

Spring 5-2018

The Relationship Between Employment and Diabetes Self-Management

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The University of Southern Mississippi

The Relationship Between Employment and Diabetes Self-Management

by

Josie A. Lami

A Thesis
Submitted to the Honors College of
The University of Southern Mississippi
in Partial Fulfillment
of the Requirement for the Degree of
Bachelor of Science
in the Department of Nursing

May 2018

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Abstract

Diabetes Mellitus is a disease that is becoming more prevalent in the world each day, and it can be deadly if it is not properly controlled. There are multiple aspects that go into self-management of diabetes such as diet, glucose control, physical activity, and lifestyle choices. This study focused on the physical activity aspect of diabetes self-management. Fifty-four subjects completed a survey that questioned time spent sitting while at work, physical activity done outside of work each week, and the results of their most recent Hemoglobin A1C check. The study found that over 50% of the participants who spent more than half of the time at work sitting, did not exercise more than 60 minutes per week, and had A1C scores above 7.0%. People who have been diagnosed with diabetes need to tailor their lifestyle to best manage their glucose levels, so they can manage their diabetes to the best of their ability. If well managed, these people can help prevent or lessen future complications of diabetes.

Keywords: Diabetes, Self-Management, Physical Activity, Hemoglobin A1C

Dedication

I would like to dedicate this project to all of those who have supported me throughout the last four years. Thank you to my parents, family, boyfriend, friends, and teachers. In a special way, I would like to dedicate this project to my father, Jeff Lami, for sparking my interest in diabetes.

Acknowledgements

I would like to extend a special thank you to my thesis advisor, Dr. Elizabeth Tinnon, for her patience, guidance, and support throughout this process. This project would not have been successful without her.

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List of Abbreviations

ADA American Diabetes Association

CDC The Center for Disease Control and Prevention

IRB Institutional Review Board

List of Definitions

High Intensity Exercise: breaking a sweat after 3-5 minutes of exercising, breathing that is deep and fast, and the ability to only talk in short phrases

Low Intensity Exercise: not inducing sweat unless it was hot/humid and no noticeable changes in breathing pattern

Moderate Intensity Exercise: breaking a sweat after exercising for about 10 minutes, breathing becomes deeper and faster, and the ability to carry out a conversation but not sing

Type 1 Diabetes: a rise in blood sugar levels caused by a decrease in insulin production by the pancreas; children and young adult onset diabetes

Type 2 Diabetes: a rise in blood sugar levels because the tissues in the body are not able to use the insulin produced by the pancreas properly; adult onset diabetes

Chapter 1: Introduction

It is estimated that there are approximately 1.7 million new cases of adult diabetes diagnosed every year. The Center for Disease Control and Prevention (CDC) found that over the past thirty-two years, the number of people in the United States diagnosed with diabetes has increased from 5.5 million to 21.3 million. It is especially prevalent in the southern states, which is known as the “Diabetes Belt.” The CDC estimated that in 2012, 11.7% of people over the age of eighteen had been diagnosed with diabetes in Mississippi. When one compares this to the population of Mississippi in that year, which was almost three million, approximately 351,000 people over the age of 18 had diabetes in the year 2012 (CDC, 2015).

Diabetes Mellitus is a disease process in which the body either does not produce enough insulin, or the body is unable to use insulin well. Insulin is a hormone that breaks down glucose, or sugar, in the blood. If the body is unable to control the levels of sugar in the blood, it can lead to complications such as heart disease, blindness, or amputation of the feet or legs (CDC, 2015).

If it is not prevented, diagnosed early, or appropriately managed, diabetes has the potential to kill. The CDC stated that diabetes was the seventh leading cause of death in 2013 (CDC, 2015). Therefore, diabetes prevention and management is very important. Health care providers need to strive to ensure that people with diabetes and their families understand the disease, how to manage it effectively, and the complications that can arise if they do not manage their diabetes well. Strides also need to be taken to educate the public on ways to prevent diabetes and other chronic illnesses.

Once someone is diagnosed with diabetes, steps need to be taken to alter daily routines in order to accommodate diabetes management. This includes monitoring blood glucose levels,

changes in diet, and changes in amount of physical activity. If their routine is not keeping their blood glucose levels controlled, they can determine what needs to be changed to meet this goal.

One of the biggest problems related to diabetes management is the lack of physical activity. The American Diabetes Association (ADA) (2007) recommended at least 150 minutes of moderate intensity exercise or at least 90 minutes of high intensity exercise per week (American Diabetes Association, 2007). However, much of the world's population does not put adequate amounts of physical activity at a high standard. The explanation many patients give is that they do not have the time or the energy to exercise regularly. However, patients need to be educated on the consequences that not getting enough physical activity can have. Diseases and problems such as diabetes can be exacerbated because of inadequate levels of physical activity (Cheever & Hinkle, 2014). Successfully managing their diabetes illness will require patients to adjust their routines to include exercise.

One of the barriers to implementing increased physical activity is a busy schedule. Many patients in today's society go to work for eight or more hours per day, and then come home to take care of their families. Most of the time, patients are not getting physical activity at work or at home. A lot of managers are not educated on diabetes management, and they expect work to come first for all of their employees. This can be a big problem for employees with diabetes or other illnesses. If they are not getting any physical activity at work and not enough at home, then this could have a negative effect on their health, which in turn may affect their productivity at work.

Research Question: What is the relationship between employment and diabetes self-management? This was done by looking at how many hours participants spend sitting down while at work, how much time they spend doing physical activities per week, and their most

recent A1C check result. It was hypothesized that those who have desk jobs and do not make time for physical exercise outside of work will have a more difficult time with diabetes management as it relates to physical activity and higher A1C scores.

Chapter 2: Literature Review

Self-Management of Diabetes

One of the most crucial parts of being diagnosed with diabetes is self-management. A patient with diabetes cannot be kept under close watch by health care providers all the time, so they must be taught how to take care of their disease and manage its symptoms. Patients often do not appreciate their health until they are diagnosed with a disease. This is ironic because maintaining good health is how you prevent the development or worsening of a disease. Carson, Nugent, Smith, Wallston, and Zammitt (2015) found that people did not put a big emphasis on health as a part of maintaining their quality of life until they were diagnosed with diabetes. They also found that the people in their study who reported the desire to change their views on health were swayed by the potential complications of their disease. They concluded that health care providers inform their patients with diabetes about the danger of their disease in order to elicit better lifestyle choices and place higher values on health (Carson et al., 2015). However, it can be difficult for patients to change their daily life just due to a diagnosis. They have to work hard to maintain these changes.

Part of being diagnosed with a chronic illness such as diabetes often requires the need for lifestyle changes. Fitz (2014) found that people had to change their existing daily routines in order to accommodate their new diagnosis of diabetes. In addition to changing their routine, people with diabetes needed to evaluate the effectiveness of their changes and make any modifications (Fitz, 2014). Part of this new lifestyle change needs to include making time for physical activity outside of work. It is often difficult for people to make time for physical activity, but one way to encourage this is to make the exercise something they can look forward

to. This can include finding an exercise that is fun and enjoyable for the individual, or they can find friends to exercise with.

Like anything else, these changes need to be individualized. Thompson (2014) studied routines from the perspective of patients with diabetes. The subjects reported that their lifestyle had changed over time, starting when they were diagnosed with diabetes. It was also found that self-management varied from person to person. It is very important for people who are diagnosed with diabetes to develop and maintain daily habits that work best for them individually (Thompson, 2014).

Also, many patients faced barriers and complications, such as a busy home life and taking care of children, which prevented them from adhering to their daily routine. This often leads to problems in self-management. Groenewegen, Houtum, and Riken (2015) conducted a study on how everyday problems of people diagnosed with a chronic illness interfered with the management of their disease. They found that 33% of people with a chronic illness encountered problems within their daily lives that led to less active coping behaviors (Groenewegen et al., 2015). This is a problem that needs to be addressed because inadequately managing their illness daily can lead to complications later on.

Physical Activity and Diabetes

The lack of physical activity is a contributing factor related to the prevalence of diabetes (Cheever & Hinkle, 2014). Not only does lack of physical activity lead to the occurrence of diabetes, but it also plays a role in inadequate diabetes management. If people who have a chronic illness such as diabetes do not make time for physical activity, there can be complications that arise. Some of these complications include coronary artery disease, peripheral

vascular disease, cerebrovascular disease, diabetic retinopathy, and diabetic neuropathy (Cheever & Hinkle, 2014).

The Southeastern United States is known as the “Diabetes Belt” of America (CDC, 2015). This is correlated with the prevalence of obesity and lack of physical exercise in this region. Blot et al. (2013) conducted a study to observe levels of physical activity among low-income adults living in the southeast. The subjects of this study reported that they spent 60% of their time awake doing sedentary behaviors. Also, less than 25% of them reported that they followed current guidelines for physical activity (Blot et al., 2013). This could be one of the reasons that the southeast has such high incidences of obesity and diabetes. Health care providers need to take strides to promote adequate levels of physical activity in order to prevent chronic illnesses.

Canada has lower numbers of patients with diabetes than the United States. Caspersen et al. (2010) looked at the difference in number of people with diabetes between the two countries and the difference in levels of physical activity. They found that 20.8% of the difference between the United States and Canada in relation to diabetes was due to physical activity (Caspersen et al., 2010). This supports the idea that lack of physical activity can lead to more cases of diabetes, but it also suggests that physical activity is not the only factor that is involved.

Many patients have excuses for not meeting guidelines for physical activity. Grey, McCarthy, and Whittemore (2016) sampled adults with Type 1 diabetes to determine their levels of physical activity. They found that low levels of physical activity were associated with increased age, poor health, increased body mass index (BMI), a longer diagnosis of diabetes, and increased symptoms of depression (Grey et al., 2016). This study pointed out that health problems and increasing age can discourage patients from getting adequate physical activity.

Even though physical activity needs to be included in prevention and maintenance of chronic illnesses, it has been found that levels of physical activity are decreased in patients who are diagnosed with a chronic illness. Arne et al. (2009) found that over 50% of their subjects with a chronic disease had a physical activity level that was considered “too low” to have good health. Low levels of activity can lead to more negative impacts on quality of life than people who are considered to be healthy (Arne et al., 2009). Steps need to be taken to determine what physical activities can be undertaken by patients with chronic illnesses. Exercise needs to be tailored to patients’ needs and limitations.

Maintaining adequate levels of physical activity usually decreases as physical complications rise. Complications from illnesses and injuries can limit a patient’s ability to move. Janevic, McConnell, and McLaughlin (2013) aimed to evaluate the association between diabetes complications and level of physical activity. They found that only 43% of subjects who had complications due to diabetes met physical activity requirements. They concluded that adults with complications from chronic illnesses such as diabetes were less likely to meet guidelines for physical activity as compared to people with diabetes without complications (Janevic et al., 2013).

Employment and Diabetes

It is important for patients to incorporate physical activity into their daily lives. It is even more important for people who have chronic diseases. Clearly, multiple factors can get in the way of a patient getting adequate physical activity, and one of the most significant factors is work.

Many patients believe that employment negatively affects their health, specifically patients with chronic illnesses. Also, many companies and employers do not take measures to

assure that their employees with chronic illnesses are getting the daily self-care that they need. It is understandable that, while at work, the patients need to focus on work. Many patients believe that self-management can wait until they get home.

As was stated earlier, patients with chronic illnesses have to play an active role in their self-management. Many of these patients might feel as though their illness will negatively affect their work productivity. Nashita, Tom, and Uehara (2011) found that 34% of the subjects in their study felt that their diagnosis of diabetes negatively affected their employment (Nashita et al., 2011). These patients might feel as though they have to work harder at their job to compensate, which could lead to deficits in self-management.

Inadequate diabetes self-management can lead to missed days from work. There are many hardships felt by people with diabetes who are also employed. Many patients feel as though their jobs do not take their illness into consideration. Fernando, Ruston, and Smith (2013) conducted a study to determine the feelings of employed diabetics. Many of their subjects reported that they felt as though their managers and jobs were not concerned about their diabetes diagnosis, and they felt as though they were treated differently in the workplace than other employees. They felt as though work was expected to come first, even above their diabetes management. This study also found that these subjects reported high levels of blood sugar, which puts them at risk for developing complications (Fernando et al., 2013). There could be multiple explanations for high expectations by managers, but one thing seems certain, managers were not properly educated on the management of diabetes. Changes need to be made to promote self-management even in the workplace. This can lead to decreased levels of stress on patients with diabetes, which means they can better focus on controlling their diabetes and succeeding in their career.

Further evidence that employment can have a negative effect on diabetes self-management is provided by Browne et al. (2014). Their study aimed to evaluate if there were economic hardships associated with self-management behaviors among employed persons with type 2 diabetes. They found that being employed and having higher levels of depression were associated with less frequent blood glucose checks, inadequate medication adherence, and a decrease in levels of health eating. This decreased level of healthy eating was also found to correlate with decreased levels of physical activity (Browne et al., 2014).

One of the factors that complicate diabetes self-management and getting adequate physical activity is having a job. Some patients with diabetes spend eight or more hours sitting behind a desk, and then they come home to take care of their families. Many of them would rather spend their evenings relaxing, watching TV, and taking their minds off the stresses of the day. Clark et al. (2015) found that higher levels of sitting while at work correlated with households with higher incomes, and lower levels of sitting correlated with males having “blue-collar” occupations. They concluded that higher household incomes and families with “white-collar” jobs were connected with high levels of sitting while at work, and high levels of occupational sitting were associated with health problems (Clark et al., 2015). This supports the idea that type of occupation does have an effect on physical activity, and in turn, diabetes self-management.

Chapter 3: Methodology

Research Design

This research project was a descriptive quantitative study with a self-reported survey. Data was analyzed by calculating the mean of each variable.

Participants

This research study looked at the relationship between diabetes and self-management among employed males and females over the age of eighteen. According to the Daniel Soper A priori sample size calculator, the sample needed for this project was 139 subjects.

Measures

The variables in this study consisted of demographic data, diabetes information, employment, physical activity, and A1C levels. The demographic data that was collected were age, gender, and race. A question was asked to determine what type of diabetes the participant was diagnosed with. Data for employment consisted of time spent at work and time spent being active at work. The questions regarding physical activity included time commitment, intensity level, and type of exercise. Finally, data for A1C level consisted of the date of their most recent A1C check and the result.

Procedures & Instruments

This research project used a researcher created survey. The survey contained fifteen questions. There were 13 multiple-choice questions and 2 dropdown box questions.

Age was broken down into ranges of 18-34, 35-44, 45-54, 55-64, and 65 or older. For gender, the answer choices consisted of male, female, and “prefer not to say.” Race answer choices consisted of African American, Asian, Caucasian, Hispanic, and “other.” For the demographic data, the option of selecting “other” was given since the study did not specifically

focus on the demographic side of diabetes. However, it would be interesting to see if any demographic data play roles in the results.

A yes-or-no question was asked regarding whether the participant had been diagnosed with diabetes. This was an attempt to stop anyone who was not diagnosed with diabetes from continuing with the survey. The next question asked them to specify which type of diabetes. They had the option of answering Type 1 or Type 2 diabetes.

When asking about employment, it was asked if the job the person was holding was a “desk job.” Desk job was defined as one in which a person carries out most of their job sitting at a desk. Then, subjects were asked how many days per week they work, with answer choices ranging from 1-7 days. This was followed by a question asking how many hours they work per day. This was broken up into increments of 2-3 hours, starting with “less than 1 hour” and ending with “more than 15 hours.” Then, it was asked how many hours they spend sitting at work, using the same time increments as the previous question.

In regards to physical activity, this study was looking at time spent outside of work time doing some type of exercise. First, it was asked how much time they spend exercising per week. The survey broke that up into increments of less than 10 minutes, 10-30 minutes, 30-60 minutes, 60-120 minutes, 120-200 minutes, and more than 200 minutes. Next, it was asked how they would define their normal exercise routine. The answer choices were low intensity, moderate intensity, and high intensity. Lastly, the survey asked what type of exercise they usually do. The answer choices consisted of endurance, strength, and balance/flexibility. The examples given for endurance were walking, jogging, running, and dancing. The example for strength was lifting weights. Examples for balance/flexibility included yoga, Pilates, and stretching.

Lastly, this study looked at A1C levels. An A1C is a blood test that determines a person's average blood glucose/sugar levels over the previous three months. Below 5.7% is normal, 5.7-6.4% is in the pre-diabetic range, and above 6.4% is indicative of diabetes. The first question asked when their last A1C results were. This included a dropdown box for them to choose a month and year. Lastly, they were asked what range their A1C level results fell in. The answer choices consisted of below 5.0%, 5.0-5.9%, 6.0-6.9%, 7.0-7.9%, 8.0-8.9%, 9.0-9.9% 10.0-10.9%, 11.0-11.9%, 12.0-12.9%, and above 13.0%. This survey was created based on the most identified variables impacting diabetes in the literature review.

The survey used in this study is located in Appendix A. The application for Institutional Review Board (IRB) approval was submitted on September 19, 2017, was received on September 26, 2017, and the project received IRB approval on October 20, 2017. The letter of approval is located in Appendix B.

Data Collection

The survey for this thesis was administered via an online method through Qualtrics and a paper-and-pencil method. The online method included a link to the survey that could be shared via the researcher's social media, the social media of The Diabetes Foundation of Mississippi, and the e-mail blast of The University of Southern Mississippi Honors College. The paper-and-pencil method was distributed at St. Thomas Aquinas Catholic Church in Hattiesburg, Mississippi. Through this, the hope was to reach the local populations through the paper-and-pencil method and reach populations further away via the online method. The participants filled out these surveys privately.

The approval letters from The Diabetes Foundation of Mississippi, The University of Southern Mississippi Honors College, and St. Thomas Catholic Church are located in Appendix

C, D, and E respectively. The opening statement used with sharing the survey is located in Appendix F.

Data Analysis

Descriptive statistics were used to analyze the data by calculating the means of each variable. The categories that were analyzed included time spent sitting while at work, time spent exercising per week, and A1C results. The hypothesis included the assumption that high levels of occupational sitting and low levels of physical activity would lead to higher A1C levels.

Chapter 4: Results and Discussion

Results

A total of 89 people accessed the survey. However, only 54 responses were complete and could be used for analysis. Three participants selected that they were not diagnosed with diabetes, but they proceeded to answer the rest of the questions in the survey. This may have skewed some of the results. Table 1 (below) shows the age of participants by percentages in the study. Table 2 (below) shows the amount of participants that were diagnosed with Type 1 Diabetes and amount that were diagnosed with Type 2 Diabetes.

Table 1

Age of Participants

| <u>Age</u> | <u>Percent of Participants</u> |
|------------|--------------------------------|
| 18-34 | 17% |
| 35-44 | 26% |
| 45-54 | 39% |
| 55-64 | 13% |
| Over 64 | 6% |

Note. 58% of the participants were over the age of 45.

Table 2

Type of Diabetes

| <u>Type</u> | <u>Percent of Participants</u> |
|-------------|--------------------------------|
| Type 1 | 52% |
| Type 2 | 48% |

Table 3, Table 4, Table 5 and Table 6 (below) focus on percent of time spent sitting while at work per week, time spent exercising per week, the intensity of the exercise and the most recent A1C scores of those who took the survey. The data in Table 1 was calculated by taking days worked per week, multiplying by number of hours worked per day, and then dividing the hours spent sitting by that number to create a percentage. The data in tables 4, 5, and 6 were calculated by counting the raw data from the surveys.

Table 3

Percent of Time Spent Sitting at Work Per Week

| <u>Percent Time</u> | <u>Percent of Participants</u> |
|---------------------|--------------------------------|
| 0-25% | 13% |
| 26-50% | 28% |
| 51-75% | 39% |
| 76-100% | 20% |

Table 4

Time Spent Exercising Per Week

| <u>Amount of Time</u> | <u>Percent of Participants</u> |
|-----------------------|--------------------------------|
| Less than 10 minutes | 28% |
| 10-30 minutes | 17% |
| 30-60 minutes | 20% |
| 60-120 minutes | 13% |
| 120-200 minutes | 15% |
| More than 200 minutes | 7% |

Table 5

Intensity of Physical Activity Performed

| <u>Intensity Level</u> | <u>Percent of Participants</u> |
|------------------------|--------------------------------|
| Low Intensity | 61% |
| Moderate Intensity | 35% |
| High Intensity | 4% |

Table 6

Hemoglobin A1C Results

| <u>A1C Result</u> | <u>Percent of Participants</u> |
|-------------------|--------------------------------|
| Below 5.0% | 6% |
| 5.0-5.9% | 9% |
| 6.0-6.9% | 30% |
| 7.0-7.9% | 31% |
| 8.0-8.9% | 15% |
| 9.0-9.9% | 2% |
| 10.0-10.9% | 0% |
| 11.0-11.9% | 2% |
| 12.0-12.9% | 2% |
| Above 13.0% | 4% |

Discussion

The ADA recommends that 150 minutes of moderate intensity exercise be completed per week. The ADA also recommends that the goal for A1C results be less than 7.0% (American Diabetes Association, 2007). In this population of people with diabetes, 59% of them spent 50-100% of their time at work sitting. In regards to physical activity outside of work, 65% of participants completed less than one hour of physical activity per week. Out of the participants, 39% reported that they did moderate or high intensity exercise. Looking at type of exercise, 87% of participants did endurance, 4% did strength, and 9% did balance/flexibility. Only 44% of participants had an A1C score below 7.0%. This means that 56% of participants scored a 7.0% or above.

A majority of participants spent most of their time sitting while at work, did not meet the recommended time or intensity of physical activity per week, and scored above the recommended A1C score to prevent diabetic complications. These high A1C scores represent high levels of glucose in the blood, which is what can eventually lead to complications of diabetes. People with diabetes need to know that their occupational and lifestyle choices play major roles in their diabetes self-management. As hypothesized, if a majority of time is spent sitting while at work, and this is not compensated by physical activity outside of work, A1C results will be higher than recommended.

It is important that people with diabetes be informed on the importance of tailoring their lifestyle to best manage their diabetes. Healthcare providers need to use evidence-based practice in their patient education regarding diabetes self-management. Many times, this is a process of trial and error, and they will need to try different things to improve their A1C scores. Also,

diabetes self-management includes things besides activity, such as diet, so further research could be done to look at ways other aspects of management relate to self-management.

Limitations

There are a few limitations noted that need to be discussed. The sample size recommended for this project was not met. A convenience sample was used, resulting in a homogenous population. This does not take into consideration those who live in the northern states of the United States. Also, the option to select American Indian was not provided in the race portion of the demographic information, which may have deterred some participants from completing the survey. All but 1 person who completed the survey reported their race as being Caucasian. Thus, these findings cannot be generalized to the entire population.

Conclusion

This research project looked at the relationship between employment and diabetes self-management. It was hypothesized that those who are inactive at work and do not compensate with physical activity outside of work will have higher A1C scores. Of the 54 participants, 59% of them spent 50-100% of their time sitting while at work, 65% completed less than an hour of physical activity outside of work, and 56% had an A1C result higher than 7.0%. Thus, the hypothesis made was supported. The hope is to use this study as a way to encourage people who hold “desk jobs” to increase their amount of physical activity inside and outside of work. The results obtained will hopefully be shared with local clinics, so they can make adjustments to their educational tools on diabetes self-management. Further research can be done to determine the effects other aspects of diabetes self-management, such as diet, have on A1C results. Also, research can be done in other parts of the country or world to determine if findings vary among different demographics.


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Appendices

Appendix A



**THE UNIVERSITY OF
SOUTHERN MISSISSIPPI**

The Relationship Between Employment and Diabetes Self-Management
By completing this survey, you agree to participate in this study. Participation is anonymous and voluntary, and you have the right to withdraw participation at any time.
If you disagree to the above statement, please do not proceed with the following survey.

I agree.

I disagree.

>>

Survey Powered By [Qualtrics](#)



**THE UNIVERSITY OF
SOUTHERN MISSISSIPPI**

Gender

Male

Female

Prefer not to say

Age

18-34

35-44

45-54

55-64

Over 64

Prefer not to say

Race

- African American
- Asian
- Caucasian
- Hispanic
- Prefer not to say

Have you been diagnosed with Diabetes?

- Yes
- No

If you answered "yes" to the above question, what Type Diabetes were you diagnosed with?

- Type 1 Diabetes ("Children and Young Adult Onset Diabetes")
- Type 2 Diabetes ("Adult Onset Diabetes")

Do you currently have a job that is considered a "desk job"? (A desk job is any job where you spend a majority of your time sitting at a desk)

- Yes
- No

On average, how many days per week do you work?

- 1 days
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

On average, how many hours do you work per day?

- Less than 1 hour
- 1-3 hours
- 4-6 hours
- 7-10 hours
- 11-15 hours
- More than 15 hours

On average, how many hours do you sit per day while at work?

- Less than 1 hour
- 1-3 hours
- 4-6 hours
- 7-10 hours
- 11-15 hours
- More than 15 hours

On average, how much do you exercise per week?

- Less than 10 minutes
- 10-30 minutes
- 30-60 minutes
- 60-120 minutes
- 120-200 minutes
- More than 200 minutes

If you had to put your normal exercise routine into a category, which would it fall under?

- Low Intensity (Does not cause sweating unless it is hot/humid. No noticeable change in breathing.)
- Moderate Intensity (Will break a sweat after about 10 minutes. Breathing becomes deeper and faster. You can carry on a conversation but not sing.)
- High Intensity (Will break a sweat after 3-5 minutes. Breathing is deep and fast. You can only say a few words at a time.)

What type of exercise do you normally do?

- Endurance (Walking, Jogging, Running, Dancing, etc.)
- Strength (Lifting Weights)
- Balance/Flexibility (Yoga, Pilates, Stretching)

What is the month of your most recent A1C check?

What is the year of your most recent A1C check?

What were the results of your most recent A1C check? (A1C is defined as a blood test that provides information about a person's average blood sugar over the past 3 months.)

- Below 5.0%
- 5.0-5.9%
- 6.0-6.9%
- 7.0-7.9%
- 8.0-8.9%
- 9.0-9.9%
- 10.0-10.9%
- 11.0-11.9%
- 12.0-12.9%
- Above 13.0%



Survey Powered By Qualtrics

Appendix B



INSTITUTIONAL REVIEW BOARD

118 College Drive #5147 | Hattiesburg, MS 39406-0001 Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional.review.board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 17092602 PROJECT TITLE: The Relationship Between Employment and Diabetes Self-Management PROJECT TYPE: Honor's Thesis Project RESEARCHER(S): Josie Lami COLLEGE/DIVISION: College of Nursing DEPARTMENT: Nursing FUNDING AGENCY/SPONSOR: N/A IRB COMMITTEE ACTION: Exempt Review Approval PERIOD OF APPROVAL: 10/20/2017 to 10/19/2018 **Lawrence A. Hosman, Ph.D. Institutional Review Board**

Appendix C



**DIABETES
FOUNDATION
OF MISSISSIPPI**

September 14, 2017

University of Southern Mississippi
School of Nursing
3125 Montague Blvd,
Hattiesburg, MS 39401

To whom it may concern:

The Diabetes Foundation of Mississippi agrees, pending IRB approval, to distribute Josie Lami's survey entitled "The Relationship Between Employment and Diabetes Self-Management" on our website/Facebook page. We are pleased to assist her obtain data for her Honor's Thesis work!

Please feel free to contact me if you have any questions.

Sincerely,



Irena McClain, MPH
Associate Director

Appendix D



THE UNIVERSITY OF SOUTHERN MISSISSIPPI

THE HONORS COLLEGE
118 College Drive #5162 Hattiesburg, MS 39406-0001
Phone: 601.266.4533 / Email: honors@usm.edu

Dear Institutional Review Board:

The purpose of this letter is to inform you that the Honors College supports Josie Lami's (907057) research, "The Relationship Between Employment and Diabetes Self-Management," and agrees to distribute the pertinent survey to its students and employees, electronically, pending IRB approval.

Sincerely,

Paula Mathis
Assistant to the Dean and Coordinator of Honors Keystone, Honors College

Appendix E



St. Thomas Aquinas Catholic Church
3117 W. 4th Street, Hattiesburg, MS 39401
(601) 264-5192

September 8, 2017

Dear Institutional Review Board,

The purpose of this letter is to inform you that Saint Thomas Aquinas Catholic Church supports Josie Lami's research, "The Relationship Between Employment and Diabetes Self-Management," and agrees to allow her to distribute her survey in person.

In Jesus & Mary,

A handwritten signature in cursive script that reads "Father Mark A. Ropel".

Father Mark A. Ropel
Pastor
St. Thomas Aquinas Catholic Church

Appendix F

Opening Statement:

My name is Josie Lami, and I am currently a senior nursing student in the Honors College at the University of Southern Mississippi. My Honors Thesis Project is entitled “The Relationship Between Employment and Diabetes Self-Management.”

The purpose of this project is to look at and discover any relationships between being employed, physical activity, and diabetes self-management. I hope to share my discoveries and conclusions with diabetic patients and their healthcare providers, so they can better understand how to better tailor their diabetes management to their lifestyle.

If you are currently employed and have been diagnosed with Type 1 or Type 2 Diabetes, I would deeply appreciate your assistance in completing this project. The survey consists of 16 questions, and it should not take longer than 30 minutes to complete. By clicking on the link below, you will be led to the online survey.

Thank you for your consideration.

https://usmuw.co1.qualtrics.com/jfe/form/SV_b2UwmwdeXg4rGrX