Nutritional Status & Dietary Practices Among the Selected IDDM Patients in Dhaka City

A project report submitted to Daffodil International University, Dhaka. For the fulfilment of Nutrition & Food Engineering.

Submitted To

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Date of Submission - 29/05/21

Letter of Transmittal

7th March 2021

Dr. Sheikh Mahatabuddin

Associate Professor and Head

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Subject: Submission of Project Work Report.

Dear Sir,

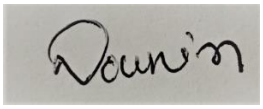
It is a tremendous honour and privilege for me to be able to present my project work report on "Nutritional Status and Dietary Practices among Selected IDDM Patients in Dhaka City."

I gathered the most relevant and trustworthy facts for this paper. I put out my best effort to meet the report's goal, and I am hopeful that it will succeed. I'd want to ask for your forgiveness if, despite my best efforts, I made any mistakes in the report.

I'd be grateful if you could provide me some ideas with your proposal. In addition, if you have any questions concerning any element of my work, I would be happy to answer them.

Once again, thank you for your patience.

Sincerely yours,



Nourin Sultana

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Certification approval

This certifies that **Nourin Sultana**, a regular student of B.Sc. in **Nutrition & Food Engineering,** Faculty Allied Health Science, Daffodil International University, Student ID: 171-34-597, completed her project work program entitled **"Nutritional Status & Dietary Practices among Selected IDDM Patients in Dhaka City."**

Then she completed her report writing on the basis of her data on November 2020 under my direction. We are aware that **Nourin Sultana** completed her report while our teacher was present. In addition, I ensure that her report is worth fulfilling the partial requirements of the NFE program.

Dr. Sheikh Mahatabuddin

Associate Professor and Head

Department of Nutrition and Food Engineering

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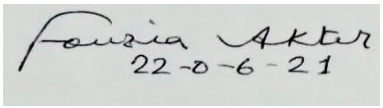

Ms Fouzia Akter

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Department of Nutrition and Food Engineering

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DEDICATION

I would like to dedicate my dissertation to my mother.

Acknowledgement

First and first, I'd want to express my heartfelt appreciation to Allah, the compassionate and all-powerful, for allowing me to complete my dissertation successfully. Simultaneously I remember my Prophet Hazrat Mohammad (SM), the supreme guide and knowledge for mankind. I would like to thank and gratefulness towards my respectable supervisor Ms. Fouzia Akter ,Assistant professor, department of Nutrition & Food Engineering ,Daffodil International University, Dhaka ,Bangladesh . For her proper support, guidance, valuable suggestions, constructive feedback and encouragement given throughout the project work. Otherwise, it would be very difficult and troublesome to conduct and continue my project work.

I am also thankful to Dr. Sheikh Mahatabuddin, Associate Professor and Head, Department of Nutrition and Food Engineering, Faculty of Allied Health Science, Daffodil International University, Dhaka; and all of my respected teachers for their inspiration and valuable advice. I would like to thanks all the employee, department of Nutrition and food engineering.

Author

Nourin Sultana

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List of Abbreviations

Abbreviated forms	Elaboration
IDDM	Insulin-Dependent Diabetes Mellitus
BADAS	The Diabetics Association of Bangladesh
CDiC	Changing Diabetes in Children
LFAC	Life For A Child Programmes
T1DM	Type 1 Diabetes Mellitus
MRDM	Major Risk of Diabetes Mellitus
BIRDEM	Bangladesh Institute of Research And Rehabilitation in Diabetes
NIDDM	Non-Insulin Dependent Diabetes Mellitus
IDF	International Diabetes Federation
WHO	World Health Organization

ABSTRACT

The main purpose of this study is to assess Nutritional Status & Dietary Practices among the Selected IDDM Patients in Dhaka City. 37 people have participated in this study. They were belonging to different ages, different gender different taste bud. All of them belongs to Dhaka city. This study finds out that, the main reason of IDDM in Dhaka city is they are not working physically and as we know that IDDM is lifelong dieses which is happen from the childhood so most of them affected by born and still uncontrolled because of their regular lifestyle. Also their food habit is playing a vital role in this case. From my research, I get to know that the percentage of type 1 diabetes is less than type 2 diabetes. And people of old age are suffering much by IDDM. Because of Covid 19 I could not be able to make a large research on this issue. So my sample size is too small. By judging my sample size, male percentage is 32.8% and female percentage is 67.6%. female patients are more than male patients in this case. 37.8 % people take supplements for diabetes and 62.2 % do not take. 64.9% people have other disease and 35.1 % people have not. 51.35% people take salt during eating, 48.65% do not take, 48.60% have allergen issue 51.40% do not have. 16.2% people do smoking 83.80% do not, 51.35% people do exercise regularly, and 48.65% do not able to work out daily. Blood glucose before fasting maximum 43.24% have 12mmol/dl and minimum 16.22% have 10mmol/dl, blood glucose level in normal maximum 7mmol/dl -51.35%. blood pressure 62.16% have 120/80 which is normal, creatinine 40.54% have 3.0mg/dl, cross tabulation result of gender and profession showed that, 54.05% women are housewife and 65.56% is women. The IDDM patients have commonly pressure problem and kidney, heart diseases.

Key words: *Diabetes mellitus, Type -1 diabetes, Nutrition, Insulin dependent, dietary practices, Data, Result, Food.*

General objective:

For finding out the knowledge on Nutritional status & dietary practice among the selected IDDM patients in Dhaka city.

Significance of this report:

The report presents case study oriented knowledge. The authenticity of the paper is highly maintained. The report would be inexhaustible value to the students of nutrition. Food science, Health and Allied Science students.

Research questions –

- How many percentage have idea about IDDM?
- How many time you take meal per day?
- When started the diseases?
- How many days or time they are suffering?
- Current mental status?
- Current medical status?

CHAPTER -1

Introduction

1.1 **Description of IDDM**

Type 1 diabetes, when known as adolescent diabetes or insulin-subordinate diabetes, is an ongoing condition wherein the pancreas creates next to zero insulin. Insulin is a chemical expected to permit sugar (glucose) to enter cells to deliver energy. Various variables, including hereditary qualities and some infections, may add to type 1 diabetes. In spite of the fact that type 1 diabetes normally shows up during youth or immaturity, it can create in grown-ups. In spite of dynamic examination, type 1 diabetes has no fix. Treatment centres on overseeing glucose levels with insulin, diet and way of life to forestall complexities.[1]Diabetes influences the manner in which the body handles fats, prompting fat collection in the courses and expected harm to the kidneys, eyes, heart, and cerebrum, and statins (cholesterol-bringing down drugs) might be recommended to forestall coronary illness. It is the main source of kidney sickness. Numerous patients require dialysis or kidney transfers (see transplantation, clinical). Most instances of obtained visual deficiency in the United States are brought about by diabetes. Diabetes can likewise influence the nerves, causing deadness or torment in the face and furthest points. A difficulty of insulin treatment is insulin stun, a hypoglycaemic condition that outcomes from an oversupply of insulin according to the glucose level in the blood (see hyperinsulinism).[1]

1.2 Causes of IDDM

Type 1 diabetes happens when your resistant framework, the body's framework for battling contamination, assaults and obliterates the insulin-delivering beta cells of the pancreas. Researchers think type 1 diabetes is brought about by qualities and natural elements, for example, infections, that may trigger the sickness. Insulin is a chemical that helps move sugar, or glucose, into your body's tissues. Your cells use it as fuel. Harm to beta cells from type 1 diabetes perplexes the cycle. Glucose doesn't move into your cells since insulin isn't there to do the work. All things being equal, it develops in your blood, and your cells starve.[2] This causes high glucose, which can prompt:

Dehydration: When there's additional sugar in your blood, you pee more. That is your body's method of disposing of it. A lot of water goes out with that pee, making your body dry out. [2]

Weight reduction: The glucose that goes out when you pee takes calories with it. That is the reason numerous individuals with high glucose get in shape. Drying out additionally has an Impact.

Diabetic ketoacidosis (DKA): If your body has not enough sugar for energy, follicles will be separated. This results in the creation of toxic substances called glycogen. Your liver delivers the sugar it has stored to help. However, because your body could use it without insulin, it builds in your blood with the acidic ketones. Hypoglycaemia is a deadly condition of excessive glucose, parchedness, and acidic growth which can be disastrous if not managed straight away. [2]

Harm to your body: High blood sugar levels in the blood may injure the cells and micro channels in our vision, organs, and hearts in the longer run. They can also make you more likely to develop calcified conduits, or ischemia, which can lead to cardiac failures and attacks.[3] [2]

It is completely impossible to prevent diabetes mellitus. Specialists are ignorant of all of the factors that contribute to it. They are aware, however, that your qualities play a role. They are also recognized that you can develop type 1 diabetes when something in your circumstances, for illustration, an infection, directs your immune system to approach your pancreas. The great majority of people with type 1 diabetes have autoantibodies, which are signs of an attack. They are present in practically every person who has the illness when their insulin intensity is increased. Type 1 diabetes can occur alongside other immune system sicknesses, similar to Graves' illness or vitiligo .[2] [4]

1.3 **Symptoms of IDDM**

Signs are regularly unobtrusive, they can, however, become serious. They are as follows:

- Excessive dehydration.
- Broadened appetite (particularly subsequent to eating).
- - Stomach upset and vomiting
- - Frequent urination.
- - Unexplained weight loss, regardless of the fact that you eat and are hungry.
- - Exhaustion.
- - Dull vision. Worked breathing, hefty (your PCP may call this Kussmaul breath).
- - Frequent skin, urinary tract, or vaginal contamination.
- - Changes in temperament or aggressiveness.
- - Bedwetting in a child who has been dry since the evening
- arid tongue .[5]

Indications of emergency in diabetes include:

- Shaking and disarray.
- Quick relaxing.
- A fruity odour on your breath.
- Stomach torment.
- Consciousness loss (uncommon).[5]

1.4 Severity of IDDM

Type 1 diabetes can prompt different issues, particularly on the off chance that it isn't all around controlled. Confusions include:

Heart-related illness: Diabetes might increase your risk of blood clots, just as hypertension and cholesterol. These can prompt chest torment, coronary episode, stroke, or cardiovascular breakdown. [6]

Skin issue: Individuals with diabetes are bound to get bacterial or parasitic diseases. Diabetes can likewise cause rankles or rashes. [6]

Dental illness: An absence of salivation, a lot plaque, and helpless blood stream can mess mouth up. [6]

Pregnancy issue: Ladies with diabetes mellitus have a huge danger of sooner conveyance, birth deformities, birth defect and toxaemia. [6]

Retinopathy: Retinopathy: This visual condition affects approximately 80percent of the overall of those who have had type 1 diabetes for more than fifteen years. Regardless of how long you've had the sickness, it's unusual before puberty. To avoid it - and maintain your visual perception - keep a close eye on your glucose, circulatory strain, cholesterol, and fatty substances levels. [6]

Kidney harm: Nephropathy is a disease that affects approximately 20% of people with diabetes. Over time, the odds improve. It is expected to occur 15 to 25 years after the onset of diabetes. It can lead to serious complications such as renal failure and coronary artery disease. [7] [8]

Helpless blood flow and nerve damage: Damaged nerves and hardened conduits cause numbness and a lack of blood circulation to your feet. This increases your risk of harm and makes it more difficult for open wounds and injuries to heal. You may lose an appendage as a result of this. Nerve injury can also result in stomach-related symptoms such as nausea, heaviness, and constipation. [6] [7]

1.5 **Precaution of IDDM**

There's no known technique to forestall diabetes mellitus. Analysts, on the other hand, are concerned with preventing infection or additional obliteration of islet cells in persons who have just been examined. Investigate as to whether you are eligible for one of these clinical trials, but weigh the risks and benefits of any treatment available in a trial carefully. Individuals who have type 1 diabetes can live long, solid lives. You'll have to watch out for your glucose count .PCP will give a reach that the counts should remain internal. Change your insulin, food, and exercise as essential. Everybody with type 1 diabetes needs to utilize insulin dosed to control their sugar. [9]

At the point when your doctor discusses insulin, they'll notice three primary things:

"Beginning or onset" is the means by which long it takes to arrive at system of circulation and start breaking down your sugar level. [10]

"Busy time or pick time" would be when insulin does the greatest job in terms of lowering blood sugar levels. [10]

"Term or duration" is the manner by which long it continues to work after beginning. [10]

A few sorts of insulin are accessible:

Fast acting: begins to work in around 15 minutes. It tops around 1 hour after you take it and keeps on working for 2 to 4 hours. [10]

Customary or short-acting: will work in around 30 minutes. It tops somewhere in the range of 2 and 3 hours and continues to work for 3 to 6 hours. [10]

Middle of the road acting: will not get into your circulatory system for 2 to 4 hours after your shot. It tops from 4 to 12 hours and works for 12 to 18 hours. [10]

Long-acting: requires a few hours to get into your framework and keeps going around 24 hours.

Your primary care physician may begin you out with two infusions every day of two sorts of insulin. Afterward, you may require more shots.

Most insulin arrives in a little glass bottle called a vial. You coax it out with a needle that has a needle on the end and offer yourself the chance. A few sorts arrive in a prefilled pen. Another sort is breathed in. You can likewise get it from a siphon, a gadget you wear that sends it into your body through a little cylinder. Your primary care physician will help you pick the sort and the conveyance technique that is best for you. [10]

Way of life turnover:

Workout is a significant part of lookup type 1 diabetes. However, this isn't pretty much basic as going for a run. Workout influences your glucose levels. As a result, each action, even simple chores around the house or yard, requires you to change your insulin amount and the food you eat. Check your glucose levels before, during, and after a workout to see what it implies for you. Some things will raise your levels while others will not. You can lower your insulin or take a

carbohydrate snack to keep it from going too low. If your glucose level is higher than 240 mg/dL, look for ketones, which are acids that can come from high sugar levels. If they're all acceptable, you must be good to go. If they're high, you should avoid the workout. You'll also need to consider what meal implies for your glucose levels. [9]

You'll also need to consider what meal implies for your glucose levels. When you understand what carbohydrates, fats, and protein do, you can create a sensible diet that helps keep your levels where they should be. A diabetic educator or registered dietician can help you get started. [2] [11]

CHAPTER – 2

Literature Review

Bangladesh is isolated into 64 regulatory locales and has a populace of 149.7 million, a region of 147,570 km, and a populace thickness of roughly 1015 individuals/km2. The nation has a complete ripeness pace of 2.3/capita Gross domestic product of $772, future of 69.5 years. The public authorities' use of wellbeing is the third biggest in the country, after training and protection. The Catch 22 of Bangladesh lies in its gross domestic product and its accomplishments in the wellbeing, instruction, and financial areas. The expanding rate of adolescence and young adult DM is a worldwide wonder. [12]

The most recent Worldwide Diabetes League (IDF) Map book assessed the rate of type 1 DM (T1DM) in Bangladesh at 4.2 new instances of T1DM/100,000 youngsters (0–14 years)/year, in 2013. The most noteworthy rate of T1DM (youngsters 0–14 years) is assessed to be in Europe and North America, with South-east Asia intently following the pattern at third position. Bangladesh is confronting a blast in quantities of diabetics, especially T2DM. A progression of studies have detailed a consistent worldwide expansion in the occurrence of T1DM, and multifactorial cycle may be included. At the Bangladesh Organization of Exploration and Restoration in Diabetes, Endocrine and Metabolic Issues (BIRDEM), there has been an upward pattern in the number of recently analysed youngsters, from 112 cases in 2008 to 319 cases in 2013, as recorded by the Changing Diabetes in Kids (CDiC) program at BIRDEM. The inquiry, notwithstanding, remains whether this upward pattern is a result of a genuine expansion in the rate of youth DM or expanded mindfulness and a decline in predominance of transmittable illnesses, achieved by sterile practices, vaccination against regular irresistible infections, with an attendant ascent in non-transferable sicknesses (NCD). [13] [14]

Late investigations show that all things considered, multifactorial reasons are answerable for the expanding rate, e.g., clean work, taking care of regimens (autoimmunity to cow's milk).

BADAS has contributed greatly to instructing the general population about diabetes, to such an extent that the until now unaccepted thought that youngsters could get and bite the dust from DM, has been converted into a moderately low limit for testing for DM in kids with polyuria, deficiency of weight, obviousness and so forth .[13]

The social difficulties looked at by T1DM youngsters are various. Large numbers of them are poor, with little admittance to training. They are regularly viewed as a weight on the family, particularly young ladies; they have little possibility of getting hitched or being utilized. Young ladies are frequently offered early. DM is probably going to be stowed away from educator, imminent companion and business, regularly with extensive outcomes. [15]

Absence of inspiration, powerlessness to oversee basic difficulties e.g., hypoglycaemia, day off administration, drop out of the facility (which might be because of absence of inspiration or additional expense associated with movement), mental issues, are other basic issues. [14]

The Diabetic Relationship of Bangladesh (BADAS), which was set up in 1956, is the biggest of its sort on the planet, with 68 partnered relationships in 64 areas of the country. It has in excess of 400,000 diabetics enlisted at its tertiary community, BIRDEM in Dhaka. Before BADAS, there was no consideration accessible for patients with DM requiring insulin under the public authority wellbeing administrations, so helpless patients confronted unavoidable passing! Verbose

consideration was the lone kind accessible, and patients with persistent sicknesses, confronted a questionable and dismal future. Prof. M. Ibrahim spearheaded diabetes care in Bangladesh and was one of its establishing fathers. The witticism was that 'no diabetic will kick the bucket untreated, unfed or jobless, regardless of whether poor'. Beginning as an OPD, BADAS has developed into an organization of 64 subsidiary affiliations, one in numerous locales, and a chain of little emergency clinics and OPDs, just as clinical and nursing schools. All patients, regardless of financial status, are qualified with the expectation of a complimentary meeting and certain tests. Treatment, including insulin, is accessible to patients liberated from cost whenever entitled, or as per pay. BADAS works on a cross-financing model, to such an extent that administrations for the poor are sponsored by the pay acquired from the wealthy, who come to look for mind or be explored. BADAS is an individual from the IDF and was a WHO Community Centre as of not long ago. [16]

Kids with diabetes are as yet overseen by grown-up doctors or sporadically by grown-up dialectologists, besides in foundations like BIRDEM, where paediatricians assumed control over the consideration of youngsters, and teenagers with diabetes in 1997, just as in Dhaka Shishu Medical clinic. Youngsters and youths have uncommon requirements at various stages, e.g., nourishment, tutoring, development, pubescence and so forth, throughout the long term, the profile of DM in kids has changed. At first, when the branch of paediatrics began, most patients were classed as MRDM, and traditional T1DM were a minority. Nonetheless, the circumstances have turned around now, with an expansion across all financial gatherings of T1DM. [16]

The weight of accommodating the consideration of diabetic patients puts a gigantic interest in the extended assets of BADAS. T1DM is insulin word, and insulin is a costly medication.

Two projects need uncommon notice, the Changing Diabetes in Youngsters (CDiC) program, and the Life for a Kid (LFAC) program, the previous supported by Novo Nordisk and the last by the Global Diabetes League (IDF). CDiC has three centres in Bangladesh, all worked by neighbourhood labour. The focal one is situated in Dhaka and the fringe ones are situated in 2 locale central command; Chittagong and Faridpur. The number of patients joined up with Dhaka is 1477, in Faridpur 216 and 200 in Chittagong. The age of the kids range from 0-18yrs. Under the LFAC program, there are 2200 enlisted (1yr-23yrs). There is a slight prevalence of females over guys.

With the dispatch of these 2 projects, the power of inspiration and schooling has expanded and, therefore, glycaemic control has improved over the long run from an HbA1C of over 9% to a steady tumble to < 7.5% among the CDiC patients. [16]

Both the projects offer help by giving free counsel, free insulin, schooling, machines for estimation of HbA1C, micro albumin on spot pee test, and retinal camera. Some blood tests, yearly registration and evaluating for confusions, development and pubertal checking are done free of cost. CDiC has built the centre inside the premises of the Ladies' and Kids Emergency clinic (BIRDEM2) and has been giving assets to running the facility, including specialists' and supporting staff compensation. Under its umbrella, CDiC upholds some medical care staff, including a clinician. Furthermore, it runs a fortunate training program. The schooling program

was set up with the assistance of CDiC, and utilizes diabetes teachers, a framework uncommonly prepared in an organized dialectology course, preparing patients and parental figures for infusion and testing procedures, and encouraging patients about any issues identified with diabetes. Nonetheless, presently, diabetes teachers are being paid for by patients utilizing the cross–financing model. Additionally, certain segments of the check-up are accessible on instalment by the wealthy. [16]

The LFAC program is doing a multi-focused epidemiological investigation of T1DM, which will give us an understanding of the danger factors, patterns and so forth, in various parts of the world. Both the projects supplement one another.

BADAS has assumed a focal part in increasing awareness about diabetes in the country. It likewise brought to the world's notification that DM is expanding alarmingly and each country has an obligation to forestall the forward walk of this danger, which comes full circle on fourteenth November, being proclaimed the UN World Diabetes Day. [17]

CHAPTER – 3

Methodology

3.1 Materials

No	Equipment	Purpose
1.	Paper	To make questionnaires
2.	Computer	For data entry. For analysis the data. For making charts and Tables, also for making final documents as report.
3.	Fund	Self-funding as per need for the purpose of thesis work.

3.2 Study place

In order to study the knowledge level on "Nutritional Status & Dietary Practices among the Selected IDDM Patients in Dhaka City" , the study location is in Dhaka (uttara, tongi, dhanmondi, mirpur, uttarati, mohammadpur, bonani) . As we know, we are in lockdown because of covid-19 from 16th march 2020, so most of the data collection collected by social networking sites and over the phone. I have made an online survey form for collecting information about my project. I also collected some data by door to door visiting.

3.3 Study period

16th January 2021 to 1st March 2021.

3.4 Data collection period

1st November 2020 to 15th January 2021.

3.5 **Study population**

In the whole world, the study said that 8 to 10% of people are suffering from IDDM. Most of the population (90 to 92) % are suffering from Type 2 diabetics or NIDDM. Though I did my research on victims of Dhaka city, my sample size was too short by judging the percentage. There is another cause which is Covid-19. Because of this, I was not able to go all the area of Dhaka city. My total sample size is 37.

3.6 **sample size calculation**

Sample size = $\frac{\frac{z^2 \times P(1-P)}{e^2}}{1+\left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$

N=population size

e = margin of error

z= z-score

Note : as we know this sample size calculation need at least 380 for make a result but I have only 37 sample size because of recent pandemic situation it cannot possible to count sample size .

3.7 **Sampling method**

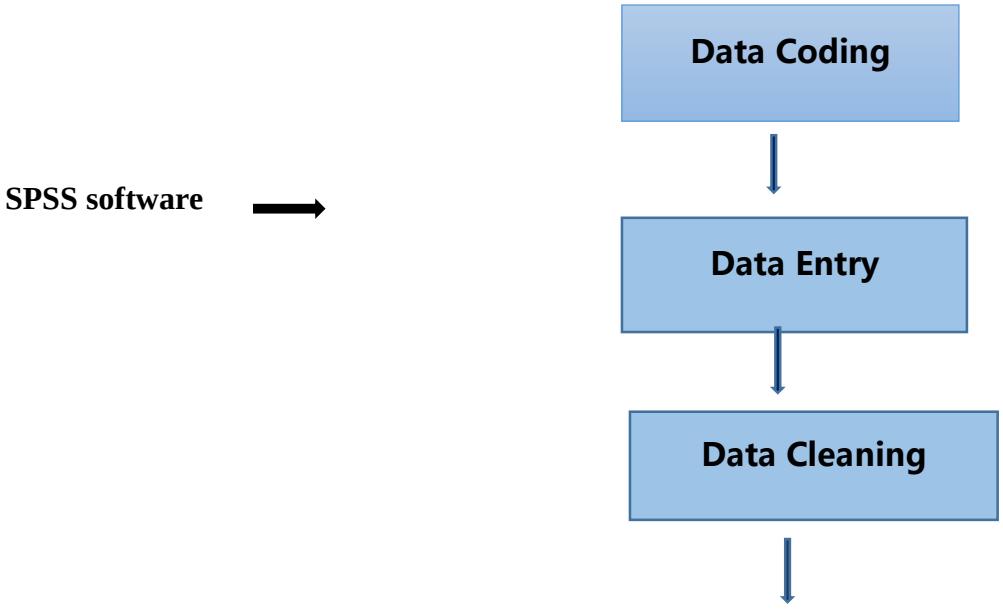
I have used the systematic regular or random sampling method.

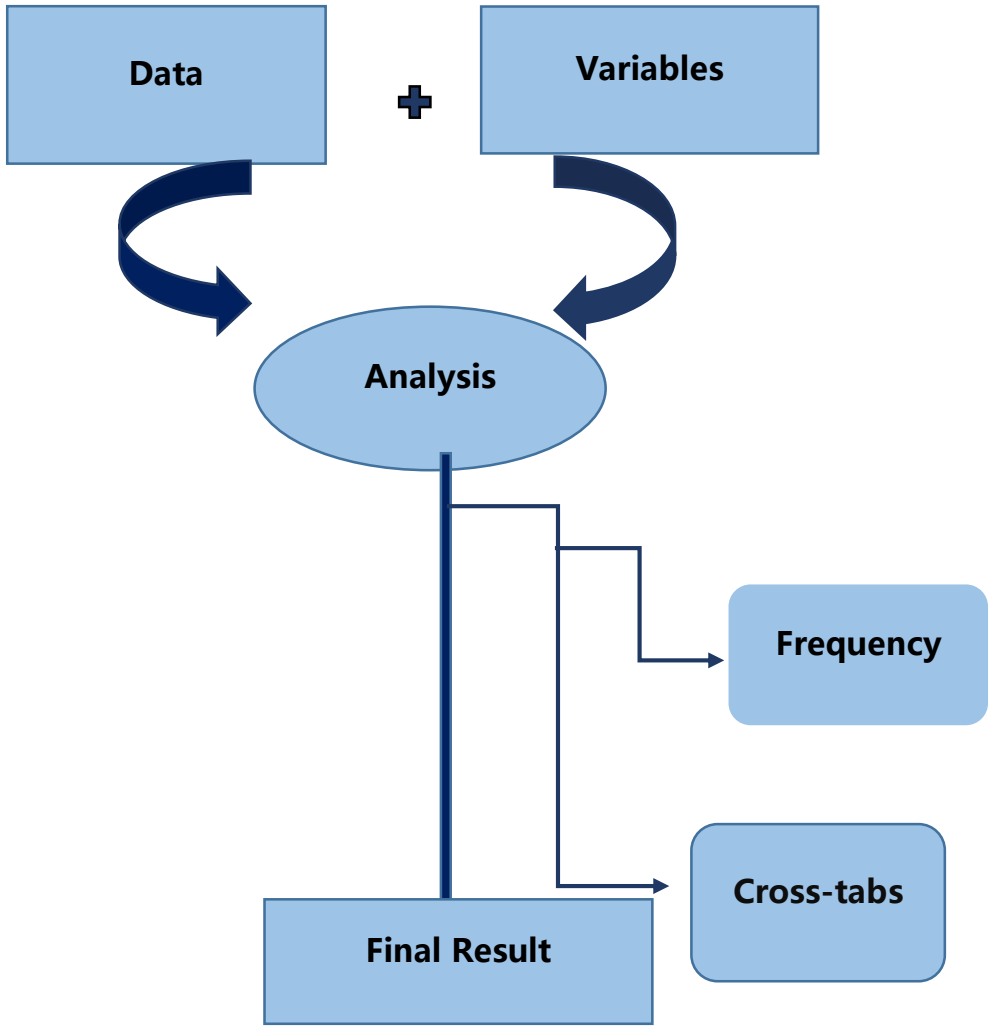
3.8 **Data collection method**

- Door to door visit.
- Face to face interview to the random people.
- I used local language for convey some population.
- I have made conversation by social network.
- I made survey form for asking question to the people who are not able in face to face.
- Every respondent were given 10 to 15 mints by me.
- All the answer were recorded as a Data form.
- All the information is collected by their permission.

3.9 **Data analysis plan**

For data analysis, I used SPSS software.





3.10 **Ethical consideration**

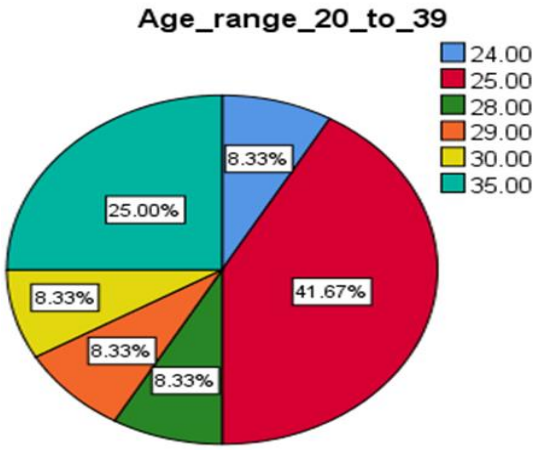
Each participant was informed about the study's intent and existence, and they were enrolled after providing written consent.

CHAPTER 4

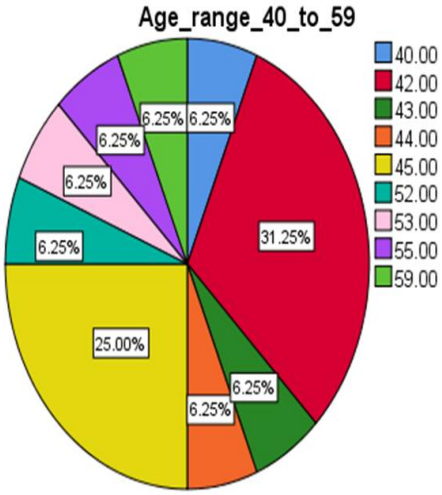
RESULT

4.1 Anthropometric parameters

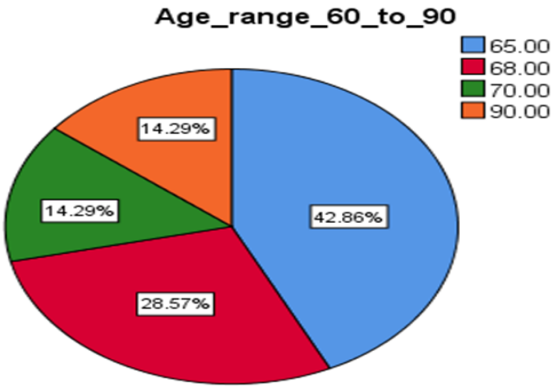
I. Age range graph –



Graph No- 1



Graph No-2



Graph No – 3

Explanation:

I have divided the age group of my sample size into three ranges. Which are 20-39, 40-59, and 60-90.

No.	Highest age%	age number	Age range
1	41.67%	35	20-39
2	31.25%	42	40-59
3	42.86%	65	60-90

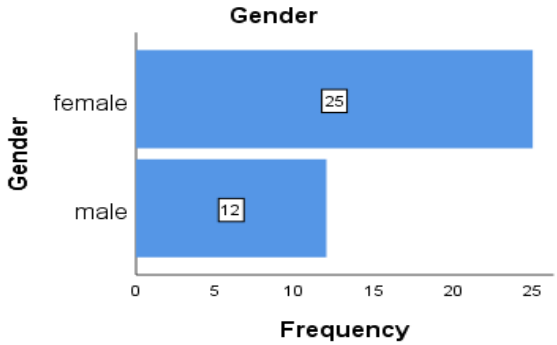
By analysis of the age scale of IDDM patients, we saw that in ages 20-39 the highest affected age percentage is 41.67% and the age number is 35. In 40-59, the common age percentage is 31.25% and the age number is 42. In 60-90, the highest age range is 42.86 % and the age number is 65. I have learned that most of the population has been suffering from IDDM more than 10 years to 30 years. As we know, IDDM shown on children more than old people. So it's been a long time suffering.

II. Gender specification percentage –

Table No- 1

Gender

Gender	Frequency	Percentage	
Male	12	32.4%	
Female	25	67.6%	
Total	37	100%	



Graph No-4

Explanation

Gender analysis shows that females are more affected by IDDM more than the male population. Our sample size is too small, but I personally talked with two doctors and 4 pharmacists about the percentage of IDDM and all of them said, they found female patients more than males in this case. In my data analysis, I found 25 females who are caused by IDDM. And 12 male patients which is half of the female percentage. I also asked all of the specialists about the reason they said, most of the time it depends on family background and another major reason is Activities.

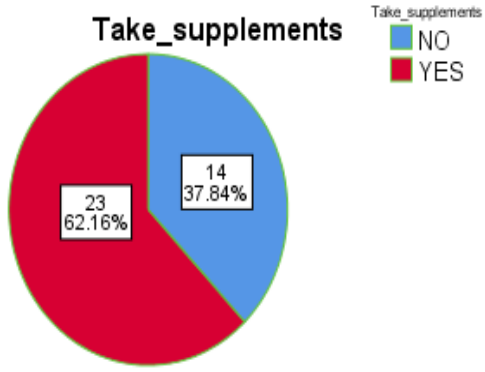
4.2 knowledge about supplements or medicine

I. Supplements percentage –

Table No-2

Supplements

Supplement	Frequency	Percentage	
NO	14	37.8%	
YES	23	62.2%	
TOTAL	37	100%	



Graph No -5

Explanation

My study about my sample size showed that, most people take supplements like multivitamins, minerals, iron, metformin, thyrin 25mg, dimicon 60 mg, and uromax. 23, 62.16 % take supplements and 14, 37.84%do not take any kinds of supplements.

II. Other Diseases –

Table No -3

Other diseases	Frequency	Percentage
Yes	24	64.9%
No	13	35.1%
Total	37	100%

Explanation

24 number of sample size are sadly affected by some serious and common diseases along with IDDM. The most common diseases are high blood pressure, low blood pressure, heart diseases, kidney diseases, migraine, neuron defects, anaemia, cholesterol, thyroid, cancer also. Some populations confess that, they are suffering from other diseases because of their irresponsible food habits and lack of maintaining proper nutritional balance in life. On the other hand, 13 number of sample sizes are only suffering from IDDM.

III. Suffering From Diabetics –

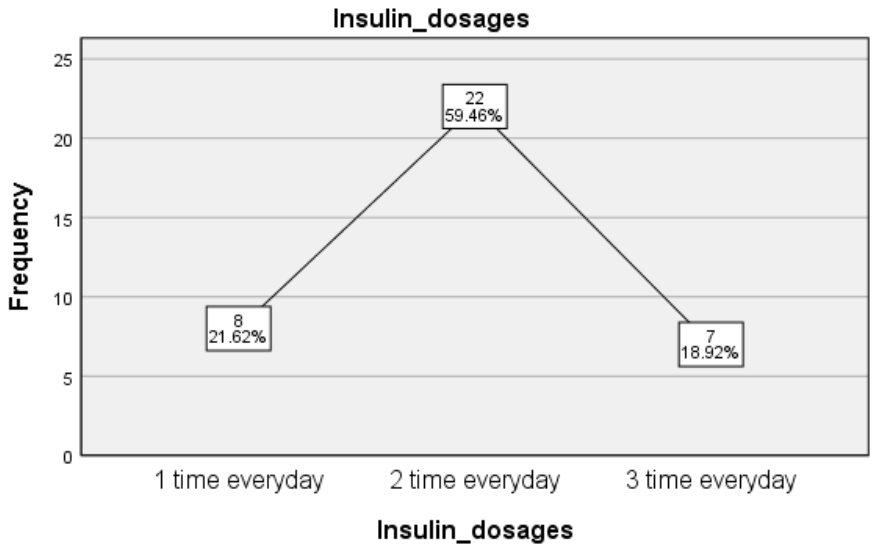
My study observed that, almost 80% of the population of my sample is suffering from 15 years to 40 years. 10 to 5 % are suffering from 2 years to 10 years. As we know, IDDM is caused most of the time in young people but stays maximum time whole of life but proper care of food and activities can solve this disease.

IV. Insulin does -

Table -4

Insulin Dose

Insulin dose	Frequency	Percentage
1	8	21.6%
2	22	59.5%
3	7	18.9%
Total	37	100%



Graph No-6

Explanation

We can see in table no 4 and graph no 6 that, 59.46%, 22 people take insulin doses twice per day in the morning and in the night. 21.62%, 8 people take insulin doses 1 time per day in the night time. 18.92%, 7 people take insulin doses 3 times per days, which is before breakfast, before lunch, and before dinner time.

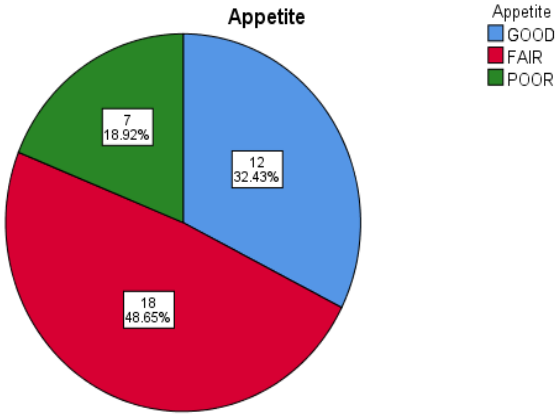
4.3 Information about dietary history

I. Appetite –

Table No-5

Appetite

Appetite	Frecuency	Percentage
Good	12	32.4%
Fair	18	48.6%
Poor	7	18.9%
Total	37	100%

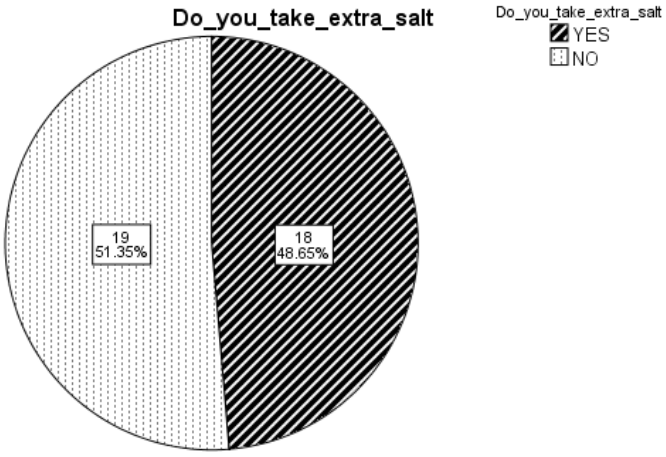


Graph No-7

Explanation

In table 5 and graph 7 we can see that, 48.65%, 8 people have a fair appetite. 32.43%, 12 people have a good appetite and 18.92 %, 7 people have a very poor appetite. After taking insulin doses, people who are suffering from IDDM feel quite hungry.

II. Salt -



Graph No-8

Explanation

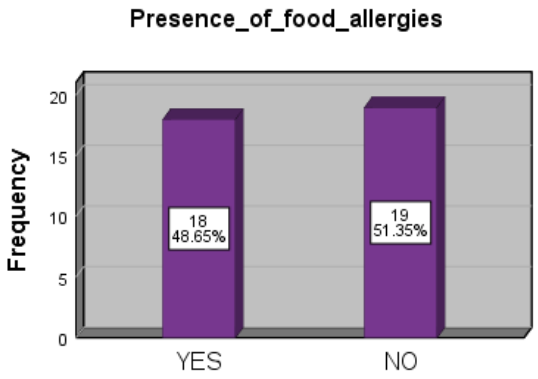
It's really shocking that 48.65% of people take salt among 100% because doctors always says that -avoid extra salt in diabetics. 19 people, 51.35% people do not take salt.

III. Allergies –

Table No -6

Presence of food allergies

Allergies	Frequency	Percentage
Yes	18	48.6%
No	19	51.4%
Total	37	100%



Graph No-9

Explanation

19 people 51.35% do not have food allergies from any food consuming. 18 people, 48.65% have food allergies.

IV. Smoking-

Table No -7

Do you smoke?

Smoke	Frequency	Percentage
yes	6	16.2%
No	31	83.8%
Total	37	100%

Explanation

Smoking kills the body and mind slowly but permanently. 6 people, 16.2 %smoke among 100% and 31, 83.8% people do not smoke.

V. Alcohol -

Table No-8

Do you drink alcohol?

Alcohol	Frequency	Percentage
No	36	97.3%
Yes	01	2.7%
Total	37	100%

Explanation

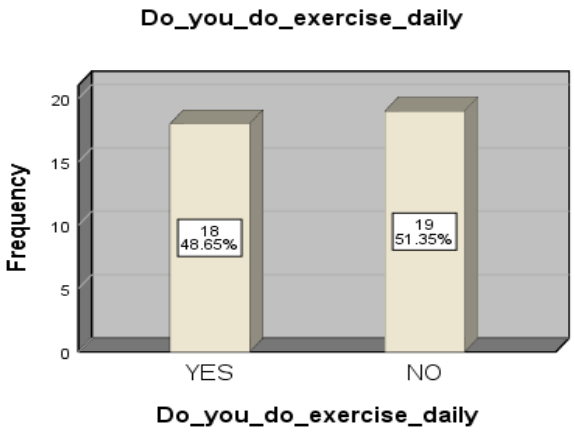
97.3 % of population do not drink alcohol and 2.7 % of population drink alcohol.

VI. Exercise –

Table No-9

Exercise

Exercise	Frequency	Percentage
Yes	18	48.6%
No	19	51.4%
Total	37	100%



Graph No-10

Explanation

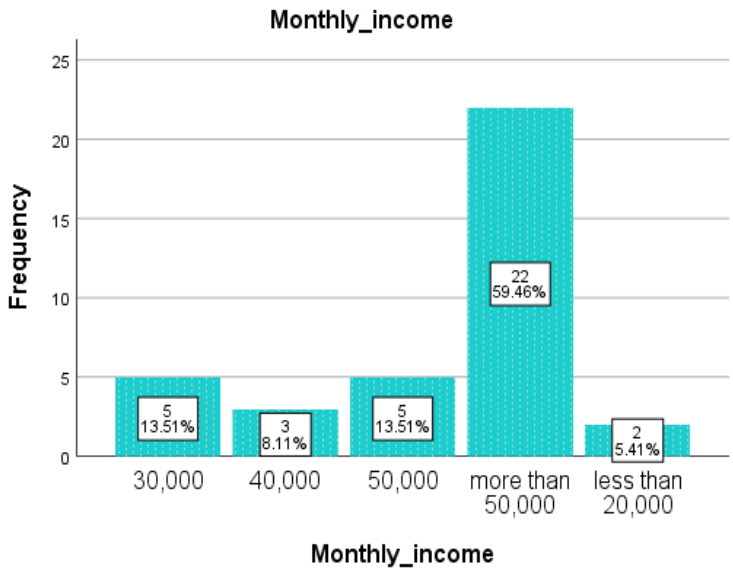
Almost 50% of people said that they do exercise and 50% of people said that they do not get time for doing exercise.

4.4 Socio-economic and cultural factors

I. Income-

Table No- 10

Income	Frequency	Percentage
30,000	5	13.5%
40,000	3	8.1%
50,000	5	13.5%
More than 50,000	22	59.5%
Less than 20,000	2	5.4%
Total	37	100



Graph No-11

Explanation

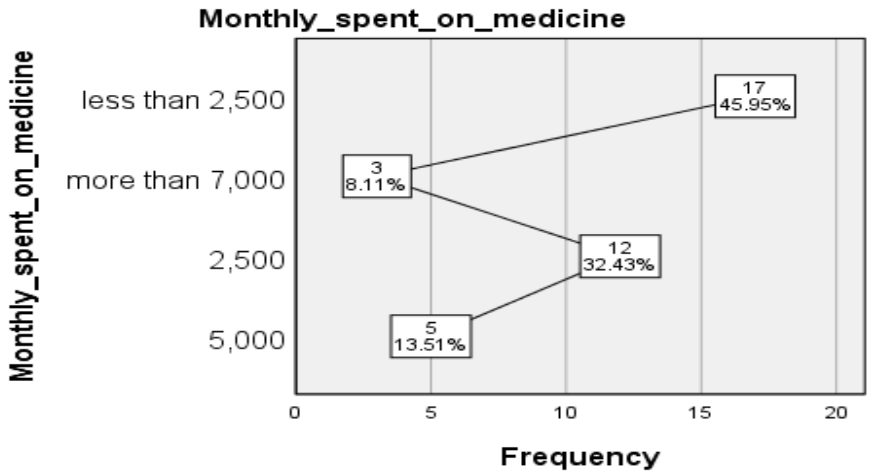
In graph 11 and table 10 we can see that, 22 people or 59.46% population have more than 50,000 income monthly ,13.51% people earn 30,000 and13.51% people earn 50,000 . 8.11% people earn 40,000 and 2% people earn less than 20,000 per month.

II. Medicine cost –

Table No -11

Monthly spent on medicine

Medicine cost	Frequency	Percentage
5,000	5	`13.5%
2,500	12	32.4%
More than 7,000	3	8.1%
Less than 2,500	17	45.9%
Total	37	100%



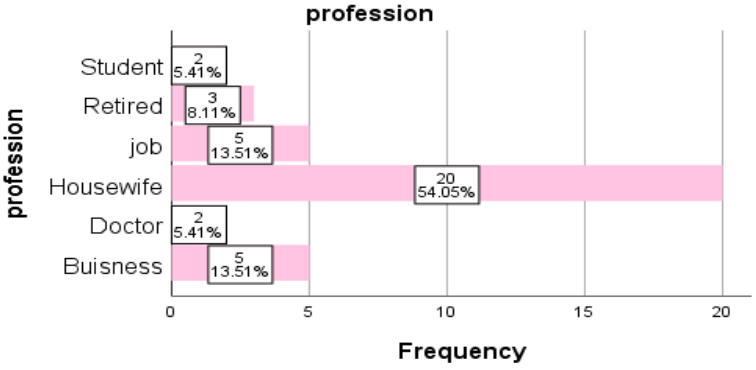
Graph No -12

Explanation

In graph 12,

45.95% people or 17 people spent less than 2500 taka in their medicine cost. 8.11% or 3 people spent more than 7000 taka in medicine cost. 32.43% or 12 people cost 2500 taka in medicine in a month. 13.51% or 5 people cost 5000 take in a month on medicine.

III. Profession -



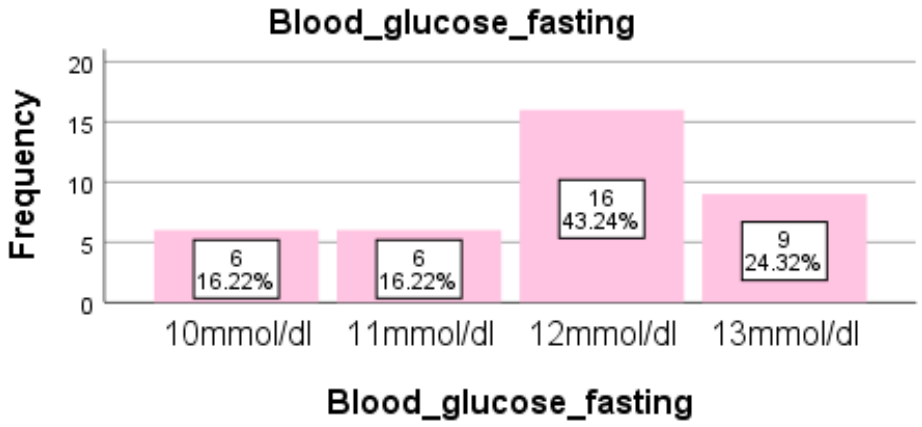
Graph No – 13

Explanation

54.05% of population who are female and housewife are suffering from IDDM. 5.41 % of population who are doctor and 5.41% of population who are student. 13.51 % of population who have business and 5% of population who are doing job.

4.5 Knowledge about biochemical parameters

Blood glucose level in fasting-

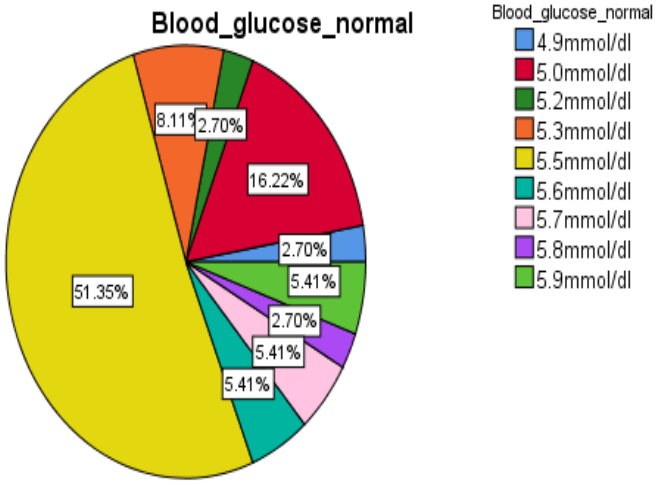


Graph No – 14

Explanation

When it is in lower level of ➢ 7, the blood glucose in fasting is normal. When it is upper than 7 it is not normal. Its sign of diabetics. In the graph 14, we can see that 43.24% of population have blood glucose in fasting is 12mmol/dl which is not normal. 24.32% of population have blood glucose in fasting 13mmol/dl which is also not normal. 16.22 % of people have 11mmol/dl also and 16.22 % of people have 10mmpl/dl which are also not in normal range. So I can say that, every one of my sample population have higher blood sugar level in fasting. Which is indicate diabetics.

Blood glucose level in normal-

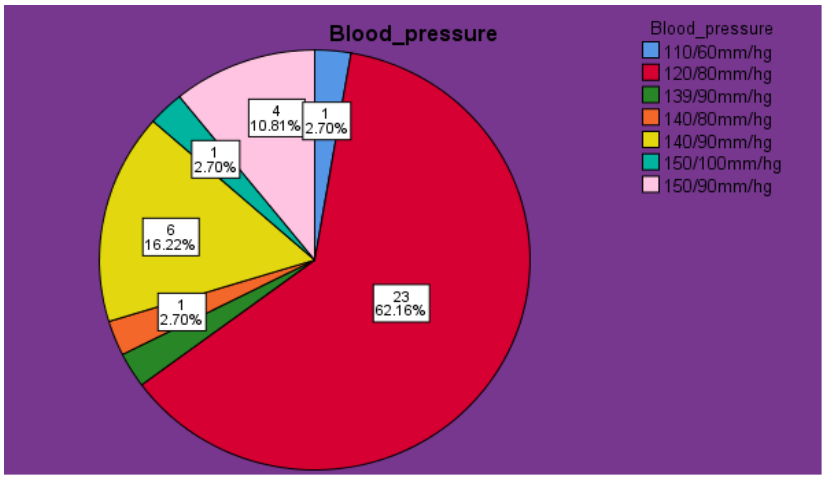


Graph No – 15

Explanation

The normal blood glucose level is 7mmol/dl. 51.35% of population have 5.5mmol/dl which is under control. In this survey we found that, every population of my project have their blood glucose level in normal phase in under control.

Blood pressure –

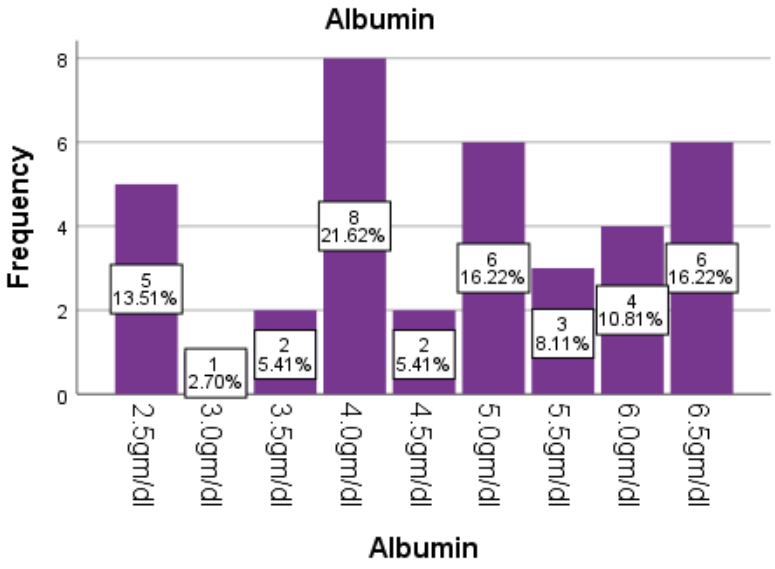


Graph No – 16

Explanation

Normal blood pressure range 120/80mm/hg. 62.16 % population have the perfect blood pressure range which 120/80 mm/hg is showed in graph 16. And 37.84% people have low blood pressure and high blood pressure range.

Albumin –

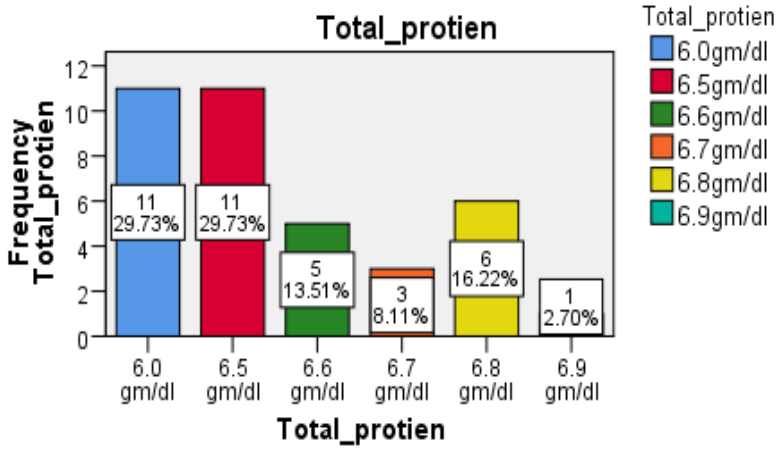


Graph No – 17

Explanation

The normal albumin range is 2.3 to 6.8 gm. /dl. All of my sample size have normal albumin range but 5 % of population have 2.5 gm. /dl which is in risk zone also 6% of population have 6.5gm/dl which is also in risk zone.

Total protein –

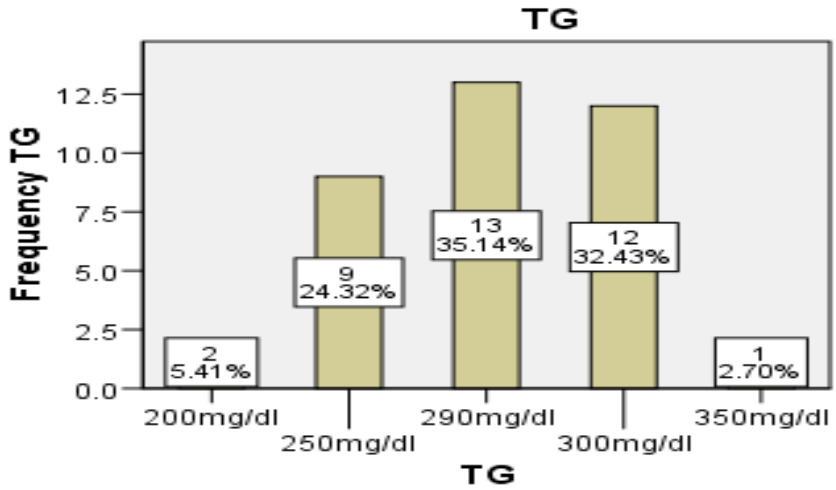


Graph No- 18

Explanation

Normal range of total protein is 6.0-6.8gm/dl. 2.70% population have total protein 6.0gm/dl which is not normal and upper than normal range of total protein. Rest of the population have normal range of total protein.

TG –

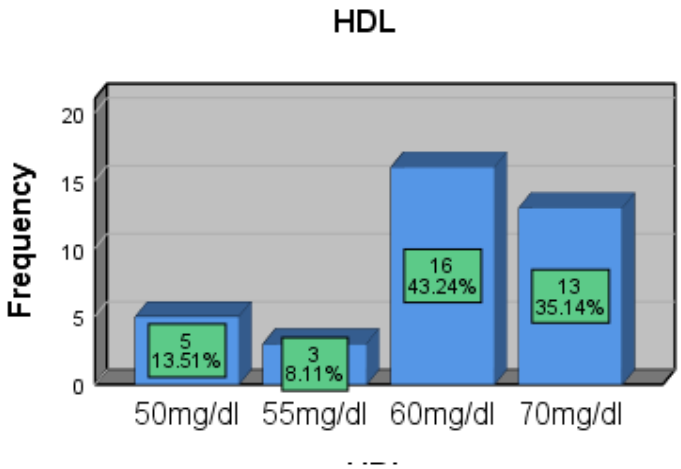


Graph No- 19

Explanation

Normal range of TG is 200-300mg/dl. In graph 19 we can see that, 2.70 % people have unbalanced Thyroglobulin. And 32.43 % population is in risk zone they need be more careful about their thyroglobulin balance in body.

- **HDL –**

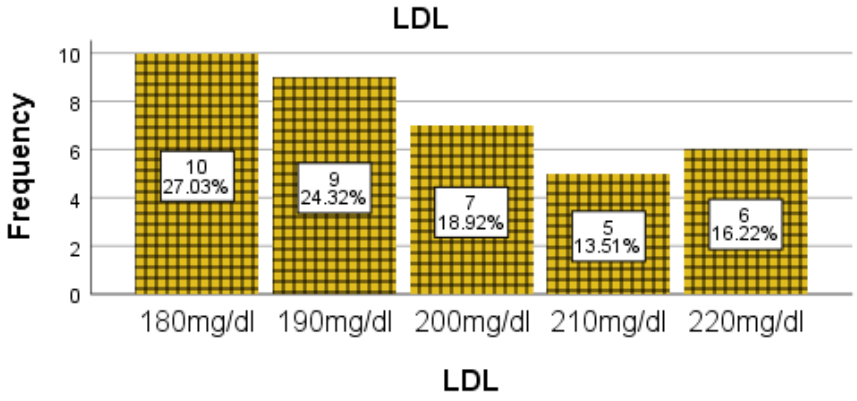


Graph No – 20

Explanation

The normal range of High density lipoprotein is 55-75mg/dl. 13.51% of the population have a lower HDL level than the normal range. 8.11 % of the population is in the risk zone. 78.38% of the population have a normal range of HDL level.

LDL –

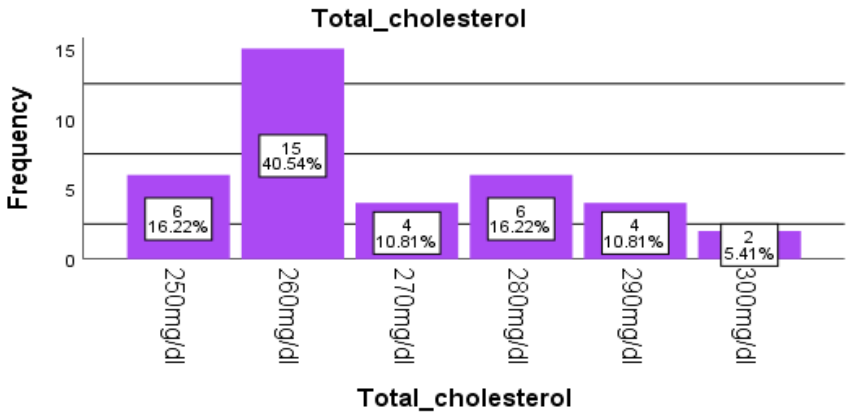


Graph No- 21

Explanation

The normal range of Low density lipoprotein is 150-230 mg/dl. The lower density lipoprotein of all the population is in the normal range but 16.22% of the population is in the risk zone 220mg/dl.

Total Cholesterol –

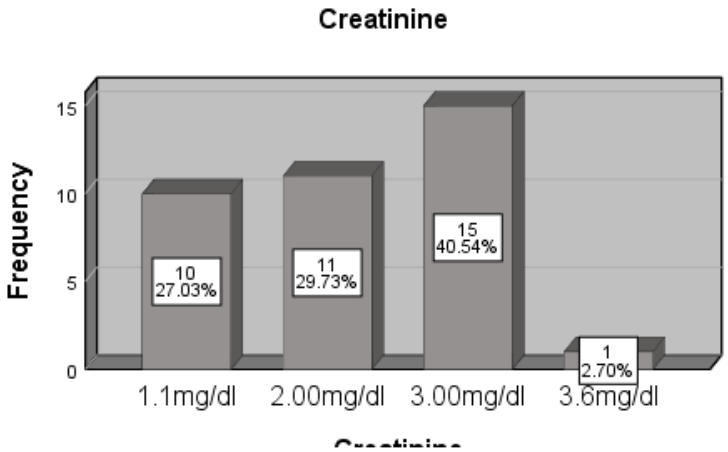


Graph No – 22

Explanation

There is no fixed range for total cholesterol. Total cholesterol is depends on the HDL + LDL range. If the range of HDL+LDL is at normal level, then total cholesterol level will be in the normal range. If the range crosses 300mg/dl then it will be in the risk zone. 5.41% of the population have a range of 300mg/dl which is a risk zone.

Creatinine-



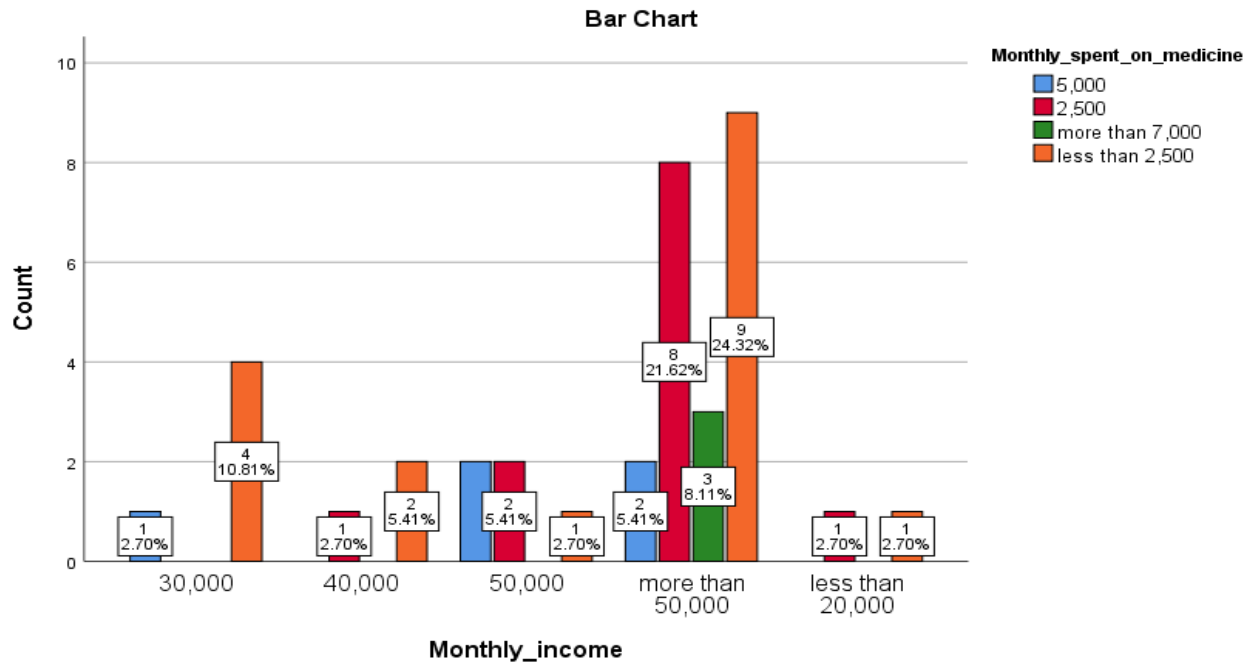
Graph No – 23

Explanation

The normal creatinine range is 1.4 -3.8 mg/dl. 27.03% of population have 1.1mg/dl creatinine range which is lower than required range. Rest of them have balanced creatinine level.

4.6 Cross Tabulation

a. Monthly Income and Monthly spent on Medicine –



Graph No – 24

Explanation

Monthly spent on medicine related their monthly income of the family. Some cases are rare which is based on health condition of sample population. In graph 24, we can see that,

Monthly income 30,000 – 2.70% population spent 5000 taka on their medicine cost and 10.81% of population spent less than 2500 taka in their medicine cost.

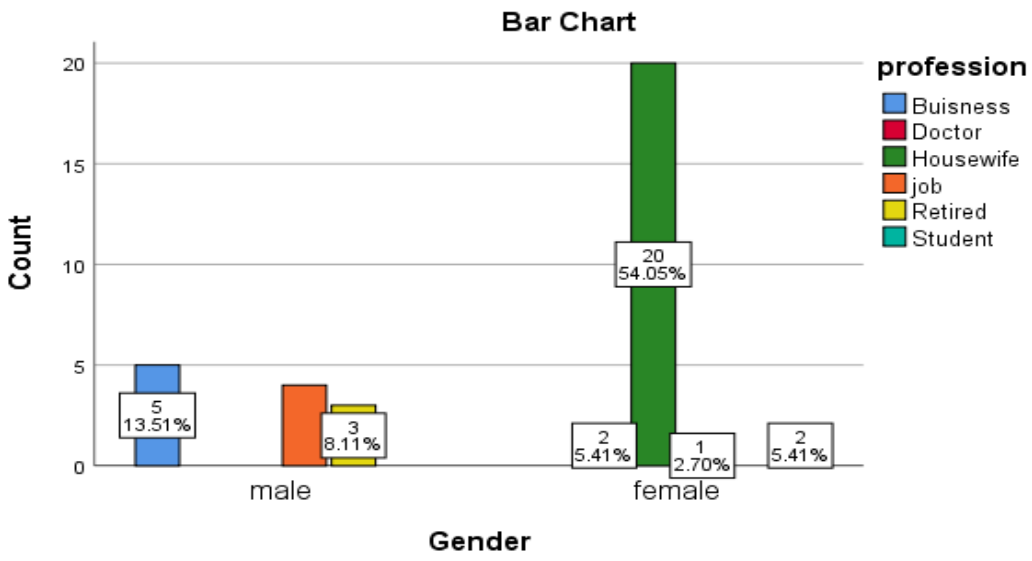
Monthly income 40,000 – 2.70% of the population spent 2500 taka in their medicine cost and 5.41% of the population spent less than 2500 taka in their medicine cost.

Monthly income 50,000 - 5.41% spent 5000 taka also 5.41% spent 2500 taka on their medicine cost. 2.70 % of the population spent less than 2500 taka on their medicine cost.

Monthly income more than 50,000- 5.41% spent 5000 taka, 21.62 % spent 2500 taka, 8.11% spent more than 7,000 taka, and 24.32% spent less than 2500 taka in their medicine cost.

Monthly income Less than 20,000 – 2.70% spent 2500 taka, 2.70% spent less than 2500 taka on medicine cost.

b. Gender and Profession-



Graph No – 25

Explanation

Research says that victims of IDDM/NIDDM are female more than the male population. The reason behind this is that their daily activities are different. In graph 25 we can see that 65.56% of the population is female and 54.05% are housewives, rest of the percentage are doctors and students. On the other hand, 21.62% of the population is male and they are doing business and some of them are retired.

4.7 List of taken food in last three days

Carbohydrate -

Rice	45%
Bread	20%
Cereals	10%
Puffed rice	10%
Potato	15%

Explanation

I discussed with all the population about their food habits and food taken in the last three days. Then I came to a conclusion with a final table of their carbohydrates taken in the last 3 days.

Rice is taken 45% in last 3 days by the population. Which is not actually required by doctors.

Bread is taken 20% in last three days by all the population. **Cereals** is taken in last 3days 10% and **puffed rice** and **potato** is taken in last 3 days 10% and 15 %.

- **Protein –**

Egg	50%
Fish	20%
Meat	3%
Chicken	27%

Explanation

50% of population taken eggs in last 3 day for reaching their protein need. Fish taken 20%, meat taken 3% and chicken taken 27%.

- **Milk Products –**

Whole milk	15%
Skim milk	13%

Card	30%
Ice cream	1%
Milk tea	5%
Milk made products/food	25%
Cheese	1%

Explanation

In last 3 days, all the population averagely taken whole milk 15%, skim milk 13%, card 30%, ice cream 1%, milk tea 5%, milk products 25%, and cheese 1%.

Legume –

Yellow lentils	55%
Red lentils	5%
Chana dal	40%

Explanation

Legume is the most common item in food list of the population. It's also too rich in protein level.

Yellow lentils is taken by 55% in last 3 days, red lentils 5% and Chana dal 40%.

Vegetables –

Green vegetables	70%
Mixed vegetables	27%
Colorful vegetables	3%

Explanation

In last 3 days, green vegetables taken 70%. They said almost every time they eat vegetables which is good on point. Mixed vegetables 27% and colourful vegetables 3%

Fruits –

Apple	15%
Orange	20%
Banana	30%
Malta	2%
Grapes	2%
Pomegranate	6%
Guava	15%
Pineapple	10%

Explanation

As we know that, fruits are very costly in our region .so it's hard for all to take fruits in daily basis in everyday life. Due to high price everyone cannot effort all kinds of fruits in everyday life. Apple is taken 15%, orange 20%, banana is taken 30%, Malta 2%, grapes 2%, pomegranate is taken 6%, guava is taken 15%, and pineapple is taken 10% in last three days.

Fats and Oils –

Soybean oil	60%
Mustard oil	20%
Butter	5%
Ghee	7%
Mayonnaise	3%
Olive oil	5%

Explanation

Cooking oil is a major thing for our country when it's come to food cooking. So it's a common thing in daily use. And soybean oil is taken mostly which is 60%. We should avoid soybean oil for cooking. And need to use mustard oil, olive oil .these two is quite healthy than soybean oil. In last three days, mustard oil is taken 20%, butter 5%, ghee 7%, mayonnaise 3%, olive oil 5%.

Chapter -5

5.1 **Discussion**

Diabetes in kids and young people is expanding in Bangladesh. Diabetes instruction joined with suitable inspiration from the patients and parental figures is the foundation of DM the executives. The maintainability of the projects will guarantee that the kid with diabetes can have an ordinary existence. IDDM is a rare but lifelong type of diabetic, so people should be more careful about their lifestyle. Some infants get IDDM from the beginning of their birth and it cannot be possible to reduce it permanently, but it can be controlled with a healthy lifestyle [18] From my study on IDDM, I followed that, females are more affected by diabetics than male. Diabetes patients mostly take supplements like vitamin, minerals. They are suffering from other diseases like, hypertension, low pressure, heart and kidney defects. They lost their good appetite. They need to take insulin 2 to 3 time per day insulin. Most of them are suffering from IDDM more than 10 years. Most of the females are housewife. But it sad to discuss about this, they cannot able to avoid rice, roti is highly recommended for them. Highest spent on medicine percentage is 24.32% which is 2500 taka. Carbohydrate (rice) taken by 45%, protein (egg) is taken by 50%, milk product (card) is taken by 30%, legume (yellow lentils)-55%, vegetables (green vegetables)-70%, fruits (Banana) - 30% and fat & oil (soybeans oil) -60%.

CHAPTER -6

6.1 **Conclusion**

Most type 1 diabetes is of an insusceptible intervened nature. It causes around 10% of diabetes mellitus cases in North America and Europe. The best way to prevent diabetes is to eat healthily, exercise regularly, and to limit intake of carbs and other high-calorie foods. The more severe cases of diabetes, the more severe the disease, and the better the prognosis.[16] Type 1 diabetes can happen at whatever stage in life, and a huge extent is analysed during adulthood. Dormant immune system diabetes of grown-ups (LADA) is the analytic term applied when type 1 diabetes is created in grown-ups; it has a slower beginning than similar conditions in youngsters. Given this distinction, some use the informal term "type 1.5 diabetes" for this condition. Grown-ups with LADA are habitually at first misdiagnosed as having type 2 diabetes, old enough as opposed to a reason.[19]–[21] some infants get IDDM from the beginning of their birth and it cannot be possible to reduce it permanently, but it can be controlled with a healthy lifestyle. Females are more affected by diabetics than male. Highest spent on medicine percentage is 24.32 percentage which is 2500 taka. Due to the issue of pandemic situation in Bangladesh, we were not able to collect more data and work with more sample size. But if I have opportunity for working on this issue again I will willing to do this.

Limitation of this report -

Despite the fact that this report has been meticulously prepared, the author is aware of its limits and flaws.

CHAPTER -7

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CHAPTER -8

8.1 Questionnaires

"Nutritional Status and Dietary Practices among the Selected IDDM Patients in Dhaka city"

Case study No…… Date …….

1. Information about patient:

Name
Address
Name of the hospital
Admission date (If)
Reason of admission :
Ward No. :
Bed No. :
Health condition :
Mental status :

2. Anthropometric parameters:

Age: _____years Sex: M / F Weight: Kg

3. Biochemical parameters (if available):

Blood glucose (fasting) : _____mmol/dl
Blood glucose normal : _____mmol/dl
Blood pressure : _____mm/Hg
Albumin : _____gm/dl
Total protein : _____gm/dl
TG : _____mg/dl
HDL : _____mg/dl
LDL : _____mg/dl
Total cholesterol : _____mg/dl
Creatinine : _____mg/dl

4. Present supplements or medicine:

Provide supplement: ☐ Yes ☐ NO
If yes, ☐ Multivitamin ☐ Multi minerals ☐ Multivitamin + Minerals

Present medication/ Insulin: Yes ☐ ☐ NO
If yes, Types_____/Reason_____ .

5. Others diseases (Presence / Absence)
6. If presence, types of disease
7. How many days/years suffering:
8. When started this disease-
9. Insulin dosage: times/ dose

10. Information about dietary history:

Appetite: ☐ Good ☐ Fair ☐ Poor

Presence of food allergies /intolerance : _____(type)
Times of meal taken per day :
Times of snack taken per day :
Extra salt consumed : YES NO
Smoking : YES NO
Alcohol : YES NO

11. Three days Food habit of the patient:

Group of food	**Name of food**	**Time per day**
Carbohydrate	Rice Bread Ruti Biscuit Muri Khicuri Others_____ .	
Protein	Fish curry/bhuna/others Beef curry/bhuna/others Chicken Egg Lean meat/fish Fatty meat/fish Small fish Others _____.	
Milk & milk products	Whole milk Skim milk Card Yogurt Sweet Ice cream Others _____.	
Pulse & legume	Dal (high / medium conc.) Dal (low conc.) Others _____.	

Vegetables	Green leafy vegetable Non leafy vegetable Starchy vegetable Mixed vegetable Roots & tubers Others _____.	
Fruits	Seasonal fruits: _____. _____. _____. Citrus fruits: _____. _____. _____. Sweet fruits: _____. _____. Others _____.	
Fats & oil	Soybean oil Mustered oil Butter Ghee Mayonnaise Others _____.	

12. Socio-economic & cultural factors:

Monthly family income :
Monthly expenditure :
Profession :

Signature

Date: ……..