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RISK FACTORS OF DEVELOPING TYPE2 DIABETES MELLITUS AMONG THE EMPLOYEES WORKING IN SELECTED PRIVATE SECTOR BANKS OF KAMRUP (M), ASSAM

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ABSTRACT

Background- The word "Diabetes Mellitus" is derived from the Greek word "Diabetes" which means "siphon-to pass through" and Latin word "Mellitus" which means "Honeyed or sweet". This is because in diabetes excess sugar is found in blood as well as in the urine .It was known in the 17th century as the "pissing evil". Around 95% of all cases of diabetes are caused by type2 diabetes mellitus. In Type 2 Diabetes Mellitus, the response to insulin is diminished, and this is defined as insulin resistance. During this state, insulin is ineffective and is initially countered by an increase in insulin production to maintain glucose homeostasis, but over time, insulin production decreases, resulting in Type2 Diabetes Mellitus. Type 2 Diabetes Mellitus is most commonly seen in persons older than 45 years. Still, it is increasingly seen in children, adolescents, and younger adults due to rising levels of obesity, physical inactivity, and energy-dense diet.

Materials and method- A descriptive quantitative approach and cross sectional research design was adopted for the study. The study was conducted at USF Bank Ltd (Panjabari Branch), Indusind bank (Ganeshguri Branch) ,Ujjivan small finance Bank (Narengi Branch) , South Indian Bank (Dispur Branch) by an interview schedule and using biophysiological method. The investigator used simple random sampling technique to select 103 employees working in private sector banks of Kamrup (M), Assam.

Results- The study revealed that out of 103 employees, majority of employees (42.76%) were in the age group of 25-30 years. Majority of employees (61.16%) were Male. Majority (49.51%) of the employees were married as well as unmarried. Majority (32.03%) of the employees were having monthly family income of 92,191-184,370. Majority (76.69%) of employees does not have high blood pressure. 40.77% employees were Overweight and 11.66% employees were Obese according to their BMI. 47.57% employees were having family history of Type2 Diabetes Mellitus.39.81% employees do not perform any exercises. 56.32% employees do not perform Yoga. 73.78% employees used vehicle for going to office. 62.14% employees were having habits of taking tobacco products. 68.94% employees were consuming alcohol. Majority (81.55%) of the employees were Non Vegetarian. Majority (93.21%) of the employees takes sweets. 67.96% employees were regularly taking carbonated cold drinks. 61.16% employees have habits of taking extra sugar in tea or any other juice. Majority of the employees that is 92.24% were take junk foods. The result showed that there was a significant association between the risk factors of developing type-2 DM with demographic variables such as age, gender, marital status, monthly family income and presence of high blood pressure.

Conclusions- From the findings of the present study, it shows that increasing BMI, hereditary, sedentary life style, dietary factors are the major risk factors of developing Type-2 Diabetes Mellitus among employees working in private sector banks. Therefore, it is concluded that maintaining a healthy lifestyle and a healthy dietary habits can reduce the increasing risk factors of developing Type-2 Diabetes Mellitus.

Key words: Assess, Employees, Private sector bank, Type-2 Diabetes Mellitus, Risk factors

CHAPTER-I

INTRODUCTION

"Diabetes is not curable. It's sustainable"

-Alvin Leung

BACKGROUND OF THE STUDY

The word "Diabetes Mellitus" is derived from the Greek word "Diabetes" which means "siphon-to pass through" and Latin word "Mellitus" which means "Honeyed or sweet". This is because in diabetes excess sugar is found in blood as well as in the urine .It was known in the 17th century as the "pissing evil".(1)

Diabetes Mellitus is a metabolic disorder characterized by abnormally high levels of sugar (glucose) in the blood. In people with diabetes the blood sugar levels remain high. The reason for this may be that insulin is not being produced at all, is not being produced at enough levels, or is not effective enough. The most common forms of diabetes are Type1 Diabetes (5%), which is an autoimmune disorder, and Type2 diabetes (95%), which is associated with obesity. Gestational diabetes is a form of diabetes that occurs in pregnancy are very rare and are caused by a single gene mutation. (2)

Around 95% of all cases of diabetes are caused by type2 diabetes mellitus. In Type 2 Diabetes Mellitus, the response to insulin is diminished, and this is defined as insulin resistance. During this state, insulin is ineffective and is initially countered by an increase in insulin production to maintain glucose homeostasis, but over time, insulin production decreases, resulting in Type2 Diabetes Mellitus. Type 2 Diabetes Mellitus is most commonly seen in persons older than 45 years. Still, it is increasingly seen in children, adolescents, and younger adults due to rising levels of obesity, physical inactivity, and energy-dense diets.(3)

The number of people older than 20 years newly diagnosed with diabetes increases by 1.7 million per year .If this trend continues, one in every three adults in the United States could have diabetes by 2050. In 2014, the worldwide estimate of the prevalence of diabetes was 422 million people, and by 2040, this is expected to increase to more than 642 million.(4)

Diabetes continues to increase steadily in developed countries like the United States and Japan. And it is worthy of note that Type 2 Diabetes Mellitus has become a serious issue at an alarming rate in developing countries. It is predicted that Type2 Diabetes Mellitus will continue to increase in the next twenty years, and more than 70% of the patients will appear in developing countries, with the majority of them are between the ages of 45 and 64. The majority of them are between the ages of 45 and 64. Even today, seven out of the top ten countries with the largest number of diabetes patients are low- or middle-income countries, including India, China, Russia, Brazil, Pakistan, Indonesia, and Bangladesh, among which the prevalence rates are 12.1% and 9.7% in India and China, respectively 8, 9. Secondly, although advancing age is a risk factor for Type2 Diabetes Mellitus, rising rates of childhood obesity have resulted in Type2 Diabetes Mellitus becoming more common in children, teenagers and adolescents, which is a serious emerging of the epidemic and a new public health problem of significant proportions.(5)

The latest Indian Council of Medical Research (ICMR) study has shown that Punjab has the highest incidence of Type-2 diabetes while Bihar has the lowest. Assam has an incidence of 5.5%, with a narrow rural and urban divide. Though Assam figures somewhere in the mid-levels, it doesn't mean the state is safe. It is not a small figure. The trend is rising, said by Sanjib Medhi, vice-president of the North Eastern Diabetes Society. In Assam, it has been observed that diabetes is on the rise in both urban and rural pockets.(6)

NEED OF THE STUDY According to the estimates of the International Diabetes Federation (IDF), globally 415 million people are suffering from diabetes (with global prevalence: 8.8%) of which 75% live in low- and middle-income countries. The world will have 642 million people suffering from diabetes by 2040 due to this trend. The world will have 642 million people suffering from diabetes by 2040 due to this trend. Compared to Type-I DM, Type-II DM is the more prevalent clinical form. The majority of the diabetes population (87-91%) in high- income countries has Type-II diabetes. However, the global population of Type-I diabetes increases by approximately 3 percent each year. (7)

India is an influential hub for the global diabetes epidemic with the second highest diabetes population in the world (~69 million as of 2015). India is predicted to have 123.5 million people with diabetes by 2040 due to this trend. The ongoing national Indian Council of Medical Research–India Diabetes study aims to estimate the national prevalence of diabetes and pre diabetes and is the largest nationally representative study. (8)

In India have the maximum increase during the last few years. The most common form of diabetes is type 2 diabetes mellitus. Prevalence of type 2 diabetes mellitus is 2.4% in rural population and 11.6% in urban population. Prevalence of impaired glucose tolerance is also high in the urban population. (9)

According to the study conducted by Indian Council of Medical Research (ICMR) India on prevalence of Type2 Diabetes Mellitus in Northeast, India; reported that in blood sugar level of >140 mg/dl the urban women show the highest blood glucose level (9.4%) in both Mizoram and Tripura which is followed by Manipur with (8.8%) and Sikkim with (7.8%) whereas in case of men the highest blood glucose level can be seen in Nagaland (11.1%) followed by Mizoram and Sikkim with (10.7%). There is a high prevalence of type 2 diabetes among the overweight and obese groups. In some states male show higher prevalence and in other female show higher.(10)

A study by the Indian Council of Medical Research (ICMR) has revealed that 5.5% of Assam's population is in the grip of Type2 Diabetes Mellitus. The report was unveiled at a conference on Diabetes held in Bhubaneswar, Odisha.

Job of Employees working in bank is sedentary in nature and involves high levels of stress. They spend almost all their working hours seated as they carry out their work. High level of stress and sedentary lifestyle has increasing risk of developing Type2 Diabetes Mellitus. That is why researcher thinks that there is need of this study. After this study the researcher will come to know about the risk factors of developing Type2 Diabetes Mellitus among employees working in private sector banks of Kamrup (M), Assam.

THE STATEMENT OF PROBLEM

A study to assess the Risk Factors of developing Type-2 Diabetes Mellitus among the Employees working in selected Private Sector Banks of Kamrup (M), Assam.

SPECIFIC OBJECTIVES

1. To assess the risk factors of developing Type-2 Diabetes Mellitus among the employees working in selected private sector banks of Kamrup (M), Assam.

2. To find out the association between the risk factors of developing Type-2 Diabetes Mellitus with selected demographic variables.

OPERATIONAL DEFINITIONS

Assess

According to oxford dictionary "to make a judgment about the nature or quality of someone or something." [13]

In this study, it means to evaluate the risk factors of developing Type 2 Diabetes Mellitus among the employees working in selected private sector banks of Kamrup (M), Assam.

Risk Factors

According to Collins English dictionary "it means a factor, such as a habit or an environmental condition that predisposes an individual to develop a particular disease."[14]

In this study, it means to assess the increases risk or susceptibility of risk factors of developing Type 2 Diabetes Mellitus among the employees working in selected private sector banks of Kamrup (M), Assam.

Risk factors of type 2 Diabetes Mellitus includes: increasing BMI, hereditary, sedentary lifestyle and dietary factors. [15]

Type 2 Diabetes Mellitus

According to medical dictionary, "Type2 Diabetes Mellitus is also known as non insulin dependent Diabetes Mellitus, a common form of Diabetes Mellitus that develops especially in adults and most often in obese individuals and that is characterized by hyperglycemia resulting from impaired insulin utilization coupled with body's inability to compensate with increased insulin production."[16]

In this study, the term "type2 Diabetes Mellitus" is used to refer to the same condition as previously mentioned.

Employees

According to oxford dictionary, "it means a person who is paid to work for someone."[17]

In this study employee, it refers to both male and female employees who are working in selected private sector banks.

Private Bank

According to Cambridge dictionary, it means a bank that is owned by one person or by a small numbers of shareholders provides financial advice and services not.[18]

In this study private bank, it refers the USF Bank Ltd (Panjabari Branch), Indusind Bank (Ganeshguri Branch) ,Ujjivan small finance Bank (Narengi Branch) , South Indian Bank (Dispur Branch).

HYPOTHESIS

H_1: There is significant association between risk factors of developing Type2 Diabetes Mellitus with selected demographic variables at 0.05 level of significant.

ASSUMPTION

The investigator assumes that sedentary workers are at risk of developing Type 2 Diabetes Mellitus.

DELIMITATION

This study is delimited to employees within the private sector banks.

CONCEPTUAL FRAMEWORK

A framework is a brief explanation of theory or those portions of a theory that are to be tested in a quantitative study.

Miles and Huberman (1994) defined the conceptual framework as a "written or visual presentation that explains the things to be studied in either graphically or narrative form-the factors, concepts, or variables and the presumed relationship among them. “Conceptual framework presents logically constructed concepts to provide a general explanation of the relationship among the concepts of the research study.[11]

The conceptual framework chosen for the study is based on "Health Belief Model" The health belief model was developed initially by Rosenstock (1966) and further by Becker and Janz (1988).This model attempt to explain and assess the risk factors of type2 DM.[12]

A person's motivation to undertake a health behavior can be divided into three categories: individual perceptions, modifying factors, and likelihood of action"

Individual perception

Individual perception is the first component of this model which includes perceived susceptibility/seriousness of illness. Perceived susceptibility refers to a person's subjective perception of the risk of acquiring an illness or disease. It is one of the more powerful perceptions in promoting people to adopt healthier behavior.

In this study, individual perception refers to inadequate knowledge and failure to managing a healthy lifestyle.

Modifying factors

The second component of the model consists of modifying factors such as demographic variables, perceived threat of illness and cues of action. According to the model modifying factors are those that modify person's perception.

- Demographic variables

In this study demographic variables are age, gender, marital status, dietary habits, monthly family income and presence of high blood pressure.

- Perceived threat

This perception refers to belief of a person about whether or not a disease poses real threat to him/her. Perceived threat of a disease is affected by modifying factors. These factors can influence both perception and the corresponding cues necessary to start action.

In this study Perceived threat means ignorance of common illness and lack of physical activities.

- Cues of action

A cue to action is the stimulus needed to trigger the decision-making process to accept a recommended health action. The intensity of cues needed to prompt action varies between person by perceive susceptibility, seriousness, benefit, and barrier.

In this study cues of action such as mass media campaign and health education which is not included in the study.

Likely hood of action

The third component of this present study is likely hood of action. Likely hood of action is the Perceived benefits minus perceived Barriers.

- Perceived Benefits refers to a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease (or to cure illness or disease).

In this study perceive benefit refers to good knowledge, engage in regular physical activities, avoid smoking, limit alcohol intake, avoid junk foods and reduce sweet intake.

- Perceived Barriers refers to a person's feeling on the obstacle to performing a recommended health action.

In this study perceived barrier of action such as lack of self control and sedentary lifestyle.

The schematic representation of the conceptual framework is presented in Fig (1).

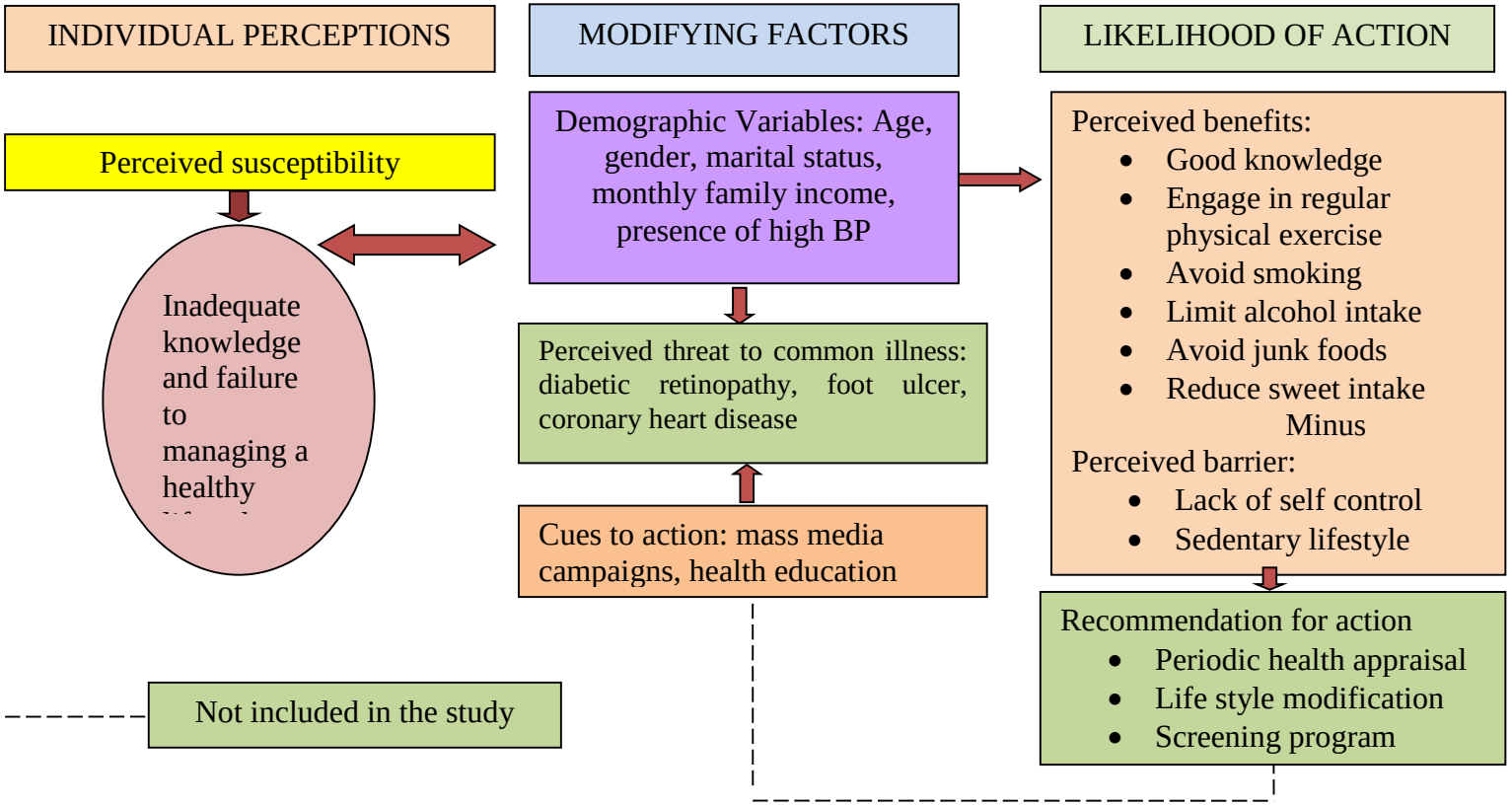

FIGURE 1: CONCEPTUAL FRAMEWORK BASED ON HEALTH BELIEF MODEL (ROSENSTOCK, JANZ AND BECKER, 1998)

SUMMARY

This chapter described with the background of the study, need of the study, the statement of problem, specific objectives, operational definitions, hypothesis, assumption, delimitation and conceptual framework of the study.

CHAPTER –II

REVIEW OF LITERATURE

Review of literature is a comprehensive, in depth, systematic scanning and critical review of selected literature to find out how it can be useful to present day. It includes scholarly publications, unpublished scholarly print materials, audio-visual materials and personal communications (V Nirmala).[19] The role of the literature review is to formulate and clarify the research problems, to ascertain what is already known in relation to problem of interest, for developing a broad conceptual context, facilitate cumulating scientific knowledge for interpreting the result of the study (Cooke Margaret).[20]

Review of literature was done from published articles, textbooks and reports. The present study is reviewed in following headings:

I: Literature related to assessment of risk factors of the developing type-2 Diabetes Mellitus

II: Literature related to prevalence of developing type-2 diabetes mellitus.

I: Literature related to assessment of risk factors of the type-2 Diabetes Mellitus

Prasetya I, Lindarto D, Santi S (2023) conducted a observational analytic with a cross sectional approach study on risk assessment of Type-2 Diabetes Mellitus using the American Diabetes Association (ADA) Diabetes Risk Test in residents of Bah Bolon Village, Simalungun district. In their results revealed that the prevalence ratio of the ADA Diabetes Risk Test was 3.04 which indicate that there is an increased risk of DM 3 times compared to individuals who have a low risk ADA Diabetes Risk Test score. The highest prevalence ratio is a history of hypertension. A history of hypertension increases the risk of developing T2DM six fold. A history of hypertension has a 95% CI value of 2.19-17.84 which indicates that people with hypertension have a 2.19 to 17.84 times higher risk of developing T2DM.The variables that have a high prevalence ratio are history of hypertension, family history of T2DM, history of DM during pregnancy and inactive sports. The highest prevalence ratio is a history of hypertension. A history of hypertension increases the risk of developing T2DM six fold. A history of hypertension has a 95% CI value of 2.19- 17.84 which indicates that people with hypertension have a 2.19 to 17.84 times higher risk of developing T2DM. Variables that increase the risk of developing DMT2 are a family history of diabetes which increases the risk of 1.7 times the incidence of DMT2, while a history of diabetes during pregnancy is 1.12 times, while obesity increases the incidence of DMT2 1.05 times. The study concluded that there is significant association DM about 3 times in ADA Diabetes Risk Test between high score and low score and there is a significant association between history of hypertension with hyperglycemia.[21]

Saijo Y, Okada H, Hamaguchi M, Habu M, Kurogi K, l Murata H, Ito and Fukui M (2021) conducted a panasonic cohort study on the risk factors for development of type2 Diabetes Mellitus. Results revealed that cox regression analyses revealed that the significant risk factors were age, BMI, systolic blood pressure, low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, triglycerides, fasting plasma glucose, current smoking status, and alcohol consumption in populations with BMI ≥ 25.0 kg/m2. The risk factors in the population with 22 ≤ BMI < 25 kg/m2 were identical to that of BMI ≥ 25.0 kg/m2 excluding systolic blood pressure, low-density lipoprotein cholesterol, and skipping breakfast. However, in the population with BMI < 22.0 kg/m2, no association was found as to BMI, SBP, cholesterol level, and triglycerides. In their study concluded the risk factors for developing diabetes were quite different between the population with BMI < 22 kg/m2 and the population with 22 ≤ BMI < 25 kg/m2 or BMI ≥ 25 kg/m2 in a Japanese population.[22]

George M, R Krishna kumar R, Sam J, Sasi J, Ahmmed I, and Haries K Habeeb (2020) conducted a cross sectional study was done among adults of age more than 30 years without a history of Type 2 Diabetes Mellitus in a Colony, Kollam, Kerala, India during a 2 months period. Sample size of 170 on Diabetes Risk Assessment among Adults. The study in their study results revealed that Mean age of the study population was 46.12±10.9 yrs. Among 170 study population 87 (51.2%) belonged to the age group of 35-49 years. Nearly 67% of study population were female, 42.7% had high school education. About 39 (23%) and 41 (24%) were currently using alcohol and tobacco respectively. Nearly 98% were following non-vegetarian diet. 32 (18.8%) of study subjects had associated hypertension and on treatment. About 58 % of study subjects have family history of Diabetes. Mean waist to height ratio was 0.61±0.11. Majority 149 (87.6%) had a high waist to height ratio. 44 (25.9%) of study subjects had raised blood pressure during the interview. Majority (90%) had a family size <5 and nearly 62% belonged to nuclear family. About 70% of females were homemaker and 44.1% of study populations were daily wagers. Nearly 56% of study population didn't have any comorbidities. 32 (18.8%) had associated hypertension and 23 (13.5%) had osteoarthritis, 20 (11.7%) had others like asthma, stroke, Acid Peptic Disease, migraine. About 80 (47%) of the study population belonged to high risk and 36.5% belonged to medium risk category for development of Diabetes Mellitus according to Indian Diabetic Risk Score (IDRS). Increasing age, BMI, waist circumference, high Blood Pressure, a positive family history and female gender had a strong association with high risk of development of diabetes. Current usage of alcohol and tobacco were also associated with higher risk of development of Diabetes Mellitus, Sedentary to mild physical activities and high waist to height ratio were also associated with increased risk of development of Diabetes Mellitus. The study concluded that the risk assessment should be put forward as a major prevention tool in the DM management.[23]

Choudhary N, Raj D, Rathore M and Kashyap A (2020) conducted a Community Based Cross Sectional Study to Assess Risk of Type 2 Diabetes in Adult Population Using Indian Diabetes Risk Score in Field Practice Area of Urban Health Training Centre, Jaipur. Study results revealed that out of 400 patients, maximum cases were reported in the age group of 35-50 years (53.75%) followed by > 50 years (27.25%) and the least was in less than 35 years (19%). Among that 65% were female and 35% were male. Female to male ratio was 1.8:1 Out of 400 patients 253(63.25%) were living in joint family while 146(36.5%) were

living in nuclear family. Out of 400 patients majority i.e. 214(53.5%) were at moderate risk of diabetes, 150(37.5%) were at high risk of diabetes while 36(9%) were at low risk of having diabetes. Out of 400 patients; majority 195(48.75%) of the patients were from 35-49 years of age; among that most (54.67%) of the patients were at moderate risk of diabetes followed by 131(32.75%) of the patients were ≥50 years of age; among that 46.6% of the patients were at high risk of diabetes and the least was 74(18.5%) of the patients were < 0.001) In this study 214(53.5%) of the patients belongs to moderate risk of diabetes; followed by high risk of diabetes 150 (37.5%) and the least was low risk of diabetes 36(9%). In high risk of diabetes most 38.6% were family history of diabetes of single parents. Similarly in low risk and moderate risk most 86.1% and 77.1% respectively were no history of parents of diabetes. Thus our results are statistically significant. (P value < 0.001) In this study majority 214(53.5%) of the patients belongs to moderate risk of diabetes; followed by high risk of diabetes 150(37.5%) and the least was low risk of diabetes 36(9%). In high risk of diabetes most 53.3% were waist circumference >90cm in female and >100cm in male. Similarly in low risk and moderate risk most 72.2%, 67.7% respectively were waist circumference 80-89cm in female and 90-99cm in male. Thus their results are statistically significant. Out of 400 patients 214(53.5%) belongs to moderate risk of diabetes; followed by high risk of diabetes 150(37.5%) and the least was low risk of diabetes 36(9%) in high risk of diabetes most. The study concluded that screening and early identification of high risk individuals would help to take appropriate intervention like lifestyle modification. It would also help in early diagnosis and treatment to prevent or to delay the onset of diabetes mellitus and its complications.[24]

Sutriyawan A, Miranda G, Akbar and Riswan (2020) conducted a case control study on Risk Factors of Type 2 Diabetes Mellitus in Hospital of Bangakulu City, Indonesia. In their results revealed that The results of the study showed most patients aged ≥ 40 years (67.1%) and women (65.7%). Almost half the BMI of patients ≥ 25 (47.1%), more than one-third of patients experienced central obesity (41.4%), about 2/3 patients had less physical activity, more than half of patients consumed foods high in sugar, and about 68% of low-fiber food patterns. The study showed that variables that were significantly related to the incidence of diabetes mellitus type-2 were age (P = 0,019), OR = 2.5 (1, 2-5.2), Family diabetes History (P = 0,007), OR = 2.9 (1, 3-6.1), IMT (p = 0.001), OR = 3.2 (1.6-6.5), high-sugar diet (p = 0,000), OR = 4.2 (2.0-8.6), low-fibre diet (P = 0,018), OR = 2.5 (1, 2-5.4), and physical activity (P = 0,000), OR = 7.1 (3.0-16.6). They concluded that risk factors proven to be related to type 2 diabetes mellitus are age, family history of diabetes, BMI, high sugar diet, low fiber diet, and physical activity. While gender, central obesity and smoking cannot be proven to be risk factors for type 2 diabetes mellitus. Physical activity is a major risk factor for type 2 diabetes mellitus, with a 4 times greater risk for those who lack physical activity. The study concluded the risk factors proven to be related to type 2 diabetes mellitus are age, family history of diabetes, BMI, high sugar diet, low fiber diet, and physical activity. While gender, central obesity and smoking cannot be proven to be risk factors for type 2 diabetes mellitus. Physical activity is a major risk factor for type 2 diabetes mellitus, with a 4 times greater risk for those who lack physical activity.[25]

Patil. R and Gothankar. J (9th Sept 2019-19th Dec 2019), conducted a cross-sectional study on risk factors of type 2 diabetes mellitus: an urban perspective in randomly selected wards under training centre of private medical college, Pune, Maharastra : population based on 425 aged 20 years and above residing in the Pune,

Maharastra. Results reveal that More than half, i.e. 26 (61.90%) diagnosed cases of type 2 diabetes mellitus had history of either or both parents suffering from diabetes and 16 (38.10%) had no history of diabetes in their family. The majority, i.e. 26 (61.91%) diagnosed cases of type 2 diabetes mellitus were involved in sedentary to mild physical activity. Of total diagnosed cases of type 2 diabetes mellitus, maximum, i.e., 22 (52.38%) belonged to pre obese to obese group and 20 (47.62%) diabetics were underweight. In the current study, 14 (63.64%) diabetic males and 14 (70%) diabetic females had high waist circumference. Of total 425 subjects, 66 (41.25%) males and 223 (84.16%) females had a higher WHR. Of 138 non diabetic males, 60% had normal WHR (<1) while of 22 diabetic males, half of them had high WHR (>1) while 83.26% of non diabetic females had high WHR (>0.8), and 19 (95%) diabetic females had high WHR (>0.8).There was significant increases in the prevalence of diabetes as age increases (age 20-34 years: 1.6%, 35-49 years: 7.53%, ≥50 years :15.66%). Furthermore, male gender, obesity and diabetes mellitus were found to be statistically significant. In the conclusions stated that risk factors such as rising age, family history of diabetes mellitus, lack of physical activity, and central obesity were the most common factors found in diagnosed cases of diabetes mellitus. Therefore, lifestyle changes and awareness regarding risk factors is needed to make control over the diabetes.[26]

Dasaraju S, Sudeepa D, Barik D, Lalitha D. Hiremath (2019), conducted a study on Risk assessment for type 2 diabetes mellitus in Muttanallur village, Bangalore, India. In their study results revealed that after the analysis of the variables, out of 487 people participated in this study. Among them 301(61.8%)people were in the age group of 18 to 44 years, 82(16.8%)people were in the age group of 45 to 54 years and 104(21.4%)people were in the age group of 55 to 64 years. The gender distribution of the population studied was almost equal, with 254(52.2%)males and 233(47.8%)females. About 72.2%(354 people)had BMI less than 25kg/m2, 26.1% (127 people)had BMI between 25-29.9 kg/m2and only 1.2% (6 people)had BMI ≥30kg/m2. The waist circumference of the population studied showed that 316 people (64.9%)had waist circumference of less than 37 inches, 123(25.3%)had waist circumference between 37-40 inches and 48 people (9.9%)had waist circumference >40 inches. About 350 people (71.9%)were not physically active for more than 30 minutes and 338 people (69.4%)did not include vegetables and fruits in their diet every day. Among 487 people, 469(96.3%)people did not have any history of hypertension in the past or taken any kind of treatment for hypertension. About 475 people (97.5%)had no history of high blood glucose in the past or history of gestational diabetes mellitus. Total of 175 people (35.9%)had history of diabetes mellitus in first degree relative, 205 people (42.1%)had second degree relatives who were diabetic .After the analysis of the variables, among 487 people, 253 people (52%) came under moderate risk with a score of (7-14) and 6 people were categorized has having very high risk. The study concluded that there was a statistically significant association between certain clinical variables with the development of future type 2 DM.[27]

Aravinda J (2019) conducted a retrospective study on Risk factors in patients with type 2 diabetes in Bengaluru .In their study revealed that among 519 patients the information on BMI was available for 479 patients. It was noted that the patient population diagnosed with T2DM was significantly overweight or obese (88.30% vs 11.69%; P < 0.0001). In patients in the age group up to 40 years, the prevalence of obesity and

diagnosis of T2DM was higher in males than females (80.76% vs 77.27%); whereas in patients 41-50 years the proportion was reverse (females vs males; 85.39 vs 79.31). Among the patients who were diagnosed with T2DM, significantly higher proportion of patients followed a sedentary lifestyle compared to a strenuous one (74.89% vs 25.10%; P < 0.0001). Across the age groups the proportion of patients with a sedentary lifestyle or occupation was significantly higher compared to strenuous. However, even in patients in the latter group, obesity was prevalent; probably due to a diet conducive to weight gain. A higher incidence of type 2 diabetes in males and younger population was observed in Bangalore, India. Obesity and FH were significant risk factors for not only type 2 diabetes but also early onset of diabetes. In addition, maternal history of type 2 diabetes and consanguinity increased incidence of early onset type 2 diabetes. They concluded that risk factors such as obesity and FH (maternal history of type 2 diabetes) and consanguinity may play an important role in screening of family members of type 2 diabetes patients which may lead to early intervention and reduced risk of subsequent complications. Moreover, susceptible population can be counseled for the management of the type 2 diabetes including periodic investigation of blood glucose levels and lifestyle changes.[28]

Jayaprasad N and Bhatkule P (2018) conducted a case control study on Risk Factors For Type 2 Diabetes Mellitus in Nagpur. Their results revealed that Majority subjects were aged 45-60 years. Statistically significant association was established between T2DM and family history of diabetes AOR=4.15(2.26-7.61),p<0.001); spousal diabetes AOR=2.48(1.25),p=0.009; low physical activity AOR=3.38 (1.34–4.25), p=0.003;pre-obese/obesity, p<0.001 and central obesity AOR=4.48(2.40-8.36)p<0.001). It was seen that family and spousal history of diabetes, physical activity, pre-obese/ obesity and central obesity were significant risk factors for T2DM. Significant association was not seen for smoking, alcohol and hypertension. The risk factors which were seen to be significant in univariate analysis were further analyzed using Binary Logistics Regression to calculate age and gender adjusted OR. All the factors which were included in this model were seen to be significant even after adjusting for age and gender. They concluded that family history of diabetes, spousal history of diabetes, low physical activity, pre-obese/obesity, central obesity are some of the risk factors which are significantly associated with type2 DM.[29]

Msopa.E and Mwanakasale.V (March-April, 2018), conducted a cross-sectional study on Identification of risk factors of Diabetes Mellitus in bank employees of selected banks in Ndola Town: population of 121 bank employees from nine (9) selected banks of Ndola town center. Study results shows that prevalence of diabetes mellitus was found to be 15%. The risk of developing Diabetes mellitus was high in obese participants (OR 5.1 [cl95%] p = 0.000). And in physical inactive participants it was also high (OR 7.6 [cl95%] p = 0.046). In these conclusions stated that Diabetes mellitus shows significant correlation with physical inactivity, body mass index, blood pressure, age and sex. Findings in this study support the need for programs to promote employee health, to help prevent and monitor the enormity and temporal trends of these factor as well as assess the actions that are directed toward this population group.[30]

Vidya.GS, Sandesh .TR, Kaur.N (2016), conducted a study on Assessment of Risk of Type 2 Diabetes Mellitus among Bank Employees Using Indian Diabetic Risk Score: population based 90 employees of 8

branches of Bapuji Co-operative bank spread over the city of Davangere, Karnataka. Their study result reveals that age of subjects ranged from 25-55yrs. Study subjects were divided into three age groups as suggested by IDRS. Males 71(78.8%) outnumbered females 19(21.1%). Maximum number of males 37(52.11%) and females 10(52.63%) were in the age group of 35-49yrs. Most of the employees were graduates 40(44.44) and belonging to class1 SES 68(75%) according to Modified B G Prasad's classification. By IDRS, most of the subjects, 55(61.1%) were having moderate risk for type 2 DM. About 20(22.22%) were at high risk and 15(16.6%) were at low risk of developing type 2 DM. Out of 90 subjects, 71(78.8%) were males & 19(21.1%) were females. Age of subjects ranged from 25-55yrs. According to IDRS, 15(16.6%) were in high risk group, 55(61.1%) of them were in moderate risk group and 20(22.2%) were in low risk group for type 2 DM. From their findings it was concluded that 16.6% of the bank employees were at high risk of type 2 DM and 61% were at moderate risk of developing type 2 DM.(31)

Begic.E, Arnautovic.A and Masic.I (2016), conducted a survey on Assessment of risk factors of Diabetes Mellitus Tyoe2:population based on 540;citizens of Canton Sarajevo of all ages, sexes and educational level. Results reveals that there were 254 males (47%) and 286 females (53%).The research was done in Canton Sarajevo in four municipalities: Center (46% of questionnaires), Novo Sarajevo (20%), Novi Grad (27%) and Stari Grad (7%). In determining the age of the examinees there were five categories used, the first one being the group of young people under the age of 35 years and the last group categorized as elder people with the age over 64 years (bellow 35 years – 42%, 35-44 years 16%, 45-54 years 18%, 55-64 years 15%, over 64 years 9%).After the study they concluded that the life-style is the main reason for such a thing to happen, and looking at these questionnaires, we might get the feeling that we really do live in a, conditionally speaking, physically active society.(32)

Bhattacharya.P and Iqbal.A (2 Aug 2015- 4th March 2016) , conducted a cross-sectional observational study on evaluation of risk of type 2 diabetes mellitus and pre diabetes in students of health institutions in a northeast Indian city: population based on 646 students, aged 17-35 years, were selected. Results shows that majority of participants (77.4%) were young (22 years), with female preponderance (female: male ratio 1:3:1). 26.6% had family history of diabetes, 46.2% led a mildly active or sedentary lifestyle, and 35.8 % had abdominal obesity. 24.4 % had moderate to high diabetic risk, of which 33.6 % were found to have either pre diabetes (24.2 %) or diabetes(9.4 %). In this conclusions stated that nearly half of these young subjects led a mildly active or sedentary lifestyle; one third had abdominal obesity and one-fourth of the subjects had moderate risk of developing type 2 diabetes mellitus and a third of these subjects at risk were actually found to have pre diabetes or overt diabetes. Thus, effective screening of younger subjects for type2 diabetes mellitus should be done to plan effective preventive strategies. (33)

Valliyot.B, Sreedharan.J, Muttappallymyalil.J and Valliyot.B.S (2013), conducted a case control study on to assess the risk factors of type2 diabetes mellitus in the rural population of North Kerala, India: population based on 100 cases with type 2 diabetes mellitus and 200 unmatched controls without diabetes mellitus. Results shows that gender wise distribution of subjects showed that 71.0% of cases and 59.0% of

control subjects were males. With regard to age, 83.0% of the case group subjects and more than 56.0% of control group subjects were above age 40. Age is found to be a significant factor. In comparison with the 20-29 age groups, the 40-49 age groups had a 4.7- fold and 50-55 age groups 5.5- fold likelihood of developing diabetes mellitus. In conclusions stated that the risk factors of type2 diabetes mellitus have regional and ethic variations. The results of the present study suggested a positive relationship of age with the incidence of diabetes, however, with no gender difference in the development of diabetes mellitus.(34)

Kotresh M, Kumar P (2015) conducted a Case Control Study on Risk Factors of Type-2 Diabetes Mellitus in a Primary Health Centre Area of Karnataka. In their results revealed that Majority of cases of type 2 diabetes mellitus were either overweight or obese. The odds ratio for stress was 3.95 indicating that the cases have 4 times more risk of occurrence of diabetes when compared to controls. About 60% of the cases and 27% of the controls had family history of type 2 DM. The odds ratio was 4.06 indicating that the risk of occurrence of type 2 DM is 4 times more in cases compared to controls. The odds ratio was 1.83 indicating that the risk of diabetes is 2 times in hypertensive compared to controls. About 72% of them were cases had ADA score of more than 30 and about 49% of the controls had ADA scores of more than 30. They concluded that DM is associated with positive family history, occupation, education, religion, diet, marital status, stress, hypertension, sedentary life style, smoking and alcohol consumption. People with a higher ADA score tend to develop diabetes mellitus more frequently.(35)

Sreedharan J (2013) conducted a case control study on Risk factors of type 2 Diabetes Mellitus in the rural population of North Kerala, India. Study results showed gender wise distribution of subjects showed that 71.0% of cases and 59.0% of control subjects were males. A statistically significant association was found between cases and controls with regard to gender (above 50 years of age to have five times more chance to get diabetes when compared with those in the 20-30 age group. Gender and religion did not show any statistically significant association with diabetes. Physical activity was observed as a protective factor for the development of DM. Hypertension, especially systolic hypertension, emerged as a strong risk factor for T2DM in this study. Subjects with systolic hypertension had 4.6-fold chance to develop T2DM, making it mandatory to screen all patients with hypertension above 25 years of age for T2DM irrespective of the presence of other risk factors. They concluded that Dietary factors were not found to be a statistically significant risk factor in the development of T2DM. Hypertension is a significant risk factor in the development of T2DM. Many factors like obesity, diet, stress, occupation, which are considered more important in the western and urban studies, were not found to be significant in this rural area, where as strong genetic factors, tobacco use, less physical activity and systolic hypertension emerged as strong risk factors.(36)

II: Literature related to prevalence of developing type-2 diabetes mellitus

M.Jarrar, Abusalah, H.Abdel, W.Albaker, Al-Bsheish, Mohammad et al (2023) conducted a a systematic review and meta-analysis of observational studies on "Prevalence of Type 2 Diabetes Mellitus" in the General Population of Saudi Arabia, 2000–2020. In their result shows that Twenty-three studies were included in the systematic review, of which 19 were included in the meta-analysis (total pooled population: 258,283). The overall pooled prevalence of T2DM in Saudi Arabia was 16.4% (95% CI: 11.6–17.5). However, there was heterogeneity in the results of the studies [I = 99.31%, $P < 0.0001$] and the summary values varied from 3.18% (95% CI: 1.46–5.95) to 94.34% (95% CI: 89.53–97.38). Although the prevalence of T2DM by age varied across studies, in most studies, it was higher among the older age groups. In addition, the prevalence of diabetes widely varied across the different geographical regions of Saudi Arabia. In Conclusions said that this is the first meta-analysis that determined the pooled prevalence of T2DM in Saudi Arabia, and it revealed a high prevalence over the past two decades. However, owing to data collection inconsistencies in the identified studies, neither the modifiable (such as obesity, educational status, emotional support, etc.) nor the non-modifiable (such as gender and age) risk factors of T2DM could be determined, thereby indicating the need for a nationally collective effort in determining these factors. They concluded that neither the modifiable (such as obesity, educational status, emotional support, etc.) nor the non-modifiable (such as gender and age) risk factors of T2DM could be determined, thereby indicating the need for a nationally collective effort in determining these factors.[37]

B.R. Feyisa, G .Mosisa, B.Biru,S.Debelo and M.Dufera (30th June 2019),conducted a community-based cross-sectional study on Type 2 Diabetes Mellitus among adults aged from 18 to 69 years old residing in Selected Towns of Western Ethiopia: population based on 378,340. Results reveal that the prevalence of T2DM was 7.0% (95% confidence interval CI 5.4–8.8) with 8.5% and 6.0% (95% CI 3.9–8.1) among males and females, respectively. Being married (95% CI 1.1–14.7) and divorced (95% CI 1.1–34.4), consumption of inadequate fruits and vegetables per day (95% CI 1.1–6.8), physical inactivity (95% CI 2.5–10.0), hypertension (95% CI 1.3–6.2), overweight (95% CI 1.1–4.9), and obesity (95% CI 4.5–50.1) were factors independently associated with T2DM. From the study findings it was concluded that the prevalence of DM

in the study area was found to be substantially higher than the national prevalence and other pocket studies in the country.[38]

Singh P, SharmaH, S. Zafar, Singh P, Yadav K, Rajesh K. Gautam (2017) conducted a study on Prevalence of type 2 diabetes mellitus in rural population of India- a study from Western Uttar Pradesh that was planned to determine the prevalence of diabetes mellitus in rural community by health camp and door to door approach. Fasting capillary blood glucose was first determined using a glucose meter (SD check code free, SD biosensor Inc. Korea). Results: Prevalence of type 2 diabetes in the rural population was found to be 8.03%. Prevalence was higher in female population (9.91%) as compared to males (6.79%). 19.74 % of participants over 70 yrs of age were diabetics while diabetes was present only in 2.95% of participants in the age group of 25-39 year. The maximum number of diabetes was in the age group of 50-59 years. 10.04 % of participants were diagnosed to be prediabetics. 35.77% of the diabetics were newly diagnosed. In their conclusions said present study shows there is high prevalence of type 2 diabetes in rural area of western Uttar Pradesh, India.[39]

Dedov.I, Shestakova.M, Massi.M, Simon.B, Pakhomov.L and Galstyan.G (February 2015), conducted a cross-sectional study on Prevalence of type 2 diabetes mellitus (T2DM) in the adult Russian population: population based on 26,620 in Russian adults. Results revealed that Overall, 5.4% were diagnosed with T2DM (previously diagnosed: 2.5%; previously undiagnosed: 2.9%); 19.3% were pre-diabetic. T2DM prevalence increased with age (up to 70 years) and was higher among females than males (6.1% vs. 4.7%, $p < 0.001$). The estimated proportion of subjects with pre-diabetes and T2DM tended to increase with increasing body mass index. T2DM prevalence was higher in rural versus urban populations (6.7% vs. 5.0%, $p < 0.001$).From their findings it was concluded that in the Russian adult population, 19.3% had pre-diabetes, T2DM prevalence was 5.4%, and 54% of subjects with diabetes were previously undiagnosed. These results may help to develop a new T2DM predictive, preventative and management programme in Russia.[40]

Rao C, G. Veena, Shetty A and Kamath A (2010) conducted a A cross-sectional community-based survey on A cross-sectional community-based survey. In their study results revealed that out of 1,239 respondents the overall prevalence of diabetes was 16%. Self-reported diabetes was 11.2%, while 4.8% of previously normal people were found to have high fasting capillary blood glucose levels. Increasing age showed two-fold, four-fold, and six-fold higher odds for 40 - 49, 50 - 59, and ≥ 60 years age group, respectively, as compared to the 30 - 39 year age group ($P < 0.001$). Nineteen percent of the males had diabetes, (OR = 1.38, 95% CI = 1.01 - 1.88). In the high socioeconomic strata, 32% of the subjects had diabetes ($P = 0.018$ unadjusted odds ratio 3.29, 95% CI = 1.40 - 7.74). In their study conclusion said that the high prevalence of diabetes in this coastal population needs further evaluation. [41]

SUMMARY

This chapter dealt with the review of literature which were divided into two sections. The first section of review of literature highlighted the risk factors of the developing type-2 Diabetes Mellitus and the second section on the prevalence of developing type-2 Diabetes Mellitus.

CHAPTER-III

RESEARCH METHODOLOGY

This chapter deals with the methodology of research adopted to conduct the study. Research methodology indicates the general pattern for organizing the procedure for gathering valid and reliable data for problem under investigation. It is a way to systematically solve the research problem. Methodology means description, explanation and justification of methods. It is a way to systematically solve the research problem. The chapter on methodology deals with the whole process adopted for the present study including research approach, research design development and description of the tool, setting of the study, population sample and the sampling technique, pilot study, data collection, plan for data analysis and interpretation of data.

RESEARCH APPROACH

"Research methodology is a methodology for answering research questions or hypotheses that may arise. Different types of questions or hypotheses demand different type of research designs; so it is important to have a broad preparation and understanding of the different types of research designs available. In addition, as a single research design may fall short to answer all the research questions or hypotheses, investigators may use a combination of different research design."

A research approach tells the researcher as to what data to collect and the method of analysis. It also suggests possible conclusions to be drawn from the data. The choice of the appropriate approach depends on the purpose of the study.

In this study, quantitative descriptive research approach was used to assess the risk factors of developing type-2 Diabetes Mellitus among the employees working in private sector banks.

RESEARCH DESIGN

The research design is the master plan specifying the methods and procedures for collecting and analysis the needed information in a research study.

Research design can be defined as a blue print to conduct a research study, which involves the description of research approach, study setting, sample size, sampling technique, tools and method of data collection and analysis to answer specific research questions or for testing research hypotheses.

In this study, Cross-sectional descriptive research design was used to assess the risk factors of developing type-2 Diabetes Mellitus among the employees working in private sector banks.

RESEARCH SETTING

Setting may be natural setting or laboratory setting depending upon topic and researcher's choice. The setting is the location in which a study will be conducted.

There are total 86 numbers of private sector banks in Kamrup (M), Assam. Out of which for the present study four (4) private sector banks were selected conveniently, namely USF bank ltd (Panjabari branch), Indusind bank (Ganeshguri branch),Ujjivan small finance bank (Narengi branch) and South Indian Bank (Dispur branch). The total number of private sector banks was collected from the website.[49]

POPULATION

Population refers to a total category of persons or objects that meets the criteria for study established by the researcher, any set of persons, objects or measurements having an observable characteristics in common. While selecting the sample, the researcher used the eligibility criteria, i.e. those characteristics that restrict the population to a homogenous group of subjects.

In this study, population refers to all the employees working in private sector banks.

Target population: A target population consists of the total number of people or objects which are meeting the designated set of criteria.

In this study target population were all the employees working in private sector banks of Kamrup (M), Assam.

Accessible population: It is aggregated of cases that conform to designated criteria and are also accessible as subjects for the study.

In this study accessible population was all the bank employees working in 4 different branches of private sector banks of Kamrup (M),Assam, namely 1) USF bank ltd (Panjabari branch), 2)Indusind bank (Ganeshguri branch) , 3)Ujjivan small finance bank (Narengi branch) ,4) South Indian Bank (Dispur branch) of Kamrup (M),Assam.

The selection of participants from the four private sector banks was done by Simple Random Sampling technique using lottery method in proportionate number.

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TABLE 1

SELECTION OF DESIRED SAMPLE SIZE FROM SELECTED PRIVATE SECTOR BANKS OF KAMRUP (M), ASSAM

PRIVATE SECTOR BANKS NO.	TOTAL EMPLOYEES	PROPORTIONATE NUMBER
1. USF bank ltd (Panjabari branch)	36	26
2. Indusind bank (Ganeshguri branch)	37	27
3. Ujjivan small finance bank (Narengi branch)	34	25
4. South Indian Bank (Dispur branch)	33	25
Total	140	103

SAMPLE AND SAMPLE SIZE

Sample refers to subset of a population that is selected to participate in a study. It is a portion of a population that represents the entire population.

In this study sample size was calculated by using "Raosoft" sample size calculator. The sample consists of 140 employees and the sample size was determined with margin of error 5 percent, confidence level 95 percent and the response distribution as 50 percent. After calculation by using Raosoft sample size calculator the required sample size was 103. Therefore, in this study sample size was 103 employees.

SAMPLING TECHNIQUE

Sampling technique refers to process of selecting subset of population in order to obtain information regarding a phenomenon in a way that it represents the entire population. Sampling is necessary because it is more economical and efficient to work with a small group.

In this study, Simple Random Sampling Technique was used to select 103 employees working in private sector banks of Kamrup (M), Assam.

Stage-I: Out of 86 private sector banks in Kamrup (M),Assam, four (4) private sector banks were selected conveniently, namely USF bank ltd (Panjabari branch), Indusind bank (Ganeshguri branch),Ujjivan small finance bank (Narengi branch) and South Indian Bank (Dispur branch).

Stage-II: List of employees working in USF bank ltd (Panjabari branch), Indusind bank (Ganeshguri branch),Ujjivan small finance bank (Narengi branch) and South Indian Bank (Dispur branch) was collected from the employees record list register from their respective branch manager.

Stage-III: The subjects i.e. employees whom so ever fulfill the study criteria were selected randomly using lottery method from the employees record list register.

SAMPLING CRITERIA

The samples are selected with the following predetermined criteria-

Inclusion criteria

- Employees who are available during data collection.
- Employees who has not previously been diagnosed with type2 DM.

Exclusion criteria

- Employees who are not willing to participate in the study.
- Employees who are pregnant.

VARIABLES

Variables are attributes or characteristics that can have more than one value such as height or weight. In other words, variables are qualities, quantities, properties or characteristics of people, things or situations that change or vary. In this study, two types of variables were used.

Demographic Variables

Demographic variables include such as age, gender, marital status, monthly family income and presence of high blood pressure.

Research Variables

In this study, the research variables are the risk factors of developing type-2 Diabetes Mellitus. Risk factors of type-2 Diabetes Mellitus includes: BMI, hereditary, lifestyle and diet.

TOOLS AND TECHNIQUE

Development of the tool

A research instrument is a device used to measure the concept of the interest in a research project that a researcher uses to collect data. Based on the objectives of the study, tools were developed in order to generate data. The following steps are followed for the development of the tools of the study.

- An extensive review of research and non-research literature.
- Discussion with experts.

- A draft of semi structured interview schedule was developed based on the problem and specific objectives.
- Reliability was computed.
- Final draft of the structured interview schedule was prepared

Description of the tool

Based on the statement of problem, specific objectives and operational definitions of the study, the tools are developed to gather the data.

The tools is divided into 2 sections –

Section I: Demographic Performa

It consists of demographic variables like age in years, gender, marital status, monthly family income and presence of high blood pressure.

Section II: Biophysiological method & Semi Structured Questionnaires to assess the risk factors of developing type-2 Diabetes Mellitus.

The weight was checked with a weighing machine, and height was measured with non-stretchable measuring tape to obtain the BMI of the employees.

The Body Mass Index of the 103 employees working in private sector bank was calculated and categorized according to WHO[(50)].

WHO Classification of BMI:

Underweight	< 18.5
Healthy	18.5-24.9
Overweight	25.0-29.9
Obese	≥ 30

VALIDITY OF THE TOOL

The content validity refers to the degree to which an instrument measures what is supposed to be measuring.

To ensure the content validity the prepared tool along with the statement of problem, specific objectives, hypotheses and operational definitions were submitted to Nine (9) experts. Among them eight (8) experts were from Medical surgical nursing department and one (1) physician from the department of Endocrinology.

Based on their expertise and interest in the problem, the experts were requested to give their opinion and verify the item for relevancy, accuracy and appropriateness. On the basis of suggestions given by experts, modification and rearrangements of the item were done. With 100% agreement the approved items were accepted.

To ensure the validation of the weighing machine, instrumental error was corrected before data collection in order to obtain accurate measurement. The weighing machine was checked for the zero marking before recording the weight. Proper functioning of the weighing machine was assessed by weighing a known weight.

To ensure the validation of the non-stretchable measuring tape, proper functioning of the measuring tape was assessed by a known height.

RELIABILITY OF THE TOOL

Reliability is the degree of consistency and accuracy with which an instrument measures the attribute for which it is designed to measure.

Reliability is defined as the ability of an instrument to create reproducible results. Therefore reliability is concerned with consistency of the instruments tools. A tool only can be considered reliable if it measures an attribute with similar results on repeated use.

The reliability of the semi structured questionnaires on the risk factor of developing Type-2 Diabetes Mellitus has been done by using Karl Pearson's Split Half Method. The items of the tool were divided in two equal parts through grouping in odd number questions and even number questions. In split half method, the value of 'r' is found to be 0.86 which indicate that the tool was reliable and statistically significant.

The reliability of the instruments (weighing machine and non-stretchable measuring tape) was tested by using Karl Pearson's test-retest reliability method among 6 samples, the investigator administered the instrument twice and compared the measurements. The value of 'r' is found +1 for weighing machine which indicates perfect reliability and the value of 'r' is found 0.90 for non-stretchable measuring tape which indicates an acceptable level of reliability, hence the instruments were reliable.

PILOT STUDY

Pilot study is a trial study carried out before a research design is finalized to assist in defining the research question or to test the feasibility, reliability, and validity of the proposed study design.

Pilot study is a small preliminary investigation of the same general character as the major study, which is designed to acquaint the researcher with the problem that can be corrected in preparation for a large research project.

The purpose of the Pilot study was:

- To evaluate the tool/instrument developed
- To find out the feasibility of conducting the final study
- To determine the method of statistical analysis

After obtaining formal permission from the authority (Appendix E_1) the pilot study was conducted at ICICI bank Ganeshguri branch. After a brief explanation of the research procedure consent was taken from the subjects. The subjects were coded in numbers so that anonymity and confidentiality could be maintained. Interview schedule was done and collected data from the bank employees. Waist circumference was measured and BMI was checked by measuring height and weight. The data were analyzed by using descriptive and inferential statistics. The pilot study was conducted on 06-12-2022 to 12-12-2022 among 12 numbers of employees working in bank. The pilot study findings revealed that the majority of the employees were overweight that is 41.67% followed 8.33% employees were Obese.41.67% were having family history of type 2 DM. 33.33% participants had been exercising less than 30 minutes whereas 50% were perform exercise once a week, rarely and 3-5 times a week. 75% employees do not perform Yoga. 41.67% participants smoke tobacco products whereas. 75% participants consume alcohol out of that 55.56% consume alcohol once a week. 75% participants were regularly taking carbonated cold drinks whereas 50% participants take extra sugar in tea or other juice. 75% participants take junk foods out of that 66.67% take junk foods daily.

After completing the pilot study, the study was found to be feasible and practicable.

ETHICAL CONSIDERATION

Ethics in nursing research is the act of moral principles which the researcher has to follow while conducting nursing research to ensure the right and welfare of individuals, group or community under study.[48]. In the present study, following ethical formalities were taken into considerations.

- Prior to the data collection, written permission was obtained from the Principal of CPMS College of Nursing.
- Study was done after obtaining ethical approval from the institutional Ethical committee of PEWS Group of Institutions, Guwahati-26. (Appendix $A_)$

- Permission was taken from the bank managers of USF Bank Ltd (Panjabari Branch), Indusind Bank (Ganeshguri Branch),Ujjivan small finance Bank (Narengi Branch) , South Indian Bank, Dispur Branch. (Appendices $E_2 – E_5$)
- After a brief explanation of the research procedure, verbal and written consent was taken from the subjects. (Appendix $H_)$
- The subjects ware ensured of the confidentiality of the data obtained.

DATA COLLECTION PROCEDURE

Data collection is the precise, systematic gathering of information relevant to the research purpose or the specific objectives, questions or hypotheses of a study.

Before the collecting the data, permission was obtained from the bank managers of USF Bank Ltd (Panjabari Branch), Indusind Bank (Ganeshguri Branch) ,Ujjivan small finance Bank (Narengi Branch) , South Indian Bank (Dispur Branch).The verbal and written consent was obtained from all the subjects of the study after explaining the purpose and other details of the study and also assured anonymity and confidentiality of information provided by them. The data was collected on 04-05-2023 to 27-05-2023. Data collection was done by the administering the interview method and using biophysiological method (using weighing machine and non-stretchable measuring tape).

Data collection was done in following steps-

1. Measurement of BMI

The weight was checked with a weighing machine, and height was measured with non-stretchable measuring tape to obtain the BMI.

Weight- Weight was measured by using Krupp's weighing machine (adult weighing machine) in kilograms. Instrumental error was corrected before each data collection in order to obtain accurate measurement. The machine was checked for the zero marking before recording the weight of each employee. During the weighing process, employees were allowed to remove their footwear and stand and look straight. The same instrument was used throughout the study.

Height- Height was measured by using non-stretchable measuring tape. The employees were made to stand upright without shoes against a vertical wall. The four points of the body, i.e. occiput, shoulders, buttocks and heels were allowed to touch the wall. The head was held erect with eyes aligned horizontally and ears vertically without any tilt. By placing the hardboard on tip of the head, a line with pencil is marked on the wall. The distance between the line and the floor was measured in centimeters with the help of non-stretchable measuring tape and height was measured. The same instrument was used throughout the study.

After measuring weight and height of the employees, BMI was calculated and recorded. (Appendix I)

2. The semi structured interview method is used to collect data for assessing the risk factors of developing type-2 Diabetes Mellitus.

PLAN FOR DATA ANALYSIS

The data obtained are analyzed on the basis of the objectives of the study using both descriptive and inferential statistics. Inferential statistics which are based on laws of probability provide a means of drawing conclusion about population from which data are obtained for the study.

The descriptions of the subjects with respect to demographic variables are presented in terms of frequency and percentage. Data are presented by using various graphical devices like bar diagram, pie diagram. The risk factors of developing type-2 Diabetes Mellitus among employees working in private sector banks are assessed by frequency and percentage distribution.

Chi-square is used for measuring association between risk factors and selected demographic variables. The values are compared at 5% level of significance for corresponding degree of freedom $p < 0.05$ was considered as not significant and $p >$ value was considered as significant. The results obtained by calculating the data are represented in the form of tables.

A study to assess the Risk factors of developing Type-2 Diabetes Mellitus among the Employees working in selected Private Sector Banks of Kamrup (M), Assam.

↓

Research approach: Quantitative research approach

↓

Research design: Cross sectional descriptive research design

↓

Setting of the study: Out of 86 private sector banks the study was conducted at 4 different private sector banks of Kamrup (M),Assam

↓

Population: All the employees working in private sector banks.
Target population: All the employees working in private sector banks of Kamrup (M), Assam.
Accessible population: In this study accessible population was all the bank employees working in 4 different branches of private banks of Kamrup (M),Assam, namely 1) USF bank ltd (Panjabari branch), 2)Indusind bank (Ganeshguri branch) , 3)Ujjivan small finance bank (Narengi branch) ,4) South Indian Bank (Dispur branch) of Kamrup (M),Assam.

↓

Sample size: 103

↓

Sampling technique: Simple Random Sampling Technique

↓

Variables

Research Variables: In this study, the research variables are risk factors of Developing Type 2 Diabetes Mellitus.

Demographic Variables: Demographic variables include such as age, gender, marital status, dietary habits, monthly family income and presence of high blood pressure

↓

Tools for data collection: Interview schedule and Biophysiological method.

↓

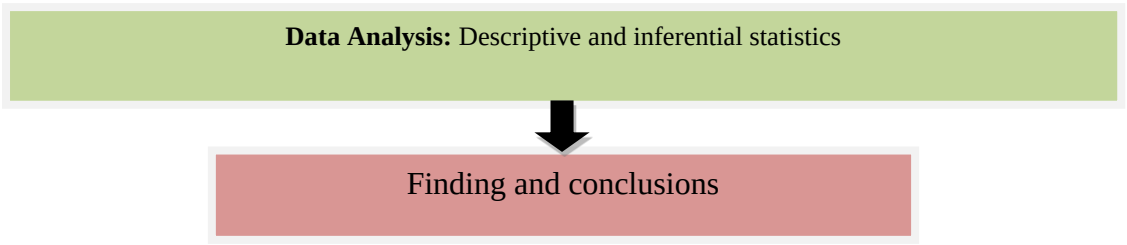

FIGURE 2
SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY

SUMMARY

This chapter dealt with the research approach, research design, research setting, population, sample and sample size, sampling technique, sampling criteria (inclusion and exclusion criteria), variables, tools and technique, validity of the tool, reliability of the tool, pilot study, ethical consideration, data collection procedure, plan for data analysis and schematic representation of research methodology.

CHAPTER-IV
ANALYSIS AND INTERPRETATION

The term "analysis" refers to the computation of certain measures along with searching for patterns of relationship that exist among data groups.

During analysis, the emphasis was given on identifying themes and patterns in the data. Interpretation may focus on the usefulness of the findings for clinical practice or may move toward theorizing.

This chapter deals with analyses and interpretation of the information collected from 103 employees working in private sector banks of Kamrup (M), Assam. The present study was designed to assess the risk factors of developing type- Diabetes Mellitus among private sector bank employees. Collected data was tabulated, analyzed and interpreted by using descriptive and inferential statistics.

Specific objectives

The following are the objectives are formulated to carry out the study:

1. To assess the risk factors of developing Type-2 Diabetes Mellitus among the employees working in selected private sector banks of Kamrup (M), Assam.

2. To find out the association between the risk factors of developing Type 2 Diabetes Mellitus with selected demographic variables.

Hypothesis

H_1**:** There is significant association between risk factors of developing Type2 Diabetes Mellitus with selected demographic variables at 0.05 level of significant.

ORGANIZATION AND PRESENTATION OF DATA

In order to show the findings of present study, the obtained data were organized. Tabulated, interpreted and presented under the following headings:

Section I: Frequency and percentage distribution of demographic variables of the employees working in private sector banks.

Section II: Frequency and percentage distribution of the risk factors of developing type-2 Diabetes Mellitus among employees working in private sector banks.

Section III: Association on risk factors of developing type-2 Diabetes Mellitus with selected demographic variables such as age, gender, marital status, monthly family income and presence of high blood pressure.

Section I: Frequency and percentage distribution of demographic variables of the employees working in private sector banks

This section described frequency and percentage distribution of the sample characteristics of employees working in private sector banks. The sample characteristics was described in terms of demographic variables including Age, gender, marital status, monthly family income and presence of high blood pressure. Findings are presented in table no. 1.1 to table no. 1.5 and figure 3.1 to 3.5.

TABLE 1.1

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THEIR AGE

n=103

AGE IN YEARS	FREQUENCY (f)	PERCENTAGE (%)
25 - 30 years	44	42.76
31 - 35 years	26	25.24
36 - 40 years	18	17.47
41 - 45 years	9	8.73
> 45 years	6	5.8
Total	103	100

The data presented in table 1.1 shows that, majority of the employee i.e. 44 (42.76%) belong to age group of 25-30 years, followed by 26 (25.24%) between the age of 31- 35 years, 18 (17.47%) between the age 36-40 years, 9 (8.73%) between the age of 41-45 years and 6 (5.8 %) above >45 years of age.

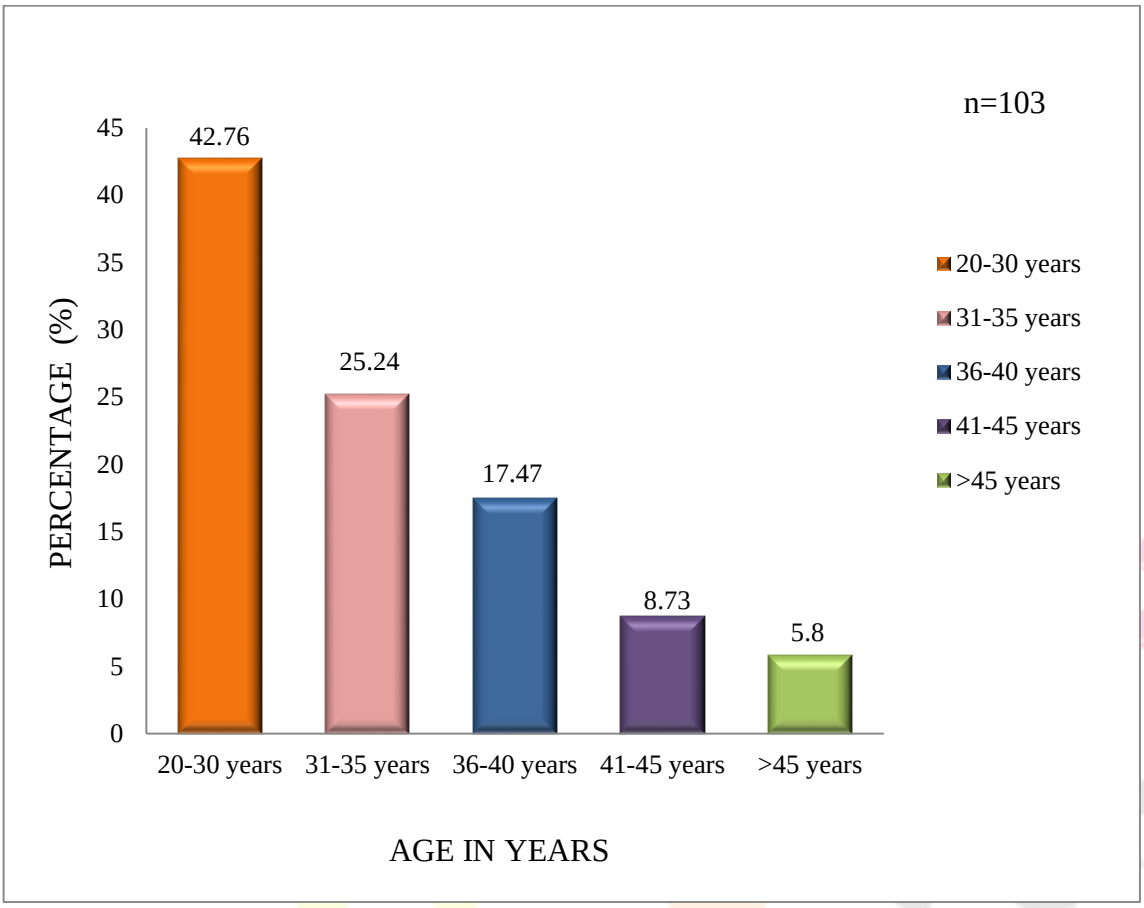

FIGURE 3.1

BAR DIAGRAM SHOWING THE PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THEIR AGE

TABLE 1.2

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THEIR GENDER

n=103

GENDER	FREQUENCY (f)	PERCENTAGE (%)
Male	53	51.16
Female	40	38.84
Total	103	100

The data presented in table 1.2 shows that out of 103 employee majority of respondents were male i.e.63 (61.16%) and 40 (38.84%) respondents were female.

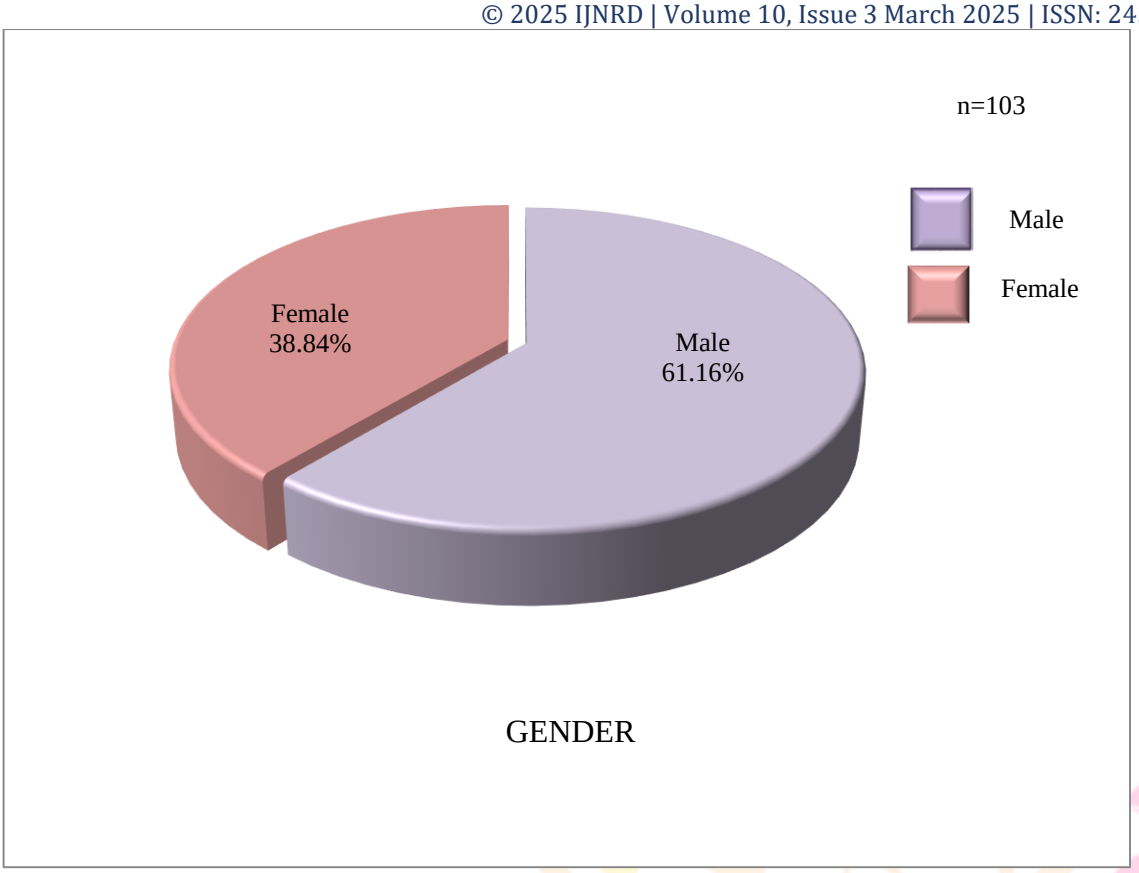

FIGURE 3.2

PIE DIAGRAM SHOWING THE PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THEIR GENDER

TABLE 1.3

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THEIR MARITAL STATUS

n=103

MARITAL STATUS	FREQUENCY (f)	PERCENTAGE (%)
Married	51	49.51
Unmarried	51	49.51
Separated	-	-
Divorced	1	0.98
Widowed	-	-
Total	103	100

The data presented in table 1.3 depicts the distribution of employees according to their marital status. It is found that married and unmarried employees were 51 (49.51%) and 1 (0.98%) of the employee was divorced. None of them were separated and widowed.

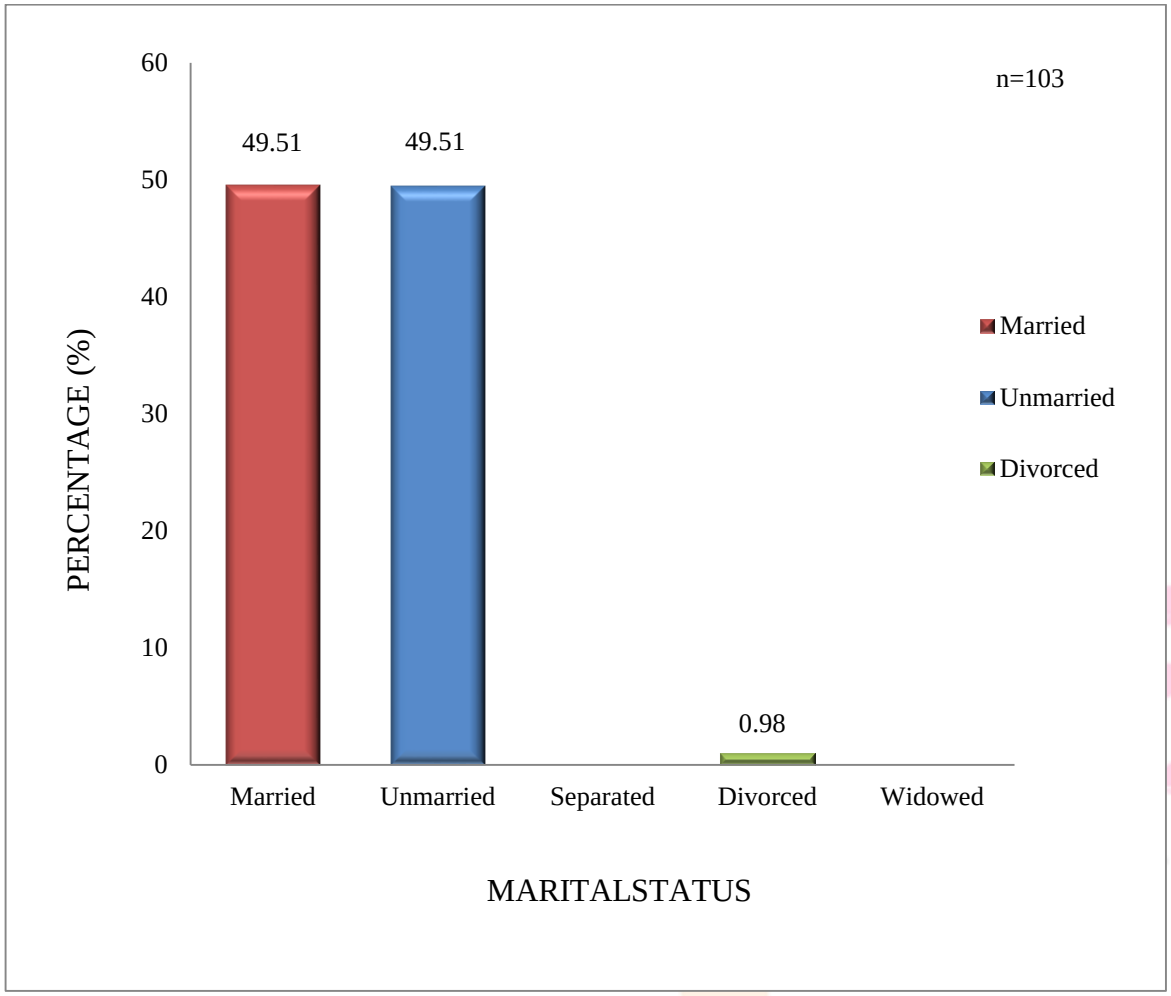

FIGURE 3.3

BAR DIAGRAM SHOWING THE PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THEIR MARITAL STATUS

TABLE 1.4

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THEIR MONTHLY FAMILY INCOME

n=103

MONTHLY FAMILY INCOME (RS)	FREQUENCY (f)	PERCENTAGE (%)
≥ 184,376	13	12.63
92,191 - 184,370	33	32.03
68,967 - 92,185	20	19.42
46,095 - 68,961	14	13.59
27,654 - 46,089	8	7.76
9232 - 27,648	13	12.62
≤ 9226	2	1.97
Total	103	100

The data presented in table 1.4 shows that out of 103 employees, majority of the employees 33(32.03%) were having monthly family income between 92,191-184,370 followed by 20 (19.41%) were having monthly income of 68,967-92,185, 14 (13.59%) were having monthly income 46,095-68,961, family income under 9232-27,648 and ≥184,376 have 13(12.63%), 8 (7.76) have family income of 27,654 46,089 and 2 (1.97%) have ≤ 9226 of monthly family income.

FIGURE 3.4

BAR DIAGRAM SHOWING PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO MONTHLY FAMILY INCOME

TABLE 1.5

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THEIR PRESENCE OF HIGH BLOOD PRESSURE

n=103

DO YOU HAVE HIGH BLOOD PRESSURE	FREQUENCY (f)	PERCENTAGE (%)
Yes	24	23.31
No	79	76.69
Total	103	100

The data presented in table 1.5 shows that the majority of the employees i.e. 79(76.69%) did not have high blood pressure followed by 24(23.31%) are having high blood pressure.

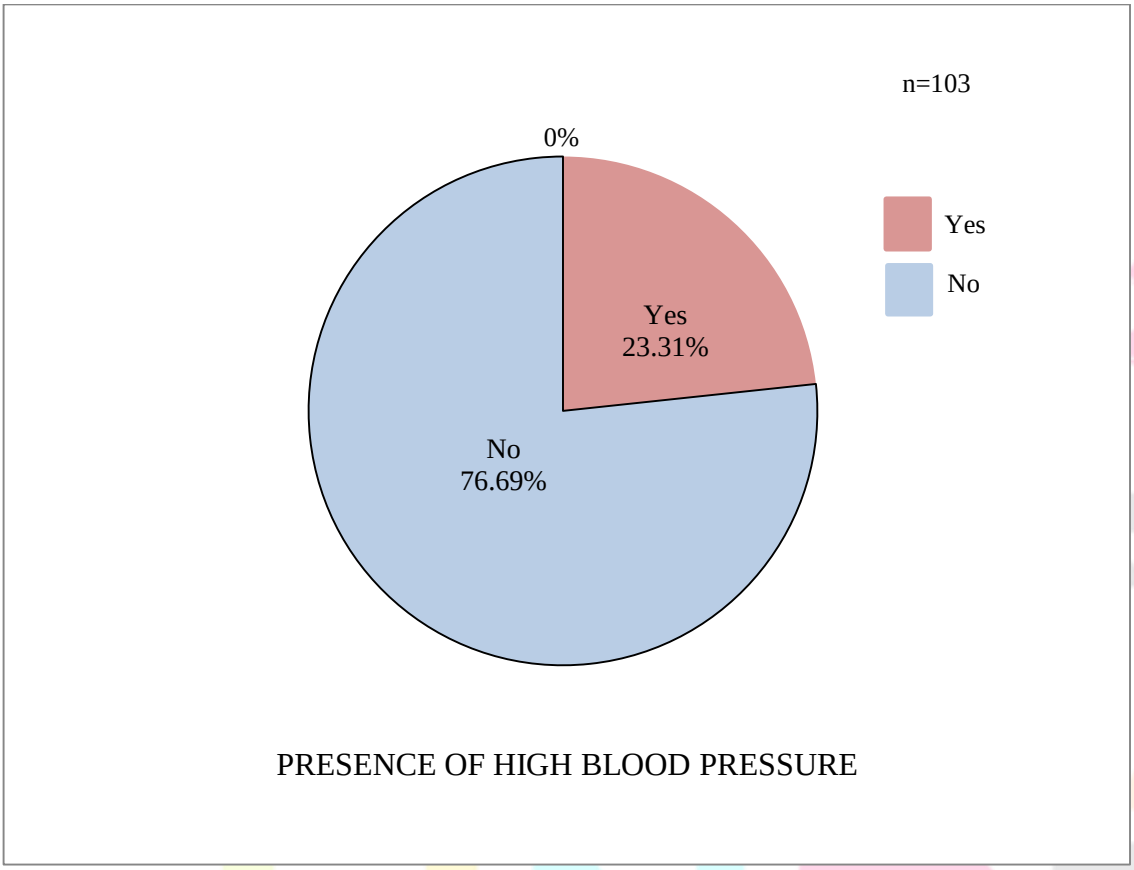

FIGURE 3.5

PIE DIAGRAM SHOWING PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THEIR PRESENCE OF HIGH BLOOD PRESSURE

Section II: Frequency and percentage distribution of the risk factors of developing type-2 Diabetes Mellitus among employees working in private sector banks

This section summarized and analyzed in terms of frequency & percentage distribution of the risk factors of developing type-2 Diabetes Mellitus among employees working in private sector banks. In this study the risk factors that included are BMI, hereditary, sedentary lifestyle and dietary factor. The findings are presented in table no. 2.1 to table no. 2.4(f).

TABLE 2.1

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THEIR BMI

n=103

BMI	FREQUENCY (f)	PERCENTAGE (%)
Underweight (< 18.5 kg/m^2)	2	1.94
Healthy (18.5-24.9 kg/m^2)	47	45.63
Overweight (25.0-29.9 kg/m^2)	42	40.77
Obese (≥ 30 kg/m^2)	12	11.66
Total	103	100

The data presented in table 2 shows that the majority of the employees i.e. 47(45.63%) were healthy followed by 42(40.77%) overweight. 12(11.66%) employees were obese and another 2(1.94%) employees were underweight.

TABLE 2.2

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n=103

RISK FACTORS	YES		NO	
HEREDITARY	FREQUENCY (f)	PERCENTAGE (%)	FREQUENCY (f)	PERCENTAGE (%)
Do you have any family history of type 2 Diabetes Mellitus?	49	47.57	54	52.43

The data presented in table 2.2 shows that out of 103 employees, the findings reveal that 49(47.57%) were having family history of type-2 Diabetes Mellitus and 54(52.43%) did not have any family history of type 2 Diabetes Mellitus.

TABLE 2.3

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n= 103

RISK FACTORS	**YES**		**NO**	
LIFESTYLE	**FREQUENCY (f)**	**PERCENTAGE (%)**	**FREQUENCY (f)**	**PERCENTAGE (%)**
.) Do you perform exercise?	62	60.19	41	39.81

The data presented in table 2.3 shows that out of 103 participants the findings reveal that 62(60.19%) employees perform exercise and 41(39.81%**)** employees do not perform any exercise.

TABLE 2.3 (a)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES EXERCISE IN DURATION

n=62

DURATION OF EXERCISE	FREQUENCY (f)	PERCENTAGE (%)
<30 minutes	44	70.96
30 -60 minutes	16	25.80
1.01-2 hours	2	3.24
>2 hours	-	-

The data presented in table 2.3 (a) shows the duration of exercise performed, out of 62 employees who performed exercise majority of i.e. 44(70.96%) employees performed exercise less than 30 minutes followed by 16(25.80%) employees performed exercise between 30-60 minutes and 2(3.24%) of the employees performed between 1.01-2 hours of exercise and none of the employees performed exercise more than >2hours.

TABLE 2.3 (b)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES PERFORMING EXERCISE

n=62

FREQUENCY OF EXERCISE	FREQUENCY (f)	PERCENTAGE (%)
Everyday	16	25.83
Once a week	13	20.96
Twice a week	5	8.06
3-5 times a week	5	8.06
Rarely	23	37.09

The data presented in table 2.3(b) shows the frequency of exercise performed, out of 62 employees who performed exercise majority of them i.e. 23(37.09%) employees rarely performed exercise followed by 16(25.83%) employees performed exercise everyday, 13(20.96%) employees performed exercise once a week and 5 (8.06%) employees performed exercise twice a week and another 5(8.06%) employees performed exercise 3-5 times a week.

TABLE 2.3(c)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n=103

	YES		NO	
	FREQUENCY (f)	**PERCENTAGE (%)**	**FREQUENCY (f)**	**PERCENTAGE (%)**
ii) Do you perform Yoga?	45	43.68	58	56.32

The data presented in table 2.3 (c) shows that majority of the employees i.e. 58(56.32%) employees did not perform Yoga followed by 45(43.68%) employees performed Yoga.

TABLE 2.3(d)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES YOGA DURATION

n=45

DURATION OF YOGA	**FREQUENCY (f)**	**PERCENTAGE (%)**
<30 minutes	42	93.33
30-60 minutes	3	6.67
1.01-2 hours	-	-
>2 hours	-	-

The data presented in table 2.3(d) shows the duration of Yoga performed by 45 employees i.e. out of 45 employees 42(93.33%) employees performed yoga less than 30 minutes followed by 3(6.67%) employees performed exercise between 30-60 minutes and none of them performed Yoga between 1.01- 2 hours and more than 2hours.

TABLE 2.3(e)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES PERFORMING YOGA

n=45

FREQUENCY OF PERFORMING YOGA	FREQUENCY (f)	PERCENTAGE (%)
Everyday	13	28.88
Once a week	3	6.66
Twice a week	2	4.44
3-5 times a week	3	6.67
Rarely	24	53.35

The data presented in table 2.3(e) shows the frequency of performing Yoga, out of 45 employees majority i.e. 24(53.35%) employees rarely performed yoga followed by 13(28.88%) employees performed yoga everyday, 3(6.66%) employees performed yoga once a week, another 3(6.67%) of them performed yoga 3-5 times a week and 2(4.44%) employees performed yoga twice a week.

TABLE 2.3(f)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n=103

	YES		NO	
	FREQUENCY (f)	PERCENTAGE (%)	FREQUENCY (f)	PERCENTAGE (%)
iii)Do you go to office by walking?	27	26.22	76	73.78

The data presented in table 2.3 (f) shows that majority of the employees i.e. 76(73.78%) employees did not go to office by walking and 27(26.22%) employees were going to office by walking.

TABLE 2.3 (g)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n=103

	YES		NO	
	FREQUENCY (f)	PERCENTAGE (%)	FREQUENCY (f)	PERCENTAGE (%)
iv) Do you smoke any tobacco products?	64	62.14	39	37.86

The data presented in table 2.3 (g) shows that majority of the employees i.e 64 (62.14%) of them smoke tobacco products and 39(37.86%) did not smoke tobacco products.

ABLE 2.3(h)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WHO SMOKE TOBACCO PRODUCTS

n=64

FREQUENCY OF SMOKING TOBACCO	FREQUENCY (f)	PERCENTAGE (%)
Everyday	24	37.5
Once a week	9	14.06
Twice a week	-	-
3-5 times a week	1	1.57
Rarely	30	46.87

The data presented in table 2.3(h) shows the frequency of smoking tobacco out of 64 employees majority i.e. 30(46.87%) employees rarely smoke tobacco products followed by 24(37.5%) employees smoke

everyday, 9(14.06%) employees smoke once a week and 1(1.57%) employee smokes tobacco product 3-5 times a week.

TABLE 2.3 (i)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n=103

	YES		**NO**	
	FREQUENCY (f)	**PERCENTAGE (%)**	**FREQUENCY (f)**	**PERCENTAGE (%)**
v) Do you consume alcohol?	71	68.94	32	31.06

The data presented in table 2.3(i) shows that majority of the employees i.e. 71(68.94%) consume alcohol and 32(31.06%) did not consume alcohol.

TABLE 2.3(j)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WHO CONSUME ALCOHOL

n=71

FREQUENCY FOR CONSUME ALCOHOL	**FREQUENCY (f)**	**PERCENTAGE (%)**
Everyday	21	29.57
Once a week	10	14.08
Twice a week	2	2.84
3-5 times a week	3	4.22
Rarely	35	49.29

The data presented in table 2.3(j) shows the frequency of consume alcohol, out of 71 employees majority i.e. 35(49.29%) consume alcohol rarely followed by 21(29.57%) employees consume alcohol

everyday, 10(14.08%) employees consume alcohol once a week, 3(4.22%) employees consume alcohol 3-5 times a week and 2(2.84%) employees consume alcohol twice a week.

TABLE 2.4

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n=103

RISK FACTORS DIET	FREQUENCY (f)	PERCENTAGE (%)
). Dietary habits		
Vegetarian	16	15.53
Non vegetarian	84	81.55
Vegan	3	2.92
Total	103	100

The data presented in table 2.4 shows that the majority of the employees i.e. 84(81.55%) belong to non vegetarian followed by 16(15.53%) were Vegetarian and 3(2.93%) were vegan.

TABLE 2.4 (a)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n=103

	YES		NO	
	FREQUENCY (f)	PERCENTAGE (%)	FREQUENCY (f)	PERCENTAGE (%)
ii). Do you take sweets?	96	93.21	7	6.79

The data presented in table 2.4 (a) shows that majority of the employees i.e. 96 (93.21%) took sweets and 7 (6.79%) of them did not take sweets.

TABLE 2.4(c)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n=103

	YES		NO	
	FREQUENCY (f)	PERCENTAGE (%)	FREQUENCY (f)	PERCENTAGE (%)
ii). Do you regularly take carbonated cold drinks?	70	67.96	33	32.04

The data presented in table 2.4 (c) shows that out of 103 participants 70(67.96%) participants were regularly taking carbonated cold drinks

TABLE 2.4 (d)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n=103

	YES		NO	
	FREQUENCY (f)	PERCENTAGE (%)	FREQUENCY (f)	PERCENTAGE (%)
v). Do you take extra sugar in tea or other juice?	63	61.16	40	38.84

The data presented in table 2.4(d) shows that 63 (61.16%) employees take extra sugar in tea or other juice and 40(38.84%) employees did not take extra sugar in tea or other juice

TABLE 2.4 (e)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WORKING IN PRIVATE BANKS ACCORDING TO THE RISK FACTORS OF DEVELOPING TYPE-2 DIABETES MELLITUS

n=103

	YES		NO	
	FREQUENCY (f)	PERCENTAGE (%)	FREQUENCY (f)	PERCENTAGE (%)
v). Do you take junk foods?	95	92.24	8	7.76

The data presented in table 2.4 (e) shows that majority of the employees i.e. 95(92.24%) employees take junk foods and 8(7.76%) employees did not take junk foods

TABLE 2.4(f)

FREQUENCY AND PERCENTAGE DISTRIBUTION OF EMPLOYEES WHO TAKE JUNK FOODS

n=95

FREQUENCY OF TAKING JUNK FOODS	FREQUENCY (f)	PERCENTAGE (%)
Everyday	20	21.05
Once a week	35	36.84
Twice a week	14	14.73
3-5 times a week	6	6.33
Rarely	20	21.05

The data presented in table 2.4(f) shows on the frequency of taking junk foods out of 95 employees majority i.e. 35(36.84%) employees were taking junk foods once a week followed by 20(21.05%) employees took every day and also rarely 20(21.05%) of them were taking junk foods, 14(14.73.33%) employees took junk foods twice a week and least 6(6.33%) employees were taking junk foods 3-5 times a week.

The above section II, table no. 2.1 to table no. 2.4(f) shows that BMI, hereditary, lifestyle and dietary are the risk factors of developing type-2 Diabetes Mellitus among employees working in private sector banks. The findings reveal, in terms of BMI 42 (40.77%) of the bank employees in the private sector were overweight, 12(11.66%) obese, 49 (47.57%) had a family history of type 2 diabetes mellitus, and 41(39.81%) do not exercise regularly, 64 (62.14%) of them smoke tobacco products and 71(68.94%) consume alcohol. Majority of the employees i.e. 96 (93.21%) take sweets and 7(6.79%) of them did not take sweets,70 (67.96%) participants were regularly taking carbonated cold drinks and 63(61.16%) participants take extra sugar in tea or other juice. majority of the employees i.e.95 (92.24%) participants take junk foods.

Section III: Association on risk factors of developing type-2 Diabetes Mellitus with selected demographic variables such as age, gender, marital status, monthly family income and presence of high blood pressure

This section presents the association of risk factors of developing type-2 Diabetes Mellitus with selected demographic variables such as age, gender, marital status, monthly family income and presence of high blood pressure. The chi square has been computed to determine the association between the risk factors of type 2 Diabetes Mellitus with selected demographic variables.

To summarize the sample characteristics, the data are presented in table 3.1 to 3.4(e)

TABLE 3.1

ASSOCIATION BETWEEN THE RISK FACTORS (BMI) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	DEMOGRAPHIC VARIABLES	BMI				CHI SQUARE VALUE (χ^2)	df	TABLE VALUE	INFERENCES
		Under Weight	Healthy	Over Weight	Obese				
1	**Age in years**								
	25-30 years	2	29	13	.	55.39	12	21.03	S
	31-35 years	.	12	13	1				
	36-40 years	.	5	11	2				
	41-45 years	.	1	2	6				
	>45 years	.	.	3	3				

2	**Gender**								
	Male	2	22	32	7	9.35	3	7.82	S
	Female	-	25	10	5				
3	**Marital status**								
	Married	-	19	23	9	3.85	12	21.03	NS
	Unmarried	2	28	18	3				
	Separated	-	-	-	-				
	Divorced	-	-	1	-				
	Widowed	-	-	-	-				
4	**Monthly family income in Rupees**								
	≥184,376						18		
	92,191-184,370	1	10	1	1	98		28.87	S
	68,967-92,185	-	13	9	11				
	46,095-68,961	1	9	10	-				
	27,654-46,089	-	7	7	-				
	9232-27,648	-	4	4	-				
	≤9226	-	3	10	-				
		-	1	1	-				
5	**Do you have high blood pressure?**								
	Yes								
	No	-	10	10	4	1.39	3	7.82	NS
		2	37	32	3				

*p < 0.05 level of significance, NS – Non Significant; S – Significant

Contd…..

The data on table 3.1 depicts the association between the risk factors of type-2 d[illegible]us i.e. BMI with demographic variables such as age, gender, marital status, monthly family income and presence of high blood pressure. The calculated value for age is $\chi^{2=}$55.39 at df=12, for gender $\chi^{2=}$9.35 at df=3, for marital status $\chi^{2=}$8.85 at df=12, for monthly family income $\chi^{2=}$98 at df=18 and for presence of high blood pressure $\chi^{2=}$1.39 at df=3. Thus, the value reveals that there is significant association in regard to age, gender and monthly family income at 0.05 level of significance .Hence, research hypothesis H_1 is accepted in regard to age, gender and monthly family income

TABLE 3.2

ASSOCIATION BETWEEN THE RISK FACTORS (HEREDITARY) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLE

n=103

SL NO	DEMOGRAPHIC VARIABLES	HEREDITARY		CHI SQUARE VALUE (χ^2)	df	TABLE VALUE	INFERENCES
		Yes	No				
1	**Age in years**						
	25-30 years	12	32	23.68	4	9.49	S
	31-35 years	20	5				
	36-40 years	3	10				
	41-45 years	3	5				
	>45 years	5	-				
2	**Gender**						
	Male	30	33	0.25	1	3.84	NS
	Female	19	21				
3	**Marital status**						
	Married	26	25	1.754	4	9.49	NS
	Unmarried	22	29				
	Separated	-	-				
	Divorced	1	-				
	Widowed	-	-				
4	**Monthly family income in Rupees**						
	≥184,376						
	92,191-184,370	5	3	4.64	6	12.59	NS
	68,967-92,185	20	13				
	46,095-68,961	10	10				
	27,654-46,089	6	3				
	9232-27,648	3	5				
	≤9226	4	9				
		1	1				
5	**Do you have high blood pressure?**						
	Yes						
	No	20	4	17.1	1	3.84	S
		29	50				

*****$p < 0.05$ level of significance, NS – Non Significant; S– Significant

Contd…..

The data on table 3.2 depicts the association between the risk factors of type-2 diabetes mellitus i.e. hereditary with demographic variables such as age, gender, marital status, monthly family income and presence of high blood pressure. The calculated value for age is χ^2=23.68 at df= 4, for gender $\chi^{2=}$0.25 at df=1, for marital status $\chi^{2=}$1.754 at df=4, for monthly family income $\chi^{2=}$4.64 at df=6, for presence of high blood pressure $\chi^{2=}$17.1 at df=1.Thus, the value reveals that there is significant association in regard to age and presence of

high blood pressure at 0.05 level of significance. Hence, research hypothesis H_1 is accepted in regard to age and presence of high blood pressure.

Contd…..

TABLE 3.3 (a)

ASSOCIATION BETWEEN THE RISK FACTORS (LIFESTYLE) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	DEMOGRAPHIC VARIABLES	I). PHYSICAL EXERCISE		CHI SQUARE VALUE (χ^2)	df	TABLE VALUE	INFERENCES
		Yes	No				
1	**Age in years**						
	25-30 years	32	12	10.18	4	9.49	S
	31-35 years	12	14				
	36-40 years	12	6				
	41-45 years	5	4				
	>45 years	1	5				
2	**Gender**						
	Male	34	29	2.62	1	3.84	NS
	Female	28	12				
3	**Marital status**						
	Married	22	29	14.77	4	9.49	S
	Unmarried	40	11				
	Separated	-	-				
	Divorced	-	1				
	Widowed	-	-				
4	**Monthly family income in Rupees**						
	≥184,376	5	8	7.42	6	12.59	NS
	92,191-184,370	22	11				
	68,967-92,185	14	6				
	46,095-68,961	9	5				
	27,654-46,089	4	4				
	9232-27,648	8	5				
	≤9226	-	2				
5	**Do you have high blood pressure?**						
	Yes	19	5	4.65	1	3.84	S
	No	43	36				

*p < 0.05 level of significance, NS – Non Significant; S – Significant

The data on table 3.3(a) shows the association between risk factors of type 2 diabetes mellitus i.e. lifestyle with demographic variables such as age, gender, marital status, monthly family income and presence of high blood pressure. The calculated value for age is χ^2=10.18 at df= 4,for gender $\chi^{2=}$2.62 at df=1, for marital status

$\chi^{2=}$14.77 at df=4, for monthly family income $\chi^{2=}$7.42 at df=6 ,for presence of high blood pressure $\chi^{2=}$4.65 at df=1 .Thus, the value reveals that there is significant association in regard to age, marital status and presence of high blood pressure at 0.05 level of significance. Hence, research hypothesis H_1 is accepted regard to age, marital status and presence of high blood pressure.

TABLE 3.3(b)

ASSOCIATION BETWEEN THE RISK FACTORS (LIFESTYLE) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	DEMOGRAPHIC VARIABLES	II). YOGA		CHI SQUARE VALUE (χ^2)	df	TABLE VALUE	INFERENCES
		Yes	No				
1	**Age in years**						
	25-30 years	13	31	8.33	4	9.49	NS
	31-35 years	16	10				
	30-40 years	10	8				
	41-45 years	4	5				
	>45 years	2	4				
2	**Gender**						
	Male	25	38	1.05	1	3.84	NS
	Female	20	20				
3	**Marital status**						
	Married	30	21	11.07	4	9.49	S
	Unmarried	14	37				
	Separated	-	-				
	Divorced	1	-				
	Widowed	-	-				
4	**Monthly family income in Rupees**						
	≥184,376	8	5	4.80	6	12.59	NS
	92,191-184,370	10	23				
	68,967-92,185	9	11				
	46,095-68,961	6	8				
	27,654-46,089	4	4				
	9232-27,648	7	6				
	≤9226	1	1				
5	**Do you have high blood pressure?**						
	Yes	11	13	0.05	1	3.84	NS
	No	34	45				

*****p < 0.05 level of significance, NS – Non Significant; S – Significant

The data on table 3.3(b) shows the calculated value for age is χ^2=8.33 at df=4, for gender $\chi^{2=}$1.05 at df=1, for marital status $\chi^{2=}$11.07 at df=4, for monthly family income $\chi^{2=}$4.80 at df=6, for presence of high blood pressure $\chi^{2=}$0.05 at df=1. Thus, the value reveals that there is significant association in regard to marital status at 0.05 level of significance. Hence, research hypothesis H_1 is accepted in regard to marital.

TABLE 3.3 (c)

ASSOCIATION BETWEEN THE RISK FACTORS (LIFESTYLE) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	DEMOGRAPHIC VARIABLES	(II). WALK TO WORK		CHI SQUARE VALUE (χ^2)	df	TABLE VALUE	INFERENCES
		Yes	No				
1	**Age in years**						
	25-30 years	7	37	9.93	4	9.49	S
	31-35 years	12	14				
	36-40 years	6	12				
	41-45 years	2	7				
	>45 years	-	6				
2	**Gender**						
	Male	17	46	0.048	1	3.84	NS
	Female	10	30				
3	**Marital status**						
	Married	3	43	7.38	4	9.49	NS
	Unmarried	19	32				
	Separated	-	-				
	Divorced	-	1				
	Widowed	-	-				
4	**Monthly family income in Rupees**						
	≥184,376						
	92,191-184,370	4	9	2.29	6	12.59	NS
	68,967-92,185	10	23				
	46,095-68,961	4	16				
	27,654-46,089	3	11				
	9232-27,648	3	5				
	≤9226	3	10				
	-	-	2				
5	**Do you have high blood pressure?**						
	Yes						
	No	12	12	0.12	1	3.84	S
		15	64				

*p < 0.05 level of significance, NS – Non Significant; S – Significant

The data on table 3.3(c) depicts the calculated value for age is χ^{2}=9.93 at df= 4, for gender $\chi^{2=}$0.048 at df=1, for marital status $\chi^{2=}$7.38 at df=4, for monthly family income $\chi^{2=}$2.29 at df=6, for presence of high blood pressure $\chi^{2=}$9.12 at df=1. Thus, the value reveals that there is significant association in regard to age and presence of high blood pressure at 0.05 level of significance. Hence, research hypothesis H_1 is accepted in regard to age and presence of high blood pressure.

TABLE 3.3 (d)

ASSOCIATION BETWEEN THE RISK FACTORS (LIFESTYLE) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	DEMOGRAPHIC VARIABLES	IV). TOBACCO PRODUCTS		CHI SQUARE VALUE (χ^2)	df	TABLE VALUE	INFERENCES
		Yes	No				
1	**Age in years**			7.68	4	9.49	NS
	25-30 years	21	23				
	31-35 years	18	8				
	36-40 years	14	4				
	41-45 years	7	2				
	>45 years	4	2				
2	**Gender**			0.03	1	3.84	NS
	Male	39	24				
	Female	25	15				
3	**Marital status**			18.36	4	9.49	S
	Married	22	29				
	Unmarried	42	9				
	Separated	-	-				
	Divorced	-	1				
	Widowed	-	-				
4	**Monthly family income in Rupees**			10.72	6	12.59	NS
	≥184,376	8	5				
	92,191-184,370	20	13				
	68,967-92,185	11	9				
	46,095-68,961	6	8				
	27,654-46,089	5	3				
	9232-27,648	13	-				
	≤9226	1	1				

5	**Do you have high blood pressure?** Yes No	 21 43	 3 36	8.53	1	3.84	S

***p* < 0.05 level of significance, NS – Non Significant; S – Significant

The data on table 3.3(d) depicts the calculated value for age is χ^{2}=7.68 at df= 4, for gender $\chi^{2=}$0.03 at df=1, for marital status $\chi^{2=}$18.36 at df=4, for monthly family income $\chi^{2=}$10.72 at df=6, for presence of high blood pressure $\chi^{2=}$8.53 at df=1. Thus, the value reveals that there is significant association in regard to marital status and presence of high blood pressure at 0.05 level of significance. Hence, research hypothesis H_1 is accepted in regard to marital status and presence of high blood pressure.

TABLE 3.3 (e)

ASSOCIATION BETWEEN THE RISK FACTORS (LIFESTYLE) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	DEMOGRAPHIC VARIABLES	V). ALCOHOL CONSUMPTION		CHI SQUARE VALUE (χ^2)	df	TABLE VALUE	INFERENCES
		Yes	No				
1	**Age in years** 25-30 years 31-35 years 36-40 years 41-45 years >45 years	 34 12 14 7 4	 10 14 4 2 2	8.71	4	9.49	NS
2	**Gender** Male Female	 40 31	 23 9	2.23	1	3.84	NS
3	**Marital status** Married Unmarried Separated Divorced Widowed	 36 34 - 1 -	 15 17 - - -	0.63	4	9.49	NS

4	**Monthly family income in Rupees** ≥184,376 92,191-184,370 68,967-92,185 46,095-68,961 27,654-46,089 9232-27,648 ≤9226	 8 25 11 9 5 12 1	 5 8 9 5 3 1 1	6.79	6	12.59	NS
5	**Do you have high blood pressure?** Yes No	 18 53	 6 26	0.53	1	3.84	NS

*$p < 0.05$ level of significance, NS – Non significant

The data on table 3.3(e) depicts the calculated value for age is $\chi^{2=}$8.71 at df= 4, for gender $\chi^{2=}$2.23 at df=1, for marital status $\chi^{2=}$0.63 at df=4, for monthly family income $\chi^{2=}$6.79 at df=6, for presence of high blood pressure $\chi^{2=}$0.53 at df=1 .Thus, the value reveals that there is no significant association in regard to age, gender, marital status, monthly family income and presence of high blood pressure at 0.05 level. Hence, research hypothesis H_1 is rejected.

TABLE 3.4 (a)

ASSOCIATION BETWEEN THE RISK FACTORS (DIET) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	DEMOGRAPHIC VARIABLES	) .DIETARY HABITS			CHI SQUARE VALUE (χ^2)	lf	TABLE VALUE	NFERENCES
1	**Age in years**	Vegetarian	Non Vegetarian	Vegan				
	25-30 years 31-35 years 36-40 years 41-25 years >45 years	4 3 7 1 1	39 22 11 7 5	1 1 - 1 -	12.03	8	15.51	NS
2	**Gender** Male Female	 10 6	 51 33	 2 1	0.054	2	5.99	NS
3	**Marital status** Married Unmarried Separated Divorced Widowed	 5 11 - - -	 45 39 - - -	 1 1 - 1 -	51.9	8	15.51	S

5	**Monthly family ncome in Rupees** ≥184,376 92,191-184,370 68,967-92,185 46,095-68,961 27,654-46,089 9232-27,648 ≤9226	5 1 3 1 2 3 1	3 31 16 13 6 9 1	1 1 1	15.27	12	21.03	NS
6	**Do you have high blood pressure?** Yes No	3 3	15 69	1 2	7.95	2	5.99	S

*p < 0.05 level of significance, NS – Non Significant; S – Significant

The data on table 3.4(a) depicts the association between the risk factors of type-2 diabetes mellitus i.e. diet with demographic variables such as age, gender, marital status, monthly family income and presence of high blood pressure. The calculated value for age is $\chi^{2=}$12.03 at df= 8, for gender $\chi^{2=}$0.054 at df=2, for marital status $\chi^{2=}$51.9 at df=8, for monthly family income $\chi^{2=}$15.27 at df=12, for presence of high blood pressure $\chi^{2=}$7.95 at df=2.Thus, the value reveals that there is significant association in regard to marital status and presence of high blood pressure at 0.05 level of significance. Hence, research hypothesis H_1 is accepted in regard to marital status and presence of high blood pressure.

TABLE 3.4 (b)

ASSOCIATION BETWEEN THE RISK FACTORS (DIET) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	**DEMOGRAPHIC VARIABLES**	**(I). CONSUMPTION OF SWEETS**		**CHI SQUARE VALUE (χ^2)**	**df**	**TABLE VALUE**	**INFERENCES**
		Yes	No				
1	**Age in years** 25-30 years 31-35 years 36-40 years 41-45 years >45 years	44 20 17 9 6	6 1	15.2	4	9.49	S
2	**Gender** Male Female	57 39	6 1	1.89	1	3.84	NS

3	**Marital status** Married Unmarried Separated Divorced Widowed	45 50 - 1 -	6 1 - - -	4.9	4	9.49	NS
4	**Monthly family income in Rupees** ≥184,376 92,191-184,370 68,967-92,185 46,095-68,961 27,654-46,089 9232-27,648 ≤9226	12 31 18 13 3 13 1	1 2 2 1 - - 1	8.29	6	12.59	NS
5	**Do you have high blood pressure?** Yes No	22 74	2 5	0.11	1	3.84	NS

*$p < 0.05$ level of significance, NS – Non Significant; S – Significant

The data on table 3.4(b) depicts the calculated value for age is χ^2=15.2 at df =4, for gender $\chi^{2=}$1.89 at df=1, for marital status $\chi^{2=}$4.9 at df=4, for monthly family income $\chi^{2=}$8.29 at df=6, for presence of high blood pressure $\chi^{2=}$0.11at df=1. Thus, the value reveals that there is significant association in regard to age at 0.05 level of significance. Hence, research hypothesis H_1 is accepted in regard to age.

TABLE 3.4 (c)

ASSOCIATION BETWEEN THE RISK FACTORS (DIET) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	**DEMOGRAPHIC VARIABLES**	**(II).REGULAR CONSUMPTION OF CARBONATED COLD DRINKS**		**CHI SQUARE VALUE (χ^2)**	**df**	**TABLE VALUE**	**INFERENCES**
		Yes	No				
1	**Age in years** 25-30 years 31-35 years 36-40 years 41-45 years >45 years	31 14 13 6 6	13 12 6 3 -	5.47	4	9.49	NS
2	**Gender** Male Female	58 12	5 28	43.27	1	3.84	S

3	**Marital status** Married Unmarried Separated Divorced Widowed	 30 40 - - -	 21 11 - 1 -	6.62	4	9.49	NS
4	**Monthly family income in Rupees** ≥184,376 92,191-184,370 68,967-92,185 46,095-68,961 27,654-46,089 9232-27,648 ≤9226	 10 20 16 11 6 7 -	 3 13 4 3 2 6 2	9	6	12.59	NS
5	**Do you have high blood pressure?** Yes No	 19 51	 5 28	1.79	1	3.84	NS

Contd…..

*$p < 0.05$ level of significance, NS – Non Significant; S – Significant

The data on table 3.4(c) depicts the calculated value for age is χ^2=5.47 at df=4, for gender $\chi^{2=}$43.27 at df=1, for marital status $\chi^{2=}$6.62 at df=4, for monthly family income $\chi^{2=}$9 at df=6, for presence of high blood pressure $\chi^{2=}$ 1.79 at df=1.Thus, the value reveals that there is significant association in regard to gender at 0.05 level of significance. Hence, research hypothesis H_1 is accepted in regard to gender.

TABLE 3.4 (d)

ASSOCIATION BETWEEN THE RISK FACTORS (DIET) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	DEMOGRAPHIC VARIABLES	(V). TAKING EXTRA SUGAR IN TEA OR OTHER JUICE		CHI SQUARE VALUE (χ^2)	df	TABLE VALUE	INFERENCES
		Yes	No				
1	**Age in years** 25-30 years 31-35 years 36-40 years 41-45 years >45 years	 29 14 9 5 6	 15 12 9 4 -	5.88	4	9.49	NS
2	**Gender** Male Female	 45 18	 18 22	7.17	1	3.84	S

3	**Marital status** Married Unmarried Separated Divorced Widowed	 39 23 - 1 -	 12 28 - - -	11.19	4	9.49	S
5	**Monthly family income in Rupees** ≥184,376 92,191-184,370 68,967-92,185 46,095-68,961 27,654-46,089 9232-27,648 ≤9226	 3 20 15 3 5 7 -	 5 13 5 5 3 5 2	5.2	6	12.59	NS
5	**Do you have high blood pressure?** Yes No	 18 45	 5 34	2.54	1	3.84	NS

*****$p < 0.05$ level of significance, NS – Non Significant; S – Significant

The data on table 3.4(d) depicts the calculated value for age is χ^2=5.88 at df= 4, for gender $\chi^{2=}$7.17 at df=1, for marital status $\chi^{2=}$11.19 at df=4, for monthly family income $\chi^{2=}$5.2 at df=6, for presence of high blood pressure $\chi^{2=}$ 2.54 at df=1.Thus, the value reveals that there is significant association in regard to gender and marital status at 0.05 level of significance. Hence, research hypothesis H_1 is accepted in regard to gender and marital status.

TABLE 3.4 (e)

ASSOCIATION BETWEEN THE RISK FACTORS (DIET) OF DEVELOPING TYPE-2 DM AMONG EMPLOYEES WITH SELECTED DEMOGRAPHIC VARIABLES

n=103

SL NO	DEMOGRAPHIC VARIABLES	V) . JUNK FOODS		CHI SQUARE VALUE (χ^2)	df	TABLE VALUE	INFERENCES
		Yes	No				
1	**Age in years** 25-30 years 31-35 years 36-40 years 41-45 years >45 years	 44 21 16 3 6	 - 5 2 1 -	9.45	4	9.49	NS
2	**Gender** Male Female	 60 35	 3 5	2.04	1	3.84	NS
3	**Marital status** Married Unmarried	 60 44	 1 7	4.9	4	9.49	NS

	Separated Divorced Widowed	. 1 .	. . .				
4	**Monthly family ncome in Rupees** ≥184,376 92,191-184,370 68,967-92,185 46,095-68,961 27,654-46,089 9232-27,648 ≤9226	 13 30 18 14 7 12 1	 . 3 2 . 1 1 1	7.7	6	12.59	NS
5	**Do you have high blood pressure?** Yes No	 22 73	 2 6	0.014	1	3.84	NS

*$p < 0.05$ level of significance, NS – Non Significant

The data on table 3.4(e) depicts the calculated value for age is χ^2=9.45 at df =4, for gender $\chi^{2=}$2.04 at df=1, for marital status $\chi^{2=}$4.9 at df=4, for monthly family income $\chi^{2=}$7.7 at df=6, for presence of high blood pressure $\chi^{2=}$0.014 at df=1.Thus, the value reveals that there is no significant association in regard to age, gender, marital status, monthly family income and presence of high blood pressure at 0.05 level. Hence, research hypothesis H_1 is accepted in regard to age, gender, marital status, monthly family income and presence of high blood pressure.

SUMMARY

This chapter dealt with the classification of data, organization and presentation of data under sections, analysis and interpretation of organized data, tables and figures for demographic variables, tables to show the frequency and percentage of risk factors of developing type-2 DM also tables to show the association between the risk factors of developing type-2 DM with selected demographic variables.

CHAPTER-V

SUMMARY, FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATION

SUMMARY OF THE STUDY

The present study was a descriptive cross sectional in nature and it aimed at assessing the risk factors of developing Type-2 Diabetes Mellitus among the employees working in selected private sector banks of Kamrup (M), Assam.

Specific objectives

1. To assess the risk factors of developing Type-2 Diabetes Mellitus among the employees working in selected private sector banks of Kamrup (M), Assam.
2. To find out the association between the risk factors of developing Type-2 Diabetes Mellitus with selected demographic variables.

The study was conducted among the employees working in private sector banks of Kamrup (M),Assam, namely USF Bank Ltd (Panjabari Branch), Indusind bank (Ganeshguri Branch), Ujjivan small finance Bank (Narengi Branch) , South Indian Bank (Dispur Branch).

A review of literature was done under the headings literature related to assessment of risk factors of Type 2 Diabetes Mellitus and literature related to prevalence of risk factors of Type 2 Diabetes Mellitus. An extensive review of literature enable the investigator to study in depth the selected problem, to develop conceptual framework, to construct the tool, analyze and interpret the data.

The sample consisted of 103 employees who were available during office hour. Simple Random Sampling technique was adopted to gather samples for the study. The quantitative descriptive research approach and cross sectional descriptive research design were considered to fulfill the objectives of the study. Data was collected from 2nd May, 2023 to 28th May, 2023 in USF Bank Ltd (Panjabari Branch), Indusind bank (Ganeshguri Branch) ,Ujjivan small finance Bank (Narengi Branch) , South Indian Bank (Dispur Branch) by an interview method.

An interview method was used to collect demographic data regarding age in years, gender, marital status, monthly family income and presence of high blood pressure as well as to collect data for assessing the risk factors of developing type-2 Diabetes Mellitus. Biophysiological method was also used to assess the physiological status by calculating BMI in order to assess the risk factors of developing type-2 Diabetes Mellitus. Data analysis was done by using descriptive and inferential statistics. Furthermore frequency and percentage distribution was done to assess the risk factors of developing type-2 Diabetes Mellitus, chi square test was applied to see the association between the risk factors of developing type-2 Diabetes Mellitus with the selected demographic variables at 0.05 level of significance.

Major findings of the study

- Majority of employees 44 (42.76%) were in the age group of 25-30 years.
- Majority of employees 63 (61.16%) were male.
- Majority 51 (49.51%) of the employees were married as well as unmarried.
- Majority 33 (32.03%) of the employees were having monthly family income of 99,931-199861.

- Majority 79 (76.69%) of employees does not have high blood pressure.
- 42(40.77%) employees were overweight and 12(11.66%) employees were obese according to their BMI.
- 49 (47.57%) employees were having family history of type-2 Diabetes Mellitus.
- 41 (39.81%) employees do not perform any exercises.
- 58 (56.32%) employees do not perform yoga.
- 76 (73.78%) employees used vehicle for going to office.
- 64 (62.14%) employees were having habits of taking tobacco products.
- 71 (68.94%) employees were consuming alcohol.
- Majority 84 (81.55%) of the employees were non vegetarian.
- Majority 96 (93.21%) of the employees takes sweets.
- 70 (67.96%) employees were regularly taking carbonated cold drinks.
- 63 (61.16%) employees have habits of taking extra sugar in tea or any other juice.
- Majority of the employees that is 95 (92.24%) take junk foods.
- There was a significant association of risk factor (BMI) with age, gender and monthly family income.
- There was a significant association of risk factor (hereditary) with age and presence of high blood pressure.
- There was a significant association of physical exercise with age, marital status and presence of high blood pressure.
- There was a significant association of performing yoga with marital status.
- There was a significant association of walk to work with age and presence of high blood pressure
- There was a significant association of taking tobacco products with marital status and presence high blood pressure.
- There was a significant association of dietary habits with marital status and presence of blood pressure.
- There was a significant association of taking sweets with age.
- There was a significant association of regular taking carbonated cold drinks with gender.
- There was a significant association of taking extra sugar in tea or other juice with gender, marital status and dietary habits.

DISCUSSION

The present study is conducted to assess the risk factors of developing type-2 diabetes mellitus among employees working in private sector banks of Kamrup (M), Assam. In order to achieve the objectives of the study, a descriptive approach was adopted. Simple Random Sampling technique was used to select the samples. The data was collected from 103 employees working in private sector banks of Kamrup (M), Assam.

In this chapter, the analyzed data in the previous chapter and the resulting findings are discussed in accordance with the objectives of the study. The major findings of the study are compared with the results of various studies done by the other researchers.

To assess the risk factors of developing Type-2 Diabetes Mellitus among employees working in private sector banks of Kamrup (M), Assam.

With respect to the objectives of assessing risk factors of type-2 Diabetes Mellitus among employees working in private sector banks of Kamrup (M),Assam, the findings of the study result revealed that out of 103 employees, 40.77% employees were overweight and 11.66% employees were obese according to their BMI.

The findings were supported by a study conducted by Ganz L, Wintfeld N and Hammer M conducted a study on the association of body mass index with the risk of type 2 diabetes: a case–control study. In their study results showed that out of 12,179 cases (mean age: 55, 43% male) and 25,177 controls (mean age: 56, 45% male) they found positive association between BMI and the risk of a T2DM diagnosis. The strength of this association increased with BMI category (RR [95% confidence interval]: overweight, 1.5 [1.4–1.6]; Obesity Class I, 2.5 [2.3–2.6]; Obesity Class II, 3.6 [3.4–3.8]; Obesity Class III, 5.1 [4.7–5.5]).In their study they concluded that BMI is strongly and independently associated with the risk of being diagnosed with T2DM.(42)

With respect to the objectives of assessing risk factors of type-2 Diabetes Mellitus among employees working in private sector banks of Kamrup (M), Assam, the findings of the study result revealed that out of 103 employees, 47.57% were having family history of type- 2 Diabetes Mellitus.

The finding was supported by a study conducted by Abdurrahman S. and et.al (2023**)** on assessing the risk factors of Type2 Diabetes Mellitus. In their study results revealed that among 417 participants 96.4% recognized a family history of Diabetes Mellitus as a risk factor.(43)

In present study 39.81% employees doesn't perform any exercise. 70.96% participants had been exercising less than 30 minutes whereas 20.96% were performing exercise once a week and 37.09% perform exercise rarely. 56.32% employees do not perform Yoga.

The finding was also supported by a study conducted by Subramani R. and et al (2014) on to assessment of Risk of Type2 Diabetes Mellitus Among Rural Population In Tamil Nadu .In their study result revealed that out of 505 participants about 87 i.e. 7.2% people had regular exercise and 48 i.e. 9.5% had minimal or no physical activity. (44)

Another supported study conducted by Ferrian N (2011) revealed that out of 432 participants who completed the risk factor assessment for Type2 Diabetes questionnaire, 62.9% (n=272) had been exercising less than five days per week for 30 minutes or more as recommended by American Diabetes Association.(45)

Present study results reveal that 64 (62.14%) of the employees smoke tobacco products and 71(68.94%) consume alcohol. Majority of the employees were i.e. 81.55% with the frequency of 84 belong to non vegetarian. 96 (93.21%)of them take sweets and 7(6.79%) of them did not take sweets,70 (67.96%) participants were regularly taking carbonated cold drinks and 63(61.16%) participants take extra sugar in tea or other juice majority of the employees i.e. 95 (92.24%) participants take junk foods.

In contrast, a community based cross- sectional study was conducted by Ahmed S, Siddique A.M, Barua A and Saikia S (December 2016), on risk factors of Diabetes Mellitus amongst the executives of an industrial area of North East India:population based on 340 samples. Study results shows that 24.7%, 0.6% and 2.9%

smoked regularly, occasionally and in the past respectively. 2.9% subjects consumed chewed tobacco regularly, 0.3% consumed occasionally and 1.6% consumed tobacco in the past. 44.5%, 10.7%, 2.3% of the study subjects took alcohol regularly, occasionally, in the past respectively. [46]

To find out the association between risk factors of developing Type-2 Diabetes Mellitus with selected demographic variables

In this present study we found that there is significant association between the risk factors of developing type-2 Diabetes Mellitus with selected demographic variables.

In contrast, a study was conducted by Manal A, Samia S, Abdulmageed, Iftikhar R and Khaled B (2014). In their study it revealed that male gender, age> 40 years, low educational attainment, marital status (married or divorced), and smoking status were risk factors associated with Diabetes Mellitus. [47]

LIMITATIONS

- The study is only limited to private sector banks, so it's difficult to generalized.
- The study is limited to employees who have not previously been diagnosed with type-2 Diabetes Mellitus therefore; the findings of the study cannot be broadly generalized.

CONCLUSION

Diabetes Mellitus is a metabolic disorder characterized by abnormally high levels of sugar (glucose) in the blood. In people with diabetes, blood sugar levels remain high. This may be because insulin is not being produced at all, is not made at sufficient levels, or is not as effective as it should be. The most common forms of diabetes are Type-1 Diabetes (5%), which is an autoimmune disorder, and Type-2 Diabetes (95%), which is associated with obesity. The present study was conducted to assess the risk factors of developing type-2 diabetes mellitus among employees working in private sector banks of Kamrup (M), Assam. In order to achieve the objectives of the study, a descriptive approach was adopted. Simple Random Sampling technique was used to select the samples.

From the findings of the present study, it shows that increasing BMI, hereditary, sedentary life style, dietary factors are the major risk factors of developing Type-2 Diabetes Mellitus among employees working in private sector banks. Therefore, it is concluded that maintaining a healthy lifestyle and a healthy dietary habits can reduce the increasing risk factors of developing Type-2 Diabetes Mellitus.

NURSING IMPLICATIONS

The findings of the study have several implications in nursing in the relevant areas like nursing practice, nursing education, nursing administration and nursing research.

Nursing practice

Nurses play a vital role in patient care. This study will help the nursing personnel to be aware of risk factors of developing Type-2 Diabetes Mellitus. The findings of the study imply that majority of bank employees are with some or other risk factors of developing Type-2 Diabetes Mellitus. These demands for early detection of risk factors for the improvement of assessment skills especially in relation to risk factors of Type-2 Diabetes Mellitus among general population. Thus, the nurses can plan screening programmes with the aim of detecting and preventing Type-2 Diabetes Mellitus and its risk factors and motivate them to quit their bad habits and improve quality of life.

Nursing education

The present study emphasizes to assess the risk factors of developing Type-2 Diabetes Mellitus among employees working in private sector banks. Education plays a vital role in the early detection of health problem. Nursing personnel working in different fields must be given education and training enabling them for early detection and treatment related to risk factors of Type-2 Diabetes Mellitus. The nurses should take part in health programs, hospital education and community health education programme. It can assist in reducing incidents of complications due to Type-2 Diabetes Mellitus. Therefore, the nurses must have knowledge regarding general and specific aspects of Type-2 Diabetes Mellitus and in teaching of life style modification. Nursing personnel should have special skills to identify the risk factor of developing Type-2 Diabetes Mellitus earlier and give guidance.

Nursing administration

Nurses work as change agents in the community, play a vital role in coordinating and conducting health programmes and screening program especially to eliminate or reduce the risk factors of developing Type-2 Diabetes Mellitus among the people in the community. At the various levels nurses can implement change process and policies to help in reducing risk factors of developing Type-2 Diabetes Mellitus in the near future.

Nursing research

The importance of the research is to build up a body of knowledge in nursing as it is evolving profession. Generalization of study findings can be effectively utilized by the emerging researchers for the purpose of reference. Research is needed to examine the role of the nurse in educating and encouraging the diabetic patients regarding life style modification. The findings of study help to expand scientific body of knowledge upon which further researchers can be conducted.

Suggestions of the study

- Periodical health check-ups, consultations with doctors and periodical guidance are compulsory for the diabetic patients.

- Nurses should conduct periodical health education programmes for the diabetic patients.

- Nurses can provide education to the diabetic patients regarding promotion of quality life during and effective management of diabetes.

- The diabetic patients should be trained and motivated on the aspects of life style modification.

RECOMMENDATIONS

On the basis of findings of the study the following recommendations have been made:

- A similar study can be replicated on a large sample to generalize the findings.
- A study on the effectiveness of teaching programme of life style modification on reduction of risk factors of Type-2 Diabetes Mellitus can be carried out in the banks.
- A study on effectiveness of planned teaching programme on prevention of Type-2 Diabetes Mellitus can be carried out.

SUMMARY

This chapter explained in details about the summary of the present study, its findings, discussion of present study with similar studies from review of literature, limitations, conclusion, nursing implication, suggestions and recommendation for future research study.

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