EMERGING TRENDS IN LIFESTYLE, NUTRITION AND SELF-MANAGEMENT OF DIABETES.

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APPROVAL

The Project report titled "EMERGING TRENDS IN LIFESTYLE, NUTRITION AND SELF-MANAGEMENT OF DIABETES," presented by Darimi Naz Alam to the Department of Nutrition and Food Engineering at Daffodil International University, has been deemed satisfactory for the partial fulfilment of the requirements for the degree of B.Sc. in Nutrition and Food Engineering. Approval has been granted for its style and content.

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DECLARATION

I affirm that I have undertaken this Project under the guidance of Ms. Arifa Sultana, Lecturer in the Department of NFE at Daffodil International University. Furthermore, I confirm that neither this Project nor any portion of it has been presented elsewhere for the conferral of any degree or diploma.

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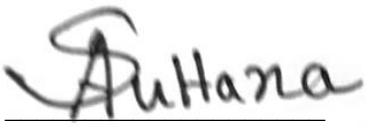

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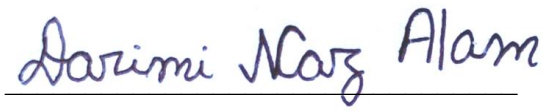

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Lastly, I want to convey my deepest gratitude to all the patients who collaborated with me. Their support during challenging times and shared joy during moments of happiness served as constant sources of inspiration for my future endeavours.

ABSTRACT

This study finds gender-specific differences in diabetes management, including exercise engagement, confidence, awareness of support communities, sleep prioritisation, monitoring technology use, diet, and openness to non-traditional methods. These differences must be recognised and addressed to design specialised diabetes care methods for men and women. The study highlights complex factors that greatly affect diabetes treatment interventions and personalised methods.

Crosstabulation of age groups with diabetes kinds provides additional information. One child under 18 has Type 1 diabetes, two Type 2, and four Prediabetes. Five people in the 18-30 age range have Type 1 diabetes, three have Type 2, eight have Prediabetes, and five have no diabetes. The 31-45 age group had two Type 1 diabetes cases, nine Type 2, seven Prediabetes, and two no diabetes. Eleven 46-60-year-olds had Type 1 diabetes, 10 Type 2, 23 Prediabetes, and eight no diabetes. This extensive crosstabulation gives demographic insights regarding the frequency of different diabetes types across age groups in the research population.

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CHAPTER 1

1.1 Introduction

Diabetes mellitus, especially type 2 diabetes, is a common and preventable health problem that affects 463 million people in 2019 and is projected to reach 700 million by 2045. This long-term illness is linked to serious consequences like heart disease, stroke, kidney failure, and blindness, which raises the risk of illness and death and lowers the quality of life. Diabetes has a big effect on the economy. It is expected that healthcare costs will hit US$825 billion by 2030 and US$845 billion by 2045.

Diabetes has become more common in low- and middle-income countries, like Bangladesh, where it affects more than two-thirds of the population. This rise is due to things like better socioeconomic status, rapid urbanisation, and changes in habits like less exercise and worse diets. As people in Bangladesh switch from traditional to fast food habits, the number of people with diabetes is expected to rise, reaching 13.7 million by 2045.

People with diabetes have too much glucose in their blood because their bodies aren't making enough insulin or aren't using it properly. It can happen to people of any age and is usually a long-term condition that can be managed with medicine or changes to how you live your life.

Glucose, obtained from food, serves as the body's primary energy source, transported via the bloodstream with the help of insulin. If there's a shortage of insulin or it's not used effectively, glucose accumulates in the blood, causing high blood sugar. Consistently elevated blood sugar over time can lead to health issues like heart disease, nerve damage, and eye problems. Diabetes mellitus is the technical term for diabetes. It's important to note that another condition, diabetes insipidus, shares the term "diabetes" but is less common and distinct, causing increased thirst and frequent urination.

Diabetes, whether Type 1 or Type 2, affects how your body handles blood sugar or glucose, which is the fuel for your cells. To allow glucose into the cells, your body needs a 'key,' and insulin acts as that key.For people with Type 1 diabetes, the body doesn't produce insulin, so it's like missing the key to open the cell doors. In Type 2 diabetes, the body doesn't respond well to insulin, and later on, there might not be enough insulin, likened to having a 'broken key.

Both types cause high blood sugar levels over time, leading to potential complications associated with diabetes.In terms of risks, it's less clear for Type 1 diabetes. However, having a family member (like a parent or sibling) with Type 1 diabetes can increase the chance of developing it. Type 1 diabetes can appear at any age, but it's more common in children and adolescents.

Studies in Bangladesh reveal a steady rise in diabetes prevalence among adults, with urban dwellers, higher-income households, older individuals, and those with hypertension exhibiting higher rates. Notably, urban areas show a significantly higher prevalence compared to rural areas, without significant gender differences. Additionally, longer diabetes duration, insulin use, and the presence of complications contribute to higher annual costs per patient. Lower socioeconomic status correlates with reduced awareness and spending on diabetes care.

Despite an evident upward trend in diabetes prevalence, population-based studies assessing its prevalence and related risk factors are limited, and existing data may be outdated. This study aims to fill this gap by investigating changes in type 2 diabetes prevalence among Bangladeshi adults from 2011 to 2018, considering socioeconomic and demographic characteristics. Understanding these trends and associated risk factors is crucial for ensuring equitable access to necessary diabetes treatment within the population.

1.2 Background

Hypertension stands as a significant non-communicable medical condition and ranks as the third most substantial contributor to disability, as highlighted in the findings by (Abbatecola, 2013). The global prevalence of hypertension has surged from 972 million in 2000 to an estimated 1.56 billion in 2025, underscoring its escalating impact on public health (Kearney et al., 2005). Individuals with hypertension face a twofold increased risk of cardiovascular disease, a fourfold heightened risk of congestive heart failure, and a sevenfold elevated risk of cerebrovascular disease or stroke compared to those without hypertension, emphasizing the critical health implications associated with this condition (Aldiab & Shubair, 2010).

Across various regions, hypertension exhibits a noteworthy prevalence, particularly in South Asia. The incidence varies from 50% in India (Armstrong, 2006) to 75% in Pakistan (Armstrong, 2006). Additionally, hypertension is notably common in other countries such as Korea (55%), Nigeria (60%) (Gispen, 2000), and Saudi Arabia (ranging from 54.2% to

78.1%) (Al Harbi et al., 2015). Despite this widespread prevalence, there is a scarcity of studies on hypertension within the population of Bangladesh.

Earlier research in 1998 reported systolic and diastolic hypertension rates of 32.2% and 13.6%, respectively (Sayeed et al., 1998). In later research, like the 2011 Bangladesh Demographic Health Survey, the number of people with high blood pressure rose to 38.7% (Abbatecola, 2013) and even higher in the general population of Bangladesh, to 57.4% (Mittal & Singh, 2013). The rising numbers show that the number of people with high blood pressure in Bangladesh is on the rise. This is due to both known pathophysiological factors and the fast changes in epidemiology that come with people moving to cities, living longer, and making bad changes to their diet and lifestyle.

For hypertension to be effectively treated, both patients and medical workers need to be more aware of it. To get a good handle on things, you need to know how common high blood pressure is, how much people know about it and can control it, and what factors are causing it. Having this all-around understanding is important for putting in place specific strategies and interventions that will help reduce the growing burden of high blood pressure in Bangladesh.

1.3 Objectives:

Primary Objective:

Conduct a comprehensive review of current literature, surveys, and social media analytics to assess the level of awareness and engagement among individuals with diabetes regarding emerging trends in lifestyle, nutrition, and self-management practices.

Secondary Objective:

Explore the perceptions and attitudes of healthcare providers, including physicians, dietitians, and diabetes educators, regarding the effectiveness and feasibility of integrating emerging trends in lifestyle, nutrition, and self-management practices into standard diabetes care protocols.

CHAPTER 2

2. Literature Review

(Abbatecola, 2013) did a thorough study of hypertension and its complex links to cardiovascular health. They found important information about how widespread the effects of high blood pressure are, revealing that it plays a big role in heart diseases, strokes, kidney failures, and early deaths. With a 14.6% incidence rate in the study group, the study showed how common high blood pressure is and shed light on its different forms, such as diastolic and systolic hypertension that don't affect each other. Surprisingly, 29.2% of people had high blood pressure, which shows how important it is to address this health problem right away. Even though the problem is very serious, only 21.1% of people with high blood pressure were properly diagnosed and given treatment for it. This shows that there are big gaps in healthcare interventions.

Based on these results, (Aldiab & Shubair, 2010) went into more detail about how the different factors that cause high blood pressure are linked. They focused on the strong links between gender, body mass index, and having had diabetes and high blood pressure in the past. Notably, the study focused on how common prehypertension and cases that haven't been found are, especially among young people. It called for a national screening programme and public education campaigns to make people more aware of hypertension and its risk factors.

Numerous research studies have consistently highlighted the pivotal role of physical inactivity in the development of Type 2 Diabetes (T2D). For instance, the Nurses' Health Study demonstrated a significant correlation between vigorous exercise and a reduced incidence rate of clinically diagnosed T2D among women, emphasizing the protective effects of regular physical activity. This effect was particularly pronounced in individuals with additional risk factors such as high Body Mass Index (BMI), hypertension, or a family history of T2D. Similarly, among male physicians, a negative relationship was observed between the frequency of vigorous exercise and the incidence of self-reported T2D, with this association being more robust in those with higher BMI. Intriguingly, even for individuals with equivalent degrees of obesity, those who engaged in more physical activity exhibited a lower incidence of T2D (Angamo, 2013).

Studies have drawn attention to disparities in physical activity levels between different ethnic groups, with Asian Indians being reported as more sedentary compared to Caucasians . Notably, lower physical activity levels in Asian Indians have been inversely correlated with key health indicators such as BMI, waist circumference, systolic blood pressure, plasma glucose, and insulin levels, highlighting the potential health implications of a sedentary lifestyle. The prevalence of T2D and impaired glucose tolerance was found to be significantly lower in South Indians who engaged in higher levels of physical activity, underscoring the importance of an active lifestyle in mitigating cardiometabolic risks. (Cukierman-Yaffe, 2009)

Recognizing the impact of sedentary habits on the health of Asian Indians, the Consensus Development Group formulated India-specific guidelines recommending a total of 60 minutes of daily physical activity, comprising at least 30 minutes of moderate-intensity aerobic activity, 15 minutes of work-related activity, and 15 minutes of muscle-strengthening exercises. These guidelines are tailored to address the heightened predisposition of Asian Indians to T2D and cardiovascular diseases. (Gispen, 2000).

Moreover, community-based participatory research approaches have been explored to adapt and implement diabetes prevention programs globally. These initiatives focus on age-specific and culture-specific interventions, encompassing strategies such as culture-specific physical activities, promoting access to healthy foods, engaging youth and parents in physical activities, interactive learning activities for healthy lifestyles, and group-based formats for fostering healthy behaviors. By acknowledging the cultural nuances and tailoring interventions accordingly, these studies aim to make a meaningful impact on preventing T2D and promoting cardiovascular health on a global scale. (Angamo, 2013)

Transitioning to the link between Type 2 diabetes mellitus (T2DM) and hypertension, (Jenei & Katona, 2019) provided critical insights into the scarcity of data on hypertension among patients with T2DM in Ethiopia, despite the nation's highest diabetes incidence in Africa. Investigating type 2 diabetes patients at Debre Tabor General Hospital in 2019, (Mittal & Singh, 2013) uncovered a staggering 59.5% prevalence of hypertension among this population. Factors such as urban residence, longer T2DM duration, and elevated BMI were identified as significant contributors to hypertension risk. Strikingly, a substantial majority of those with hypertension lacked proper control over their condition, underscoring the need for collaborative efforts among healthcare providers to establish effective preventive programs.

(Rahman, Alam, & Nisha, 2021) added to the global worry about high blood pressure by calling it a disease that affects everyone and costs a lot of money. The study looked at adults in the outpatient area at Jimma University Specialised Hospital in southwest Ethiopia and found that 13.2% of them had high blood pressure. There were worrying gaps in knowledge, treatment, and control. The study pushed for community-level interventions, focusing on changes in lifestyle and more education to help with early diagnosis and treatment.

In the Kingdom of Saudi Arabia, (Seow & Subramaniam, 2017) did a national survey of 10,735 Saudis to deal with the lack of hypertension data. Their results showed that a lot of people had high blood pressure or were close to having high blood pressure. There were strong links between these conditions and age, weight, diabetes, and high cholesterol. 57.8% of Saudis with high blood pressure, on the other hand, had never been diagnosed. This shows how important it is for strategic health plans to improve screening, preventative measures, and treatment tools.

(Thompson, 2017) studied high blood pressure in Debrecen, Hungary, and found that 37.02% of adults there had high blood pressure. Their study shed light on the societal, behavioural, and lifestyle factors that affect high blood pressure. This made it clear that more needs to be done to avoid and control it.

(Wang, 2017) Looked into how HIV and high blood pressure are related and found that people with HIV who are getting treatment have much higher blood pressure. The study in Dar es Salaam, Tanzania, found that 12.5% of adults there had high blood pressure. Age, gender, and weight were the main factors that affected the chance of hypertension. It was found that immune suppression and the chance of high blood pressure are linked in specific ways, which means that targeted interventions are needed.

(Thompson, 2017) Took a paradigm-shifting method by questioning what people usually think they know about coronary heart disease (CHD). In spite of what most people think, more than half of people with coronary heart disease did not have traditional risk factors. This means that genetic and non-traditional risk factors need to be looked into more thoroughly. The study stressed how important it is to put standard risk factors at the top of the list while

also recognising the importance of less common causes in creating successful clinical healthcare, health policy, and academic projects.

CHAPTER 3

3. Materials and Method

3.1 Communication process

A complex picture comes from the cross-tabulation of age groups with different types of diabetes. One person under the age of 18 has been diagnosed with Type 1 diabetes, two with Type 2, and four with Prediabetes. No one in this age group has been diagnosed with diabetes. In the 18–30 age group, there are 21 people: five with Type 1 diabetes, three with Type 2 diabetes, eight with prediabetes, and five who do not have diabetes. In the age group of 31 to 45, two people have Type 1 diabetes, nine have Type 2, seven have Prediabetes, and two do not have diabetes. This adds up to 20 cases. This is how the people aged 46 to 60 are spread out: There were 52 people in the study, 11 with Type 1 diabetes, 10 with Type 2, 23 with Prediabetes, and 8 who did not have diabetes. This crosstabulation gives a full picture of how common different kinds of diabetes are in different age groups, which is helpful for understanding the study population's demographics.

3.2 Data Collection Method

The "Emerging Trends in Lifestyle, Nutrition, and Self-Management of Diabetes" study collected data by sending a questionnaire to people of different ages (18–25), 26–35, 36–45, and 46 and above. It's important to note that some people chose not to take part, and problems with bias and incomplete answers came up because the poll was so long. Some people might not have had enough time or was unwilling to fully participate in the poll. The aim of the survey was made clear to all participants.

3.3 Research Environment

Field Settings

The studies were done in places where people from different backgrounds could be found, especially those suffering from diabetes. Including people from a range of socioeconomic groups was important for figuring out how lifestyle, nutrition, and self-management of diabetes are changing over time. The research team made sure that the people who took part in the study understood its purpose and goals.

3.4 Sampling

Unit

This study aims to explore emerging trends in lifestyle, nutrition, and self-management of Diabetes within the organizational context. Despite the age limit specified in the survey questionnaire (15-25), respondents were guided on how to complete the questionnaires. Both male and female individuals who avail themselves of banking services were included. Respondents voluntarily participated, providing insights into the efficiency of service recovery and its helpfulness in addressing their concerns. The survey emphasized aspects such as restaurant flexibility in problem-solving and the balance between individual and group interests. Respondents were assured of the confidentiality of their identity.

Size

The sample size for this survey is 100, encompassing both male and female participants. One hundred individuals who suffer with Diabetes completed the questionnaires, offering valuable perspectives on the emerging trends in lifestyle, nutrition, and self-management of Diabetes.

Procedure

Convenience sampling, a non-probabilistic method, was employed for this study due to its practicality in the chosen field. The survey was conducted among customers at various mobile service centers to gather insights into the emerging trends in lifestyle, nutrition, and self-management of Diabetes.

3.5 Demographic question:

In our questionnaire, there are three demographic questions which are: gender, age and income per month.

Demographic

Age:

1. Under 18
2. 18-30
3. 31-45
4. 46-60
5. Over 60

Gender:

1. Male
2. Female

Educational Level:

1. SSC
2. HSC
3. Bachelor's degree
4. Master's degree or higher
5. Other

Employment Status:

1. Employed full-time
2. Housewife
3. Unemployed
4. Student

Type of Diabetes:

1. Type 1
2. Type 2
3. Prediabetes
4. Don't have diabetes

Do you Have High blood pressure HIGHBLOODPRESSURE

1. Yes
2. No

How many years have you been living with diabetes? Yearswithdiabetes

1. Less than 1 year
2. 1-5
3. 6-10
4. 11-15
5. Above 15

Lifestyle:

How often do you engage in physical exercise or activity that is specifically structured for diabetes management?

1. Rarely
2. Occasionally
3. Regularly
4. Frequently

What is your level of confidence in managing diabetes through lifestyle modifications (diet, exercise, stress management)?

1. Not confident
2. Slightly confident
3. Moderately confident
4. Very confident

Are you aware of in diabetes support communities, either in-person or online?

1. Yes
2. No

To what extent do you prioritize sleep and its impact on diabetes management?

1. Do not prioritize
2. Occasionally consider
3. Moderately prioritize
4. High priority

How frequently do you monitor your blood sugar levels using technological devices (e.g., continuous glucose monitors or smart glucose meters)?

1. Rarely or never
2. Occasionally
3. Regularly
4. Frequently

In the past year, have you consulted telemedicine services for diabetes-related consultations or advice?

1. Never
2. once
3. Occasionally
4. Regularly

Nutrition:

How frequently do you track your food intake or count carbohydrates for diabetes management purposes?

1. Rarely or never
2. Occasionally
3. Regularly
4. Frequently

Are there specific food groups or items you limit due to their impact on blood sugar levels?

1. No specific restrictions
2. Occasionally limit certain foods
3. Consistently limit specific food groups

Strictly avoid certain foods

Are you aware of emerging trends to intermittent fasting, low-carb diets, or other innovative dietary approaches for diabetes control?

1. Completely unaware
2. Slightly aware
3. Moderately aware
4. Highly aware

How likely are you to seek information from online sources regarding new diabetes management practices?

1. Never
2. Sometime
3. Always

N5. Are you open to using any non-traditional methods, such as herbal supplements or alternative medicines, for diabetes management?

1. No
2. Sometime
3. Yes

Self-Management:

Have you attended diabetes self-management education (DSME) programs or workshops?

1. Never attended
2. Attended once
3. Occasional
4. Regularly

Do you regularly set and track personal goals related to your diabetes management?

1. Never
2. Occasionally
3. Once
4. Regularly

How familiar are you with technological advancements for diabetes self-management (e.g., mobile apps, wearables, etc.)?

1. Not familiar
2. Somewhat familiar
3. Moderately familiar
4. Very familiar

Do you actively participate in or consider personalized health coaching or counselling for better diabetes management?

1. Not at all
2. Rarely
3. Occasionally
4. Regularly

How receptive are you to the idea of integrating artificial intelligence for managing diabetes and its related lifestyle choices?

1. Not receptive
2. Slightly receptive
3. Moderately receptive

3.6 Data Collection

I collected both primary and secondary data in a systematic way –

Primary data:

For primary data, I did a survey and provided the questionnaire among the employees to collect necessary data for our research.

Secondary data:

For our research purpose, we collected our information for variables scales and diagram from our journals that we selected for our research. Some information was also collected from internet.

In our research, we have used the following systematic four steps –

1. Questionnaire
2. Data collection
3. Data analysis

I did our survey on different organization and who purchased any service from online where we had collected the data from them through asking questions. Here I used APA format reference.

CHAPTER 4

4. Data analysis

Lifestyle

Aspect	Gender	Observations
Exercise for Diabetes Management	Male	Majority (24/57) engage regularly or frequently. 14 regularly, 13 frequently.
	Female	More balanced distribution across frequencies. 16 rarely, 7 occasionally, 10 regularly, 10 frequently.
Confidence in Diabetes Management	Male	Higher expression of moderate to high confidence: 18 moderately confident, 13 very confident.
	Female	More varied confidence levels: 17 moderately confident, 12 slightly confident. Higher number (4) not confident compared to males (9).
Awareness of Diabetes Support Communities	Male	Lower awareness: 21 aware, 36 not aware.
	Female	Higher awareness: 20 aware, 23 not aware.
Prioritization of Sleep for Diabetes Management	Male	Higher priority: 22 high priority, 21 moderate priority.
	Female	Lower priority: 11 high priority, 22 moderate priority.
Blood Sugar Monitoring via Technological Devices	Male	Higher engagement: 32 frequent, 25 regular.
	Female	Similar frequency: 32 frequent, 12 regular.
Utilization of Telemedicine Services for Diabetes	Male	Higher utilization: 26 occasional, 10 regulars, 10 once, 4 never.
Consultations	Female	Lesser utilization: 14 occasional, 15 once, 4 never.

Table 1 Lifestyle of Diabetes Management

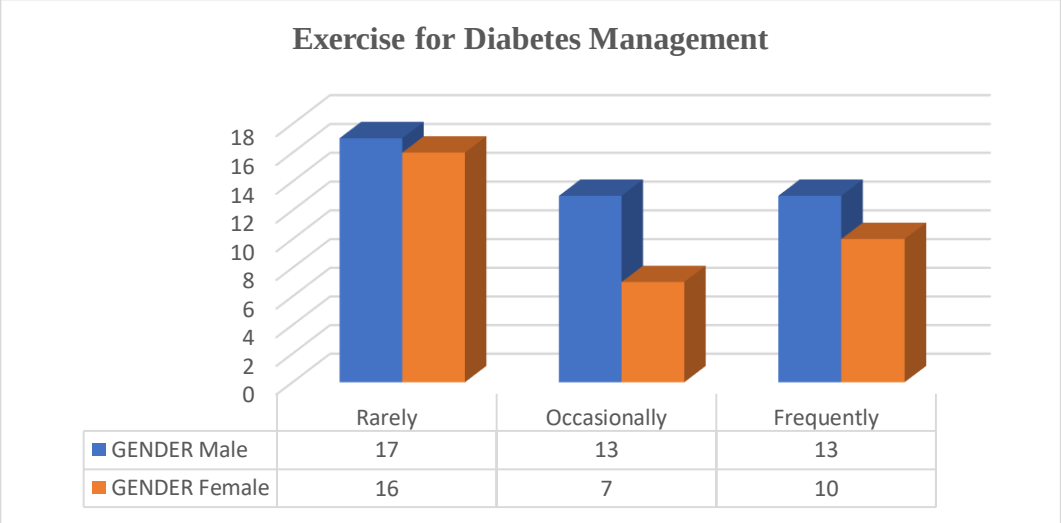

Figure 1 Exercise for Diabetes Management

This chart shows that out of 100 total responses, 57 were from males and 43 from females. Notably, males tended to engage more frequently, with 14 reporting regular engagement, while females had 10 respondents in the same category. Across all frequency levels (rarely, occasionally, regularly, frequently), the data provides a snapshot of the distribution of physical exercise habits in the context of diabetes management among the surveyed individuals.

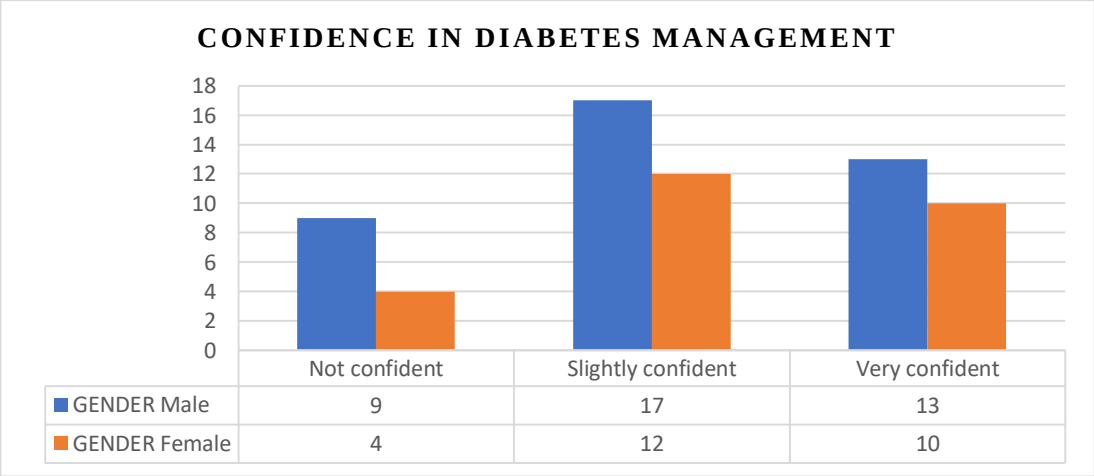

Figure 2 Confidence in Diabetes Management

This chart shows that out of 100 total responses, 57 were from males, and 43 from females. Noteworthy patterns include that 18 males reported being moderately confident, whereas 17 females expressed the same level of confidence. Additionally, 13 males and 4 females conveyed a lack of confidence in managing diabetes through lifestyle modifications. The data provides a comprehensive overview of confidence levels, aiding in understanding the perceived efficacy of lifestyle interventions for diabetes management based on gender.

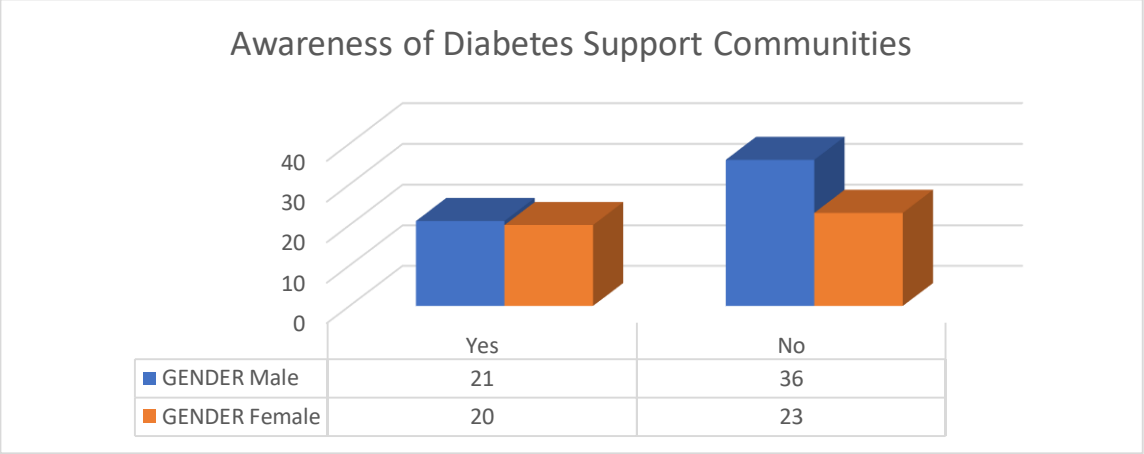

Figure 3 Awareness of Diabetes Support Communities

This chart shows that out of 100 total responses, 57 were from males, and 43 from females. Notably, 21 males and 20 females indicated awareness of diabetes support communities, whether in-person or online. On the other hand, 36 males and 23 females reported being unaware of such communities. This information provides valuable insights into the level of awareness among individuals with diabetes, differentiating between genders, and underscores the potential impact of support networks on diabetes management.

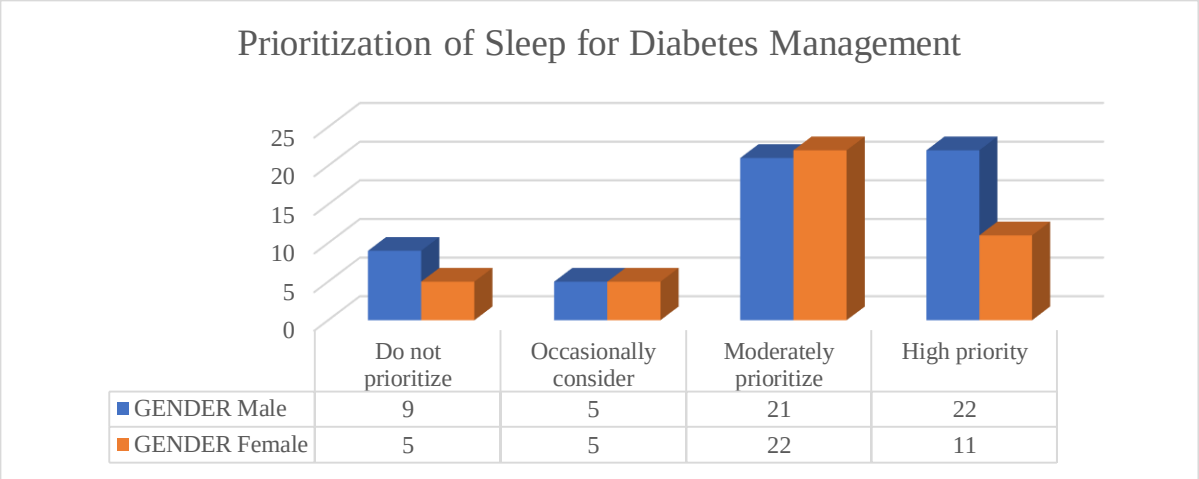

Figure 4 Prioritization of Sleep for Diabetes Management

This chart shows that out of 100 total responses, 57 were from males, and 43 from females. Notably, 22 males and 11 females reported a high priority for sleep concerning diabetes management. Conversely, 9 males and 5 females stated that they do not prioritize sleep in this context. The data suggests varying degrees of emphasis on sleep, offering valuable perspectives on its perceived significance among individuals managing diabetes, with distinctions based on gender.

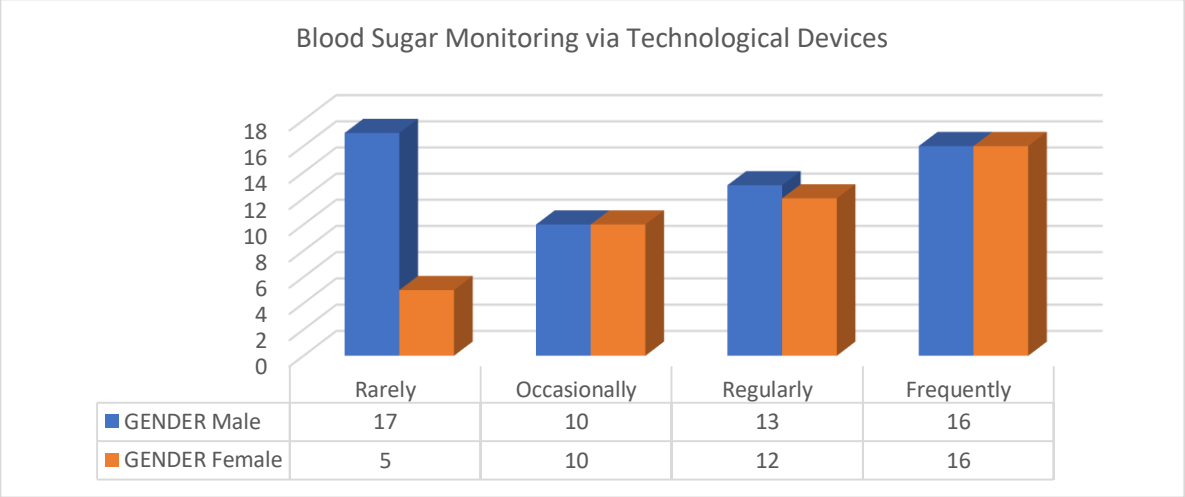

Figure 5 Blood Sugar Monitoring via Technological Devices

This chart shows that out 100 total responses (57 from males and 43 from females), it is noteworthy that 16 males and 16 females indicated monitoring their blood sugar levels frequently. Additionally, 17 males and 5 females reported monitoring rarely.

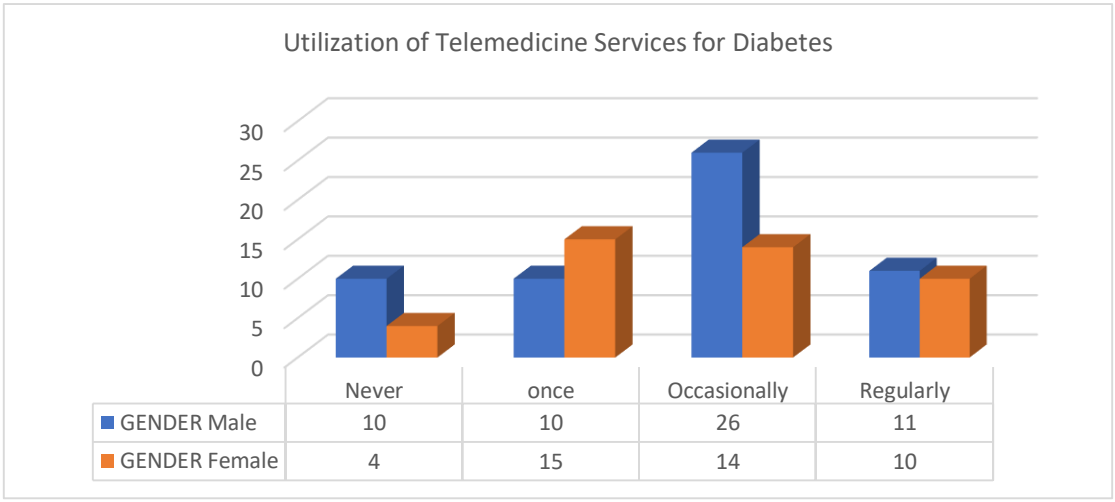

Figure 6 Utilization of Telemedicine Services for Diabetes

This chart shows that out of 100 total responses (57 from males and 43 from females), 26 males and 15 females have occasionally consulted telemedicine services. Notably, 10 males and 4 females reported never utilizing telemedicine for diabetes-related consultations.

4.1 Nutrition

Aspect	Gender	Observations
Food Intake Tracking for Diabetes Management	Male	Majority regularly (24) or frequently (20) track food or count carbohydrates.
	Female	More distributed: 15 occasionally, 15 regularly, 7 frequently.
Limitation of Food Groups due to Blood Sugar Impact	Male	28 limit food groups, 29 don't.
	Female	22 limit food groups, 21 don't.
Awareness of Emerging Dietary Trends for Diabetes Control	Male	Different levels of awareness: 13 aware, 10 moderately aware, 20 highly aware.
	Female	Varied awareness: 6 aware, 7 moderately aware, 12 highly aware.

Seeking Information from Online Sources for Diabetes Management	Male	32 respondents likely seek information online.
	Female	21 likely seek information online.
Openness to Non-Traditional Diabetes Management Methods	Male	26 open to non-traditional methods.
	Female	18 open to non-traditional methods.

Table 2 Nutrition of Diabetes Management

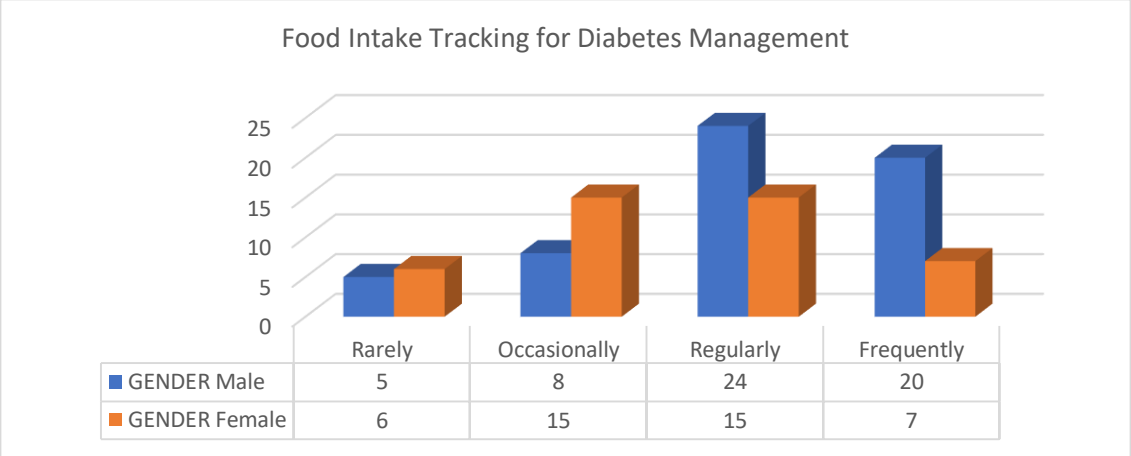

Figure 7 Food Intake Tracking for Diabetes Management

This chart shows that out 100 total responses (57 from males and 43 from females), 24 males and 15 females reported tracking their food intake regularly. Interestingly, 20 males and 7 females indicated frequent tracking. On the other hand, 5 males and 6 females reported rarely engaging in this practice.

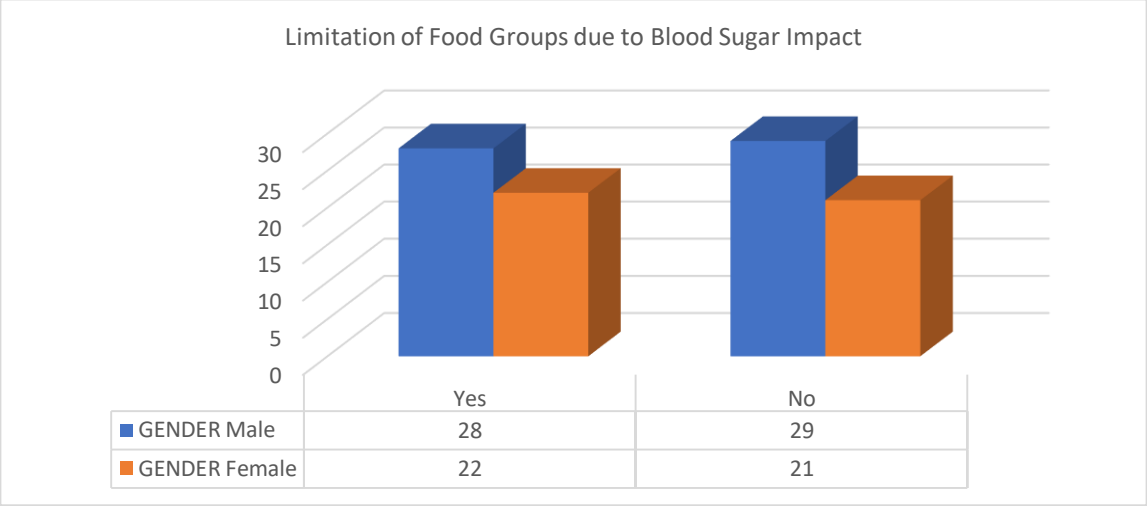

Figure 8 Limitation of Food Groups due to Blood Sugar Impact

This chart shows that out the 100 total responses (57 from males and 43 from females), 28 males and 22 females reported limiting certain food groups. Conversely, 29 males and 21 females indicated not imposing restrictions on specific food items based on their impact on blood sugar levels. These findings shed light on the dietary considerations individuals make in managing diabetes, with distinctions observed between genders.

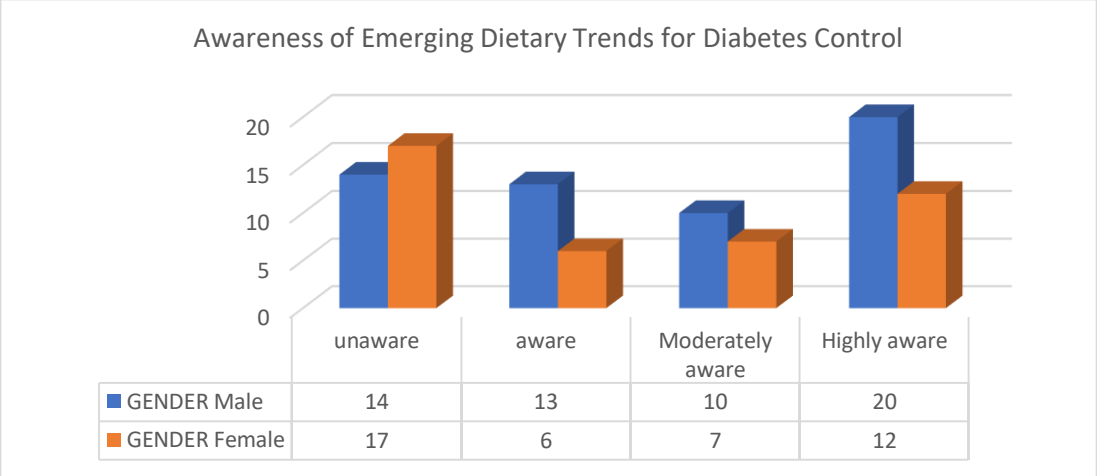

Figure 9 Awareness of Emerging Dietary Trends for Diabetes Control

This chart shows that out the 100 total responses (57 from males and 43 from females), 20 males and 12 females indicated being highly aware of these trends. Notably, 14 males and 17 females reported being unaware of such emerging dietary approaches.

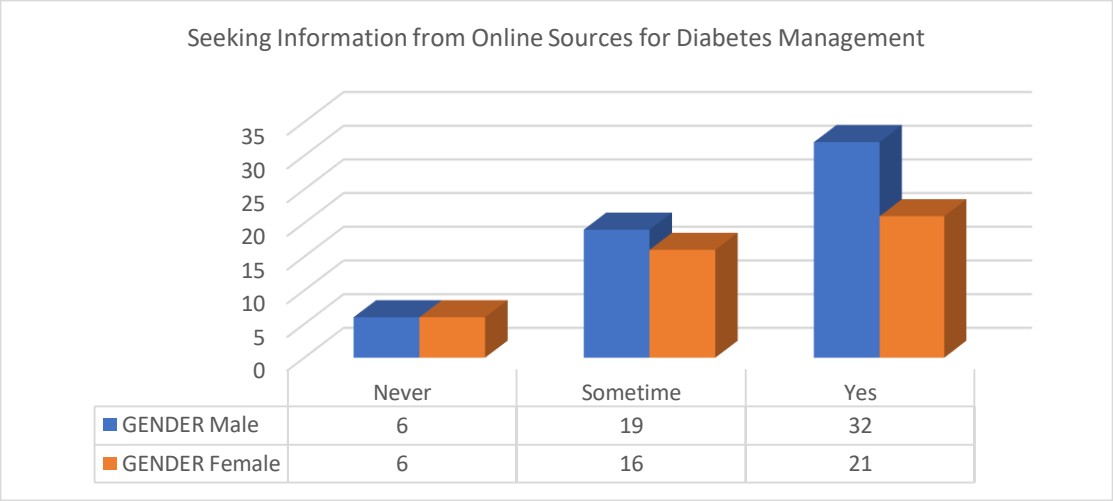

Figure 10 Seeking Information from Online Sources for Diabetes Management

This chart shows that 100 total responses (57 from males and 43 from females), 32 males and 21 females expressed a definite inclination to seek information online. Equally noteworthy, 6 males and 6 females reported never seeking information online for new diabetes management practices. These findings underscore the prevalence of online information-seeking behavior and variations based on gender preferences among individuals managing diabetes.

4.2 Self management

Aspect	Gender	Observations
Attended Diabetes Self-Management Education (DSME)	Male	Varied attendance: 26 attended once, 7 occasionally, 12 regularly.
	Female	Diverse participation: 12 attended once, 8 occasionally, 7 regularly.
Regularly Set and Track Personal Diabetes Goals	Male	Mixed goal-setting habits: 17 occasionally, 20 once, 15 regularly.
	Female	Varied tracking: 4 occasionally, 17 once, 9 regularly.
Familiarity with Technological Advancements for Diabetes	Male	Diverse familiarity levels: 13 somewhat familiar, 14 moderately familiar, 7 very familiar.
	Female	Varied knowledge: 8 somewhat familiar, 10 moderately familiar, 6 very familiar.
Participation in Personalized Health Coaching or Counselling	Male	Varied participation: 15 rarely, 11 occasionally, 24 regularly.
	Female	Different engagement: 12 rarely, 6 occasionally, 16 regularly.
Receptiveness to Artificial Intelligence in Diabetes Management	Male	Varied receptiveness: 26 slightly receptive, 16 moderately receptive, 10 very receptive.
	Female	Diverse acceptance: 11 slightly receptive, 12 moderately receptive, 8 very receptive.

Table 3 Self management of Diabetes Management

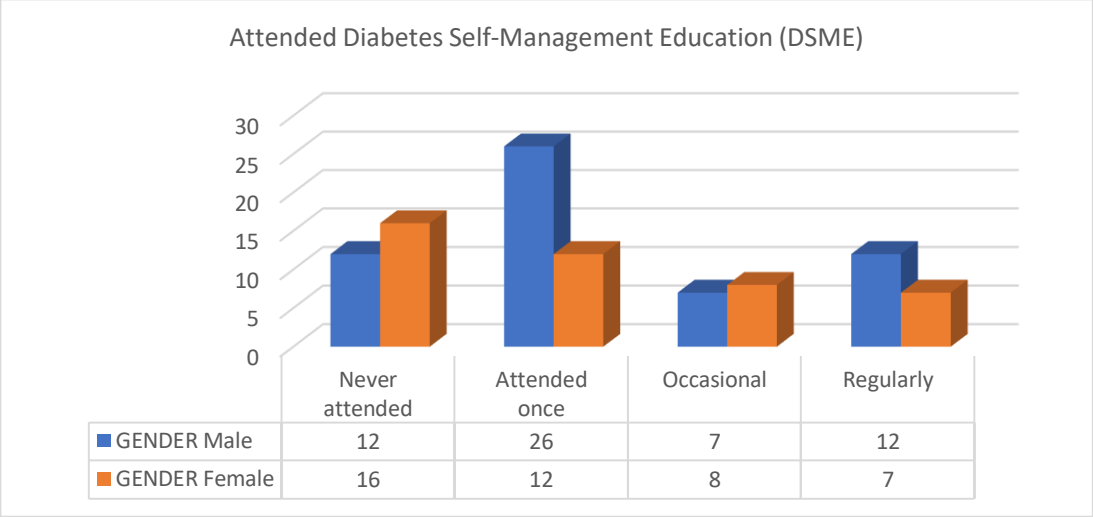

Figure 11 Attended Diabetes Self-Management Education (DSME

This chart shows that out of 100 total responses (57 from males and 43 from females), 26 males and 12 females have attended such programs at least once. Notably, 12 males and 16 females reported never attending DSME programs. These findings highlight varying levels of engagement with diabetes self-management education, offering valuable perspectives on the participation patterns based on gender.

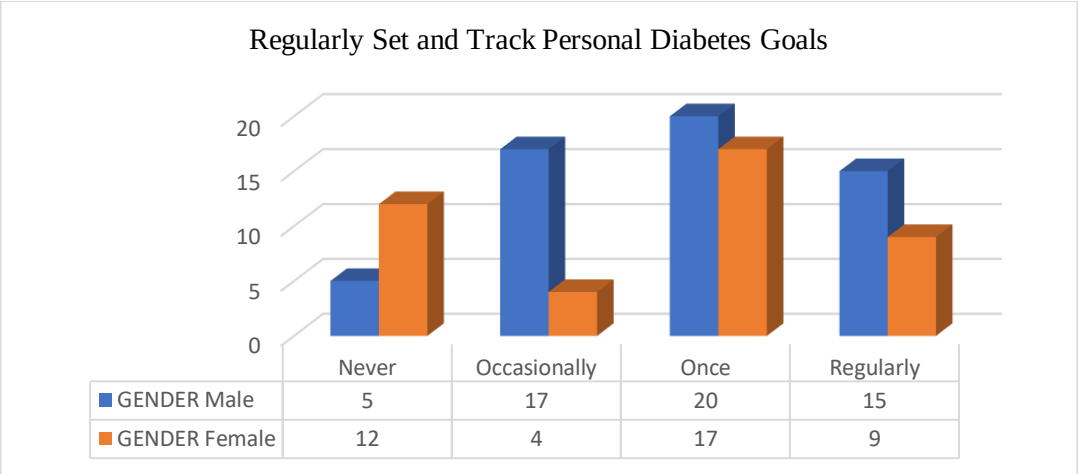

Figure 12 Regularly Set and Track Personal Diabetes Goals

This chart shows that out of 100 total responses (57 from males and 43 from females), 20 males and 17 females reported regularly setting and tracking personal goals. Conversely, 12 males and 4 females indicated never engaging in this practice. The findings offer insights into the diverse approach's individuals, based on gender, take in establishing and monitoring personal goals as part of their diabetes management routines.

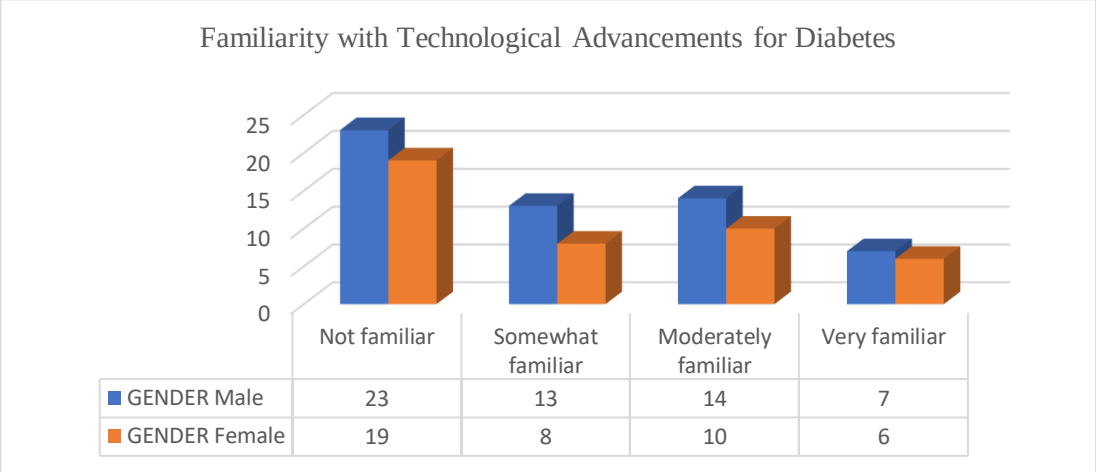

Figure 13 Familiarity with Technological Advancements for Diabetes

This chart shows that out of 100 total responses (57 from males and 43 from females), 14 males and 10 females reported being moderately familiar with these technologies. Notably, 23 males and 19 females indicated not being familiar with such advancements. These findings highlight varying levels of awareness and familiarity with technological tools for diabetes self-management, offering valuable perspectives on gender-based differences in the adoption of these innovations.

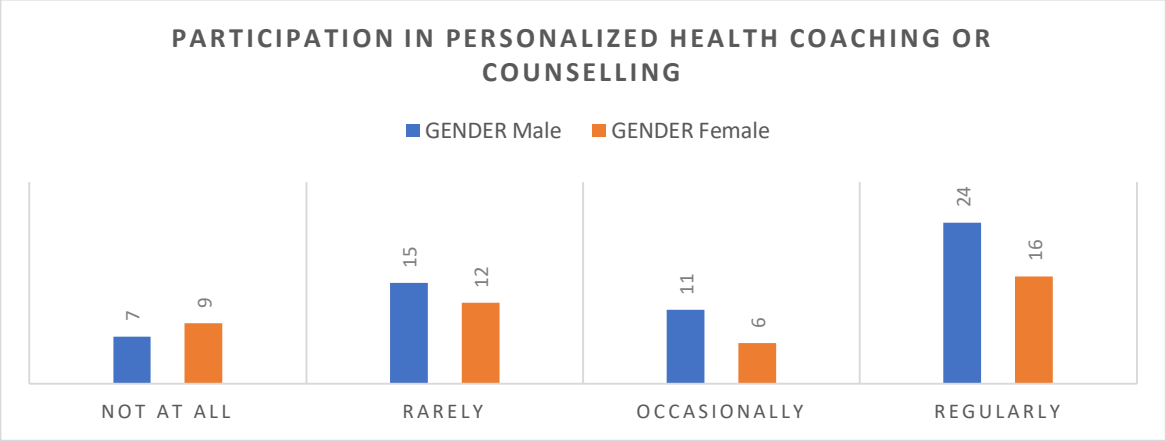

Figure 14 Participation in Personalized Health Coaching or Counselling

This chart shows that out of 100 total responses (57 from males and 43 from females), 24 males and 16 females reported regularly participating in or considering personalized health coaching. On the other hand, 7 males and 9 females indicated not participating at all. These findings underscore varying levels of engagement with personalized health coaching or counselling, providing insights into gender-specific preferences and choices in seeking support for diabetes management.

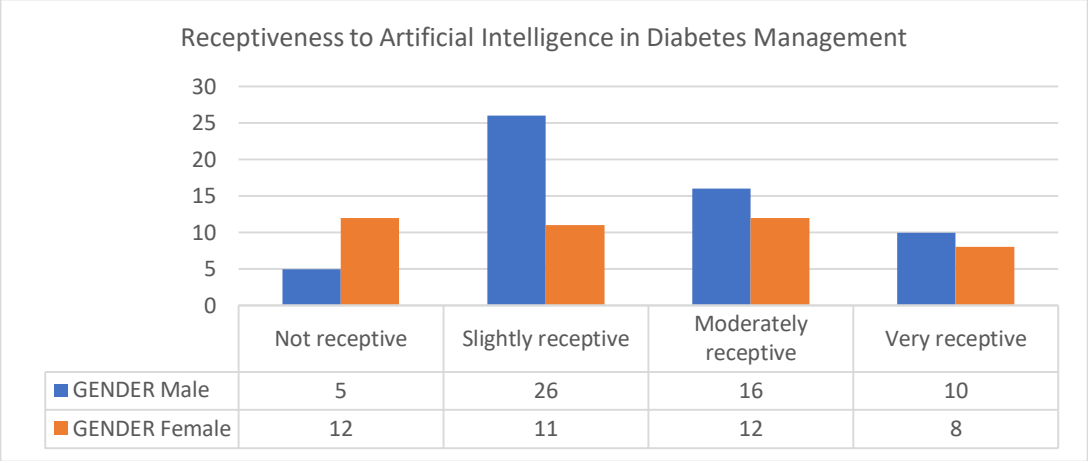

Figure 15 Receptiveness to Artificial Intelligence in Diabetes Management

This chart shows that out the 100 total responses (57 from males and 43 from females), 16 males and 12 females expressed being moderately receptive to the integration of artificial intelligence. Notably, 5 males and 12 females reported not being receptive to this idea. These findings offer insights into varying degrees of openness to incorporating artificial intelligence in diabetes management, with distinctions observed based on gender.

CHAPTER 5

5.1 Discussion

The findings reveal notable differences between males and females in various aspects of diabetes management and lifestyle choices. Males demonstrated a higher tendency to engage regularly or frequently in structured exercises for diabetes management, in contrast to females who presented a more even distribution across different exercise frequencies. This might suggest that males are more inclined to stick to a consistent exercise routine than females, who seem to have more diverse patterns of engagement.

Confidence levels in diabetes management are notably different between genders, with males showing a higher expression of moderate to high confidence. In contrast, a higher number of females expressed lower confidence levels, indicating a potential confidence gap in managing their diabetes, which might impact their health-seeking behaviors and self-care activities.

Interestingly, females showed slightly higher awareness of diabetes support communities compared to males, suggesting that females might seek or access support and information from community resources more readily. Prioritization of sleep for diabetes management was notably higher among males, indicating that they might recognize the significance of sleep in diabetes care more than females do.

Both men and women checked their blood sugar levels about the same number of times, but men were more involved overall. This means that even if men and women check their blood sugar levels in the same way, men may be better at keeping track of or controlling their levels with technology. When it comes to looking for information online, men seem to be more likely than women to look for diabetes control information online.

It was also found that guys were more open to non-traditional ways of managing diabetes than women. This difference in openness could be because people have different ideas or feelings about non-traditional methods.

Both men and women showed different behaviours or attitudes when it came to learning how to manage their diabetes on their own, setting goals, being familiar with new technologies, getting health coaching, and being open to artificial intelligence. These differences showed that men and women have different needs or ways of managing their diabetes-related care.

The results show that while men and women have some things in common when it comes to managing diabetes, there are also some important differences that need to be taken into account. This shows how important it is to have different interventions or approaches for men and women with diabetes because they have different needs and preferences. These results also show how important it is to support diabetes management approaches and strategies that are tailored to each gender in order to improve the general health of people with diabetes.

5.2 Conclusion

Males and females deal with diabetes and make living choices that affect it differently, which shows big differences in how they think and act. Regular exercise is more common in guys, they are more confident, and they are more open to non-traditional ways of managing their diabetes. Managing their diabetes also involves keeping a closer eye on their blood sugar levels and making sleep a priority. In contrast, women move more evenly, have a wider range of confidence levels, and are slightly more aware of diabetes support groups.

Also, they are less likely to use medical services and look for information online. The findings show that diabetes care and lifestyle management must include methods that are tailored to each gender. Because of these differences, interventions that are specifically designed to meet the needs of each group can raise knowledge, get more people involved, and lead to better management and support for people with diabetes. Incorporating gender-specific strategies will help improve health outcomes in diabetes management, making care more personalised and efficient.

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