PREVENTION OF DIABETES COMPLICATIONS, NUTRITIONAL RECOMMENDATIONS AND INTERVENTIONS FOR DIABETES PATIENTS

AN INTERNSHIP REPORT BY

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Submitted to the Department of Nutrition and Food Engineering in the partial fulfillment of B.Sc. in Nutrition and Food Engineering

Supervised By

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DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

The internship report titled "Prevention of Diabetes Complications, Nutritional Recommendations, and Interventions for Diabetes Patients" was submitted to the Department of Nutrition and Food Engineering at Daffodil International University by Dilshad Binta Zaman Disha. It has been reviewed and approved for its style and content, meeting the satisfactory criteria for partially fulfilling the requirements for the B. Sc. degree in Nutrition and Food Engineering. The presentation was conducted in the autumn of 2023.

EXAMINING COMMITTEE

Chairmen of the Board ---------- ……

External Member---------- ……

Internal Member-1---------- ……...

Internal Member-2---------- ……

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Associate Professor and Head
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DECLARATION

I hereby affirm that I have successfully completed my internship under the supervision of Md. Shamsur Rahman, Senior Lecturer at the Department of Nutrition and Food Engineering at Daffodil International University. Furthermore, I confirm that I have not submitted this project for academic credit to any other professional or academic institution.

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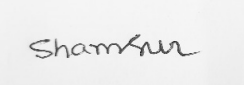

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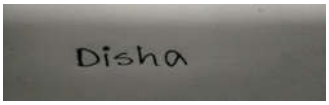

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First and foremost, I wish to express my heartfelt gratitude to Allah Ta'ala for His boundless mercy, which has enabled me to successfully complete the final year project. My sincere thanks and indebtedness go to Md. Shamsur Rahman, Senior Lecturer at the Department of Nutrition and Food Engineering, Daffodil International University.

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I also want to express my gratitude to all my colleagues at Daffodil International University who actively participated in discussions and contributed to completing the assigned tasks. Your collaboration was instrumental in our success.

Lastly, I must respectfully thank my parents for their unwavering support and patience.

Executive Summary

An extensive education on preventing diabetes complications was provided via the BIRDEM internship. It comes with invaluable skills, experiences, and information that will boost one's professional and personal growth. Along with the intern, the internship had a positive effect on the organization's operations and protocols. All things considered, the BIRDEM internship was a rewarding and interesting experience that gave participants firsthand knowledge of the dynamics of diabetes problem prevention and promoted the development of vital abilities required for a successful.

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CHAPTER-ONE

1.1 INTRODUCTION

Type 2 diabetes is becoming epidemically common in Western industrialized cultures, while diabetes mellitus is growing more common worldwide. The lifestyle choices we make in terms of nutrition, environment, and behavior all have a significant impact on how quickly this illness progresses. In reality, eating too many foods heavy in fats and carbohydrates and high in energy can have a detrimental effect on blood glucose regulation and insulin response.

For those with diabetes mellitus, following dietary recommendations has always been crucial. The goal of dietary management is to lower the risk of complications from diabetes by promoting overall health and maintaining blood glucose levels within a normal range. Dietary recommendations for managing type 2 diabetes and preventing its complications are discussed in this article. the importance of vitamins and other micronutrients. There is an epidemic of diabetes worldwide, and it is growing faster.

The World Health Organization (WHO) and the International Diabetes Federation (IDF) were the first organizations to designate diabetes to be an epidemic. In 2006, as the Secretary General of the Diabetic Association of Bangladesh, I asked the government of Bangladesh to raise this matter at a UN Day. In reality, there are some genetic factors that we inherit over which we have no control. Unreliable physical exercise can lead to obesity, which is a major risk factor for diabetes.

Research indicates that there is a higher likelihood of diabetes in offspring when there is maternal malnutrition. Underweight babies are genetically more likely to develop diabetes and hypertension as adults.

Insulin-dependent type 1 diabetes typically manifests at a relatively young age. If both parents have the condition, there is a higher likelihood of a child having type 2 diabetes. Individuals diagnosed with type 2 diabetes early in life may reconsider marrying someone with the same condition. The hallmark of type 1 diabetes is the inability to produce insulin, essential for processing food and liquids.

In Bangladesh, diabetes affects 12.8% of the population and accounts for 3% of all deaths as of 2022. The prevalence of diabetes mellitus appears to be increasing among Bangladeshis. Individuals with diabetes may experience distress due to the varied symptoms associated with the condition.

1.2 REPORT ORIGIN

This internship opportunity instills optimism for a promising future upon completion of our bachelor's degree. Motivated by my interest in the healthcare sector and its relevance to modern nutritional practices, I opted to pursue an internship at BIRDEM General Healthcare.

1.3 INTERRNSHIP GOALS

My primary objective is to fulfill all departmental prerequisites and earn a bachelor's degree upon graduation. I chose this university with the intention of pursuing a career in medicine. Now, I have the opportunity to complement my academic knowledge with practical experience.

This internship aims to offer participants hands-on experience in illness management and nutrition planning, crucial aspects in ensuring adequate food and nourishment for patients.

CHAPTER-TWO

2.1 BIRDEM OVERVIEW

The Endocrine and Metabolic Disorders (BIEDEM) institute in Dhaka is located in Shahbag. BIRDEM General Hospital today treats patients with a range of specializations, whereas it had just cared for diabetic patients. It is an institution for tertiary care.

In 1956, a group of committed colleagues led by Professor Dr. Mohammad Ibrahim (1911–1980) founded the Diabetes Association of Pakistan. Afterward, the organization decided to go by the abbreviation BADAS, which is an acronym for the Bangladeshi Diabetes Association of Bangladesh.

2.2 VISION

"No diabetic person must die in Bangladesh without food, without medical care, or without a job."

"Medical care shall be made available to all people at a fair price"

2.3 MISSION

Our objective is to elevate leadership within the healthcare sector by delivering top-tier medical supplies and prescription medications, supported by a transparent and accountable management framework.

In order to extend BADAS Healthcare services to all Bangladeshis at an affordable rate, it is imperative to assemble a substantial pool of highly skilled human resources.

Furthermore, our aim is to foster leadership within the healthcare industry by providing exceptional pharmaceuticals and medical supplies, alongside a transparent and dedicated management structure.

2.1 INTERNSHIP JOINING PROCESS

I initially consulted my supervisor, Mr. Md. Shamsur Rahman, a Lecturer in the Department of Nutrition and Food Engineering (NFE) at DIU, regarding my internship opportunity at BIRDEM General Hospital. Following his guidance, I visited the hospital to inquire about the application process. Subsequently, my supervisor assisted by writing a letter of application to the Director. Within a few days, I received a confirmation letter from the Director, and I proceeded to the hospital to obtain my ID card. During my tenure at the hospital, I had the opportunity to interact with a diverse range of patients.

CHAPTER -THREE

3.1 ACTIVITIES

Throughout my internship, I was assigned to work in the indoor area where I had the opportunity to observe a diverse range of patients. My supervisor, Quamrun Nahar Ma'am, provided invaluable guidance on how to effectively interact with patients and manage their varied expectations at every stage of my internship.

3.2 DAILY OBSERVATION

I started my daily ward visit, which covered the entire unit, at 2:00 pm. Each intern must make a visit to every unit. As I went through the wards, I talked with the patients to find out about their current health, dietary needs, and other issues. I also made a note of the information I learned.

A COMPILATION OF CLIENTS BIRDEM General Hospital caters to a wide range of patients. During my stay, every nurse I came across in those wards was immensely helpful in attending to the patients' needs. I observed other people with diabetes.

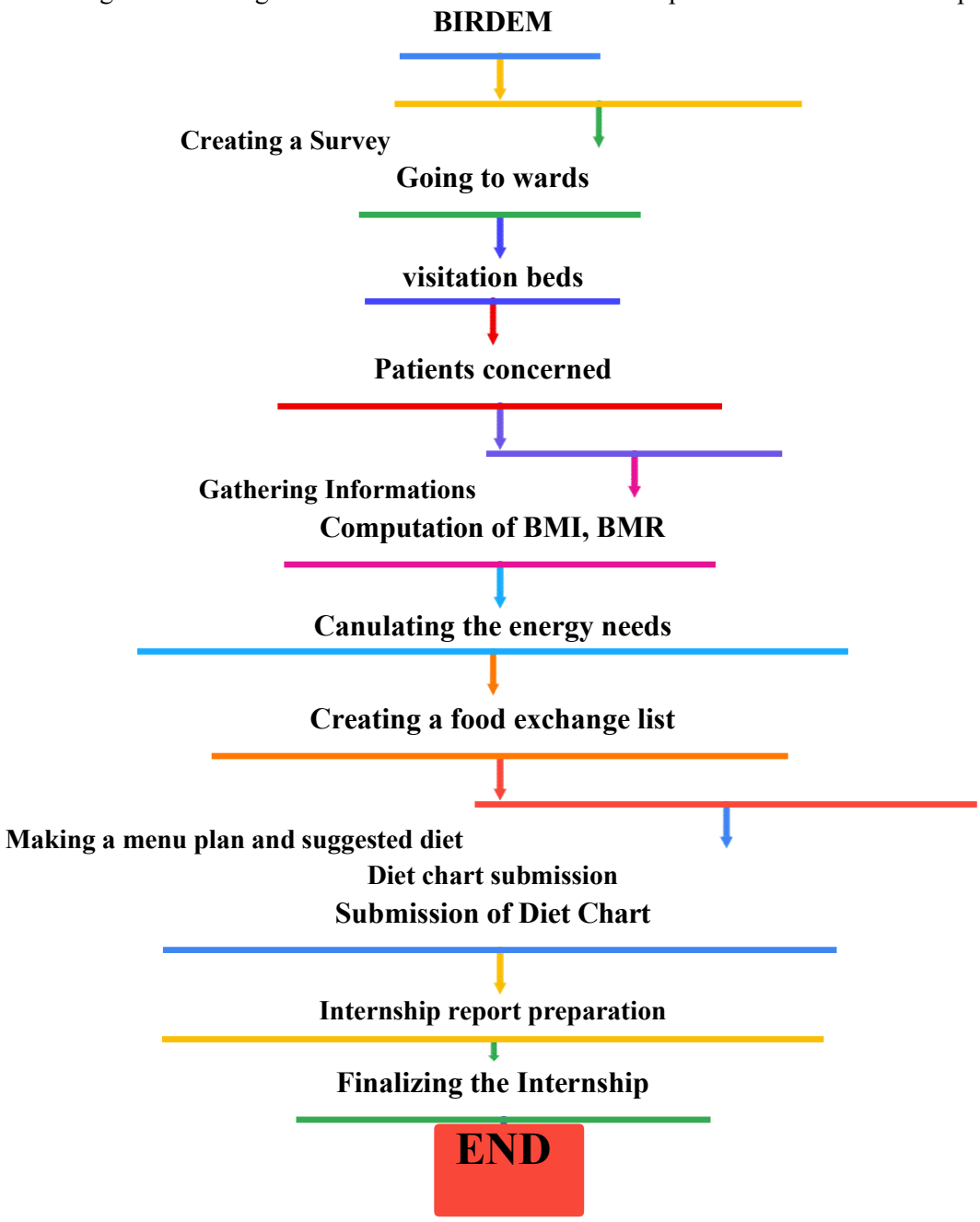
Figure: Patient's Data Collection

3.1 PARTICULAR OBJECTIVES

- To gain more knowledge about the day-to-day operations of the healthcare sector.
- To expand on one's limited understanding of the healthcare sector.
- To get a more profound comprehension of diabetes and its enduring problems.
- To gain a deeper understanding of the dietary rules.
- To examine diabetic care coordination.
- To learn more about the methods used by physicians to check on and interact with their patients.

3.1 FLOW-DIAGRAM

The following flowchart might be used to summarize this internship at BIRDEM General Hospital:



CHAPTER- FOUR

4.1 STUDY SUBTITLES

I've discovered the following during my internship:
Diabetes

- ❖ Parenteral and Enteral Nutrition
- ❖ Dietary fat and cholesterol in the management of diabetes Advice
- ❖ MNT Objectives for Diabetes Prevention and Treatment
- ❖ MNT Objectives that Are Relevant to Particular Circumstances
- ❖ MNT's effectiveness
- ❖ Energy balance, obesity, and overweight
- ❖ Dietary Fat and Cholesterol in Diabetes Management
- ❖ Carbohydrate in Diabetes Management Advice

Diabetes management encompasses a range of topics, including energy balance, overweight, and obesity; the role of fat and cholesterol in diabetes management; considerations regarding alcohol consumption; the importance of micronutrients; nutrition strategies for type 1 diabetes; addressing cardiovascular disease (CVD) risk through treatment and management; as well as key nutrition recommendations and interventions.

4.1 DIABETES

Diabetes is a chronic condition caused by either ineffective insulin use by the body or insufficient insulin production by the pancreas.0 It also raises the chance of damage to the kidneys, heart, nerves, and eyes. It is linked to some types of cancer.

Diabetes manifests itself in multiple ways:

1.First-Type Diabetes

2. Diabetes mellitus of Type II;

3. Diabetes gestational.

4.9 SUMMARY NUTRITION GUIDELINES FOR MANAGING DIABETES (SECONDARY PREVENTION)

Using carbohydrates to manage diabetes

Advice

• Optimal health is promoted by a diet rich in carbohydrates sourced from fruits, vegetables, whole grains, legumes, and low-fat milk.

• Effective glycemic control is facilitated through the ongoing monitoring of carbohydrate intake, which can be accomplished through methods such as counting, exchanging, or estimating based on experience.

• Glycemic index and load may offer slight advantages over total carbohydrates alone in terms of health benefits.

• Foods containing sucrose can be included in the meal plan as substitutes for other carbohydrates, particularly if insulin or other blood sugar-reducing medications are being used. Caution should be exercised to avoid excessive energy intake.

10.1 Protein in diabetes management

Recommendations

The available information is insufficient to suggest modifying the standard protein intake of 15-20% of calories for individuals with diabetes who have normal kidney function.

Consuming proteins can increase a person's sensitivity to insulin in type 2 diabetics without increasing blood sugar levels.

4.11 Alcohol in diabetes management

Recommendations

Adults with diabetes who choose to drink should do so in moderation one drink or less for women and two drinks or fewer for men per day.

If you use insulin or an insulin secretagogue, you should drink alcohol with meals to reduce the chance of nighttime hypoglycemia.

4.12 Micronutrients in diabetes management

Recommendations

- Those without underlying deficiencies who have diabetes do not seem to benefit from vitamin or mineral supplementation when compared to the general population.
- It is not suggested to frequently supplement with antioxidants such as vitamins E and C and carotenoids since there is not enough evidence to support their usefulness and because there are concerns over long-term safety.

4.13 Nutrition interventions for older adults with diabetes

Recommendations

- ❖ For obese older people with diabetes, moderate food restriction and increased physical activity may be helpful because their energy requirements may be lower than those of a younger person of equivalent weight.
- ❖ Taking a daily multivitamin supplement could be advantageous, especially for older individuals who don't burn as much energy.

4.14 Treatment and management of CVD risk

Recommendations

- The goal for A1C levels in diabetes management is to achieve levels as close to normal as feasible, while avoiding significant hypoglycemia.

- Diets rich in fruits, vegetables, whole grains, and nuts may contribute to a reduced risk of cardiovascular disease (CVD) among individuals with diabetes. For patients experiencing symptoms of heart failure alongside diabetes, consuming 2,000 mg of sodium daily from dietary sources may be beneficial.

4.15 Long-term care facilities

- ❖ It is not required to place elderly diabetic patients in long-term care institutions under restrictive diets. Diabetes sufferers should eat a regular diet that includes predictable carbohydrate timing and quantity.

4.16 Acute illness

Recommendations:

- ❖ - During periods of severe illness, it is crucial to maintain the use of insulin and oral glucose-lowering medications.

- ❖ - During acute illness, regular monitoring of plasma glucose and ketones, adequate hydration, and consumption of carbohydrates are essential measures to be taken.
- ❖

4.34 Recommendations for Patients with Diabetes in Acute Healthcare Facilities:

- ❖ - The management of diabetic patients, both during their hospitalization and post-discharge, can be significantly improved through the establishment of an interdisciplinary team, the implementation of Medical Nutrition Therapy (MNT), and the timely development of discharge plans tailored to the individual patient's needs.

4.35 Patients with diabetes in long-term care facilities

Recommendations

- ❖ It is not required to place elderly diabetic patients in long-term care institutions under restrictive diets. Diabetes sufferers should eat a regular diet that includes predictable carbohydrate timing and quantity.

CHAPTER -FIVE

7.1 CONCLUSION

My internship experience at BIRDEM General Hospital was truly invaluable and I believe it will greatly benefit my future endeavors. Despite encountering several challenges along the way, I found the overall experience to be incredibly rewarding.

Throughout my time at BIRDEM, I acquired a wealth of knowledge about various illnesses and their respective treatments, with a particular focus on diabetes. Additionally, I learned about chronic kidney disease (CKD), enteral and parenteral feeding methods, nursing and infant feeding practices, fertility and conception issues, dietary considerations for managing fat intake, hepatic conditions, arthritis, and the importance of maintaining strong bones.

I came to understand that many diseases can be prevented or managed through making informed dietary decisions. Patients are often required to adhere to specific dietary and lifestyle guidelines in conjunction with their prescribed medications to effectively manage their conditions. It's worth noting that dietary variety is key, and individuals need not consume the same foods daily. By incorporating different healthy food options into their meals, people can gradually transition towards healthier eating habits.