

## 'Diabetesity' – Using Mind Genomics thinking coupled with AI to synthesize mind-sets and provide direction for changing behavior

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### Abstract

*The combination of Mind Genomics and Artificial Intelligence (AI) presents an opportunity to delve into the mind-sets of individuals affected by diabetesity (obesity leading to possible diabetes). This paper shows how the suggestion to AI about different mind-sets of people regarding diabetesity can generate a rich source of ideas and suggestions. With the help of AI algorithms, these mind-sets can be synthesized and analyzed on a larger scale, providing valuable insights into the unique perspectives and preferences of individuals dealing with diabetesity. This innovative approach has the potential to revolutionize personalized healthcare strategies and interventions, ultimately leading to improved outcomes for those living with diabetesity.*

### Introduction

Diabetesity is defined as the two interrelated epidemics of obesity and type 2 diabetes. Obesity is a significant risk factor for getting diabetes, hence the two disorders are closely related. Diabetes is caused by a mix of hereditary, environmental, and behavioral factors, which result in weight increase and insulin resistance. People with diabetes often battle to control their weight, blood sugar levels, and general health. This disease is growing more common

in today's culture because to its broad availability. Diabetesity is a term that refers to the relationship between obesity and diabetes. Obese persons are more prone to develop type 2 diabetes because excess body fat increases insulin resistance. This condition may also cause other health problems, such as heart disease and high blood pressure. Diabetes is becoming more frequent in modern society as a consequence of sedentary lifestyles and poor dietary habits.

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Diabetes is caused by a combination of genetics, environmental factors, and lifestyle choices. People with a family history of diabetes are more likely to develop it themselves. Furthermore, a diet high in processed foods, sweets, and unhealthy fats may contribute to obesity and insulin resistance. Diabetes may also be caused by a lack of physical activity and high levels of stress.

Diabetes is a major issue in nations with broad availability to processed foods, sugary drinks, and sedentary lifestyles. Obesity and diabetes are prevalent in developed countries such as the United States, Australia, and a few European countries. In contrast, emerging nations with more traditional diets and active lives had lower levels of diabetes.

The medical community takes diabetes seriously and stresses the necessity of early identification and treatment. Healthcare practitioners try to educate patients about the dangers of diabetes and help them in making the required lifestyle adjustments. They may recommend medication, insulin therapy, or other therapies to help control diabetes and prevent complications.

People are becoming more aware of how diabetes affects individuals and communities. To prevent and control diabetes, a greater focus is being placed on encouraging healthy lifestyle choices such as frequent exercise and balanced eating. Some individuals may endure stigma or prejudice because of their weight or health condition, but there is also a need for more compassion and understanding for those suffering with diabetes.

When a person lets diabetes go unchecked, they are at risk of serious health consequences. Untreated diabetes can lead to complications such as nerve

damage, vision loss, kidney disease, and cardiovascular problems. In severe cases, diabetes can be life-threatening. It is essential for individuals with diabetes to work closely with their healthcare team to monitor and manage their condition effectively.

When individuals learn about diabetes but do not have it themselves, they may become anxious about their own health and well-being. They may also be motivated to make good adjustments to their diet and exercise routines in order to avoid diabetes. Some people may be interested or driven to learn more about the relationship between obesity and diabetes in order to protect themselves and their loved ones. Individuals with diabetes may find the diagnosis overwhelming and scary. They may feel guilty, ashamed, or frustrated about their situation. Managing diabetes requires considerable lifestyle adjustments and continual medical treatment, which may be difficult for some people. People with diabetes must seek help from healthcare experts, family members, and support groups in order to navigate their path to greater health and well-being.

### **Synthesizing mind-sets about diabetes – The contribution of Mind Genomics**

Mind Genomics refers to the emerging science which looks at the individual differences across people, especially those individual differences which are relevant to the everyday decisions that people make. Mind Genomics evolved from a combination of three disciplines. The first discipline is psychophysics, the oldest branch of experimental psychology. Psychophysics studies the relation between what people perceive and what physically exists. It is to psychophysics that we owe the idea of linkages between physical stimuli and perceptions. The second discipline is statistics, specific-

ly experimental design. The contribution there is the ability to systematically vary test stimuli, give those to people, get their responses, and show that there are different groups of people, different segments of people who respond. The third discipline is consumer research. The focus there is on evaluating differences in the perception of the everyday.

The outcome of Mind Genomics is the delineation of what is important to people for their everyday lives, and the discovery of underlying groups of people, mind-sets, with clearly different criteria of what is important in these everyday decisions.

The relevance of Mind Genomics to the study of diabetes is that there may exist in diabetes a variety of different mind-sets. These mind-sets are different ways of thinking about food and their own issues. If in fact there are these different mind-sets describing behaviors, then it becomes possible for clinicians to better understand and then motivate their clients or patients. The happy result may be lifestyles with better behaviors along with lowered chance of diabetes, or at least better control of diabetes that may be already the case.

For this study, we used a combination of Mind Genomics thinking and AI. Rather than working with actual people, we worked with AI that was embedded in the Mind Genomics platform, BimiLeap ([www.bimileap.com](http://www.bimileap.com)), in the option called Idea

Coach. The process was straightforward. We simply told the AI that there exists six different mind-sets. For each of the mind-sets, we asked AI to tell us about the name of the mind-set, how the mind-set presents itself, what are they thinking, who they are, how they feel, and so forth. The AI built into the BimiLeap platform returns very quickly with the answers to these questions. It is the AI itself which synthesizes the different mind-sets. We are not sure how the mind-sets are synthesized. All we know is that the mind-sets make a great deal of sense and give us an idea of the complexity of what may be out there in terms of patients, in terms of individuals who are suffering from diabetes. We learn what to say to them.

Table 1 shows the orientation provided to the AI. All the researcher has to do is type in the request to SCAS using Idea Coach. Within 15 to 20 seconds the mind-set(s) emerges. Basically each iteration becomes another mind-set because of the extensive information. SCAS cannot return more than a certain amount of information for each iteration, so it may take five or so minutes to get these six different mind-sets. Note in Table 1 the extensive amount of information that is requested from SCAS, the AI program. Again, it is important to emphasize that the information is synthesized by AI without any help from the user other than the request for answering the different questions.

**Table 1: Instructions given to AI to synthesize six mind-sets for diabetes**

<b>There are SIX mind-sets prone to diabetes (the disease of obesity with type 2 diabetes). For each mind-set, answer the following questions</b>
1. What is the name of the mind-set
2. Describe this mind-set in six sentences
3. How can this mind-set be recognized
4. Why is this mind-set suffering from diabetes from a medical point of view.
5. What are they thinking deep inside their mind
6. What could their physician say to make them change their behavior

7. What should be avoided
8. What five slogans would motivate them and keep them motivated
9. What is the difficulty of changing their behavior to become healthier.
10 How would they feel if they can change their behavior to become more healthy
11. Describe them in terms of gender, age, income, education, country, hobbies, shopping behavior, eating behavior, types of food they like

The actual text of what is returned by AI, by Rather than having a person spend many years SCAS, appears in Table 2. Each mind-set has a learning to identify these types and creating these thorough description. Each of the questions is pref- types of experiences, what we are doing essentially aced by an abbreviation of the question, such as is jump-starting the world of experience. There are description of the mind-set or recognizing this no medical things of a medical nature in Table 2, mind-set, why are they suffering from diabetes but rather psychological issues in the way Mind from a medical point of view, and so forth. The im- Genomics deals with them. That is, we are looking portance of Table 2 is that it serves as an introduc- at how people perceive themselves and how we tion to the issue of diabetes. The underlying infor- think that they would react. We don't expect people mation may take years to accumulate if we did not to know anything clinical, nor would that be ethi- have AI helping us. Instead, in a matter of an hour cal, but we do understand that people are aware of or so, we can craft a study guide in the form of this themselves and that when they talk among them- table to give us some initial ideas. We are not say- selves and when clinicians talk about them, these ing that these ideas, these suggestions of mind-sets mind-sets do come up, whether they come up ex- are what are actually there, but rather these are plicitly or implicitly.

plausible different ways of thinking about patients.

**Table 2: Information about each of the six mind-sets synthesized by AI for diabetes.**

<b>1 DENIAL MIND-SET</b>
<b>DESCRIPTION OF THE MIND-SET:</b> Individuals in the mind-set of denial often struggle to accept or acknowledge the seriousness of their health issues, particularly when it comes to diabetes. They may downplay the risks associated with obesity and diabetes, believing that they are not personally affected or that the situation is not as dire as it seems. This mind-set is characterized by a tendency to ignore or dismiss medical advice, leading to a lack of proactive efforts to address underlying health concerns. Denial can be a defense mechanism to cope with fear or anxiety about confronting the reality of their health condition.
<b>RECOGNIZING THIS MIND-SET:</b> The mind-set of denial can be recognized by a persistent refusal to engage in conversations about health, denial of the severity of symptoms or health risks, and avoidance of medical appointments or screenings. Individuals in denial may also exhibit a tendency to justify or rationalize unhealthy behaviors, such as poor dietary choices or sedentary lifestyle habits.
<b>WHY ARE THEY SUFFERING FROM DIABESITY FROM A MEDICAL POINT OF VIEW:</b> Individuals in the mind-set of denial are at a higher risk of suffering from diabetes due to their reluctance to address underlying health issues and make necessary lifestyle changes. Without acknowledging the seriousness of their condition, these individuals may delay seeking medical treatment or fail to adhere to recommended diet and exercise regimens, leading to uncontrolled weight gain and worsening of diabetic symptoms.
<b>WHAT ARE THEY THINKING ABOUT REGARDING THE VISIT TO THE DOCTOR:</b> Deep inside their mind, individuals in the mind-set of denial may be thinking that visiting the doctor is unnecessary or a waste of time. They may believe that their health is not a pressing concern or that they can continue to live as they have been without facing consequences.

**WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD SAY TO THEM:** Their physician or nutritionist should emphasize the importance of taking proactive steps to address their health concerns, provide clear information about the risks of diabetes, and offer support in making positive lifestyle changes. Encouragement to seek regular medical check-ups and to adopt healthier habits can help individuals in denial take control of their health.

**SLOGANS WHICH MAY MOTIVATE THEM AND KEEP THEM MOTIVATED:** "Choose health over denial," "Face the truth, change your future," "You have the power to take control," "Your health matters, don't ignore it," "Small steps lead to big changes."

**WHAT MAKES IT DIFFICULT FOR THEM TO CHANGE THEIR BEHAVIOR:** The fear of facing the reality of their health condition, the discomfort of stepping out of their comfort zone, and the challenge of breaking ingrained habits can make it difficult for individuals in the mind-set of denial to change their behavior. Additionally, feelings of shame or guilt for neglecting their health may contribute to resistance towards making positive changes.

**HOW WOULD THEY FEEL IF THEY COULD CHANGE THEIR BEHAVIOR:** If they were able to overcome their denial and make positive changes to improve their health, individuals in this mind-set may feel empowered, relieved, and more in control of their well-being. The sense of accomplishment and progress towards better health outcomes could boost their confidence and motivation to continue on a healthier path.

**TYPE OF PEOPLE IN THIS MIND-SET:** Individuals in the mind-set of denial can come from diverse backgrounds in terms of gender, age, income, education, and country. They may have a tendency to avoid confronting difficult realities in various aspects of their lives. In terms of hobbies, they may gravitate towards activities that provide distraction or escape from facing their health concerns. Their shopping behavior may reflect a preference for convenience over health-conscious choices. When it comes to eating behavior, they may indulge in comfort foods or rely on processed and fast food options. They may have a liking for sugary and high-calorie foods that provide temporary pleasure but contribute to their health issues.

## **2 DEFEATIST MIND-SET**

**DESCRIPTION OF THE MIND-SET:** Constantly feeling overwhelmed and hopeless, individuals with a defeatist mind-set tend to believe that change is impossible. They often struggle with self-confidence and motivation, leading them to resort to unhealthy habits as a coping mechanism. This mind-set can be a result of past failures or negative self-talk, creating a cycle of defeat.

**RECOGNIZING THIS MIND-SET:** This mind-set can be recognized by a lack of belief in one's ability to make positive changes, frequent self-deprecating statements, and a tendency to give up easily in the face of challenges. Individuals with a defeatist mind-set may also exhibit signs of low energy and motivation.

**WHY ARE THEY SUFFERING FROM DIABESITY FROM A MEDICAL POINT OF VIEW:** Individuals with a defeatist mind-set are more susceptible to diabetes due to their tendency to rely on unhealthy coping mechanisms, such as emotional eating or lack of physical activity. Their negative outlook on change can prevent them from seeking help or making positive lifestyle changes.

**WHAT ARE THEY THINKING ABOUT REGARDING THE VISIT TO THE DOCTOR** Deep down, individuals with a defeatist mind-set may fear judgment or failure when visiting the doctor. They may believe that their health problems are too overwhelming to address or that they will never be able to make lasting changes.

**WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD SAY TO THEM:** Their In order to help individuals with a defeatist mind-set change their behavior, their physician or nutritionist should emphasize the importance of small, achievable goals and provide support and encouragement. They should focus on building the individual's confidence and self-efficacy.

**WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD NOT SAY TO THEM:** It is important for their healthcare provider to avoid dismissing their concerns or belittling their struggles. Instead, a compassionate and understanding approach is necessary to help them overcome their defeatist mind-set.

**SLOGANS WHICH MAY MOTIVATE THEM AND KEEP THEM MOTIVATED:** "Every small step counts towards a healthier you." "You have the strength to overcome your obstacles." "Believe in yourself and your ability to change." "Progress, not perfection, is the key to success." "You are capable of so much more than you realize."

**WHAT MAKES IT DIFFICULT FOR THEM TO CHANGE THEIR BEHAVIOR:** The defeatist mind-set can make it difficult for individuals to change their behavior because they may feel overwhelmed by the thought of making significant lifestyle changes. Additionally, past failures or negative experiences can reinforce their belief that change is impossible.



<p><b>HOW WOULD THEY FEEL IF THEY COULD CHANGE THEIR BEHAVIOR:</b> If individuals with a defeatist mind-set are able to change their behavior and make healthier choices, they would likely feel a sense of empowerment and accomplishment. Breaking free from the cycle of defeat could lead to increased self-confidence and motivation.</p>
<p><b>TYPE OF PEOPLE IN THIS MIND-SET:</b> Individuals with a defeatist mind-set can come from various backgrounds, but they are more likely to be middle-aged adults with average income and education levels. They may engage in passive hobbies and tend to avoid challenging themselves. In terms of shopping behavior, they may opt for convenience foods and processed items. Their eating behavior may involve emotional eating or binge-eating, and they may prefer comfort foods and high-calorie treats.</p>
<p style="text-align: center;"><b>3 FEAR OF CHANGE MIND-SET</b></p>
<p><b>DESCRIPTION OF THE MIND-SET:</b> Fear of change is when an individual becomes paralyzed by the idea of making any alterations to their lifestyle, particularly when it comes to diet and exercise. They often feel overwhelmed by the thought of giving up their favorite unhealthy foods or incorporating physical activity into their daily routine. This mind-set can stem from a deep-seated fear of failure or a lack of confidence in their ability to make lasting changes. They may also struggle with feelings of discomfort or uncertainty when faced with the prospect of stepping outside their comfort zone. Fear of change can manifest as a resistance to trying new things or an aversion to taking risks in order to improve their health.</p>
<p><b>RECOGNIZING THIS MIND-SET:</b> Fear of change can be recognized by a tendency to avoid discussions or activities that involve making significant lifestyle adjustments. Individuals with this mind-set may exhibit resistance or defensiveness when presented with suggestions for lifestyle modifications. They may also express feelings of anxiety or apprehension when contemplating changes to their habits or routines. Recognizing this mind-set involves identifying patterns of avoidance or reluctance to step outside of their comfort zone.</p>
<p><b>WHY ARE THEY SUFFERING FROM DIABESITY FROM A MEDICAL POINT OF VIEW:</b> Individuals with a fear of change are at risk for diabetes due to their resistance to adopting healthier habits. This mind-set can lead to a sedentary lifestyle and a diet high in processed and unhealthy foods, both of which contribute to weight gain and insulin resistance. Without making meaningful changes to their lifestyle, they are more likely to develop chronic conditions such as obesity and type diabetes.</p>
<p><b>WHAT ARE THEY THINKING ABOUT REGARDING THE VISIT TO THE DOCTOR:</b> Individuals with a fear of change may dread the prospect of visiting a doctor, as they fear being criticized or judged for their unhealthy habits. They may also worry about being told to make significant lifestyle changes that seem daunting or overwhelming. Deep inside their mind, they may be questioning whether they are capable of making the necessary adjustments to improve their health.</p>
<p><b>WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD SAY TO THEM:</b> Their physician or nutritionist should approach them with empathy and understanding, acknowledging their fears and concerns about making lifestyle changes. They should focus on small, achievable goals that can help build confidence and momentum towards healthier habits. Encouraging them to take gradual steps towards improving their diet and increasing physical activity can make the process less intimidating.</p>
<p><b>WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD NOT SAY TO THEM:</b> Their physician or nutritionist should avoid using language that imposes guilt or shame on the individual for their current health status. They should refrain from making judgmental comments or criticizing their past behavior, as this can further reinforce their fear of change.</p>
<p><b>SLOGANS WHICH MAY MOTIVATE THEM:.</b> "Every small step counts towards a healthier you.". "Embrace change as an opportunity for growth.". "Don't let fear hold you back from reaching your health goals.". "Believe in your ability to make positive changes for a better future.". "Start today, your future self will thank you for it."</p>
<p><b>WHAT MAKES IT DIFFICULT FOR THEM TO CHANGE THEIR BEHAVIOR:</b> What makes it difficult for individuals with this mind-set to change their behavior is the deep emotional connection they have with food. Breaking the habit of using food as a reward or coping mechanism requires a shift in mind-set and the development of new coping strategies.</p>
<p><b>HOW WOULD THEY FEEL IF THEY COULD CHANGE THEIR BEHAVIOR:.</b> If individuals with a fear of change were able to overcome their resistance and make positive lifestyle changes, they would likely experience a sense of empowerment and accomplishment. Breaking free from the constraints of their fear would open up new possibilities for improved health and well-being, leading to feelings of pride and self-confidence.</p>

**TYPE OF PEOPLE IN THIS MIND-SET:** Individuals with a fear of change can come from diverse backgrounds, but may tend to be hesitant, anxious, or risk-averse when it comes to adjusting their lifestyle. They may be of any gender, age, income level, or education background, but share a common reluctance to step outside their comfort zone. In terms of hobbies, they may gravitate towards activities that provide a sense of familiarity and security. When it comes to shopping and eating behavior, they may prefer convenience over health-conscious choices and lean towards comfort foods and processed snacks.

#### **4 FOOD AS REWARD MIND-SET**

**DESCRIPTION OF THE MIND-SET:** This mind-set revolves around using food as a reward for accomplishments or to cope with emotions, leading to overeating and unhealthy food choices. They often associate certain foods with positive feelings, leading to a cycle of emotional eating. Food is used as a source of comfort or happiness, making it difficult for them to break the habit. They may use food as a way to celebrate or self-soothe, leading to excessive caloric intake.

**RECOGNIZING THIS MIND-SET:** This mind-set can be recognized by their tendency to reach for food in times of stress or when feeling down. They may also have a habit of rewarding themselves with unhealthy treats after achieving a goal. They often use phrases like "I deserve this" when indulging in comfort foods.

**WHY ARE THEY SUFFERING FROM DIABESITY:** From a medical point of view, this mind-set is suffering from diabetes due to the excessive intake of calories and unhealthy foods. The constant cycle of using food as a reward or coping mechanism leads to weight gain and insulin resistance, contributing to the development of diabetes.

**WHAT ARE THEY THINKING ABOUT REGARDING THE VISIT TO THE DOCTOR:** What are they thinking deep inside their mind as they visit the doctor for their diabetes? They may feel anxious about how their eating habits will be judged and worried about making changes to their reward system using food.

**WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD SAY TO THEM:** What could their physician or nutritionist say to make them change their behavior and break the cycle of using food as a reward? They should emphasize the importance of finding alternative ways to cope with emotions or reward themselves without relying on food. Encouraging healthier coping mechanisms and providing support in making gradual changes can help them shift their mind-set.

**WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD NOT SAY TO THEM:** What should be avoided in conversations with this mind-set is shaming or blaming them for their eating habits. Instead of focusing on negativity, the focus should be on positive changes and finding solutions that work for them.

**SLOGANS WHICH MAY MOTIVATE THEM:** "Fuel your body for success, not just for comfort." "Healthy habits, happy life." "Celebrate with a workout, not with food." "Food is fuel, not therapy." "Choose progress over treats."

**WHAT MAKES IT DIFFICULT FOR THEM TO CHANGE THEIR BEHAVIOR:** What makes it difficult for individuals with this mind-set to change their behavior is the deep emotional connection they have with food. Breaking the habit of using food as a reward or coping mechanism requires a shift in mind-set and the development of new coping strategies.

**HOW WOULD THEY FEEL IF THEY COULD CHANGE THEIR BEHAVIOR:** How would they feel if they can change their behavior to become healthier? They would likely feel a sense of empowerment and control over their eating habits. By finding alternative ways to cope with emotions and rewarding themselves, they can experience improved physical and mental well-being.

**TYPE OF PEOPLE IN THIS MIND-SET:** Individuals in this mind-set may be of any gender, age, income, and education level. They may enjoy indulging in hobbies that involve food or cooking. They tend to shop for comfort foods and may have a preference for high-calorie treats. Their eating behavior is driven by emotions rather than physical hunger cues, leading to weight gain and health issues. They may favor processed and sugary foods that provide a temporary sense of pleasure.

#### **5 UNMOTIVATED MIND-SET**

**DESCRIPTION OF THE MIND-SET:** Unmotivated individuals lack the drive and determination to make positive changes in their lifestyle, often feeling overwhelmed by the idea of improving their health. They may have a negative mind-set towards exercise and healthy eating, viewing them as tedious and unenjoyable. Unmotivated people may lack self-discipline and struggle to stick to a routine, making it difficult for them to adopt healthier habits. They may also tend to give up easily when faced with obstacles or setbacks, leading to a cycle of inaction. Unmotivated individuals may prioritize short-term pleasures over long-term health benefits, leading to poor choices in their diet and lifestyle.

**RECOGNIZING THIS MIND-SET:** Unmotivated individuals can be recognized by their lack of enthusiasm or interest in making positive changes to improve their health. They may exhibit a sense of apathy or resignation towards their current situation, feeling powerless to make any meaningful changes. Procrastination and avoidance of healthy behaviors are common signs of this mind-set. Unmotivated people may also display a defeatist attitude, believing that their efforts will not lead to any significant results.

**WHY ARE THEY SUFFERING FROM DIABESITY:** From a medical point of view, unmotivated individuals are more likely to neglect their health and engage in behaviors that contribute to diabetes. Their lack of drive to make positive changes results in poor dietary choices, sedentary lifestyle, and overall neglect of their health. Without the motivation to address these risk factors, they are at a higher risk of developing diabetes and experiencing related health complications.

**WHAT ARE THEY THINKING ABOUT REGARDING THE VISIT TO THE DOCTOR:** Unmotivated individuals may dread the idea of visiting a doctor, as it may confront them with the reality of their poor health choices and the need for change. They may feel overwhelmed by the prospect of discussing their lifestyle habits and may be reluctant to take action based on the doctor's recommendations.

**WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD SAY TO THEM:** Their physician or nutritionist should emphasize the importance of taking small steps towards improving their health, highlighting achievable goals and incremental changes. They should provide support and encouragement, acknowledging the challenges they may face but also instilling confidence in their ability to make positive changes. Offering practical advice and resources tailored to their individual needs can help motivate them to take action and improve their health.

**WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD NOT SAY TO THEM:** Their physician or nutritionist should avoid using a judgmental or critical tone, as this can further demotivate an already unmotivated individual. Guilt-tripping or shaming them for their current behavior is counter-productive and can drive them further away from making positive changes.

**SLOGANS WHICH MAY MOTIVATE THEM:** "One small step at a time towards a healthier you." "Progress, not perfection - celebrate every little win." "You have the power to change your health destiny." "Believe in yourself, you are capable of so much more." "Your health is worth the effort, start today for a better tomorrow."

**WHAT MAKES IT DIFFICULT FOR THEM TO CHANGE THEIR BEHAVIOR:** Unmotivated individuals may find it difficult to change their behavior due to a lack of belief in their ability to succeed. They may struggle with overcoming inertia and breaking out of their comfort zone, preferring to stay in familiar but unhealthy patterns. The prospect of making significant lifestyle changes can be daunting and overwhelming for them, leading to a sense of paralysis and indecision.

**HOW WOULD THEY FEEL IF THEY COULD CHANGE THEIR BEHAVIOR:** If they could change their behavior to become healthier, they would likely experience a sense of accomplishment and pride in their ability to overcome their unmotivated mind-set. They may feel empowered and in control of their health, realizing the positive impact that small changes can have on their well-being. Improved energy levels, better mood, and enhanced overall health would be motivating factors for them to continue making positive choices.

**TYPE OF PEOPLE IN THIS MIND-SET:** Unmotivated individuals in this mind-set may come from various gender, age, income, education, country, hobbies, shopping behavior, and eating behavior backgrounds. They may be of any gender and age group, with varying levels of income and education. They may reside in any country but share a common lack of motivation towards improving their health. Hobbies may include sedentary activities or passive forms of entertainment, with shopping behavior focused on convenience and familiarity. Their eating behavior may involve a lot of processed and unhealthy foods that require minimal effort to prepare, as they may lack the motivation to prioritize their health.

## **6 RESISTANT MIND-SET**

**DESCRIPTION OF THE MIND-SET:** This mind-set is characterized by a strong refusal to change habits or behaviors that contribute to diabetes. They tend to ignore or dismiss medical advice, believing they know better. They may resist making any effort to improve their health, often finding excuses to avoid taking action. This mind-set can be stubborn, set in their ways, and unwilling to consider any alternatives. They may have a tendency to argue or push back against suggestions for change, making it hard for others to get through to them.



<p><b>RECOGNIZING THIS MIND-SET:</b> This mind-set can be recognized by their resistance to change, refusal to acknowledge the seriousness of their health issues, and tendency to deflect blame onto others or external circumstances. They may demonstrate a lack of motivation or willingness to make any effort to improve their health. They may also exhibit a defensive or confrontational attitude when confronted about their choices.</p>
<p><b>WHY ARE THEY SUFFERING FROM DIABESITY FROM A MEDICAL POINT OF VIEW:</b> This mind-set is suffering from diabetes because their resistance to change prevents them from taking the necessary steps to manage their condition. They may neglect proper diet, exercise, and medication, leading to uncontrolled blood sugar levels and weight gain. Their refusal to seek help or follow medical recommendations exacerbates their health issues, putting them at increased risk of complications.</p>
<p><b>WHAT ARE THEY THINKING ABOUT REGARDING THE VISIT TO THE DOCTOR:</b> Deep inside their mind, they may be thinking that a visit to the doctor is unnecessary or a waste of time. They may believe that they already know what they need to do to manage their health and that no one else can help them. They may view medical professionals as judgmental or unhelpful, leading them to avoid seeking assistance.</p>
<p><b>WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD SAY TO THEM:</b> Their physician or nutritionist should appeal to their desire for independence and autonomy by emphasizing that they have the power to take control of their health. They should encourage small, manageable changes and provide support in finding resources or tools to help them make progress. By framing the conversation in a non-confrontational, collaborative way, they may be more receptive to making positive changes.</p>
<p><b>WHAT THEIR PHYSICIAN OR NUTRITIONIST SHOULD NOT SAY TO THEM:</b> Their physician or nutritionist should avoid using a harsh or critical tone when addressing their resistance to change. They should refrain from lecturing or shaming them for their choices, as this may only reinforce their negative beliefs and behaviors. Instead, they should focus on building a trusting, supportive relationship to guide them towards healthier habits.</p>
<p><b>SLOGANS WHICH MAY MOTIVATE THEM:</b> "Take small steps towards a healthier you!" "You have the power to change your future." "Every choice you make matters." "Don't let resistance hold you back from a better life." "Health is your greatest wealth."</p>
<p><b>WHAT MAKES IT DIFFICULT FOR THEM TO CHANGE THEIR BEHAVIOR:</b> The difficulty for them to change their behavior lies in their deep-seated resistance to any form of change. They may feel threatened by the idea of altering their habits and routines, leading to a sense of discomfort or apprehension. They may also struggle with feelings of pride or stubbornness, making it hard for them to admit they need help or guidance. Additionally, they may lack the necessary support or resources to make sustainable changes.</p>
<p><b>HOW WOULD THEY FEEL IF THEY COULD CHANGE THEIR BEHAVIOR:</b> If they could change their behavior to become healthier, they may feel a sense of empowerment and accomplishment. They may experience a newfound confidence in their ability to make positive choices for their well-being. By overcoming their resistance and taking steps towards better health, they may feel a sense of relief and optimism for the future.</p>
<p><b>TYPE OF PEOPLE IN THIS MIND-SET:</b> This mind-set could be seen in individuals of various genders, ages, income levels, and educational backgrounds. They may reside in any country but tend to share common traits such as stubbornness, resistance to change, and a reluctance to seek help. They may have hobbies that do not prioritize physical activity or healthy living, such as watching TV or playing video games. In terms of shopping behavior, they may gravitate towards convenience foods and processed snacks, avoiding fresh produce or whole foods. Their eating behavior may include frequent indulgence in sugary or high-fat foods, leading to poor dietary choices. They may prefer comfort foods or familiar dishes that provide a sense of satisfaction.</p>

**The next step: from general categorical mind-sets to specific mindsets based on synthesized population characteristics**

We finish this paper with an example of how AI can synthesize a variety of people, two from Harlem, New York (people of color, immigrants, lower incomes) and two from New Canaan, Connecticut (white American-born with deep historical roots in the USA, high income).

The AI, SCAS, was told to create several mind-sets for each group. The mind-sets were not specified. SCAS was told answer a series of questions about each of these people and how they should be treated, who they are, what they typically can do or do to treat diabetes, how they react going to the doctor's office, what they think about with their bodies, and their emotional reactions.

It is clear from Table 3 that AI synthesized significantly different mind-sets. Of course, it is not clear that the information is accurate. That is a different question. Rather, the interesting thing is that just by having a sense of who these people are, AI can quickly develop personas and put information around them.

**Table 3: Comparison of two pairs of ‘comparable mind-sets’, one from Harlem, NY, and the other from New Canaan, CT.**

<p style="text-align: center;"><b>1. HARLEM: WEIGHT LOSS WARRIORS</b></p> <ol style="list-style-type: none"><li>2. This mind-set is focused on taking control of their weight through exercise and healthy eating habits to prevent or manage diabetes.</li><li>3. The Weight Loss Warriors in Harlem are primarily composed of women, aged 30-50, with lower to middle income levels and varying educational backgrounds.</li><li>4. They may perceive their own obesity as a challenge that they are determined to overcome through hard work and dedication.</li><li>5. If they have diabetes, they may view it as a wake-up call to prioritize their health and make positive lifestyle changes.</li><li>6. A doctor can get this mind-set to comply by providing a realistic, personalized weight loss plan and offering ongoing support and encouragement.</li><li>7. Slogans they would accept hearing: "Stronger every day, healthier every step," "Weight loss is a journey, not a destination," "Your health is your wealth – invest in it."</li><li>8. After a doctor visit, they would likely follow their recommended diet and exercise plan diligently, as they are motivated to achieve their weight loss goals and improve their overall health.</li><li>9. They may think about their own body and health as a work in progress, acknowledging the need for self-care and perseverance.</li><li>10. What would scare them into listening to the doctor: Potential complications of unmanaged diabetes, such as nerve damage or vision loss, could motivate them to take their health more seriously.</li></ol> <p style="text-align: center;"><b>NEW CANAAN CT - FITNESS FOCUSED</b></p> <ol style="list-style-type: none"><li>1. This mind-set prioritizes physical activity and healthy eating habits to prevent and manage diabetes.</li><li>2. It is composed mostly of middle-aged adults with higher incomes and education levels.</li><li>3. They may perceive their obesity as a hindrance to their overall health and wellness goals.</li><li>4. They may perceive their diabetes as a challenge that can be managed through lifestyle changes.</li><li>5. Doctors can encourage them by providing personalized exercise and nutrition plans tailored to their preferences and capabilities.</li><li>6. Slogans: "Move more, eat better, live longer", "Your health, your choice, your future", "Progress, not perfection - start today"</li><li>7. After a doctor visit, they are likely to follow through with any recommended lifestyle changes, such as increasing physical activity and adopting a healthier diet, to maintain their fitness-focused mind-set.</li></ol> <p style="text-align: center;"><b>HARLEM, NEW YORK - RESISTANT &amp; SKEPTICAL MENTALITY</b></p> <ol style="list-style-type: none"><li>1. This mind-set is characterized by skepticism towards medical advice and reluctance to make significant lifestyle changes.</li><li>2. Demographics include a diverse range of ages, predominantly lower income individuals with varying education levels, and a mix of genders.</li><li>3. They may perceive their obesity as a result of external factors beyond their control, such as genetics or socioeconomic conditions.</li></ol>
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1. Those with diabetes may feel overwhelmed and resigned to their condition, leading to a sense of hopelessness about managing it effectively.
2. Doctors can work with this mind-set by building trust, providing clear explanations, and highlighting the potential benefits of treatment compliance.
3. Slogans they might respond to could be "Take control of your health, take control of your future," "Small steps for big changes," and "Your health matters, don't ignore it."
4. After a doctor visit, they may struggle to implement recommended changes due to a lack of belief in the efficacy of medical interventions.
5. They may have a negative perception of their body and health, feeling defeated by health challenges and the barriers they face.
6. Fear of the consequences of unmanaged diabetes, such as amputations or blindness, could motivate them to listen to their doctor's advice.

#### **NEW CANAAN CT - MEDICAL COMPLIANCE CHALLENGERS**

1. This mind-set struggles to adhere to medical directives, often missing appointments or neglecting to follow prescribed treatment plans for diabetes. They may feel overwhelmed or resistant to making lifestyle changes.
2. The composition of this mind-set varies but may include individuals of diverse genders, multiple age groups, lower income levels, and educational backgrounds.
3. They may have a negative perception of their obesity, feeling helpless or ashamed about their weight.
4. If they have diabetes, they may view it as a burden or inconvenience that interferes with their daily routine.
5. To promote compliance, a doctor can offer patient education, support resources, and regular check-ins to help this mind-set understand the importance of managing diabetes and diabetes.
6. Slogans they would accept hearing: "Your health matters, take charge today"; "Small steps lead to big improvements"; "Empower yourself through health."
7. After a doctor visit, they may struggle to follow through with recommended lifestyle changes but could benefit from ongoing support and encouragement to improve their health.
8. They may have a negative self-image and struggle with self-care practices, which can impact their overall health and well-being.
9. What would scare them into listening to the doctor: The risk of developing serious complications from untreated diabetes or diabetes.

### **Discussion and conclusions**

Mind Genomics may help decrease or cure diabetes by researching individual mind-sets and health-related behaviors. Understanding the individual preferences and motivators of persons at risk of diabetes allows treatments and tactics to be customized to their requirements more successfully. Mind Genomics can also help discover hurdles to behavior change and devise customized solutions to overcome them.

Using Mind Genomics, we may discover the many cognitive processes and emotional reactions that drive behaviors connected to diabetes and obesity. The collaboration of Mind Genomics and AI opens up new avenues for investigating the complicated interaction between mentality and health outcomes

in people with diabetes. Mind Genomics allows us to capture the subtleties of individuals' cognitive processes and decision-making patterns on food, exercise, medication adherence, and other lifestyle aspects. AI systems may then sift and analyze this massive quantity of data, uncovering common themes and patterns that may impact diabetes-related behavior and treatment adherence. By combining these mind-sets, AI can give healthcare providers actionable insights and targeted actions to help patients manage their disease and improve their overall well-being.

One could imagine the absolute delight of a nutrition student who begins thinking about the differences in the treatment of these individuals or the differences even in how these individuals are greet-

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ed. It is this kind of jump-starting the critical thinking process that makes AI synthesis of mind-sets so attractive to the medical profession. The goal is not to shortcut nor circumvent the clinical work, but rather to begin to teach the clinician and all of those who come into contact with these individuals the nature of how people may think. Mind Genomics coupled with AI thus provides a very strong basis for the start of creative and critical thinking in the area of diabetes in particular, and for health and wellness journey for the other.

There are several advantages of having AI synthesize the mind-sets of people with diabetes. Healthcare professionals may create more focused treatments and individualized treatment programs by identifying the underlying beliefs, attitudes, and motives that drive behavior in this group. AI may assist healthcare practitioners detect patterns and relationships in data, allowing them to personalize their approach to each individual's particular requirements. Furthermore, by better understanding the mind-sets of people with diabetes, healthcare practitioners may design more effective communication tactics and motivating approaches to assist behavior change and long-term adherence to treatment regimens. Finally, the cooperation between Mind Genomics and AI has the potential to transform customized care and enhance outcomes for people with diabetes.

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