LEVEL OF AWARENESS OF GESTATIONAL DIABETES AMONG PREGNANT WOMEN IN MILITARY HOSPITAL IN OREDO L.G.A

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BENIN CITY

AUGUST, 2023

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A RESEARCH WORK SUBMITTED TO THE DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION, FACULTY OF EDUCATION, UNIVERSITY OF BENIN, BENIN CITY. IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE (B.Sc (Ed)) IN HEALTH EDUCATION

AUGUST, 2023

APPROVAL PAGE

I hereby approve this project work as adequate in scope and quality for the partial fulfilment of the requirements for the award of Degree in Bachelor of Science (B.Sc Ed.) Health Education.

_____ _____

MRS J. U. DON **Date**
Project Supervisor

CERTIFICATION

We certify that this project was carried out by **OSASIENMEN JULIANH IVIE** with the matriculation number EDU1511549 in the Department of Health, Safety and Environmental Education, Faculty of Education, University of Benin, Benin City, in partial fulfillment of the requirements for the award of B.Sc.(Ed) Degree in Health Education.

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DEDICATION

This project is dedicated to God Almighty for sparing my life to see this day come through.

ACKNOWLEDGEMENTS

Words will fail the researcher to express her unending gratitude to Almighty God for his mercies his grace sustained her throughout her stay in the University of Benin and his unending love.

She wishes to express her heartfelt gratitude to her amiable supervisor Mrs. J.O. Don; who is always ever ready to correct and direct her to ensure a quality work and her patience made it possible for her to carry out this study. You are an epitome of a mother, thank you ma. And to her HOD, course adviser and all the lecturers in Department of Health, Safety and Environmental Education, she loves and appreciates you.

Her sincere gratitude goes to her parents; Mr and Mrs Florence Ehue and siblings, for their prayers, love, patience, and care. She also thanks her husband: Mr. Osasienmen Mcdonald Sunny for his financial support and she will forever love you always and to her lovely son: Mcdonald Elisha Osamudiamen. God bless you all. Amen.

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ABSTRACT

This project examined the level of awareness of gestational diabetes among pregnant women in military hospital in Oredo L.G.A Four research questions were raised. Related literature was reviewed to gather information on eminent scholars view on the study.

The descriptive survey research design was adopted in this study. The population of this study was made up of 300 pregnant women from January to November 2022. A total of 100 pregnant women made up the sample size for the study. A descriptive statistics of frequency and percentages was used in the data analysis.

The major findings of the study are as follows: A large number of respondents are not aware of gestational diabetes. Half of the respondents are not aware of the factors that cause gestational diabetes. Large percentage of the pregnant women in military hospital is not aware of the symptoms of gestational diabetes. And Majority of the respondents do not know how to prevent gestational diabetes. Based on the submission above, the following recommendations were made amongst others: awareness campaign should be done; this can be done on television and radio station to create more awareness on gestational diabetes.

CHAPTER ONE

INTRODUCTION

Background of the Study

Diabetes mellitus in pregnancy has become of great concern to medical practice globally. Its complications on mother and fetus/baby are leading factors of maternal and perinatal mortality (Babah, Owie, Ohazurike and Akinajo, 2018). It poses serious effect on the patient as well as immediate family members and in fact, the entire community.

Diabetes Mellitus in pregnancy can be defined as any degree of glucose intolerance with onset or first recognition before or during pregnancy (Macaulay, Dunger & Norris, 2014). This includes DM that predates pregnancy or Gestational Diabetes Mellitus (GDM). "GDM can be defined as any degree of glucose intolerance with onset or first recognition during pregnancy" (Law & Zhang, 2017). DM diagnosed in a pregnant mother prior to conception is regarded as Pre-Gestational Diabetes Mellitus (PGDM). It is important to diagnose and properly

manage diabetes mellitus during pregnancy because a mild diabetes can raise the risk of maternal and perinatal morbidity and mortality. (Alharthi, Althobaiti & Alswat, 2018; Egbe, Tsaku, Tchounzou & Ngowe, 2018)

It has been reported that the prevalence of DM especially during pregnancy is increasing worldwide; hence, current data shows that prevalence of DM in pregnancy is 15% (DonazarEzcurra, López-del, & Bes-Rastrollo. 2017). A recent review of existing literature on prevalence of diabetes in pregnancy conducted by Muche, Olayemi and Gete, (2019) revealed that occurrence of DM in pregnancy in sub-Saharan region of Africa was 14%. In Nigeria, prevalence of DM in pregnancy was 13.6% (Macaulay, Dunger & Norris, 2014). However, a general observation on the literatures dealing with prevalence of DM in pregnancy within Nigeria is that results are not consistent (Onyenekwe et al., 2019). Secondly, existing data within Nigeria revealed that Lagos has the highest prevalence of DM in pregnancy (23.2%; Ajayi, Adegbola & Oseni, 2015).

Pregnant women diagnosed to have diabetes mellitus are exposed to high risk of pregnancy complications such as preeclampsia, pre-term birth and macrosomia" (Kanguru, Bezawada, Hussein & Bell, 2014), post-partum complications which includes higher risk of DM in future pregnancies as well as possible development of type II diabetes at a period of up to 25 years after the childbirth (Poomalar, 2015). Other effects of serious concern are the profound consequence of DM in pregnancy on the child/neonate who is at a higher risk of health defects (Xu et al., 2017). These health challenges are transmitted to later generations leading to a perpetuated vicious cycle of metabolic diseases. Consequent on the foregoing, it is important to step up intervention efforts aimed at assessing the level of awareness of DM among pregnant women in Military hospital, Benin City.

There seem to be a lack of awareness and knowledge about GDM among pregnant women in Nigeria. Several studies have highlighted the low level of awareness and knowledge about GDM among women of reproductive age in Nigeria (Ogu, 2019; Mohammed, 2021). This lack of awareness can have negative implications for the prevention and

management of GDM as these pregnant women may not be able to prevent and manage the ailment given that they are ignorance to the factors that cause of GDM.

Several factors have been identified as potential causes or risk factors for gestational diabetes. One factor that has been associated with gestational diabetes is abnormal lipid levels during pregnancy. A study by Wiznitzer, (2019) found that lipid levels during gestation were associated with the development of gestational diabetes and preeclampsia. High levels of triglycerides (TG) were particularly associated with an increased risk of gestational diabetes. Abnormal lipid levels can contribute to insulin resistance, which is a key factor in the development of gestational diabetes. Obesity and excessive weight gain during pregnancy are also significant risk factors for gestational diabetes. Studies have shown that maintaining a healthy body weight before pregnancy and avoiding excessive weight gain during pregnancy can reduce the risk of gestational diabetes (Mghanga, 2020). Obesity is associated with insulin resistance and impaired glucose metabolism, which can increase the likelihood of developing gestational diabetes. Another important risk

factor for gestational diabetes is a history of gestational diabetes or impaired glucose tolerance in previous pregnancies. Women who have had gestational diabetes in previous pregnancies are at a higher risk of developing gestational diabetes in subsequent pregnancies (Abbasi, 2019). This suggests that there may be underlying genetic or physiological factors that contribute to the development of gestational diabetes. Physical inactivity and unhealthy lifestyle behaviors, such as poor diet and smoking, have also been associated with an increased risk of gestational diabetes (Zhang, 2014; Gao, 2019). Adhering to a healthy lifestyle, including regular physical activity, a balanced diet, and not smoking, can help reduce the risk of gestational diabetes.

Statement of the Problem

Gestational diabetes mellitus (GDM) is a significant health concern affecting pregnant women worldwide, including Nigeria. GDM is characterized by high blood sugar levels during pregnancy and can lead to adverse outcomes for both the mother and the baby. However, there remains a lack of comprehensive data on the level of awareness of

gestational diabetes among pregnant women in Nigeria. This study aims to address this information gap and assess the current level of awareness of gestational diabetes among pregnant women in Nigeria. Many pregnant women in Nigeria may not have adequate knowledge about gestational diabetes, its risk factors, symptoms, and potential complications. This lack of awareness can hinder early detection, appropriate management, and timely intervention. Due to limited awareness, pregnant women may not undergo proper screening for gestational diabetes, leading to under-diagnosis and a missed opportunity for early intervention and management.

More so, gestational diabetes can have serious implications for both the mother and the baby, including an increased risk of complications during pregnancy, delivery, and the postpartum period. Understanding the level of awareness among pregnant women can shed light on potential gaps in healthcare delivery and the need for improved education and support systems. Therefore, addressing the level of awareness of gestational diabetes among pregnant women in Nigeria is crucial for the development of effective strategies, policies, and interventions to

improve maternal and fetal health outcomes. By conducting a comprehensive assessment, this study aims to provide valuable insights that can guide healthcare providers, policymakers, and relevant stakeholders in implementing targeted educational programs and interventions to enhance awareness and promote early detection and management of gestational diabetes among pregnant women attending antenatal in military hospitals in Benin City, Nigeria.

Research Questions

The following questions are raised to guide the study.

1. What is the level of awareness of gestational diabetes amongst pregnant women in military hospital in Oredo L.G.A?
2. What is the level of awareness on the factors that cause gestational diabetes?
3. Are mothers aware of the symptoms of gestational diabetes?
4. What is the level of awareness on the prevention of gestational diabetes?

Purpose of the Study

The main purpose of the study is to examine level of awareness of diabetes among pregnant women in Military hospital, Benin City. Specifically the study seeks to:

1. determine the level of awareness of gestational diabetes amongst pregnant women in military hospital in Oredo L.G.A.
2. determine the level of awareness on the factors that cause gestational diabetes.
3. ascertain if mothers are aware of the symptoms of gestational diabetes.
4. determine if the level of awareness on the prevention of gestational diabetes.

Significance of the Study

The findings of this study are of benefit to researchers, government, and health workers. The findings of the study has significant benefits to researchers as the findings of the study properly documented will add to the body of literature reviews given that there exist little or no literature on level of awareness of diabetes among pregnant women in Military hospital, Benin City. It will also form a pedestal for further research in the line of this study.

The findings of the study will expose to health workers the level of awareness of diabetes among pregnant women in military hospital, Benin City and how they can aid pregnant women to overcome diabetes.

Lastly, the findings of the study will be of benefits to the government as it highlights the need for collective effort towards ensuring that pregnant women are educated on the risk and prevention of diabetes.

Scope/Delimitation of the Study

The study is designed to find out the level of awareness of diabetes among pregnant women in Military hospital, Benin City. The study is

delimited to pregnant women attending antenatal in Military hospital, Benin metropolis.

Limitation of the Study

In the course of the research the limitation encountered are; time constraint and financial constraint.

Definition of Terms

Diabetes: Diabetes Mellitus in pregnancy can be defined as any degree of glucose intolerance with onset or first recognition before or during pregnancy.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter presents the review of related literature under the following sub-headings:

- Theoretical Framework
- Diabetes Mellitus in Africa
- Causes of Diabetes
- Diabetes Risk Factors
- Prevention of Diabetes Mellitus
- Assessing Pregnant Women Awareness and Knowledge about Diabetes
- Knowledge of Diabetes Prevention and Management among Pregnant Women
- Summary of Literature Reviewed

Theoretical Framework

Health beliefs Model

Health beliefs, knowledge, and attitudes are major concepts of health behaviour models. Particularly, perceptions of disease danger, control,

and effects are comprised in social cognitive models given that they underline health behaviours, intervene in the effects of other risk facets, are responsive to changes, and are objectives for disease interventions. In this regard, this project was based on the Health Belief Model (HBM). The HBM is an intrapersonal model that is within the individuals' beliefs and knowledge theory used in health promotion (Jones, Smith, & Llewellyn, 2014). The application of the HBM was to assess health behaviour of persons through examination of awareness, perceptions, and attitudes someone might have towards a disease and the consequences of particular actions.

In the HBM, the likelihood that an individual will adhere to preventive behaviour is influenced by three aspects: (a) Perceived susceptibility and severity where one identifies that there is sufficient rationale to make a health concern important; (b) perceived threat where a person comprehends that they might be susceptible to a disease or negative health consequence; and (c) perceived benefits and barriers where an individual realizes that behaviour change can be constructive and the

benefits of that change will overshadow any expenditures of doing so (Bayat, 2013).

Within the healthcare sphere, susceptibility delineates the risk an individual has to a particular health outcome or disease. However, within the framework of the HBM, perceived susceptibility refers to an individual's beliefs about how possible the behaviours they participate in are going to lead to a negative health consequence (Orji, Vassileva, & Mandryk, 2012). Perceived threat evaluates how possible it is that the disease can be developed. The threat of a disease can be influenced by environmental factors, demographic background such ethnicity and race as well as socioeconomic status.

The HBM indicates that a trigger or a cue is essential for encouraging engagement in health positive behaviours. Cues to feat can be external or internal. Internal cues include physiological cues such as pain symptoms while external cues comprise events or information from the media, family and friends, and healthcare practitioners taking part in health-related behaviours (Zareba, 2013). The cues to action include reminders

from medical practitioners, the experiences from family and friends, and labels from health products. The strength of the cues is necessary to influence speedy action that varies between persons by perceived susceptibility, significance, benefits, and obstacles. The model also includes self-efficacy that refers to a person's perception of their competence to effectively perform a behaviour. Self-efficacy explains individual variations in health behaviours.

The knowledge about a disease and attitude towards the disease affect the likelihood of action. After being cognizant of the possibility of developing a disease, if there is no change in behaviour, it is significant to consider both the barriers and benefits of taking action and establish which have more effects in one's life (Julinawati, Cawley, Domegan, Brenner, & Rowan, 2013). The likelihood of action is also influenced by perceived benefits such as quality of life and other associated benefits. In any behaviour change initiatives, there are barriers to change which play a role in the outcome.

The HBM model has been applied to diabetes to elucidate the awareness and behaviour of the health condition. It revealed that the model supports the elementary knowledge about the operational, psychological, and environmental mechanisms of the patients for approval and adhering of suitable behaviours. Such knowledge may reduce the short-term and long-term diabetes effects and offer instructions for investigators to create suitable training approaches (Bayat, 2013). These instructions significantly improve acceptance and adherence of applicable behaviours like nutrition regimes and ultimately result in the long-term management of levels of blood sugar in persons with diabetes.

Concept of Diabetes Miletus

Diabetes mellitus, commonly known as diabetes, is a metabolic disease that causes high blood sugar. The hormone insulin moves sugar from the blood into your cells to be stored or used for energy. With diabetes, your body either doesn't make enough insulin or can't effectively use the insulin it does make. Untreated high blood sugar from diabetes can damage your nerves, eyes, kidneys, and other organs. It is a condition

that occurs when the body can't use glucose (a type of sugar) normally. Glucose is the main source of energy for the body's cells. The levels of glucose in the blood are controlled by a hormone called insulin, which is made by the pancreas. Insulin helps glucose enter the cells (Zhuang, 2015).

In diabetes, the pancreas does not make enough insulin (type 1 diabetes) or the body can't respond normally to the insulin that is made (type 2 diabetes). This causes glucose levels in the blood to rise, leading to symptoms such as increased urination, extreme thirst, and unexplained weight loss. If left untreated, diabetes can cause many complications. Acute complications can include diabetic ketoacidosis, hyperosmolar hyperglycaemic state, or death. Serious long-term complications include cardiovascular disease, stroke, chronic kidney disease, foot ulcers, damage to the nerves, damage to the eyes and cognitive impairment. Diabetes is due to either the pancreas not producing enough insulin, or the cells of the body not responding properly to the insulin produced. Diabetes mellitus is an incurable chronic disease afflicting people of all races, sex, economic and social status, and of all ages. About 100 million

people in the United States have diabetes mellitus, a disease in which the body does not produce or respond properly to insulin, a hormone essential for daily life. In those with diabetes, the pancreas, which produces insulin (the hormone that regulates carbohydrate and fat metabolism), does not function as it should. The pancreas, located below the stomach, contains the islets of Langerhans cells, which produce glucagon and insulin, which are critically important in metabolism (Zhuang, 2015). While glucagon stimulates the release of glucose and, therefore, acts to elevate blood sugar levels, the action of the insulin is the opposite. Insulin decreases the level of glucose in the body by causing tissue cell membranes to open in order that glucose can enter the cells more freely.

Glucose is the primary form of sugar that the body cells use for energy production. When a person without diabetes eats a meal, the level of glucose in the blood rises, triggering the production and release of insulin by special cell clusters in the pancreas; the insulin produced allows to use glucose effectively by the body. Without sufficient insulin, the glucose in the blood is unable to enter most body cells, so the cells

energy needs are not met. The levels of glucose in the blood rise higher after each meal. This unused glucose eventually passes through the kidneys, which are unable to process the excessive glucose, and thus expel them through the urine. Deprived of the fuel it needs, the body begins to break down stored fat as a source of energy. This process produces weak acids called ketones. A build-up of ketones leads to ketoacidosis, an upheaval in the body's chemical balance that brings on nausea, vomiting, abdominal pain, lethargy, and drowsiness. Severe ketoacidosis can lead to coma and eventually death. Diabetes can lead to deleterious complications. Uncontrolled glucose levels slowly damage blood vessels throughout the body; thus, individuals who become diabetic early in life may face devastating complications even before they reach middle age. Diabetes is the number 1 cause of blindness, non-traumatic amputation, and kidney failure, and diabetes increases the risk of heart attack or stroke by 2 or 3 times (Zaccagnini, 2015).

It is estimated that 90% of cases of type 2 diabetes could be prevented if people adopted healthy lifestyle behaviours, including regular physical activity, a moderate diet, and modest weight loss. For people with

prediabetes, healthy lifestyle measures are more effective than medication for delaying or preventing the development of diabetes. Exercise (endurance and/or strength training) are important to prevent diabetes. Also important is a moderate diet to control body fat. Nigeria is a developing nation that is plagued with low level of education, superstition, poverty, poor health care services, and near non-existent health statistics. If the costs of diabetes in America are more hat USD 132 billion a year (according to the American Diabetes Association) and about 100 million people have diabetes mellitus, the situation in Nigeria could be better imagined than experienced. Sequel to this, it became imperative to review preventive efforts because prevention of diabetes mellitus is better than cure, and also because Nigeria offers abundant opportunities for physical activity and local diet, the key preventive and management components of diabetes mellitus (Zaccagnini, 2015).

Diabetes Mellitus in Africa

Most countries in Africa are undergoing a demographic transition, and African urban societies are increasingly coming within the sphere of the

influence of Western market economies. The lifestyle of city dwellers tends to be material-behavioural, with the adoption of cosmopolitan behaviour and consumption of resources and food, especially fast foods. This has led to an increase in the consumption of fat, sugar and salt. Rural African societies, however, have seen an increase in nutritional deficiencies, which appear to be related to drought, poverty, war and socio-economic deprivation rather than to culture or religion. In these rural areas, the focus has been on maintaining food availability rather than equitable distribution. Lifestyle changes and a very rapid increase in the urban population of Africa has led to inadequate production of local cereals and staples like sorghum, millet, maize, yam and plantain. This phenomenon has led to many countries having a low daily per capita dietary energy supply, and has led to a difference in food patterns between the urban and rural dwellers and the occurrence of diabetes mellitus. These lifestyle changes have evolved against a background of increasing prevalence of diabetes mellitus and diabetic complications in Africa (Woodbury, 2013 p 45). In South Africa a number of studies have been conducted and it is estimated that there are at least 6.5 m0illion

known diabetics and possibly up to an equal number who are currently undiagnosed (Healt, 2006 p 120). The prevalence of diabetes in South Africa is high, and is estimated to be 14% in the Coloured community, 13% in the Indian community, 6% in the African community and 6% in the European community (Society of Endocrinology, Metabolism and Diabetes in South Africa, 2003). There is certainly, a demand for more nutrition education of the more cosmopolitan diabetic population by the limited number of poorly equipped staff who need to formulate new approaches that are more relevant to the needs of their patients (Wilcox, 2015)

Causes of Diabetes

Different causes are associated with each type of diabetes.

1. Type 1 diabetes

Doctors don't know exactly what causes type 1 diabetes. For some reason, the immune system mistakenly attacks and destroys insulin-producing beta cells in the pancreas.

Genes may play a role in some people. It's also possible that a virus sets off the immune system attack.

2. Type 2 diabetes

Type 2 diabetes stems from a combination of genetics and lifestyle factors. Being overweight or obese increases your risk too. Carrying extra weight, especially in your belly, makes your cells more resistant to the effects of insulin on your blood sugar.

This condition runs in families. Family members share genes that make them more likely to get type 2 diabetes and to be overweight.

3. Gestational diabetes

Gestational diabetes is the result of hormonal changes during pregnancy. The placenta produces hormones that make a pregnant woman's cells less sensitive to the effects of insulin. This can cause high blood sugar during pregnancy.

Women who are overweight when they get pregnant or who gain too much weight during their pregnancy are more likely to get gestational

diabetes. Both genes and environmental factors play a role in triggering diabetes.

Diabetes Risk Factors

Certain factors increase your risk for diabetes., they are:

1. Type 1 diabetes

You're more likely to get type 1 diabetes if you're a child or teenager, you have a parent or sibling with the condition, or you carry certain genes that are linked to the disease.

2. Type 2 diabetes

Your risk for type 2 diabetes increases if you:

- are overweight
- are age 45 or older
- have a parent or sibling with the condition
- aren't physically active

- have had gestational diabetes
- have prediabetes
- have high blood pressure, high cholesterol, or high triglycerides
- have African American, Hispanic or Latino American, Alaska Native, Pacific Islander, American Indian, or Asian American ancestry

3. Gestational diabetes

Your risk for gestational diabetes increases if you:

- are overweight
- are over age 25
- had gestational diabetes during a past pregnancy
- have given birth to a baby weighing more than 9 pounds
- have a family history of type 2 diabetes
- have polycystic ovary syndrome (PCOS)

Classification of Diabetes Mellitus

A major requirement for orderly epidemiologic and clinical research on and for the management of diabetes mellitus is an appropriate classification. Furthermore the process of understanding the ethology of a disease and studying its natural history involves the ability to identify and differentiate between its various forms and place them into a rational etiopathologic framework (Harris, 2017). The contemporary classification of diabetes and other categories of glucose intolerance, based on research on this heterogeneous syndrome, was developed in 1979 by the National Diabetes Data Group. Two major forms of diabetes are recognized in Western countries; insulin dependent diabetes mellitus (IDDM, type I diabetes) and non-insulin dependant diabetes (NIDDM, type II diabetes). The evidence of this heterogeneity is overwhelming and includes the following:

a) there are many distinct disorders, most of which are individually rare, in which glucose intolerance is a feature;

b) there are large differences in the prevalence of the major forms of diabetes among various racial or ethnic groups world-wide;

c) glucose tolerance presents variable clinical features, for example, the differences between thin ketosis-prone, insulin dependant diabetes and obese, non-ketotic insulin resistant diabetes;

d) genetic, immunologic and clinical studies show that in Western countries, the forms of diabetes with their onset primarily in youth or in adulthood are distinct entity.

e) the type of non-insulin requiring diabetes in young people, which is inherited in an autosomal dominant fashion is clearly different from the classic acute diabetes of juveniles; and

f) in tropical countries, several clinical presentations occur, including fibrocalcific pancreatitis and malnutrition-related diabetes.

This and other collective evidence have been used to divide diabetes mellitus into four distinct types namely;

a) insulin dependent diabetes,

b) non-insulin dependent diabetes,

c) malnutrition-related diabetes,

d) other types of diabetes.

The classification highlights the marked heterogeneity of the diabetic syndrome. Such heterogeneity has important implications not only for clinical management of diabetes but also for biomedical research (Harris, 2017). In this study the focus was mainly on type II diabetes while type I diabetes was discussed briefly to point out the differences between the two types of diabetes.

Insulin Dependent Diabetes Mellitus (IDDM)

The subclass of diabetes, type I diabetes, is generally characterized by the abrupt onset of severe symptoms, dependence on exogenous insulin to sustain life and proneness to ketosis even in the basal state, all of which is caused by absolute insulin deficiency. IDDM is the most prevalent type of diabetes among children and young adults in

developing countries, and was formally termed juvenile diabetes (Harris, 2017). It is a catabolic disorder in which circulating insulin is virtually absent, plasma glucagon is elevated, and the pancreatic B cells fail to respond to all insulinogenic stimuli (Nolte and Karam, 2011). Type I diabetes is thought to result from an infectious or toxic environmental contingency in people whose immune systems are genetically predisposed to develop a vigorous autoimmune response against pancreatic B cell antigens. Extrinsic factors that might affect B cell functioning include damage caused by viruses such as the mumps virus and coxsackie virus B4, by chemical agents, or by destructive cytotoxins and antibodies released from sensitized immunocytes. An underlying genetic defect relating to pancreatic B cell replication or function may predispose a person to the development of B cell failure after viral infections. In addition, specific HLA genes may increase susceptibility to a diabetogenic virus or may be linked to certain immune response genes that predispose patients to a destructive autoimmune response against their own islet cells (autoaggression). Observations that pancreatic B cell damage appears to be lessened when

immunosuppressive drugs such as cyclosporine or azathioprine are given at the initial manifestation of type I diabetes support the importance of auto-aggression by the immune system as a major factor in the pathogenesis of this type of diabetes (Nolte and Karam, 2011).

Non-Insulin Dependent Diabetes Mellitus (NIDDM)

Type II diabetes greatly out numbers all other forms of diabetes. Patients with NIDDM are not dependant on exogenous insulin for prevention of ketonuria and are not prone to ketosis. However, they may require insulin for the correction of fasting hyperglycaemia if this cannot be achieved with the use of diet or oral agents, and they may develop ketosis under special circumstances such as severe stress precipitated by infections or trauma (Gerich, 2011). The pathogenesis in type II diabetes is that the pancreas produces insulin but the body does not utilize the insulin correctly. This is primarily due to peripheral tissue insulin resistance where insulin-receptors or other intermediates in the insulin signaling pathways within body cells are insensitive to insulin and consequently glucose does not readily enter the tissue leading to

hyperglycaemia or elevated blood glucose concentrations. Obesity, which generally results in impaired insulin action, is a common risk factor for this type of diabetes, and most patients with type II diabetes are obese (Nolte and Karan, 2001) and will ultimately require multiple anti-diabetic agents to maintain adequate glycaemic control (Gerich, 2011).

Prevention of Diabetes Mellitus

Diabetes mellitus is an incurable chronic disease; therefore, efforts should be directed at the prevention and management of the disease. According to previous studies, key component factors to prevent diabetes mellitus include, among others, physical exercise, diet, and lifestyle modification.

1. Exercise and Diabetes Prevention

Exercise may enhance glucose tolerance and insulin sensitivity in several ways. In their review, Borghouts and Keizer (2015) noted that both acute and chronic exercise may affect blood glucose and insulin activity

favorably. Ac- cording to them, up to 2 h after an acute bout of exercise, glucose uptake is in part elevated due an to insulin-inde- pendent mechanism, probably involving an exercise-induced increase in GLUT-4 receptors in the cell mem- brane. Additionally, an exercise bout can increase insulin sensitivity for up to 16 h afterwards. Chronic exercise training potentiates the effect of exercise on insulin sensitivity through multiple adaptations in glucose transport and metabolism. Exercise heightens the sensitivity to insulin (a great benefit for diabetics) and may lower the risk of developing diabetes. In studies of high-risk individuals who exercised, took medication, or did nothing, those who became more active had the lowest incidence of diabetes. Also, apart from making cells more sensitive to insulin, exercise (endurance and strength training) helps stabilize blood glucose levels. Exercise burns excess sugar and makes cells more sensitive, and exercise also helps to keep body fat at a healthy level and to prevent obesity, a key risk factor for type 2 diabetes. Borghouts and Keizer (2015) conclude that exercise plays an important, if not essential, role in the prevention and treatment of impaired insulin sensitivity.

2. Nutrition and Diabetes

A carefully planned diet, containing the right components of balanced nutrients in adequate proportion, is in- dispensable for preventing diabetes mellitus. A balanced diet contains carbohydrates, fats and oil, proteins, vita- mins, mineral salts, and water.

Carbohydrates are converted to glucose after digestion, and, with the help of insulin, this glucose will enter the cells to be used for energy production. But when glucose fails to enter the cell, it remains in the blood and is filtered by the kidneys into the urine. To prevent this situation, individuals should refrain from refined sugars and consume carbohydrates which contain fibers. Re- fined sugars have been alleged to contribute to a wide variety of health problems, including obesity, diabetes, heart diseases, and cancer. A diet rich in high-glycemic- index foods theoretically may lead to insulin resistance and high serum triglyceride levels – risk factors for diabetes and heart disease.

On the other hand, complex carbohydrates, i.e., carbo- hydrates with plenty of fibers, are health friendly. Those consuming complex

carbohydrates are less likely to develop diabetes than those eating less fibers. To corroborate this assertion, it was opined that eating more fruits, vegetables, and whole grains, but no fat or low-fat milk and dairy products, is a healthful way to get the carbohydrates you need. Fiber-rich choices have the added benefit of promoting digestive health and reduce the risk of type 2 diabetes and heart disease. Other forms of fiber- rich carbohydrate sources in Nigeria are cocoyam, sweet potatoes, plantain, water yam, cassava, maize, and grains. Also, vitamins are important components of the diet for preventing diabetes mellitus. Vitamins are needed in small quantities, and they are involved in almost every metabolic process in the human body (Borghouts, & Keizer, 2015). For example, vita- min D may enhance immune cell functions to help pre- vent autoimmune diseases like type 1 diabetes. Harris (2015) indicated that a dose of ≥ 2,000 IU daily may have a strong protective effect on children at risk for type1 diabetes. Besides, vitamins enhance overall well-being of individuals, help to protect against diseases, and facilitate recovery from illness. In Nigeria, vitamins are obtained from a variety of fruits and vegetables, such as onions, tomatoes, citrus, grapes, garden

eggs, pepper, spinach, banana, mango, cashew, waterleaf, and bitter leaf, etc. Vitamins are also obtained from food crops such as nuts, cereals, and grains. Vitamin D can also be produced when the skin is exposed to the sunlight. Coffee and tea consumption prevents the development of diabetes mellitus. Over the course of the past 10 years, several studies have shown that consumption of caffeinated beverages such as coffee and tea are associated with a reduced risk of type 2 diabetes. Meadows (2014) affirmed that every additional cup of coffee consumed in a day was associated with a 7% reduction in the excess risk of diabetes.

3. Lifestyle Modification and Diabetes

To prevent diabetes, one should modify what one does and what one consumes. It is important to watch what you eat to avoid overweight or obesity. Type 2 diabetes is a health problem associated with overweight or obesity. More than 80% of people with type 2 diabetes are over-weight. You can lower your risk for developing type 2 diabetes by losing your weight (obesity loss) and increasing the amount of physical activity you do (Griffin, 2014) Obesity contributes to health problems in several

ways. Obesity increases the build-up of fat cells; fat cells secrete hormone-like substances called adipokines (adipocytokines) into the bloodstream, which may affect metabolic processes, and some of these effects are pathogenic, such as an increased insulin resistance, a factor in diabetes development. It is, perhaps, as a result of this that diabetes was identified as a health problem associated with obesity. As a part of lifestyle modification, you should refrain from consuming soft drinks such as coca cola, sprite, fruit juices, 7UP, Fanta, and malt drinks, for example. In a review of studies (Meadows 2014; Harris 2015), researchers linked soft drinks with in- creased calorie intake, higher body weight, lower consumption of calcium and other nutrients, and a greater risk of other medical problems such as diabetes. In a long- term, large-scale study of women, those who consumed ≥ 1 soft drink per day had twice the risk of developing diabetes compared to those who consumed ≤1 soft drink a month.

In addition, alcohol consumption should be stopped as a part of lifestyle modification. Apart from the other deleterious consequences of alcohol, experts affirmed that alcohol consumption causes obesity. Just as obesity

is a causative factor of diabetes mellitus, because it induces insulin resistance, leading to excess production of insulin, a situation which may lead to insulin finding its way in large quantity to the blood stream and consequently in the urine. To further underscore the relationship between obesity and diabetes, Gibbs affirmed that obesity increases the risk of type 2 diabetes by an astonishing 1,480% with a BMI of 27–29; 2,660% with a BMI of 29–31; 3,930% with a BMI of 31–33; and 5,300% with a BMI of 33–35 (Uusitupa, 2010).

Another important aspect of lifestyle modification for preventing diabetes and obesity is avoiding a sedentary lifestyle and living an active life. Apart from helping the body to function at its best, an active lifestyle, like physical activity, speeds up metabolism and builds lean body mass, so an active lifestyle helps the body to burn more calories, and body fat decreases, thus preventing obesity and concomitant diabetes mellitus. An active lifestyle heightens the sensitivity to insulin (a great benefit for diabetes) and may lower the risk of developing diabetes. An increase in physical activity can prevent type 2 diabetes even in those at high risk of developing the disease. In studies of high-

risk individuals who exercised, took medication, or did nothing, those who became more active had the lowest incidence of diabetes. It is, therefore, necessary that, apart from deliberate participation in physical exercise, individuals should be active in performing daily chores such as sweeping, cutting grasses, brisk walking, washing, and gardening, for example. Individuals should refrain from sitting for hours watching videos or films and using an elevator and house help to do house chores. In rural Nigeria where opportunities abound for active living, such as trekking long distances to the farm, bush clearing, manual cultivation of the land, and hunting, people should avail themselves of these opportunities (Diedrick, 2013).

Another aspect of lifestyle modification one can adopt to prevent diabetes mellitus is regular medical check-up. To underscore the importance of early medical check-up for diabetes prevention, the American Diabetes Association (ADA) recommends screening every 3 years for all men and women from 45 years of age onwards. The American College of Endocrinology recommends screening at age 30 years for individuals at risk, including those who are overweight,

sedentary, have a family history of diabetes, or have high blood pressure or heart disease. Random blood glucose testing is important as well as tests for stress and depression, both factors that are known to glucose metabolism and control. To prevent the onset of diabetes, therefore, one should avoid a lifestyle that may predispose individuals to emotion, stress, and depression (Rouder, Morey, Speckman, & Province, 2012).

Deleterious Consequences of Diabetes Mellitus

Though there is no accurate statistics on the morbidity, mortality, and economic effects of diabetes mellitus in Nigeria, available records from developed nations like America indicate that diabetes mellitus may be placing a huge burden on Nigerians. Specifically, elevated blood sugar levels seem to be involved in the development of:

a) Damage to the blood vessels – leaving diabetics prone to cardiovascular disease (diabetics are twice as likely as other people to have hypertension and to develop heart disease).

b) Damage to the retina – leaving diabetics at risk of blindness (diabetics are 17 times as likely to go blind as nondiabetics).

c) Kidney disease – leaving diabetics prone to renal failure.

In addition, diabetics, compared with nondiabetics, have double the risk of cancer of the pancreas. Furthermore, the diagnosis of any chronic disease produces an impact the patient has to contend with. The emotional reaction to having a lifelong incurable disease, as well as the lifestyle adjustments required by the disease, may constitute a problem for the patient and their family members. Also, diabetes shortens life expectancy by an average of 8 years – 7.8 years for men and 8.4 years for women. The risk of premature death among people with diabetes is about twice that of people without the disease; furthermore, according to the American Diabetes Association, the total economic costs of diabetes are more than USD 132 billion a year. Diabetes accounts for 1 of every 10th USD spent on health care in the United States, and an estimated 48 million Americans may develop diabetes by 2050. In Nigeria, a poor nation, provided with a poor health care system and near non-existent

health statistics, the costs of treating diabetes, in addition to the morbidity and man hour losses due to the disease, could be enormous and devastating (Romm, Nel, & Tlale, 2013).

Treatment of Diabetes

Doctors treat diabetes with a few different medications. Some of these drugs are taken by mouth, while others are available as injections.

Type 1 diabetes

Insulin is the main treatment for type 1 diabetes. It replaces the hormone your body isn't able to produce.

There are four types of insulin that are most commonly used. They're differentiated by how quickly they start to work, and how long their effects last:

- Rapid-acting insulin starts to work within 15 minutes and its effects last for 3 to 4 hours.

- Short-acting insulin starts to work within 30 minutes and lasts 6 to 8 hours.
- Intermediate-acting insulin starts to work within 1 to 2 hours and lasts 12 to 18 hours.
- Long-acting insulin starts to work a few hours after injection and lasts 24 hours or longer.

Type 2 diabetes

Diet and exercise can help some people manage type 2 diabetes. If lifestyle changes aren't enough to lower your blood sugar, you'll need to take medication.

These drugs lower your blood sugar in a variety of ways:

Types of drug	**How they work**	**Example(s)**
Alpha-glucosidase inhibitors	Slow your body's breakdown of sugars and starchy foods	Acarbose (Precose) and miglitol (Glyset)
Biguanides	Reduce the amount of glucose your liver makes	Metformin (Glucophage)

DPP-4 inhibitors	Improve your blood sugar without making it drop too low	Linagliptin (Tradjenta), saxagliptin (Onglyza), and sitagliptin (Januvia)
Glucagon-like peptides	Change the way your body produces insulin	Dulaglutide (Trulicity), exenatide (Byetta), and liraglutide (Victoza)
Meglitinides	Stimulate your pancreas to release more insulin	Nateglinide (Starlix) and repaglinide (Prandin)
SGLT2 inhibitors	Release more glucose into the urine	Canagliflozin (Invokana) and dapagliflozin (Farxiga)
Sulfonylureas	Stimulate your pancreas to release more insulin	Glyburide (DiaBeta, Glynase), glipizide (Glucotrol), and glimepiride (Amaryl)
Thiazolidinediones	Help insulin work better	Pioglitazone (Actos) and rosiglitazone (Avandia)

You may need to take more than one of these drugs. Some people with type 2 diabetes also take insulin.

Gestational diabetes

You'll need to monitor your blood sugar level several times a day during pregnancy. If it's high, dietary changes and exercise may or may not be enough to bring it down. According to the Mayo Clinic, about 10 to 20 percent of women with gestational diabetes will need insulin to lower their blood sugar. Insulin is safe for the growing baby.

Assessing Pregnant Women Awareness and Knowledge about Diabetes

Deepa (2014) conducted a cross-sectional study in both rural and urban India with the aim of assessing awareness and knowledge about diabetes in the general population among patients with diabetes in selected regions in India. In this study, Deepa (2014) used subjects drawn from four geographical regions of India. A sample of 6,607 individuals was employed. In the study, Deepa (2014) assessed awareness of diabetes and knowledge of causative factors and complications of diabetes through the use of an interviewer administered structured questionnaire. The response rate was 86%. In their conclusion, Deepa (2014) established that the level of knowledge and awareness about diabetes in India was poor in rural areas in comparison to urban areas because only 43.2% of the populations used were aware of the conditions of diabetes.

However, urban residents presented higher awareness rates of 58.4% compared to 36.8% of rural residents. Deepa (2014) emphasized for the need for improvement in knowledge and awareness in the diabetic

subjects and the general population with the aim of achieving better control and prevention of diabetes and its problems. The Finnish Diabetes Prevention Study Group found that persons with impaired glucose tolerance can considerably decrease the possibility of developing diabetes by affecting the adjustable risk factors of sedentary lifestyle and obesity (Greene, 2013). In the study, 522 participants with impaired glucose tolerance were arbitrarily assigned to a control group or an intervention group. The main objective of the intervention group was to achieve a decrease in weight of at least 5% and to exercise for a minimum of half an hour per day. Upon comparison of the general occurrence of diabetes in the intervention group to that of the control group, it was found that there was a reduced chance of 58% of having diabetes. The results varied among gender with a 54% reduction in women and 63% reduction in men (Woodbury, 2013). This study demonstrated how considerably lifestyle changes can diminish the risk of developing T2D.

A study by Evert (2013) also established that lifestyle changes can reduce the risk of developing T2D. The study involved 84,941 female

nurses who were followed for 16 years. In the period of the study 3,300new occurrences of T2D were identified. The findings of the study indicated that obesity and overweight, which were measured by use of body mass index (BMI), to be the most significant predictors of developing diabetes (Evert, 2013). However, after adjusting for BMI, other factors such as poor diet, sedentary lifestyle, smoking status, and the levels alcohol were all linked with a considerably higher possibility of developing diabetes. Obtaining and preserving the right weight, regular exercising, drinking limited amounts of alcohol, and having a healthy diet, were commendations consequential from the study to reduce the possibility of developing T2D (Evert, 2013).

Knowledge of Diabetes Prevention and Management among Pregnant Women

In the past scholars, have developed diabetes self-management programs (DSME) meant to aid patients in making informed choices and expedite self-care behaviour (Mulcahy, 2003). Change in lifestyle behaviours such as increasing physical activity and decreasing risks, is of ultimate

significance in DSME programs. The AADE commends behaviours that can be learned to accomplish self-management. DSME programs are developed to instil the most effectual skills and behaviours to manage diabetes and its associated risks. In order for DSME plans to effectively educate patients in self-management, they have to be effective in aiding patients modify their behaviour (Woodbury, 2013).

A number of documents have been advanced to direct DSME program overseers to accomplish intended effectiveness of the DSME programs. The documents are: AADE Standards for Outcomes Measurement of Diabetes Self-Management Education, National Standards for Diabetes Self-Management Education, and National Standards, Essential Elements and Interpretive Guidance. The National Standards for DSME were developed to outline eminence diabetes self-management education and to help diabetes instructors in a number of settings to offer education that is evidence-based (Funnell, 2010).

The National Standards, Essential Elements and Interpretive Guidance guideline is an instrument developed by the AADE to be utilized by

overseers seeking approval for their program. The instrument is founded on the National Standards essential within a program to attain every element outlined in the national standards (AADE, 2010). The AADE Standards for Outcomes Measurement of Diabetes Self-Management Education were created as a supplement to the National Standards for Diabetes Self-Management Education (AADE, 2010). The objective of the AADE Standards for Outcomes Measurement of Diabetes Self-Management Education was to back the revised version of National Standards for Diabetes Self-Management Education (AADE, 2010).

A documented curriculum with the current practice and evidence procedures, with standards for assessing results, serves as the outline for the DSME program. Evaluated needs of the person with diabetes and pre-diabetes define which content will be offered (Funnell, 2010). Standard 10 of the National Standards for Diabetes Self- Management Education outlines that the DSME program will evaluate the efficiency of the education process and define prospects for development by utilizing a documented constant quality enhancement strategy that designates and documents a methodical evaluation of the entities'

progression and resulting data (Funnell, 2010). In order to establish efficacy, results must be evaluated. Diabetes mentors can utilize the core metrics to establish their efficiency with populations and individuals, relate their performance with proven standards, and determine the distinctive impact of DSME in the general framework of diabetes care (Woodbury, 2013).

Efficiency of Diabetes Self-Management Education

Even with its demonstrated success, only approximately half of Americans with diabetes take part in formal diabetes education. There is a goal to increase this number to more than 70% by 2018 (Duncan, 2009). However, for people to take part, a DSME program should be executed in the community. Moreover, a DSME program should be designed to be efficient at either preventing those with pre-diabetes progressing to diabetes and reducing the risk of other complications for people already with diabetes. There have been past studies that demonstrate the efficiency of community-based programs (Katsilambros, 2010). Using Athens, Greece as a case study, Makrilakis, (2010)

evaluated diabetes prevention in Europe using Diabetes Lifestyle Physical Activity and Nutritional Intervention (DE-PLAN). The DE-PLAN evaluation was instigated with an objective to develop a DSME model program in Europe.

Moreover, Makrilakis (2010) sought to guarantee that the DSME being recommended would be cost-effective and feasible. Given that it was the first program of its type in Greece, the original goal was to categorize persons at risk for T2D by using the Finnish Type 2 Diabetes Risk Score Questionnaire (Makrilakis, 2010). The questionnaire was circulated to twelve locations; six occupational settings and six primary-care settings. In the study 3240 filled questionnaires, where 620 persons were recognized to be of high-risk for developing T2D. The high-risk persons were requested to undertake a verbal glucose tolerance examination to identify persons with unknown diabetes. Subsequently 318 persons agreed to take part of which 67 were discovered as having T2D. In addition, the remaining persons were requested to take part in the lifestyle intervention where 191 consented. The intervention comprised of six group meetings spread across 1 year. The objective of the

intervention was to educate partakers concerning the risk of having diabetes and to offer motivation to initiate lifestyle changes, predominantly in the areas of physical activity and nutrition. One hundred and twenty- five partakers finished the intervention and the subsequent oral glucose tolerance examination. The results showed that for those who took part in 4-6 intervention meetings, weight loss was substantial. Moreover, glycemic status improved in all participants (Makrilakis, 2010).

A research undertaken by Kulzer (2009) created a Prevention of Diabetes Self-Management Program (PREDIAS) founded on the DSME. The program comprised of 12 lessons spread across one year. After completion of the intervention, a follow-up was undertaken using a similar evaluation at baseline, comprising of a test in oral glucose tolerance, lipid, A1C and glucose levels, height, weight, waist circumference, physical activity evaluation, blood pressure, nutrition evaluation, and psychological and anxiety well-being assessments (Kulzer, 2009). Participants in the intervention group exhibited positive results compared to those in the control group. Noteworthy weight loss,

improved nutrition, increased physical activity, enhanced fasting glucose, reduced total triglycerides and cholesterol, reduced diastolic and systolic blood pressure, better psychological well-being, and decreased depressive and anxiety indications were all exhibited in the intervention cluster and were significant compared to the control group (Kulzer, 2009).

Summary of Literature

Diabetes is one of the chronic diseases that affect both the young and old in our society. According to World Health Organization (2006), at least 171 million people worldwide suffer from diabetes and it is more prevalent in developed countries. According to American Diabetes Association (2006), there were about 20.8 million people with diabetes in United States alone, while in developing countries, increase in prevalence is expected to occur especially in Africa, where most patients will likely be found by 2030. This increase in incidence of diabetes in developing countries follows the trend of urbanization and lifestyle

changes perhaps most importantly a “Western Style” diet (World Health Organization, 2006).

In Nigeria though no estimate of the individuals suffering from diabetes has been made, in a recent screening exercise carried out in Warri and Sapele where 787 people attended, 65% were diabetic and hypetensive (Urhobo National Association of North America, 2004). Also at University of Benin Teaching Hospital, Benin City, the number of patients that attend Wednesday diabetic clinic is alarming. Diabetes has several effects which may include dysfunction and, in some cases, failure of body organs. Diabetes Miletus also exposes individuals to various conditions such as cardiovascular disease, amputations, renal failure, visual loss, and obesity. Weight loss has been found to prevent actualization of diabetes and obesity in persons with pre-diabetes (Brown & Kuk, 2015). Therefore, early detection and treatment of pre-diabetes can prevent its transition to full onset diabetes and consequently minimize the associated complications.

Though diabetes can be managed, there also exists several measures that can be employed to prevent the disease. In most cases, taking medication, adhering to healthy diet, losing weight, and exercising regularly are the main treatments accessible (American Association of Diabetes Educators. While medication has proved to be efficient in most scenarios, non-pharmaceutical interventions to delay or prevent progression to diabetes have shown to be more cost-effective and reliable. In this regard, diabetes self-management education (DSME) programs have been created to develop skills and behaviours essential to avoid and/or manage diabetes and its associated risks. The American Diabetes Association (ADA) (2010) affirmed in The Principles of Medical Care in Diabetes that psychotherapy for patients at risk for or with diabetes is imperative for the accomplishment of the delay or prevention of diabetes.

CHAPTER THREE

METHODOLOGY

This chapter describes the method and procedure used by the researcher in conducting the study. It is presented under the following Sub headings;

- Research Design
- Population of the study
- Sample and sampling technique
- Research instrument
- Validity of the Instrument
- Reliability of the instrument
- Method of Data Collection
- Method of Data Analysis

Research Design

Survey research design was adopted for this study. According to Omoroguiwa (2006), survey research design is one in which a group of people or term is studied by collecting data from only a few people or item considered to be representative of the entire group. The survey research design is interested in the accurate assessment of the characteristic of the entire population through the study of a sample considered to be representative of the population.

Population of the Study

The population of the study consisted of all the pregnant women attending antenatal in military hospital in Oredo L.G.A.

Sample and Sampling Technique

The sample for this study is 100 pregnant women in military hospital to represent the total population of pregnant women attending antenatal in military hospital in Oredo L.G.A.

Research Instrument

The instrument for the study is a questionnaire of 20 items used to elicit

information from respondents. The questionnaire will be divided into two sections. Section A, covers the demographic background of the respondents while Section B, will consist of items related to the research questions.

Validity of the Instrument

The content validity of the instrument will be established after an intensive screening by the supervisor and two experts from the Department of Health, Environmental and Safety Education, University of Benin. Their inputs and corrections in terms of clarity and appropriateness of language will be used to develop the final draft.

Reliability of the Instrument

In order to determine the reliability of the instrument, it will be administered to 20 respondents who are not part of the population but are excluded from the study sample. The data will be analysed using Crombach Alpha.

Method of Data Collection

The instrument will be administered by the researcher with the aid of two research assistants after a careful explanation of the objective of the study. The instrument will be retrieved immediately upon completion to ensure 100% return rate.

Method of Data Analysis

The data collected is properly organized and tabulated. The responses will be statistically analyzed by the use of percentage.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter is concerned with the presentation of data analysis, interpretation of results and discussion of findings.

Analysis of Demographic Data

Table 1: Frequency Distribution of Respondents by age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-22	14	13.9	14.0	14.0
	23-27	28	27.7	28.0	42.0
	28-32	51	50.5	51.0	93.0
	33 and above	7	6.9	7.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

The data presented on Table 1 showed that the age range of 18-22 were 14(13.9%). 23-27 were 28(27.7%). 28-32 were 51(50.5%) and 33 years and above were 7(6.9%).

Table 2: Percentage Distribution of Respondents by Qualification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FSLS	28	27.7	28.0	28.0
	SSCE	29	28.7	29.0	57.0
	HND	29	28.7	29.0	86.0
	BSc	14	13.9	14.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

The results presented in Table 2 showed that there were 28 FSLS Certificate holders which represents 27.7 percent, 29 SSCE holders representing 28.7 percent. Amongst the respondents 29 were HND holders which represented 28.7 percent. The B.Sc. holders were 14, representing 13.8 percent. Also, 93(92.1%) of the respondents were married. While 7(6.9%) of the respondents were single.

Table 3: Percentage Distribution of Respondents by occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	trader	71	70.3	71.0	71.0
	civil servant	15	14.9	15.0	86.0
	unemployed	14	13.9	14.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		

Total	101	100.0		

The table above shows that 71 of the respondents are traders representing 70.3% 15 are civil servants representing 14.9%. 14 are unemployed representing 13.9%.

Analysis of Research Questions

Research Question 1: *What is level of awareness of gestational diabetes among mothers attending military hospital?*

Table 4: Mean and Standard Deviation responses on awareness level of gestational diabetes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	high	56	55.4	56.0	56.0
	low	44	43.6	44.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

The data from Table 4 showed that 56(55.4%) of the respondents have high awareness level of gestational diabetes. While 44(43.6%) of the respondents have low level of awareness of gestational diabetes. The result therefore indicate that a large number of respondents are not aware of gestational diabetes.

Research Questions 1: what is the level of awareness of gestational diabetes among pregnant women in military hospital?

Table 5: Distribution for level of awareness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	high	56	55.4	56.0	56.0
	low	44	43.6	44.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

The table above shows the level of awareness of gestational diabetes among pregnant women attending military hospital. The result reveals that 58(55.4%) of the respondents are aware of gestational diabetes. 44(43.6%) of the respondents have low level of awareness of gestational diabetes. The result thus, reveal that 43% of the respondents are still not aware of gestational diabetes. Meaning they do not know what it is all about.

Research Questions 2: what is the level of awareness on the factors that causes gestational diabetes among pregnant women in military hospital?

Table 6: Distribution for the awareness of factors that cause gestational diabetes

		Frequency	Percent	Valid Percent	Cumulative Percent
	high	50	49.5	50.0	50.0
Valid	low	50	49.5	50.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Table 6 shows the awareness level on factors that causes gestational diabetes. The result reveals that 50(49.5%) of the respondents are aware of the factors that causes gestational diabetes while 50(49.5%) are not aware of the factors that causes gestational diabetes. The table 6 above shows that half of the respondents are not aware of the factors that causes gestational diabetes.

Research Questions 3: Are the pregnant women in military hospital aware of the symptoms of gestational diabetes?

Table 7: Distribution for the awareness of symptoms of gestational diabetes

		Frequency	Percent	Valid Percent	Cumulative Percent
	high	43	42.6	43.0	43.0
Valid	low	57	56.4	57.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Table above shows that 43(42.6%) of the respondents are aware of the symptoms of gestational diabetes while 57(58.4%) of the respondents are not are of gestational diabetes. This result therefore indicate that a large percentage of the respondents are not aware of the symptoms of gestational diabetes.

Research Questions 4: what is the level of awareness of the preventive measures of gestational diabetes?

Table 8: Distribution for the awareness of the preventive measures of gestational diabetes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	high	21	20.8	21.0	21.0
	low	79	78.2	79.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Table eight shows that 21(20.8%) of the respondents are aware of preventive measures towards gestational diabetes. 79(78.2%) of the respondents are not aware of the preventive measures for gestational diabetes. The result therefore reveal that majority of the respondents do not know how to prevent gestational diabetes.

Discussion of Findings

The findings of this study provided information on the level of awareness gestational diabetes among pregnant women in military hospital in Oredo L.G.A.

The findings for research question one, which state what is level of awareness of gestational diabetes among mothers attending military hospital. Shows that a large number of respondents are not aware of gestational diabetes. This finding is in line with the documentation of Clark et al (2000) who found that most women in the rural areas do not know what gestational diabetes is. Consequently, only 9% of respondents understood the concept of gestational diabetes.

The results from research question two, which state, what is the level of awareness on the factors that causes gestational diabetes among pregnant women in military hospital? The result reveal that half of the respondents are not aware of the factors that causes gestational diabetes. This is in consonance with what was stipulated by David (2001) which stated that presently, women in reproductive age do not know what causes gestational diabetes.

In addition, Based on the findings of research question three, which state, are the pregnant women in military hospital aware of the symptoms of gestational diabetes.

The results indicate that a large percentage of the respondents are not aware of the symptoms of gestational diabetes. It therefore means that a woman may be suffering from gestational diabetes without knowing. This follows the assertion of Nnadi et al (2003) who asserted that pregnant women feel that most changes that occur in their body during pregnancy is because of the pregnancy. Nnadi stress that most women do not know the signs and symptoms of gestational diabetes.

The results for research question four, which state, what is the level of awareness of the preventive measures of gestational diabetes? The findings from the study revealed that majority of the respondents do not know how to prevent gestational diabetes. This finding aligns with the documentation of Olayemi and Gete (2019), which stated that most women in their study did not know how to prevent gestational diabetes and that in Sub-Saharan region of Africa 14% of pregnant women, had gestational diabetes.

CHAPTER FIVE

SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATIONS

Summary

This study was carried out to examine level of awareness of gestational diabetes among pregnant women in military hospital in Oredo L.G.A Four research questions were raised.

Related literature was reviewed to gather information on eminent scholars view on the study. The descriptive survey research design was adopted in this study. The population of this study was made up of 300 pregnant women from January to November 2022. A total of 100 pregnant women made up the sample size for the study. A descriptive statistics of frequency and percentages was used in the data analysis.

Findings

Based on the study, the following findings were obtained:

1. A large number of respondents are not aware of gestational diabetes.
2. Half of the respondents are not aware of the factors that causes gestational diabetes.
3. Large percentage of the pregnant women in military hospital are not aware of the symptoms of gestational diabetes.

4. Majority of the respondents do not know how to prevent gestational diabetes.

Conclusion

Based on the findings from the study it was concluded that pregnant women are not aware of gestational diabetes, its signs and symptoms or preventive measures.

Recommendations

Based on the submission above, the following recommendations were made.

1. Awareness campaign; this can be done on television and radio station to create more awareness on gestational diabetes.
2. During antennal clinic health, educators should educate the pregnant women about gestational diabetes signs and symptoms.
3. During antennal clinic, mothers should be made to run test for gestational diabetes.
4. Pregnant women should be advised to get healthy nutrients.

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