated about diabetes prevention and making the most out of the study to improve their health and the health of their community.

Benefits

The employees also realized the benefits of the program and how the program could help them if they were to participate. They noted that they would live a healthier lifestyle by being more physically active and eating healthier if they followed the steps outlined. They mentioned that this intervention would help prevent diabetes, high blood pressure, and other chronic conditions and limit the number of doctor visits during their lifetime. The barbers also believed

that the benefits of the program go beyond becoming healthier. They identified other benefits such as feeling better, becoming more successful, and performing their job (cutting hair) better:

> "And then once you grasp it and once you get it, you'll be, you'll feel successful, you'll feel better about yourself and you'll feel better when you get outta the bed in the morning then you can be that morning person that you never thought you could be, you know?"

Another barber stated:

> "Yes, I think it could. I think it could be beneficial to all of the workers and, like I said, if you feel better, you're healthier. Your day goes better. You can perform your job better. You can focus. So I think it's important. I think it's really important for everybody."

Barbers also noted additional benefits, such as an increase in energy, being in a better mood, and feeling better about yourself. They discussed the possibility of the intervention bringing the barbers closer together as well through the shared concern for each others' health and well-being. They talked about how the intervention would have them spending more personal time with each other allowing them to form a special bond. It is an additional commonality that the barbers would share other than cutting hair.

One barber stated:

> "That's like you working a regular job and you have your job friends or whatever and you just – you work together as a team. Outside those doors, you have your own life. But if some type of activity that you guys created at work and you do outside of work, that kind of – that brings you a little closer because now you

> have more areas that you have in common that you can relate to. So yeah, it bring – yeah."

The barbers also noted the fact that they are already close and consider themselves a brotherhood, but the program could potentially bring them even closer. Barbers suggested that the program could help the credibility of the barbershop as well and attract new customers. They suggested that new customers could hear through word-of-mouth about a particular barbershop engaging in health promotion activities and come to that barbershop with a desire to learn more about becoming healthy. This positive publicity would enhance the reputation of the barbershop and give it a competitive advantage over other barbershops. The barbers also mentioned the potential for customers to benefit from the program if they were to receive information about diabetes prevention from the barbers and brought up the fact that the program could significantly impact the community if the customers were involved instead of limiting the impact to the barbershops.

Empowerment

The barbers also felt very strongly about the desire to learn the information about diabetes prevention and use their knowledge to help themselves and, more importantly, others to become healthy. The barbers brought up the issue that many individuals do not know how to get started on the path to becoming healthy. They believed that this intervention would empower them to take action to become healthy by giving them the knowledge and confidence necessary to achieve the goal of a healthier lifestyle. One barber stated:

> "For anybody who wanna learn about this to educate they self 'cause people wanna get started but they don't know how. You know? What is healthy? They

have so much stuff in food nowadays that you don't know what's healthy anymore."

Barbers expressed the importance of using the information learned to help others become healthier:

> "It gets me excited, saying okay [OWNER] can teach me this so I can become healthy. Then maybe I will be a visual aid for someone else to learn and I can teach them to be…"
>
> "It would supply us with the knowledge to not only, how can I say, become healthy simple as that but we'll be able to teach our families, our customers, and you know what's most…"

According to the barbers, this intervention could potentially impact a large number of people by empowering the owners and barbers with the knowledge and commitment necessary to become healthy:

> "I do. The reason why I say that is because it all depends on the foundation and the foundation is strong. The foundation that the program was built on…if you taught [OWNER] and [OWNER] grabbed on grabbed hold to the vision that you guys started with the program and I jump on with [OWNER'S] vision, I get into the program and it helps me to lose weight. Then, we teach this person. This person is taught. I go start another barbershop. I follow what [OWNER] did. [BARBER] starts a barbershop. [BARBER] starts a barbershop. But we're all still in the same foundation of this program, who knows where it would go."

Barbers also suggested that the customers could take what they learned and educate others about the process of becoming healthy. The barbers expressed the desire to use the information learned

to educate others, such as family members and customers. The barbers believed that this aspect of the program increased the appeal of the program and the desire to participate in the program.

Motivation

The barbers also identified motivation as a factor that impacts their willingness to participate in the intervention. One aspect of motivation that the barbers identified was family. The barbers expressed the desire to set an example for their kids and be there for them when they are older. They also pointed to relatives who have had diabetes and their desire to avoid going down that same path. The barbers also mentioned that seeing results from the study during participation would be a motivating factor to continue participating as well as an affirmation of the effectiveness of the intervention. They talked about the program becoming a habit through repetition and seeing results and found this potential habit development to be beneficial. One barber said:

> "I know, for me, I would stick with it and continue. I think repetition…it helps once you get accustomed to doing something then it becomes a habit. Then it becomes a lifestyle so you'll continue to, you know, keep up with it. And once you feel better, it makes you feel better so I think…and then I think once another barber may see the improvement in one of the other guys and that'll push them to continue to do it themselves."

This barber pointed out that seeing results in other barbers would also motivate the barber to continue with the program and continue living a healthy lifestyle. The barbers also identified social support as another component of motivation. The barbers pointed out that they could push each other to become healthy. They mentioned that they already look out and care for one another, which would make providing support second nature to them. One barber mentioned that

having other barbers there providing encouragement and support increases the likelihood of becoming healthy:

> "When you working with a group of people, you know what I'm saying, that's encouraging each other that's better than just you doing it by yourself. You know what I'm saying cause you're more apt to give up if you do it by yourself but if you got people encouraging you, you know what I'm saying, you can be more apt to do what you need to do. Even if you slack off a little bit, you're going to get back on it."

Another barber talked about how the group-oriented curriculum would benefit everyone involved:

> "Yea I think that would be great. Everybody being together and working together talking it out talking about I think that would be great for everybody."

The barbers felt that the group would help hold each other accountable and keep them focused throughout the program. The barbers also mentioned that the owner would motivate and encourage them throughout the program and after the program was complete as well. Another aspect of motivation that the barbers pointed out was focused on the individual and how the individual would ultimately be the primary motivating factor that would decide whether or not to participate in the program and become healthy. One barber stated:

> "It's up to the individual, man. You know, it's the people. It's what they wanna do, you know? If they wanna continue to be active, or continue to eat healthy, because that's what they actually want, then they gonna do it. But if they don't want it, they ain't gonna do it."

The barbers believed that they would need to find their own motivation to make a conscious effort to change. The barbers may have different or similar reasons for participating in the program and wanting to be healthy, but it ultimately goes back to the individual, according to the barbers. The barbers mentioned that everyone places different levels of importance on different items, which distinguishes the decision making process for each individual. The final aspect of motivation identified by the barbers was the education modules. The barbers believed that the education modules themselves could serve as a motivating factor to become healthy. By getting a taste of the material that would be taught, some of the barbers expressed a desire to take action and become healthy. One barber said:

> "I mean, it's actually opening people's mind to actually start being physical and getting active with whatever they got going on."

The barbers also talked about their affinity towards the structure of the content, which, according to them, would give them guidance and a way to get started living a healthy lifestyle. All of these aspects of motivation identified by the barbers play a role in their decision to participate in the program.

Research Question #2:

What are the facilitators and challenges that affect the employers' and employees' willingness to participate in a type 2 diabetes prevention education intervention disseminated by the employer?

<u>Employers</u>

Barriers

The employers identified certain barriers that may make it difficult to implement the intervention in the barbershop. The issue of time was the barrier that was identified as the primary one by the owners. The owners voiced concerns about finding time to implement the

intervention given their busy schedules and the schedules of the barbers. The unpredictable nature of customer flow in and out of the barbershop makes it difficult to establish a set time to do the intervention. However, based on their comments, the owners also seemed to think that this barrier could be easily overcome by talking with the barbers in advance and setting aside a time each week for implementing the program. One owner stated:

> "Yeah, scheduling. Myself, I teach also, but the guys that's here all the time, it's basically mostly scheduling, because, especially on a work week, we got clients come in and out and not unless everybody can come to one day that they can aside and say, okay, for an hour we gonna do this. Maybe a Sunday evening, when a lot of people like to rest and stuff. We just got to get everybody together, just find out what's a good time for everyone."

The owners also identified barber constraints as a barrier to implementing the intervention. Barber constraints are factors that prevent barbers from living a healthy lifestyle due to their occupation. According to the owners, the barbers stand the entire day and cut hair and do not get the opportunity to do much physical activity during the work day. They also do not have time to eat a healthy meal. One owner said:

> "And if you think about it, even this, not only with our job, just barbers in particular, you can find jobs that are similar to where people are standing in one location, just doing a few things, not much physical activity, and then our time restraints, time restraints. We don't have time to eat a good meal, which, you know, I'm learning how."

Another owner felt that these constraints kept the barbers from being physically active after work:

> "I'm gonna say the average barber they just stand around and they service a client and then after that they go home. They don't feel like doing anything."

They mentioned that these constraints drain their energy during the work day and prevent them from having the energy to be physically active after the work day is over. Other barriers that owners mentioned included getting barbers interested and excited about the study, laziness among barbers, and motivating the barbers to continue to participate in the intervention. Owners mentioned that apathy among barbers could be an issue and that some barbers will be interested in participating in the program and some won't be interested, which they considered to be the reality of the situation. Buying into the concept would be a challenge for the program among barbers, but the owners felt that the majority of the barbers would be interested in participating.

Facilitators

The owners also identified facilitators that would make it easier to implement the intervention in the barbershop and increase participation among the owners and barbers. The three primary facilitators identified by the owners were simplified lessons, shortening the lessons, and communication. One owner emphasized keeping the information to be learned in the modules as simple and easy to understand as possible:

> "ABCs, 123s, simplified information. You can make any complicated and exhaustive – any subject can be broken down to simplicity. It need to be simple."

The owners felt that keeping the information simple was especially important since they were the ones who would be educating the barbers about this information. They felt that the program could not be effective and serve its purpose to help others if the information could not be readily understood by the barbers. The suggestion to shorten the lessons by some owners was due to the lack of time they have to commit to the intervention. They felt that shortening the lessons would

give themselves increased flexibility to implement the intervention. The owners also talked about the nature of the barbershop and how it encourages open communication between everyone in the shop. The owners mentioned that the barbershop environment would make it easier to educate the barbers about diabetes prevention since they communicate with the barbers about various topics, including health, daily in the barbershop.

Employees

Barriers

The barbers identified the same barriers that the owners identified. Finding time to implement the program was the primary barrier identified by the barbers. Other barriers included barber constraints and willingness to change. The barbers pointed out that their first priority is to cut hair, which would make it difficult to sit for a long period of time and engage in the program during work hours given the unpredictability of customers. Since the barbers are dependent on their customers, they mentioned not wanting to miss the opportunity of cutting a customer's hair. One barber pointed to the busy schedules of the barbers as being a major problem:

> "I just know for the barriers that stuff, maybe it's things about it's hard to find time. Some people have busy schedules that they have. It would be very difficult to work through to find time."

Another barber mentioned that "it would just be hard sitting for like an hour" since customers constantly come in and out of the barbershop. However, the barbers seemed optimistic about finding ways to overcome the time obstacle:

> "One would be time but we could work around that. We could talk amongst ourselves to kind of, you know, figure out something to do about that."

Barbers suggested that the intervention could be done during the beginning of the week when the barbershop is less busy. They said that it would be extremely difficult to engage in the program during their busy days, including doing any type of physical activity. They pointed out that on some days, they start work early in the morning and leave late in the evening and engaging in physical activity on those days would be nearly impossible. The barbers also identified other factors associated with their occupation that would make it difficult to fully engage in the program and be healthy. Factors that were identified by barbers include lack of resources, access to unhealthy foods, fatigue, lack of time to eat healthy, and standing all day and not having the opportunity to be physically active while at work. One barber went into more detail regarding some of these factors:

> "Here, we kind of don't have a back room to where you maybe can bring in a healthy meal or something like that, anything like that. Basically, what you do is you going to one of these fast food restaurants to get something to eat...you may have a microwave where you can have a healthy meal and warm it up or something like that, but to stay consistent with that, all barber shops will need a refrigerator, will need a microwave. And just having healthy things around kind of keep you in that mode like having fruit instead of candy, having water instead of soda, things of that nature. I mean, you keep healthy things around, that's all you see. So you're more prone to pick that up."

Another barber talked about a combination of factors contributing to barbers' unhealthy lifestyles:

> "Barriers. Probably just being fatigue, cutting hair all day, just probably the – *[Laughs]* The food place next door is very convenient right there."

The older barbers noted that this unhealthy lifestyle could go on for years and become a habit. They expressed the need for a program such as this one to combat the unhealthy lifestyle that their occupation promotes. Barbers also identified the willingness to change as a potential barrier that could adversely affect their willingness to participate in the program. One barber stated:

> "Well…the hardest part would be…see once you get adjusted to a certain lifestyle or however you're living, change is real hard. Yea cause you became accustomed to your daily routine. You don't want to change it. Yea. That'll be the hardest part. Yea."

Although barbers identified the willingness to change as a potential barrier, they felt that this barrier could be overcome:

> "Well…to actually do the study some barriers let me think…well I guess everybody would have to be willing…everybody would have to be willing to participate as far as like their input on it and things that work for them, their priorities. Everybody would have to keep up with it and be on the same page with it. That could be a barrier. But I think we could overcome it though. Everybody can do it."

Facilitators

The employees identified facilitators as well that would make it easier to implement the intervention in the barbershop. The barbers suggested possibly shortening the lessons or breaking up the lessons into shorter time increments given the demands of the barbers' schedules. One barber offered an explanation as to why this would be necessary:

> "Hmm. Probably shortening the lessons because you know like my phone going off right now, that could be somebody texting like, "Can I get a haircut today?" or something like that, so you just never know what you'll run into because like I said, with this being our living, first of all we don't want to turn down no money, you know what I mean?"

Breaking up the lessons would give the owner and barbers increased flexibility to implement the intervention according to the barbers. The barbers also suggested making the classroom aspect of the program, where the owner educates the barbers, an open discussion for everyone to join in and participate including customers. According to the barbers, since barbershops are conducive to having open discussions about various topics, it would make sense to incorporate this aspect into the intervention. Allowing the customers to participate in the discussion would be a way to obtain feedback about the intervention and improve the intervention according to the barbers.

Research Question #3:

What are the similarities and differences regarding the employers' and employees' views of the feasibility and preference for this intervention?

Similarities

The owners and barbers both expressed enthusiasm about participating in the intervention. They thought the intervention was a great idea and that it would be very effective if implemented. Both groups mentioned repeatedly that they liked the format and structure of the education modules as well. They liked that there was a specific plan in place and steps for them to follow. Both the owners and the barbers also felt that the program was very much needed in this community. All of the owners and barbers said that they would like to participate in the

intervention, and they all thought the intervention could be implemented in the barbershop. Both the employers and employees identified time and barber constraints as potential barriers to implementing the intervention. However, both groups agreed that these barriers could be overcome. They agreed that the time issue could be overcome by communicating with each other and determining a day and time that works for everyone based on their schedules. Shortening the lessons and/or breaking up the lessons were suggested by a portion of the owners and barbers as well to facilitate the implementation of the intervention. The owners and barbers also agreed that the barbershop environment facilitates communication between everyone in the shop and that this aspect should be incorporated into the program. In addition, both the owners and barbers felt strongly about the issue of diabetes being very important and relevant to the African-American community and felt the need to be more aware of the issue and the threat it poses. They brought up the fact that children are spending more time indoors and are not as active, making the issue even more important. The owners and barbers both identified three of the same factors associated with motivation that influences their willingness to start and continue to be healthy and participate in the intervention. These factors were family, social support, and the individual. None of the owners or barbers had any dislikes regarding the study, but some offered similar suggestions to improve the program. Both groups suggested changes to the content of the modules, such as adding a list of healthy and unhealthy foods, as well as including meal plans or recipes and offering examples of types of exercise that would be effective in losing weight. Both groups also suggested giving examples or visuals of the severity of diabetes if not addressed or the positive effects of addressing this issue at an early age. Both groups thought that including some statistics associated with diabetes would be helpful as well. Both groups also stressed the importance of making sure the information was simple enough to understand.

The owners and barbers also identified a few of the same potential benefits of the program. These benefits included becoming healthier due to a healthy lifestyle, feeling better, and improved relationships between the barbers. The potential of these benefits helped to increase their willingness to participate in the intervention. Both the owners and the barbers pointed out their desire to learn the information that would be taught in order to help themselves and help others, including customers and family members. They felt that the information would empower them to make a difference in their lives and the lives of others. Both groups also felt that the intervention could positively impact customers as well. They felt that the intervention would eventually trickle down to customers despite targeting only the barbers by talking with the customers about diabetes prevention and catching the attention of customers through conversations among the barbers and their improved appearance, which would spark customer curiosity. One owner said:

> "You know when you're sitting around and somebody will talk about something, eventually you're wanna know "What are you talking about?" You know so it could trickle down to the customers eventually."

Barbers agreed with this assessment by the owners:

> "Oh yea. The customers notice. They notice and then when they're here, they may hear us talking about it. We probably…we may have a conversation about it in the shop they may hear and then they may be, you know, curious about the whole aspect of it and they may ask questions and we can help them. It's just…it's a beautiful thing."

Both the owners and the barbers liked the fact that the program targeted the barbers but also felt that the customers should benefit as well in some aspect after the barbers are educated by the owners especially if the program is effective.

Differences

The owners and barbers did not disagree on many items associated with the intervention. The owners did emphasize their responsibility towards the barbers as leaders and role models for them. The owners felt that it was their responsibility as the leader in the barbershop to make sure that their barbers had all the resources necessary to succeed, not only in the barbershop but in life. They also wanted to create a healthy environment for the barbers to work. The barbers, however, discussed leadership more in terms of their relationship to their customers and their responsibilities towards them. These responsibilities go beyond just cutting their hair. They extend to acting as a “therapist” and listening to their issues. An additional difference found between the owners and barbers was that the barbers emphasized additional aspects of motivation including results and the education modules. The barbers emphasized that seeing results from the intervention would motivate them to continue the good habits developed from the intervention. They also felt that the education modules served as a motivating factor and reminder about the importance of being healthy and the need to engage in healthy behaviors. In addition, some of the barbers strongly recommended incorporating the customers into the program while the owners focused their attention towards the barbers and how the program could most benefit them. The owners did feel that the customers would eventually benefit from the program indirectly by listening and asking questions, similar to what the barbers thought as well, but felt that the barbers, not the customers, should be directly targeted as opposed to the barbers who felt that the customers should have a more direct involvement in the program. Furthermore,

the barbers also identified some additional benefits of the intervention that the owners did not bring up, such as having more energy, looking better, performing your job better, and improving the credibility of the barbershop.

Research Question #4:

What are the employers' and employees' overall views regarding the feasibility of the intervention?

Employers

Feasibility

The owners all felt that the intervention could be implemented in their barbershop. One owner stated:

> "It can be implemented within this barbershop. I do believe it can be implemented in other barbershops."

The owners voiced their eagerness to get started with the intervention. They felt that the barbers would also want to participate in the program and said they would encourage their barbers to participate as well. The owners also said they would feel comfortable educating the barbers about diabetes prevention and felt that the barbers would be very receptive to them and receive the information well. One owner said:

> "Yeah, I feel comfortable talking to my barbers about it. And I mean most of the time if I tell them something or if I explain something to them, they listen so yeah, I feel confident."

Some owners also noted that they have discussions about health with their barbers periodically; therefore, talking to their barbers about these issues should not be a problem. The owners also

felt confident about implementing the intervention in their barbershop because they felt that the program was targeting the correct audience:

> “Smaller team, small business, for one it's probably more personal so everybody gonna know each other 'cause it's smaller. The mindset of the rural person is different than the urban person. So, yeah, I see rural small business as a target area. That's what I see.”

Improvements/Recommendations

The owners also made some recommendations on how to improve the intervention and overcome some of the barriers previously identified in order to make the intervention more feasible and effective. The owners suggested incorporating a list of foods into the education modules that they should and should not eat along with examples of physical activity that would be most effective. They felt that including these components would really help the barbers:

> “I think giving, you know, more examples of the foods, you know, and I know you will do that, I know this is in writing, but like examples of physical activity they can do in that 20 minute time or 30 minute time of the day, you know, an example of what foods to eat and what foods not to eat. I know one place in there was talking about visually having the measuring cups and all those different things, but maybe even a list of what foods to eat and what foods not to eat, because a lot of times people, if they see that list, it gets in their memory and they’re like okay, well, I know I’m not supposed to be eating this, but I can eat this, you know, it helps them a little better.”

The owners also expressed the importance of incorporating content into the curriculum that emphasizes why diabetes is an issue in their community and what might happen to them if the issue is not addressed:

> "Like I said earlier, I would think showing them examples and being able to really give them information that shows how this is a problem for people and how for you, it might not be a problem now, but if you don't start taking action right now, it's going to be a problem later on."

Some owners recommended including statistics associated with the severity and prevalence of diabetes as well, to stress the importance of the issue. In addition, some owners recommended that the program be given a catchy name to attract participants, similar to the names of barbershops. The owners also suggested spreading out the lessons a little more over time to increase the feasibility of the program. They suggested taking eight weeks to complete the four lessons instead of four weeks. The owners also stressed the importance of keeping the information to be taught simple and easy to understand in order to make it easier on themselves and the barbers. In order to combat the time barrier that was brought up by both the owners and barbers, the owners suggested setting aside a day and time each week to engage in the program and be consistent with it. According to the owners, the barbers would know not to schedule appointments during this time and be aware that the time was to be devoted to the program. In addition, the owners felt that it was important for the program to come across as caring and wanting to help people versus emphasizing the research aspect of it. The owners believed that the barbers would buy into the program quickly if the program came across as caring and helpful.

Employees

Feasibility

The barbers also felt that the intervention could be implemented in their barbershop. They all expressed a willingness to participate in the program and were on board with being educated by their employer about diabetes prevention. The barbers said that they preferred to be educated by their boss as opposed to a stranger because they trust their boss and have a good relationship with them. Some of the barbers mentioned that their boss lives a healthy lifestyle, which makes it even easier to listen to them when they talk about health-related information. One barber said:

> "Yea, I feel real comfortable. I think it's a good idea cause [OWNER], you know, he does Crossfit so he's already good shape. I think he's on a good eating routine now so he'll be a perfect candidate to talk about stuff like this."

The barbers ultimately felt that understanding the importance and problems associated with diabetes would allow the program to be implemented in the barbershop. They also felt that, logistically, the program could be implemented as far as finding time and space to implement the program. They expressed a willingness to participate in the program because they felt that the issue was relevant to them and their community and that they would benefit from knowing more about the issue.

Improvements/Recommendations

The barbers also had some suggestions on how to improve the intervention and make it more feasible. The barbers recommended conducting the education sessions with the owners in the beginning of the week since that is when the barbershop is typically less busy. One barber said:

> "Monday through Wednesday is probably perfect to go over this and understand and get it into the habit of doing."

The barbers suggested setting aside time to implement the intervention and exercise similar to how they set aside time to eat. The barbers also recommended including a list of foods in the modules that they should and should not be eating along with examples of physical activity that would help the barbers lose weight. In addition, the barbers were keen on seeing examples and pictures of the positive effects of the intervention. They emphasized the importance of seeing results and expressed a desire to see how the intervention could potentially transform their body into shape. One barber stated:

> "Yea, give you a visual. Like you got your visual now but give you a visual of the after-effect, the after-look. I mean I think that will be easier, you know what I'm saying, as far as visual aids to helping the teacher teach us."

Another example that was given by a barber was to include pictures of healthy individuals and individuals who live a sedentary lifestyle to help see the differences between the two lifestyles. In addition to seeing more pictures associated with the positive effects of the program, the barbers also wanted to see additional pictures in the form of charts and statistics associated with the severity of diabetes to understand the true importance of the issue. The preference for pictures was due to their desire to avoid being overwhelmed by too much writing and the feeling that the program would be book work, which would take away from the enjoyment of the program. Another recommendation by the barbers was to make sure that the information taught in the program would be simple and easy to understand for everyone.

CHAPTER 5

DISCUSSION

This chapter analyzes the results that were obtained from the study. The analysis is organized by research question. Major themes were identified from the results of the research questions and are examined here within the lens of the social ecological model. This section also identifies the strengths and limitations of the study, public health implications, recommendations, and future research topics. The final section of this chapter offers concluding remarks about the study.

RQ #1: Attitudes/Perceptions

The owners and barbers both had very favorable attitudes toward the program, and they all expressed a willingness to participate in the program. Their willingness to participate in the program is important because it allows the owners and barbers to take ownership of the program based on their needs and desires and contributes to the development of community organization and community building within the barbershop community (Glanz, Rimer & Viswanath, 2008). Both groups thought that the idea for the intervention was a great one and were excited about its potential to help them and others. These findings indicate that the foundation of the intervention is strong. The components of the intervention were able to connect with the owners and barbers on a personal level, which increased their enthusiasm for the intervention. Obtaining support from the owners is especially important since they are the ones who have the final say as to whether the intervention should be implemented. The adoption of an intervention at a worksite is heavily dependent on buy-in from leadership (Glanz, Rimer & Viswanath, 2008). The owners' support for the program was primarily due to their understanding of the importance and severity of diabetes within the African-American community as well as the benefits the program

would provide, such as improving the health of themselves and their barbers. Therefore, the owners were motivated to participate in the intervention primarily due to intrinsic factors, which illustrates the impact of intrinsic motivation on study participation (Ryan & Deci, 2000). The owners were less motivated by a desire to gain an external reward from the intervention and more motivated by finding the intervention to be personally rewarding due to its potential to help others. In addition, the owners' favorable attitudes toward the structure of the curriculum underscored their belief that the intervention would be effective if implemented. Furthermore, it was evident from the comments made by the owners that they really cared about the health and well-being of their barbers. Many of the comments made by the owners centered around how the program could benefit the barbers. The owners' comments regarding their desire to help their barbers succeed in the barbershop, as well as in life, emphasize the compassionate nature of the owners toward their barbers. The owners mentioned feeling responsible for their barbers and for taking the necessary steps to ensure their success. In the eyes of the owners, the success of their barbers was not limited to the barbershop. Their success included being healthy and living a healthy lifestyle. The barbers also proved to be very compassionate, but their compassion was primarily directed at the customers. They looked at the intervention in terms of the help it could provide to the customers. The barbers seemed to gravitate towards the benefits of the intervention, and their eagerness to learn was most likely due to the benefits of the intervention. The barbers felt that the ability to help themselves and, more importantly others to become healthy, was the most appealing benefit of the intervention.

Importance

One major theme that was identified from the results of the first research question was the concept of importance. Both the owners and the barbers found the issue of diabetes to be

very important and relevant to the African-American community. They understood the impact that diabetes has on the African-American community because many of them have experienced the issue through family members and friends. They felt that the issue was one that needed to be addressed in their community and thought that the barbershop was a good place to start. The target population's acceptance of the issue and understanding of its relevance is critical to the success of the program as it will unify the owners and barbers and inspire them to address the issue (Glanz, Rimer & Viswanath, 2008). The owners and barbers also expressed the importance of making people aware of the issue in order to facilitate and inspire action. The theme of importance was found to be influenced by multiple factors at the intrapersonal, interpersonal, organizational, and community levels of the social ecological model.

Intrapersonal Level

One reason that some owners and barbers believe that diabetes and health is an important issue is because they have experienced the issue first hand. One of the owners mentioned that he had diabetes, making the issue a personal one for him. Other owners and barbers talked about their own health scares, such as obesity, and their desire to be healthy because of it. Therefore, the issue of diabetes is very relevant to them and will serve to unify the participants, which is a key component to addressing the issue (Glanz, Rimer & Viswanath, 2008). The majority of the owners and barbers were aware of the importance of diabetes but sought more knowledge about the issue so that they would be fully informed and be able to take action to improve their health. In addition, some barbers felt that understanding the importance and risk of diabetes would influence them to change their habits and become healthier. Each owner and barber had his own beliefs about the importance of diabetes, but they all believed that the intervention was needed and would help each of them become healthy.

Interpersonal Level

The owners and barbers mentioned that they had family members and friends who helped them understand the importance and severity of diabetes. Both groups had family members who suffered from the disease and learned from their experiences. In addition, the owners and barbers mentioned that they have had conversations with each other about health from time to time in which they discussed the importance of being healthy. They spoke about the importance of eating healthy and exercising regularly and engaging in a healthy lifestyle. The intervention would also allow for interaction between the owners and barbers to discuss the importance of diabetes and make sure the barbers understood the severity of the issue.

Organizational Level

The owners and barbers mentioned that diabetes is a very important and relevant issue in the barbershop given the number of African Americans that visit the barbershop. Their willingness to take ownership of their health is an indicator that the issue chosen for the intervention is an issue that the barbershop community feels strongly about and will consequently help build up the organization (Glanz, Rimer & Viswanath, 2008). The barbershop is a conducive environment for having discussions about the importance of health issues such as diabetes. These discussions often include the customers who, together with the owners and the barbers, create the barbershop environment. Studies have shown that workplace settings can be effective environments for diabetes prevention interventions (Aldana et al., 2006; Christensen et al., 2011; Schmittdiel et al., 2013; "Employers are Working," n.d.; Oberlinner et al., 2008). This finding is in agreement with these studies. Health is an important part of the barbershop culture and one that the owners and barbers take very seriously.

Community Level

The owners and barbers identified the importance of diabetes in terms of its relevance and effect on the African-American community. They understand that the African-American community is significantly impacted by this disease and realize the importance of addressing this issue. The barbershop is an important part of the African-American community and a place where health issues and their importance are discussed periodically (Linnan et al., 2011). The ability of the intervention to positively impact the customers of the barbershop is a step towards addressing the issue of diabetes at the community level.

Benefits

A second major theme that was identified from the results of the first research question was the potential benefits of the program identified by the owners and barbers. Both groups felt that the program was very appealing in large part due to the benefits of the program. In addition, both groups talked about the potential for the program to improve the relationships between the barbers (including owners). This result is significant because it could result in a better work environment for the barbers and also increase the barbers' organizational commitment, resulting in improved productivity. Improved productivity and job performance was also one of the benefits identified by the barbers that this intervention could provide. These benefits make up part of the return on investment that the owners would gain for implementing the program (Carnethon et al., 2009). Furthermore, one of the owners identified "feeling better" as a potential benefit and the ability of this feeling to keep him committed to being healthy. This comment alludes to an aspect of the sustainability of the program. The participants would want to maintain their good health to avoid the negative effects of an unhealthy lifestyle. An additional significant result came from the barbers' identification of the benefits of the program. The barbers mentioned benefits that would positively impact them physically, but they also

mentioned benefits that would positively impact them mentally, such as increased focus, increased self-confidence, and being in a better mood. These mental benefits broaden the appeal of the program and improve the barbers' health from a holistic perspective. The potential benefits of the program identified by the owners and barbers can be further analyzed at the intrapersonal, interpersonal, organizational, and community levels of the social ecological model.

Intrapersonal Level

Both the owners and the barbers noted the benefits of the program that would impact them on an individual level, such as becoming healthy in the form of increased physical activity and healthy eating, looking better, feeling better, increased focus, improved job performance, increased level of energy, and being in a better mood. These benefits impact the individual from a physical and mental perspective. These perceived benefits can influence the individual to become healthy and change their behavior. The Health Belief Model confirms the idea that perceived benefits can influence behavior change and serves as a reminder of the influence of benefits on program participation (Glanz, Rimer & Viswanath, 2008). It is important for the program to provide benefits to the participants at the individual level so that each individual can experience the benefits of being healthy and be motivated to participate and maintain a healthy lifestyle. These benefits could influence the reach of the intervention, which is a key component for evaluating a health behavior program (Glanz, Rimer & Viswanath, 2008).

Interpersonal Level

The benefit of improved relationships between the barbers is associated with the interpersonal level of the social ecological model because of the increased interactions among the barbers. As the owners and barbers pointed out, the study would increase the amount of time the barbers spend together and increase communication between each other. The education

sessions involving the owners and barbers would serve as the avenue for increased interactions between the two groups. The increased interactions between the owner and his barbers, the shared goal of becoming healthy, working together, and helping and pushing each other to become healthy would bring everyone closer together. Therefore, the owners and barbers believed that there was value in participating in the program beyond the individual benefits. This phenomenon is known as outcome expectancy and is confirmed by the Social Cognitive Theory as a factor that can influence behavior change (Glanz, Rimer & Viswanath, 2008).

Organizational Level

One benefit that was mentioned by the barbers was that the program could improve the credibility of the barbershop and develop a positive reputation as a barbershop that engages in health promotion. The barbershop would be able to attract new customers and improve business. Given the growing number of barbershops in the community, finding ways to distinguish their shops from the others has become a priority for some owners. This benefit could potentially have a far-reaching positive impact on the owners and barbers that goes beyond the individual impact and could affect the future of the shop.

Community Level

The potential benefits of the program to the customers of the barbershop, who are members of the community, could significantly impact the community and result in a healthier community. Many barbers were pushing for an intervention that could positively impact as many lives as possible, not just their own, and felt that incorporating customers and others outside of the barbershop setting would be most beneficial. Both the owners and the barbers believed that this program would help prevent diabetes and other health issues in the future, and they expressed a desire to share the benefits with others in the community in order to help as many

people as possible. The Diffusion of Innovations Model emphasizes the importance of disseminating effective programs to the public; the owners and barbers could play a major role in disseminating the positive aspects of the program to other members of their community (Glanz, Rimer & Viswanath, 2008).

Empowerment

A third theme that was identified was the potential for the program to empower the owners and barbers by providing them with the knowledge and encouragement needed to succeed in becoming healthy. Empowerment is an important component of community organization and community building, which is key to a successful health intervention (Glanz, Rimer & Viswanath, 2008). Both groups also pointed to the ability to use the information learned to help others. The owners talked about using the information to help the barbers become healthy, and the barbers talked about potentially helping customers by talking with them about physical activity and healthy eating using the information acquired from the program. Both groups also mentioned that they could use the information learned to help their family become healthier. In addition, the owners understood the power of knowledge and expressed enthusiasm about acquiring knowledge to help others. This result is significant because it underscores the owners' approval of the program and reinforces the importance of leadership buy-in. Empowerment also contributes to the sustainability of the program by giving participants the ability to become healthy at any time or maintain their health throughout their life. Previous literature has discussed the importance of program sustainability and the need to find ways to produce positive, sustainable health outcomes among individuals and communities (Aldana et al., 2006; Carnethon et al., 2009; Rolando et al., 2013). The barbers' comments about empowerment suggest the potential far-reaching impact of the intervention. The intrapersonal,

interpersonal, and community levels of the social ecological model can be used to understand the full impact of empowerment.

Intrapersonal Level

The individual level of the social ecological model is addressed by empowerment via the knowledge acquired by the owners and barbers and their ability to use that knowledge to become healthy. Both groups expressed a strong desire to acquire knowledge about diabetes prevention from the program and use the knowledge to help themselves become healthy. Behavior change at the individual level is facilitated by the acquisition of knowledge and the use of that knowledge to produce change. The knowledge gained from the program will enable the owners and barbers to understand what they need to do to become healthy and how to do it. They will be made more aware of the issue of diabetes and understand the need to live a healthy lifestyle. The knowledge gained will also impact the owners and barbers emotionally as it will provide a feeling of self-confidence and a belief that behavior change is possible. Both groups identified knowledge as an important factor that would impact their ability to change.

Interpersonal Level

The interactions between the owners and barbers, as well as between the barbers and customers, in which the owners empower their barbers by educating them on diabetes prevention and the barbers empower their customers through conversations, are associated with the interpersonal level of the social ecological model. The education sessions between the owner and his barbers, where the owner empowers the barbers to take control of their health, involves back-and-forth discussion between all of them. The interactions between the barbers and their customers would be more of a conversation with the barbers explaining the information to the customers and the customers asking questions about the information. These interactions serve to

empower and disseminate knowledge to others. Empowerment can also result in increased self-efficacy, which is an increased level of confidence in performing a behavior such as physical activity or healthy eating (Glanz, Rimer & Viswanath, 2008). Due to the knowledge gained from the program, the participants will have the confidence to address the issue of diabetes and engage in a healthy lifestyle. The Social Cognitive Theory emphasizes the importance of self-efficacy and the major role it plays in the behavior change process (Glanz, Rimer & Viswanath, 2008).

Community Level

Empowering the customers to become healthy impacts the community level of the social ecological model. The customers make up a portion of the community and the potential for the customers to pass on their knowledge to others increases the impact on the community. In addition, the potential for the owners, barbers, or customers to use their knowledge to empower their family members further impacts the community. The ability of the program to impact the community through empowerment significantly increases the reach of the program and increases the likelihood of achieving positive, sustainable health outcomes. Empowerment can also increase community capacity, allowing for community members to resolve issues on their own, which would enhance the sustainability of the program (Glanz, Rimer & Viswanath, 2008).

<u>Motivation</u>

The fourth and final theme identified from the results of the first research question was the concept of motivation. There were multiple aspects of motivation identified by the owners and barbers, such as individual, family, and social support. The owners and barbers felt that motivation would play a key role in the success of the program by giving them the support and encouragement needed to produce behavior change via increased physical activity and healthy eating. The owners and barbers believed that having the support from others makes change

much easier than taking on the task alone. Both groups suggested that working together as a group to become healthy makes each member of the group accountable and ensures that each member is fully committed to the process. Working together with co-workers also contributes to the sustainability of the program since the group will continue to be working at the barbershop after the program is complete and be there to remind and support each other to maintain their health. Previous literature has shown that social support can have a positive effect on the sustainability of a program (Umberson & Montez, 2010). An additional aspect of sustainability addressed by the owners and barbers associated with motivation was the ability of the intervention to produce results and help develop good habits, such as regular exercise and healthy eating, among the participants, which underscores the potential effectiveness of the intervention in the eyes of the owners and barbers. The owners and barbers talked about developing good habits from the program and maintaining those habits, especially if they see results, throughout their life. If they were to stop living a healthy lifestyle, the owners and barbers mentioned that they would feel the negative effects of the unhealthy lifestyle which would encourage them to go back to living a healthy lifestyle. The owners also talked about family playing an important role in motivating them to be healthy, which as one owner pointed out, is not surprising because of the importance that African Americans place on family. Motivation can be broken down further by taking a closer look at the intrapersonal and interpersonal levels of the social ecological model.

Intrapersonal Level

Motivation at the individual level plays an important role in the success of the program. The owners and barbers came to the conclusion that the individual is the primary motivating factor to become healthy. The individual ultimately makes the decision to be healthy. The

program can benefit those who decide to participate and become healthy by producing positive health outcomes for the individuals and motivate them to continue to live a healthy lifestyle. In addition, the owners and barbers noted that seeing a structured plan motivated them to want to participate in the program and become healthy by exercising regularly and eating healthy. Motivation at the intrapersonal level is dependent on the individual, and various aspects of motivation influence the individual's decision to commit to behavior change.

Interpersonal Level

Two aspects of motivation, family and professional social support, act at the interpersonal level of the social ecological model. The owners and barbers spoke about their parents, wife, and/or children motivating them to be healthy. Many of them had parents or other family members who were affected by diabetes and served as a reminder to be cognizant of the disease and how to prevent it. The owners and barbers would talk to their family about the disease and its effects. Both groups also mentioned the desire to be healthy for their wife and children. They want to be able to play with their children and see them grow and spend as much time as possible with their wife and children. Their wife and children also encourage them to be healthy. In addition, support and encouragement from each other acts as motivation to be healthy among the owners and barbers. They will be there to push each other and make sure that they maintain a healthy lifestyle. This positive reinforcement provided by the other barbers contributes to the likelihood of continuing to engage in healthy behaviors as explained by the Social Cognitive Theory (Glanz, Rimer & Viswanath, 2008). Previous literature has confirmed the importance of social support in diabetes prevention interventions and its role in the effectiveness of a health intervention (Christensen et al., 2011; Morgan et al., 2011; Umberson & Montez, 2010). Figure 1 below provides quotes from the owners and barbers corresponding to this level and

intrapersonal level of the Social Ecological Model associated with motivation as well as quotes corresponding to the relevant levels for the other themes identified associated with this research question.

Themes	SEM Level	Quote
Importance	Intrapersonal	"It does sound appealing. Why? Because I have diabetes. My mother has diabetes. My grandmother had diabetes. Her mom had diabetes."
	Interpersonal	"For me, as far as looking at my family, looking at uncles and aunts, great aunts and great uncles, you know, hearing how they had to cut off a toe, and then the toe went to the leg, and the leg went to – and they wouldn't stop eating crazy stuff, you know, some of them ate themselves to death, I think, because of the condition they created."
	Organizational	"I think it's good, I mean whenever you talk about diabetes, and we're looking at – you're dealing with barbershops, African American barbershops, diabetes is a big thing in the African American community."
	Community	"Diabetes is a big thing in the African American community."
Benefits	Intrapersonal	"Yes, I think it could. I think it could be beneficial to all of the workers and, like I said, if you feel better, you're healthier. Your day goes better. You can perform your job better. You can focus."
	Interpersonal	"Plus a lot of barbers – we have a lot in common by cutting hair, but our mindset is different. Something like this would put us on the same path, because he might be ready to go to the track and race some cars. He might be ready to go hang out with his wife early and go see a movie. I might wanna stay here all night and work. So now that's gonna put us, give us the same train of thought every day."
	Organizational	"I mean I'm a person that with numbers and money that will give us a name like oh man you know you go to [BARBERSHOP], they're also teaching you about healthy, about being healthy and wellness."
	Community	"I think it'll be beneficial a good idea in that aspect as far as being a barber and then he's relating what's good and bad as far as health wise to us as employees and we can relay that to our customers like a chain event effect."

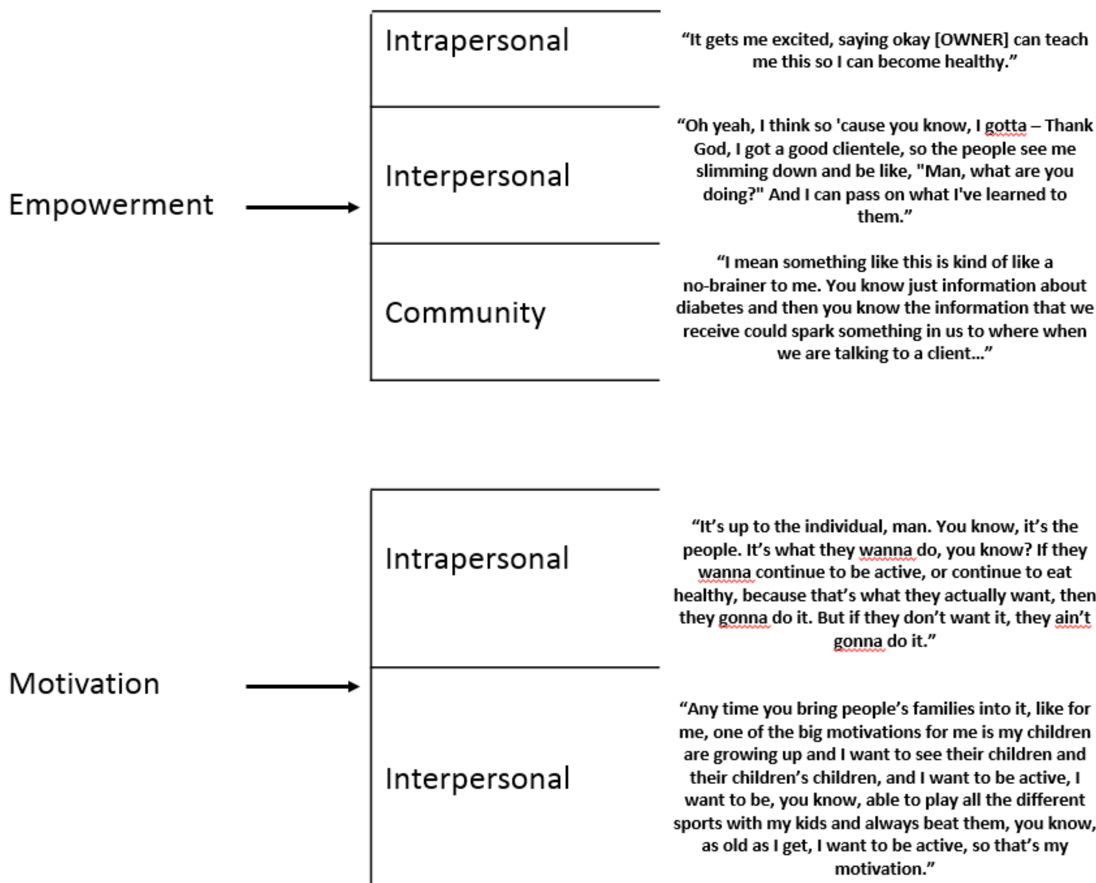

Figure 1: Attitudes and Perceptions Towards Participating in a Type 2 Diabetes Prevention Education Intervention Disseminated by the Employer.

RQ #2: Barriers & Facilitators

The owners and barbers pointed to the dynamics of the barbershop as a factor that would make it easier to implement the program. Given the open nature of a barbershop, where everyone openly discusses a wide range of topics including health, communication between the owners and barbers is constant. This aspect of the barbershop will make it easier for the owners and barbers to discuss diabetes prevention during the program since they already communicate

with each other about various issues on a daily basis in the barbershop. This finding once again confirms that the barbershop is an effective workplace setting for a diabetes prevention intervention and has the elements and resources identified by previous literature to implement the intervention effectively (Aldana et al., 2006; Christensen et al., 2011; Schmittdiel et al., 2013; "Employers are Working," n.d.; Oberlinner et al., 2008). The owners and barbers preferred more of an open discussion style versus a lecture style for the education sessions because they were comfortable discussing topics with each other due to the nature of the barbershop. The barbershop environment also contributed to another facilitator identified by the owners and barbers. Shortening the lessons or breaking the lessons up into shorter time periods was suggested by the owners and barbers due to the unpredictability of customer flow throughout the day. They felt that breaking up the lessons into 20 or 30 minute increments rather than an hour would help increase the flexibility and likelihood of conducting the education sessions during the work day. They wanted to minimize the possibility of customers coming into the barbershop during the education sessions and minimize their wait time if they did come in. In addition, a facilitator identified by the owners was to keep the information to be taught simple and easy to understand. Upon reviewing some of the information with the owners and barbers, they found the information to be simple and voiced their pleasure over this aspect of the program.

Barriers

One major theme that was identified from the results of the second research question was the barriers that would make it difficult to implement the intervention. The two primary barriers identified by the owners and barbers were time and barber constraints. Previous literature has also identified time as a barrier to implementing health interventions (Hannon et al., 2012; Liang

et al., 2012; Harris et al., 2014). Although finding time to implement the program was identified as a barrier, both the owners and barbers felt that the barrier could be overcome. This result suggests the commitment to implement and participate in the program by the owners and barbers due to their willingness to find solutions to problems that may arise. The identification of barber constraints as a barrier to being healthy suggests that barbers are at a disadvantage when it comes to their health, which emphasizes the need for this program. The barbers also identified a willingness to change as a potential barrier for the program. This barrier will be examined closer by looking at the factors at the intrapersonal, interpersonal, organizational, and community levels of the social ecological model that influence behavior change.

Intrapersonal Level

The willingness to change is ultimately up to the individual. There are factors, such as support from others discussed previously, that act on other levels of the social ecological model and influence behavior change, but the individual is the one that has to make the decision to want to be healthy. Other barriers identified that are associated with the intrapersonal level include lack of motivation, laziness, and buy-in. The Health Belief Model indicates that these perceived barriers may negatively affect an individual's willingness to change (Glanz, Rimer & Viswanath, 2008). However, these barriers proposed by the owners do not apply to the barbers interviewed since they all expressed a desire to participate in the program. However, overcoming these barriers would involve increasing the barbers' knowledge regarding the program and its content as well as influencing their attitudes towards the program.

Interpersonal Level

The owners and barbers suggested overcoming the time barrier by getting together and discussing each other's schedules to determine a day and time where everyone could meet for the

program. This interaction and communication between the owners and barbers acts on the interpersonal level of the social ecological model and is a necessary element to not only overcoming the time barrier but also achieving success in the program. In addition, the owners felt that they could help address any potential buy-in issue among the barbers by talking with them and encouraging them to participate. However, this situation would not be ideal because the barbers should not be forced or obligated to participate in the program, especially by their employer. Also, if some barbers were forced to participate, they would not be motivated to follow the program and become healthy which would not benefit them in any way.

Organizational Level

Both the time and barber constraint barriers are organizational issues that are perpetuated by the barbershop environment. The barbers are busy for the majority of the week due to the high volume of customers that come into the barbershop. Therefore, the barbers rarely get free time to do other activities in the barbershop. This lack of time also contributes to some of the barber constraints that were identified, such as the inability to eat a healthy meal and fatigue. Also, working in a barbershop is not an occupation where there are opportunities to be physically active. Therefore, the barbershop environment is not conducive to being healthy for the barbers given these constraints. This organizational culture of unhealthy behavior has developed over time to become a significant issue in the barbershop and is difficult to overcome. The Organizational Development Theory identifies organizational culture as a key component to understanding organizational development (Glanz, Rimer & Viswanath, 2008). In addition, the lack of resources in barbershops, such as microwaves and refrigerators, make it difficult to eat healthy. Since barbers are unable to bring a healthy meal from home to store in the refrigerator, they are often forced to eat at unhealthy, fast food restaurants nearby.

Community Level

The easy access to unhealthy foods is a community level issue that negatively affects the barbers' ability to be healthy. The barbers mentioned the convenience of fast food restaurants located close to the barbershops. Studies have confirmed that barriers, such as the lack of a built environment, can negatively impact the sustainability of a program and the participants' ability to maintain their health (Aldana et al., 2006; Skerrett, 2010). A combination of lack of time and lack of resources associated with food storage in the barbershop, along with the abundance of nearby fast food restaurants, contribute to unhealthy eating for the barbers and makes it difficult for them to maintain their health. Figure 2 below gives an example of a quote from the barbers associated with eating at fast food restaurants as well as a quote corresponding to the other levels of the Social Ecological Model discussed above.

Themes	SEM Level	Quote
	Intrapersonal	"Some people are not interested in their health and some people are. That's just how that is."
	Interpersonal	"We just got to get everybody together, just find out what's a good time for everyone."
Barriers →	Organizational	"Here, we kind of don't have a back room to where you maybe can bring in a healthy meal or something like that, anything like that."
	Community	"Basically, what you do is you going to one of these fast food restaurants to get something to eat."

Figure 2: Challenges Affecting Employers' and Employees' Willingness to Participate.

RQ #3: Similarities and Differences

The number of agreements between the owners and barbers outnumbered the amount of disagreements between the groups. The large number of agreements between the groups

indicates a shared perspective on many elements of the intervention, including importance, barriers, facilitators, motivation, benefits, structure, empowerment, and feasibility. The most important agreement between the owners and barbers is their enthusiasm for the intervention and willingness to participate. This agreement indicates that the program is appealing to both groups and that obtaining buy-in from the groups will not be an issue. In addition, it is interesting to note that both the owners and barbers believe that the program could improve the relationship among the barbers. This result is especially important because it demonstrates the potential of the program to have a wide-ranging impact that goes beyond health. This broad impact can also be seen with the number of people that the program could potentially affect. The owners and barbers agreed that the customers could benefit from the program as well despite not being directly involved.

The primary difference between the owners and barbers was their perspective on leadership and responsibility. The owners felt the need to be a leader for their barbers, while the barbers felt the need to be a leader for their customers. The owners felt a responsibility towards their barbers, while the barbers felt a responsibility towards their customers. Both groups understood the importance of being a leader but differed in their beliefs of who should benefit from their leadership. Some additional benefits and aspects of motivation were also identified by the barbers but not the owners. For example, the barbers talked about the potential for the program to help them look better as well as improve the visibility of the barbershop. The barbers also emphasized two additional sources of motivation: the education modules and the potential positive outcomes from the program. Figure 3 below summarizes these differences and similarities between the owners and barbers.

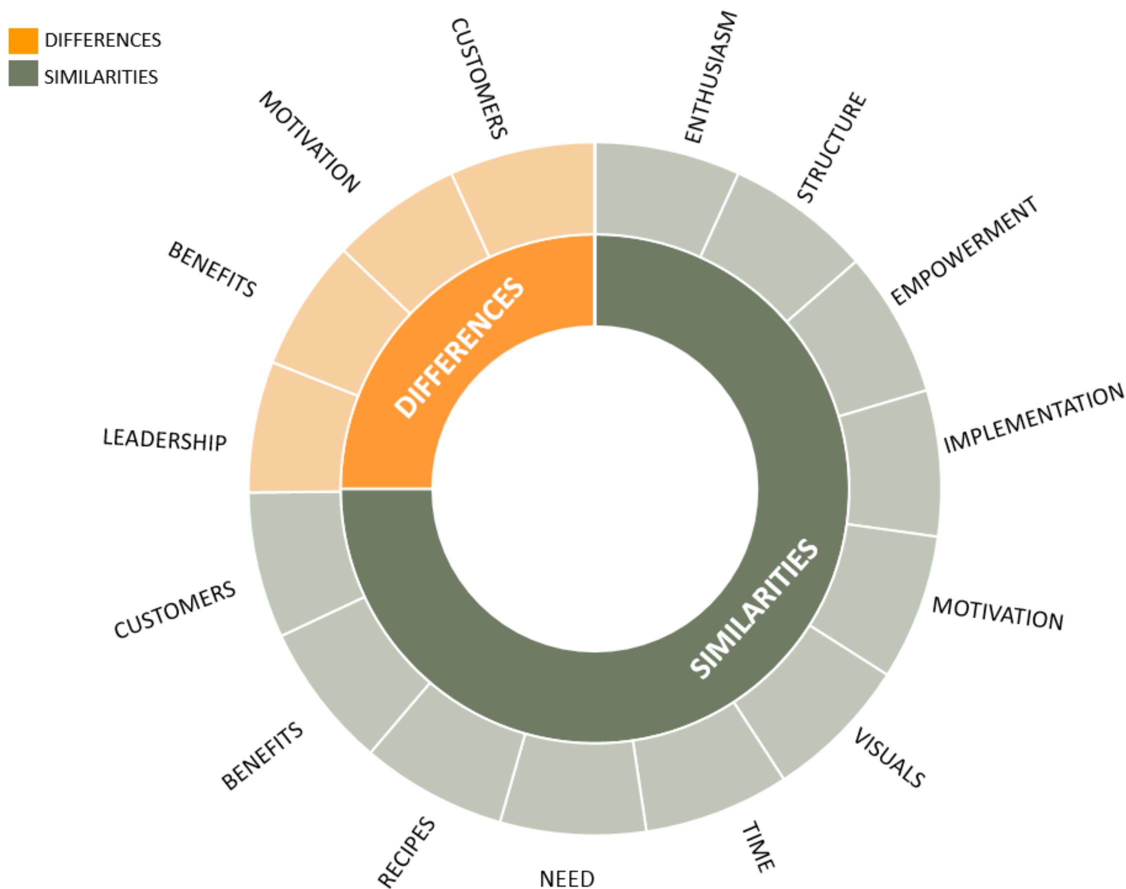

Figure 3: Similarities and Differences Between Employers and Employees.

RQ #4: Feasibility

The improvements and recommendations made by the owners and barbers focused on ways to overcome the barriers identified in order to improve the feasibility of the intervention. Most of the improvements/recommendations that were suggested were associated with the content of the education modules. These suggestions focused on clearly illustrating the importance and severity of diabetes and identifying specific tasks associated with healthy eating and physical activity that could be done to become healthier. The owners' and barbers' ability to provide solutions to all of the barriers identified by them is a good indication of the potential feasibility of the intervention.

Feasibility

Different components of feasibility, such as role comfort, owner buy-in, issue comfort, trust, ease of implementation, group cohesion, and downtime, were the major themes identified from the results of the fourth research question. Previous studies have assessed the feasibility of diabetes prevention interventions for underserved populations in order to determine whether a program can and should be implemented (Bowen et al., 2009; Whittemore et al., 2009; Jaber et al., 2011; Dodani & Fields, 2010). The owners and barbers all felt that the intervention could be implemented in the barbershop. They all expressed a willingness to participate in the program and a majority of them were excited to get started. Their excitement primarily stemmed from the potential benefits of the program and understanding the importance of the program. In addition, the owners felt comfortable educating the barbers about diabetes prevention, and the barbers thought the owners were a good choice to teach them. This finding helps to confirm the feasibility of the program and its effectiveness if implemented. The previous literature has shown that lay health workers (the owners in this study) have been found to be successful in the delivery of diabetes prevention interventions and found to be particularly helpful in rural communities (West et al., 2011; Ruggiero et al., 2011; Katula et al., 2011). An additional key finding associated with the feasibility of the program is the owners' understanding and agreement with the target audience for the program. The owners felt that small businesses in a rural area would be the ideal audience for the program. This finding further indicates the owners' acceptance and buy-in of the intervention and emphasizes its feasibility. Previous literature has also confirmed the need for diabetes prevention interventions in rural areas (Vadheim et al., 2010; Perri et al., 2008). Studies have also shown that diabetes prevention programs implemented in rural communities are typically feasible, well-accepted, and effective

(Vadheim et al., 2010; Davis-Smith, 2007; Perri et al., 2008; Bachar et al., 2006). The right target audience is an essential element of a successful community intervention, and everyone must agree that there is a need for the intervention in order to maximize its success (Glanz, Rimer & Viswanath, 2008). The barbers also felt that the issue was relevant to them as well. Furthermore, an important aspect of feasibility is the practicality of the intervention (Bowen et al., 2009). The owners and barbers talked about the practicality of the intervention and mentioned that finding the time and space to conduct the program would not be an issue. Another important aspect of the feasibility of this program was organizational commitment. The results from the organizational commitment section show that the barbers are very committed to their organization and employer. This result helps to validate the assertion that rural employees who work for small, locally-owned businesses have the greatest level of organizational commitment (Halbesleben & Tolbert, 2014). This finding suggests that the barbers will be very likely to respect and listen to the owner about any issue, which will increase the feasibility of the program. The feasibility of the program can also be looked at in terms of the social ecological model at the intrapersonal, interpersonal, and organizational levels.

Intrapersonal Level

The comfort level of the owners and barbers with regards to the education sessions is associated with the individual level of the social ecological model. The owners said that they feel comfortable educating their barbers about diabetes prevention. Likewise, the barbers said they were comfortable with their employer educating them about diabetes prevention. The comfort level of each individual is dependent on the familiarity and trust between each other. Some of the owners and barbers felt more comfortable than others, but they were all willing to participate in the education sessions and did not foresee any problems with regards to this

element of the sessions. Each of the owners and barbers also understood the importance, relevance, and severity of diabetes to varying degrees, and they all expressed the desire to learn more about the issue. Their eagerness to learn and willingness to adopt the intervention contributes to the feasibility of the intervention and its effectiveness if implemented.

Interpersonal Level

The previous conversations between the owners and barbers about health-related topics in the barbershop increased the owners' and barbers' comfort level for conducting the education sessions. Since they are used to having these conversations with each other, they felt that the education sessions would just be an extension of those conversations. Trust between the owners and barbers is also a key component of social capital, which contributes to community organization and community building (Glanz, Rimer & Viswanath, 2008). Therefore, the trust level between the owners and barbers must be high in order for the intervention to be feasible. Another aspect of feasibility at the interpersonal level is the willingness of the owners to encourage their barbers to participate in the program. These interactions would influence program participation, which would affect the feasibility of the program.

Organizational Level

The owners and barbers felt that the program could be done in the barbershop. Despite the barriers identified by both groups that exist in the barbershop, they felt that the barriers could be overcome. The facilitators identified by the owners and barbers as well as their commitment to implementing the program will help in overcoming the identified barriers. Therefore, the barbershop is an environment where the program can be implemented and effective. In addition, the owners identified small businesses located in rural areas, such as these barbershops, as a target area for this intervention. By identifying the barbershop as a target area for the

intervention, the owners are providing further confirmation that the intervention is feasible in the barbershop setting. Furthermore, the barbers provided confirmation that the intervention is feasible in the barbershop by mentioning that most barbershops are not very busy during the beginning of the week. They suggested that there would be time during the beginning of the week to conduct the program. Thus, the ebbs and flows of the barbershop work week would allow the intervention to be implemented in the barbershop. Figure 4 below provides examples of quotes that correspond to the relevant levels of the Social Ecological Model associated with feasibility discussed above.

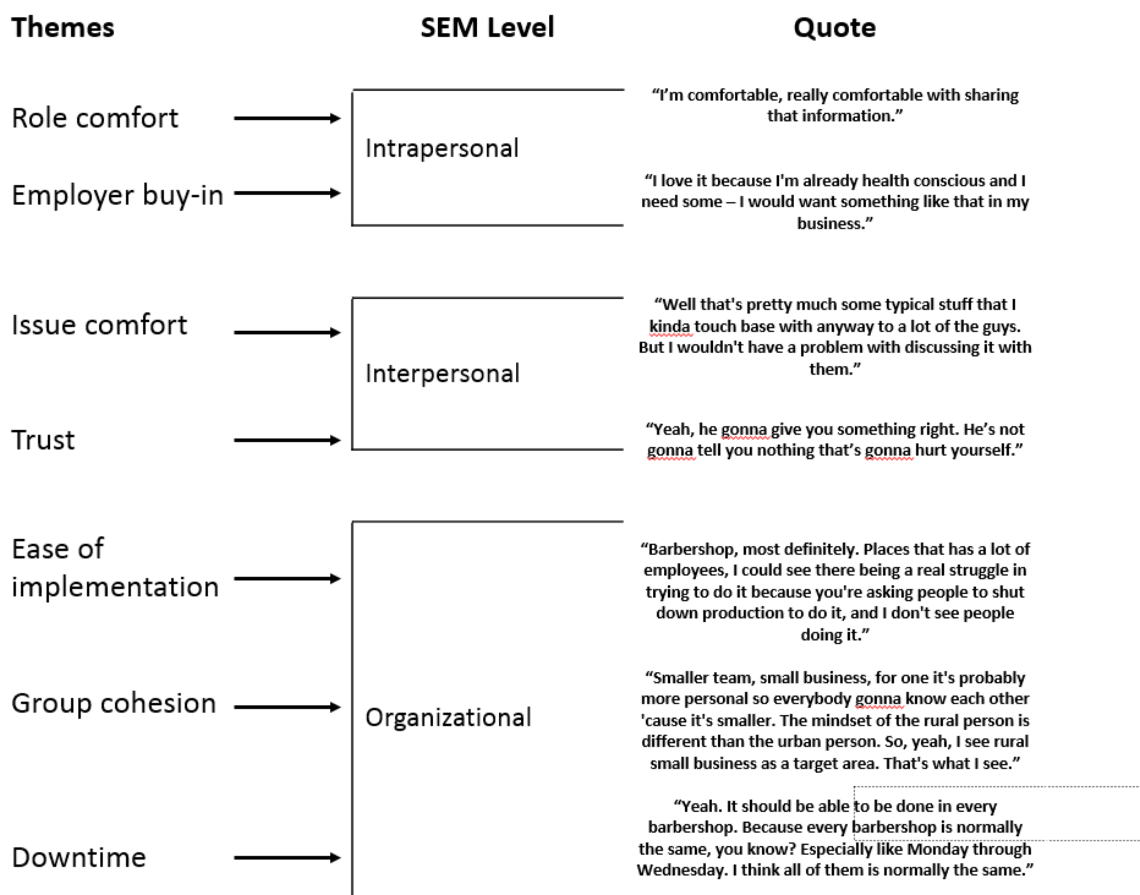

Figure 4: Overall Views Regarding the Feasibility of the Intervention

Strengths and Limitations

This study had several strengths. First of all, the study used the social ecological model as an analysis tool. The social ecological model allows for a broad and thorough understanding of the themes that were identified. Second, the study used multiple coders during the data analysis process, which increased the reliability of the analysis and helped to eliminate the inherent researcher bias that is associated with qualitative research. Another strength of the study was the use of qualitative data analysis software during the data analysis process. The use of the qualitative data analysis software, NVivo, allowed for a more thorough examination of the data collected. A fourth strength of the study was the consistency of the interviews. All twenty interviews were conducted by the same researcher, ensuring consistency in the way the interviews were conducted. An additional strength of the study was having the opportunity to build strong relationships with the owners and barbers prior to conducting the study. The established relationships with the participants could have increased the level of trust between the researcher and the participants, which could have produced more honest responses from the participants.

In addition to its strengths, this study had its limitations as well. A convenience sample was used to identify participants for the study. The use of a convenience sample introduces selection bias into the study and prevents the chosen sample from being representative of the entire population. In addition to the sampling method used, the sample size of 20 for the study was limited due to accessibility and limited resources, such as time and money. However, pilot studies such as this one generally have smaller sample sizes. A third limitation of the study was the issue of time during the interviews. Some of the barbers had less time to commit to the interview than others, which may have led to less detailed responses from those barbers. An

additional limitation of the study was the inherent researcher bias introduced during the analysis process. This bias occurred primarily in the codebook development and coding phases of the study and can influence the results of the study to portray a certain outcome. Multiple coders were used to help address this issue. A fifth limitation of the study was the focus on one type of business. Since the study focused on barbershops only, it would be difficult to generalize the findings to another type of business. In addition, all of the participants in the study were male. There was one female barber in the participating barbershops, but she was unavailable for an interview during the data collection phase.

Public Health Implications

The findings from this study have a significant impact on the health of communities. This study provides additional avenues for disseminating preventive health information to a medically underserved community. Dissemination is a critical component of effective health interventions. Identifying opportunities to disseminate effective health interventions to communities will result in an increase in the number of healthy communities. This study has the potential to also result in an increased focus on health in barbershops. The owners and barbers will experience the benefits of the intervention and will likely want to continue to focus on health in their shops. Other barbershops will likely want to emulate these barbershops and incorporate healthy activities and programs into their shops. The findings from the study also suggest a potential for improved quality of life among barbers. Barbers will not only experience the benefits of a healthy lifestyle (physical and mental), but also experience benefits associated with the workplace, such as an improved workplace environment via improved relationships and increased productivity. Therefore, the barbers will see improvement in all aspects of their life from the program.

Recommendations

Four recommendations regarding the intervention were developed based on the results of the study. One recommendation was to alter the program based on the owners' and barbers' needs and requests. Adapting the program for the target population that consists of the owners and barbers of barbershops in rural communities is essential to the success of the program. Suggestions were made regarding the content of the program that needs to be addressed. For example, lists of healthy foods and recipes, impactful physical activity exercises that will produce weight loss, and additional visual aids emphasizing the importance and severity of diabetes, as well as the benefits of addressing diabetes should be included in the curriculum. The content would also have to be checked to make sure that it is simple and easy to understand. In addition, a catchy name would need to be given to the program to increase its appeal among the barbers. Further alterations to the program include providing additional resources to the barbers to facilitate a healthy lifestyle, working together to set aside a day and time early in the week to conduct the program, and incorporating the customers of barbers into the program given the close-knit nature of the community. Although the owners and barbers liked everything about the program, they made suggestions that they thought would make the program even better. A second recommendation was to work together with the owners of the barbershops to make the barbershop a healthier environment. Since the owners pointed out that they feel a responsibility to the barbers to provide them with a healthy work environment, creating a healthier work environment for the barbers should not be a problem. In order to create a healthier work environment, the barber constraints identified previously must be addressed. For example, the owners and barbers can work together to set aside a time each day to incorporate physical activity into their work day. Given the downtime that often exists in the barbershop between

customers especially early in the week, incorporating physical activity into the work day should be feasible. In addition, the owners could provide additional resources, such as a microwave and refrigerator, to facilitate healthy eating for the barbers during the work day. Providing a microwave, refrigerator, and easily accessible food will prevent the barbers from not eating at all during their busiest days. The owners could also provide healthy snacks for the barbers to eat during the day. A third recommendation developed from the study was to incorporate the clients of the barbers into the program. The barbers in this rural community have a special bond with their customers and want them to benefit from the study as well. The barbers expressed a willingness to talk to their customers about the information on diabetes prevention that would be taught to them by their employer. The customers could also be involved in the discussions that take place between the owner and his barbers about physical activity and healthy eating. The fourth recommendation was to actually implement the program after the necessary changes were made and approved by the owners and barbers. All of the owners and barbers believed that the program was feasible and would like to see it implemented in their barbershop. They were excited about the potential benefits of the intervention and understood the need to conduct the intervention. Therefore, the program should be implemented in the participating barbershops located in the rural community chosen for this study.

Future Research

Possible avenues for future research stemming from this study include the implementation process of the proposed program and measuring the effectiveness of the program. Knowledge pre- and post-tests can be administered to the owners and barbers to measure the effectiveness of the training sessions. A survey can also be administered prior to the start of the program and upon completion of the program to the participants asking about the

intention to change health behaviors, confidence in changing health behaviors, actions that will be/were taken to change health behaviors, physical activity levels, healthy eating habits, and the perceived/real effectiveness of the intervention. Indicators, such as hemoglobin A1c levels, body mass index (BMI), and body weight, can be used to assess diabetes risk before and after the program to determine if any improvement occurred. Process, impact, and outcome objectives can also be developed to ensure that the implementation process is carried out correctly. The sustainability of any positive health outcomes achieved from the program by the participants can be researched as well, months after the completion of the program. Additional avenues for future research include comparing barber attitudes toward health interventions in rural and urban barbershops, exploring other health issues in the barbershop that disproportionately affect African Americans, identifying innovative approaches to improve the health of barbers in barbershops, and exploring the feasibility and effectiveness of health interventions in beauty salons and other small, locally-owned businesses in rural communities. The implementation of health interventions in beauty salons would allow for more women to participate in these interventions. The literature emphasizes the need for more women to participate in diabetes prevention interventions (Carnethon et al., 2009; Schmittdiel et al., 2013). Future research should also examine the feasibility of implementing health interventions in larger businesses. Interviewing every employee of a large business to get their thoughts on the feasibility of an intervention is not possible; however, the employees could complete an electronic survey as part of a needs assessment to determine which health issue is most important to them. Focus groups could also be conducted with a random sample of employees to get a better idea of their preference for specific types of health interventions and the feasibility of implementing these interventions in the workplace. This study has illustrated the importance of the participants

selecting the health issue for the intervention, and this selection process should be applied to larger businesses as well. This study also found that social support plays an important role in motivating employees to participate in a health intervention, which can be applied to larger businesses as well when developing an intervention. In addition, an important aspect of feasibility gained from this study that can be applied to larger businesses is understanding the barriers to implementing a health intervention that exist in a particular workplace and collaborating with the employers and employees to overcome these barriers. Therefore, any health intervention must be tailored to the specific workplace, whether large or small.

Conclusions

The results of this study have shown that the proposed intervention is feasible in a barbershop setting. The owners of the barbershops were willing and able to educate their barbers about diabetes prevention. The barbers were also willing to listen to their employer about health-related issues, such as diabetes prevention. The owners and barbers interviewed were all willing to participate in the program as well. There are barriers that exist in the barbershop that threaten the feasibility and effectiveness of the program; however, the owners and barbers were confident about overcoming these barriers. The owners and barbers were aware of the importance of diabetes and its widespread impact within the African-American community. They expressed a desire to learn more about diabetes prevention and use the information to help themselves and others become healthy. In addition, the potential benefits of the program were very appealing to the owners and barbers. These benefits included physical and mental benefits as well as benefits in the workplace. Both the owners and barbers also offered suggestions on how to improve the program and felt that these suggestions would help increase the feasibility and effectiveness of the program. These suggestions offered by the owners and barbers illustrate the need for the

intervention to be tailored to fit within this specific working environment. This intervention also addresses known health disparities that exist in the African-American community. All of the information obtained from this study can be used to help maximize the success of the intervention and address the issue of diabetes within small, locally-owned businesses, such as barbershops, located in the rural communities of the South.

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APPENDIX A

IRB Approval

Georgia Southern University
Office of Research Services & Sponsored Programs

Institutional Review Board (IRB)

Phone: 912-478-0843 | Veazey Hall 2021
P.O. Box 8005
Fax: 912-478-0719 | IRB@GeorgiaSouthern.edu | Statesboro, GA 30460

To: Siddhartha Roy

From: Office of Research Services and Sponsored Programs
Administrative Support Office for Research Oversight Committees (IACUC/IBC/IRB)

Initial Approval Date: 11/02/2015

Expiration Date: 10/31/2015

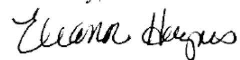
Subject: Status of Application for Approval to Utilize Human Subjects in Research – **Expedited**

After a review of your proposed research project numbered **H16107** and titled **"Assessing the Feasibility of the Employer as a Health Advisor for Type 2 Diabetes Prevention"** it appears that (1) the research subjects are at minimal risk, (2) appropriate safeguards are planned, and (3) the research activities involve only procedures which are allowable. You are authorized to enroll up to a maximum of **30** subjects.

Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that the Institutional Review Board has approved your proposed research. Description: **This study intends to assess the feasibility of the employer as a health advisor for type 2 diabetes prevention in a rural setting by conducting one on one in-depth interviews with employers and employees of small, locally-owned businesses.**

If at the end of this approval period there have been no changes to the research protocol; you may request an extension of the approval period. Total project approval on this application may not exceed 36 months. If additional time is required, a new application may be submitted for continuing work. In the interim, please provide the IRB with any information concerning any significant adverse event, **whether or not it is believed to be related to the study**, within five working days of the event. In addition, if a change or modification of the approved methodology becomes necessary, you must notify the IRB Coordinator **prior** to initiating any such changes or modifications. At that time, an amended application for IRB approval may be submitted. Upon completion of your data collection, you are required to complete a *Research Study Termination* form to notify the IRB Coordinator, so your file may be closed.

Sincerely,



Eleanor Haynes
Compliance Officer

APPENDIX B

Informed Consent Forms for Employers and Employees

COLLEGE OF PUBLIC HEALTH

DEPARTMENT OF COMMUNITY HEALTH BEHAVIOR AND EDUCATION

Informed Consent for Employers to Participate in Research

Assessing the Feasibility of the Employer as a Health Advisor for Type 2 Diabetes Prevention

My name is Siddhartha (Sid) Roy, MPH, and I am a graduate student at Georgia Southern University in the Doctor of Public Health (DrPH) program in the Jiann-Ping Hsu College of Public Health. I would like to invite you to take part in a research study called: Assessing the Feasibility of the Employer as a Health Advisor for Type 2 Diabetes Prevention. This form explains why this research is being done and what your role will be if you choose to take part in this study.

PURPOSE OF STUDY

The purpose of this research is to explore what role small business employers can play related to health advising for employees in order to promote their health and wellbeing. We would like to know from you whether or not you think that an intervention where the employer is a health advisor to employees is feasible in the workplace.

TASKS AND RESPONSIBILITIES

Your participation in this research will include completion of a one-on-one interview with myself, Sid Roy, at the worksite or mutually convenient location. The interview will last no longer than 60 minutes and will be audio recorded for accuracy. Interview questions will assess your attitudes about a health intervention, factors that might make it easy or difficult to conduct a health intervention, and willingness to participate in a health intervention.

DISCOMFORTS AND RISKS

There are no known risks to employers who take part in the study. However, you may experience anxiety about discussing the health needs of your employees. In order to address this concern, I would like to emphasize that the data obtained will remain confidential. The results obtained from this study will be reported as an aggregate at the business level and not the individual level. The results will not be able to be traced back to any individual. In addition, you can simply refuse to answer questions you feel uncomfortable with.

POTENTIAL BENEFITS

There are no direct benefits to you; however, I will share the results of the study with you after all of the data has been analyzed. You are also given the opportunity to help determine if this type of community program can be carried out within this population.

CONFIDENTIALITY

Your confidentiality as a participant in this study is my priority. There will be no personal identifying data used for the interviews. Instead of your name, an identification number will be assigned to your interview data, and your name will not be used during the interview. The interview recording devices will be securely stored in a locked cabinet in the researcher's office. The data will be deleted from the recording device after it is transcribed. The transcripts will be stored securely on a password protected computer in the researcher's office. Only personnel involved in the study will have access to the computer and file cabinet. After the analysis is complete and the manuscripts written, access to the de-identified data files will continue to be limited to study personnel and maintained for a period of 5 years following the publication of manuscripts. The data will then be completely deleted from the institutional server.

COMPENSATION

A $25 Wal-Mart gift card will be given to all participants in the study. They will be given to the participants at the end of the interview that will be conducted to assess the feasibility of the intervention.

VOLUNTARY PARTICIPATION

Taking part in this study is completely voluntary. You are not required to participate in this study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits if you stop taking part in this study. You may also choose not to answer any questions during the interview that you do not want to answer.

PERMISSION TO TALK TO EMPLOYEES

You also give permission for the researcher to talk to your employees about taking part in this study. The researcher will approach them individually about taking part in this study or use flyers to recruit your employees. Your employees are not required to take part in this study.

RIGHT TO ASK QUESTIONS

If you have questions about this study, please contact the researcher Siddhartha (Sid) Roy at 706-373-3901 or the researcher's faculty advisor, Dr. Andrew Hansen, whose contact information is located at the end of the informed consent. For questions concerning your rights as a research participant, contact Georgia Southern University Office of Research Services and Sponsored Programs at 912-478-0843.

You must be 18 years of age or older to consent to participate in this research study. If you consent to participate in this research study and to the terms above, please sign your name and indicate the date below.

You will be given a copy of this consent form to keep for your records. This project has been reviewed and approved by the GSU Institutional Review Board under tracking number H16107.

Title of Project:
Assessing the Feasibility of the Employer as a Health Advisor for Type 2 Diabetes Prevention

Principal Investigator:
Siddhartha Roy, MPH
501 Forest Drive
Statesboro, GA 30458

(706) 373-3901
sr02881@georgiasouthern.edu

Faculty Advisor:
Andrew Hansen, DrPH
Georgia Southern University
Jiann-Ping Hsu College of Public Health
P.O. Box 8015
Statesboro, GA 30460
Office Suite 2033
(912) 478-0261
ahansen@georgiasouthern.edu

______________________________________ ______________________
Participant Signature Date

I, the undersigned, verify that the above informed consent procedure has been followed.

______________________________________ ______________________
Investigator Signature Date

COLLEGE OF PUBLIC HEALTH

DEPARTMENT OF COMMUNITY HEALTH BEHAVIOR AND EDUCATION

Informed Consent for Employees to Participate in Research

Assessing the Feasibility of the Employer as a Health Advisor for Type 2 Diabetes Prevention

My name is Siddhartha (Sid) Roy, MPH, and I am a graduate student at Georgia Southern University in the Doctor of Public Health (DrPH) program in the Jiann-Ping Hsu College of Public Health. I would like to invite you to take part in a research study called: Assessing the Feasibility of the Employer as a Health Advisor for Type 2 Diabetes Prevention. This form explains why this research is being done and what your role will be if you choose to take part in this study.

PURPOSE OF STUDY

The purpose of this research is to explore what role small business employers can play related to health advising for employees in order to promote their health and wellbeing. We would like to know from you whether or not you think that an intervention where the employer is a health advisor to employees is feasible in the workplace.

TASKS AND RESPONSIBILITIES

Your participation in this research will include completion of a one-on-one interview with myself, Sid Roy, at the worksite or mutually convenient location. The interview will last no longer than 60 minutes and will be audio recorded for accuracy. Interview questions will assess your attitudes about a health intervention, factors that might make it easy or difficult to conduct a health intervention, and willingness to participate in a health intervention.

DISCOMFORTS AND RISKS

There are no known risks to those who take part in the study. However, you may experience anxiety when discussing your boss's abilities during the interview. In order to address this concern, I would like to emphasize that the data obtained will remain confidential. The results obtained from this study will be reported as an aggregate at the business level and not the individual level. The results will not be able to be traced back to any individual. In addition, you can simply refuse to answer questions you feel uncomfortable with.

POTENTIAL BENEFITS

There are no direct benefits to you; however, I will share the results of the study with you after all of the data has been analyzed. You are also given the opportunity to help determine if this type of community program can be carried out within this population.

CONFIDENTIALITY

Your confidentiality as a participant in this study is my priority. There will be no personal identifying data used for the interviews. Instead of your name, an identification number will be assigned to your interview data, and your name will not be used during the interview. The interview recording devices will be securely stored in a locked cabinet in the researcher's office. The data will be deleted from the recording device after it is transcribed. The transcripts will be stored securely on a password protected computer in the researcher's office. Only personnel involved in the study will have access to the computer and file cabinet. After the analysis is complete and the manuscripts written, access to the de-identified data files will continue to be limited to study personnel and maintained for a period of 5 years following the publication of manuscripts. The data will then be completely deleted from the institutional server.

COMPENSATION

A $25 Wal-Mart gift card will be given to all participants in the study. They will be given to the participants at the end of the interview that will be conducted to assess the feasibility of the intervention.

VOLUNTARY PARTICIPATION

Taking part in this study is completely voluntary. You are not required to participate in this study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits if you stop taking part in this study. Your employer will not be told if you did or did not participate. You may also choose not to answer any questions during the interview that you do not want to answer.

RIGHT TO ASK QUESTIONS

If you have questions about this study, please contact the researcher Siddhartha (Sid) Roy at 706-373-3901 or the researcher's faculty advisor, Dr. Andrew Hansen, whose contact information is located at the end of the informed consent. For questions concerning your rights as a research participant, contact Georgia Southern University Office of Research Services and Sponsored Programs at 912-478-0843.

You must be 18 years of age or older to consent to participate in this research study. If you consent to participate in this research study and to the terms above, please sign your name and indicate the date below.

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P.O. Box 8015
Statesboro, GA 30460
Office Suite 2033
(912) 478-0261
ahansen@georgiasouthern.edu

_______________________________________ _____________________

Participant Signature Date

I, the undersigned, verify that the above informed consent procedure has been followed.

_______________________________________ _____________________

Investigator Signature Date

APPENDIX C

Employer Narrative

ANALYZING THE FEASIBILITY OF THE EMPLOYER AS A HEALTH ADVISOR FOR TYPE 2 DIABETES PREVENTION

About Me (Primary Researcher): My name is Siddhartha (Sid) Roy, and I am a fourth year doctoral student at Georgia Southern University. I am in the Doctor of Public Health (DrPH) program with a Community Health Behavior and Education concentration. I have completed all my coursework for the program, and I am now focused on my dissertation research, which is explained in this document. I hope to graduate with my DrPH degree in May 2016. I have interests in cancer prevention research and diabetes prevention research. I completed my Bachelor's degree at Georgia Tech in Biomedical Engineering and my Masters in Public Health at Georgia Regents University in Health Informatics. I hope to be able to work with you on this diabetes prevention research and advance the field of public health.

Purpose: This study assesses the feasibility of the employer as a health advisor for type 2 diabetes prevention in a rural setting by conducting in-depth interviews with employers and employees of small, locally-owned businesses.

Why is this issue necessary to address? Type 2 diabetes is becoming increasingly prevalent in the United States. Estimates indicate that 1 in 3 U.S. adults will have diabetes by 2050. Type 2 diabetes has been found to develop more often in individuals living in the southern United States. According to the Centers for Disease Control and Prevention (CDC), southern U.S. states have diabetes rates above 11 percent versus 8.5 percent for the rest of the country. In addition, rural areas typically suffer from higher rates of diabetes than urban areas. The prevalence rates of diabetes for residents living in rural areas were found to be 8.6% higher than urban areas, according to published literature. Therefore, more diabetes prevention interventions should target rural areas in order to address the diabetes epidemic in these areas.

Why we think this study will be effective: Recent research has shown that employees who work in rural areas for a small and locally-owned company have the greatest level of organizational commitment indicating loyalty to the employer. For rural workers, working for a small and locally-owned company supersedes job satisfaction as the most important factor that determines organizational commitment. One study found that 61.4% of individuals who worked for small and locally-owned companies had high commitment scores compared to only 38.7% of individuals who worked for large, local businesses. In rural areas, friends and neighbors are also more likely to work for each other, leading to greater employee commitment. Higher levels of employee commitment to the employer result in less absenteeism, lower turnover, and an increase in communication and mutual respect between the employer and employee. Therefore, employees who work for small and locally-owned companies are more willing to listen to their employer and trust them. This concept forms the basis of a diabetes prevention intervention in a rural area in which the employer educates the employee about diabetes prevention.

Benefits to You:

There are no direct benefits to you; however, I will share the results of the study with you after all of the data has been analyzed. You are given the opportunity to help determine if this type of

community program can be carried out within this population. In addition, everyone who agrees to be interviewed will receive a $25 Wal-Mart gift card for their participation in the study.

Employer Tasks: Participation in this research will include completion of a one-on-one interview with the main researcher at the worksite or a mutually convenient location lasting no longer than 60 minutes. The interview will consist of the researcher (Siddhartha Roy) who will be asking the questions and the employer (head of organization)/employee who will be answering the questions. The interview will be audio recorded for accuracy. Interview questions will determine if the intervention is possible by asking questions about employers' and employees' attitudes about the intervention, factors that might make it easy or difficult to have the intervention, and willingness to participate in the intervention.

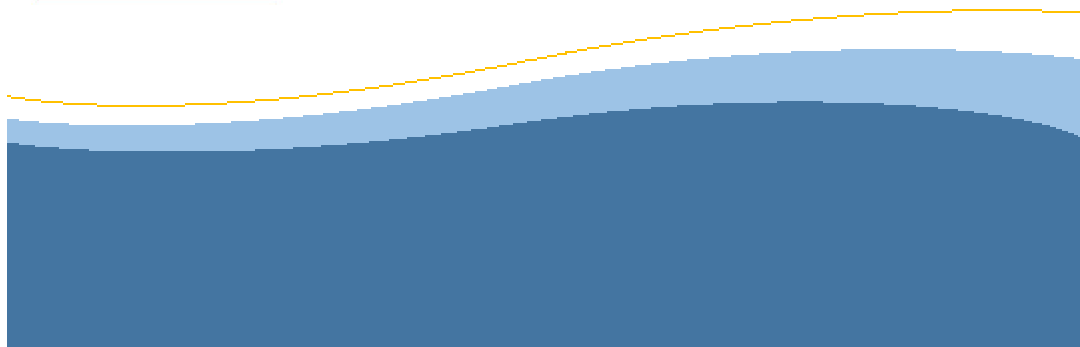
APPENDIX D

Flyer

Physical Activity and Healthy Eating Study

* We are looking for employees of small businesses to participate in a study that will determine if small businesses are willing and able to carry out a physical activity and healthy eating intervention within their organization for their employees.

- Employer approved
- 60 minute (max) interview with researcher to discuss thoughts about proposed intervention
- $25 Wal-Mart gift card
- Help us evaluate a community program!
- Contact Sid Roy at 706-373-3901 if interested in participating!



APPENDIX E

Interview Guide for Employers and Employees

INTERVIEW GUIDE: EMPLOYERS

[BRIEFLY EXPLAIN INTERVENTION]

1) What are your initial thoughts about the proposed intervention?

2) What are your thoughts about educating your employees about health-related issues?

[SHOW EDUCATION MODULES]

3) Now that you've seen the education modules, do you think the format of the modules will be an issue if this intervention is implemented within your organization? Why or why not?

4) What are your thoughts regarding the content within the modules? Should any content within the modules be changed based on your employee needs? If so, which parts?

5) What are the barriers that would make it difficult to implement this intervention?

6) How can these barriers be overcome?

7) What are some things that would make it easier to implement this intervention?

8) What are your likes and dislikes regarding the proposed intervention?

9) Does this intervention sound appealing to you? Why or why not?

10) How would you modify this intervention to make it more appealing?

11) Would you be willing to implement this intervention within your organization? Why or why not?

12) Do you think this intervention can be implemented within your organization? Can the intervention be implemented in other workplace settings? Why or why not?

13) How effective do you think the intervention would be if implemented within your organization?

14) What are your thoughts on the sustainability of this intervention after the program is complete? Can any positive health benefits experienced by employees due to the intervention be sustained?

INTERVIEW GUIDE: EMPLOYEES

[BRIEFLY EXPLAIN INTERVENTION]

1) What are your initial thoughts about the proposed intervention?

2) What are your thoughts about being educated by your employer regarding health-related issues?
[SHOW EDUCATION MODULES]

3) What are your thoughts regarding the content within the modules? Should any content within the modules be changed based on your needs? If so, which parts?

4) What are the barriers that would make it difficult to implement this intervention?

5) How can these barriers be overcome?

6) What are some things that would make it easier to implement this intervention?

7) What are your likes and dislikes regarding the proposed intervention?

8) Does this intervention sound appealing to you? Why or why not?

9) How would you modify this intervention to make it more appealing?

10) Would you like to see the proposed intervention implemented within your organization? Why or why not?

11) Would you be willing to participate in the intervention? Why or why not?

12) Do you think this intervention can be implemented within your organization? Can the intervention be implemented in other workplace settings? Why or why not?

13) How effective do you think the intervention would be if implemented within your organization?

14) What are your thoughts on the sustainability of this intervention after the program is complete? Can any positive health benefits experienced by employees due to the intervention be sustained?

APPENDIX F

Education Modules

EDUCATION MODULES

Lesson 2: Be a Fat and Calorie Detective

Lesson 2 is divided into four parts.

Part 1: Weekly Progress and Review (10 minutes)

This section will be the same for each lesson. Employees will be weighed privately and then asked to take their seats. You will review briefly the information covered during the previous lesson, or in this case review the purpose and goals of the program, and lead a discussion about employees' successes, challenges, and questions since they last met. In this instance, with this being the first lesson, you will lead a discussion about any current successes, challenges, and questions employees might have regarding the program.

Example: Can you think of any issues that might come up when trying to keep track of what you eat and drink next week? Will you be able to write down everything that you eat and drink?

Part 2: Tracking Your Weight (10 minutes)

You will explain how employees should track their weight at home. They will also learn how to track their in-class weights on the "How Am I Doing?" weight chart so they can see their progress over time. You filled in the first week's weight for each employee. From now on, you continue to weigh each employee every week, but they will record in-class weights on their own. You will use an example "How Am I Doing?" chart to show employees how to enter their weight on the charts. Employees will keep their own chart and bring them to class each week for the remainder of the program.

Example: This week, you will record your weight each day or at least twice a week. Weigh yourself everyday or every few days at the same time of day, wearing similar clothing. Always use the same scale, because different scales may show slightly different weights.

Part 3: Self-Monitoring Fat Intake (30 minutes)

This section explains the importance of employees' monitoring their fat and calorie intake. They will also learn the health effects of eating fat and how to determine what kinds of foods are high in fat and calories. Self-monitoring fat intake begins this week. Employees will be asked to write down all the foods they eat and to use the "Fat and Calorie Counter" to track their daily intake. They will also be assigned an individual fat gram goal, which is a budget that they should try to stay below. Calories and their relationship to fat are discussed, and employees are also asked to track calories in addition to fat intake, although no calorie goal is assigned.

Example: Distribute the "Fat and Calorie Counter" and explain how to use it. Practice using the "Fat and Calorie Counter." [Demonstration using "Fat and Calorie Counter"]

Part 4: Wrap-Up and To-Do List (10 minutes)

This final part will be the same for most lessons: a summary of what was covered and a discussion of the tasks employees will do during the next week.

Example: For next week, complete the items on the "To Do Next Week" list. These items include weighing yourself at the same time each day, writing down everything you eat and drink, using the "Fat and Calorie Counter" to figure out the amount of fat and calories in what you ate, and keeping a running fat gram total throughout the day.

Learning Objectives

Employees will be able to:

1) Self-monitor their weight during the weeks following Lesson 2.
2) Document their weight at home and at the beginning of each session.
3) Describe the relationship between fat and calories.
4) Explain the reason for, and basic principles of, self-monitoring fat grams and calories.
5) Identify their personal fat gram goals.
6) Use the "Fat and Calorie Counter" to calculate the calories and fat grams of a given selection of foods.
7) Keep a running total of the fat grams they eat each day.
8) Calculate fat, calories, and serving sizes from nutrition labels.

Lesson 3: Three Ways to Eat Less Fat and Fewer Calories

Lesson 3 is divided into four parts.

Part 1: Weekly Progress and Review (10 minutes)
Employees will be weighed privately and then asked to take their seats. You will review briefly the information covered during the previous session, and then lead a discussion about employees' successes challenges, and questions since the group last met.

Example: Discuss employees' successes and difficulties in meeting their weight loss goals during the past week.

Part 2: Weighing and Measuring (20 minutes)
You will lead employees through a practice session using measuring spoons and cups for solids, a measuring cup for liquids, and a scale for weighing solids. Employees will guess the portion sizes and fat content of several common foods. They will also be shown actual fat content (in grams) of those foods, as represented by shortening or butter on a small plate or in a plastic baggie.

Example: Demonstrate how to measure and level off the ingredients or foods using actual food. Use liquid measuring cups to measure liquids such as milk, soup, and water. Use a small food scale that weighs in ounces to measure items such as meat, cheese, and break.

Part 3: Three Ways to Eat Less Fat and Fewer Calories (20 minutes)
Employees discuss how they can apply the three ways of eating less fat and fewer calories in their own lives. They make a plan for the following week to reduce fat in their diet by 1) eating it less often, 2) eating it in smaller amounts, or 3) substituting lower-fat or lower-calorie food. A discussion on making over menu items gives them ideas on how to substitute low-fat or low-calorie items for high-fat or high-calorie items.

Example: There are three ways to eat less fat and fewer calories: 1) Eat high-fat and high-calorie foods less often, 2) Eat smaller amounts of high-fat and high-calorie foods, or 3) Eat low-fat and low-calorie foods instead. How might we eat high-fat and high-calorie foods less often? Has anyone started doing this?

Part 4: Wrap Up and To-Do List (10 minutes)
A summary of what was covered and a discussion of the tasks employees will do during the next week will take place.

Example: For next week, try to eat less fat. I want each of you to make a plan to eat less fat.

Learning Objectives
Employees will be able to:
1) Weigh and measure foods.
2) Estimate the fat and calorie content of common foods.
3) Describe three ways to eat less fat and fewer calories.
4) Create a plan to eat less fat for the following week.

Lesson 5: Move Those Muscles

Lesson 5 is divided into four parts.

Part 1: Weekly Progress and Review (10 minutes)

Part 2: Physical Activity Goal (25 minutes)

As an introduction to the physical activity goal, you will discuss the many health benefits associated with being physically active. The goal for the program is 150 minutes per week, but many employees may need to gradually build up to this amount. A good starting place for this week could be 60 minutes of physical activity during the next week. Encourage employees to select an activity that they like and that they can continue doing over the long-term. Brisk walking tends to be an ideal choice, because it is relatively easy and can be done almost anywhere.

Example: Before we go any further, I want to assure you that you can succeed with this program. It does not matter what your current activity level is. We will start wherever you are, and we will help you increase your activity level slowly, steadily, and safely.

Part 3: Getting Started with Physical Activity (15 minutes)

You will discuss the importance of staying within safe limits of activity, choosing a physical activity to start with, and obtaining proper footwear. Be prepared to provide employees with a list of nearby retailers who sell good athletic footwear. Include retailers that offer low-cost footwear. During Lesson 6, you will continue this discussion by providing guidance for long-term physical activity.

Example: We are going to make a physical activity plan for next week. Remember that I want you to start being active as part of your daily routine, so it will help if you plan to do activities that you like. This handout ("Getting Started!" handout) will help you get started with physical activity. It has some tips for making physical activities easier.

Part 4: Wrap Up and To-Do List (10 minutes)

Learning Objectives

Employees will be able to:

1) Establish a physical activity goal.
2) Explain the importance of the physical activity goal.
3) Describe their current level of physical activity.
4) Name ways that they are already physically active.
5) Develop personal plans for physical activity for the next week.

Lesson 6: Being Active – A Way of Life

Lesson 6 is divided into four parts.

Part 1: Weekly Progress and Review (10 minutes)

Part 2: Overcoming Barriers
This section will rely heavily on group discussion to generate ideas for incorporating physical activity into one's routine and to find solutions for any challenges employees face. Because finding time to be physically active is often the most common barrier, solutions (such as scheduling or finding small blocks of time to be active) will be discussed.

Example: For many of us, the biggest problem we face in trying to be active is lack of time. We are going to discuss ways to overcome that barrier. First, plan to be active: schedule physical activity into your day. Every day, set aside a certain block of time for planned activity. Write "walk" or "swim" or whatever your planned activity is on your calendar. Make physical activity as regular an occurrence as taking a shower, eating lunch, or reading your child a bedtime story.

Part 3: Lifestyle Activity (20 minutes)
Living a physically active life goes beyond just the 20- or 30-minute segments discussed so far. It also involves making active choices throughout the day, such as parking further away or taking the stairs instead of the elevator. Ways to incorporate lifestyle activities into employees' activity plans will be discussed.

Example: Another important type of activity is called "lifestyle activity," which involves making active choices rather than the inactive choice for getting somewhere throughout the day. This "Lifestyle Activity" handout shows some examples of active and inactive choices. An example of an active choice is to take the stairs instead of the elevator. Can you think of other ways to be active rather than inactive?

Part 4: Wrap Up and To-Do List (10 minutes)

Learning Objectives
Employees will be able to:
1) Graph their daily physical activity.
2) Describe two ways of finding the time to be active.
3) Define "lifestyle activity."
4) Describe how to prevent injury.
5) Develop an activity plan for the coming week.

APPENDIX G

Demographic and Organizational Commitment Questions

Demographic Questions:

1) Gender? _________
2) Age? ________

3) What type of health insurance do you have (employer, private, Medicare, Medicaid, health exchange, etc.)? ____

4) How many employees does your organization employ? __________________________

5) Marital status?

a) Single

b) Married/living together

c) Divorced

d) Widowed

6) Race?

a) White

b) African American

c) Asian

d) American Indian or Alaska Native

e) Native Hawaiian or Other Pacific Islander

f) Other

7) How many years of education have you completed? (e.g., High School graduate is 12 years)

____

8) Highest Education level?

a) Less than High School
b) High School/GED
c) Some college
d) Bachelors
e) Graduate degree (Masters, PhD)
f) Professional degree (law, medicine, etc.)

9) Household Income level?

a) Under $10,000

b) $10,000 - $19,999

c) $20,000 - $29,999

d) $30,000 - $39,999

e) $40,000 - $49,999

f) $50,000 - $59,999

g) $60,000 - $69,999

h) $70,000 - $79,999

i) $80,000 and over

Organizational Commitment (Employees Only):

Please indicate the degree to which you agree or disagree with the following statements by circling the number (1 – 4) that corresponds to your level of agreement.

1) I really feel as if this organization's problems are my own.

   Strongly disagree 1 2 3 4 Strongly agree

2) I feel a strong sense of belonging to my organization.
   Strongly disagree 1 2 3 4 Strongly agree

3) I feel emotionally attached to my organization.

   Strongly disagree 1 2 3 4 Strongly agree

4) This organization has a great deal of personal meaning to me.

   Strongly disagree 1 2 3 4 Strongly agree

APPENDIX H

Employer and Employee Codebooks

Qualitative Code Book: Employers

Code	Definition
Importance	Comments that address the importance or relevance of diabetes in the African-American community/barbershops or the importance of being aware of the issue.
Barriers: Time	Comments made by owners voicing concern about finding time to implement the program in the barbershop.
Barriers: Barber Constraints	Factors that prevent barbers from living a healthy lifestyle.
Barriers: Other	Comments made by owners voicing concern about other factors that would make it difficult to implement the program in the barbershop.
Facilitators	Factors that would make it easier to implement the program in the barbershop.
Motivation: Family	Comments that mention family (wife, kids, etc.) as being a motivating factor to be healthy.
Motivation: Individual	Comments made by owners identifying the individual as the primary motivating factor to start and/or continue to participate in the study and be healthy.
Motivation: Social Support	Comments made by owners that indicate that support (encouragement, accountability, etc.) from others (such as other barbers) is a motivating factor to be healthy or continue to be healthy.
Motivation: Other	Comments identifying other motivational factors that will keep barbers motivated to stay healthy. Include comments about developing habits from the study and comments about how the program/modules as a whole can help barbers begin to be healthy and stay healthy.
Improvements/Recommendations	Comments made by owners offering recommendations for the study or ways to improve the study.
Customers	Comments that mention the study's potential to positively impact customers/clients or comments regarding targeting barbers vs. customers.
Owner Attitudes	Refers to the attitudes/perceptions (thoughts/feelings such as likes/dislikes) of owners toward the study.

Feasibility	Comments that address whether or not the study can be done in the barbershop (including whether or not owners would be comfortable educating his barbers about diabetes prevention or comments about participation).
Benefits	Comments made by owners regarding the potential benefits of the study.
Empowerment	Comments associated with learning new information about diabetes prevention and/or using this information to help themselves and/or others.
Owner Responsibilities	Comments made by owners addressing their roles and responsibilities as leaders in the barbershop.

Qualitative Code Book: Employees

Code	Definition
Importance	Comments that address the importance or relevance of diabetes in the African-American community/barbershops or the importance of being aware of the issue.
Barriers: Time	Comments made by barbers voicing concern about finding time to implement the program in the barbershop.
Barriers: Barber Constraints	Factors that prevent barbers from living a healthy lifestyle.
Barriers: Other	Comments made by barbers voicing concern about other factors that would make it difficult to implement the program in the barbershop.
Facilitators	Factors that would make it easier to implement the program in the barbershop.
Motivation: Family	Comments that mention family (wife, kids, etc.) as being a motivating factor to be healthy
Motivation: Results	Comments that mention seeing results (weight loss, better appearance, feel healthier, etc.) from the study as being a motivating factor to continue the good habits developed from the study. Include comments about developing habits from the study.
Motivation: Individual	Comments made by barbers identifying the individual as the primary motivating factor to start and/or continue to participate in the study and be healthy.
Motivation: Social Support	Comments made by barbers that indicate that support (encouragement, accountability, etc.) from others (such as other barbers) is a motivating factor to be healthy or continue to be healthy.
Motivation: Modules	Comments made by barbers mentioning the education modules/program (including comments about the structure of the modules) as a motivating factor to start eating healthy and exercising.
Improvements/Recommendations	Comments made by barbers offering recommendations for the study or ways to improve the study.
Customers	Comments that mention the study's potential to positively impact customers/clients or comments regarding targeting barbers vs. customers.

Barber Attitudes	Refers to the attitudes/perceptions (thoughts/feelings such as likes/dislikes) of barbers toward the study.
Feasibility	Comments that address whether or not the study can be done in the barbershop (including whether or not barbers would be willing to listen to owners about diabetes prevention or comments about participation).
Benefits	Comments made by barbers regarding the potential benefits of the study.
Empowerment	Comments associated with learning new information about diabetes prevention and/or using this information to help themselves and/or others.