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Prevalence of Diabetes in Monterey County

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Abstract

Aspire Health is a nonprofit organization that collaborates with community partners to improve the health and well-being for residents in Monterey County. In Monterey County, about 50% of the adult population is affected with type 2 diabetes and prediabetes. Aspire Health provides a free diabetes education module to students in Monterey County grade K-12, where they learn about diabetes and how to make healthier lifestyle choices. The project consisted of launching a texting feature that provided resources on diabetes. The purpose was to raise awareness and education about diabetes in Monterey County by providing local resources on diabetes with the collaboration of United Way of Monterey County. Getting the texting feature launched by the first week of October was not possible. Aspire Health continues to work with United Way to get the texting feature launched. Aspire Health can continue to collaborate with local partners to fight the epidemic of diabetes.

Keywords: Diabetes, Education, Poverty, Food Insecurity

Agency & Communities Served

Aspire Health Plan is a health plan and a nonprofit insurance plan company, which is owned by Montage Health and Salinas Valley Memorial Healthcare System. They work in collaboration with each other, with providers, payers, and community partners, to promote health and wellness for their members and community (*Aspire Health*, n.d.). Their mission is to provide the best healthy lifestyle for the-community of Monterey County. They partner with healthcare providers, community organizations, and the people they serve by delivering care that is preventative, restorative, and palliative. In addition, Aspire Health helps people find solutions to any barriers that prevent them from good health, such as financial, emotional, and clinical, so that they can be in more control of their health. Moreover, Aspire Health helps the community address health issues, such as the high rates of diabetes, by using education, management, and coaching. Their vision is to “improve the lives of the community by providing excellent care while also inspiring those to pursue optimal health.” (*Aspire Health*, 2023).

Aspire Health serves the community of Monterey County. Specifically, those who are enrolled in their health plan, employees from Montage Health, Community Hospital of the Monterey Peninsula (CHOMP), and employees of Aspire Health as well. Another prominent community member they serve is K-12 students in Monterey County. Aspire Health also focuses on addressing the health issue of diabetes in Monterey County. By doing so, Aspire Health teaches a diabetes education curriculum to students in grades K-12 from all over Monterey County. They also serve families and children in Monterey County who have been referred by their pediatrician to Aspire Health due to having elevated blood sugar levels.

Problem Model Background and Literature Review

Problem Statement

Diabetes is a chronic health condition that affects how one's body turns food into energy, and it affects the body in the way it produces insulin, or it may not produce enough insulin (CDC, 2023). According to The Centers for Disease Control and Prevention, in the United States, there are about 38 million adults that are living with diabetes and in the last 20 years the number of adults that are living with diabetes has more than doubled, and a staggering 98 million of adults that are prediabetic (CDC, 2023). Diabetes is an ongoing public health concern that continues to affect the lives of people, and it is a health concern that continues to grow.

Monterey County has a high level of pre-diabetes and diabetes in the community that is affecting both adults and children. According to The Food Bank for Monterey County, "50% of residents in Monterey County are diabetic or pre-diabetic," and out of all the counties in California, Monterey County ranks the highest in food insecurity, which makes up 34% of their residents and incidence of type 2 diabetes which makes up 50% of their residents (*Diabetes Program*, n.d.). The data on the percentage of people affected by this health inequality and that reside in Monterey County is a significant percentage affecting the community members of Monterey County.

Figure 1: Problem Model

Contributing Factors	Problem	Consequences
Not having access to fresh, affordable, and healthy groceries (food desert/ insecurity)	There are high levels of pre-diabetes and diabetes in Monterey County	Detrimental effect on mental health
Not having access to healthcare, health education, or prevention		Long-term health problems
High rates of low economic status.		

Contributing Factors

Food Insecurity

Food insecurity is defined as when people do not have access to safe and nutritional food that is needed for normal growth, development, and living a healthy life, which can be the cause of living in an area where there is not any food available, or there are no resources available to obtain food as well (*Food and Agriculture Organization*, n.d.). A contributing factor to pre-diabetes and diabetes is a person's nutrition. If a person does not have access or has limited access to proper nutrition such as fresh, healthy, and affordable groceries, it can negatively impact their health and can also put them at a higher risk for health complications such as diabetes and can make it challenging to manage diabetes as well. People who are living in limited or food insecure households often have to resort to purchasing foods and groceries that are nutrient-dense, are high in fat, sugar, and carbohydrates, and have limited financial resources to purchase food and groceries that are fresh, such as fruits and vegetables (Flint et al., 2019). Having limited access to nutritious foods, especially for individuals who are prediabetic and

diabetic, can make it challenging to manage their sugar levels, let alone have a nutritious, balanced diet. Adding to the issue of living in a food insecure environment, at times, individuals who have a busy life working full time or even multiple jobs to make ends meet. This means that at times, they may not be able to find time or even have energy to make meals at home and would have to resort to eating pre-packaged food.

Limited Access to Health Care, Education, and Prevention

Not having access to affordable health care already puts individuals at a disadvantage and creates health disparities as well. This puts a barrier on individuals and prevents them from seeking medical care when needed or simply prevents them from having regular preventative services due to the limited access to health care and the out-of-pocket costs of health care (Office of Disease Prevention and Health Promotion (ODPHP), n.d.). This can lead to children and adults having a delayed diagnosis to health conditions such as diabetes and they are likely to receive preventative services and also they are less likely to receive appropriate education on how to prevent diabetes and less likely to receive appropriate treatment as well. Another interference to receiving health care is having limited availability to health care in a person's community, such as having a limited amount to clinics. This resorts to patients having to wait longer to receive care and also delay treatment as well. Many would have to resort to travel to clinics outside of their reach and also puts individuals with limited to no access to transportation to seek medical care (ODPHP, n.d.). The importance of educating community members about diabetes awareness plays a vital role in the prevention and management of diabetes. Education of diabetes should be accessible to all, and presented in a manner and language that is user friendly. It is known that there are several factors that contribute to not having or having a low level of knowledge when it comes to diabetes. These factors include having a low educational level, a

low socioeconomic level, age, and language barriers such as not being fluent or being a non English speaker (*Factors Associated With Knowledge of Diabetes in Patients With Type 2 Diabetes Using the Diabetes Knowledge Test Validated With Rasch Analysis*, 2013). Having little to no knowledge and awareness of the severity of diabetes, can affect how people may perceive the importance of diet, exercise, monitoring one's blood sugar level, and if a person has a family history of diabetes they may not have the awareness on the importance of checking their blood sugars regularly.

High Rates of Low Economic Status

Pre-diabetes and diabetes disproportionately affects, and is more present in individuals who come from a lower economic status (*Income-Related Inequalities in Diabetes Have Widened Over Past Decade, CDC Study Finds | ADA*, 2021). The link between poverty and diabetes risk and management is that individuals who are living at a poverty level are at a greater risk for overall health complications. Adults living with Type 2 diabetes that come from a household that is below the poverty level have a twofold higher risk of diabetes complications than those living in households with the highest income level (Hill, 2020). This could be due to not having the financial means to be able to take care of themselves and their health as well. People may not have the financial means to be able to afford to buy food let alone eat a healthy balanced meal. If the individual does not have health insurance due to it being costly they may not be able to seek medical care or have their own provider that they see regularly to get annual blood work done or annual physicals done. This puts those individuals' health at a greater risk for having undiagnosed and untreated health conditions such as diabetes. Individuals who are experiencing and living at a poverty level not only are at a disadvantage in seeking healthcare, but their economic status also affects their health and lifestyle as well.

Consequences

Detrimental Effect on Mental Health

Living with diabetes not only affects someone's physical health but it can also have a negative affect on their mental health. According to The Centers for Disease Control and Prevention (CDC) people with diabetes are 20% more likely to have anxiety than those individuals that are living without diabetes (CDC, 2023). Trying to manage a chronic condition can increase the likelihood of anxiety. This includes the overwhelming feeling of frustration, discouragement, and worriedness especially if one makes their best efforts to deal and manage their diabetes but they are not seeing the best results and are seeing their condition worsen (CDC, 2023). Dealing with anxiety and depression in general can already be extremely difficult to overcome, but when someone is living with a health condition such as diabetes, it can make it even more difficult to take care of themselves and manage their diabetes such as checking their blood sugar levels, eating foods that can spike their blood sugars or not eat at all, and skip doctors appointments as well (CDC, 2023).

Dealing with diabetes and the mental load that it can take to manage it, can cause a condition called diabetes distress. Diabetes distress is defined as feeling stressed, anxious, and depressed due to the management of diabetes (*Diabetes and Mental Health*, n.d.). The sudden change of life causes this condition. Being diagnosed with diabetes means that a lifestyle change has to happen such as changing one's diet, restricting some foods or drinks, making time to be physically active, having frequent doctor appointments, and having to take and remember to take medications. This new sudden lifestyle change and added responsibilities can take someone's time away from work, from their families or friends and time away from themselves as well. It is

imperative to mention that diabetes care and care for mental health go hand in hand, if one goes neglected it will affect the other.

Long-Term Health Problems

Another consequence of living with diabetes is that this health condition can also in the long run cause other health complications as well. Some health complications that could arise due to diabetes are kidney disease, skin problems, damage of the nerves, foot problems, heart disease, gum disease, and problems in the eyes (*Diabetes Complications*, 2020). Treating and managing diabetes can be an overwhelming challenge and it an even more of a challenge if it is not properly managed. Living with diabetes for a long period of time can start affecting the levels of blood pressure and cholesterol which can lead to heart attacks, strokes and blood vessel problems which can also affect the blood flow to legs and feet. (*Long-Term Complications of Diabetes*, 2022). Individuals can also start having issues with their eyesight and unfortunately can lead to loss of sight, the nerves in their body can become damaged leading to the loss of sensation, a burning and tingling sensation, and their skin can become more sensitive. Their feet and skin becoming more sensitive can make them more susceptible to developing sores and infections and if it goes untreated their legs, feet, or toes could be amputated (*Long-Term Complications of Diabetes*, 2022).

Project Description

Title: Prevalence of Diabetes in Monterey County

The capstone project is a collaboration between Aspire Health, 2-1-1, and United Way of Monterey County. The project is going to help address the issue of high rates of pre-diabetes and diabetes in the community of Monterey County. The capstone project will be composed of a texting feature, where residents in Monterey County can text a designated phone number and

their zip code to the keyword “DIABETES”. When texting the keyword to 2-1-1, community members will have the option to select from three different resource requests such as “Diabetes Prevention and Management”, “Food and Nutrition”, and “Exercise and Wellness”. Under “Diabetes Prevention and Management” resources for medical clinics, prescription assistance, diabetes management clinics and diabetes prevention will be listed there. Under the category for “Food and Nutrition” resources on food assistance such as CalFresh, groceries, food banks, farmers markets, and WIC will be listed under that category. Resources for “Exercise and Wellness” such as wellness programs, activities for the youth and exercise classes will be listed in that category as well. For example, if someone needs help finding the nearest diabetes management clinic they can select the option of “Diabetes Prevention and Management” and they will receive the nearest resources available to them.

Project Justification and Benefits

The goal of this project would be to address the issue of high rates of diabetes and pre-diabetes in the community of Monterey County. The issue would be addressed by providing resources for the community that focuses on education, prevention, management and also resources that also focus on food and nutrition, and exercise and wellness. The contributing factor that would be addressed in the completion and implementation of this project would be not having access to healthcare, prevention and health education, specifically health education since one of the resources provided would be diabetes education. The idea of the project would be that each member of the community of Monterey County would have access to this text messaging feature and based on their location they will have access to diabetes education and the nearest resource to them. By implementing this project, the benefits that will result are many.

Community members of Monterey County will have access to local resources in education, prevention, and management in diabetes.

Implementation Plan

The implementation process includes a collaboration between Aspire Health, 2-1-1, and United Way of Monterey. It first started with brainstorming ideas for the capstone project with both of the mentors from Aspire Health and intern. The intent of the project was to highlight and address the issue of the high rates of diabetes in the community of Monterey County, and the intent would be that the project would be sustainable. It was decided that it would be best to have a texting feature that could list all of the resources available in Monterey County versus having a flier with a list of resources. Members of Aspire Health met with United Way of Monterey County and 2-1-1 to introduce the capstone idea and to see if there was any possible collaboration between Aspire Health, 2-1-1, and United Way of Monterey County to launch a texting feature.

A key piece to the collaboration with United Way of Monterey County and 2-1-1, was making sure both agencies were on the same page with the resources that are going to be available and also agree on the keywords that would be used for the texting feature. Some of the tasks that had to be completed in order for the launch of the texting feature were to make sure that the resources that were going to be available to the community were up to date and that they were both offered in Spanish and English since Monterey County has a large Spanish speaking population. Once resources were up to date and in the correct category, such as “Diabetes Prevention and Management”, “Food and Nutrition”, and “Exercise and Wellness” the process of compiling a list of keywords that could be used for each category and subcategories in both English and Spanish was started. Once the keywords and resources list were done, Aspire Health

met with Kalyssa of United Way with the possible suggestions for keywords and the suggestions for the resource list. The timeline for the suggestions to be added to 2-1-1's website was to be done by mid September. This should have allowed enough time to work out any logistics or edits that could have been made for the final launch of the texting feature which was set for the first week of October. A more in depth description of the implementation plan can be accessed down below on Appendix A.

Assessment Plan & Expected Outcomes

The assessment for the project would be hosting a focus group in one of the Healthy Together classes Aspire Health provides. The focus group would be held the week of October 16. The Healthy Together program provides classes that involve both the parents and the youth that have been referred by their pediatrician to the classes due to having elevated blood sugar levels. In the class, parents and children work with one of Aspire Health's health coaches, and they talk about how to create healthy habits such as what consists of creating a healthy plate, the importance to aiming to eat five servings of fruits and vegetables a day, limiting screen time to two hours or less in a day, getting one hour or more a day of some type of physical activity, and the importance of having 0 sugary drinks. These classes are provided in the evenings and in both Spanish and English. Part of the project would be hosting a focus group for both classes in Spanish and English. Each class there's about 10-12 families which can include both parents and child or a parent and child. In the focus group there will be an explanation of the capstone project and the purpose of the capstone project as well. During the focus group attendees would be guided, explained, and taught how to use and navigate the texting feature while also asking some questions in regards to the texting feature. Some of the questions that would be asked would be where they usually go if they need help finding resources, if they have heard about

United Way of Monterey County before, what they think about the texting feature, and if they thought it was easy to navigate or not. It is hoped that those who can follow along would also use their phone to try to text the texting feature.

The expected outcome for this project would be to get some feedback from the community. During the focus group, a space would be given to community members to be as honest as possible with the text messaging feature and they will have the opportunity to share what they found useful. They will also be given an opportunity to give feedback on what they think the texting feature is missing or what can be changed, such as giving feedback if there is any missing resource in the texting feature that is a need in the community. There will also be a way to track the amount of times that people have been texting the 2-1-1 number. The measurable expected outcome would be to have at least 20 people that have used the resources by the end of October. But for the month of November since it would be Diabetes Awareness Month it is anticipated that that the number will increase especially with the distribution of flyers in the community.

Project Results

The expected outcome for this project was to launch the texting feature for all of the community members of Monterey County who needed the extra resources in the given time frame. Another outcome of this capstone project was getting feedback from the community on the texting feature. How this project would be measured as successful or not was by tracking how many people used the service using a tracker and also by hosting a focus group with some community members to provide feedback on whether either the texting feature was user-friendly for them, what their overall opinion of the texting feature is or if they have any suggestions that could be implemented into the texting feature if it were to be relaunched.

Due to timing constraints and needing to reach a deadline for the capstone project, the texting feature was not able to be completed by the project deadline. The texting feature did not launch, and since it did not establish in a timely manner, the conduction of the focus group was not successful either. Since working on launching the texting feature was a collaboration between Aspire Health and United Way of Monterey County, there were some roadblocks to get approval for the texting feature. One of the roadblocks that were found during the planning and implementation of the project were timing; due to the excess workload from both agencies it was challenging to hear back from United Way promptly on any updates. The first roadblock that was encountered was getting pushed back from wanting to change the layout of how the information was presented to the users. A suggestion was made to rearrange the categories on how the resources were going to be introduced into three different types, which were going to be “Diabetes Prevention and Management ” “Food and Nutrition,” and “Exercise and Wellness,” so it could be easier to access resources in one step versus having community members having to do multiple steps to access a resource. Due to not hearing back on time about the layout change, it was decided that it would be best to move forward without making the changes to the format for the first phase of the texting feature and to try to stay within the timeline. Another roadblock to launching the texting feature was trying to agree on the terms of the MOU. The MOU was going back and forth between Aspire Health and United Way due to the budget Aspire Health allocated for the project. United Way’s proposed MOU was out of the allocated budget Aspire Health gave. The status of implementing the texting feature is having both agencies agree with the MOU. Working in collaboration with other agencies for the betterment of the community is an ongoing continuation of effort.

Conclusion & Recommendations

To conclude, there should be more efforts in addressing the epidemic of the high rates of diabetes and pre-diabetes in the community of Monterey County. Not only should there be education on what diabetes is, but the efforts should focus on the contributing factors of diabetes, such as not having access to affordable fresh foods, no access to health care, education, or prevention, and low socioeconomic status. Some recommendations for Aspire Health or anyone or any agency that would want to implement a texting feature that would benefit community members would be to start the process of implementing the texting feature as early as possible. Since there was an issue of getting the MOU approved, this can be avoided by first having a meeting with other organizations to discuss what the allocated budget is and come with an agreement. This will prevent having the approval of the MOU delayed and it avoids having to constantly update the MOU.

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Appendix A

Project Implementation Plan

Activities	Deliverables	Timeline/Deadlines	Supporting Staff
Brainstorming capstone ideas		March 2023	Mia and Yasmine
Narrowing down capstone ideas	Have capstone project idea	May 2023	Mia and Yasmine
Meeting with Cameron, our communications specialist about the logistics of implementing a texting feature		May 2023	Cameron
Meeting with Mia, Cameron and United Way to see a possible collaboration for texting feature		May 2023	Mia, Cameron and United Way
Work on capstone project, making sure that resources that would be available in the texting feature be current, both in english and spanish and that the resources and programs are up to date as well		May, June, and July	Supporting staff
Once the updated list of resources was available, made sure to put them in three categories and i started brainstorming keywords for the texting feature		Around July, early August	Mia
Met with Mia and Cammeron to review the draft for my capstone		8/29/2023	Mia and Cameron
Connect with Kalyssa from United Way to move forward with using “Diabetes” as my texting keyword		9/19 & 10/3	Mia and Kalyssa

Launch texting feature		Week of 10/1	Mia and United Way
Work on how to assess the project such as create questions for focus group	Questions for focus group	10/3	Yasmine and Mia
Create a small flier about texting feature for diabetes resources	Create flier	10/10	Yasmine, Mia and Cameron
Present project at a Healthy Together class via focus group	Focus on part of assessment for project	Week of 10/16	Natalie and health coaches
Drop off flyers		Week of 10/16	Supporting staff