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Prevalence of Diabetes Mellitus in Relation to Family History of Diabetes Mellitus in Bangladeshi Population

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ABSTRACT
Background
Due to its prevalence, the significant financial and social toll it takes on society, the variety of unfavorable consequences it has on the body, and the connections it has with other illnesses, diabetes mellitus is becoming more and more recognized as a critical worldwide health issue. It has a significant genetic component, and the likelihood of developing it is significantly higher in family members of people with diabetes, but it also has an environmental component because those who live together are more likely to do so. The most world's Current Insulin Report from the International Health Agency estimates that by 2030, 438 million adults would have diabetes, up from 285 million in 2010. It was estimated in 2011 that diabetes will be the seventh largest cause of mortality globally in 2012.The prevalence of diabetes will increase by 69% and 20%, respectively, in developing countries. In developing nations, high blood pressure is responsible for five deaths for every two deaths from diabetes.The current health care systems in Bangladesh are not equipped to deal with the influx of patients that would result from the rising rates of diabetes and associated consequences, therefore this situation poses a serious danger to such services. However, there are few studies about the "Prevalence of Diabetes Mellitus in Relation to Family History of Diabetes Mellitus in Bangladeshi Population.The purpose of this research was to determine the relative risk of developing diabetes mellitus in individuals who sought treatment at our academic medical facility.
Method
It is a cross-sectional study .1422 participants were studied, where the male (71%) and female (29%). After breakfast, participants had their data about the subject's stature, mass, BMI, systolic and diastolic and energy levels assessed and recorded. Also included in this category were participants' blood pressure readings. Before beginning the study, demographic information was gathered from all participants using a standardized questionnaire. This included participants' gender, age, lifestyle, level of education, and family history of diabetes. DM was diagnosed on the basis of after-breakfast glucose value; Blood glucose ABF >7.8 were diagnosed as DM in this study. Family histories of DM were collected on the first-degree relative of the subjects.
Results
Among the total 1422 subjects, M±SD; of Age (yrs), BMI (kg/m2), SBP (mmHg), and DBP (mmHg) of study subjects were 38±12, 24±4,122±16, 82±11. 16% of subjects had SBP of >130 mmHg, and 10% of subjects had DBP of >90 mmHg. 17% subjects had ABF of >7.8 and 61.5% subjects had BMI of >23 kg/m2.The mean ±SD of those with age group with or without a history of diabetes in the family were 37±12, 38±11, BMI was 24±4, 23±4 (t =3.23/p=0.001), and ABF were 7±4, 6±3 (5.06/.000) . In this study, participants who had a history of diabetes in their families were more likely to get the disease themselves. have significantly (<0.05) higher BMI and AFB level than the subjects those who don't come from a DM-positive household. Systolic and Diastolic blood pressure of were122±15, 87±10 and were 121±16, 81±11.For those who have type 2 diabetes in the family and a BMI above 25 and 33% were normal, and 67% were obese, and that runs in the family, 41% were normal, and 59% were obese that runs in the family ABF <7.8 and >7.8 M±SD of Age were 35±12, 42±13 (t=5.42;p=0.00),BMI were 24±4 , 24±4 and ABF were 5±0.9 , 12±4.The result showed that subjects of <7.8 were significantly lower (<0.05) in Age and ABF level than the subjects of >7.8.The average values for both the arterial and diastolic blood pressures, as well as the related means and standard deviations for each of these values of <7.8 were 120±10, 80±10 and in >7.8 were 127±14, 84±10 (t=-4.58; p=0.00). The result showed that the subject of <7.8 was significantly lower (<0.05) Systolic and Diastolic blood pressure than the subjects of >7.8.For those who have no history of diabetes in their family The mean ±SD of <7.8 and >7.8 Age were 37±11, 43±11 (t=-5.84; p=.00),BMI were 23±4, 24±3 (t=-2.06;p=0.04) and ABF <7.8 were 5±0.8, 12±4 (t=-16.83;p= 0.00).The result represented that the subjects were significantly lower (<0.05) in Age, BMI, and ABF level than the subjects of>7.8.Systolic and Diastolic blood pressure of <7.8 were 120±16,81±11 (t= -4.71p=0.00) and in >7.8 were 127±16 , 85±12 (t= -3.70/p=0.00).The subject of <7.8 was

significantly lower (<0.05) Systolic and Diastolic blood pressure than the subjects of >7.8. The Prevalence of Diabetes was 17%, where from 1393 study subjects according to a family history of DM, 28% that runs in the family, and 72% lacking a history of diabetes in their family , 46% were Diabetic patients who come from a medically affected family, and 54% People with diabetes who did not come from a diabetic family (x2 = 47.09 and p =.00).

The figure showed that 8% were illiterate, 27% of subjects had an education level up to class 10, 14% were SSC subjects, 15% were HSC subjects, 18% had an education level of B.Sc.; 28% had a family history of DM.69% male and 31% female represent the family history with Diabetes Mellitus and 72% male and 28 % female represent family history without Diabetes Mellitus.With regards to marital status, people with a history of diabetes in the family were more likely to be married (82% vs. 18%) than those without (86% vs. 14%).The eldest kid in households with DM had a 1.39-fold higher chance of having DM than the youngest (odds ratio 0.99).HSC levels were found to be abnormally low in 42% of DM patients while being abnormally high in 58%. There was a significant difference between families with and without a history of diabetic mellitus (DM), with 48% of those without DM falling below the HSC and 52% of those with DM falling over it (X2 = 11.96, P 0.001). Family history with DM 12% were business people,19% were homemakers,47% were service holder 3% were driver,9% were the student, and 7% were from other occupation and the family history without DM 11% were businessman, 20% were housewife, 51% were service holder 4% were driver, 6% were the student and 9%(X2=12.8; P value=0.04) from other occupations.

Conclusion

Patients with a strong family history of disease had a higher risk of developing diabetes themselves. People living in Dhaka. It was found that 17% of the population had diabetes, with 46% of those people having a direct relative with diabetes mellitus (DM) and 54% not having such a relative. An estimated 67% of people with a family history of diabetes will get the disease themselves. This risk increases by 3% every generation when calculating body mass index (BMI).When controlling for factors such as parental and participant DM history, as well as sex and educational background, those with and sans ancestry of diabetes are at the same risk of developing the illness at the same age after being exposed to the same risk factor. The risk is higher for people who have a family history of DM when this happens. Blood pressure on both the systolic and diastolic levels, as well as body mass index associated with DM.

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I. Introduction

Definitions

A collection of common metabolic conditions with hyperglycemia phenotype are referred to as diabetes mellitus (DM). Depending on the etiology of the diabetic condition, variables such as poor glucose utilization, elevated glucose levels, and decreased insulin secretion generation are all factors that lead to hyperglycemia.(Fauci AS, 2008).ShubhanginiA.Joshi defines. Diabetes mellitus, more commonly referred to as diabetes, disease characterized by persistently elevated blood glucose levels caused by a dysfunction in carbohydrate metabolism (also known as hyperglycemia) and high levels of sugar in the urine. Diabetes can be prevented by maintaining a healthy diet and maintaining a healthy weight (glycosuria). The World Health Organization (WHO) identifies diabetes mellitus as a global epidemic is a metabolic illness that can have a variety of causes, persistent hyperglycemia (high glucose concentration), and changes in the metabolism of carbohydrates, fats, and proteins that are brought on by problems with insulin production, insulin action, or both. Diabetes mellitus is characterized by these symptoms: persistent hyperglycemia (high glucose concentration), and changes in the metabolism of carbohydrates, fats, and proteins. (WHO, 2011).

Prevalence of Diabetes Mellitus

It is not a sickness that simply affects wealthy countries. Because of globalization, a rise in sedentary lifestyles, and a change in dietary patterns, this ailment is really present in every single nation on the face of the earth. Many industrialized countries have begun to respond to this growing problem, which has a detrimental impact on people's well-being and the national economy's budget (Deutsche Diabetes Union, 2007).

Global Prevalence

Diabetes mellitus, abbreviated as DM, is widely acknowledged as a major public health concern in the 21st century. Autos play a significant role in the plot, which serves to emphasize the influence they have on the novel's characters. Poor diet, lack of exercise, and excess body fat are just a few of the factors contributing to a worldwide epidemic of type 2 diabetes that has been steadily growing in incidence for decades. As a result, the number of people who are vulnerable to contracting the illness has skyrocketed. Challenges arose early on due

to the nature of type 2 diabetes, whose symptoms might include increased thirst, frequent urination, and unexplained weight loss. Once only observed in adults, these symptoms are becoming more common in adolescents and young adults owing to increased obesity rates and changes in lifestyle choices. In recent years, this trend has evolved into a major public health concern for those age groups. The General Assembly of the United Nations made the decision to declare November 14 as "World Diabetes Day" by a vote of unanimous consent on December 20, 2006." The resolution asked all of the member nations to create national policies for raising awareness of diabetes among the general public and preventing the disease. It is anticipated that at the end of the year 2030, this number would have seen an uptick to 438 million, or 7.8% of the adult population.Based on information found in the Diabetes Fact Sheet for the National Level for 2011. (released January 26, 2011)Neglecting to properly treat diabetes may have serious consequences for individuals of any age. In the United States alone, it affects 25.8 million individuals, both young and old, and has been linked to major health issues such cardiovascular disease, stroke, kidney damage, blindness, and nerve damage. As of 2015, 8.3% of Americans and 1.9 million annual new diagnoses were attributed to diabetes.(CDC's National Diabetes Fact Sheet, 2011) Diabetes impacts the lives of 346 million individuals all over the globe. It is projected that 3.4 million individuals passed away as a result of complications related to high blood sugar in the year 2004. More than eighty percent of people who reside in low- and middle-income communities will ultimately die away from complications associated to diabetes. According to projections made by the WHO, the number of deaths caused by diabetes would increase between 2005 and 2030. (MEDIACENTER FACT SHEET 2010)

Prevalence in Asia

The Asia-Pacific area is home to some of the world's most populated countries. India, with a population of 1.21 billion, is the world's second-most populous nation and is also located in Asia. About one-fifth of all adults with diabetes geographically located in Southeast Asia. A staggering 8.3% of adults, or 71.4 million, were diagnosed with diabetes in 2011. Of them, 61.3 million live in India. (International Diabetes Federation 2011)Diabetes will affect 120.9 million people in the area by the year 2030, making up 10.2% of the adult population in total. (As per a seminar paper on the epidemiological studies of the prevalence of diabetes mellitus in the Asia-Pacific region, India has the highest per capita diabetes population, with 43.2 million people, led by China. With a population of about 237.6 million, Indonesia ranks fourth in terms of size among countries with a high prevalence of diabetes, Considering that 92.4 percent of American adults are overweight or obese, it's obvious that something must be done. There are now 100.0 million people in the United States (50.2 million men and 42.2 million women) living with diabetes, making it a major problem in terms of public health that has to be addressed. With an estimated 463 million people suffering from diabetes globally and 148.2 million individuals having prediabetes, this health crisis is a huge reason for worry.This means that the Asia-Pacific region is crucial for understanding the global diabetes epidemic. Together, these two factors account for a sizable chunk of the world's population and the alarming pace at which diabetes is spreading across society. The World Health Organization's Dr. Hilary King has predicted that by 2025, this number would rise to 300 million.Over 150 million of these will be in Asia. Poorer countries, according to WHO, will suffer the brunt of this epidemic in the twenty-first century. Over 70% of diabetics reside in poor and middle-income nations. (Word Diabetes Foundation 2011)In 2008, an additional 23.8 million persons were diagnosed with impaired glucose tolerance (IGT).This figure is projected to increase to 38.6 million by the year 2030 as more individuals enroll in college.

Prevalence in Bangladesh

The greatest rate of diabetes prevalence in the region's adult population is 15.1% in Mauritius, followed by 10.6% in Bangladesh. The number of individuals who are currently coping with diabetes in India, Bangladesh, and Sri Lanka combines to make up 99% of the total for the region. International Diabetes Federation 2011 Bangladesh is a developing country with a fast-expanding population of around 164.4 million people. (Hussain. A,2011)Describes a joint study effort between the Diabetic Association of Bangladesh and the University of Oslo in Bangladesh. In order to prevent an increase in diabetes cases reaching 7.9% by 2030, as predicted by the International Diabetes Federation's Diabetes Atlas, immediate action is required. Bangladesh, like other industrialized and developing nations, is seeing an increase of type 2 DM. More than 463 million people worldwide have diabetes, according to the International Diabetes Federation (IDF), which also predicts that more than 511 million people will have diabetes by 2030. In 2015, the IDF predicts that between 5.7 million (6.1%) and 6.7 million (7.1%) people will be diagnosed with diabetes. Diabetics will number 11.1 million by 2030. Bangladesh will have the seventh most diabetics in 2030 due to this increase.A. Hossain (2011)

Mortality

With 1.16 million diabetes-related fatalities in 2011, this region had the second highest total among the seven IDF zones. About one-fifth as many adult deaths in the area may be attributed to this cause. More than half of these deaths (55%) occur in individuals under the age of 60, with over a third (27%) happening in those under the age of 50. Diabetes is the primary factor responsible for deaths in the area, accounting for 983,000 fatalities. The metabolic condition known as diabetes as stated by the International Diabetes Federation. Leading cause of death and morbidity worldwide (Wild.S 2004).

(International Diabetes Federation (IDF) Report 2009) In 2010, there were close to four million fatalities among people aged 20 to 79 years old. In 2010, this age group was responsible for 6.8% of the total worldwide death rate due to all causes (IDF 2009). According to the IDF 2006 estimate, more than 50 million individuals in South East Asia have diabetes (International Diabetes Federation 2011).

Classification of Diabetes Mellitus

High blood sugar levels over a long period of time due to abnormalities in insulin both cause and are symptoms of diabetes mellitus, sometimes known simply as diabetes. Hyperglycemia is characterized by hyperglycemia brought on by aberrant insulin sensitivity, upregulated insulin sensitivity leading to glucose utilization, decreased glucose utilization, and increased glucose synthesis by the liver, or by all three. Chronic hyperglycemia and other metabolic abnormalities caused by diabetes cause long-term tissue and organ damage and malfunction, affecting the eyes, kidneys, brain, and circulatory systems.

2009 (American Diabetes Association)

The WHO expert committee on Diabetes created many categorization systems for Diabetes mellitus. The current WHO categorization system was created in collaboration with National Diabetes Data Groups (USA). It is mostly predicated on the genesis of diabetes mellitus. There is diabetes of both type 1 and type 2 varieties are considered to be distinct forms of the disease. (WHO 1999)

There are two subtypes of type 1 diabetes: autoimmune and idiopathic. Both of these forms of diabetes mellitus lead to a reliance on insulin as well as the death of pancreatic beta cells (-cells) (WHO 1999 1-50)(Lippincott. W, 2000). The death of these cells happens gradually, and at first, there are very few clinical signs apparent. However, acute diabetic ketoacidosis and hyperglycemia are frequently what lead to the initial diagnosis, especially in younger patients such as children and adolescents. These individuals could also be suffering from diseases of the immunological system, such as Addison's, Hashimoto's, and Graves'. (WHO 1999 1-50) It has also been suggested that environmental variables, in addition to genetic predisposition, may be responsible for the development of Type 1 DM. Many environmental factors, including viruses like mumps and chicken pox, have been linked to the condition, but only congenital rubella syndrome has been definitively linked to the illness. (Devendra D 2004),(WHO 1999 1-50)

New immunosuppressive regimens and islet transplantation are alternatives to insulin for treating Type 1 DM, although insulin is still the primary therapy. (Devendra D 2004), (WHO 1999 1-50)

Because of changes in people's diets and ways of living, the rate at which people develop type 2 diabetes has skyrocketed in recent decades. This has increased drastically over the last several years, making it an urgent problem for public health all across the world. By 2030, it is predicted to have reached pandemic proportions in many nations.The underlying abnormalities might be primary insulin resistance combined with a relatively low insulin level or primary insulin deficiency secretory dysfunction due to a resistance to insulin. Type 2 diabetes is very variable, however the majority of people do not initially need insulin treatment. (American Optometric Association 2009).Insulin resistance, malfunctioning pancreatic cells, and the interplay of hereditary and environmental factors are the primary causes of type 2 diabetes.(WHO 1999 1-50)[Department of Health (DOH),1998] Age, a high-calorie diet, obesity, central adiposity, inactivity, pregnancy, and low birth weight are all non-genetic risk factors for acquiring diabetes of the Type 2 kind.(LeRoith D,2000). Type 2 diabetes is more common in adults, particularly those over the age of 40. Most of these kids are between 10 and 19 years old, have had symptoms for a while, have mild to moderate episodes of diabetic ketoacidosis, are overweight, and come from diabetes-prone families. Acanthosis nigricans, a darkening of the skin, is a feature that is diagnostic of this condition, and there is also an increased prevalence of insulin resistance. (American Diabetes Association, Diabetes Care 2009)

Complications of Diabetes Mellitus

Macrovascular Complications of Diabetes

Diabetes-related disorders and ailments of the big blood arteries are known as macrovascular diabetes complications. These issues might arise in any section of the body's blood vessels.

Factors that lead to macrovascular difficulties include anomalies in blood coagulation, obesity, and the increased risk of diabetes, cardiovascular disease, and other chronic illnesses.Heart disease, stroke, and peripheral artery disease are examples of macrovascular diabetes consequences.

Complications of diabetes that involve the macrovascular system include cardiovascular disease, cerebrovascular disease, and peripheral arterial disease. (Healthwise S. 2011).
Many investigations, starting with the Framingham research, have shown a connection between diabetes and coronary heart disease, one of the most common macrovascular diabetic consequences. (Kannel WB 1979)Recent research has found that those who have diabetes have a higher chance of having cardiac arrest. The same as in non-diabetic individuals who have had a previous MI in their medical history.(Haffner SM &et al. 1998)ADA and ACC are two of the most prominent health organizations in the United States are the two organizations that are being alluded to here. These discoveries have led to a reaction to recent recommendations that were produced by both organizations. Diabetes is considered a risk equivalent for instead of a risk factor when it comes to heart disease. (Buse JB & et al. 2007).
The risk of cardiovascular disease and stroke is also raised by diabetes. (Lehto S 1996) People who have been given a diagnosis of type 2 diabetes have an elevated risk of suffering from a stroke that ranges from 150 to 400 percent. Patients who have type 2 diabetes have a significantly increased chance of suffering a stroke, with the risk increasing anywhere from 150 to 400%. A higher risk of dying from a stroke, as well as an increased risk of dementia and recurrence after a stroke, is associated with having diabetes. All of these things are potential dangers.(Beckman JA & et al. 2002)
People who have type 1 diabetes have an abnormally high prevalence of heart disease in the general population. According to a number of studies, the overall death rate of these individuals from ischemic heart disease is much greater than that of the general population, regardless of age. For those over 40 years old, ischemic heart disease is the biggest killer and women have a higher mortality rate than men. (Laing SP&et al. 2003) Observational studies have shown that patients at any age, people with type 1 diabetes are more likely to pass away from cerebrovascular illness. (Laing SP &et al. 2003)

Microvascular Complications of Diabetes

Diabetes may lead to a number of problems known as microvascular complications, which occur when glucose levels remain elevated in the blood throughout the course of a long time and cause damage to the tiny blood arteries that nourish particular bodily tissues. A decreased blood supply to organs is what leads to the microvascular complications that are associated with diabetes. Because of the persistent rise in blood glucose, the blood vessels in a diabetic patient's body become increasingly fragile as the disease progresses. The damaged blood vessels start to collect small hemorrhages that slow down the flow of blood. The organs most sensitive to a reduction in perfusion are the eyes, kidneys, and nerves. In people who have diabetes, the level of microvasculature problems relies on both the length of hyperglycemia and the severity of it, according to the findings of a review research that was published in Clinical Diabetes. Additionally, the U.K. According to the findings of the Prospective Diabetes Study, hypertension makes the microvasculature problems of diabetes much worse. (Melissa Lingohr-Smith2010)

The following are the three categories that may be used to describe microvascular complications:

- Diabetic Retinopathy - Eye problems
- Diabetic Nephropathy – Kidney Problems
- Diabetic Neuropathy – Nerve problems

Retinopathy

The most prevalent microvascular consequence of diabetes is hyperglycemia-caused retinopathy. Every year, it causes Just in the United States, there are 10,000 new instances of blindness each year. (Fong DS 2004)An article published in Diabetes in Control that reviewed the work of Dr. Michael Brownlee and his team reported that high glucose in cells of vessels in the retina increases the production of the toxic substance methylglyoxal. This molecule damages small blood vessels in the retina, and the decrease in oxygen delivery stimulates new vessel growth. The new ships are already compromised, causing intraregional bleeding and visual loss. (Melissa Lingohr-Smith 2010).The diabetic eye condition known as To put it another way, diabetic retinopathy is the leading cause of glaucoma among adults of working age. (Klein R,1995). The Eye Diseases Prevalence Research Team found 40.3% of senior diabetics had retinopathy, and 8.2% have sight-threatening retinopathy. (Kempen JH,2004).

Nephropathy

Glucose toxicity targets the kidney's main filtering unit called the glomerulus. When the filtering function of the glomerulus is compromised by blood vessel injury, proteins that are normally reabsorbed by the glomerulus are excreted in the urine. This condition is called microalbuminuria, the first indication of progressive nephropathy in diabetic patients. According to the findings of a study that was published in the

Journal of Internal Medicine, hypertension, which is present in greater than 80 percent of type 2 diabetics at diagnosis, is the primary factor that exacerbates glucose-caused kidney damage. (Melissa Lingohr-Smith 2010).

Neuropathy

Peripheral neuropathy in people with diabetes manifests as symptoms of burning, tingling, loss of reflexes, and pain in the extremities. It can lead to ulcerations and is the leading reason why limbs need to be amputated in affluent countries. (Melissa Lingohr-Smith 2010). Within after diabetes has been present for ten years, identifiable sensorimotor polyneuropathy develops in 40 to 50% of people with type 1 or 2 diabetes. (Dyck PJ.1993). About half of these individuals have motor or sensory signs, but the neuropathic pain is often debilitating. (Partanen J,1995)(DCCTRG 1993). Type 2 diabetics may already have neuropathy at the time of diagnosis, whereas type 1 diabetics rarely develop neuropathy within the first five years after diagnosis. (Singleton JR,2011)A few of the risk factors for neuropathy include having high blood sugar and lipid levels, being overweight, smoking, and having high blood pressure. (Tesfaye S,2005). Neuropathy may affect any part of the body, including the autonomic nervous system. Mon neuropathy,Diabetics often struggle with the diagnosis and treatment of peripheral neuropathies, most notably carpal tunnel syndrome. (Perkins BA, 2002).

Diabetes Causes

Type 1 diabetes

Diabetics often struggle with the diagnosis and treatment of peripheral neuropathies, most notably carpal tunnel syndrome that produce insulin.(Daniela Cihakova, 2008). As a result of insulin deficiency, blood and urine glucose levels rise. The fundamental symptoms are polyuria (also known as frequent urination), polydipsia (also known as excessive thirst), polyphagia (also known as increased hunger), and weight loss. (Cooke DW 2008)

Genetic Factors

Researchers discovered at least 18 genomic sites associated with type 1 diabetes, called IDDM1 - IDDM18. The HLA genes, which are responsible for encoding the proteins that make up the major histocompatibility complex, may be found in the IDDM 1 area. The immunological response may be affected by the genes found in this area. Recent breakthroughs in genetic research have uncovered additional genetic factors that contribute to type 1 diabetes. There are still new chromosomes and genes being discovered all the time. (Bluestone, J. A 2010)

Environmental

There is some evidence that environmental variables might affect the manifestation of type 1 diabetes. According to one research, when one identical twin had type 1 diabetes, the likelihood of the second identical twin also having type 1 diabetes was between 30 and 50 percent.The fact that one twin had the condition and the other did not demonstrates that environmental variables, in addition to genetic ones, might impact the occurrence of disease. Both twins had the same genome. (Omim, 2011)

Diet

Breastfeeding may reduce the chance of developing some diseases later in life, according to some study.(Naim Shehadeh,2001); Research is being done on a wide range of other dietary danger factors, but no concrete proof has been discovered yet.(Virtanen SM,2003). There is some evidence that providing children with 2,000 international units (IU) of vitamin D during their first year of life is related with a lower incidence of type 1 diabetes; however, the causal connection between the two remains unclear.(Hyppönen E,2001).Antibody-positive, nondiabetic children treated with vitamin B3 (niacin) had a 7-year diabetes onset rate that was less than half that of the general population and even lower than that of antibody-positive, nondiabetic children who did not receive vitamin B3.(Elliott RB,1996).

METS

Obesity, insulin resistance, glucose intolerance, fatty liver disease, and high blood pressure comprise the metabolic syndrome (METS). NCEP's Adult Treatment Group III comprises five clinical criteria (NCEP). These criteria are used for the accurate categorization of Mets (see methods). A clinical diagnosis of Mets may be made on a person provided that they fulfill three or more of these criteria.(Mehta RS &etal 2006).

Type 2 diabetes

Type 2 diabetes, often known as adult-onset diabetes, is characterized by insulin resistance, hyperglycemia, and an insulin deficit. Type 2 diabetes is often referred to as adult-onset diabetes mellitus.(Kumar,2005). The traditional signs include an insatiable appetite, a persistent need to pee, and extreme thirst.The majority of the other 10% of occurrences of diabetes are due to type 1 diabetes, often known as adult-onset diabetes, and diabetes brought on by pregnancy. According to some estimates, roughly 90 percent of all occurrences of diabetes may be traced back to type 2 diabetes. Those who have a family history of diabetes are at greater risk of getting type 2 diabetes if they are overweight.Comorbidities caused by high blood sugar over the long term can include heart attacks, strokes, diabetic retinopathy, which causes vision loss; kidney failure, which may require

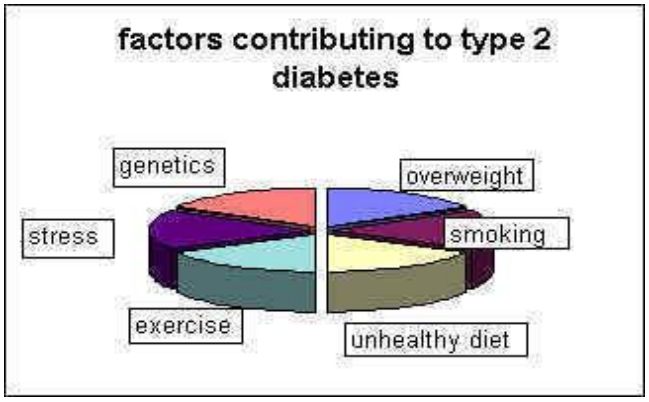
dialysis; and poor circulation of the limbs, which can lead to amputations. In the United States, cardiovascular disease and its associated complications, such as heart attacks and strokes, are two of the leading causes of mortality. Managing one's blood sugar levels is the most effective way to prevent all of these issues. In contrast to type 1 diabetes, Type 2 diabetes is not linked to an increased risk of developing ketoacidosis, unlike type 1 diabetes, which more often results in ketoacidosis as an immediate consequence.(Fasanmade, 2008)
Some of the following are considered to be risk factors for acquiring type 2 diabetes:

Cause

The development of type 2 diabetes may be influenced by a person's lifestyle in addition to their inherited predisposition to the condition. (Ripsin CM, 2009)(Risérus U, 2009). Some, like food and obesity, are within the control of the individual, while others, like age, gender, and heredity, are not. It has been shown that sleep deprivation may lead to type 2 diabetes (Touma, C,2011) has a mother's nutritional condition throughout pregnancy(Christian. P, 2010)

Genetics

In most people with diabetes, many genes have a role, each slightly raising danger of developing Type 2 diabetes. Currently, more than 36 genes have been recognized as possible contributors to factors that contribute to the onset of type 2 diabetes. (Herder, C, 2011). Despite their combined importance, these genes only explain 10% of the disease's genetics. (Herder, C, 2011). One percent to five percent of all instances of diabetes in young persons is due to maturity onset diabetes. (NIH,2008)



Overweight

Risk of having diabetes rises significantly after age 45, as reported by the American Diabetes Association. This is because people in this age range tend to adopt certain lifestyle habits. Diabetes risk increases with age because of sedentary lifestyle and age-related illnesses like heart disease. The risk is further increased by being overweight. More insulin is needed to break down food when it is excessive in size or when ingested on a regular basis. The beginning of diabetes may be postponed or avoided altogether if only 7-10% of the current weight is lost, the CDC reports. (Lori Newell, 2010)

Smoking

The 11th of December, 2007 According to an article in the December 12 edition of Science Daily News, a review of prior research has shown that current smokers , compared to people who don't smoke, have a greater chance of developing type 2 diabetes (JAMA 2011). Nearly half a million Americans lose their lives each year due to the effects of smoking cigarettes, making it the greatest preventable reason for passing away in the United States. Smoking plays a role in one of every one out of every five deaths that occur in the United States each year. It is a fact that smoking is detrimental to one's health. Additionally, smoking is linked to diabetic difficulties, poor dental hygiene, an increased risk of some malignancies, and microvascular disease, which is responsible for damage to the kidneys and the eyes in addition to an increased risk of cardiovascular and cerebrovascular disorders. It's also been suggested that smoking contributes to the progression of diabetes into its type 2 form. Nicotine is harmful, yet smokers ignore the risks. (Ruchi Mathur,2007)

Exercise

Organization for Safety and Health Promotion (2011) recommends that in order to successfully minimize the risk of developing diabetes, an individual should strive for a weight reduction of at least 5% to 7% of their starting weight. Jan 20, 1012, Research conducted at the UT Southwestern Medical Center and published in the journal Nature suggests that the positive effects of exercise on blood sugar metabolism may be due to the body's capacity to metabolize itself as a source of fuel.In the adult population, engaging in regular physical exercise during leisure time has been shown to be connected with decreased incidence of type-2 diabetes in

males.(Svartberg, Njolstad, &Schirmer, 2010).Walking at a brisk pace is one example of an activity that falls under the category of moderately intense physical activity. According to the findings of ten prospective studies with a total participant pool of more than 300,000 adults, engaging in physical activities of a moderate intensity, such as walking at a brisk pace, significantly lowers the chance of developing type-2 diabetes.(Jeon,2007). In college students of African American descent, there were found to be associations between different cross-sections of a population low levels of The relationship between aerobic exercise and type 2 diabetes. (Owens, 2008).

Lifestyle

There is a growing body of evidence linking the prevalence of obesity and sedentary lifestyles to an increased risk of developing type 2 diabetes. Other lifestyle variables that may play a role include both stress and urbanization are factors. 64% of male and 77% of female diabetes cases may be attributed to obesity.(Peter G,2005). The consumption of sugary beverages and certain types of fats in the diet seem to play a part in the progression of the situation of this disease. (Risérus U, 2008).

Family History

A diabetes-related relative in one's family strongly influences one's perception of and aversion to potential health dangers. It has the potential to serve as an effective screening tool for identifying and avoiding diabetes. (Susan. H,2006).Inclusion of one's family tree in even the simplest of tools aimed at identifying cases of diabetes and prediabetes in a population that have not yet been identified as such is warranted by the robustness, autonomy, as well as the unchanging nature of the association between having a history of diabetes in one's family and the presence of the disease. (Schwarz PE,2009). A history of diabetes in the family is one of the factors that these risk assessment tools take into account on a regular basis as an independent contributor to risk. Recent studies have indicated that persons in the population of the United States who have a a moderate to high likelihood that diabetes will run in the family are reasonably prevalent. (Hariri S, 2006; Annis AM,2005).

Having a history of diabetes type 2 in the family and engaging in diabetes prevention behaviors.The presence of diabetes in a person's immediate or extended family is an unavoidable risk factor for getting the illness. A previous diagnosis of diabetes type 2 in one's own family not only indicates an inherited genetic predisposition but also indicates the presence of shared environmental variables. Among these mutually influencing environmental components are cultural beliefs and behaviors such as dietary preferences and exercise routines.(Baptiste-Roberts, 2007).People who do not come from a diabetic household are statistically less likely to make good decisions about their lifestyle (increase your daily fruit and vegetable intake to at least five servings.), Take part in physical exercise on a consistent basis and check yourself for signs of type 2 diabetes. On the other hand, people who have a first-degree relative with diabetes are more likely to make healthy lifestyle choices. One's quality of life may be enhanced by eating the five portions of fruit and vegetable accompaniments per day that are advised for achieving one's best possible health. This is a recommendation issued by the American Heart Association. In order to improve one's diet, this is a possible choice. These options are only one example of several open to consideration. (Baptiste-Roberts et al., 2007; Forsyth and Goetsch, 1997; Harrison et al.,2003). One frequent definition of Having a parent with diabetes indicates a strong familial link to the disease. or sibling who also has the disease. In spite of this, many African Americans were not allowed to participate in the voting process, therefore Abraham Lincoln's success in the election would ultimately be determined by his ability to win over white voters. If even one member of a person's family has diabetes, then that person's chance of having type 2 diabetes is significantly increased. This is because people often share homes with many generations of relatives. It's possible that the state of health of their grandparents, parents, siblings, and other close relatives will have a significant impact on this. In addition, studies have shown that, as a result of the fact that many African American households are traditionally. This is in addition to the genetic similarities that exist between African Americans. (Pinderhughes, 2005).

Diabetes and Prevention

Diabetic illness is quite expensive Diabetic illness is quite expensive.. (Zang, Engelgau, Valdez, Cadwell, Benjamin, & Narayan, 2005)Medication, many visits to several doctors, and stays in the hospital. In certain cases, later on, very costly procedures like dialysis and foot amputations are all necessary after a diabetes diagnosis. But these immediate expenditures are not the only ones that result. Additionally, a person with diabetes has a reduced quality of life because of discomfort or social isolation, and they are more likely to be unwell and less productive. Both life expectancy and quality of life suffer severely in people who have been diagnosed with diabetes. (Bazzano, Serdula, & Liu, 2005) The majority of expenses are not caused by the diagnosis itself, but by subsequent complications. For example, the price of a person with diabetes with micro- or macro-vascular issues doubles compared to patients without complications and rises even more than triple for persons with diabetes with both micro- and macro-vascular problems. (Liebl A., 2007) Delaying or preventing

diabetes by medical interventions may help save money and improve people's health in the long run. (Gillies et al., 2007).

High blood pressure (Hypertension)

Hypertension is a non-communicable disease that is related to lifestyle choices and is a major risk factor that can be modified for cardiovascular disease and kidney disease. (Ariff F.2011). To put it simply, "high blood pressure" refers to a frequent medical condition in which the blood pressure on the artery walls is consistently high enough to raise the risk of significant problems like heart disease.Both the volume of barrier to the flow of blood from your heart that your arteries provide to the flow of blood together define your blood pressure. Your blood pressure will be higher when your heart pumps a greater volume of blood and when your arteries are smaller—having Hypertension (high blood pressure) over an extended period of time and showing no signs of having it.Your risk of significant health issues, such as a heart attack or a stroke, rises when your high blood pressure is not under control.MFMER, 1998-2012). Hypertension does not affect personality. Most people have the misconception that persons who have high blood pressure are uptight, anxious, or too busy; nevertheless, Hypertension has nothing to do with personality attributes. The truth is people can be calm and relaxed person and still have HBP. (American heart association 2011)Diabetic eye disease and renal disease are only two of the numerous consequences of diabetes that are made more likely by Hypertension. It affects up to 60% of people with diabetes. (John A.2009)

Causes of Hypertension

Primary hypertension is distinguished from secondary hypertension.

Primary (essential) Hypertension

There is no one known cause of hypertension in adults. The most prevalent kind of hypertension is called essential hypertension or primary hypertension and often manifests itself over the course of several years. (MFMER, 1998-2012)

Secondary Hypertension

An underlying disease may be the root cause of elevated blood pressure in certain individuals. When compared to primary Hypertension, the development and severity of secondary Hypertension (also called systolic Hypertension) are quicker and even more so. Possible causes of secondary hypertension include:

Adrenal tumors, kidney issues, Congenital blood vessel defects (congenital), Contraceptives, antihistamines, decongestants, pain relievers, and other OTC medications, prescription pharmaceuticals, and illicit narcotics, including cocaine and amphetamines (MFMER, 1998-2012).

Complications of Hypertension

Damage is done throughout the body, including to the blood vessels and many organs, when blood pressure is too high due to the excess pressure it puts on artery walls. The harm is compounded both by the high blood pressure itself and by the length of time that it remains uncontrolled. The complications that can arise from excessive blood pressure that is not under control:

Heart attack or stroke Atherosclerosis is the process through which the arteries become more rigid and thickened due to high blood pressure; You could have a stroke, a heart attack, or some other problem if you do this. Aneurysm An aneurysm forms when blood arteries weaken and bulge as a result of high blood pressure. The rupture of an aneurysm poses a serious health risk. Heart failure occurs when the heart's muscle becomes too stiff to pump blood adequately, a condition brought on by the body's inability to deal with the increasing pressure in the arteries. Over time, the thicker power may have trouble pumping enough blood to fulfill the body's demands, leading to heart failure. Kidneys may not operate correctly if their blood arteries are weakened and restricted. Damage to or inflammation of Eye blood vessels are a potential source of irreversible vision loss.
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In the last several decades, obesity—the condition of abnormal fat accumulation—has spread across the world. Metabolic syndrome is also characterized by an enlarged waist circumference, extremely high triglycerides, a lack in high-density lipoprotein ("good") cholesterol, and high blood pressure and insulin levels. If those with Hypertension also tend to suffer from the other symptoms of metabolic syndrome. The larger their group size, the greater the likelihood that someone in it may get type 2 diabetes, cardiovascular disease, or a stroke. The cognitive capacities of a person may be negatively impacted by high blood pressure, a frequent health concern that raises the risk of significant consequences including heart attack, stroke, and kidney disease and is difficult to manage. People with Hypertension are disproportionately likely to have cognitive impairments, such as memory problems or difficulties grasping abstract ideas. (MFMER, 1998-2012)

Risk factors of Hypertension

Multiple factors may contribute to hypertension.

The prevalence of hypertension increases with age. In early middle age, men's blood pressure was found to be higher than that of women's. Postmenopausal women are at increased risk for hypertension.Heritage and ancestry There is often a genetic component to Hypertension. When you're overweight or obese, your body has to work harder to provide oxygen and nutrients to your tissues, which means your blood volume increases. As the amount of blood flowing via blood arteries grows, so does the strain on the artery walls. Laziness and lack of exercise Less active persons often have greater heart rates. As HR rises, the heart has to work harder with each contraction, putting more pressure on the arterial walls. To add insult to injury, being overweight is also associated with not being physically active. When smokes, Tobacco use has been shown to increase blood pressure rapidly and momentarily, and the chemicals in cigarettes and chewing tobacco may be harmful to the lining of the arteries.Constricted blood arteries, reduced oxygen supply to organs and tissues, and elevated blood pressure are all possible outcomes of this condition if it is allowed to go untreated.

The effects of smoking on health are not limited to direct exposure. Dietary sodium chloride (salt) High blood pressure is a direct result of the fluid retention caused by a high-sodium diet. Diets deficient in potassium Sodium and potassium levels in the body's cells need to be kept in equilibrium. Having too much salt in the blood might be dangerous if you don't obtain enough potassium through meals or don't retain enough of it. Diets deficient in vitamin D Whether or not a deficiency in vitamin D in the diet contributes to hypertension is unclear. Blood pressure-regulating enzymes in the kidneys are influenced by vitamin D. Alcohol Chronic alcohol abuse ruined his heart. Consuming more than a few alcoholic beverages at one time also temporarily raises blood pressure, as it causes hormones that cause the body to speed up its circulation and heart rate. Stress High amounts of stress lead to a transient but substantial rise in blood pressure. High blood pressure issues can only worsen if people attempt to unwind by eating more, smoking, or drinking. Certain chronic conditions also factors that raise the likelihood of having factors that contribute to hypertension, including obesity, poor diet, lack of exercise, and a lack of sleep. (MFMER, 1998-2012)

Objectives

General objective

Finding out how common diabetes is is the reason for doing this research in relation to the presence of a DM family history.

Specific objectives

To assess the age and clinical parameters among the study subjects

Aiming to evaluate the age and clinical factors in connection to a DM family history.

To examine the frequency of DM in relation to a family history of DM

Determine whether or whether the participants exhibit any of the diabetes risk factors.

Hypothesis

The prevalence of Diabetes Mellitus (DM)is greater in the people who have a family history of Diabetes Mellitus.

Rationale

Bangladesh is a small country in the south-Asian region with a vast population of 158.57 million (CIA 2011). In 1994-1995, the rate of incidence ofIn Bangladesh, 5.2% of people have type 2 diabetes (compared to 4.3% in rural areas and 6.9% in urban areas) (rural 6.8%, urban 11.2%) in 2003-2004 (Sayeed. MA, 1997). From previous research, it has been identified that the risk of Diabetes is comparatively higher in developing country rather than the developed ones. The urban population in Bangladesh has a diabetes is more prevalent in the urban population than in rural areas. The higher incidence of diabetes that is seen in metropolitan areas of Bangladesh was two times that of rural areas (8% vs. 4%).(Ghaffar A et al., 2004). (Marine S &etal 2003)found that women among the Zuni Indians had a 57% increased likelihood of developing diabetes compared to males. From previous research, it has been established that along with other risk factors (Age, BMI, Hypertension, Obesity, Glucose level, etc.), family history also has a strong association with diabetes mellitus. Getting diabetes is more likely if you have certain risk factors. Diabetes risk factors include age, family history, obesity, inactivity, poor nutrition, tobacco use, and lack of exercise. Having a close relative with Diabetes is a strong warning sign for developing the condition oneself. Because of the strong genetic component of diabetes mellitus, close relatives of those with the condition are at increased risk for having it themselves.The stronger the family history higher is the chance of getting Diabetes. A person's chance of developing diabetes increases with age if they have a history of the illness in their family that is positive.(WHO, 2001).This research was undertaken in Dhaka, the capital of Bangladesh, to determine the prevalence of these risk factors, the connection between them and DM, and the prevalence of DM according to a family history of the illness. The prevalence of DM is greater in urban than rural parts of Bangladesh.

II. Review Of Literature

There are many studies on association between heredity and diabetes and hypertension, but to the best of researcher knowledge,the research into the link between diabetes mellitus and genetics, history of Diabetes mellitus in the Bangladeshi population is very in spite of the great necessity. The following studies were reviewed in relation to the present study.

Arif F. & et al. (2011) conducted a study on "coping styles and lifestyle factors in people who have hypertension and people who do not have hypertension" Examining how hypertension patients' coping strategies and other lifestyle variables are connected was the study's main goal. Out of 502 participants, 264 were hypertensive, while 238 were not.The percentage of adults in Malaysia aged 30 years and older who were diagnosed with hypertension rose from 32.9% in the year 1996 to 40.5% in the year 2004. If appropriate preventative measures are not put into place, the prevalence of hypertension will continue to climb along with the average lifespan of the population as it continues to increase.The majority of Malaysians who have hypertension do not know it, as shown by the Third Health and Death Rates at the National Level Survey conducted in 2006. Within the scope of this investigation, we found no evidence of a statistically significant link between having a job and having high blood pressure. The hypertension subjects had substantially higher standard deviations of the mean systolic blood pressure, standard deviations of the mean diastolic blood pressure, and the mean body mass index than the non-hypertensive participants. Both hypertension and non-hypertensive groups were found to have significantly different coping strategies and lifestyle characteristics, according to the findings of the research. According to the findings of the research, hypertension was also substantially linked to normalized body-mass index values that are significantly higher (BMI), a history of hypertension in the patient's family, and a previous diagnosis of diabetes. According to these findings, there is a substantial connection between hypertension and the coping strategies and lifestyle characteristics that people use.

Won Young L. &et al (2011)"The influence regarding both glucose and the body mass index levels while fasting on the association relationship blood pressure and newly diagnosed cases of diabetic Mellitus" The purpose of this research was to examine any possible links between hypertension and type 2 diabetes. as a new symptom as well as to determine the metabolic factors that impact incident diabetes mellitus in Korean patients. At the start of the present Research, there were a total of 14054 participants who did not have Diabetes. Their average age was 41 years old, and they were monitored for a period of five years on average. They determined the subject's risk for developing diabetes based on their blood pressure at the beginning of the study. The participants were broken up into three categories: normotensive(120/80mmHg), Both prehypertensive and hypertensive blood pressure levels are 140/90 mm Hg. Diabetes impacted 0.9% of the normotensive, 1.9% of the pre-hypertensive, and 4.0% of the hypertensive individuals, for a total incidence of 1.8% (246 people).In hypertensives, developing diabetes was 40 times more likely in those with high BMI and fasting glucose levels compared to those with low BMI and low glucose levels. Hypertensive people had a much greater chance of developing Diabetes than normotensive people did. After adjusting for preexisting body mass index and fasting glucose levels, however, the significance was no longer present. The study's author concluded that people with hypertension, particularly those with a high amounts of glucose as well as a high body mass index, need to prioritize making significant lifestyle changes to minimize the likelihood that they may acquire diabetes mellitus. BMI and glucose levels substantially affect incident diabetes risk in people with the same blood pressure.

Seung J, & et al. (2010)"Patients with families with a history of type 2 diabetes of the disease are categorized according to their clinical characteristics." Cross-sectional research was carried out on 651 people diagnosed with this research focuses on people with type 2 diabetes. There were a total of 621 patients, and 38.4% of them had a history of diabetes in their families.Patients who had a family history of the condition had a lower average age, higher average weight, a lower average age at diagnosis, and average triglyceride levels were greater in individuals with a family history of the disease compared to those without a family history of the disease. Family diabetes patients were found to have a higher prevalence of taking medications for dyslipidemia and metabolic syndrome.When comparing those with and without a family history of diabetes, there were no discernible differences in demographics such as sex, blood pressure, diabetes treatment history, hemoglobin A1c, C-peptide, total cholesterol, high-density lipoprotein cholesterol, or low-density lipoprotein cholesterol. According to the findings of multiple linear regression analysis, a diabetes history in the family remained a significant risk factor for elevated blood triglyceride levels. The researcher made the observation that people with T2DM who had a history of diabetes in their families tended to acquire the condition at an earlier age.In

cases of familial type 2 diabetes, the Commonness of Metabolic Syndrome and cardiovascular risk factors is higher than in cases of non-familial type 2 diabetes.These findings lend credence to the argument that family relatives of T2DM patients should undergo diabetes screening at an earlier age, and that T2DM patients who have a family history should engage in more proactive measures to avoid cardiovascular disease.

Alexander O. &et al (2010), "African Americans people who had the presence of a diabetes-related family history in their family had lower levels of perceived severity, risk factor knowledge, and physical activity than those who did not have a history of diabetes in their family." a study that the researchers carried out to identify a Among African Americans, there is a correlation between having a family history of type-2 diabetes and higher levels of awareness, fear, and activity. The study was a cross-sectional study. African Americans continue to be disproportionately impacted by the pandemic of diabetes, which now has a prevalence rate of 11.8%. Among African Americans, a person's family history may be a powerful instrument in motivating Changing One's Way of Behaving and reducing the risk of contracting diabetes, since it provides a danger but cannot be changed and is significantly and strongly associated with the disease's manifestation.A self-report questionnaire was given to 133 African Americans who attended church. Of those individuals, 55 (41.4% of the total) had a history of diabetes in one's family, whereas 78 (58.6% of the total) did not.There was not a single person in the group who had a family history of type 2 diabetes. According to the findings of the study, African Americans who had a cardiovascular disease-positive family history were significantly more active, had higher risk factor awareness and were more likely to say their illness worry affects their diet and exercise than those African Americans who had no family history of the disease.

BN Mahanta and TG Mahanta (2009)conducted Research on the "clinical profile of individuals whose families have a history of diabetes in their families, with particular emphasis on proportion of body fat"One of the primary goals of that line of research is to determine the proportion of total body fat that is present in individuals who have a clear history of diabetes in their families. The data for this study came from a complete number 140 participants. Patients who were found to be free of diabetes and those who did have diabetes participated in the research. Data on BMI, blood sugar and anthropometry were done. Both having a history of diabetes in one's family and having a high percentage of body fat were shown to be the most significant risk factors for diabetes in the current research. The greater the prevalence of diabetes in one's family, the greater the risk of developing the disease.According to the findings of this research, the incidence of diabetes was more common among first-degree relatives of diabetics than it was among non-diabetics. According to the results of the study, having a high body mass index is the single most important risk factor for developing diabetes and high blood pressure. According to the findings of the study, the major risk factors for developing diabetes are high hypertension, a high body mass index (BMI), and a high amount of fat distributed throughout the body. The strikingly strong link between diabetes and obesity is shown by the high average percentage of body fat among the first-degree relatives of type 2 diabetics, which was 47% in this research compared to 3% in the general population. It was also shown that the prevalence of hypertension was much greater.

Amy I&etal (2009)"The impact having a previous diagnosis of diabetes has in one's family on both the clinical practice of health care providers and the behavior of patients among non-diabetic Oregonians" The researcher examined relationships between patients' patient stories on their experiences with health care providers and their own senses of danger of being diagnosed with diabetes, and those affected by it' behaviors linked diabetes is more likely to develop when there is a family history of diabetes. Positive family histories (high or moderate family risk for Diabetes) were more likely to state that The doctor wanted to know more about their family history, addressed the risk of acquiring Diabetes or another chronic illness, and offered lifestyle modifications to minimize that risk.Those with a moderate risk for developing diabetes were half as likely to be extremely or somewhat worried about doing so as those with a high risk due to a high prevalence of the illness in one's family. (OR, 5.0; 95% CI, 4.0-6.2). The influence of ancestry was significant with a greater likelihood of reporting dietary and activity modifications than average risk. The study's author concluded that incorporating knowledge of a patient's diabetes in the context of family history in clinical practice could help increase the efficiency with which new cases of diabetes are identified and could also boost efforts to encourage interventions to stop or postpone thedevelopment of diabetes in at-risk groups.

Athanasia. P (2009)"Type 2 diabetes in Greece: a discussion on the frequency, the variables that increase it, and the symptoms that it causes" The study's objectives were to (1) determine the relative frequency of T2D in Greek families and (2) assess the impact that a family history of the disease may have on a patients' ability to maintain normal metabolic function and the progression of diabetes complications. Patients diagnosed with type 2 diabetes numbered a total of 1,473. Individuals were divided into four groups based on whether they had a parent with Diabetes, a grandparent, a sibling, or no known diabetic relatives. Maternal diabetes prevalence was 27.7%, paternal prevalence was 11.07%, and the non-parental relative prevalence was 10.7 Children of fathers with diabetes showed a greater frequency of hypertension and lower LDL-cholesterol levels compared to those whose mothers also had the disease. Diabetic patients who came from a diabetic family were

diagnosed at a younger age (P 0.001) than those who did not have a diabetic ancestor. In comparison to individuals who did not have any diabetes relatives, Patients who were affected by parental diabetes were more likely to be overweight, as well as a greater incidence of dyslipidemia and retinopathy. There was shown to be no significant Patients who were affected by parental diabetes were more likely to be overweight (BMI). The current investigation indicated an increasedT2D transmission from mothers to their offspring in a Greek diabetes population study.No discernible difference in the influence of maternal vs. impact of fathers' diabetes on their children's clinical features was identified with the exception of levels of LDL cholesterol and the prevalence of hypertension in the population. Children with diabetic parents are more likely to have the disease themselves at an earlier age.

Antoine A & et al. (2009) "There was no increased incidence of diabetes mellitus among patients who had shock-wave lithotripsy over the 6-year follow-up period." In this study researcher collected data on the presence and outset of Diabetes mellitus in 1947 patients. Multivariate analysis confirmed that familial history, ethnicity, gender, height, and weight were all independent risk factors for diabetes mellitus.

Rodolfo V. (2009) reported a study on "The Importance of a Patient's Personal Medical History in the Diagnosis of Diabetes Patients at High Risk"According to the findings of this research, the USPSTF only advises screening for diabetes in those who have high blood pressure.Only high-risk persons who are asymptomatic should be screened, according to recommendations made by the WHO and the ADA. These recommendations are according to a compiled list of reliable risk factors determined by consensus. History of diabetes in the family is one of the variables that is included in these risk assessment tools on a regular basis as an risk factor that acts alone in the progression of diabetes. Recent studies have shown that there is a relatively high prevalence of people in the population of the United States who have a moderate or high familial risk of developing diabetes.They also discovered that a history of diabetes in one's family is a significant risk factor for developing the disease.

Miranda P. & et al (2009) "Diabetic relatives an investigation of how people who are at risk perceive their situation in the Netherlands" Studying the worldviews of people who are at high risk for becoming type 2 diabetes about the disease's origins, its risks, and the impact of family history. In this study, Participants cited a variety of risk factors for developing Diabetes; These were often the result of a convergence of genetic and environmental influences. Some individuals who reported a family history of Diabetes had inconsistent opinions about the factors that could have led to the disease in their ancestors. People's perception that Diabetes "runs in the family" increased the importance of genetics as a cause of the disease, and this association was not limited to those with a large number of afflicted relatives. People who had a history of diabetes in their family were aware of the condition running in their family, but they did not always connect having a history of diabetes in their family with an elevated risk, nor did they worry about developing diabetes themselves.The fact that there was no history of diabetes in the family was frequently cited as a reason to believe that there was a low risk.Those who thought their genes played the biggest role in developing diabetes were less confident in their ability to avoid the disease.

Barbara N.& et al(2008)conducted a study on "How Body Mass Index and Waist-Hip Ratio Affect the Risk for Diabetes and High Blood Pressure Over a Nine-Year Period in People of African Descent"The study found that women had a greater frequency of hypertension during a nine year period than males did, whereas the prevalence of diabetes was the same (14%). Both illnesses were connected with body size, although the link between WHR and hypertension was higher than the link between BMI and diabetes.

Lonati & et al(2008) reported a study on the "Rates of type 2 diabetes in hypertensive patients in 30 Italian clinics.IN this study; their findings were Individuals with Diabetes tended to be more senior, heavier, and had a higher prevalence of risk factors. Systolic blood pressure was shown to be greater in diabetic patients compared to those without the disease.

M V Jali, Sanjay. K(2006)"relative risk of developing diabetes among blood relatives of people with diabetes Diabetic incidence among hypertensive patients being treated in 30 hospitals and clinics in Italy. The likelihood of developing Diabetes increases with the severity of its presence in the family. This research lends credence to the use of family history as a public health tool for estimating diabetes risk and implementing preventative measures.

Ann M. & et al (2005), "Diabetic Prevalence, Family History, Risk Factors among NHANES Participants Nationwide, 1999–2002" Those with a first-degree relative with Diabetes had a much higher rate of diabetes than those who may not have a history of the disease in their family, according to the study. They also discovered that the presence of a diabetic family member was an excellent predictor of diabetes incidence rates among adults in the United States.

Marianne A. & et al (2001)"One of the major risk factors for both obesity and hyperlipidemia was having a first-degree relative with high blood pressure, obesity, diabetes, or a history of a cardiovascular event like a stroke. Additional pathological manifestations may emerge in this high-risk group as they age. Over the

course of the study, 10,283 adults were enrolled. Studies looked at the association between diabetes and factors such gender, age, race, socioeconomic status, degree of education, BMI, and family history. The prevalence of diabetes and the probabilities of developing diabetes were estimated using family history and other variables. Because of this, healthcare providers should include immediate family members in health education whenever possible. Diabetes is more common among those who have a first-degree relative with the disease (14.3%) than in those who do not (3.2%), translating to a crude odds ratio of five.Estimates of the frequency of diabetes and the odds ratio for having a relative with the disease both rose sharply in tandem with the number of relatives afflicted. Several demographic and risk indicators were also linked to individuals' family histories. The prevalence of diabetes among American adults was found to be significantly correlated with the presence of a family history of the disease.We propose that public health preventive and screening programs use family history evaluation as a cost-effective and useful source of genetic information and a measure of diabetes risk..

III. Subjects and Methods

Place of the study

The subject were taken from Dhaka Medical College, Sir Salimullah Medical College, Bon Bivag ,SomajkollanBivag , LGED vobon – (Agar GAO ,Dhaka).

Study design

It was a cross-sectional study.

Sample size calculation

Samples required for the study was estimated using the following formula:

$$N=z^2pq/d^2$$

Such that,

p= current rates of diabetes prevalence, which are estimated at 17% (0.17).

q= the proportion of DM, which is (1-0.17)

z= 1.96 at 95% confidence interval

d= a cutoff of 5% was set for the difference in outcomes between those with and without diabetes.

Therefore,

$$n = \frac{(1.96)^2 \times 0.17 \times (1-0.17)}{(0.05)^2}$$

$=217\times5$

$=1085$

Variable considered

The following variable were considered for the study –

- Age
- Sex
- Marital status
- Education
- Occupation
- Area
- Member of the family
- Family history
- Habit
- Height
- Weight
- BMI
- Blood pressure (systolic& diastolic)
- Glucose level fasting
- Glucose level after break fast
- History of disease

Data Collection

For collecting data, all the members of our team attended the mentioned place on the prescheduled day. We ordered the height, weight, blood pressure, and blood sugar level of those people who were present at that said place. Besides these measurements, we also collect information about them by asking questions. All the students in the group were current at that time.

Data verification

Each day, the questionnaires were reviewed after the interviews were conducted, and once again, we were meticulously examined after completing all of the data collecting.

Development of the questionnaire

Age, level of education, and employment history were only few of the demographic and socioeconomic factors that informed the development of the questionnaire. Measurements, medical history, and lifestyle questions were also included in the survey. Before its completion, the questionnaire was checked for accuracy by coding and pilot testing.

Anthropometric measurement

Height (m) measurement

The subject's standing height was determined with the assistance of suitable scales (Detected-Medic, Detect scales INC., USA), and minimal clothing was worn during the procedure. The patient was seated in an upright posture with his or her head over the Frankfurt airplane's seatback; the patient's back, thoracic spine, and buttocks contacted the vertical axis of the anthropometry; and the patient's heels were together. The measurement of height was taken down to the closest five millimeters. If the reading was somewhere in the middle of two values, the reading that was lower was the one that was kept.

Weight (Kg) measurement

Prior to taking measurements, we made sure the balance was zero by setting it on a flat, hard surface. In the middle of the platform, the test volunteers were barefoot and dressed casually. To the extent practicable, 0.5 kilos were added or subtracted from the total weight.

Body Mass Index (BMI)

Adolphe Quetelet (1796-1874), a statistician from Belgium, created the first calculation for the Body Mass Index (BMI), which he called the Quetelet Index. Another name for BMI is "body mass indicator." Body mass index (BMI) is a standard method of gauging obesity across the world. It seems that different ethnic groups are affected in different ways by differences in body weight and food. bac kg round. Native Hawaiians who are overweight at an alarmingly high incidence are at an exceedingly elevated risk for developing diabetes. Individuals of Japanese descent, although having a lower-than-average body mass index, experience the illness at a faster-than-average rate (BMI). (Huang T,2008)

The Body Mass Index (BMI) is a height-and-weight-based index used to assess obesity in people aged 18-65.

The individuals' body mass indices (BMIs) were determined by the use of a universal formula..

BMI=Weight (Kg) / [Height (m)] 2

Biochemical measurement

Blood glucose level estimated by one touch® ultra™ glucometer.

The characteristics of the one touch® ultra™ glucometer.

1.Result range -1.1-33.3mmol/l
2. The Plasma Equivalent Calibration
3. Sample: red blood cells from recently-opened capillaries
4. Sample size: less than 1µl
5. Test time:5 sec
6. Assay method: Biosensor based on glucose oxides
7. Operating range: Temperature(6-44˚c)
Humidity range (10-90)%

Blood cell count (30-55%).

Screening

Testing unusually high glucose levels in plasma or serum may be done using a number of different diagnostic and screening tests. One strategy involves a series of tests, with the screening test being the first, and the diagnostic test is performed only if the results from the screening test are worrisome. On the other hand, high-risk individuals might benefit from a more in-depth diagnostic examination as early as the first prenatal appointment (as another instance, among patients diagnosed with polycystic ovary syndrome or acanthosis nigricans). (Kelly. L,2005)Screening for diabetes is currently recommended by the American Diabetes Association (ADA) for all persons aged 45 years and older due to the high incidence of type 2 diabetes as well as the increased morbidity and mortality associated with the illness.(Diabetes Care 2009).

Analysis of quantitative data

When presenting descriptive statistics, we often Calculate using the average, deviation, median, and range of the middle (IQR) format (when applicable) or the number of subjects percentage (when useful) format. After the research, SPSS will be used to examine the data statistically (Version 11.5). All of the trial participants will be included in the analysis of baseline characteristics. Chi-square and T-test will be used to compare group means statistically. At a probability threshold of 5%, the findings will be considered significant. After controlling for

potential confounders, To find out how the intervention factors affect the whole, we'll do a multiple regression analysis. An suitable T-test approach will be utilized to adjust the analysis of random samples.

Blood Pressure

The term "blood pressure" indicates the force being exerted on the that is measured in a person's blood that the blood exerts on the artery walls when the heart is pumping; it can cause harm to the body in a variety of different ways. Always keep in mind that your blood pressure reading should be taken as two independent numbers: the systolic pressure, which happens when the heart beats, and the diastolic pressure, which occurs when the heart is at rest (when the heart relaxes).Both the systolic and diastolic measurements are included, with the former appearing first in the record. (Disabled World2008)

Normal Blood Pressure

A value that is lower than (120/80) is regarded to be normal for blood pressure.

High Blood Pressure

By medical definition, a blood pressure level of (140 over 90) or above is considered to be high.

Low Blood Pressure

The word "hypotension" is used in medical circles to refer to low blood pressure. Because of its close sound to "hypertension," some people may be confused. (John A. Seibel, MD, on March 08, 2009).

Measuring blood pressure

When taking a patient's blood pressure, medical personnel often use a manual sphygmomanometer in conjunction with a stethoscope. In most cases, the reading is taken somewhat above the elbow. A bladder, cuff, bulb, and gauge are all components of the sphygmomanometer. The patient's arm is wrapped with a cuff, and when the bulb is pumped, air is pushed into a bladder located inside the cuff. Because of this inflation, the blood flow in the arteries will be stopped.When using a stethoscope, one listens for the sound of the heartbeat; the absence of this sound indicates that blood is not flowing. When the bladder is deflated, the sound of blood rushing through the veins can be heard by the observer. At that time, the measurement is considered to be systolic. As soon as the heartbeat becomes silent again, the diastolic value may be taken. This indicates that blood flow has returned to normal. (Disabled World - 2008)For a diabetic patient, Blood pressure readings vary, but in general, patients' blood pressure should not go above 130/80. The first number represents the "systolic pressure," which refers to the pressure that exists in the arteries whenever the heart contracts and forces blood through them. The tension in the streets during diastole while the heart is at rest and filling with blood before the next contraction is the second measurement. (John A. on March 08, 2009).

IV. Results and observation

In this study, 1422 subjects were studied to assess the prevalence of DM among the urban population in the presence of a history of diabetes in one's family. The study's secondary objective was to identify potential causes of diabetes. Both sexes have an equal risk of developing diabetes. Different residence areas showed an identical pattern of DM in this study.

Table 1: Clinical & anthropometric parameters among the study population (n=1422).

Parameter	M±SD	Maximum	Minimum
Age	38±12	83	18
BMI	24±4	39	14.5
SBP	122±16	200	80
DBP	82±11	130	60

The findings were presented in the following format: M±SD and range (min-max) according to the circumstances

The result showed that the M±SD; of Age(yrs), BMI (kg/m^2) SBP (mmHg) and DBP (mmHg) of study subjects were 38±12, 24±4,122±16, 82±11.

Table 2: Clinical, glycemic and anthropometric parameters among the study subjects (n=1422)

Parameter	Category	Percentage (%)
SBP	< 130mmHg	83
	>130mmHg	16
DBP	<90 mmHg	90
	>90 mmHg	10
ABF	<7.8 mmol/L	81
	>7.8 mmol/L	17
BMI	<23 kg/m^2	38.5
	>23 kg/m^2	61.5

The result was expressed as Percentage as appropriate.

The results showed that 16% subjects had SBP of >130 mmHg, 10% subjects had DBP of >90 mmHg, 17% subjects had ABF of >7.8 and 61.5% subjects had BMI of >23 $kg/m^{2.}$

Table 3: Socio-demographic parameters among the study subjects (n=1422)

Parameter	Category	Percentage (%)
Gender	Male	71
	Female	29
Marital Status	Married	85
	Un Married	15
Area	Urban	63
	Semi Urban	20
	Rural	17
Family History	DM	28
	HTN	72
Habit	Tobacco	19
	Betel	12
	Alcohol	1
	Tobacco &Betel	5
	No	63
Is Diabetics a CommunicableDisease	Yes	7
	No	78
	Nothing Else	15

The result was expressed as Percentage as appropriate.

The results showed that among the study subjects 71% were male and 29% were female; 85% were married 15% unmarried; 63% lived in urban area, 20% lived in semi urban area and 17% from rural;28% were have family history of DM and 72 % were hypertension;19% subjects had habit of tobacco, 12% had habit of betel, 1% had habit of alcohol, 5% subjects had habit of tobacco &betel; 78% subjects had knowledge of DM.

Table 4: Distribution of Age, BMI and After breakfast (ABF) Level among the respondents (n=1422)

Family History	Age(Yrs)		BMI(Kg/m^2)		ABF(mmol/l)	
	M±SD	Range (Min-Max)	M±SD	Range (Min-Max)	M±SD	Range (Min-Max)
Group 1	37±12	18-80	24±4	15-37	7±4	4-29
Group 2	38±11	18-83	23±4	14-38	6±3	4-27
t/p value	-.867/0.386		3.23/0.001		5.06/.000	

Group 1= Group 2 diabetics are those who have a history of diabetes in their families = If there is no history of diabetes in the family (Diabetes Mellitus

The mean ±SD (range) of Group 1 and Group 2 Age were 37±12(18-80), 38±11(18-83),BMI were 24±4 (15-37), 23±4(14-38) and ABF were 7±4(4-29), 6±3(4-27).the result showed that subjects of Group 1 have significantly (<0.05) higher BMI and AFB level than the subjects of Group 2.

Table 5: Distribution of Systolic and Diastolic blood pressure among the respondents(n=1422)

Family History	Systolic (Hg)		Diastolic (Hg)	
	M±SD	Range (min-max)	M±SD	Range (min-max)
Group 1	122±15	80-180	87±10	60-130
Group 2	121±16	80-200	81±11	60-130
t/p value	1.49/0.13		-.606/.545	

Group 1= Group 2 diabetics are those who have a history of diabetes in their families = If there is noa familial occurrence of diabetes (Diabetes Mellitus)

The mean ±SD (range) Comparison of Group 1 Systolic and Diastolic Blood Pressure were122±15 (18-180), 87±10(60-130) and in Group 2 were 121±16(80-200), 81±11 (60-130).No significant difference were found between Group 1 and Group 2.

Table 6: Distribution of area among the study subjects (n=1422)

Family History	Area		
	Urban	Semi-urban	Rural
	Number (%)	Number (%)	Number (%)
Group 1	253(63)	83(21)	63(16)
Group 2	645(63)	198(19)	180(18)
X^2/P value	0.85/0.65		

Group 1= When DM (Diabetes Mellitus) Runs in the Family, Stage 2 = Without a history of diabetes in the family; Percentages given. . Chi-square tests were employed for statistical significance checks. An event was considered significant if the p-value was less than 0.05.

The result showed that in group 1 subject from urban were 63%, semi-urban 21% and rural 16%.In group 2 subjects from urban were 63%, semi-urban 19% and rural 18%.

Table 7: Distribution of Family Member between the study subjects (n=1422)

Family History	Family Member	
	< 5 member	>5 member
	Number (%)	Number (%)
Group 1	283(71)	116(29)
Group 2	769(75)	251(25)
X^2/P value	2.98/0.08	

Group 1= When DM (Diabetes Mellitus) Runs in the Family, Stage 2 = Without a history of diabetes in the family; Percentages given. . Chi-square tests were employed for statistical significance checks. An event was considered significant if the p-value was less than 0.05.

Among the study subjects 71% shows <5 familymembers and 29% <5 family members in Group 1.In Group 2; 75% shows >5 family members and 25% >5 family members.

Table 8: Distribution of Systolic and Diastolic pressure between the study subjects (n=1422)

Family History	Systolic Blood Pressure		Diastolic Blood Pressure	
	<130	>130	<90	>90
	Number (%)	Number (%)	Number (%)	Number (%)
Group 1	328(82)	71(18)	366(92)	33(8)
Group 2	854(83)	169(17)	909(89)	114(11)
X^2/P value	0.33/0.56		2.55/0.22	

Group 1= When DM (Diabetes Mellitus) Runs in the Family, Stage 2 = Without a history of diabetes in the family; Percentages given. Chi-square tests were employed for statistical significance checks. An event was considered significant if the p-value was less than 0.05.
Systolic blood pressure of Group 1 <130 was 82% and >130 was 18% and in Group 2 <130 was 83% and >130 was 17%. Diastolic blood pressure of Group 1 <90 was 92% and >90 was 8% and in Group 2 <90 was 89% and >90 was 11%.

Table 9: Distribution of BMI between the study subjects (n=1422)

Family History	BMI	
	Normal	Obese

	Number (%)	Number (%)
Group 1	131(33)	268(67)
Group 2	417(41)	606(59)
X^2/P value	7.62/0.00	

Group 1= When DM (Diabetes Mellitus) Runs in the Family, Stage 2 = Without a history of diabetes in the family; Percentages given.Chi-square tests were employed for statistical significance checks. An event was considered significant if the p-value was less than 0.05.

The table distributed the study subjects in to normal and obese according to their BMI where in Group 1; 33% were normal and 67% were obese. In Group 2; 41% were normal and 59% were obese.

Table 10: Distribution of the subjects with family history of Diabetes Mellitus (n=387)

ABF	Age(Yrs)		BMI(Kg/m^2)		ABF(mmol/l)	
Group 1 (n=277)	35±12	18-80	24±4	16-37	5±0.9	4-7
Group 2 (n=110)	42±13	18-75	24±4	15-37	12±4	7-29
t/p value	-5.42/.00		-.220/0.82		-14.98/.00	

Group 1= <7.8 after breakfast level and Group 2 =>7.8 after breakfast level

The mean ±SD (range) of Group 1 and Group 2 Age were 35±12(18-80), 42±13(18-75),BMI were 24±4 (16-37), 24±4(15-37) and ABF were 5±0.9(4-7), 12±4(7-29).The result showed that subjects of Group 1 were significantly lower (<0.05) age and ABF level than the subjects of Group 2.

Table 11: Distribution of the subjects with family history of Diabetes Mellitus (n=387)

ABF	Systolic (Hg)		Diastolic (Hg)	
	M±SD	**Range (Min-Max)**	**M±SD**	**Range (Min-Max)**
Group 1 (n=277)	120±10	60-110	80±10	60-110
Group 2 (n=110)	127±14	80-180	84±10	60-130
t/p value	-4.58/.00		-3.67/.00	

Group 1= <7.8 after breakfast level and Group 2 =>7.8 after breakfast level

The mean ±SD (range) Systolic and Diastolic blood pressure of Group 1 were 120±10 (60-110), 80±10 (60-110) and in Group 2 were 127±14 (80-180), 84±10 (60-130).The result showed that the subject of group 1 were significantly lower (<0.05) participants in Group 2 had higher systolic and diastolic blood pressure.

Table 12: Distribution of the subjects the absence of a Diabetes Mellitus family history(n=1006)

ABF	Age(Yrs)		BMI(Kg/m^2)		ABF(mmol/l)	
Group 1 (n=876)	37±11	18-83	23±4	14-38	5±0.8	4-7.8

Group 2 (n=130)	43±11	20-75	24±3	16-36	12±4	7.9-27.9
t/p value	-5.84/.00		-2.06/0.04		-16.83/.00	

Group 1= <7.8 after breakfast level and Group 2 =>7.8 after breakfast level

The mean ±SD (range) of Group 1 and Group 2 Age were 37±11(18-83), 43±11(20-75),BMI were 23±4 (14-38), 24±3(16-36) and ABF were 5±0.8(4-7.8), 12±4 (7.9-27.9).The result represented that the subjects of Group 1 were significantly lower (<0.05) age ,BMI and ABF level than the subjects of Group 2.

Table 13: Distribution of the subjects without family history of Diabetes Mellitus (n=1006)

ABF	**Systolic (Hg)**		**Diastolic (Hg)**	
	M±SD	**Range (Min-Max)**	**M±SD**	**Range (Min-Max)**
Group 1 (n=876)	120±16	80-200	81±11	60-130
Group 2 (n=130)	127±16	90-190	85±12	60-120
t/p value	-4.71/.00		-3.70/.00	

Group 1= <7.8 after breakfast level and Group 2 = >7.8 after breakfast level

The mean ±SD (range) systolic and diastolic readings of Group 1 were 120±16 (80-200),81±11 (60-130) and in Group 2 were 127±16 (90-190), 85±12 (60-120).The result showed that the subject of group 1 were significantly lower (<0.05)participants in Group 2 had higher systolic and diastolic blood pressure.

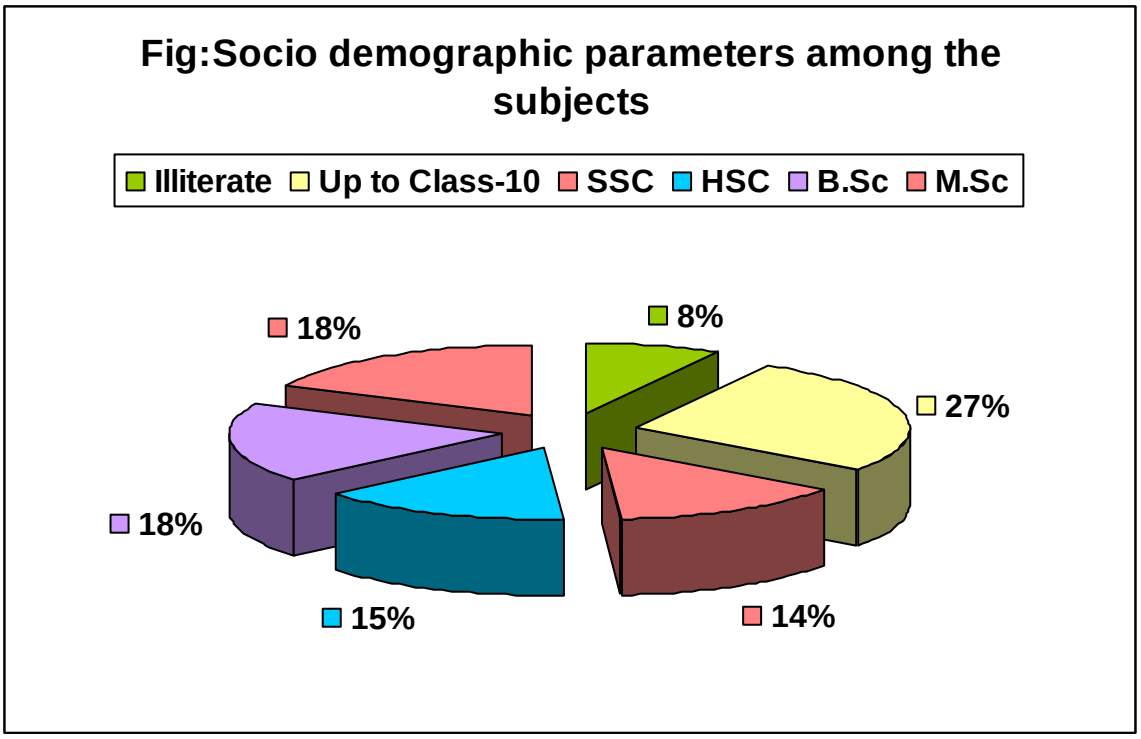
Table 14: Family history of diabetes mellitus distribution (n=1393)

ABF	**Family History of DM**	
	Yes	**No**
	Number (%)	**Number (%)**
Group 1 (n=1153)	277(24)	876(76)
Group 2 (n=240)	110(46)	130(54)
X^2/P value	47.09/.00	

Group 1= <7.8 after breakfast level and Group 2 = >7.8 after breakfast level

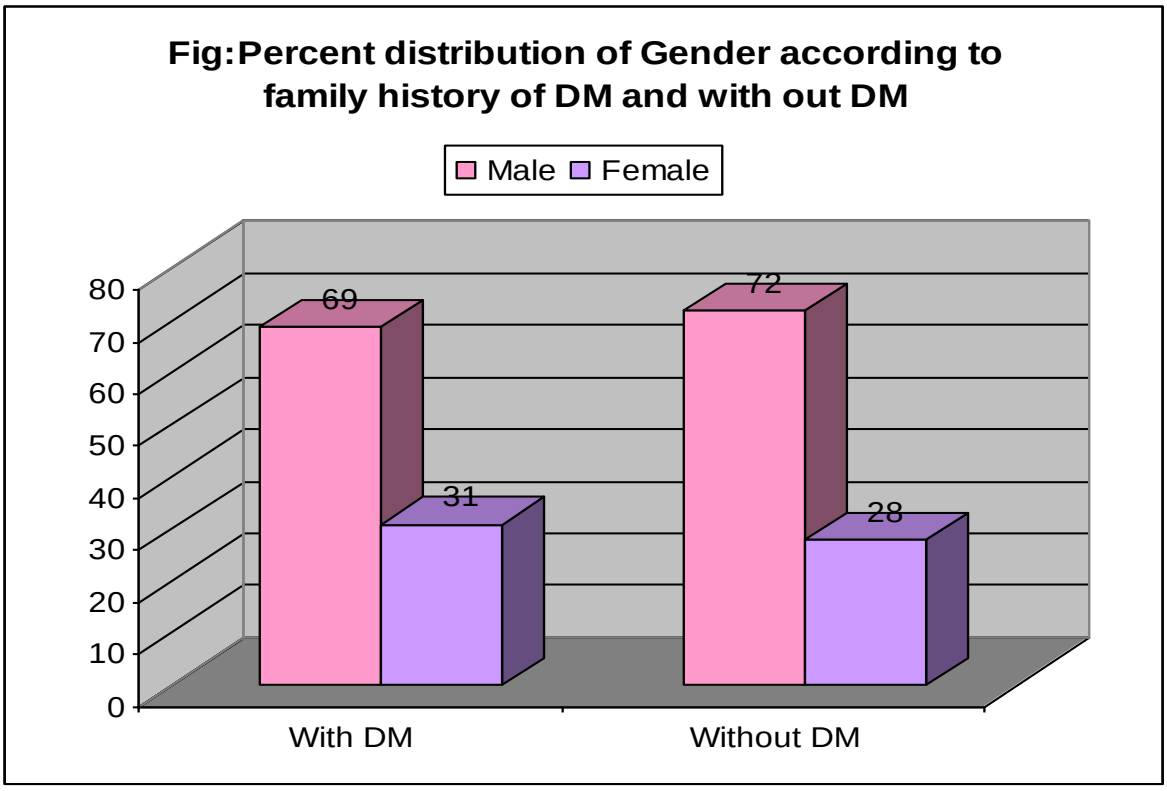
Those who had a history of diabetes in their families were classified as either normal weight or obese in the table where in Group 1; 24% have family history of DM and 76% do not have a family history of DM. In Group 2; 46% family history of DM and 59% do not have a family history of DM.

Figure 1: Socio-demographic parameters among the study subjects (n=1422)



The figure showed that 8% were illiterate, 27% of subjects had an education level up to class 10, 14% were SSC subjects, 15% were HSC subjects, 18% had an education level of B.Sc., and 28% had a family history of DM.

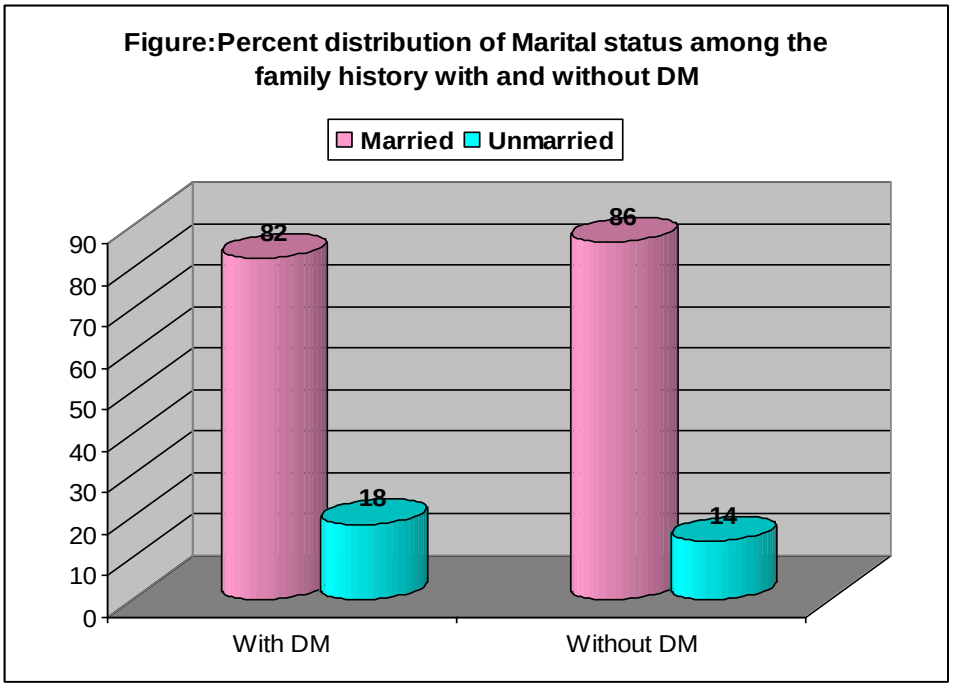
Figure 2:Percentage breakdown of sexes by prevalence of diabetes in the family (n=1422).



X^2/P value: 1.36/0.24

Diabetes incidence in families with and without a history of type 2 diabetes is shown in the graphic below according to gender. In a population where 69% of men and 31% of women have a family history of Diabetes Mellitus, 72% of men and 28% of women do not.

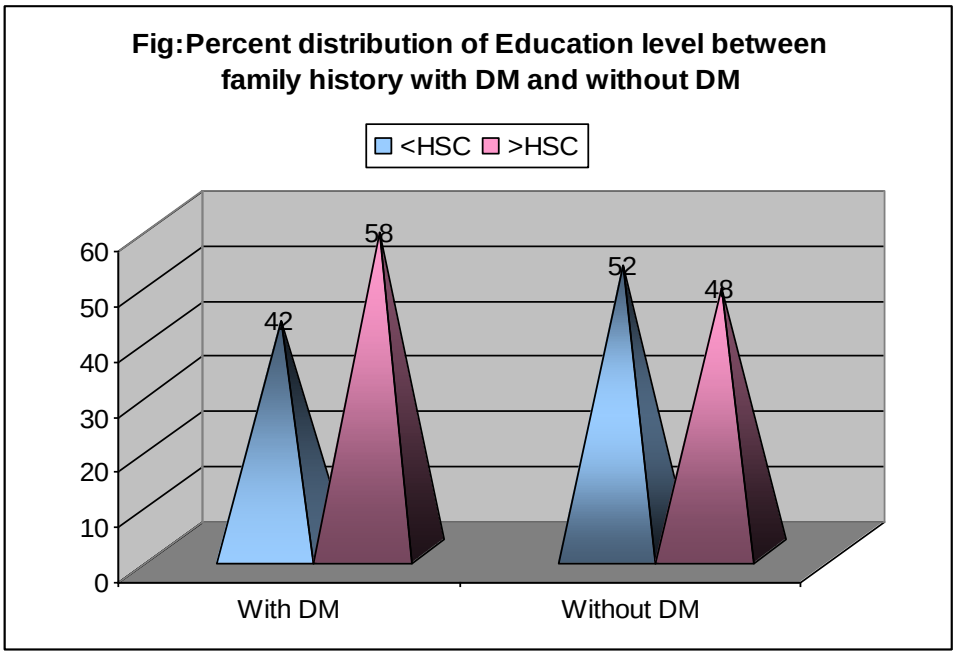
Figure 3: Percent Distribution of Marital status among the Family History With Diabetes Mellitus and without Diabetes Mellitus (n=1422)



X^2/P value: 5.24/0.22

The figure summarizes the distribution of marital status among a family history of DM 82% were married, and 18% were unmarried, whereas without a family history of DM, 86% were married, and 14% were unmarried.

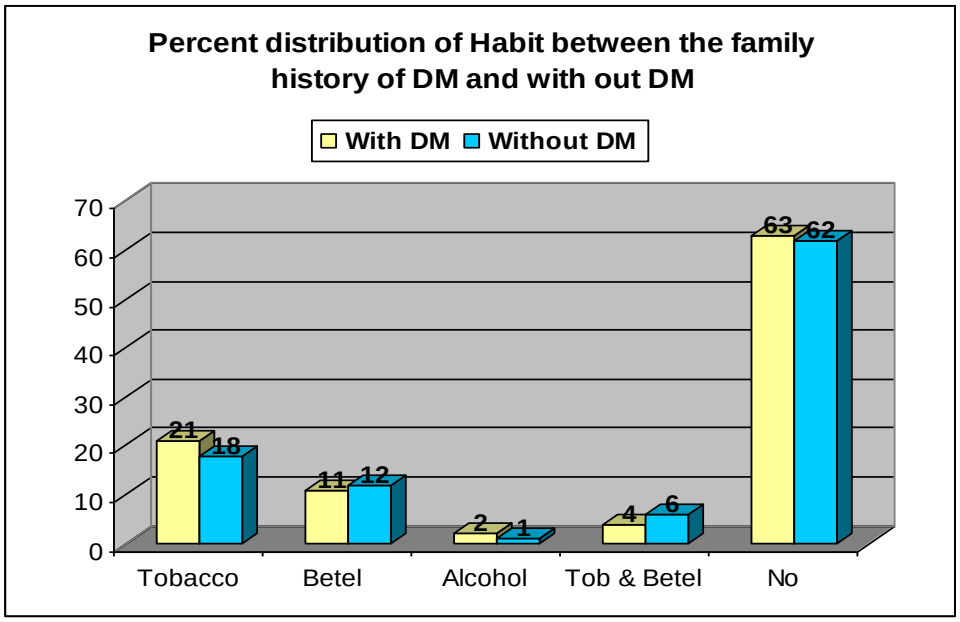
Figure 4: Percent Distribution of Education level between the Family History with Diabetes Mellitus and without Diabetes Mellitus (n=1422)



X^2/P value:11.96/0.00

The figure summarizes the distribution of education level between the family history with Diabetes Mellitus (DM) 42% were below HSC level and 58% were above HSC level.Whereas without familyhistory of Diabetes Mellitus (DM) 52% were below HSClevel and 48% were above HSC level.

Figure 5: Percent Distribution of Occupation between the Family Histories With Diabetes Mellitus and without Diabetes Mellitus (n=1422)

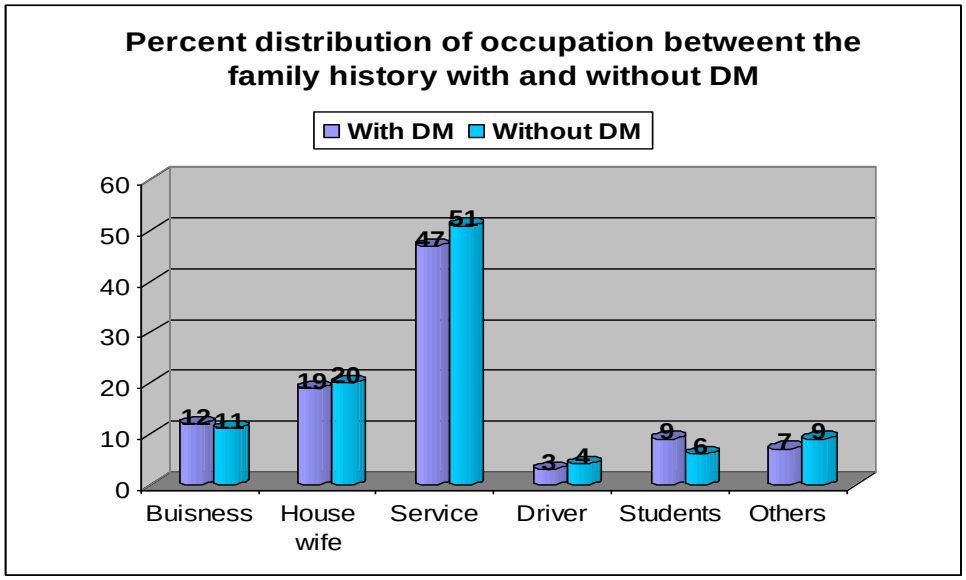


X^2/P value:3.31/0.50

The percentage distribution of habits between people who have a history of diabetes in their family and those who do not have diabetes in their family is shown in the figure. Among people who have a history of diabetes in

their families, the percentage of taking Tobacco was 21%, Betel 11%, Alcohol 2%, and Tobacco& Betel 4%, and 63% did not have any of these habits. And family history without DM, the percent of taking Tobacco 18%, Betel 12%, Alcohol 1%, Tobacco & Betel 6%, and 62% did not have any of these habits.

Figure 6: Percent Distribution of Occupation between the Family Histories withDiabetesMellitus and without Diabetes Mellitus (n=1422)



X^2/P value:12.8/0.04

Comparison of the percentage of people in different occupations who have or do not have a family history of diabetes mellitus is shown in the figure. Family lore and genetics have a role in with DM, 12% were businessmen,19% were housewives,47% were service holders, 3% were drivers,9% were students, and 7% were from other occupations. And the family history without DM, 11% were businessmen, 20% were housewives, 51% were service holders, 4% were drivers, 6% were students, and 9% were from other occupations.

V. Discussion

The incidence of diabetes mellitus (DM) is rising rapidly and is becoming a global health crisis. South Asia, the Middle East, and Latin America are all included in this region are projected to have the largest percentage rises in illness prevalence. (Wild.S,2004).The World Health Organization identified 10 nations as having the highest rates of diabetes in 2000 and 2030 respectively.Population studies show that during the last five years, the prevalence of DM in rural Bangladesh has increased considerably. This population's prevalence was greater than that seen in other studies conducted in rural settings(Sayeed MA 2003 & 1997). Most of these studies have been done in or around Dhaka, where residents are used to more urban ways of life; as a result, their findings may not be representative of rural Bangladesh, where the majority of the population resides. The prevalence of diabetes in rural areas of northern Bangladesh has not been studied on a population scale.In contrast to the situation in the Western world, where diabetes is more prevalent, the onset of diabetes in the Bangladeshi population happens at a younger age, and a sizeable percentage of diabetics do not suffer from obesity. However, there is not a robust link between obesity and diabetes in this group. Despite the rural Bangladeshi population's general thinness, certain studies have shown that Important markers of the risk of getting diabetes include both the body mass index and the waist-to-hip ratio, which are used to evaluate general health and fitness.(Rahim MA,2007&Sayeed MA 2003)however, none of the others did(Hussain A, 2005 & 2007). This research was initiated with the purpose of Prevalence among the population of Dhaka city, where 63% lived in the urban area, in semi-urban, 20%, and 17% in the rural area. Where 71% were male, and 29% were female. Among those, 85% were married, and 15% were unmarried,19% of subjects had the habit of tobacco, 12% had the habit of betel, 1% had the habit of alcohol, and 5% of subjects had the habit of tobacco & betel,71% show <5 family members and 29% <5 relatives with and without a history of diabetes in the family; 75% shows > five family members and 25% > five family members. The study finds out the Prevalence of DM among the subjects who have a family history of DM and also tries to assess the risk factors linked with DM.The prevalence of DM was determined to be 17% based on our findings. The Prevalence was higher than in another previous study. From our study, we found that the risk of becoming diabetic in the case of a person with a strong lineage of diabetes starts from the age of 35, and by the age of 42, the possibility of becoming diabetic

increases. Those without a positive family history of mental health issues, who often struggle with their own mental health issues, are at a much lower risk of developing the condition and have a greater chance of having diabetes, whereas those with a positive family history of mental health issues are at a much higher risk of developing the condition in their initial years at the age of 37, and this risk continues to rise until the age of 43, when it then begins to decrease.

This may be due to poor healthy lifestyles, sedentary occupations, higher consumption of carbohydrate food, and frequent consumption pattern.

It is well established that a genetic predisposition is a crucial component connected to the onset and clinical features of T2DM. Early development of diabetes is linked to a deficiency in insulin production (O'Rahilly SP,1986), insulin resistance (Haffner SM,1988 & Martin BC,1992), or both (Eriksson J,1989), suggesting a hereditary component (Lillioja S,1993). Research on diabetes in families is essential for understanding the causes of type 2 diabetes and developing effective preventative strategies for at-risk populations(WHO 1985). Family history is a non-modifiable risk factor that has been shown to have a tight connection to the manifestation of diabetes. An elevated risk of cardiovascular disease, stroke, and other health issues has been related to a family history of type 2 diabetes, suggesting both a genetic susceptibility and the existence of shared environmental factors, such as lifestyle and food.Cultural attitudes and practices, such as eating habits and exercise regimens, are examples of these widespread environmental influences.(Baptiste-Roberts, Gary, Beckles, Gregg, Owens, Porterfield, et al., 2007).Type 2 diabetes is more common among those who come from wealthy families because they feel added pressure to carry on the disease's prevalence. have a greater propensity to adopt a healthy lifestyle in order to lessen their likelihood of contracting the illness. (e.g.By not helping one other maintain a healthy lifestyle, those with type 2 diabetes increase their own chance of acquiring the disease. (five portions of fruit and vegetables each day) and to undergo frequent screenings for the condition (blood sugar and A1C levels).(Baptiste-Roberts et al., 2007; Forsyth and Goetsch, 1997; Harrison et al., 2003). Having a parent or sibling with type 2 diabetes is typically used as a definition of a positive family history of the illness.But because it is common for members of the same family to share a home, a person's status with regard to type-2 diabetes may be affected by the health and lifestyle habits of other family members who occupy the same dwelling, including grandparents, cousins, uncles, and aunts, as well as parents, siblings, and other extended family.(Pinderhughes, 2005). However, almost no findings have been made on its impact up to this point, save for the observation that having a family history of schizophrenia, bipolar disorder, or type 2 diabetes increases the risk of developing these conditions compared to people without a family history of the condition, and that family history appears to influence the age at which symptoms first appear. Researchers found a correlation between higher body mass index and an increased risk of developing diabetes, with even individuals without a personal history of the illness having an increased risk if they had a close relative with the condition. Those without a family history of diabetes, however, have been shown to have lower levels of these metabolic indicators.It can be deduced from the above that the prevalence of diabetes was 17% among the 1393 study subjects; we found that 28% had a history of diabetes mellitus and 72% lacked a history of diabetes but were at risk for developing the condition due to their higher than average body mass index in the family; 46% were diabetic patients who came from families with a history of the condition and a history of diabetes, and 54% were diabetic patients who didn't come from families with a history. For patients with a close relative with diabetes, the disease tended to develop earlier (Seung. J,2010), but these results support that the percentages of diabetic patients who don't come from a diabetic family are higher than those of diabetic patients who do.BMI seems lower among non-diabetics in the absence of a DM pedigree subjects. From our study, we also assess that of the diabetic subjects with and no history of diabetes in the family (n=398); among them, 60% were hypertensive. High blood pressure was also significantly associated with a higher mean body mass index depending on factors such as whether or not diabetes runs in your family.

LIMITATION OF THE STUDY

Our five-person team did this research to evaluate the correlation between genetic susceptibility to diabetes and the overall prevalence of diabetes mellitus in Bangladesh. While performing this study, we had to overcome some obstacles.

1. In this study, the sample size was not satisfactory, and due to this, we could not get the desired output of the results.
2. Lack of found and short duration to cover more areas was one of the most significant shortcomings of the research
3. Some people did not cooperate with us while collecting data using the questionnaires.
4. Some people tried to hide some information about habits, age, and education level.
5. The study has to be limited to a small community due to a shortage of time and resources.

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