CHARACTERISTICS AND IT'S ASSOCIATED FACTORS AMONG TYPE II DIABETES MELLITUS PATIENT

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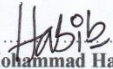Department of Physiotherapy

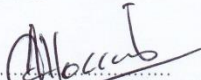CRP, Savar, Dhaka -1343

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We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled

"CHARACTERISTICS AND IT'S ASSOCIATED FACTORS AMONG TYPE II DIABETES MELLITUS PATIENT"

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Declaration

I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication, presentation or dissemination of information of the study. I would be bound to take written consent from the Physiotherapy department, Bangladesh Health Professions Institute (BHPI).

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Acronyms

BHPI	Bangladesh Health Professions Institute.
BMI	Body Mass Index
CRP	Centre for the Rehabilitation of the Paralysed
DM	Diabetes Mellitus
IGH	Ibrahim General Hospital
IRB	Institutional Review Board
NCD	Non-communicable diseases
SPSS	Statistical Package for the Social Science
T1DM	Type 1 diabetes mellitus
T2DM	Type 2 diabetes mellitus
WHO	World Health Organization
BMRC	Bangladesh Medical and Research council

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Abstract

Purpose: The purpose of the study was to identify the characteristics and associated factors among type II diabetic patients. *Objectives*: The objectives were to identify type II diabetic patient with various complain. To find out the socio-demographic information of the patients. To find out individual patients view about diabetes disease. To know the association of the various complain with associated risk factors for patient with type II diabetes. To know the perception of patient and physician about the role of physiotherapist for the management of diabetes mellitus. *Methodology*: The study was conducted by using of Quantitive cross sectional method. 100 participants are selected and this Quantitive study conducted in Ibrahim General Hospital, which is a non-government organization, located in Mirpur-10, Dhaka. Participants were selected by convenience sampling. All data were collected through face-to face interview by using a structured research question technique. *Results*: From the result of the study it was found that the patient with type II diabetes mellitus didn't follow the diet chart due to economic problem, family barrier and dislike meal. The lack of patient's knowledge about the role of physiotherapist and improper referral system are the leading factors of patient's suffering. *Conclusion:* From the result of the study it was found that most of the participant are suffering with various diabetic associated complication as they didn't get proper physiotherapy treatment.

*Key words***:** Patients complain, related factors, Association.

1.1 Background

Now day's chronic diseases are mostly active problem for death and disability in world wide. It is the opinion of world Health Organization (WHO, 2016) at present globally non-communicable diseases like Diabetes Mellitus (DM), cardiovascular diseases, chronic pulmonary Diseases, cancer are the major cause of human mortality and morbidity. Non-communicable diseases (NCDs) are the alarming proportions in the south- east faces many health problems. Diabetes Mellitus (DM), is one of them. According to (WHO, 2016), Diabetes is an important public health problem and one of the four priority non-communicable diseases (NCDs) targeted for action by world leaders. Both the number of cases and the prevalence of diabetes have been steadily increasing over the past few decades For people living with diabetes, access to affordable treatment, including insulin, is critical to their survival. "Prediabetes" is a practical and convenient term referring to impaired fasting glucose (IFG), impaired glucose tolerance (IGT) or a glycated hemoglobin (A1C) of 6.0% to 6.4%, each of which places individuals at high risk of developing diabetes and its complications (American Diabetes Association, 2012).

Diabetes is going to be more considerable burdening cause of public health service and the prevalence of diabetes is increasing globally significantly in developing country. South Asia, usually known as the Indian sub-continent, is nearly one-quarter of the world's population and is comprised of the many diverse ethnics, linguistic and religion teams. India, Pakistan, Bangladesh, Nepal, Sri Lanka, Bhutan and Maldives are the countries of the region (Jayawardena et al., 2012) .The diabetes are may varied according there insulin dependency.

The variation of diabetes mellitus are I and Type II. Type I is characterized by lack of insulin production and requires daily administration of insulin. Type II diabetes mellitus results from the body's unproductive use of insulin while gestational diabetes is hyperglycemia with onset or first recognition during pregnancy. The majority of individuals with diabetes are suffering from type II diabetes. This accustomed occur nearly

entirely among adults, however currently happens in child's too (WHO, 2016).which happens once the body becomes immune to insulin or does not create enough insulin and typically in adults; Within the past three decades the prevalence of type II diabetes has raised dramatically in countries of all financial gain levels. Less common is Type 1 diabetes once named as juvenile diabetes or insulin-dependent diabetes, is a chronic condition in which the pancreas produces little or no insulin by itself (World Health Organization, 2016). Type II diabetes mellitus and pre-diabetes are increasingly observed among children, adolescents and younger adults. The causes of type II diabetes mellitus are studded in a very complex group of genetic and epigenetic systems interacting within an equally complex frame that determines behavior and environmental factors. In the last few year's considerable emphasis has been placed on the effect of the intrauterine environment in the epidemic of type 2 diabetes mellitus, particularly in the early onset of type II diabetes mellitus and obesity (Chen et al., 2012). The factors that are responsible for the diabetes are different according to insulin dependency and genetic factor. Population aging, economic development, Nutrition, Exercise, urbanization, and lifestyle changes were likely to lead to the growing epidemic of diabetes (Yang, 2010).

The pathophysiology of type II diabetes mellitus is related to insulin resistance and lack of insulin secretion which may combine with genetic factors or other some environmental factors. Both insulin resistance and beta-cell dysfunction are important in the pathogenesis of glucose intolerance; the high risk factors or genetic factors interact for insulin resistance or decrease insulin secretion. These are related to insufficient insulin action that is responsible for the development of type II diabetes mellitus (Unoki et al., 2009). Diabetes is a serious, chronic disease that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose or body cannot properly utilize the insulin it produces Hyperglycemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems (World Health Organization, 2016).

Insulin therapy may be a vital part of diabetes treatment usually and is a cornerstone of treatment in type I polygenic disorder and also vital, in several cases, to the management of type II diabetes. Despite this at least one third of patients fail to require take insulin as

prescribed and 20% of adults intentionally skip their doses (Siminerio et al., 2011). The treatment for Diabetes Mellitus (DM), includes use of oral symptom agents and injectable insulin medical care beside life-style modifications. The insulin therapy needs coordination and understanding of each the individual with diabetes and people responsible for diabetic care. There's no definite insulin dose that works well for each individual, the dose of insulin changes supported patient's glucose levels and therefore the type of insulin used. Therefore, insulin treatment should be personalized to suit the life style of the individual and metabolism of individual with diabetes. The changes and modifications are created as required throughout the lifetime of individual with diabetes. Constant Education offers resulting improvements in data, attitudes associated skills that results in higher control of the illness and is an integral a part of comprehensive diabetes care Patient education proves to be an efficient methodology in management of prevailing health problem. Since, diabetes treatment continues for period, there's a requirement to assess the knowledge and understanding of patients in regard to their disease process and its management (Gawand et al., 2016)

So the diabetes is going be a major health problem and increasing day by day and going to a social burden. Diabetes has been quickly turning to a global public health problem (Wang et al., 2014)

According to the latest information 29.1 million persons have diabetes, and 1.7 million new cases are diagnosed annually. Worldwide, almost 387 million adults are living with diabetes, and this number is projected to increase to 592 million by 2035. Prevalence of diabetes and related cause are expected to more than double in the next 25 years, given that in excess of 86 million Americans 37% of the adult population are at risk for the disease (Balk et al., 2015).

As per World Health Organization (WHO), regarding 9% of adults having age on over eighteen years had diabetes within the year of 2014. In 2012 around 1.5 million individuals died due to diabetes. Developing countries account for more than 80% of the diabetes deaths (WHO, 2015). In China, the prevalence of diabetes rise from 0.9% in 1980 to 11.6% in 2010. (Xu et al., 2013). At least 6% of adults and associated with age and obesity in urban Ghana related to type II Diabetes Mellitus (DM). About 23% of adults are

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overweight, and this has been related to advanced age, female gender, urban environment, high income and tertiary education Epidemiological data suggest interactions between acculturation, urbanization, and genetic disposition to be involved in Diabetes Mellitus (DM), among Ghanaians (Danquah et al., 2012). India had 69.2 million diabetic patients (8.7%) in 2015 (World Health Organization, 2016)

Diabetes is a major lifestyle disorder, the prevalence of which is increasing globally. One study (Guarignata et al., 2013) state that type II diabetes mellitus is impacting on globalization affecting near about 381.8 million people with in 2013.In 2012 diabetes was the direct cause of 1.5 million deaths and high blood glucose was the cause of another 2.2 million deaths (World Health Organization, 2016). Asian countries contribute to more than 60% of the world's diabetic population as the prevalence of diabetes is increasing in these countries. Socio-economic growth and industrialization are rapidly occurring in many of these countries. The urban-rural divide in prevalence is narrowing as urbanization is spreading widely, adversely affecting the lifestyle of populations. Asians have a strong ethnic and genetic predisposition for diabetes and have lower thresholds for the environmental risk factors. As a result, they develop diabetes at a younger age and at a lower body mass index and waist circumference when compared with the Western population (Ramachandran et al., 2012).

World Health Organization listed ten countries to possess the highest numbers of individuals with diabetes in 2000 and 2030. Consistent with this report, Bangladesh has 3.2 million of diabetic subjects in 2000 and the range is predicted to extend to a staggering 11.1 million by 2030 putting her among the highest 10 countries with diabetes. Several small-scale population based studies conducted in Bangladesh at different time points have revealed an increasing trend of diabetes prevalence in rural and urban communities A recent population based study showed a significant increase in the prevalence of Diabetes Mellitus (DM) in rural Bangladesh from 2.3% to 6.8% over 5 years. This prevalence was on top of found within the previous rural based studies on a similar population. Most of those studies are conducted close to the capital city Dhaka. The capital of Bangladesh and therefore the individuals of those areas are considerably used to fashionable lifestyle and hence these studies may not mirror the real image of rural Bangladesh wherever over 75% of individuals live. No population based study on the burden of diabetes has to this point

been conducted within the rural areas of northern Bangladesh. The pattern of diabetes in Bangladeshi population differs from that in Europeans and Americans in many aspects: the onset is at a younger age and a large variety of the diabetic individuals are non-obese. However, the association of fleshiness and diabetes during this population isn't strong (Akhter et al., 2011). In recent years, Bangladesh has experienced fast urbanization. Variety of population based studies conducted in Bangladesh has discovered an increasing prevalence of Diabetes Mellitus (DM) in each rural and urban population (Bhowmik et al., 2013). All the studies shows the prevalence ,characteristics, knowledge of Diabetes Mellitus (DM),however no studies shows ate association of characteristics with the associated issue at Bangladesh. These studies aimed to judge characteristics of type II Diabetes Mellitus (DM) and determine associated risk factors in Bangladesh.

1.2 Rationale

Diabetes mellitus poses serious health problems both in developed and developing countries. Once thought to be uncommon in Bangladesh, but now it has been emerged as an important public health problem. The problem of diabetes mellitus in Bangladesh is also increased day by day as like as worldwide (World Health Organization, 2016). They are mostly suffers with different complication, like as Cardivascular, Renal, Pilmonary, Musculoskeletal (shoulder pain, frozen shoulder, hand syndrome, back pain, neck pain, osteoarthritis, elbow pain, epicondylitis, carpal tunnel syndrome, Dequerven tenosynovitis, leg and foot pain, amyotrophic (Roy, 2013). Unfortunately, there is still inadequate awareness about the real dimension of the problem in the general public. There is also lack of awareness about the existing interventions for preventing diabetes and management of complications. Sedentary life style of urban people, poor socioeconomic status, Nutritional imbalance , unhygienic lifestyle of rural people, eating habit, less physical activity are the important factors of diabetes mellitus. But they are not aware about these problems. In Bangladesh this problem is becoming more severe day by day. This study aims to address these problems and association of factors with the finding problems among the type II diabetes mellitus patient. After completing this study the patients will be benefited because after that they will aware about the correlation between the characteristic and its associated factors. They will also know that they can get helps from physiotherapy profession in medical sector especially in exercise protocol. This study also will be helpful in making physiotherapist to aware about the different socio-demographic factors and its association to the patient with type II diabetes. It will assist to make current physiotherapy practice more holistic and effective for the type II diabetic patient, this study might give a clear reflection of the characteristics type II diabetic patient, its associated factor, complication arises among the patient with diabetes. Physiotherapy plays a vital role in the management of diabetic patient. So it will also be helpful for physiotherapist in working in this area for delivering treatment service. This study will also be helpful for different organizations working in this area for including physiotherapy service in their program for delivering a comprehensive treatment service. As a result patients become more benefited. Thus the study might create a future prospect of physiotherapy profession in Bangladesh.

1.3 **Research Question**

What are the characteristics and associated factors among type II diabetic patients?

1.4 Aim of study

To identify the characteristics and associated factors among type II diabetic patients.

1.5 Objectives

1.5.1 General objective

- To identify type II diabetic patient with various complain and associated factors.

1.5.2 Specific objectives.

- To determine the socio demographic characteristics of the study population.
- To find out characteristics of various complain and associated factors among type II Diabetic patients
- To find out the association of the various complain with associated risk factors for patient with type II diabetes.
- To know the perception of patient and physician about the role of physiotherapist for the management of diabetes mellitus.

1.5 List of variables

Independent Variables		Dependent Variable

Socio demographic Variables: Age, Sex, Education, Occupation, Current living status.

Nutritional variables: Diet, vegetable, etc

Exercise related variables: Prescribed exercise, time, Idea about PT.

Type II Diabetes Mellitus

Diet: Follow diet chart, family barrier, Dislike

Medical factor related variable:Height

Weight,BMI,Variousdisease (vascular,heart,blood,renal etc)(patent's guide book)

Drug related variables:Insulin, Metformin

Psychological Factor related variables :Phobia, Stigma, Organ damage

Fig: Conceptual framework

1.6 Operational Definition

1.6.1Diabetes mellitus

Diabetes mellitus is a group of chronic metabolic conditions, all of which are Characterized by elevated blood glucose levels resulting from the body's inability to produce insulin or resistance to insulin action, or both**.**

1.6.2 Type II Diabetes mellitus

Type II diabetes is a progressive condition in which the body becomes resistant to the normal effects of insulin and/or gradually loses the capacity to produce enough insulin in the pancreas. We do not know what causes type II diabetes. Type II diabetes is associated with modifiable lifestyle risk factors. Type II diabetes also has strong genetic and family related risk factors.

1.6.3 Characteristics

Characteristics of type II diabetes mellitus Feeling tired and lethargic, always feeling hungry is excessively thirsty passing more pain, muscle weakness & wasting, decreased joint range of motion and numbness etc. In case of type II diabetic patients also show these characteristics.

1.6.4 Associated factors

These are the factors that affect the quality of life of the patient with type II diabetes mellitus

1.6.5 Socio demographic factor

Environmental factors which affect the quality of life of patient with type II diabetes mellitus

1.6.6. Nutritional factor

Factors which affect the nutritional condition of the patient.

1.6.6 Dietary chart

Chart that followed by diabetic patient

1.6.7 Exercise program

Exercise protocol that are performed by the diabetic patient to control type II diabetes

DM is an increasingly important medical and public health issue. Type II Diabetes Mellitus is a common among the adults and can remain undiagnosed for many years. Different factors are responsible for the development and severity of the disease. Economic status ,ageing, nutrition ,dietary factors, regular medication, Lack of exercise and life style modification are the contributing factors in type II Diabetes mellitus (International Diabetic Federation , 2013).

The prevalence of diabetes in adults worldwide is rise from 171 million in the year 2000 to 366 million in the year 2030. The major part of this increase is expected to occur in developing countries, with the greatest increase is expected in India. Similarly, the number of diabetic patients in the United States is expected to rise from 17.7 million in the year 2000 to 30.3 million 30 years later, given the increasing incidence of obesity (Ramadas et al., 2011).

Previous studies of the relationship between diabetes and musculoskeletal syndrome have not differentiated between type I and type II diabetes or included only a single musculoskeletal syndrome. Researcher found the epidemiology of adhesive capsulitis, carpal tunnel syndrome, Dupuytren's disease, and flexor tenosynovitis in 100 patients with type 1 diabetes and 100 patients with type II diabetes, as well as in 100 control patients (Cagliero et al ., 2011).

In United Kingdom the prevalence range from 1-3 to 2-5%. Prevalence figures for diabetes mellitus in Uganda and Zimbabwe are not yet available but are under collection. In Zimbabwe, diabetes is fifth among the 10 most common diseases. In South Africa Diabetes Mellitus (DM) has a prevalence of 4-5% and impaired glucose tolerance 5-1% (Nordfeldt et al., 2010).

Type II Diabetes Mellitus (DM) management are related to preventing or minimizing of chronic complication by achieving and maintaining optimal blood glucose level ,lipid and blood pressure level (American Diabetes Association, 2010).

Another study (Mathew et al., 2012) stated that behavioral change to enhance the prevention and management of type II diabetes mellitus, besides an important source of health information and thus may be an appropriate delivery medium for health behavior change interventions. The Internet's potential has been recognized and web-based education programs have been steadily adopted in recent years in preventing and managing chronic diseases. Unlike face-to-face interventions, website-delivered intervention scan potentially reach broad populations as it is available 24 hours, and could be hosted by both government and nongovernmental agencies. This review provides a descriptive discussion of web-based behavioral interventions in patients with type II diabetes mellitus. Diabetes is one of the most serious challenges to health care provider worldwide. The worldwide prevalence of diabetes is expected to double between 1994 and the year 2010. It has been estimated that by the year 2010, diabetes will affect 239 million people worldwide (Greenhulgh et al., 2009). The regional projections of the prevalence of diabetes in the year 2010.

Related study (Shrivastava et al., 2013) found that exercise in the context of health and fitness seemed to have little cultural meaning for the Bangladeshi informants, even though they often recalled specific advice on this topic from their doctor. Exercise was viewed as potentially exacerbating illness or physical weakness. The association between sweating and exercise in leisure time was not made by any informant, but ritual Muslim prayers (namaz) were often cited as a worthy and health giving form of exercise. Diet and nutrition is also important for better quality of life.

A literature (Javanbakht et al.,2012) informants generally tested their urine regularly, and all who did so seemed to understand the importance of a change in the color of the test strip. Most informants seemed to believe that, in the absence of symptoms, diabetes was well controlled. The need for regular surveillance when asymptomatic was rarely acknowledged. Preventive care was not well understood the doctor explained to me and said before complications start, start wearing glasses. This is because their eyes are all right. The diabetes may affect either their eyes or your feet.

The management of diabetes and other chronic diseases is based on the interplay between initiatives and resources on the part of patients, relatives, and health care professionals. Modern pediatric diabetes treatment supports patients in gradually becoming their own treatment experts, and thus the balance in shared responsibilities is shifting over time to patients and their families. This requires families to continue learning and to keep updated regarding treatment, self-care, and scientific findings. In recent decades, many pediatric diabetes practitioners have made efforts to enhance peer-to-peer support and learning with activities such as group education, evening meetings, parent groups, camps for adolescents, mailing list discussion groups ,and chat rooms. Meanwhile, information technology has undergone rapid development impacting significantly on social life and modes of communication (Nordfeld et al., 2010)

Depression and diabetes mellitus are two of the most prevalent chronic diseases around the world, which frequently co-occur. Approximately 20% of patients with Diabetes Mellitus (DM) meet diagnostic criteria for depression. Diabetic patients with depression are associated with decreased hemoglobin control, lower adherence to diet, exercise and taking medications, comparing with those without depression. Moreover, depression had an increased risk in diabetes development and adverse diabetes outcomes, such like micro-vascular and macro- vascular complications. Patients with diabetes and depression are usually poorly managed in primary care. Depression is associated with failures to detect and diagnose in diabetic patients. Diabetes also weaken the effectiveness of depression treatments (Haung et al., 2013).

Diabetes mellitus secondary to pancreatic diseases, however, is a condition rarely considered in everyday practice. Yet, recent data on type III diabetes showed that it might be more common than generally thought. Studies also propose that this clinically important condition might be consistently under and misdiagnosed. Furthermore findings on the pathophysiology of pancreatogenic diabetes have revealed that it is a form of diabetes with clinical and laboratory features which are distinct from both type I and type II diabetes mellitus. Up to date there are no generally accepted guidelines on diagnosis and treatment of this important condition and research efforts are rather scarce as compared to type I and type II diabetes mellitus. This review therefore focuses on the prevalence of type IIIc

diabetes and the practical importance of recognizing and dealing with this entity (Ewald et al., 2014).

Bennett et al. (2011) stated that women with a recent history of gestational diabetes described multiple types of barriers to follow-up medical care and monitoring. They categorized these barriers into four major themes, which are described as distinct but clearly have some overlap: Delivery and baby's health, Personal and family adjustment to the baby; Concerns about postpartum and future health; and Experiences with medical care and services. They also identified six key facilitator themes that motivated women to return for care. Prior studies have evaluated patient-level barriers to and facilitators of follow-up care in the postpartum period for women with a history of gestational diabetes. Our study findings were consistent with survey-based studies showing that some women with recent gestational diabetes do not perceive themselves to be at high risk for diabetes (Sacks et al., 2012).

The prevalence of chronic disease in the Australian population is rising. Diabetes is a major cause of mortality, morbidity and disability and an important risk factor for several other chronic diseases. Diabetes is the second most frequent chronic condition managed in Australian general practice and the most frequent reason for referral to other health care providers, reinforcing the importance of the primary health care sector in diabetes care. General practice guidelines for Type II Diabetes Mellitus highlight the need for access to well-coordinated health care from a range of medical and allied health care professionals, including GPs, medical specialists, diabetes educators, dieticians, optometrists, and podiatrists. Referrals to allied health professionals such as diabetes educators or dieticians are low, even among patients who are overweight or obese, indicating that there is a need to improve collaborative care across professional and organizational boundaries (McDonald et al., 2012).

Patients often perceive insulin to be the last option of treatment, or as a form of punishment or a failure of their own doing. When insulin is presented as the last resort, it is usually perceived negatively, and spirals into adamant denial and avoidance. This behavior has also been reported in other studies. The Study found that nearly half of the diabetic patients

felt that starting insulin was a punishment for their failure to control their blood sugar level, with 74% reporting fear or psychological stress due to their condition. The role of insulin in carbohydrate metabolism, the progressive nature of the disease with age due to relative insulin deficiency and the importance of its replacement if deficient should be emphasized to the patients in lay language, without assigning blame. The reasons insulin cannot be converted to oral form due to the biochemical nature of the hormone, which will be denatured in the gut, and hence the need for delivery by injection, should be clearly explained to the patient during counselling (Tan et al., 2011).

Effective type II diabetes management is widely acknowledged as challenging for both patients and their health care providers. Several patient factors may contribute to type II diabetes management: adherence, beliefs, attitudes, knowledge, ethnicity/culture, language ability, financial resources, co-morbidities, and social support. Seven studies found that adherence to self-management are influenced by an individual's financial resources, beliefs and attitudes about the disease, and effectiveness of the treatment regimen. This intern positively affected glycemic control. Knowledge alone, however, does not necessarily lead to good adherence of self-care if other barriers still exist. Poor adherence, as a well-recognized problem can be improved by delivering effective patient–clinician communication. Clinicians should understand the patient's psychosocial factors as well as other financial barriers by assessing the reason for this lack of adherence to effectively deliver the self-care message to patients. Furthermore, the recognition of collaborative relationships in the management of chronic illnesses such as diabetes is important. For example, providing a rational for the recommended treatment instead of telling patients what to do can facilitate the patient's involvement as a primary decision maker for the treatment which in turn, can lead to success in adherence by eliminating patient's misunderstanding and negative attitudes toward diabetes treatment. Several other strategies to improve adherence are simplifying treatment regimen the use of simple screening question on adherence at regular clinic visit; tale-monitoring; or regular telephone feedback by a nurse (Nam et al., 2011).

The prevalence of type II diabetes mellitus has significantly increased over the last 2 decades, especially in youths, and it is estimated that the incidence of type II mellitus will increase by 4% by the year 2030. Uncontrolled diabetes can lead to serious health consequences, such as coronary artery disease, stroke, kidney failure, blindness, neuropathic pain, amputation, and high blood pressure. In children and adolescents, type II diabetes mellitus can lead to early-onset puberty and increased morbidity. These youths are also at increased risk for problems with psychosocial adjustment, greater body dissatisfaction, depression, anxiety, and behavioral difficulties. Although some interventions have reported positive findings in reducing the risk for type II diabetes mellitus, more research is needed to determine how to best design treatment for managing (T2DM) and improving adherence to self-care behaviors in youths. Management of Type II Diabetes Mellitus (T2DM) requires adherence to a set of self-care behaviors, such as blood glucose monitoring, diet recommendations to regulate carbohydrates, and daily exercise with the goal of preventing hyperglycemia and hypoglycemia (Salamon et al., 2012).

Many Type II Diabetes Mellitus patients refuse insulin therapy even when they require this modality of treatment. However, some eventually accept insulin. Early use of insulin in the management of poorly controlled diabetes has been recommended to prevent and reduce the long-term diabetes complications. It reduces patients' exposure to prolonged hyperglycemia, which ultimately increases risks of diabetes-related complications. However, delay in insulin initiation is common. About 50% of patients with poor control Type II Diabetes Mellitus (T2DM) did not timely start insulin therapy and the initiation was usually three to five years after failure of oral hypoglycemic agents. There are many factors influencing delayed insulin initiation including those caused by healthcare providers and its system, as well as the patients themselves. One of the main barriers is psychological insulin resistance, defined as psychological opposition towards insulin use, among patients and healthcare providers (Hassan et al., 2013).

Another literature says that, they found obvious deficits in care regarding guideline adherent drug therapy for hypertension, diabetes mellitus type two, heart failure, atrial fibrillation and secondary prevention in cardiovascular diseases. About a sixth of all quality indicators in their study were not fulfilled according to current guideline recommendations.

In more than half of these quality indicators the patients did not know why they were not prescribed a particular drug, thus making them look at the physician as the one responsible for non-adherence. The most frequent reason for physicians to deviate from guideline recommendations was that they falsely assumed that a certain prescription was not indicated or necessary (Furthauer et al., 2013).

Diabetes care is complex and requires patients to take an active role in the management of their disease. Currently, adequate and continuing medical care aiming at preventing acute complications, diminishing risk of long-term complications as well as patient self-management education are considered standard in the care for type II diabetes patients. Patients who improve their skills and confidence to manage their diabetes and who take a central role in the management of their disease improve their outcomes hence, self-management skills have an important role in optimal diabetes control. They enable patients to control their glucose level by recognizing, understanding and act on symptoms related to type II diabetes. Self-monitoring of blood glucose levels is presented as such a self-management skill and is therefore recommended as an element in self-management education (Malanda et al., 2012).

Diabetes Mellitus (DM) is an increasingly important medical and public health issue. The prevalence of diabetes in adults worldwide is rise from 171 million in the year 2000 to 366 million in the year 2030. The major part of this increase is expected to occur in developing countries, with the greatest increase is expected in India. Similarly, the number of diabetic patients in the United States is expected to rise from 17.7 million in the year 2000 to 30.3 million 30 years later, given the increasing incidence of obesity (Ramadas et al., 2011).Maintaining diet is also important for diabetic patients. Without maintaining proper diet and nutrition, blood glucose will increase and cause hyperglycemia. Strong foods, perceived as energy giving, included white sugar, lamb, beef, ghee, solid fat, and spices. Such foods were considered health giving and powerful for the healthy body and suitable for festive occasions, but liable to produce worsening of illness in the old or debilitated. Cereals, raw foods, and those that had been baked or grilled, were considered in digestible, as were any vegetables that grew under the ground.

Foods of low digestibility were considered unsuitable for elderly, debilitated, or young people. Thus, the recommendation for diabetic patients to bake or grill foods rather than fry them may not accord with cultural perceptions (Dyer et al., 2011).

3.1 Study Design

This study aimed to identify the characteristics and associated factors with their association among type II diabetic patients. For this reason a quantitative research model in the form of a cross-sectional study design is used. Cross sectional study design study was selected because in this way it was possible to identify the defined characteristics and the associated factors at a particular point of time .Through cross sectional study easily associating the results among those of different characteristics. In other hand Quantitative research method helps to use a large number of participants and therefore collect the data objectively through this way data was reduced to numbers for statistical analysis in order to draw conclusion .This study has done through using cross sectional prospective survey under a quantitative study design. Survey methodology was chosen to meet the study aim as an effective way to collect data.

3.2 Study site

The study was conducted in Ibrahim General Hospital, Mirpur 10, Dhaka-1343.This area had chosen because it was convened for the study and there had the samples which met inclusion and exclusion criteria of my study. At this place patient with type II Diabetes mellitus came for better management along physiotherapy treatment from different area of Bangladesh. As the type II diabetic patient were available so that this place was selected.

3.3 Study population

The study populations were people with type II Diabetes mellitus and sample population were those who come to Ibrahim General Hospital / National Health Care (NHC) to receive treatment.

3.4 Sample size

A sample was a smaller group taken from the population. Sometimes the sample size
May be big and sometimes it may be small, depending on the population and the
Characteristics of the study. According to the prevalence of
Diabetes Mellitus, estimated sample size 173.

By following $n = \left\{\frac{z-\frac{\alpha}{2}}{d}\right\}^2 \times pq = \left\{\frac{1.96}{0.05}\right\}^2 \times 0.08 \times 0.92 = 173$

(Where z=1.96, p= 0.08, q= 1-p, d=0.05),   (According to WHO, 2016)
So total sample size will be 173.

3.5 Sampling procedure

The study was conducted by using the purposive sampling methods due to the time
limitation and as it was the one of the easiest, cheapest and quicker method of sample
selection. The researcher used this procedure, because getting of those samples whose
criteria were concerned with the study purpose. Participants were chosen purposively
because the participants had some particular features or characteristics which was enable
detailed exploration of the research objectives. 100 subjects were selected for the study
according to the inclusion and exclusion criteria, because it was not possible to study the
total population within the time. This method contained some inclusion criteria to select
the participant. The researcher can find out the actual snap of the situation that they face in
their everyday life.

3.6 Inclusion criteria

➢ The patient with diabetes mellitus in selected hospital (Ibrahim General Hospital)

➢ Type-II diabetic patient.

➢ Patient diagnosed as type II diabetes as least 3 months ago

➢ Both sexes are included.

3.7 Exclusion criteria

➢ Type I diabetes mellitus patient

➢ Physically unstable Patients

➢ Patient with other pathological evidence.

➢ Patient who are not able to sign in consent form.

3.8 Data Collection

3.8.1 Data collection instrument

A structured questionnaire and demographic information chart was used as a data collection instrument. In that time some other necessary materials were used like pen, pencil, and white paper and clip board. The English questionnaires were converted into Bengali to ask the participants during interviews. Researcher must took permission from each volunteer participant by using a written consent form in Bengali.

3.8.2 Procedure of data collection

Data were collected directly using questionnaire. At very beginning data collector clarified that the participant had the right to refuse to answer of any question during completing questionnaire. They could withdraw from the study at any time. Researcher also clarified to all participants about the aim of the study. Participants were ensured that any personal information will not be published anywhere. Researcher took permission from each volunteer participant by using a written consent form. After getting consent from the participants, standard questionnaire were used to collect demographic information and

patients complain with factors. Questions will be asked according to the Bangla format. The questionnaire almost covered all issues regarding characteristics and associated factors including age, sex, occupation, residential area, treatment cost, occupation, nutrition, diet, exercise and psychological factors. For conducting the interview, the data collector would conduct a face to face interview and asked questions. Interviewee asked questions alone as much as possible with consent as sometimes close relatives could guide answer for them. The data collector built report and clarified questions during the interview. Face to face interviews are the most effective way to get full cooperation of the participant in a survey. Face to face interviews were also effective to describe characteristics and associated factors among the population. Face to face interviews used to find specific data which describes the population descriptively during discussion. According to the participants' understanding level, sometimes the questions were described in the native language so that the patients can understand the questions perfectly and answer accurately. All the data were collected by the selective data collector with the presence of researcher to avoid the errors.

3.8.3 Field test

Prior to collect data the researcher will conduct a field test with three participants in the Ibrahim General Hospital, Mirpur, Dhaka. To make a feasible questionnaire is translated into Bengali. This test was performed to determine any difficulties that are exist in the questionnaires as well as the procedure of data collection. This test was also helpful for researcher to check the appropriateness of wording as well as ease of understanding of the questions.

3.9 Data analysis

Descriptive statistics was used to analyze data. Descriptive statistics refers methods describing a set of results in terms of their most interesting characteristics. Data are analyzed with the software named Statistical Package for the Social Science (SPSS) version 20. The variables were labeled in a list and the researcher established a computer based data definition record file that consist of a list of variables in order. The researcher put the name of the variables in the variable view of SPSS and defined the types, values, decimal, label alignment and measurement level of data. The next step was cleaning new data files to check the inputted data set to ensure that all data had been accurately transcribed from the questionnaire sheet to the SPSS data view. Then the raw data are ready for analysis in SPSS. Data are analyzed by descriptive statistics and calculated as percentages and presented by using table, bar graph, pie charts etc. Microsoft office Excel 2013 is used to decorating the bar graph and pie charts. The result of this survey are consisted of quantitative data. By this survey a lot of information are collected. All results gave good idea on the characteristics of various complain among Type II diabetes patients. To find out the association among the different variables Chi-Square was performed.

Chi-Square (x^2) test

Chi-Square (x^2) test is the most popular discrete data hypothesis testing method. It is a nonparametric test of statistical significance for bivariate tabular analysis with a contingency table. Chi-Square test helps to analyze data come in the form of counts. This test can be applied to nominal or categorical data which can't be analyzed using the ranking technique.

Calculation of Chi-Square

Chi square (x^2) is the sum of the square difference $(O-E)^2$ between observed (O) and the expected (E) data divided expected (E) in all possible data completing by the following equation;

$$\frac{(\text{Observed count} - \text{Expected count})^2}{\text{Expected count}}$$

$$(x^2) = \frac{(O-E)^2}{E}$$

The mathematical notation, the formula looks like this:

$$X^2 = \sum_{i=1}^{k} \frac{(O-E)^2}{E}$$

3.10 Ethical consideration

An oral dissertation presentation was presented in front of member of Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI).Then the research proposal was submitted Institutional Review Board (IRB) for being approval. The guide of World Health organization (WHO) and Bangladesh Medical and Research council (BMRC) are also followed by the researcher This study got permission on the ethical review board. At first the researcher was apply for official permission for the study from the authority of Ibrahim General Hospital, Mirpur, Dhaka. Then the director of the Ibrahim General Hospital permitted to collect data at that Hospital. During the course of this study, interested subjects were given in consent forms and the purpose of the research and the consent form were explained to them verbally in Bengali. The participants were informed that their participation would be fully voluntary and they had the right to withdraw or discontinue from the research at any time without any hesitation or risk. They were also informed that confidentiality would be maintained. Information might be published in any presentations or writing, but their personal identity such as their name and address will not be mention in the study. The participants were informed that the data was collected by written questionnaire. The supervisor also checked the consent form and questionnaire. For this study took permission during interview from every single participant with signature on a written consent form of the participants who were interested. The participants were informed about their role in the research process. Informed the participant about the aim of the research and procedures involved in the study. They had also informed that if they wish they were free to withdraw from the study at any time. Also mentioned the participants that the information provided by the individuals might be published but their name and address would not be used in research project. The study information only discusses with supervisor but this would not share with any other person. These materials will be disposed of after completion of the research project. The study results might not have any direct effects on them but the Physiotherapy professional may be benefited from the study in future. Participants were also informed that they would not get any harmful things from the study.

CHAPTER-IV:	RESULTS

Data were analyzed by descriptive statistics and calculated as percentages and presented by using bar graphs, pie charts and tables.

Socio demographical information

4.1 Age range

The study was conducted on 100 participants of having type II diabetes mellitus. In the study the minimum age of a participant was 26 and maximum age of a participant was 75. Their mean was 50.6 and standard deviation is 10.64. Participants in between 26-36 years 9%, participants in between 37-46 years 29%, participants in between 47-56 years 35%,19% participants in between 57-66 years . 8% participants in between 67-76 years.
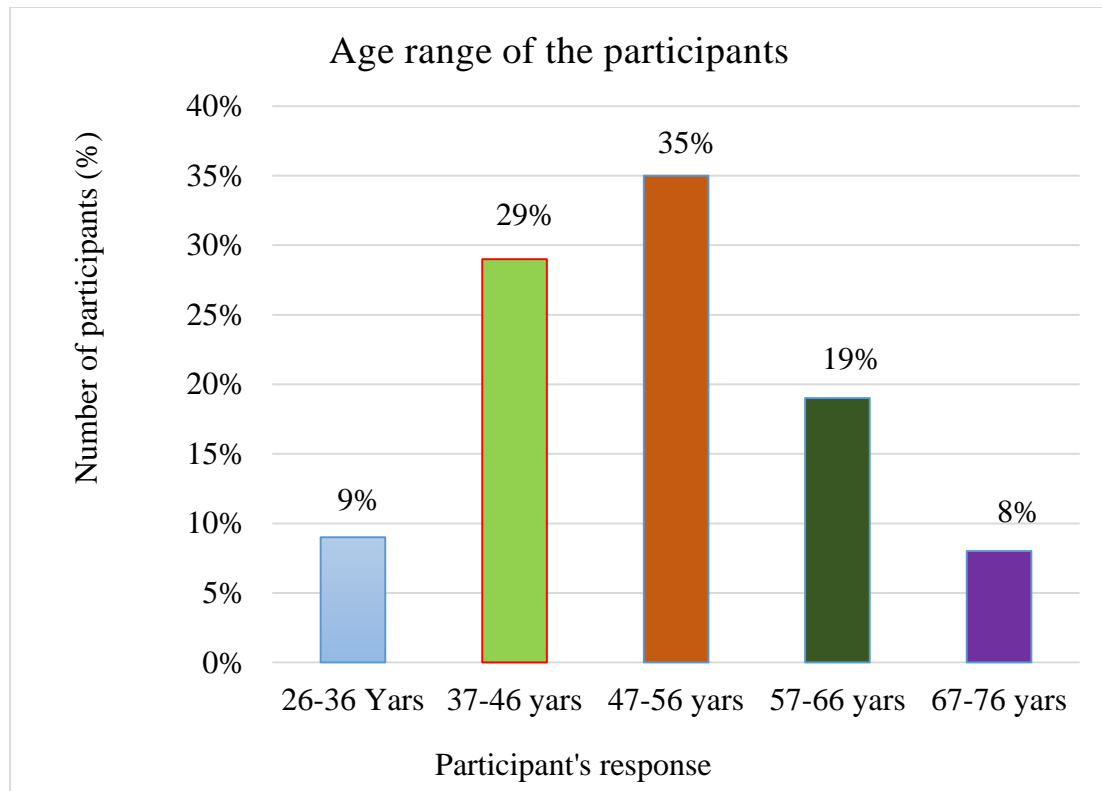
Figure-4.1: Age range

4.2 Sex of the participants

In my study male were more than female. Among the 100 participants 52% (n=52) were male and 48% (n=48) were female.

SEX OF THE PARTICIPANTS

Female 48%

Male 52%
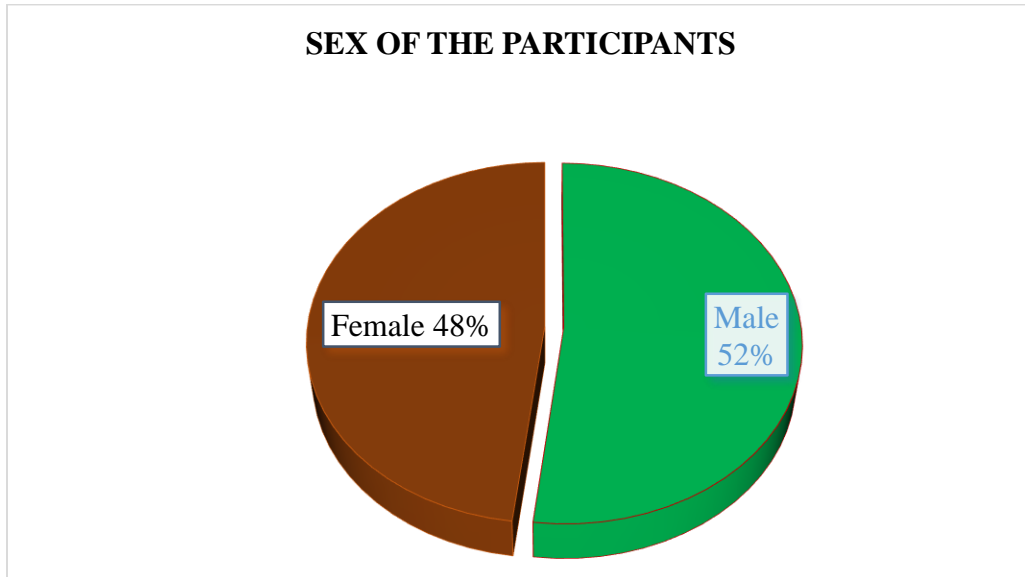
Figure-4.2: Sex of the participants

4.3 Marital status

Among the 100 participants 92% (n=92) participants were married, 0% (n=0) participants were single and 8% (n=8) were divorce.

Marital Status of the participants
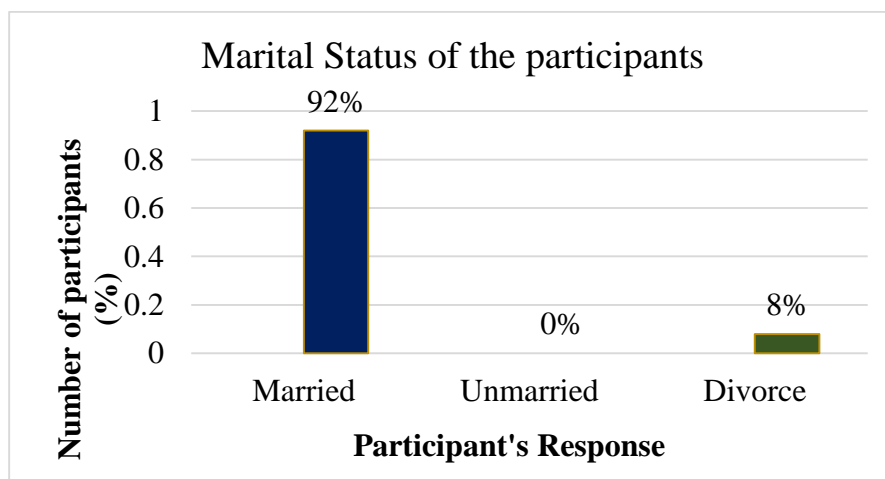
Figure-4.3: Marital Status of the participant

4.4 Education

Among the 100 participants 0% (n=0) participants were no formal schooling / Illiterate, 19% (n=19) participants were primary passed, 30% (n=30) participants were SSC completed, 29% (n=29) participants completed HSC level, 14% (n=14) participants have graduate completed and 8% participants have Master's degree completed.
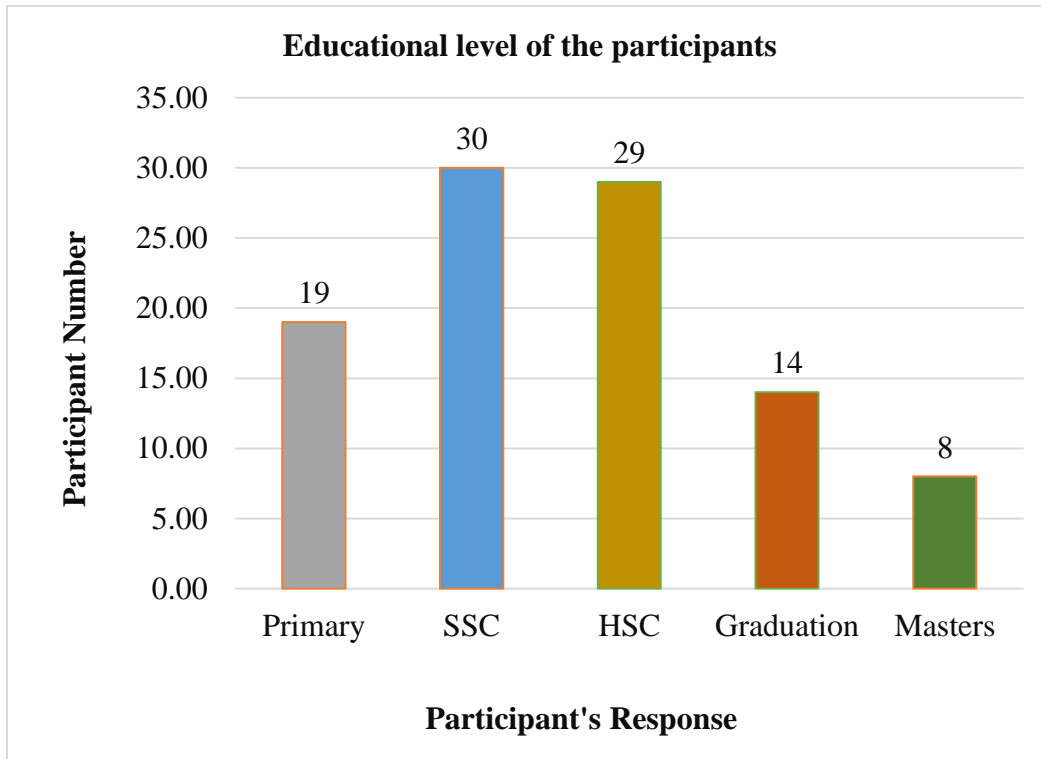
Figure -4.4: Educational level of the participants

4.5 Occupation

Among the participants a highest number of respondents 40% (n=40) found those were housewife, 32% (n=32) participant's occupation were service holder, 14% (n=14) respondents were businessman, 7% (n=7) were labor in and 7% (n=7) participants had found without any job or retired and others professions.

Occupational status of the participant
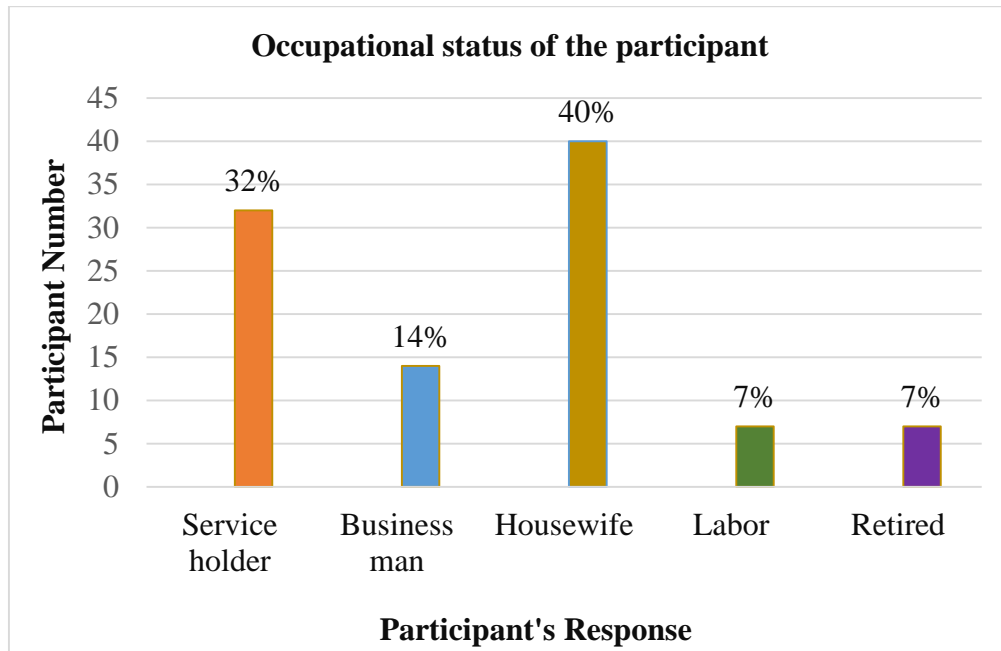
Figure- 4.5: Occupational status of the participants

4.6 Living area

The bar chart showed that among the 100 participants it was found that 67% (n=67) were live in urban area and 33% (n=33) were live in rural area.
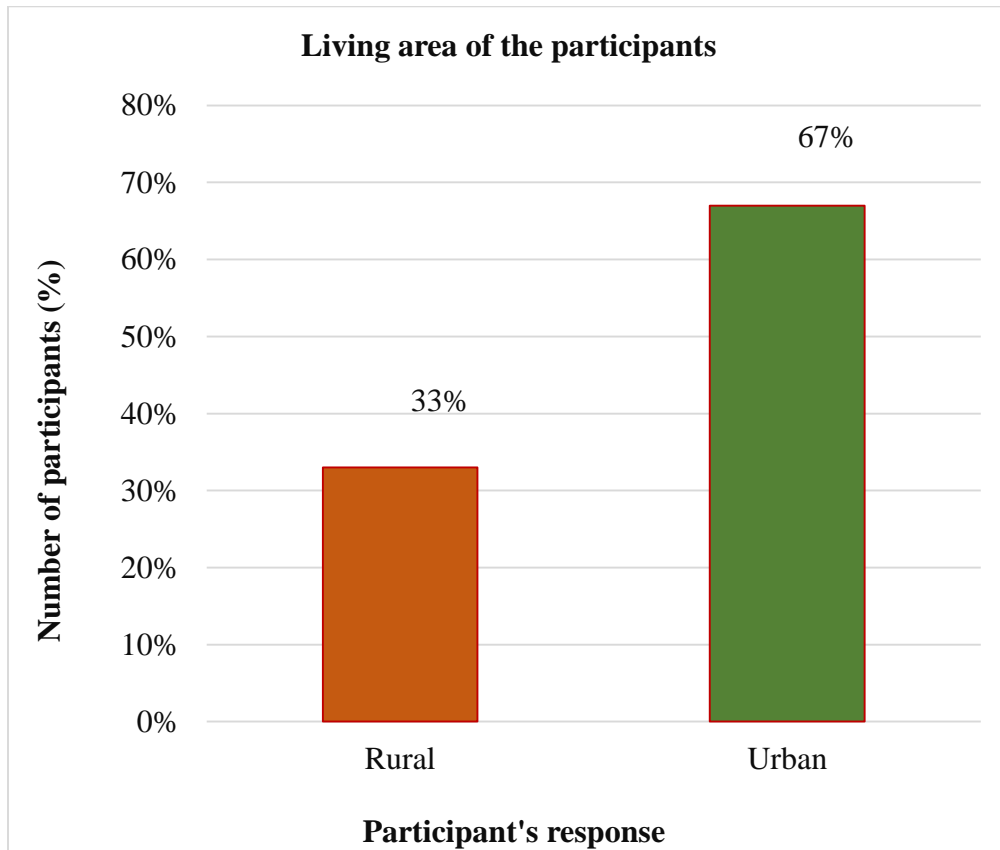
Figure- 4.6: Living area of the participants

4.7 Monthly Income

It was found from the 52 participants that a highest number of them 22% (n=12) those income level is 1000-2000 taka, 12% (n=6) participants earn in the range of 5001-10000 taka, 17% (n=9) respondents earn >20000 taka and only 1% (n=1) of them earn 1-5000 taka in a month.

Monthly income of the participants
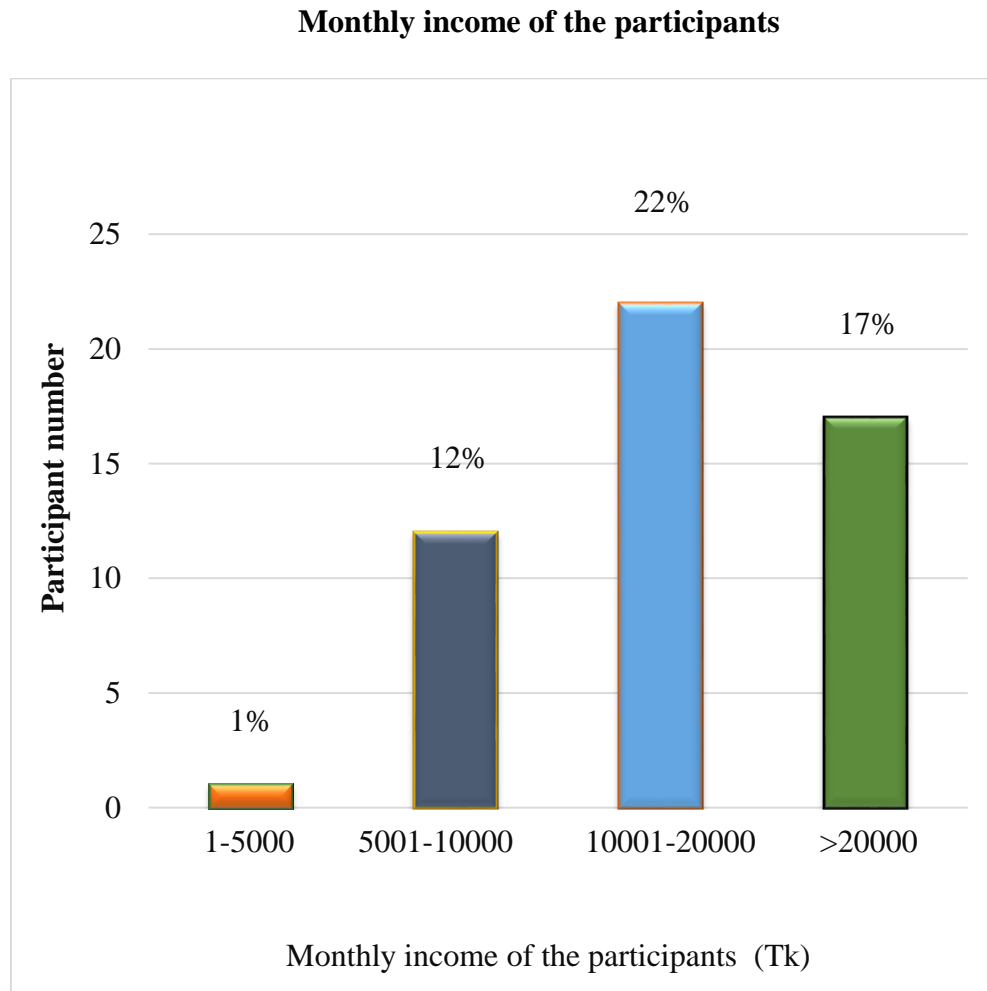
Figure- 4.7: Monthly income of the participants

4.8 Onset of Diabetes Mellitus

From the 100 participants it was found that the highest numbers of them 38% (n=38) were found those suffered from >26 months with diabetes. It was found that a majority number of participants 27% (n=27) are suffered with diabetes from 21-25 months, 17% (n=17) suffered with diabetes from 16-20 months, 11% (n=11) suffered with diabetes from 5-10 months and only 6% (n=6) of the participants found who were suffering with diabetes from 11-15 months.

Duration of Diabetes Mallites
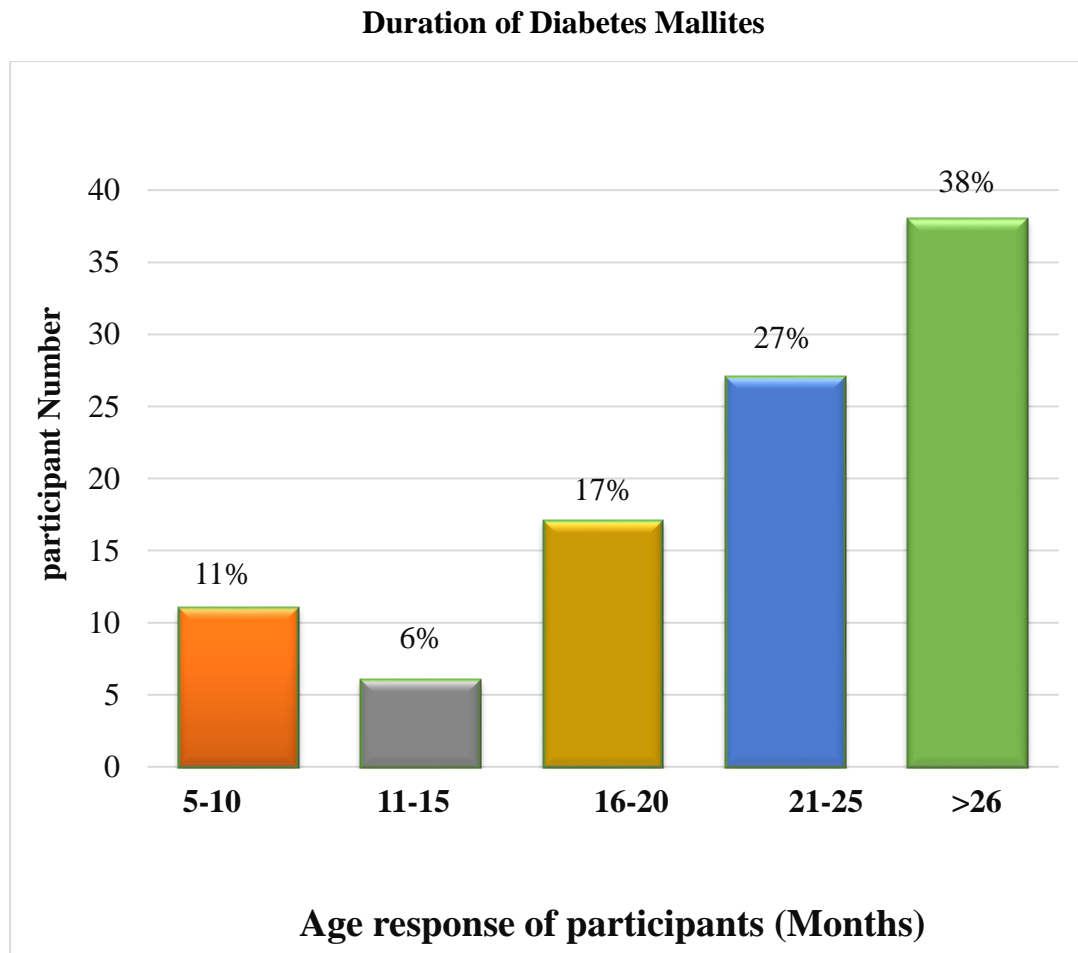
Figure- 4.8: Duration of the Diabetes Mellitus

4.9 Following of diet chart

From the 100 participants 61% (n=61) follow the diet chart and only 39% (n=39) participants don't follow the diet chart.
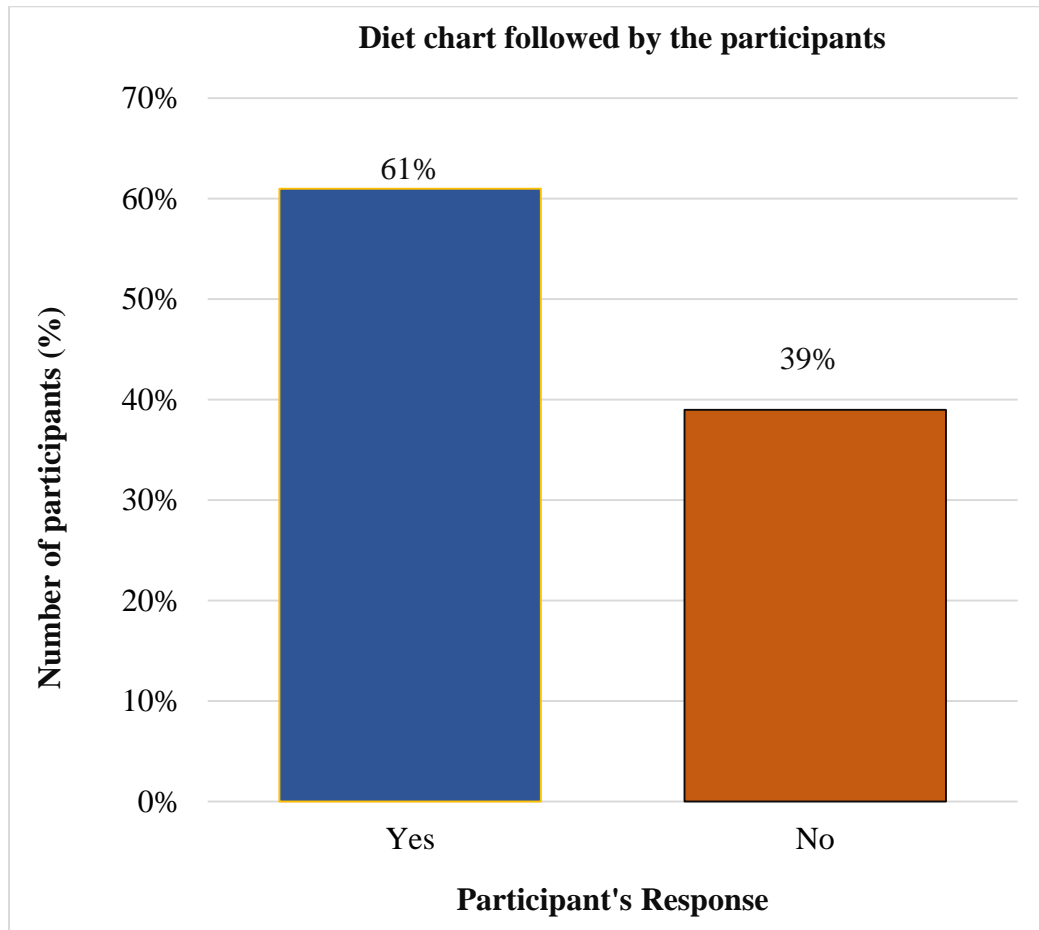
Figure- 4.9: Diet chart followed by the participants

4.10 Change of insulin level of diabetes following diet chart

From the 61 participants 83.7% (n=51) feel change of insulin of their diabetes by following the diet chart and only 16.4% (n=10) participants don't feel any change their diabetes by follow the diet chart.

Change of diabetes following diet chart

16.4%Unchange

83.7% Change

■ Change ■ Unchange
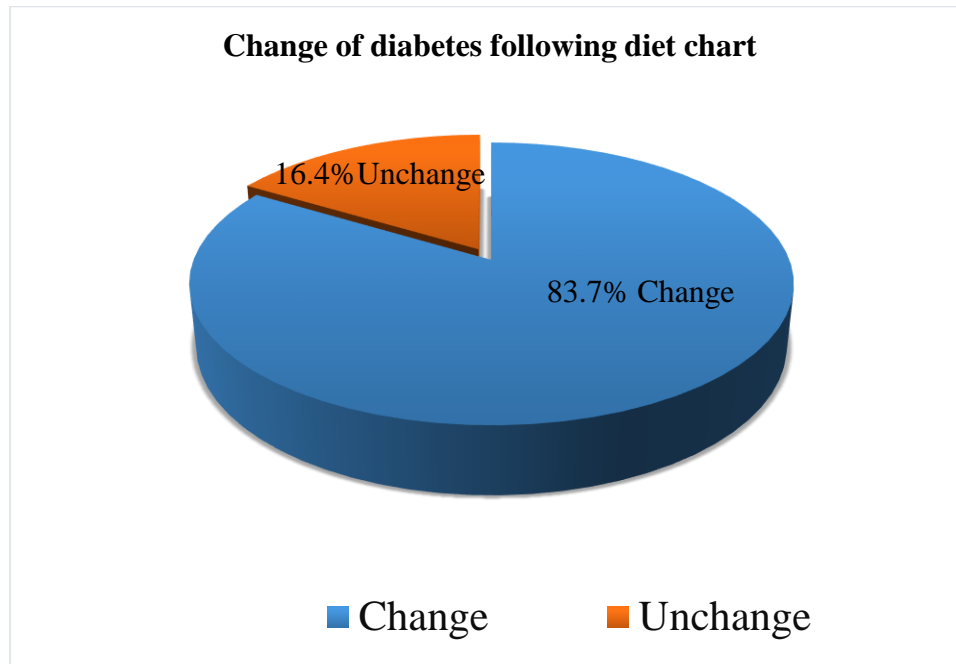
Figure- 4.10: Change of DM by following diet chart

4.11 Reason for un-following diet chart

From the 39 participants 21% (n=8) didn't following the diet chart due to economic problem, 13% (n=4) participants didn't follow the diet chart due to family barrier and 69% (n=27) participants totally dislike to follow any diet chart.
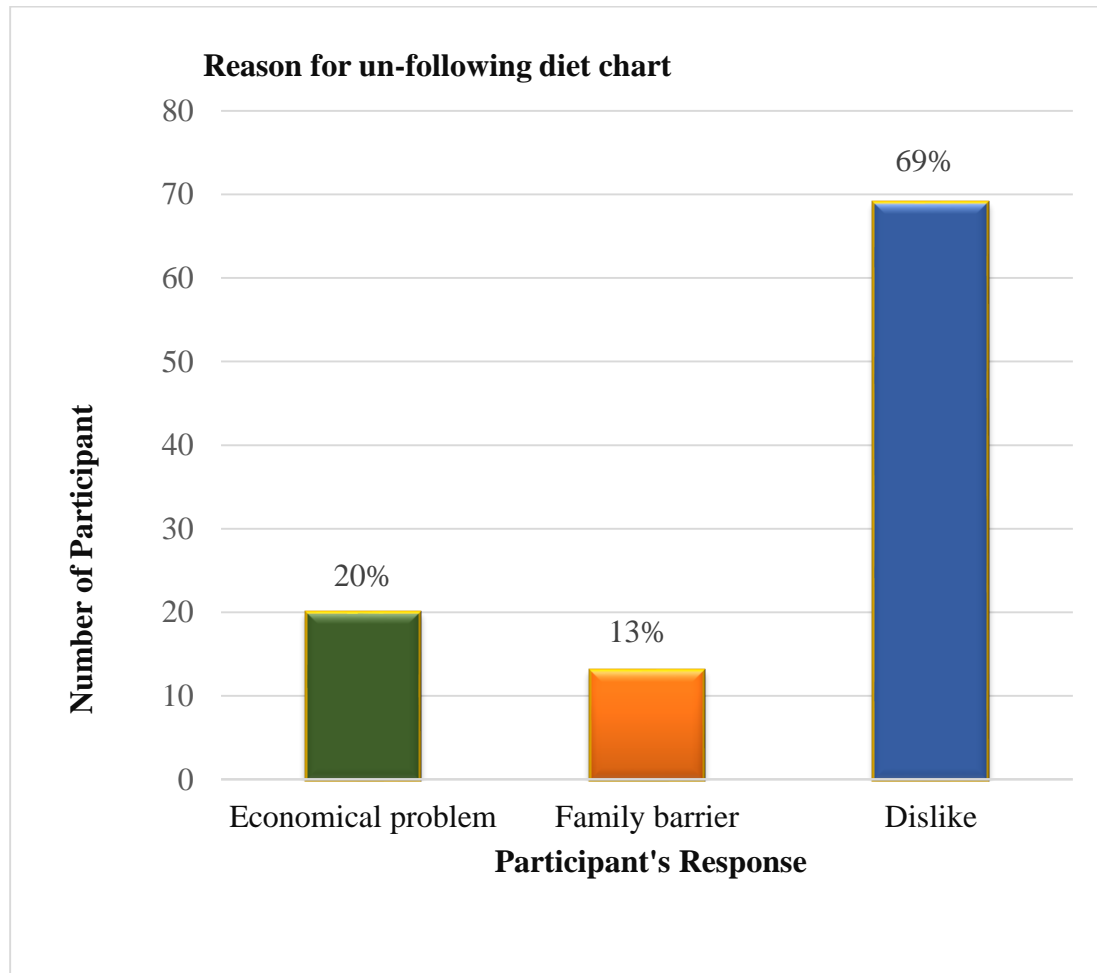
Figure- 4.11: Reason for un-following diet chart

4.12 Exercise prescribed by Physician

Among the 100 participants 56% (n=56) participants were prescribed exercise by the physician and the 44% (n=44) participants didn't have any exercise protocol prescribed by the physician.
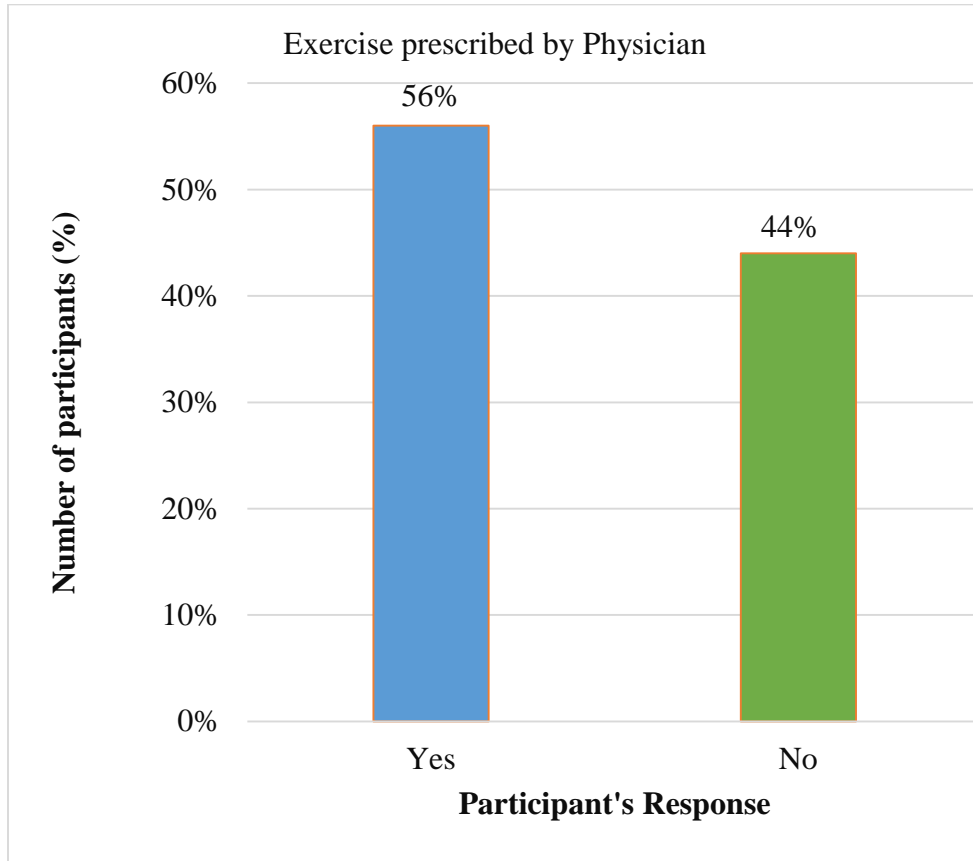
Figure- 4.12: Exercise prescribed by Physician

4.13 Prescribed exercise known by the participant

Among the 56 participants 61% (n=34) participants were well known about the prescribed exercise by the physician and the 39% (n=22) participants didn't have any idea about prescribed exercise by their physician.
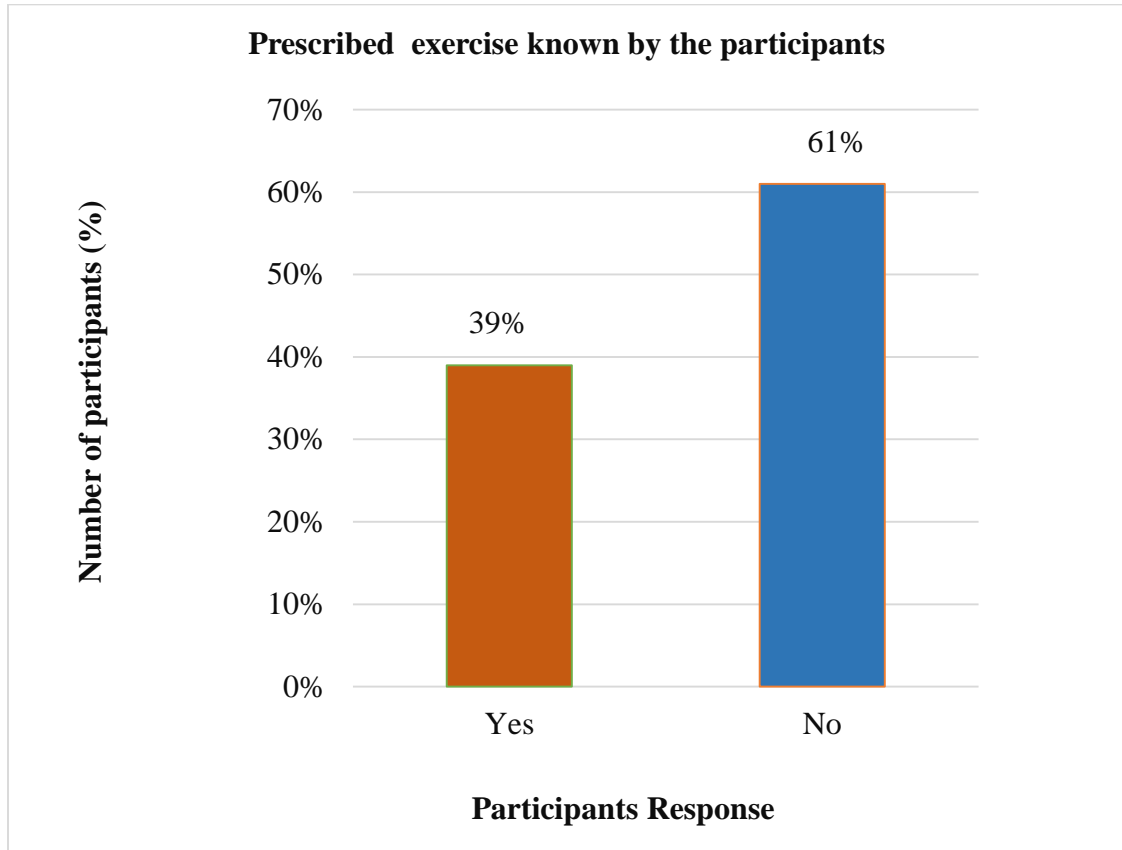
Figure- 4.13: Prescribed exercise known by the participants

4.14 Like to do exercise on their own thinking

Among the 100 participants 57% (n=57) participants like to do exercise on their own thinking and the 43% (n=43) participants don't like to do exercise on their own thinking
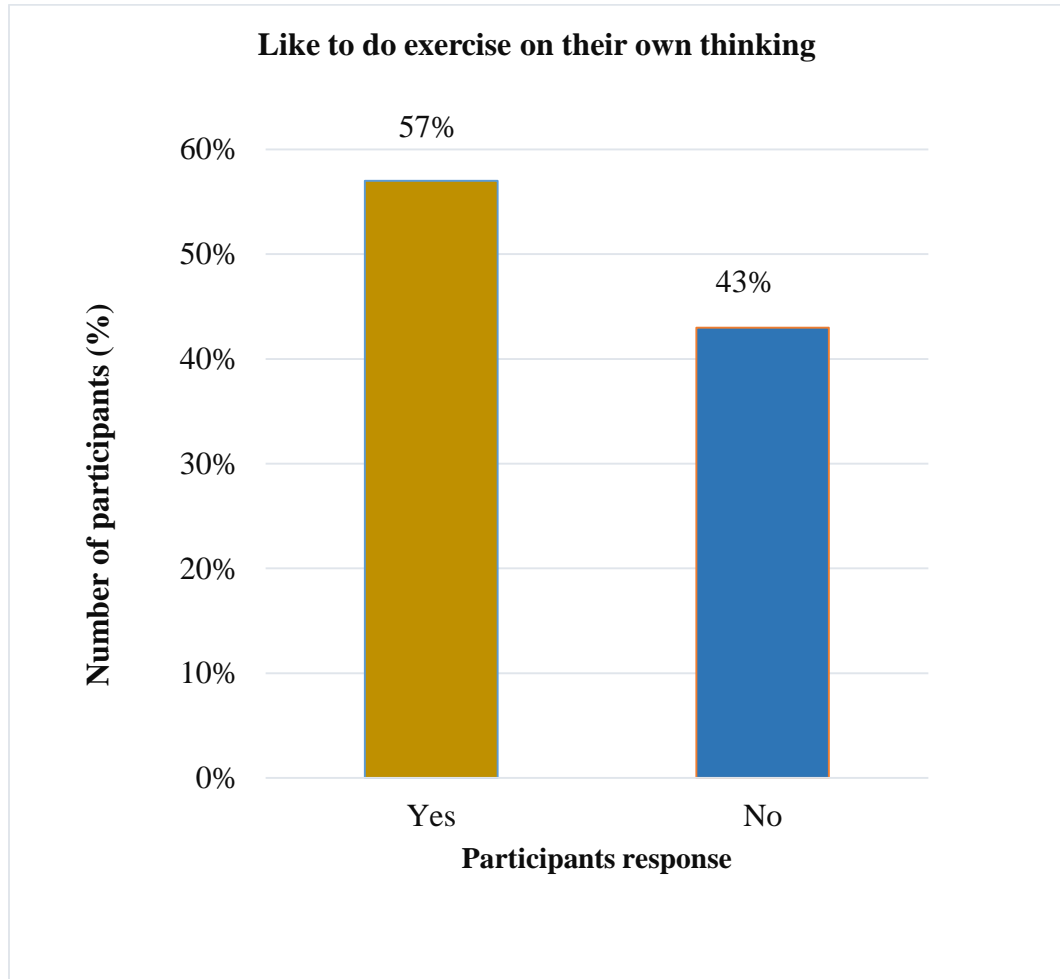
Figure- 4.14: Like to do exercise on their own thinking

4.15 Time of doing exercise on participants own thinking

Among the 57 participants 50% (n=28) were doing the exercise about 30 minutes, 38% (n=22) were doing the exercise about 20 minutes, 7% (n=4) were doing the exercise about 10 minutes, 5%(n=3) were doing the exercise about 40 minutes.
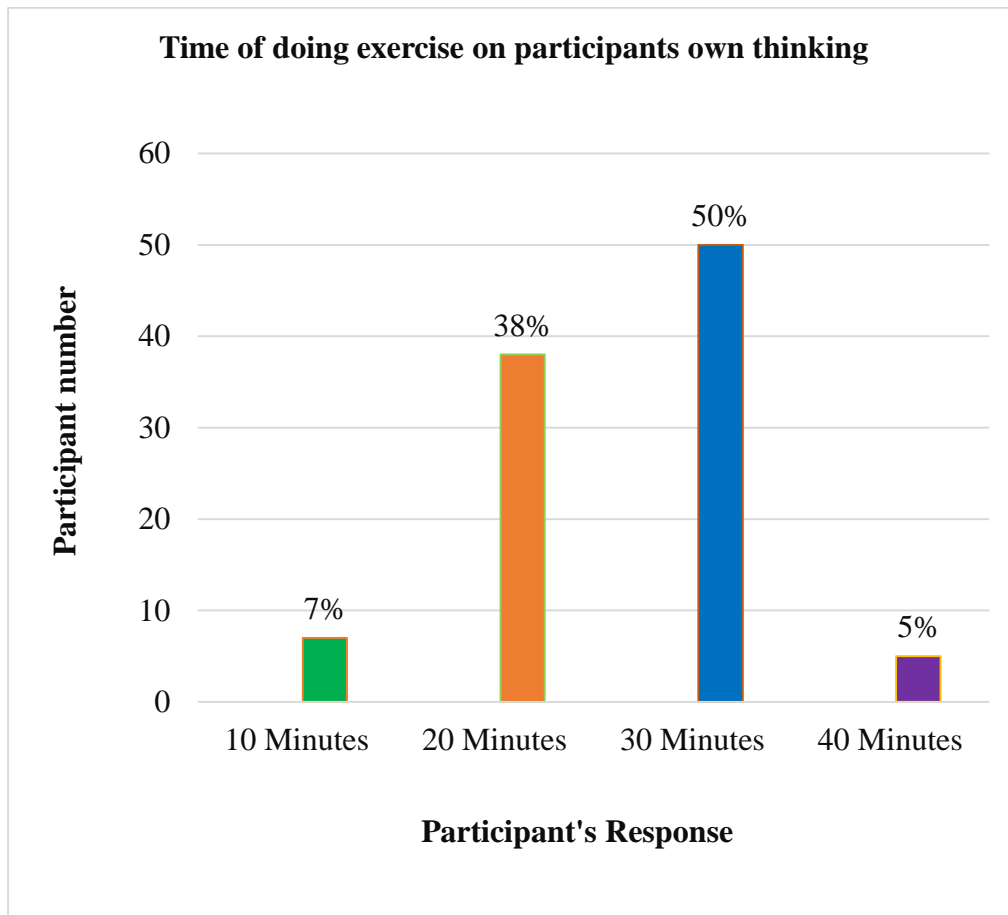
Figure- 4.15 Time of doing exercise on participants own thinking

4.16 Idea of the participants about the role of physiotherapist in controlling DM

Among the 100 participant 66% (n=66) participants had the idea about the role of physiotherapist and another 34% (n=34) participants didn't have the idea about the role of physiotherapist to control diabetes mellitus.

Idea of the participants about the role of physiotherapist in controling DM
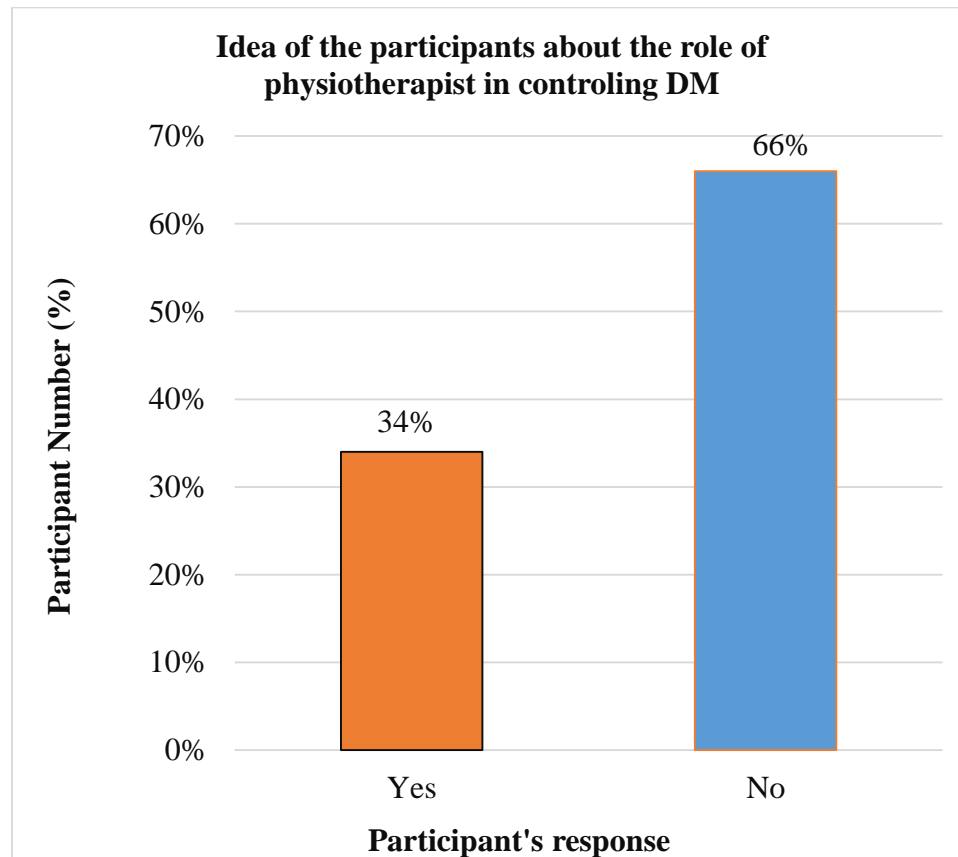
Figure-4.16: Idea of the participants about the role of physiotherapist in controlling DM

4.17 BMI of the participants

Among the 100 participants 8% (n=8) were under weight, 39% (n=39) participants were normal weight, 29% (n=29) participants were overweight and 24 % (n=24) participant were with obesity.

Ratio of BMI of the participants
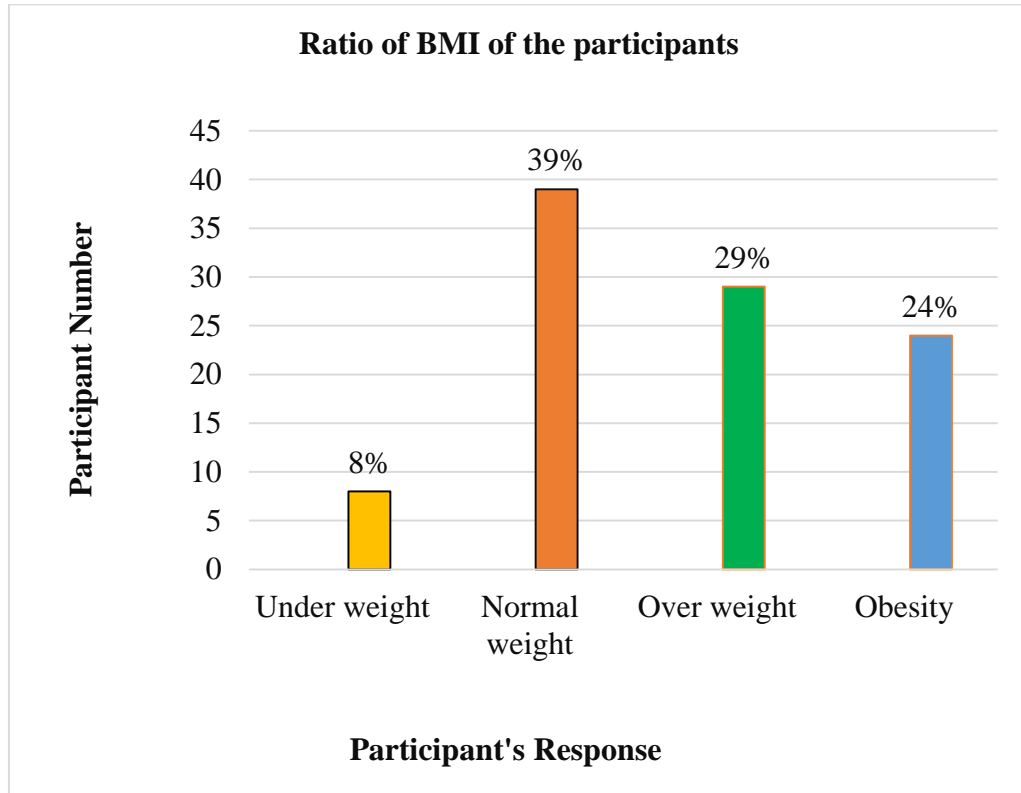
Figure-4.17: Ratio of BMI of the participants

4.18 Condition of the diabetes mellitus

Among the 100 participants the 52% (n=52) participant's diabetes mellitus (DM) were under control and 48% (n=48) participant's diabetes mellitus (DM) were un-controlled.

Condition of the diabetes mallets

Uncontroled
52%

Controled
48%

■ Controled   ■ Uncontroled
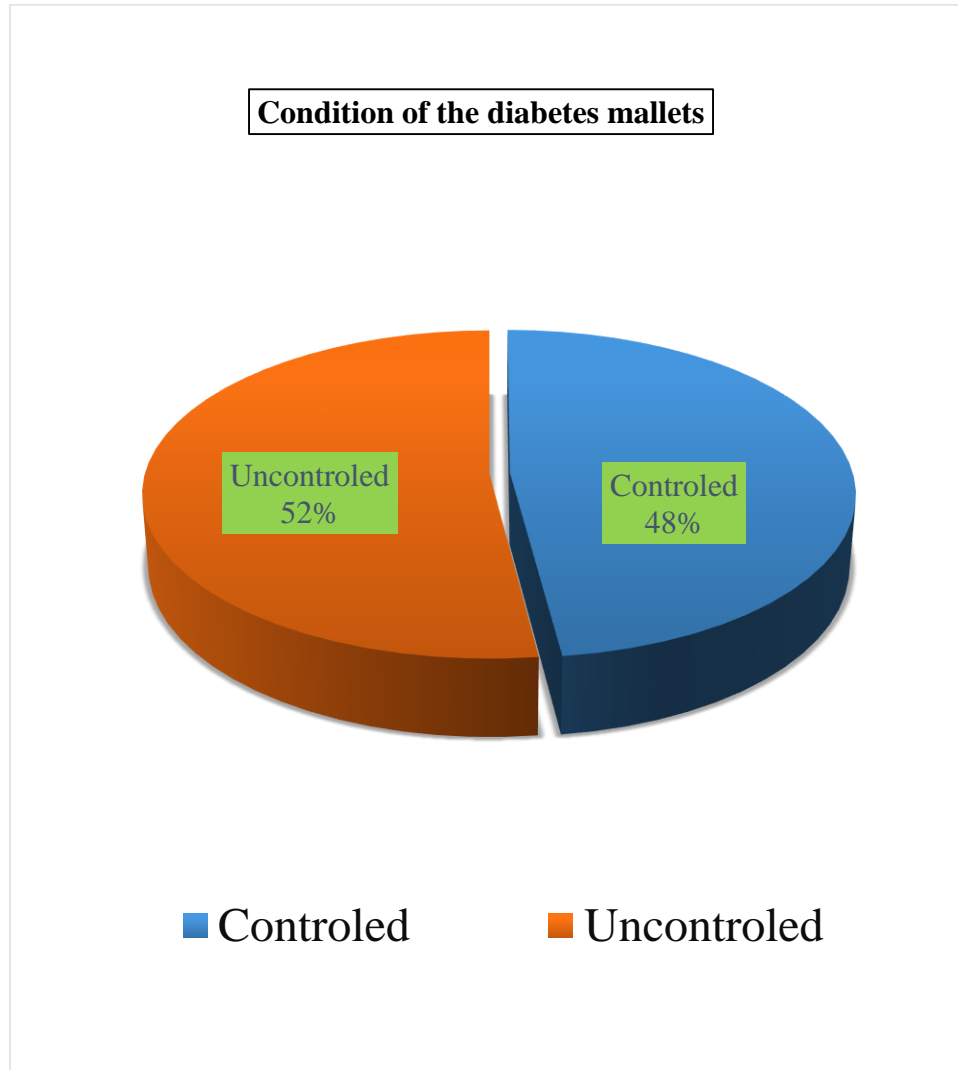
Figure-4.17: Condition of the diabetes mellitus

4.19 Thinking of the participants controlling the Diabetes Mellitus (DM).

Among the 48 participants only 9% (n=5) participants thought that only medication was controlling their diabetes, 7% (n=4) participant thought that only exercises controlling their diabetes and the highest part of the participants about 85% (n=39) think that the combination of medication and exercise is controlling their diabetes
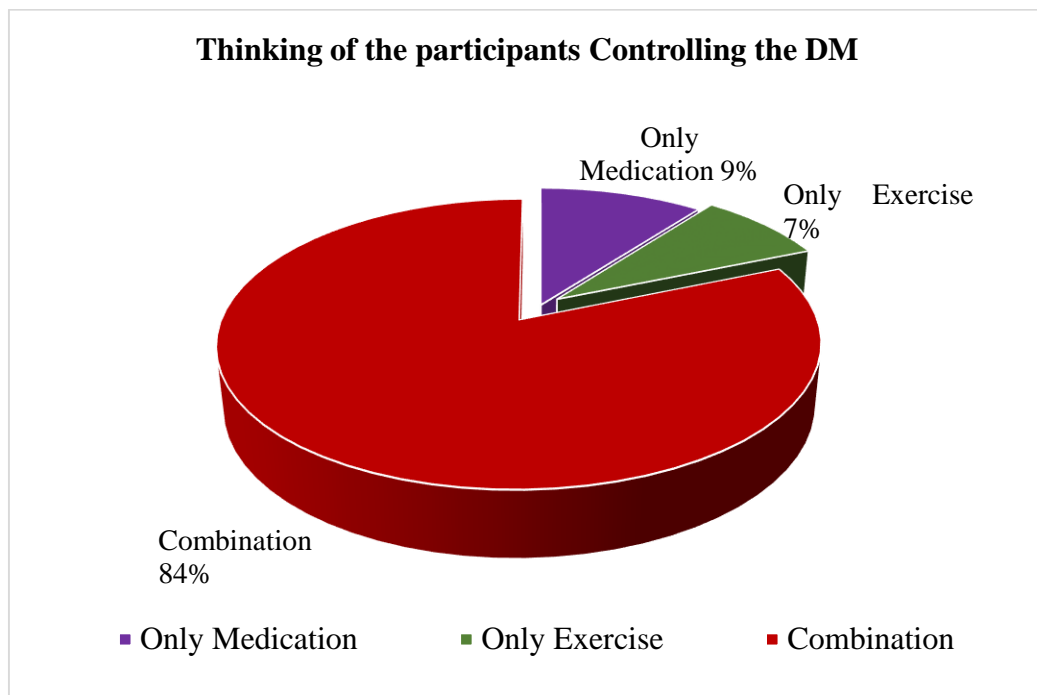
Figure-4.19: Thinking of the participants controlling the DM.

4.20 Ratio of taking drug taken by the participants

Among the 100 participant 86% (n=86) participant had taken the drug regularly and only 14% (n=14) didn't take drug to control their diabetes.
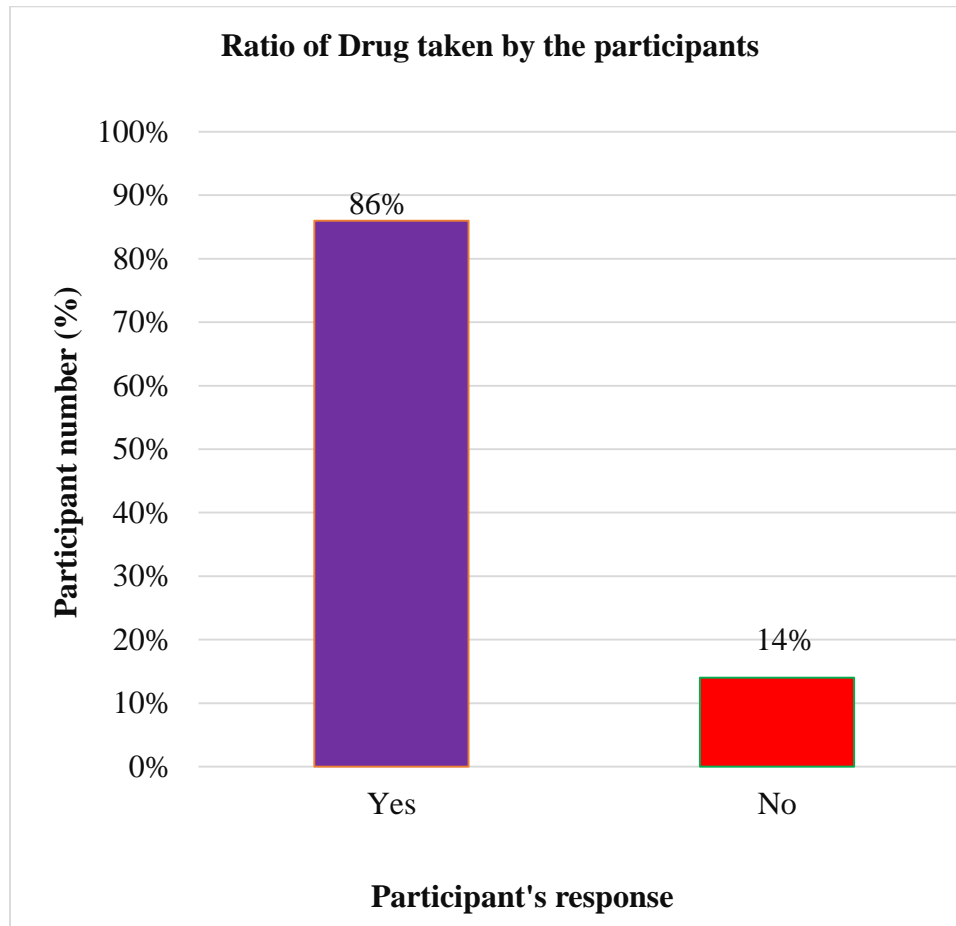
Figure-4.20 Ratio of taking drug taken by the participants

4.21 Reasons to dislike the drug by the participants

Among the 14 participant who didn't take the drug 43% (n=6) due to economic problem, 43% (n=6) due to family restriction and only 14% (n=2) thought that only exercise is effective
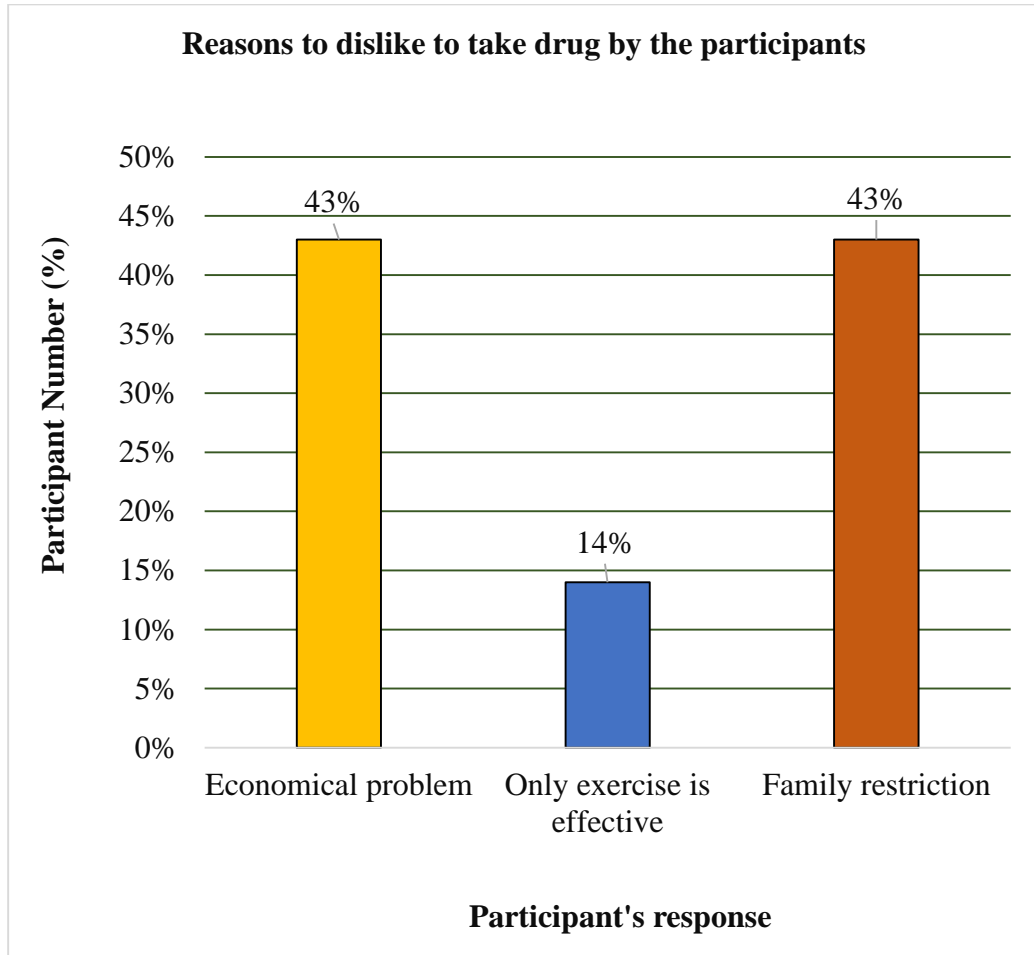
Figure-4.21: Reasons to dislike to take drug by the participants.

4.22 Belief of the participants about the type of disease

The maximum of my participants near about 88% (n=88) thiught that diabetes is a Non-communicable disease and only 12% (12) thought that diabetes is a communicable disease among the 100 participants.
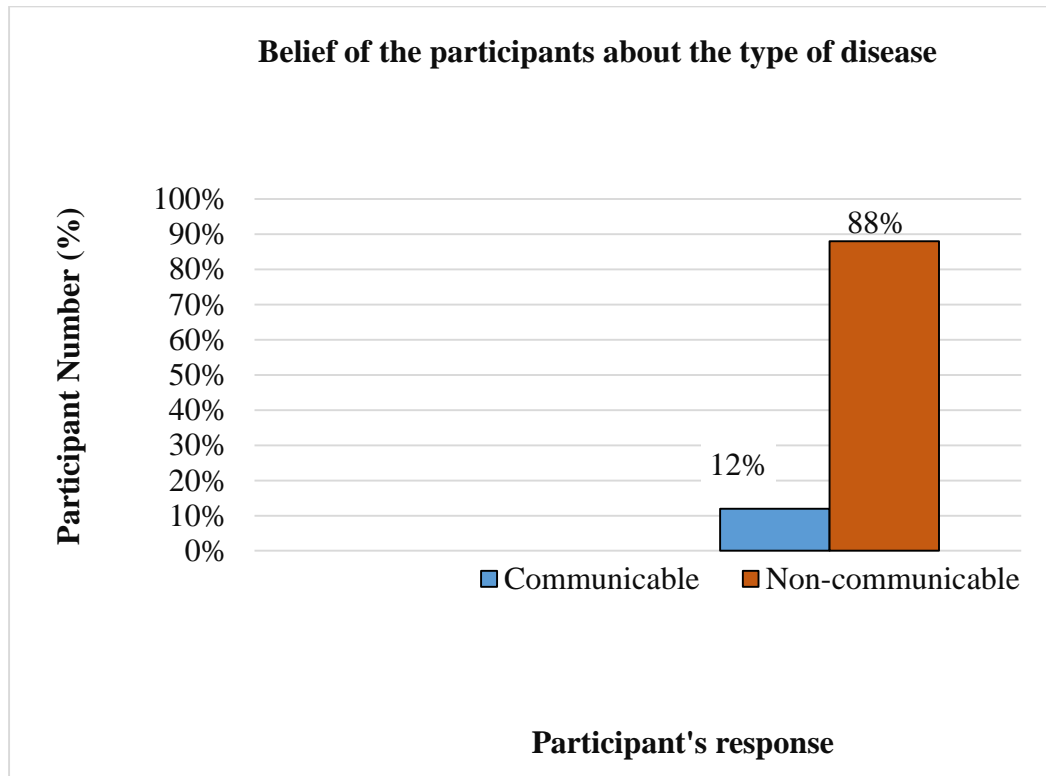
Figure-4.22 Belief of the participants about the type of disease

4.23 Ratio of participant's belief about organ damage

Among the 100 participants near about 82% (n=82) thought that different organ are damaged as the complication of diabetes mellitus and only 18% (18) thought that no other complication.
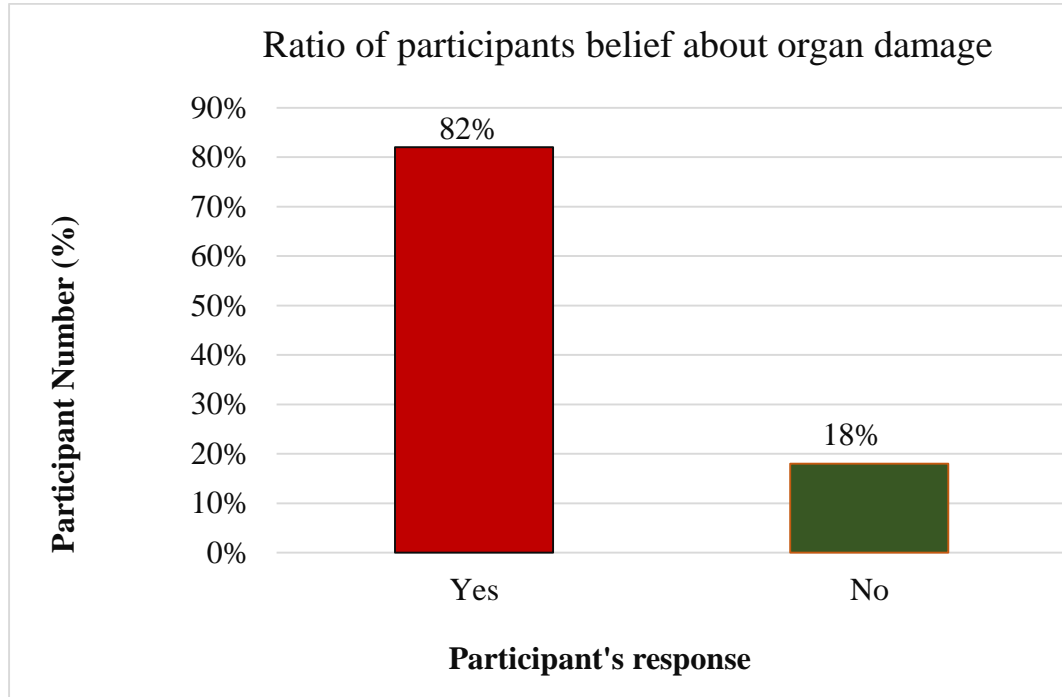
Figure-4.23: Participant's belief about organ damage

4.24 Range of organ damage according to participants thinking

The maximum 52% (n=52) patients had muscular problem, 13% with kidney problem, 12% heart problem and another 9% had the liver problem and they thought that these problem due to diabetes mellitus.
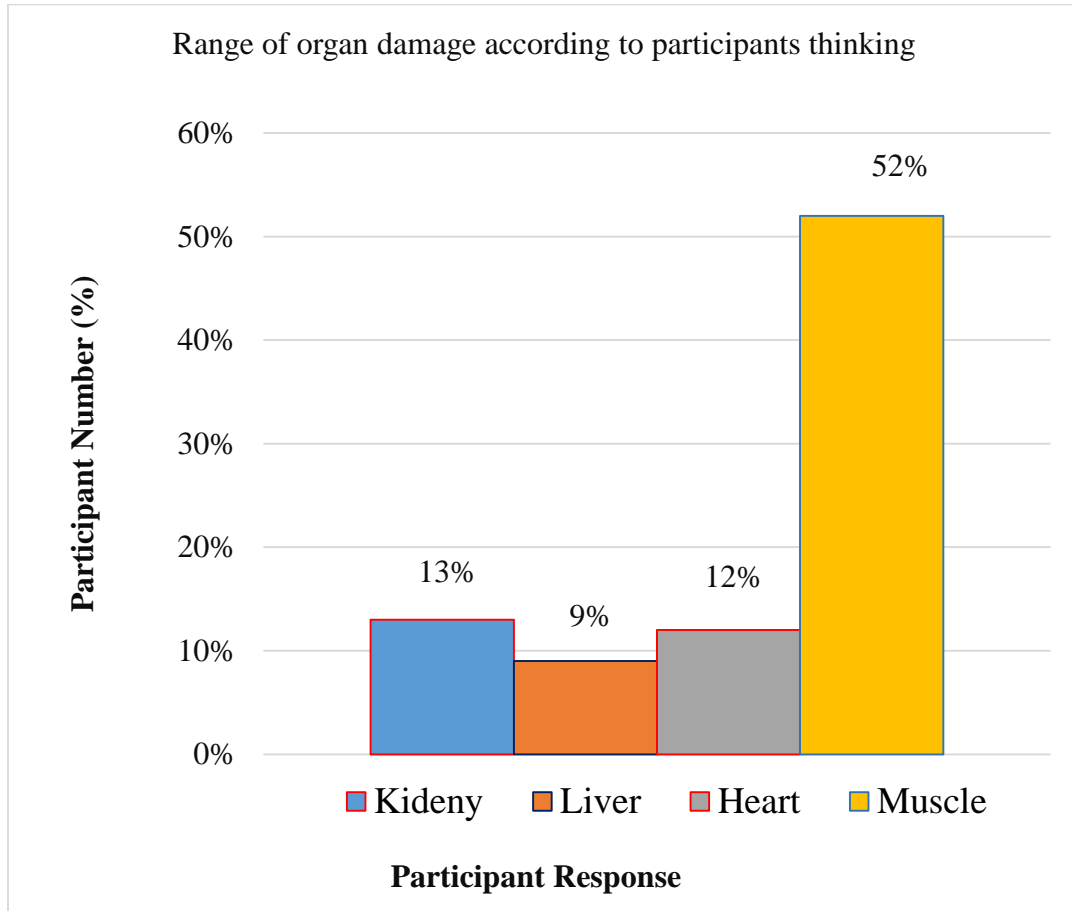
Figure-4.24: Range of organ damage according to participants thinking

4.25 Ratio of social deprivation among the participants

Among the 100 participant 72% (n=72) participant were deprived from society anyhow.

Ratio of social deprivation among the participants
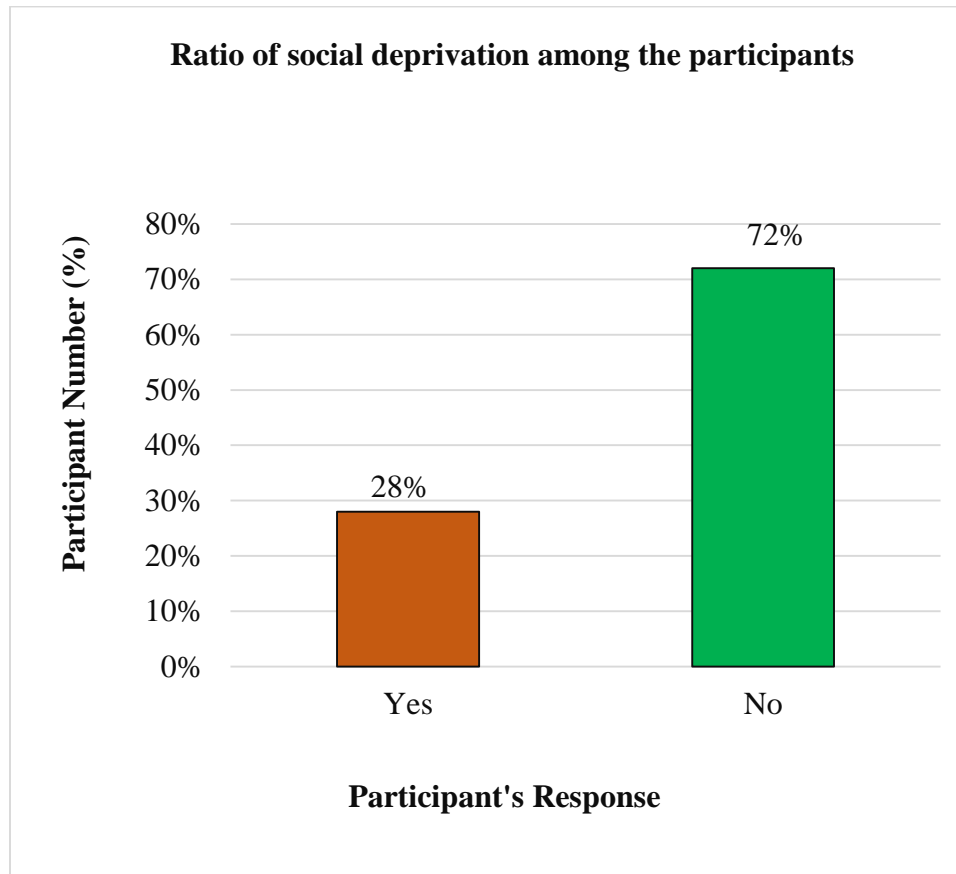
Figure-4.25: Ratio of social deprivation among the participants.

4.26 Ratio of feeling hazards from family due to DM

Only 9% (n=9) participants are feeling hazards from the other family members and majority of the people 91% (91) are normal in family.

Ratio of feeling hazards from family due to DM
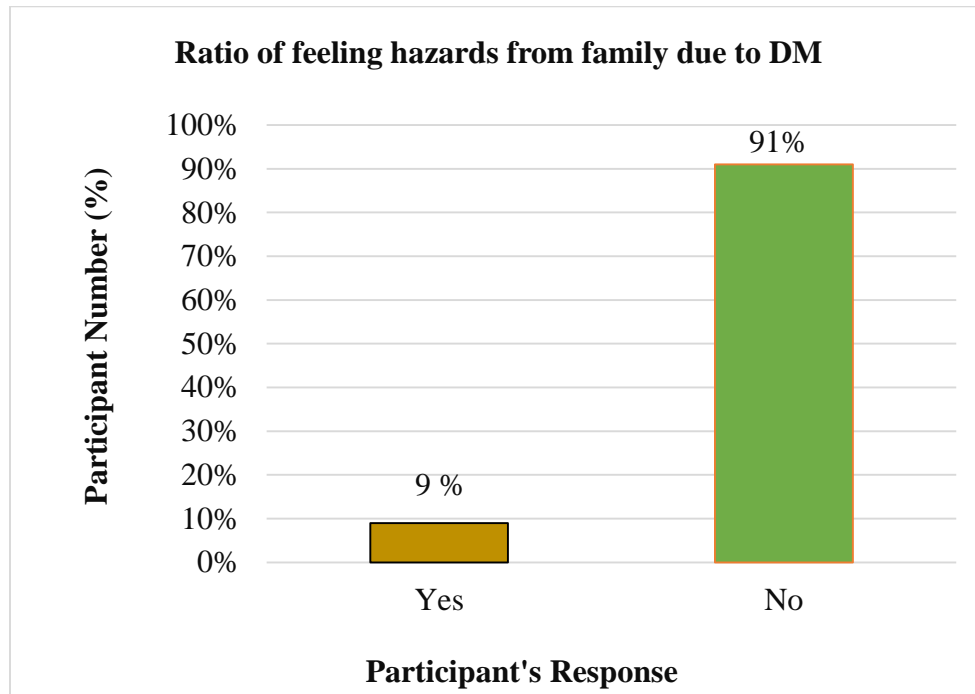
Figure-4.26: Ratio of feeling hazards from family due to Diabetes Mellitus

4.27.1 Distribution of respondents with Diabetes mellitus (Controlled or Uncontrolled) Vs BMI of the participant.

Table 4.27.1 Distribution of respondents with Diabetes mellitus Vs BMI

DM	BMI of the participant				
	Underweight	Normal weight	over weight	Obesity	**Total**
Controlled	3	26	13	6	48
Uncontrolled	5	13	16	18	52
Total	8	39	29	24	**100**

Among the 100 participants those were in the 48 participant's diabetes under control and have 3 with underweight, 26 with normal weight 13 were overweight, 26 were obese. 52 participants were uncontrolled diabetes where 5 were underweight, 13 were normal weight, 16 were overweight and 18 were obese.

4.27.2 Association between Diabetes mellitus (Controlled or Uncontrolled) and BMI.

Table 4.27.2: Association between Diabetes mellitus and BM.

	Chi-Square	P-value
BMI and Diabetes mellitus	11.001	0.012

This observed Chi-square value was 11.01 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. That means Null-hypothesis was rejected and alternative hypothesis was accepted. So the result was significant that indicate there was association Diabetes mellitus between and BMI of the participants.

4.28.1. Distribution of respondents with Diabetes mellitus (control or Uncontrolled) and Diet chart Maintain.

Table 4.28.1: Distribution of respondents with Diabetes mellitus (control or not) and Diet chart following.

Diabetes mellitus	Diet chart Maintain		
	Follow	Don't maintain	**Total**
Controlled	33	15	48
Uncontrolled	28	24	52
Total	61	39	**100**

Among the 100 participant 33 participants thought that their Diabetes is under control by following diet chart but another 15 participants thought that their Diabetes was under control without following diet chart and 28 participants thought that they following diet chart but diabetes was uncontrolled, another 24 participants thought they didn't follow diet chart that's why diabetes was uncontrolled.

4.28.2 Association between Diabetes mellitus (control or not) and Diet chart following.

Table 4.28.2: Association between Diabetes mellitus (control or not) and Diet chart maintaining.

Diabetes mellitus (Control or not)and Diet chart following	Chi-Square	P-value
	2.330	0.12

This observed Chi-square value was 2.33 and 5% level of significant state chi-square was 1.96 which is more than the observed chi-square value. That means Null-hypothesis was accepted and alternative hypothesis was rejected. So the result was not significant that indicate there didn't have strong association between Diabetes mellitus (control or not) and Diet chart following.

4.29.1 Distribution of respondents with Diabetes mellitus (control or not) and Diet chart un-following and Diet chart Maintain.

Table 4.29.1 Distribution of respondents with Diabetes mellitus (control or not) and Diet chart un-following.

Diabetes mellitus	Reason for un-following diet chart			
Diabetes mellitus	Economical problem	Family barrier	Dislike	**Total**
Controlled	1	4	10	15
Uncontrolled	7	1	17	25
Total	8	5	27	**45**

Among the 45 participant 7 participants thought that their Diabetes was not under control due to economic problem, 1 participants thought that their Diabetes was not under control due to family barrier and 17 participants think that their Diabetes was not under control as they dislike   diet chart.

4.29.2 Association between Diabetes mellitus (control or not) and Diet chart un-following

Table 4.29.2: Association between Diabetes mellitus (control or not) and Diet chart un-following.

Diabetes mellitus (Control or not)and Diet chart following	Chi-Square	P-value
	2.330	0.127

This observed Chi-square value was 2.33 and 5% level of significant state chi-square was 1.96 which is more than the observed chi-square value. That means Null-hypothesis was accepted and alternative hypothesis was rejected. The result was not significant.so there was no significant association of diabetes mellitus with the reasons of unfollowing diet chart.

4.30.1 Distribution of respondents with Mellitus and prescribed exercise by Physician.

Table 4.30.1 Distribution of respondents with Diabetes Mellitus and prescribed exercise by Physician

Diabetes mellitus	Prescribed exercise by doctors		Total
	Yes	No	
Controlled	29	19	48
Uncontrolled	27	25	52
Total	56	44	100

It was found that 29 participants compliance to exercise prescribed by physician those had Controlled diabetes and 27 compliance to exercise prescribed by physician those had Uncontrolled diabetes mellitus.

4.30.2: Association between Diabetes Mellitus and prescribed exercise by Physician.

Table- 4.30.2: Association between Diabetes Mellitus and prescribed exercise by Physician

Diabetes mellitus (Control or not)and Prescribed exercise by doctors	Chi-Square	P value
	0.731	0.393

This observed Chi-square value was 0.73 and 5% level of significant state chi-square was 1.96 which is more than the observed chi-square value. That means Null-hypothesis was accepted and alternative hypothesis was rejected. The result was not significant.so there was no significant association between diabetes mellitus and prescribed exercise by Physician.

4.31.1 Distribution of respondents with Diabetes Mellitus and Exercise on own thinking of the participant.

Table-4.31.1 Distribution of respondents with between Diabetes Mellitus and Exercise on own thinking of the participant.

Diabetes mellitus	Exercise on own thinking of the participant		Total
	Yes	No	
Controlled	31	17	48
Uncontrolled	26	26	52
Total	57	43	**100**

The table-4.31.1 informed that 31 participants have the compliance the diabetes was under controlled by their own thinking exercise .Another 26 participants have the compliance the diabetes was un-controlled.

4.31.2 Association between Diabetes Mellitus and Exercise on own thinking of the participant

Table-4.31.2 Association between Diabetes Mellitus and Exercise on own thinking of the participant

Diabetes mellitus (Control or not) and Exercise on own thinking of the participant	Chi-Square	P value
	2.166	0.141

From Table-4.31.2 the observed Chi-square value was 2.166 and 5% level of significant state chi-square was 1.96 which is more than the observed chi-square value. That means Null-hypothesis was accepted and alternative hypothesis was rejected. The result was not significant.so there was no significant association between diabetes mellitus and exercise on own thinking of the participant.

4.32.1 Distribution of respondents with Diabetes Mellitus (under control or not) Vs Idea of the participant about rile of Physiotherapist.

Table-4.32.1 Distribution of respondents with Diabetes Mellitus (under control or not) Vs Idea of the participant about rile of Physiotherapist.

Diabetes mellitus	Idea of the participant about PT		Total
	Yes	No	
Controlled	17	31	48
Uncontrolled	17	35	52
Total	34	66	100

Among the 100 participants 31 participant with controlled DM din't have any idea about the role of physiotherapist for the management of diabetes mellitus and 35 participant with un-controlled DM didn't have any idea about the role of physiotherapist for the management of diabetes mellitus

4.32.2 Association between Diabetes Mellitus (under control or not) and Idea of the participant about rile of Physiotherapist.

Table-4.32.2 Association between Diabetes Mellitus (under control or not) and Idea of the participant   about rile of Physiotherapist.

Diabetes mellitus (Control or not) and Idea of the participant about PT	Chi-Square	P value
	0.083	0.774

This observed Chi-square value was 0.08 and 5% level of significant state chi-square value was 1.96 which is more than the observed chi-square value. That means Null-hypothesis was accepted and alternative hypothesis was rejected. So the result was not significant that indicate there didn't have strong association between Diabetes mellitus (control or not) and Diet chart following.

4.33.1 Distribution of respondents with Diabetes Mellitus (under control or not) Vs Thinking of the participant about exercise and medication

Table 4.33.1 Distribution of respondents with Diabetes Mellitus (under control or not) Vs Thinking of the participant about exercise and medication

	Exercise and medication combination		
Diabetes mellitus	Yes	No	**Total**
Controlled	38	10	48
Un-controlled	2	4	6
Total	40	14	**54**

From the table 4.33.1 38 participant were taking both combination of Exercise and Medication to control Diabetes Mellitus and 10 participants didn't think. Among 40 participants 2 participants were uncontrolled though they were following both the Exercise and medication combination.

4.33.2 Association between medication and combination of exercise and medication.

Table 4.33.2 Association between Medication and combination of Exercise and Medication.

	Chi-Square	P value
Medication and combination of exercise and medication	5.04	0.02

This observed Chi-square value was 11.01 and 5% level of significant state chi-square was 1.96 which is less than the observed chi-square value. That means Null-hypothesis was rejected and alternative hypothesis was accepted. So the result was significant and there was strongly association between diabetes control and combination of exercise and medication

The analysis and discussion is about to identify published papers & determining the relevance with the acquired data. In this chapter the results of the study are discussed in relation to the research questions and objectives of the study. The discussion is focused Complain of the diabetes patient, Responsible factors on behave of the complaint and Therapeutic management by the Physician, patients contact with physiotherapist along with their association.

Diabetes mellitus is a top listed reason for death at present world. Those hazard from diabetes might have been comparatively diminished over that happened in the previous decades at Bangladesh. This might have been to a limited extent the consequence for expanded efforts to enhance intense medication Furthermore optional prevention methodologies toward people in general what's more private healing facilities. In the intense phase, patients require fast finding what's more promptly administration will minimize infarct duration also should expect difficulties. Current rules would consequently meant at upgrading consideration furthermore result for patients with diabetes. Those point of the contemplated might have been with dissect those clinical course, diet, medication, economy, exercise, etc.

In this study, 100 participants were selected who had type II diabetes where more than half of the participants 52% (n=1) were male and 48% (n=48) were female. The age range of the participants were 26-75 years and their mean age was 50.6 .But the highest number (35%) of the participants age were 47-56 years. A prospective study was conducted during the month of August to September in 2012 in the outpatient department of a tertiary care diabetic hospital in Bangladesh. The study was involved in a total number of 140 patients with diabetes mellitus visited in the hospital. In the study, the age was 53.2 ± 10.5 which was similar to my study. According to Akhter et al., (2011) found in their study that was very similar to this study that the 836 Participants 56% (n=468) were male and 44% (n=368) were female participants. Male subjects were older compared to the female participants. The height number of participant 40 % (n=40) female were housewife among the all-female participant and 32% (n=32) participants were service holder among the all-male participant. Among all the participants 22% (n=22) were upper middle income level.

According to WHO (2016) stated that upper middle economical level people are might be the highly vulnerable for incidence of type II diabetes mellitus. Among the 100 participants those were in the 48% (n=48) participant's diabetes under control and have 6% (n=3) with underweight, 54% (n=26) with normal weight 27% (n=13) were overweight, 13% (n=6) were obese. 52% (n=52) participants were uncontrolled diabetes where 10% (n=5) were underweight, 25% (n=13) were normal weight, 31 % (n=16) were overweight and 34 %(n=18) were obese .The Chi-Square vale between BMI and Diabetes mellitus (DM) was 11.001 and p value was 0.012 (<0.05). So the result was significant that indicate there was association between Diabetes mellitus and BMI of the participants. This study are linked with an international study that is Body mass index (BMI) are associated with increased risk of type II diabetes, though the relationship may vary in different populations (Lanc et al., 2015).

From the 100 participant 61% (n=61) follows the diet chart prescribed by the physician and 84% (n=51) state the change of diabetes mellitus that the chi-Square value 2.330 and the p value 0.12 (>0.05), that indicate there don't have strong association of Diabetes control only with the diet chart following as the p-value was not significant. Another 39% (n=39) don't follow the diet char and the greater number of them 69% (n=27) dislike to follow the diet chart and 21% (n=8) don't follow due to economic problem. From the statistical result of my study found that most of the participants didn't know the physician had prescribed exercise to their medical notes that's why 57% (n=57) participants were doing the exercise on their own thinking. Among these 57 participant 50% (n=28) do the exercise about 30 minutes, 38% (n=22) do the exercise about 20 minutes, 7% (n=4) do the exercise about 10 minutes, 5% (n=3) do the exercise about 40 minutes. From the Association between Diabetes Mellitus and Exercise on own thinking of the participant .It was found that the chi square is 2.166 and p- value is 0.41 (>0.05) that indicate the result is not significant. Literature says that, Exercise in the context of health and fitness seemed to have little cultural meaning for the Bangladeshi informants, even though they often recalled specific advice on this topic from their doctor. Exercise was viewed as potentially exacerbating illness or physical weakness. The association between sweating and exercise

in leisure time was not made by any informant, but ritual Muslim prayers were often cited as a worthy and health giving form of exercise. (Raaijmakers et al., 2013).

Among the 48 participants only 9% (n=5) participants think that only medication is controlling their diabetes, 7% (n=4) participant think that only exercises controlling their diabetes and the highest part of the participants about 85% (n=39) think that the combination of medication and exercise is controlling their diabetes. The chi square is 26.57 and p- value 0.00 (<0.05).The result is strongly significant. So there is strongly association between diabetes control and combination of exercise and medication. Literature says that exercise and medications are the mainstays of diabetic care. (Sultana et al., 2013)

Among the 100 participants 31 participant with controlled Diabetes Mellitus (DM) don't have any idea about the role of physiotherapist for the management of diabetes mellitus and 35 participant with un-controlled Diabetes Mellitus (DM) don't have any idea about the role of physiotherapist for the management of diabetes mellitus. From the association between Diabetes Mellitus (under control or not) and Idea of the participant about role of Physiotherapist. The chi square is .083 and p-value 0.774(>0.05).that means the result of not significant.

The researcher found that the maximum 52% (n=52) muscular problem, 13% with kidney problem, 12% heart problem and another 9%had the liver problem and they think that these problem due to diabetes mellitus .According to (Wendland et al., 2012) Diabetes can damage the heart, blood vessels, eyes, kidneys and nerves, leading to disability and premature death. There were also another strong evidence about the complication of Diabetes Mellitus that proved the frequencies of complications were diabetic eye disease (retinopathy) 20 (14.3%), cataract 26 (18.6%), neuropathy symptoms 49 (35%), nephropathy 9 (6.4%), angina pectoris 10 (7.1%), cerebral stroke 5 (3.5%), myocardial infarction 8 (5.7%). Micro-vascular and Macro-vascular complications were reported in 59 (49.2%) and 15 (10.7%) patients respectively (Sultana et al., 2013).

From this study it notice that most if the physician prescribe exercise instated if referral system. As a result patient are suffering with various Musculoskeletal, Neurological, Cardiac and other various complication rather than disease modification as well as lack of contact with physiotherapist. At that situation 28% participants were deprived from society.

From this study most of the physician are advising exercise unethically because they are not the expert of exercise. The Bangladeshi people are not care about physical exercise as much as medication. Research also showed that most of the patient were not aware of their physical exercise that they had prescribed that's why they are depending on only medication or doing exercise on their own thinking that leading them to various complication In the present study, time spent for physical activities is lower. Some people did not do any exercise (12.9%) to maintain ideal body weight & controlling blood glucose level. The main reason is that in Bangladesh people are not conscious about their health (Sultana et al., 2013).

From this study only 34 % participants had the idea about the role of physiotherapist that is too less according to the needs and the referral system among the physician was not significant. So the researcher hope that by developing the referral system and patient awareness about the physical exercise and physiotherapist may be helpful for the patents to control Diabetes mellitus (DM) as well to prevent complication. Various literature also suggest that Diet, exercise, weight control, and medications are the mainstays of diabetic care. (Sultana et al., 2013).

In this case, it is the first time for the researcher to conduct this study as a part of 4th year Course curriculum in Physiotherapy department. Therefore, researcher's skill to conduct interview may influence in-depth information. However, the researcher offered maximum effort to collect information. There were some limitations and barriers while considering the study. Those are as follows the researcher only questioned a small number of subjects (100 in total) which was very small to generalize the result. This was due to time limitation. This study was only conducted among Type II diabetes patients at a specialized hospital in Dhaka. Why the physical are prescribing the exercise rather than referral system and which type if exercise they are prescribing. (don't found any literature about that). This is the main limitation of this study.

| CHAPTER-VI: | CONCLUSION AND RECOMMANDATION |

6.1 Conclusion

The researcher explored the characteristics and associated factors among the type II diabetes patients. The study was conducted on 100 participants of having type II diabetes mellitus where more than half of the participants 52% (n=52) were male and 48% (n=48) were female. In the study the minimum age of a participant is 26 & maximum age of a participant is 75. Their mean is 50.6 and standard deviation is 10.64. participants in between 26-36 years 9% (n=9), participants in between 37-46 years 29% (n=29), participants in between 47-56 years 35% (n=35),10 participants in between 57-67 years 19% participants in between 67-76 years 8%. Among all the participants 22% (22) were upper middle income level. The 39% (n=39) don't follow the diet char and the greater number of them 69% (n=26.91) dislike to follow the diet chart and 21% (n=8.19) don't follow due to economic problem. 61% (n=61) didn't know the physician had prescribed exercise to their medical notes that's why 57% (n=57) participants were doing the exercise on their own thinking. From the association between Diabetes Mellitus (under control or not) and Idea of the participant about role of Physiotherapist. The chi square is .083 and p-value 0.774 (>0.05).that means the result of not significant. Diabetes mellitus is increasing among people day by day. Nowadays it becomes a worldwide problem. Male are more affected than female. Complications of diabetes like cerebrovascular disease, cardiovascular disease, Renal and musculoskeletal problem also affect people. These complication are increasing due to the above mentioned factors. If diabetic patients regularly monitor their blood glucose level, maintain proper diet and nutrition, do regular physical exercise in contact with a physiotherapist can minimize complication and lead a better qualityful life by controlling diabetes mellitus

6.2 Recommendations

After completing the research, the researcher found some recommendation. In case of Result discussion researcher found both positive and limited negative experiences of patients. Should take more samples for generating the result and make more valid and reliable. Sample should collect from different hospital, clinic, institute and organization in different district of Bangladesh to generalize the result. Data should collect from the physician to find out an effective and efficient result in prescribing exercise by physician.

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Appendix

Appendix-1 (A)

Permission letter

March 30, 2017

Head of the Department,

Department of Physiotherapy

Bangladesh Health Professions Institute (BHPI)

CRP, Chapain, Savar, Dhaka-1343.

Subject: Seeking permission for data collection to conduct my research project.

Dear Sir,

With due respect and humble submission to state that I am Md. Ershad Ali, student of 4th Professional B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). The ethical committee of BHPI has approved my research project entitled on "CHARACTARISTICS AND ITS ASSOCIATED FACTORS AMONG TYPE II DIABETES MELLITUS PATIENT". To conduct this research project, I want to collect data from the patients with type II diabetes mellitus attending at Ibrahim General Hospital, Mirpur, Dhaka. So, I need permission for data collection from the Ibrahim General Hospital, Mirpur, Dhaka. I would like to assure that anything of my study will not be harmful for the participants.

I, therefore, pray and hope that you would be kind enough to grant my application and oblige thereby.

Sincerely

Md. Ershad Ali

Md. Ershad Ali

4th Professional B.Sc. in Physiotherapy

Roll-15, Session:2012-2013

Bangladesh Health Professions Institute (BHPI)

(An academic Institute of CRP)

CRP, Chapain, Savar, Dhaka-1343.

Forwarded
Habib 30.3.2017

Allowed for data collection

30/03/17

Md. Obaidul Haque
Associate Professor & Head of the Department
Department of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Chapain, Savar, Dhaka-1343

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Appendix-1 (B)

বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)
(The Academic Institute of CRP)

CRP-Chapain, Savar, Dhaka, Tel: 7745464-5, 7741404 , Fax: 7745069
BHPI-Mirpur Campus, Plot-A/5, Block-A, Section-14, Mirpur, Dhaka-1206. Tel: 8020178.8053662-3, Fax: 8053661

সিআরপি-বিএইচপিআই/০৪/১৭/৬৬   তারিখ ঃ ২২.০৪.২০১৭

প্রতি
পরিচালক
ইব্রাহিম জেনারেল হাসপাতাল
মিরপুর-১০, ঢাকা।

বিষয় ঃ রিসার্চ প্রজেক্ট এর জন্য আপনার প্রতিষ্ঠান সফর এবং তথ্য ও উপাত্তসংগ্রহ প্রসঙ্গ।

জনাব,
আপনার সদয় অবগতির জন্য জানাচ্ছি যে, পক্ষাঘাতগ্রস্তদের পুনর্বাসন কেন্দ্র-সিআরপির শিক্ষা প্রতিষ্ঠান বাংলাদেশ হেল্থ প্রফেশনস্ ইনস্টিটিউট (বিএইচপিআই) ঢাকা বিশ্ববিদ্যালয় অনুমোদিত বিএসসি ইন ফিজিওথেরাপি কোর্স পরিচালনা করে আসছে। এ কোর্সের ছাত্রছাত্রীদের কোর্স কারিকুলামের অংশ হিসাবে বিভিন্ন বিষয়ের উপর রিসার্চ ও কোর্সওয়ার্ক করা বাধ্যতামুলক।

বিএইচপিআই'র ৪র্থ বর্ষ বিএসসি ইন ফিজিওথেরাপি কোর্সের ছাত্র মোঃ এরশাদ আলী তার রিসার্চ সংক্রান্ত কাজের তথ্য ও উপাত্তসংগ্রহের জন্য আগামী ২৩.০৪.২০১৭ থেকে ২৩.০৫.২০১৭ তারিখ পর্যন্ত আপনার প্রতিষ্ঠান সফর করতে আগ্রহী। তার রিসার্চ শিরোনাম

" Charectaristics and its associated factors among type II Diabetes mellitus patient."

তাই তাকে আপনার প্রতিষ্ঠান সফর এবং প্রয়োজনীয় তথ্য ও উপাত্তপ্রদান সহ সার্বিক সহযোগীতা প্রদানের জন্য অনুরোধ করছি।

ধন্যবাদান্তে

মোঃ ওবায়দুল হক
সহযোগী অধ্যাপক ও বিভাগীয় প্রধান
ফিজিওথেরাপি বিভাগ
বিএইচপিআই, সিআরপি।

Dr. Md. Ataur Rahman
MBBS, DCH, Dip-In-USG
Hospital Director
...rahim General Hospital-Mirpur

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Appendix-1 (C)

বাংলাদেশ হেল্থ প্রফেশন্স ইন্সটিটিউট (বিএইচপিআই)

BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)

(The Academic Institute of CRP)

Ref: CRP-BHPI/IRB/04/17/100   *Date:* 15/04/2017

To
Md. Ershad Ali
B.Sc. in Physiotherapy
Session: 2012-2013, Student ID 112120016
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: "characteristics and its associated factors among type ii diabetes mellitus patient".

Dear Md. Ershad Ali,

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application on 14/08/2016 to conduct the above mentioned dissertation, with yourself, as the Principal investigator. The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Dissertation Proposal
2	Questionnaire (English and Bengali version)
3	Information sheet & consent form.

Since the study involves a self-administered questionnaire that takes 10 to 15 minutes, have no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 09:00 AM on August 17, 2016 at BHPI.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

Muhammad Millat Hossain
Assistant Professor, Dept. of Rehabilitation Science
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

CRP-Chapain, Savar, Dhaka-1343. Tel: 02-7745464-5, 7741404 , Fax: 02-7745069,
Email: contact@crp-bangladesh.org, www.crp-bangladesh.org

Appendix-2 (A)

CONSENT STATEMENT

Assalamualaikum,

I am Md. Ershad Ali. I am conducting this study for a B.sc in Physiotherapy project study dissertation titled "CHARACTARISTICS AND ITS ASSOCIATED FACTORS AMONG TYPE II DIABETES MELLITUS PATIENT" By this I would like to know the association of various factors along with the characteristics among type II diabetic patient. Now I want to ask some personal, characteristics and various factors related question. This will take approximately 10-15 minutes.

I would like to inform you that this is a purely academic study and will not be used for any other purpose. Your participation in the research will have no impact on your present or future treatment in this area .All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous.

Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don't like or do not want to answer during interview. If you have any query about the study or your right as a participant, you may contact with me and/or my research supervisor Mohammad Habibur Rahman, Assistant Professor, Physiotherapy Department, BHPI, CRP, Savar, Dhaka.

Do you have any questions before I start?

So may I have your consent to proceed with the interview?

Yes ☐   No ☐

Signature and date of the Participant _____

Signature and date of the Interviewer _____

Data collector signature and date _____

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Appendix-2 (B)

সম্মতি পত্র

আসসালামুয়ালাইকুম,

আমি মোঃ এরশাদ আলী, আমি এই গবেষণা প্রকল্পটি বাংলাদেশ হেলথ্ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)-এ পরিচালনা করছি যা আমার ৪র্থ বর্ষ বিএসসি ইন ফিজিওথেরাপী কোর্সের অধিভুক্ত । আমি "বহুমূত্র রোগীদের রোগের বৈশিষ্ঠ্য এবং সংশ্লীষ্ঠ নিয়ামকের উপর গবেষনা করছি"। আমি এক্ষেত্রে আপনাকে কিছু ব্যক্তিগত, রোগের বৈশিষ্ঠ্য এবং সংশ্লীষ্ঠ নিয়ামকের উপর আনুষাঙ্গিক কিছু প্রশ্ন করতে চাচ্ছি। এতে আনুমানিক ১০-১৫ মিনিট সময় লাগবে।

আমি আপনাকে অনুগত করছি যে, এটা আমার অধ্যয়নের অংশ এবং যা অন্যকোন উদ্দেশ্যে ব্যবহৃত হবে না। এই গবেষনায় আপনার অংশগ্রহণ বর্তমান ও ভবিষ্যৎ চিকিৎসায় কোন প্রকার প্রভাব ফেলবে না। আপনি যে সব তথ্য প্রদান করবেন তার গোপনীয়তা বজায় থাকবে এবং আপনার প্রতিবেদনের ঘটনা প্রবাহে এটা নিশ্চিত করা হবে যে এই তথ্যের উৎস অপ্রকাশিত থাকবে।

এই অধ্যয়নে আপনার অংশগ্রহণ স্বেচ্ছাপ্রণোদীত এবং আপনি যে কোন সময় এই অধ্যয়ন থেকে কোন নেতিবাচক ফলাফল ছাড়াই নিজেকে প্রত্যাহার করতে পারবেন। এছাড়াও কোন নির্দিষ্ট প্রশ্ন অপছন্দ হলে উত্তর না দেয়ার এবং সাক্ষাৎকারের সময় কোন উত্তর না দিতে চাওয়ার অধিকারও আপনার আছে।

এই অধ্যয়নে অংশগ্রহণকারী হিসেবে যদি আপনার কোন প্রশ্ন থাকে তাহলে আপনি আমাকে অথবা/এবং আমার সুপারভাইজার, মোহাম্মদ **হাবিবুর রহমান**,সহকারী অধ্যাপক, ফিজিওথেরাপী বিভাগ, বিএইচপিআই, সিআরপি, সাভার, ঢাকা-তে যোগাযোগ করতে পারেন।

সাক্ষাৎকার শুরু করার আগে কি আপনার কোন প্রশ্ন আছে ?

আমি কি আপনার অনুমতি নিয়ে সাক্ষাৎকার শুরু করতে পারি ?

হ্যাঁ   ☐   না   ☐

অংশগ্রহণকারীর স্বাক্ষর ও তারিখ............................

উপাত্ত সংগ্রহকারীর স্বাক্ষর ও তারিখ...........

গবেষকের স্বাক্ষর ও তারিখ.........................

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Appendix-3(A)
Questionnaire- English

This is a modified questionnaire according to the framework of WHO to take the information about non-communicable disease. This questionnaire will provide the information about the characteristics of type II diabetes mellitus and associated factor that are related to the identified characteristics.

Patient's Identification

Identification Number:

Name of respondents:

Date of interview:

Age:

Sex:

Address:

Consent Taken:

Contract no:

Part – I: Socio Demographic Information

Please give tick (√) mark at the left side box of the best correct answer

Question Number	Questions/ Information on	Response of the participant with coding category
1.	Sex	☐ Male=1 ☐ Female=2
2.	Marital status	☐ Married =1 ☐ Unmarried=2 ☐ Divorced =3
3.	Educational qualification	☐ Illiterate=1 ☐ Primary=2 ☐ SSC=3 ☐ HSC=4 ☐ Graduation=5 ☐ Masters =6
4.	Occupation	☐ Service holder=1 ☐ Businessman=2 ☐ Housewife=3 ☐ Student=4 ☐ Labor =5 ☐ Retired person=6
5.	Living area	☐ Urban=1 ☐ Rural=2
6.	Monthly Income	☐ 1 –5000tk=1

			☐ 5001 – 10,000tk=2
			☐ 10.001 – 20,000 tk=3
			☐ ≥20,000=3
6.		Duration Diabetes Mellitus (According to medical notes)	☐ 5 – 10 months=1
			☐ 11 - 15 months=2
			☐ 16 -20 months=3
			☐ 21 -25 months=4
			☐ ≥ 26 months=5

Part II: Associated Factors related question

Nutritional factors

7.	a)	Do you follow any diet chart? If yes answer the question no (b) .If no answer the question no (c)	☐ Yes=1 ☐ No=2
	b)	Do you feel any change of your Diabetes by maintaining diet chart?	☐ Yes=1 ☐ No=2
	c)	Why you don't like to follow diet chart?	☐ Economical problem=1 ☐ Family barrier=2 ☐ Dislike=3

Exercise

a)	Have your doctor prescribed any exercise?	☐ Yes=1 ☐ No=2	
b)	Do you know your doctor have advised exercise on prescription? if yes answer the question no c and d. if no skip the c and d	☐ Yes=1 ☐ No=2	
c)	Would you like to do prescribed exercise regularly??	☐ Yes=1 ☐ No=2	
d)	Do you think the prescribed exercise is controlling your insulin level?	☐ Yes=1 ☐ No=2	
e)	Are you like to do exercise on your own thinking?? (walking/Jogging) .If yes answer to the question no (f).if no skip the (f)	☐ Yes=1 ☐ No=2	
f)	How many times would you like to do exercise?	☐ 10 minutes=1 ☐ 20 minutes=2 ☐ 30 minutes=3 ☐ 40 minutes=4	
g)	Have you any idea about the role of physiotherapist to control type II diabetes mellitus	☐ Yes=1 ☐ No=2	

Medical factors

9.	a)	Height (CM)	
	b)	Body weight (Kg)	
	c)	BMI	☐ Underweight=1 ☐ Normal weight=2 ☐ Over weigh=3 ☐ Obesity=4
	d)	Is your diabetic under controlled? (If yes answer the question no (e), (f) & (g).If no then skip the question no (e), (f) & (g).)	☐Yes=1 ☐No=2
	e)	Do you think only medication is controlling your insulin level?	☐Yes=1 ☐No=2
	f)	Do you think medication with exercise is controlling your insulin level?	☐Yes=1 ☐No=2
	g)	Do you think only exercise is controlling your diabetes?	☐Yes=1 ☐No=2

Drug History

10.	a)	Are you taking any drug for type II diabetes? If yes answer the (b).if no answer the (c).	☐Yes=1 ☐No=22
	b)	Name of the drugs	☐ Insulin=1 ☐metformin,=2 ☐pioglitazone=3

			☐ glimepiride=4
	c)	Duration of taking drug	☐ 1 month=1 ☐ 3 month=2 ☐ 5 month=3 ☐ 7 month=4
	C)	Why you don't like to take medicine?	☐ Economical problem=1 ☐ Only exercise is effective **=2** ☐ Family restriction=3

Psychological factors

11.	**a)**	Do you know what kind of disease the diabetes is?	☐ Communicable=1 ☐ Non-communicable=2
	b)	Do you think the diabetes damage the other organ?	☐ Yes=1 ☐ No=2
	c)	Which organ are damage due to type II diabetes?	☐ Kidney=1 ☐ Liver=2 ☐ Heart=3 ☐ Muscle=4
	d)	Are you deprive from any social work due to type II diabetes?	☐ Yes=1 ☐ No=2
	e)	Are you feeling any hazards from your family due to type II diabetes?	☐ Yes=1 ☐ No=2

Thank you for your response.

<u>বাংলা প্রশ্নাবলী</u>

আন্তর্জাতিক স্বাস্থ্য সংস্থা এর কাঠামো অনুসারে এটি একটি অসংক্রমিত রোগের তথ্য সম্পর্কিত সংশোধিত প্রশ্নমালা।এই প্রশ্নমালা বহুমূত্র (টাইপ-২) রোগীদের রোগের বৈশিষ্ঠ্য এবং সংশ্লিষ্ট নিয়ামকের আনুষাঙ্গিক প্রশ্ন সম্পর্কিত তথ্যের যোগান দিবে।

অংশগ্রহণকারী সনাক্তকরণ:

সনাক্তকারী নাম্বার :

অংশগ্রহনকারী নাম :

বয়স:

সাক্ষাতকার গ্রহণ তারিখ :

ঠিকানা :

সম্মতি গ্রহণ করা হয়েছে :

মোবাইল নাম্বার :

প্রথম অংশঃ আর্থ-সামাজিক প্রশ্ন

দয়া করে সঠিক উত্তরের বাম পাশে টিক চিহ্ন(√)দিন।

প্রশ্ন নং	প্রশ্ন	উত্তর
১.	আপনার লিঙ্গ কি ?	☐ পুরুষ =1 ☐ মহিলা =2
২.	আপনার বৈবাহিক অবস্থা কি?	☐ বিবাহিত= 1 ☐ অবিবাহিত =2 ☐ বিচ্ছেদ=3
৩.	আপনার শিক্ষাগত যোগ্যতা কি?	☐ নিরক্ষর =1 ☐ প্রাথমিক=2 ☐ মাধ্যমিক=3 ☐ উচ্চমাধ্যমিক =4 ☐ স্নাতক=5 ☐ স্নাতকোত্তর=6
৪.	আপনার পেশা কি?	☐ চাকুরিজীবী=1 ☐ ব্যবসায়ীক =2 ☐ গৃহীণী=3 ☐ শিক্ষার্থী= 4 ☐ শ্রমিক =5 ☐ অবসর প্রপ্ত=6

৫	আবাসিক এলাকা?	☐ গ্রামীণ= 1 ☐ শহুরে =2
৬	আপনার মাসিক আয় কত ?	☐ ১-৫০০০ টাকা =1 ☐ ৫০০১-১০,০০০ টাকা=2 ☐ ১০,০০১- ২০,০০০ টাকা=3 ☐ ≥ ২০,০০০ টাকা =4
৭	চিকিৎসাপত্র অনুসারে বহুমুত্র রোগের সময়কাল ?	☐ ৫-১০ মাস =1 ☐ ১১-১৫ মাস =2 ☐ ১৬-২০ মাস=3 ☐ ২১-২৫ মাস=4 ☐ ≥ ২৬ মাস =5

দ্বিতীয় অংশঃ সম্মিলিত কারণ সম্পর্কিত প্রশ্ন।

পুষ্টিগত কারণ

৮।	ক	আপনি কোন খাদ্য তালিকা অনুসরণ করেন ? (হ্যাঁ হলে খ নং প্রশ্নের উত্তর দিন আর না হলে খ নং প্রশ্ন এড়িয়ে যান)	☐ হ্যাঁ =1 ☐ না=2
	খ	খাদ্য তালিকা অনুসরণ করে আপনি আপনার ডায়াবেটিকের কোন পরিবর্তন অনুভব করছেন কী না?	☐ হ্যাঁ = 1 ☐ না=2
	গ	কেন আপনি খাদ্য তালিকা অনুসরণ করতে পছন্দ করছেন না?	☐ অর্থনৈতিক সমস্যা=1 ☐ পারিবারিক বাঁধা= 2 ☐ অপছন্দ=3

এক্সারসাইজ সম্পর্কিত প্রশ্ন

৯	ক)	আপনার চিকিৎসক আপনাকে কোন এক্সারসাইজ নির্ধারণ করে দিয়েছে কি না ?	☐ হ্যাঁ =1 ☐ না=2
	খ)	আপনি জানেন কি আপনার চিকিৎসক ব্যাবস্থাপত্রে এক্সারসাইজের উপদেশ দিয়েছেন । (হ্যাঁ হলে গ ও ঘ নং প্রশ্নের উত্তর দিন আর না হলে গ ও ঘ নং প্রশ্ন এরিয়ে যান)	☐ হ্যাঁ =1 ☐ না=2
	গ)		☐ হ্যাঁ =1

		আপনি কি নিয়মিত এক্সারসাইজ করতে পছন্দ করেন?	☐ না=2
	ঘ)	আপনি কি মনে করেন নির্ধারিত এক্সারসাইজ আপনার ইনসুলিনের পরিমাণ নিয়ন্ত্রণ করছে?	☐ হ্যাঁ =1 ☐ না=2
	ঙ)	আপনি কি আপনার নিজস্ব চিন্তায় এক্সারসাইজ করতে পছন্দ করেন?(হ্যাঁ হলে চ ও ছ নং প্রশ্নের উত্তর দিন আর না হলে চ ও ছ নং প্রশ্ন এরিয়ে যান)	☐ হ্যাঁ =1 ☐ না=1
	চ)	আপনি আপনার নিজস্ব চিন্তায় কত সময় ধরে এক্সারসাইজ করেন ?	☐ ১০ মিনিট =1 ☐ ২০ মিনিট =2 ☐ ৩০ মিনিট=3 ☐ ৪০ মিনিট=4
	ছ)	টাইপ-২ ডায়বেটিস ম্যালিটাস নিয়ন্ত্রণের জন্য ফিজিওথেরাপিস্টের ভূমিকা সম্পর্কে আপনার কি কোন ধারনা আছে ?	☐ হ্যাঁ =1 ☐ না=2

চিকিৎসা বিষয়ক প্রশ্ন

১০	ক)	উচ্চতা (সে. মি.)	
	খ)	ওজণ (কেজি)	
	গ)	বি.এম.আই.	☐ কম ওজন =1 ☐ সাধারণ ওজন =2 ☐ অতিরিক্ত ওজন=3 ☐ স্থূলতা=4
	ঘ)	আপনার ডায়বেটিস ম্যালিটাস কি নিয়ন্ত্রণের মধ্যে ? (হ্যাঁ হলে ঙ,চ ও ছ নং প্রশ্নের উত্তর দিন আর না হলে ঙ,চ ও ছ নং প্রশ্ন এরিয়ে যান)	☐ হ্যাঁ =1 ☐ না=2
	ঙ)	আপনি কি ভাবেন শুধুমাত্র ঔষধ আপনার ইনসুলিনের মাত্রা নিয়ন্ত্রণ করছে ?	☐ হ্যাঁ =1 ☐ না=2
	চ)	আপনি কি ভাবেন ঔষধের সাথে এক্সারসাইজ আপনার ইনসুলিনের মাত্রা নিয়ন্ত্রণ করছে ?	☐ হ্যাঁ =1 ☐ না=2
	ছ)	আপনি কি ভাবেন শুধুমাত্র এক্সারসাইজ আপনার ইনসুলিনের মাত্রা নিয়ন্ত্রণ করছে ?	☐ হ্যাঁ =1 ☐ না=2

ঔষধ ইতিবৃত্ত

১১	ক)	আপনি কি টাইপ-২ ডায়বেটিস ম্যালিটাসের জন্য কোন ঔষধ গ্রহণ করছেন ? (হ্যাঁ হলে খ ও গ নং প্রশ্নের উত্তর দিন আর না হলে খ ও গ নং প্রশ্ন এরিয়ে যান)	☐ হ্যাঁ =1 ☐ না=2
	খ)	ঔষধ সমূহের নাম কি ?	☐ ইনসুলিন=1 ☐ মেটফরমিন=2 ☐ পাইওগ্লিটাজন=3 ☐ গ্লিপিরামিড=4
	গ)	ঔষধ গ্রহণের সময়কাল	☐ ১ মাস =1 ☐ ৩ মাস=2 ☐ ৫ মাস=3 ☐ ≥৭ মাস=4
	ঘ)	কেন আপনি ঔষধ গ্রহণ পছন্দ করেন না ?	☐ অর্থনৈতিক সমস্যা= 1 ☐ পারিবারিক সমস্যা=2 ☐ শুধুমাত্র ব্যায়ামই যথেষ্ট=3

মানসিক কারন।

১২	ক)	আপনি কি জানেন ডায়বেটিস কোন ধরণের রোগ ?	☐সংক্রামক রোগ =1 ☐অসংক্রামক রোগ =2
	খ)	আপনি কি মনে করেন যে ডায়বেটিস অন্য অঙ্গ প্রতঙ্গগুলকে আক্রান্ত করছে?	☐ হ্যাঁ =1 ☐ না=2
	গ)	কোন কোন অঙ্গ প্রতঙ্গগুলো ডায়বেটিসের কারনে আক্রান্ত হয়?	☐ বৃক্ক =1 ☐ যকৃত =2 ☐ হৃদপিন্ড=3 ☐মাংসপেশি =4
	ঘ)	আপনি কি টাইপ-২ ডায়বেটিসের কারনে সামাজিক কার্যকলাপ থেকে বিরত আছেন?	☐ হ্যাঁ =1 ☐না=2
	ঙ)	ডায়বেটিসের কারনে আপনার পরিবার আপনার প্রতি কোন বিরূপ আচরণ করা কি না?	☐ হ্যাঁ =1 ☐ না=2