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Diabetes Prevention

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#### Author Note

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**Abstract**

The Campus Health Center at California State University, Monterey Bay (CSUMB) where I did my internship provides care and referral services to the CSUMB community. The campus health center also has medical staff dedicated to meeting patients' needs and concerns. My agency's main goal is promoting health and wellness. Majority of the campus college population are young students who are not aware of diabetes and its long term effects because the college population is not as affected compared to older populations. My project is about bringing awareness to diabetes in the CSUMB community. I did so by creating an educational video on diabetes, what it is, the long term consequences of this disease, lifestyle contributors to diabetes, and how to prevent diabetes. My project met the expected outcomes by educating students on healthier lifestyle choices that would prevent diabetes. The Campus Health Center can help this issue by bringing further awareness to diabetes by doing tabling events on campus and holding educational workshops on diabetes for the community.

## Agency and Communities Served

The Campus Health Center serves the CSUMB community members. One part of the Mission and Philosophy is to “focus proactively on students' health enhancing behavior and measures that aid students learning in ways that are not limited solely to problems, symptoms or illnesses” (CSUMB, 2023, para. 4). This is done by focusing on supporting students to practice health enhancing behaviors. The Campus Health Center is partnered with Doctors on Duty, and they provide referral services to students and students are encouraged to use these health services that come at no cost such as physical exams, blood test, pregnancy test, and other testing as well. My role at this agency is to promote health enhancing behaviors and doing outreach on the CSUMB campus. Many outreach events are done on campus promoting a variety of health practices. One example of the outreach done this semester is that they had glucose screenings available for students for world diabetes day where students were able to get their results within minutes. This health effort was for students to get thinking about diabetes and ways to prevent it as we gave out information on this disease and ways to handle being pre-diabetic. My capstone project is focused on diabetes prevention in the CSUMB community. The main goal is to bring awareness and education so that students live a healthier lifestyle to prevent diabetes in the future. Many students do not think about how poor lifestyle choices such as eating foods low in nutrients and little to no physical activity can impact their health long term. The age population in the CSUMB community consists of mostly people aged under 25 years. (CSUMB, 2022) Forty nine percent of students are ages 21-24, thirty percent of students are ages 18-20. Thirteen percent of students are ages 25- 30, and only eight percent of students are ages 30 and up. (CSUMB,2022)

## Problem Model Background and Literature Review

Figure 1: Problem Model

Contributing Factors	Problem	Consequences
Stress	Prediabetes among young people	Type 2 diabetes
Poor eating habits		Health declines
Lack of education on living a healthy lifestyle		Risk of heart disease

### Problem Statement

Type 2 diabetes has been a huge public health concern among young people and it is the most common form of disease caused by genetic and non genetic factors. The Centers for Disease Control and Prevention (CDC) states that diabetes increases the risk of early death and complications that decrease quality of life. More than thirty million people in the United States alone have diabetes, and it is the seventh leading cause of death (CDC, 2022). The number of people with diabetes continues to grow. The International Diabetes Federation estimates that the number of people with diabetes will increase to 380 million by 2025. (IDF,2021) According to the American Diabetes Association, type 2 diabetes has a stronger connection to family history than type 1 (ADA, 2023). Type 2 diabetes runs in families and can develop based on poor learned eating habits, but it is also genetically linked. Many genetic factors have been found linked to type 2 diabetes. Frontiers in Public Health states “linkage is a genetic tendency where genetic markers are inherited together as a result of being near to one another on the same chromosome...that can influence the development of a disease” (Mambiya, 2019, para. 19).

### Contributing Factors

### ***Lack of exercise***

Lack of exercise leads to obesity since being overweight and physical inactivity interact which can significantly contribute to diabetes. For instance, Norwegian School Health Services recommends promoting more physical activity as a means of addressing overweight and obesity in children and adolescents, as studies have shown that young individuals with excess weight are less physically active than their healthier peers (Skogen & Høydal, 2021, p. 2). The Norwegian School Health Services suggest increasing physical activity to tackle overweight and obesity in children and adolescents, as recent research indicates that those with excess weight are usually less active than their healthier counterparts. Therefore, the interlink between the lack of exercise and obesity leads to diabetes, prompting the Norwegian School Health Services to suggest promoting physical activity to combat childhood obesity.

Physical inactivity leads to high blood insulin levels that can then lead to diabetes. For example, exercise not only regulates blood sugar and insulin levels, but also has the potential to decelerate, halt, or even invert the chronic consequences, resulting in the advancement of type 2 diabetes (Kirwan et al., 2017, p. s15). Exercise helps the body to get rid of excess glucose, reduces abdominal fat, and releases more oxygen and nutrients, which reduces the risk of diabetes. Regular exercise plays a crucial role in preventing and managing type 2 diabetes by regulating blood sugar and insulin levels, reducing abdominal fat, and improving overall health conditions. As a result, exercise can effectively lower the risk and long-term consequences of diabetes, making it an essential component of a healthy lifestyle.

### ***Poor eating habits***

Poor eating habits have significantly contributed to diabetes among college students. Consuming various foods is crucial for proper bodily function, health, and academic success,

especially for college students with limited healthy options, as poor eating habits lead to health issues. For instance, a balanced diet can sustain physical and mental well-being (Patel et al., 2019, p. 123). Eating diverse foods is essential for college students to have positive physical and mental health states and academic performance, as limited healthy options may lead to health problems. At the same time, a balanced diet supports overall well-being. Therefore, unhealthy eating practices have been associated with diabetes among college students, underscoring the significance of eating various foods to ensure adequate physical functions, especially for those with few healthy choices.

A lot of college students do not eat a balanced diet, making most of them obese and ailing from malnutrition diseases, including diabetes. In this case, consuming fast food is a significant cause of obesity in the perception category. According to a research study by Sam Abraham people's behaviors contradict their knowledge, with socializing with friends at fast food restaurants being a common practice, particularly in the evenings, which is noteworthy due to the proximity of these restaurants to college campuses (Abraham et al., 2018, p. 20). Despite recognizing fast food as a leading cause of obesity, students' actions are frequently socializing with friends at nearby fast-food restaurants. College students' imbalanced diets lead to obesity and diseases, like diabetes, even if they know about the fast food's role in being overweight.

### ***Physiological factors***

Psychological factors, such as stress and anxiety, can lead to diabetes. The experience of stress is common for college students due to academic expectations, time pressures, and relationships and can lead to various health issues, including obesity and chronic diseases. Stress can also affect dietary patterns, increasing high-calorie and high-fat snack foods and decreasing healthy food choices (Elshurbjy & Ellulu, 2017, p. 2). Stress is prevalent among college students

and can result in multiple health problems, such as obesity and chronic diseases, as well as influencing eating patterns by increasing the consumption of high-calorie and high-fat snack foods while reducing healthy food choices. Therefore, college students commonly experience stress, which leads to health issues, including diabetes and obesity, since they influence dietary patterns.

Insufficient psycho-social development when transitioning to adulthood contributes to diabetes among college students. For example, although college students have reached physical maturity, they may not experience sufficient psycho-social development when transitioning to adulthood, leading to unhealthy lifestyle changes, such as substance abuse and poor dietary habits (Carlos et al., 2020, p. 1). Poor psycho-social development can lead to diabetes since college students are still in the process of their transformations. Inadequate psycho-social development while transitioning to adulthood can result in unhealthy lifestyle choices, such as poor dietary habits. This insufficient psycho-social development is a significant factor that contributes to diabetes among college students. As a result, it can lead to unhealthy lifestyle choices, including substance abuse and poor dietary habits, increasing the risk of developing diabetes, especially when transitioning to adulthood.

### ***Lack of Knowledge***

Another huge contributor to type 2 diabetes is lack of knowledge of how this disease may develop and how to live a healthy lifestyle to prevent diabetes. Especially since diabetes is not as common in the younger generation as the older one. Although a recent report from the Centers for Disease Control and Prevention reported that the rate of diabetes onset is greater in the youth than the older population, it also estimated that 79 million people ages 20 and under have pre-diabetes (Reyes-Velázquez & Hoffman, 2011). Many students may have not learned healthy



eating habits at home and continue to eat low nutrient foods. They are not aware of the self-care activities required to live a healthy diabetes free life. This is why it is so important for younger populations to get informed on this disease in order to prevent it. Poor diabetes knowledge has also been associated with lower educational level, older age, lower income, shorter diabetes duration, and lack of English language fluency. (Fenwick et al., 2013).

### **Consequences**

The consequences of not practicing self-care such as eating healthy and exercising regularly can lead to type 2 diabetes. Type 2 diabetes is described as “impairment in the way the body regulates and uses sugar glucose as a fuel. This long-term chronic condition results in too much sugar circulating in the bloodstream. Eventually, high blood sugar levels can lead to disorders of the circulatory, nervous and immune systems” (Mayo Foundation for Medical Education and Research, para. 3). According to the Centers for Disease Control and Prevention, more than 37 million Americans have type 2 diabetes which is more common in the older population, but more and more younger people are developing it as well (2023). Many people live with type 2 diabetes and do not even know it for many years. Some symptoms when diabetes is present include: increased thirst, frequent urination, increased hunger, fatigue, and darkened skin, especially in the armpits or neck. There are many other symptoms one may experience due to diabetes, but these are some of the most common ones. If left untreated by not taking action of eating healthier and exercising, it leads to worse complications such as heart disease, stroke, hearing loss, kidney disease. (Cleveland Clinic, 2022).

### ***Pre-Diabetes***

Pre diabetes is also another consequence of not eating healthy and not exercising which is more common in younger people such as college students. Pre diabetes is described as glucose

levels higher than normal but still not high enough to be considered diabetic. Many students do not know they are considered pre-diabetic and continue living the lifestyle they are contributing to this disease. The good news is that prediabetes is reversible by changing their lifestyle choices such as weight loss, eating less foods high in sugar, and taking medications that can bring their blood glucose levels back to normal and prevent diabetes.

### ***Psychological Distress***

The consequences of lacking knowledge of how to live a healthy lifestyle does not only contribute to the main issue of diabetes but your overall health declines. If no action is taken to prevent this disease it leads to many other diseases in the body that eventually shortens the person's lifespan. According to the Centers for Control Disease and Prevention, people living with diabetes live six years shorter in comparison to people without diabetes. (CDC, 2022) Not only does diabetes affect your physical well being but also mental health. People with diabetes are two to three times more likely to suffer from depression and anxiety. (CDC, 2022) Changes in blood sugar can cause changes in mood such as fatigue, trouble thinking clearly, and anxiety. (Ducat et al., 2014) The overwhelming feelings of diabetes distress can cause people to further slip into unhealthy actions such as overeating processed foods and remaining inactive. Diabetes distress occurs because all of diabetes care involves self management behavior requiring balance of a complex set of behavioral tasks by the person. Especially college students are more at risk to deal with mental health challenges. College students are already dealing with academic stress, diabetes distress just adds more.

### **Project Justification & Benefits**

The measurable outcome for my project would be for students to get informed on this disease and to take action in order to prevent diabetes. My educational video goal was for

students to realize that diabetes is a serious disease that can have permanent damage to the body if not controlled. I planned to assess the success of my plan for preventing diabetes by creating a brief questionnaire asking students what they already knew about diabetes and how it can affect someone. Then I planned on having the students watch a short educational video giving them all the information they need to know about diabetes and how it can affect them based on lifestyle choices. Then there would be another short questionnaire, asking students what they had learned and if they are likely to make better lifestyle choices based on what they learned about diabetes. The questionnaire and video was to be posted on MyRaft for the CSUMB community to view and also emailed to some students. These questions would help me measure the outcome of my project. The outcomes of my project would let me know if this video effort is effective in educating students on diabetes.

### **Implementation Process**

My planned project was focused on diabetes prevention aimed at CSUMB students. The purpose of my project is for students to get informed on diabetes and get thinking about their lifestyle choices to make healthier decisions in order to prevent this disease. To start this project I first met with my mentors Gary and Linsley and discussed diabetes in our campus, this is an issue that is not addressed as much as other diseases. We all agreed diabetes was an issue that needed more awareness. After I had my topic for my capstone I started my research looking for articles that support my capstone in regarding diabetes and college students. My project includes a brief questionnaire that will ask students what they know about diabetes and after that I will create a short educational video on diabetes. After the video there will be another questionnaire that will ask students what they have learned and based on the video, if they will be likely to change their lifestyle if at risk for diabetes. These questions will help me measure the outcomes

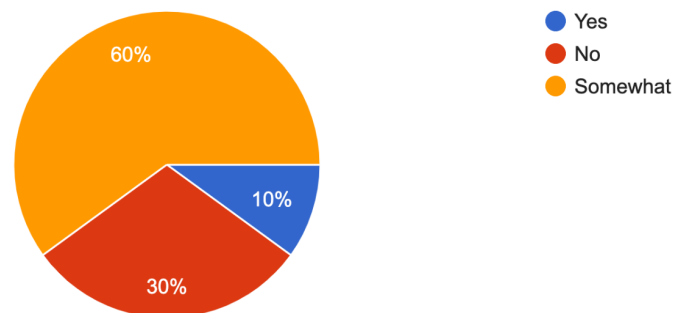
of my project. The participants of my project would be CSUMB students. They would be able to access this video and questions through MyRaft or email.

### Project Results

My project results achieved my expected outcomes. My anticipated outcome was for students to get informed on diabetes and motivate them to make healthier lifestyle choices to prevent this disease. I created a survey for students to take after watching the video to measure my results. My findings concluded that prior to watching the video 60 percent of students were somewhat aware of how diabetes affected the body and 30 percent of students were completely unaware of how this disease affected the body. In table 1 it shows the question asked to the students and the student responses.

Did you know how diabetes affected the body prior to watching the video?

10 responses

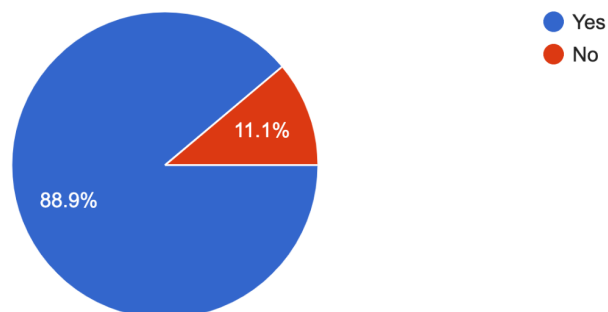


*table 1*

When asked if students think their lifestyle choices are contributors to diabetes, eighty eight percent of participants said yes, and eleven percent said no. Table 2 below shows the participants' responses.

Do you think your lifestyle choices are diabetes disease contributors?

9 responses

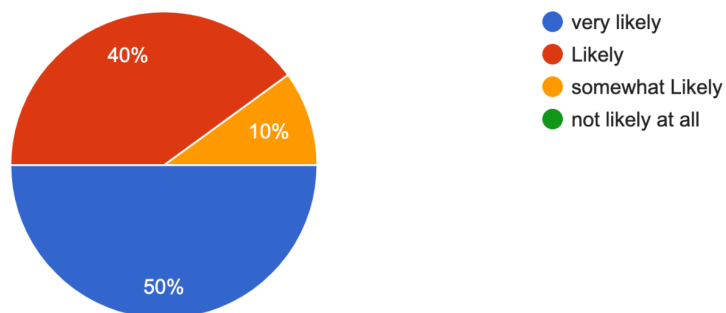


*table 2*

When asked if the participants were more likely to change their lifestyle habits in order to prevent diabetes, forty percent said they were likely, fifty percent said very likely, and ten percent said somewhat likely. Table 3 below shows the participants' responses.

After watching this video how likely are you to make healthier lifestyle choices in order to prevent diabetes?

10 responses



*Table 3*

The results met the expected outcomes goal in educating CSUMB students about diabetes and motivating them to live a healthier lifestyle. What did not meet the goal was the number of

students who participated in the project. What I could have done differently is do more outreach on campus instead of just posting it on social media in order to get more responses.

In conclusion, more awareness about diabetes is needed. The issue of diabetes is going to be a growing problem overall. Education, especially to the college population, is crucial in preventing this disease. The findings of my project concluded that this educational video did provide useful information, and students were more likely to make healthier choices based on the information provided. My recommendations for The Campus Health Center based on my findings would be to do more outreach and tabling events on diabetes. Students could really benefit from being provided with information that can lead to further preventing this disease.

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## Appendix A

### Project Implementation Plan

Tasks	timeline/deadline	Supporting staff	materials /services needed	Deliverables/completed project
Approval capstone idea from mentors	February 10	Mentor	Project description	Approval
Approval capstone idea from professor	February 16	Instructor	Project description	Approval
Research & gather diabetes facts for video	March 10	Me	Library/online articles	Selected articles and facts
Develop questions for project assessment	March 10	Me	Google sheets	Completed questions
Create diabetes prevention video	March 20	Me	Video editor	Video
Get approval on video & questions	March 25	Mentor		Approval
Post questions and video for students to view & take survey	April 1	CSUMB students	Student participation	Video views and responses to survey