NUTRITIONAL DISEASES AND NUTRIENT TOXICITIES AMONG WOMEN ATTENDING OLUKU PRIMARY HEALTH CARE (PHC) CENTRE, BENIN CITY

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

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CERTIFICATION

We, the undersigned, acknowledge that this research work was carried out by **ONOMOASOR Ebokhaisomi Jessica** with matriculation number **EDU2006025** in the Department of Health, Safety and Environmental Education, Faculty of Education, University of Benin.

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DEDICATION

I humbly dedicate this work to the Almighty God who in his infinite mercy has brought me thus far and granted me success in my endeavours.

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Immense gratitude and glory go to God Almighty for his sustenance all through this time and has abundantly made his grace available upon my life to complete my studies in this University and while writing this project work.

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The researcher uses this opportunity to express her profound gratitude to her parents Mr. and Mrs. Paul Onomoasor who stood by me morally, financially, spiritually and otherwise during the course of my education in the University of Benin. I will not fail to appreciate my lovely and wonderful siblings and friends for both their support and the love shown to me during the pursuit of my education.

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ABSTRACT

This study was designed to assess the nutritional diseases and nutrient toxicities among women attending Oluku Primary Health Care (PHC) centre, Benin city. To guide this study, four research questions were raised. The survey research design was used in conducting the study. The instrument used for the study was a self-structured questionnaire. The population of the study was 70 women attending Oluku Primary Healthcare Center. The validity of the instrument was established by giving it to the supervisor and two other experts in the field of the research study. The reliability of the instrument was established using the split-half method of reliability which yielded a Coefficient of 0.724. The data obtained from the questionnaires were subjected to analysis using frequency counts and percentages.

The findings show that the respondents have low knowledge about nutritional diseases and toxicities, however they hold generally positive attitudes towards these issues. The findings also revealed their dietary habits, most participants frequently consume beverages, soft drinks, carrots, cucumbers, and vegetables. Increase in awareness about the importance of adopting healthy eating habits and structured meal plans is recommended, which are crucial for enhancing the immune system's ability to combat various toxicities. Additionally, consuming meals that prevent nutritional diseases and nutrient toxicities should be emphasized. Healthcare providers are encouraged to promote. Promotion of meal plans, visiting a dietitian, intentionality about type of meals should be encouraged by healthcare providers to enable these women to reduce the risks posed by nutritional diseases and toxicities.

CHAPTER ONE
INTRODUCTION

Background of the Study

Nutritional diseases are illnesses and disorders linked to nutrient intake in humans which can be caused by an imbalance or an excess of nutrient intake. Nutritional diseases may occur due to several factors including, undernutrition, overnutrition or an incorrect balance of nutrients and in some cases, the body may not be able to correctly absorb nutrients from food. According to (Weininger, 2023) nutritional disease are any nutrient-related diseases and conditions that results to illness in humans, caused by insufficient food to meet the energy needs, characterized by weight loss, wasting of body fat, muscle wasting, and failure to thrive. They may include deficiencies or excesses in the diet, obesity and eating disorders, and chronic diseases such as cardiovascular disease, hypertension, cancer, and diabetes mellitus. Nutritional diseases also include developmental abnormalities that can be prevented by diet, hereditary metabolic disorders that respond to dietary treatment, the interaction of foods and nutrients with drugs, food allergies and in-tolerances, and potential hazards in the food supply.

Nutrient toxicities occurs when there is an excessive intake of essential elements such as vitamins, fat-soluble vitamins (vitamins, A, D, E, and K), minerals including sodium, zinc and iron which are necessary for growth and development in the body surpassing the body's ability to either utilize it or excrete it, leading to adverse effects in the body which include liver damage, kidney stones, gastrointestinal distress, and in severe cases organ failure.

(Hutchinson, 2023) posited that nutrient toxicities occur when certain supplements, especially the fat-soluble vitamins, including vitamins A, D, E and K, can produce toxicities in the body," for example, too much vitamin E can lead to blood thinning and too much vitamin A can cause liver problems.

In Nigeria, women's nutrition is of concern, facing the double burden of malnutrition. The prevalence of under-nutrition is 11 percent and the prevalence of overweight/obesity is 25 percent (National Population Commission and ICF International 2014). According to World Health Organization (WHO, 2021) malnutrition in all its forms includes; under-nutrition (wasting, stunting, underweight), inadequate vitamins or minerals, overweight, obesity, and resulting diet-related noncommunicable diseases. Deficiencies of micro-nutrients are a major global health problem, with more than 2 billion people in the world today being estimated to be deficient in key vitamins and minerals, particularly vitamin A, iodine, iron and zinc (World Health Organization WHO, 2006). The groups most vulnerable to micro-nutrient deficiencies are pregnant women, lactating women and young children, mainly because they have a relatively greater need for vitamins and minerals and are more susceptible to the harmful consequences of deficiencies. For a pregnant woman, these include a greater risk of dying during childbirth, or of giving birth to an underweight or mentally impaired baby. For a lactating mother, her micro-nutrient status determines the health and development of her breast-fed infant, especially during the first 6 months of life. For a young child,

micro-nutrient deficiencies increase the risk of dying due to infectious disease and contribute to impaired physical and mental development.

A proper balance in the intake of necessary nutrients is required to maintain the relation between nutritional diseases and nutrient toxicities. A deficit in specific vitamins or minerals can lead to nutritional diseases such as rickets or scurvy while excessive consumption can lead to toxicity. It is pertinent to reduce the nutritional deficiencies in individuals by assessing their nutritional status and providing them with health information that improves their health thereby protecting them from nutritional diseases and nutrient toxicities. Hence this study seeks to assess the nutritional diseases and nutrient toxicities among women attending Oluku Primary Healthcare Center.

Statement of the problem

There are several programs, initiatives and organisations put in place to ensure proper nutrition among women. However, despite all these, there is still a population of women suffering from nutritional diseases and nutrient toxicities. According to the Global Health Report (2022) the Africa region's adult population faces a malnutrition burden with an average of 10.0% of adult (aged 18 and over) women living with diabetes, compared to 9.8% of men. Meanwhile, 20.8% of women and 9.2% of men live with obesity. The number of pregnant and breastfeeding adolescent girls and women suffering from acute malnutrition has soared from 5.5 million to 6.9 million (United Nations Children's Fund UNICEF, 2023). More than one billion adolescent girls and women suffer from undernutrition (including underweight and short height),

deficiencies in essential micronutrients, and anaemia, with devastating consequences for their lives and wellbeing. Inadequate nutrition in adolescent girls and women's lives can lead to weakened immunity, poor cognitive development, and an increased risk of life-threatening complications, including the duration of pregnancy and childbirth with dangerous and irreversible consequences for their children's survival, growth, learning, and future earning capacity (United Nations Children's Fund UNICEF, 2023).

Women's nutrition is also sub-optimal in Nigeria where the double burden of malnutrition is clear, the prevalence of thinness (body mass index [BMI] <18.5) among non-pregnant women of reproductive age is 11 percent and the prevalence of overweight/obesity (BMI >25.0) among non-pregnant women of reproductive age is 28 percent (NPC and ICF International 2019). Nutritional diseases and nutrient toxicities are a threat to many, not only women but the society at large. It is important that people are more enlightened on the topic of nutrition. In the light of this, this study seeks to assess the nutritional diseases and nutrient toxicities among women attending Oluku Primary Health Care (PHC) centre, Benin city.

Research Questions

For the purpose of this study, the following questions are raised to guide the study:

1. What is the level of knowledge regarding nutritional diseases and toxicities among women attending Oluku Primary Healthcare Center?

2. What are the common dietary patterns contributing to nutritional diseases among women attending Oluku Primary Healthcare Center?
3. What are the perceptions and attitudes towards nutritional diseases and toxicities among women attending Oluku Primary Healthcare Center?
4. What are the risks of nutrient toxicities among women attending Oluku Primary Healthcare Center?

Purpose of this study

The purpose of this study is to examine the nutritional diseases and nutrient toxicities among women attending Oluku Primary Health Care (PHC) Centre. Specifically, this study will focus on ;

- Evaluating the prevalence and impact of nutritional diseases and nutrient toxicities among women attending Primary Health Care (PHC)
- Determining the level of knowledge and awareness of women attending Primary Health Care (PHC) about nutritional diseases and nutrient toxicities.
- Examining if the knowledge of nutritional diseases and nutrient toxicities differ by level of education
- Assessing the preventive measures adopted by women attending Primary Health Care (PHC)
- Assessing if the preventive measures taken differ by economic status among women attending Primary Health Care (PHC)

Significance of the Study

This study undertaken to assess the nutritional diseases and nutrient toxicities among women attending Oluku Primary Health Care (PHC) Centre will be of immense value to women, healthcare provides and health parastatals. It will distinguish the nutritional diseases and nutritional toxicities among women. This study will be significant for several reasons as it will help in;

- Understanding nutrient toxicity which would improve the awareness of preventive measures to avoid excessive intake of nutrients and reduce health risks associated with it.
- Contributing to maternal health by addressing nutritional issues that can affect not only the woman but also the health of the baby.
- Raising awareness about the importance of balanced diet and the consequences of nutritional imbalances.
- Identifying nutritional diseases and toxicities early, thereby reducing the risk of chronic conditions such as cardiovascular diseases.
- Providing adequate knowledge on nutritional diseases and nutrient toxicities which can be used for further studies.

Scope and Delimitation of the Study

This study would focus on the assessment of nutritional diseases and nutrient toxicities among women attending Oluku Primary Health Care centre, Benin city. This study is delimited to the women attending Oluku Primary Health Care centre, Benin city.

Definition of Terms

Nutrition: This is the process of consuming food to sustain life

Lactating Mother: This is a woman that is producing and secreting milk from her breasts.

Micronutrient deficiency: This refers to a lack of essential nutrients including vitamins (A, B, C, D, E and K) and minerals (iron, zinc, calcium and magnesium) in the body.

Nutrient Deficiency: This is a lack or shortage of essential nutrients that the body needs.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter is aimed at collecting literatures relevant to this study. This chapter reviewed literatures related to the study under the following sub-headings.

- Nutritional Diseases and Toxicities
- Types of Nutritional Diseases and Toxicities
- Dietary Patterns Contributing to Nutritional Diseases and Toxicities
- Perception and Attitudes towards Nutritional Diseases and Toxicities
- The Health Risks of Nutrient Toxicities
- The Role of Culture in Contributing to Nutritional Diseases and Toxicities
- Dietary Recommendations

- Summary of Reviewed Literature

Nutritional Diseases and Toxicities

Nutritional diseases and toxicities are the illnesses and disorders linked to nutrients that affect individuals. These includes; eating disorders and obesity, chronic illnesses like cancer, heart disease, and hypertension, and deficiencies or excesses of at least one nutrient in the diet as well as type 2 diabetes. Additionally, food allergies and in tolerances, potential risks in the food supply, interactions between foods and nutrients and medications, developmental abnormalities that can be prevented by diet, and hereditary metabolic disorders that respond to dietary treatment are all considered nutritional diseases (Andrew, 2014).

Chronic under-nutrition, which affects over 925 million people worldwide, is the most important nutrition related disease (World Health Organization, 2019). Health complications such as heart disease, cancer, diabetes, and stroke, are also dire consequences of the results nutritional toxicities especially in women. Nutritional diseases and toxicities is caused by inadequate nutrients brought on by eating insufficient food to meet energy requirements; symptoms include weight loss, muscle atrophy, and failure to thrive (Jean, 2019). Nutritional diseases and toxicities comes with severe and unpleasant effects of chronic, persistent hunger on those living below the poverty line in both industrialized and developing countries which includes inadequate growth and development in children, low birth weight in infants, increased susceptibility to disease and an impairment in the proper functioning of an individual's mental abilities.

In both industrialized and developing nations, over 2 billion people of all ages suffer from nutritional diseases and deficiencies. They are known to have a major influence on health across the globe, contributing to the development of numerous diseases and exacerbating others. A few significant nutritional essentials such as iodine, iron, zinc, selenium, calcium, fluorine, and vitamins A, D, E, B6, B1, B12, B2, B3, and C are examples of micronutrients (Theodore, 2010). Approximately 10% of child fatalities are linked to micronutrient deficiencies (Westspot, 2012), making them a particular concern for individuals working in child welfare. Food scarcity, fasting, and anorexia nervosa; difficulty swallowing or frequent vomiting (bulimia nervosa); intestinal malabsorption and poor digestion; or long-term illness that causes loss of appetite (such as cancer, AIDS) can all lead to this condition. In an effort to lessen the issue of malnutrition, more and more food blends are being created (Awuchi, 2019). Inadequate food availability, obsessive use of dietary supplements, and poor food selection can also lead to malnutrition. The nutritional value of grains is further decreased by molds' production of various metabolites like ochratoxins, patulins, aflatoxins, and so forth (Chinaza, 2019).

One of the most powerful and controllable environmental variables that can be utilized to lower an individual's lifetime risk of disease is nutrition. The body uses appropriate and balanced nutrient intake and metabolism to produce the substrates needed for normal physiological processes. The foundation of a healthy human diet is comprised of macronutrients (such as essential fatty acids, carbohydrates, and essential amino acids) that serve as the body's primary

energy source and micronutrients (such as vitamins and essential minerals) that are required for nearly all metabolic and developmental processes (Chinaza, 2019). Over the course of life, nutritional needs by the body begins to change, e.g the recommended intake of macro- and micronutrients is comparatively higher in relation to body size during fetal development, infancy, and childhood. Certain nutrient requirements (such as vitamin D) rise with age, while the needs for other nutrients (such as iron and energy) significantly decline (Andrew, 2014).

Inadequate or excessive intake of nutrients, eating disorders, obesity, chronic diseases such as cancer, diabetes mellitus, hypertension, and cardiovascular disease, inherited metabolic disorders, abnormal development, food intolerances, and allergies are all examples of nutritional diseases (Theodore, 2010). Over 925 million people worldwide suffer from chronic undernutrition, the most common nutritional disorder. The illness known as under nutrition is brought on by consuming insufficient food to meet energy needs; it manifests primarily as weight loss, wasting of muscle and body fat, and failure to thrive.

Furthermore, nutrient toxicities occur as a result of micro nutrient inadequacies. Micronutrient inadequacies are common in developed nations and they are defined as the consumption of nutrients in smaller amounts than the estimated average requirement. These deficiencies primarily arise when a nutrient's intake is above the recommended dietary intake but below the deficiency level (Andrew, 2014). Micronutrient deficiencies may result in hidden symptoms

that are challenging to diagnose, in contrast to clinically obvious symptoms caused by micro-nutrient deficiencies.

Moreover, a diet high in energy but low in nutrients can cause hidden hunger a condition marked by micro nutrient deficiencies even in the presence of adequate or excessive calorie intake. Micro nutrient deficiencies have the potential to be the root cause of a number of chronic illnesses, including cancer, osteoporosis, and cardiovascular disorders. Furthermore, weakened immunity, all-around exhaustion, and cognitive impairments have also been linked to sub clinical or marginal micro nutrient deficiencies.

Types of Nutritional Diseases and Toxicities

Nutritional diseases and toxicities results from a number of things, including inadequate food quality or quantity, higher dietary needs, increased metabolic losses, or impaired gastrointestinal digestion and absorption. Consequently, the risk of developing poor nutritional diseases and toxicities increases with continued consumption of reduced nutritional quantity due to appetite loss or poor quality, such as unbalanced, restrictive, or low-nutrient diets (Awuchi, 2019). Also the reduced ability to absorb nutrients due to gastrointestinal disorders such as celiac disease, inflammatory bowel disease, decreased absorption of vitamin B12 in the elderly results to nutritional deficiencies as well as bioavailability of nutrients, such as low absorption of zinc and iron from plant-based diets. Reduced bioconversion, such as lower bioconversion of provitamin A carotenoids into vitamin A from plant-based diets. Moreover, different genetic polymorphisms and the use of specific medications may also

raise the risk of particular nutritional deficiencies. The various nutritional diseases and toxicities includes;

- Protein-Energy Malnutrition (Pem)

Protein-energy malnutrition (PEM) is a condition in which individuals have a very little dietary intake of proteins, energy or both. Protein-energy malnutrition is prevalent in developing countries because of insufficient dietary intake. The two main illnesses associated with this condition are kwashiorkor, which is characterized by severe protein deficiency, and marasmus, which is total food deprivation with abnormally low amounts of protein and energy (Pascal, 2017). According to data from the World Health Organization's (WHO) global database on child growth and malnutrition (from 2012–2015), nearly one-third of children worldwide suffer from PEM, with the majority of those affected being in Asian nations. Due to the loss of nearly all of their subcutaneous fat, infants with marasmus are abnormally underweight. Their body is incredibly weak, with what looks to be just skin and bones, and they are more prone to infections (Pascal, 2017). A diet that is incredibly low in calories from all sources including protein is the main cause of this condition. Malnutrition may result from untreated marasmus and cause death (Pascal, 2017). Kwashiorkor is a disorder that typically manifests in infants who are fed diet sources high in carbohydrates without enough protein after being weaned off breast milk, which has a high protein content. The primary symptom of kwashiorkor is a swollen belly, which is brought on by fluid retention (edema). Children who have this condition are typically weak, wasted, underdeveloped, and more

prone to infectious diseases. Insulin synthesis is inhibited by kwashiorkor, resulting in decreased protein synthesis, hypoproteinemia, immunosuppression, edema, and diarrhea. In addition, patients who are hospitalized or institutionalized and receive intravenous glucose for an extended period of time, such as those recovering from surgery or illness, or who suffer from disorders that impair appetite or nutritional absorption, may develop kwashiorkor.

- Carbohydrate Deficiency

Certain human body cells, such as neurons, require high glucose concentrations. Gluconeogenesis is dependent on the breakdown of amino acids from body proteins, diet proteins, and fats to produce glycerol when there are insufficient amounts of carbohydrates in the diet (Khalid, 2018). Most gluconeogenesis occurs in the liver. A condition known as ketosis (increased ketones production), which is characterized by a strangely sweet-smelling patient, may result from a prolonged shortage of carbohydrates. 50 to 100 g of carbohydrates should be consumed daily to avoid ketosis and other issues associated with low carbohydrate intake. However, for a healthy and balanced diet, at least half of the daily calories should come from carbohydrates, meaning that at least 250 g of carbohydrates should be consumed daily. Fruits, vegetables, whole-grain cereals, and legumes are the most common sources of carbohydrates in the human diet. These foods also provide the required amount of dietary fiber.

- Essential Fatty Acids Deficiency

Essential fatty acids (EFA) that are polyunsaturated include omega-3 and omega-6. Inability of wounds to heal, scaly dry rash, increased susceptibility to infections, and stunted growth are clinical symptoms of essential fatty acids (EFA) deficiency. For the same fatty acid desaturases, omega-3, 6 and 9 fatty acids compete. Omega-9 is one of the most well-known indicators of essential fatty acid deficiency. Moreover, plasma eicosatrienoic acid and arachidonic acid (triene:tetraene) ratios greater than 0.2 are among the primary markers of essential fatty acids (EFA) deficiency. Patients with chronic fat malabsorption and cystic fibrosis have also been reported to have this condition (George, 2018). Numerous observational and investigative studies have documented the correlation between a lower omega-3 index and an increased risk of coronary heart disease-related mortality. Moreover, a meta-analysis conducted in 2016 found that taking omega-3 PUFA supplements during pregnancy raises gestational age at delivery and birth weight while lowering the risk of premature births in women. The US Food and Drug Administration has approved and recommended a number of omega-3 fatty acid preparations for the treatment of hypertriglyceridemia (George, 2018). Likewise, substituting omega-6 polyunsaturated fatty acids (PUFA) for other dietary saturated fatty acids (SFAs) lowers blood cholesterol overall.

- Micronutrient Deficiencies

Micronutrients are essential for sustaining life. Chronic metabolic disorders may result from micronutrient consumption below the current recommended dietary allowance important for the body. Each deficiency in a metabolic

system component and has a direct impact on people's health, ability to work, ability to complete education, and earning potential, which impacts both individuals and societies. More than 2 billion people of all ages in industrialized and developing nations suffer from micronutrient deficiencies (Danjuma, 2019), particularly expectant mothers and young children under the age of five. Almost 10% of child fatalities are associated with micronutrient deficiencies. Iron, folate, zinc, iodine, and vitamin A are among the most occurring micronutrient deficiencies in the world. These deficiencies all lead to increased morbidity and mortality, poor growth, intellectual impairment, and perinatal complications (Danjuma, 2019). Furthermore, deficiencies in certain micronutrients hasten the aging-related degenerative diseases and mitochondrial decay. Therefore, it is essential to prevent micronutrient deficiencies, which can be done by using food-based approaches and supplements. The identification of micronutrient deficiencies ought to be done using trustworthy and verified biomarkers.

- Vitamin a Deficiency

In developing nations, vitamin A deficiency is a relatively common nutrient deficiency that primarily results in ophthalmologic diseases (Ette, 2018). As a matter of fact, vitamin A plays a critical role in maintaining the integrity of the epithelial tissues found in the respiratory, gastrointestinal, and urinary tracts. The onset of Bitot spots, xerophthalmia, and night blindness are the first signs of vitamin A deficiency. As the vitamin A deficiency worsens, keratomalacia and irreversible blindness may result. Moreover, children who are deficient in

vitamin A may also show signs of malnutrition related to protein and energy. The World Health Organization estimates that between 70 and 80 million children worldwide experience subclinical vitamin A deficiency, which appears to be asymptomatic.

- B Vitamins Deficiencies

Vitamin B6

Vitamin B6 is water-soluble and can be obtained from different foods and supplements. It mostly manifests as the three phosphorylated forms of pyridoxine, pyridoxamine, and pyridoxal, which are physiologically active. A number of enzymes, including those involved in neurotransmitter synthesis, fatty acid metabolism, amino acid transamination and decarboxylation, and the conversion of tryptophan to niacin, depend on vitamin B6 as a coenzyme. Although it is uncommon, vitamin B6 deficiency can be brought on by using certain medications, malabsorption, and inadequate food intake. Individuals who are malnourished, elderly, or anorexic are more susceptible to vitamin B6 deficiency. Alcoholics are also at higher deficiency risk, since they have poor vitamin B6 dietary intake and alcohol increases its catabolism. Vitamin B6 deficiency causes anemia, peripheral neuropathy, seborrheic dermatitis, glossitis, cheilosis, depression, celiac disease, Crohn disease, and seizures. Medications can bind vitamin B6 and increase its excretion or reduce its enzymatic activity.

Vitamin B12

For humans, the only dietary source of vitamin B12 is animal-based foods like dairy and meat. Clinically, vitamin B12 deficiency is rare in newborns and infants who do not have any risk factors. Insufficient intake, malabsorption, and inherited errors in metabolism or transport are the main causes of vitamin B12 deficiency. Due to inadequate intake, those who are older, suffer from mental illnesses, are vegans, and have breastfed their children are more likely to be deficient in vitamin B12 (Bruno, 2017).

- Folate Deficiency

Folic acid, or vitamin B9, and vitamin B12 have a number of closely related roles. Folate is essential for the synthesis of purines and thymidylate and is also involved in the synthesis, stability, and repair of Deoxyribonucleic acid DNA (Ejiro, 2013). Additionally, folate affects alterations in Deoxyribonucleic acid (DNA) methylation patterns and carbon metabolism. Because alcohol inhibits the absorption of vitamins, excessive alcohol consumption can result in folic acid deficiency. People who are deficient in folate experience weakness and exhaustion due to megaloblastic anemia. Deficiency in folate during pregnancy is associated with neural tube defects, low birth weight, preterm delivery, and retardation of fetal growth. Furthermore, the incidence of neural tube defects is decreased when folic acid is supplemented during the periconceptional period.

- Vitamin c Deficiency

Vitamin C (Ascorbic acid) is mostly obtained through diet and is regarded as an essential nutrient. Scurvy can result from a lack of it, and it can also cause behavioral and emotional abnormalities (Sylvester, 2014). The signs and

symptoms of ascorbic acid deficiency in the first three months include petechiae, ecchymoses, coiled hairs, hyperkeratosis, bleeding gums, and arthralgias (John, 2017). In addition, vitamin C is important for the synthesis of carnitine, catecholamines, osteoblasts, and osteodentin, as well as for lower urinary folic acid excretion and increased dietary iron absorption. Since humans cannot synthesize vitamin C, they must rely entirely on fruits and vegetables in their diets to obtain and store enough of the vitamin. Citrus fruits, tomatoes, strawberries, potatoes, and green leafy vegetables are good sources of vitamin C. Moreover, vitamin C deficiency is seen in children with neuro developmental disabilities as well as growing infants who are exclusively fed cow's milk or formula. It is known that pharmacological dosages of vitamin C alleviate the symptoms.

- Vitamin E Deficiency

The most significant of the eight fat-soluble substances that make up vitamin E is tocopherol. Vitamin E guards against the harm caused by free radicals, which are linked to long-term illnesses. Disorders linked to vitamin E deficiency are uncommon. Fat malabsorption and certain genetic disorders such as abetalipoproteinemia and Friedreich ataxia can cause vitamin E deficiency. Studies have indicated that vitamin E may be protective against ischemic heart disease, diabetes, cataracts, atherosclerosis, Alzheimer's, and Parkinson's diseases. Research has also documented the anti-cancer properties of vitamin E.

- Vitamin k Deficiency

Vitamin K deficiency causes coagulation disorder, which is characterized by elevated prothrombin time and international normalized ratio, with normal levels of fibrinogen and platelets. Vitamin K deficiency is known as hemorrhagic disease of the newborn" in neonates. Early vitamin K deficiency at birth (VKDB), which appears within the first 24 hours of life, typically affects infants whose mothers took medications during pregnancy that inhibit vitamin K metabolism. Infants at risk typically have a 6-12% chance of developing VKDB if vitamin K is not given at birth. Late VKDB, on the other hand, is associated with babies who are exclusively breastfed and begins between 8 days and 6 months of pregnancy.

- Vitamin D Deficiency

The fat-soluble secosteroid vitamin D, also known as calciferol, is necessary for the intestinal absorption and metabolism of calcium, magnesium, and phosphorus. Calcium absorption is improved by vitamin D, which also triggers the release of calcium and phosphorus from osteoclasts and initiates the synthesis of enterocyte calcium channels. Vitamin D can be produced internally, as in the case of cholecalciferol/vitamin D3, or obtained through food, as in the case of ergocalciferol/vitamin D2. Fish and fish oils, which have the highest percentage of available vitamin D, eggs, shiitake mushrooms, liver, and fortified foods (such as orange juice and milk) are good sources of vitamin D (Awuchi, 2018). A lack of vitamin D results in hypophosphatemia and hypocalcemia, which in turn cause rickets in children and osteomalacia in adults. Moreover, in adults, vitamin D deficiency is linked to cardiovascular

disease, immunomodulatory disorders, and hypertension (Awuchi, 2018). A lack of vitamin D is influenced by a number of dietary and environmental factors, including milk consumption, sun exposure, and body mass index. Decreased synthesis, decreased dietary intake, and malabsorption of vitamin D are the usual causes of vitamin D deficiency (Awuchi, 2018).

- Calcium Deficiency

Calcium deficiency, also known as hypocalcemia, is characterized by low serum calcium levels. Long-term calcium deficiency can cause rickets, osteoporosis, cataracts, dental abnormalities, and changes in the brain. It is essential to consume enough calcium throughout life to keep bones healthy (Maul, 2015). The calcium deficiency that causes rickets is still a problem in a number of places worldwide. In addition, certain diseases and specific diets, like vegetarian diets, might cause calcium deficiency. Calcium supplementation is required also in inflammatory bowel disease patients, particularly those administered with corticosteroids/glucocorticoids (Maul, 2015).

- Iron Deficiency

The most common nutritional deficiency is iron deficiency, which is most common in young children and premenopausal women (Adugba, 2017). Because iron is essential for the synthesis of hemoglobin, low iron levels can result in microcytic hypochromic anemia, which is characterized by smaller-than-normal red blood cells with lower hemoglobin content. Fatigue, apathy, paleness, weakness, difficulty breathing when exerted, and a decreased ability to withstand cold temperatures are all signs of anemia. A lack of iron may have

an impact on growth, behavior, learning capacity, and development. Severe anemia brought on by an iron deficiency may also raise the chance of pregnancy problems and maternal death. Inadequate dietary iron intake, blood loss during menstruation, blood loss in the intestines, blood loss from hookworm, tumors, hemorrhoids, and frequent use of medications like aspirin are the main causes of iron deficiency (Andrew, 2014).

Dietary Patterns Contributing to Nutritional Diseases and Toxicities

Dietary patterns is defined as the quantity, variety, or combination of various foods and beverages in a diet, as well as the regularity with which they are consumed. Rapid growth and development that lay the groundwork for later life, health, and well being in women begins during adolescence which is a transitional stage. During their adolescence, women need certain essential nutrients for the best possible growth and development, including protein, calcium, and iron (Dempsey, 2011). This age group is at risk for nutritional vulnerability and deficiencies due to their rapid growth rate and lower nutrient intake.

An individual's dietary pattern is a sustainable nutrition behavior to improve their general health (Dempsey, 2011). Measuring the quantity, percentage, range, or blend of various foods and drinks in a more thorough manner is beneficial. In order to improve health or lower the risk of disease, this strategy takes into account how nutrients and foods interact. The joint effect of the different nutrients involved would be better identified through dietary pattern analysis of the target population, which aids in disease risk prediction more

effectively than isolated nutrient analysis. To design and implement diet-based intervention programs, public health initiatives must take into account the correlation between dietary practices and disease outcomes.

Women who adopt unhealthy eating habits may experience chronic non-communicable diseases as a result of their dietary patterns. Women eat diets that deviate from the suggested healthy diet; worldwide, only 17% of women follow a varied diet (Stern, 2019). Women who from their teenage age had poor eating habits run the risk of stunting, which can have negative effects on their. Women from developed nations like the US, Europe, and Australia consumed more unhealthy foods like soda and fast food than they do consume nutritious foods like fruits, vegetables, dairy products, and whole grains (Stern, 2019). In low and middle-income nations, women also struggle with this issue, as evidenced by their unhealthy eating patterns (Stern, 2019).

According to a study by Hazar (2015) in Ethiopia, women had unhealthy eating habits. In Northwest Ethiopia, a study found that 32.30% of women had an adequate variety in their diet, 97.70% of women ate starchy staples, 42.6% did not eat any fruit, and only 1.70 percent of them ate food derived from animals. In the middle of the 20th century, metabolic disorders, particularly atherosclerosis and its acute and chronic complications, had supplanted infectious diseases as the leading cause of morbidity and mortality. Diet and physical activity are two lifestyle risk factors that have received a lot of attention (Nichol, 2016). The Framingham Heart Study, which identified risk factors for cardiovascular diseases, sparked research on the connection between

nutrition and the risk of chronic diseases. The first evidence of a connection between nutrition and coronary heart disease was provided by two editions of the seven countries studies, which served as the foundation for the recommendation of a Mediterranean diet for the prevention of cardiovascular diseases (Hauser, 2017). The "Lyon Diet Heart Study" was another significant step toward a better understanding of the role of nutrition in heart prevention. Ten risk factors were identified in the INTERHEART study as accounting for 90% of cases of acute complication of atherosclerosis, or myocardial infarction. The only dietary strategy that has been demonstrated to lower the risk of cardiovascular events (like myocardial infarction or stroke) or cardiovascular death in both primary and secondary prevention is the mediterranean diet, which has a higher fat content and a lower carbohydrate content.

A comprehensive examination, derived from 195 countries' data in the Global Burden of Disease (GBD) Study 2017, demonstrated a robust correlation between nutrition and well-being. In 2017, it was discovered that dietary risk factors were accountable for 11 million deaths worldwide (22% of all adult deaths) and 255 million disability-adjusted life years (15% of all adult DALYs). Cardiovascular disease (CVD) was the primary cause of diet-related deaths, accounting for 10 million deaths. Additionally, it caused 207 million DALYs. Type 2 diabetes came in third place among diet-related deaths, and cancers came in second. It is also noteworthy that adults under the age of 70 accounted for 70% of diet-related DALYs and 45% of all diet-related deaths. High sodium intake was the main dietary risk factor, followed by low intake of

whole grains and low intake of fruits. It was discovered that, while the intake of all unhealthy foods and nutrients was higher than the optimal level, the intake of nearly all healthy foods and nutrients did not reach the optimal level globally. The greatest discrepancy between the recommended and actual consumption of whole grains, milk, and nuts and seeds was found among healthful foods. Processed meat, red meat, sugar-sweetened beverages, and sodium were found to have the highest overabundance of recommended intake among unhealthy foods (Adama, 2016). Statistics Poland's report "Health status of population in Poland in 2019" data indicated that noncommunicable diseases are also frequently diagnosed in Poland. As people age, their risk of developing high blood pressure, diabetes, coronary artery disease, stroke, and myocardial infraction rises especially in women. According to as study by (Lopes, 2022), in Poland, the prevalence of high blood pressure in 2019 was 14.9% in 40–49-year-old women, 35.5% in 50–59-year-olds, and 66.5% in 70–79-year-olds. In these age groups, the prevalence of diabetes was 2.7%, 8.5%, and 26.5%, in that order. The prevalence of coronary artery disease was 5.1% and 1.3%, respectively, among those aged 40–49 and 50–59. However, it was 26.6% among those aged 70–79, and the corresponding rates for myocardial infraction and stroke were 6.1% and 8.2%, respectively. About 60% of individuals 40–49 years old and about 70% of individuals 70–79 years old were found to be overweight. A level of significance of behavioral risk factors, accounting in Poland for 52% of deaths from cardiovascular diseases, 42% of deaths from cancer, and 44% of all-cause mortality, was reported by the National Institute

of Public Health, National Institute of Hygiene in the report "Health status of Polish population and its determinants 2020," which is based on the analyses for 2019 conducted as part of the GBD 2019 study. This is higher than the global level (49%, 37%, and 38%, respectively).

The risk factors that posed the greatest threat to life in Poland among women were unhealthy diet (20.0%), tobacco (20.4%), active smoking (19.1%), and hypertension (22.3% of deaths). Between 2010 and 2018, the Polish population consumed excessive amounts of processed and red meat, and insufficient amounts of fruits and vegetables. Additionally, their diets showed an excessive amount of energy derived from fats (including saturated fatty acids) and an insufficient amount from carbohydrates. Deficits in certain minerals and vitamins, including calcium, magnesium, potassium, vitamin C and D, and folates, were found in the diets of adult Poles (women) (Lopes, 2022). It is a well-known fact that human nutritional status is dependent on the combined effect of all food consumed, and different diet quality scales are currently the primary means of assessing the relationships between diet quality and health outcomes. There is evidence, as reported by Trichopoulou (2017), that diet, as it relates to health status, should be viewed as a whole effect of an intake of different foods. Higher adherence to the Mediterranean diet was linked to a decrease in overall mortality as well as deaths from cancer and coronary heart disease, according to a population-based, prospective study with 22,043 adults.

Perception and Attitudes towards Nutritional Diseases and Toxicities

The nutritional status of women is particularly important because the harmful effects of nutritional diseases and nutrient toxicities that are passed down to future generations through these women and their offspring. The World Health Organization reports that a large number of women do not consume enough micronutrients in their diets. In addition, their knowledge or lack of knowledge as well as their perceptions concerning proper nutrition, nutritional diseases and toxicities can have an impact on the general health and nutritional status of the family (Morgan, 2019). Although there is a growing public interest in nutritional health, there is still evidence of the rising prevalence of non-communicable diseases linked to diet, such as obesity as a result of the perceptions of women as well as their attitudes resulting to a series of nutritional diseases and nutritional toxicities (Adeleke, 2018). Over time, obesity related interventions have only shown mediocre results, especially when applied to high-risk populations. While sedentary behavior reduction interventions, especially those aimed at reducing television viewing, have proven more effective. Research suggests that a better understanding of healthy diet predictors is necessary to increase the prevalence of positive health behaviors, particularly among women because they are usually in control of the diet for themselves and their households as well. One of the main causes of non-communicable disease worldwide is a result of nutrient diseases and toxicities, which is defined by high intake of sugar and fat and low intake of fruits and vegetables. It is also closely linked to early mortality. One of the main causes of the obesity epidemic, particularly in young women, is poor

dietary habits. Certain less healthful behavioral patterns are known to develop during a critical period that occurs between adolescence and early adulthood among women. Young adults between the ages of 18 and 24 may have vulnerable attitudes toward potential risk factors and underestimate the impact of their current behavior on their long-term health status.

The degree to which one believes that nutrition and health are important can have a significant impact on their behavior. In assessing the influence on eating habits among women, various terms have been used, such as health interests and health concern (Andrew, 2016). These conceptualizations, regardless of the language used, highlight the significance of or raise questions about food, nutrition, and health. Understanding how consumers perceive food risks has been the primary focus of a great deal of research, and for a variety of reasons, the number of these studies has increased in recent decades. For example, there has been a significant introduction of highly processed food to the market, but there have also been numerous food crises involving food (Andrew, 2016). In comparison to risks associated with society, risks and concerns related to an individual's lifestyle are frequently minimized. Perceived risks to health and nutrition may not influence dietary behaviors because most people believe they have control over their eating habits. However, it appears that compared to other populations, the pre- and reproductive-age female population may place a greater value on diet and health. Firstly, eating habits formed during adolescence can influence a woman's adult life and can also be passed on to their offspring. Second, effective preventative programs are still needed to

improve the diets of young girls and, by extension, their offspring in order to improve their nutritional status and, in turn, lower the rates of nutritional diseases and nutritional toxicities.

The Health Risks of Nutrient Toxicities

According to Hutchinson (2023), certain supplements, especially the fat-soluble vitamins, including vitamins A, D, E and K, can produce toxicities in the body. For example, too much vitamin E can lead to blood thinning and too much vitamin A can cause liver problems. Nutrient toxicities alter the normal body functioning and further impairs the organs and system of the body. A continuous neglect towards dietary habits and proper nutrition could pose harmful and severe health conditions for the body. These health risks as a result of nutrient toxicities includes;

- Cardiovascular Diseases

The leading cause of death in developed countries is cardiovascular diseases, a broad term that includes conditions affecting the heart and blood vessels. The most common and deadly type of cardiovascular disease is coronary heart disease (CHD), also known as ischemic heart disease or coronary artery disease. Coronary heart disease occurs when the arteries carrying the blood to the heart, and thus nutrients and oxygen, become narrow and obstructed. Atherosclerosis, a disorder where fibrous plaques (lipid and other material deposits) accumulate on the inner walls of the arteries, causes the narrowing and makes the arteries less flexible to changes in blood pressure (Jean, 2019). A myocardial infarction, also known as a heart attack, can happen if there is a disruption in the blood

flow within the coronary arteries that surround the heart. Peripheral arterial disease may arise from narrowing of the abdominal aorta, its major branches, or the arteries of the legs, which restrict blood flow to the brain and cause a stroke, also known as a cerebrovascular accident. According to Jean (2019), blood clots that easily form where small plaques are already partially blocking the arteries are what cause many strokes and heart attacks rather than the complete blockage of arteries by plaque. Even though atherosclerosis typically takes decades to show symptoms, such as a heart attack or stroke, the disease can actually begin in childhood when fatty streaks, which are the precursors to plaque, appear. Plaque deposition is essentially an inflammatory reaction meant to heal damage to the arterial wall. Several factors have been linked to vascular injury, including high blood levels of LDL (lowdensity lipoprotein) cholesterol, diabetes, smoking, and hypertension (Jean, 2019). Specific bacteria or viruses may also cause inflammation and damage to vessels. Men in their middle age who have a family history of the disease and those with inherited conditions like familial hypercholesterolemias are especially susceptible to early onset coronary heart disease. The four main risk factors for coronary heart disease (CHD) are high blood pressure, diabetes, low levels of HDL cholesterol, and high levels of LDL cholesterol. Diet and weight loss can affect these risk factors. However, unlike the roles of the risk factors themselves, the effects of food on the established risk factors are less obvious. Furthermore, dietary tactics work best when paired with other strategies like regular exercise and quitting smoking. Medication therapy may involve anticoagulants, such as

aspirin, to prevent blood clot formation, antihypertensive drugs to lower blood pressure, and cholesterol-lowering medications such as bile acid sequestrants, niacin, and statins (Jean, 2019).

- Hypertension

In developed countries, hypertension also referred to as high blood pressure (HBP) is one of the most prevalent medical conditions. It poses a serious risk for various conditions, including congestive heart failure, aneurysm, stroke, kidney disease, and coronary heart disease. The majority of high blood pressure patients have primary, or essential, hypertension, for which there is no known etiology. In addition to certain modifiable factors like excessive alcohol consumption, diets high in salt, being overweight, and physical inactivity, heredity also plays a part in the development of hypertension (Jean, 2019). Blood pressure of ≥140/90 mm Hg is commonly used to define hypertension. This means that during systole, the heart exerts pressure 140 mm high, and during diastole, it exerts pressure 90 mm high. Elevations in either diastolic or systolic blood pressure, or both, can occur in hypertension. Individuals who have high blood pressure may go years without experiencing any symptoms, and then they may have a deadly stroke or heart attack.The risk of complications can be considerably reduced by controlling and preventing hypertension (Jean, 2019). It is critical to diagnose hypertension early on in order to begin lifestyle modification as soon as feasible. People who are overweight, particularly those with excess abdominal fat, are far more likely than lean people to develop hypertension. Only losing weight even as little as

10 pounds, or 4.5 kg can significantly lower elevated blood pressure. Increasing physical activity has been shown to independently lower blood pressure in addition to helping with weight control.

Extensive research investigating the relationship between table salt consumption and blood pressure across global communities has unequivocally demonstrated that there is a positive correlation between blood pressure and sodium intake from table salt (Jean, 2019). Low-sodium primitive societies have very little hypertension, and they do not experience the normal aging-related increase in blood pressure that industrialized societies experience. On the other hand, stroke is the leading cause of death and hypertension is prevalent in nations with exceptionally high table salt consumption. Furthermore, studies conducted in the lab demonstrate that reducing sodium intake can lower blood pressure. Some individuals appear to have a genetic susceptibility to salt. Despite the fact that restricting salt intake may only benefit those who are sensitive to it, many people consume more salt than is necessary. The public is typically advised by dietary recommendations to keep their daily sodium intake below 2,400 mg, or just over one teaspoon of table salt. Restricting the amount of salt used in cooking, skipping the table salt, and avoiding highly salted foods, fast food, and processed foods (many of which contain hidden sodium) are some ways to reach this level. The majority of foods high in sodium include breakfast cereals, luncheon meats, and canned vegetables.

Hypertension is linked to heavy alcohol consumption, defined as more than two drinks per day for men and more than one drink per woman. Compared to meat eaters, vegans and especially vegetarians who abstain from eating foods derived from animals, such as eggs and milk, typically have lower blood pressure (Jean, 2019). The blood pressure-lowering diets that are advised also improve cardiovascular health by emphasizing fruits, vegetables, nuts, whole grains, fish, and poultry; they also contain very little red meat and sugary foods and drinks. Lowering salt consumption should improve the diets' efficacy even more. Treatment for hypertension involves a range of drugs, some of which have adverse effects on nutrition. For instance, thiazide diuretics cause the body to lose more potassium, which typically means consuming more of the mineral, which is found in foods like citrus fruits, vegetables, bananas, and potatoes. It is not recommended to use potassium-based salt substitutes without medical supervision.

- Cancer

Cancer is a leading cause of death for adults 45 years of age and older, ranking second in the world only to cardiovascular diseases. The location within the body, type of affected cell, course of the disease, and suspected contributing or causative factors vary amongst the different types of cancer. According to estimates from numerous cancer organizations around the world, eating a healthy diet can prevent between 30% and 40% of cancer cases. Research trying to link specific types of fat or total fat to a variety of cancers have not proven to be trustworthy (Hassan, 2018). Consuming a lot of fat in food can

increase the risk of cancer, but this effect may also be attributed to the extra calories (energy) fat provides. Numerous cancers, including those of the uterus, pancreas, breast, colon, and prostate, are linked to obesity (Jean, 2019). Higher levels of insulin, estrogen, and other hormones in the bloodstream that go hand in hand with an increase in body fat are probably the mechanism causing this effect.

Furthermore, numerous studies have shown that regular exercise reduces the risk of breast and colon cancer. Restricting energy intake is the most effective way to lower cancer risks in laboratory animals; most experimentally induced tumors cannot grow, and several spontaneous tumors can be prevented by chronic underfeeding. Mycotoxins, among other carcinogens (substances that cause cancer) (Awuchi 2019), most likely enter the body through the alimentary canal through food and drink. Foodstuffs themselves are primarily linked to cancer, though a number of food-borne toxins, food additives, and pesticides may be carcinogenic if consumed in sufficient amounts. While some food items or eating habits may prevent cancer, others may encourage it. Anywhere along the three stages of cancer development (carcinogenesis) initiation, where the genetic material in the cell is altered; promotion, where the altered cells proliferate; and progression, where the cancer cells spread to nearby tissues and distant sites (metastasis) substances in food or other environmental factors may play a role (Jean, 2019).

Excessive alcohol intake is another risk factor that has been connected to many cancers, particularly those of the liver, mouth, throat, and esophagus (where it

acts in concert with tobacco) and potentially the breast, rectum, and colon. The beneficial effects of moderate alcohol consumption on cardiovascular disease highlight how intricate and sometimes perplexing the relationship between nutrition and health is. Foods containing compounds that offer some cancer prevention benefits, for example, eating fresh fruits and vegetables, and more especially vitamins E and C, at the same time as foods high in nitrates, like ham, frankfurters, luncheon meats, bacon, and sausages, can help prevent stomach cancer by preventing the production of nitrosamine. A substantial correlation has been observed in hundreds of studies between diets rich in fruits and vegetables and a decreased risk for various cancers; however, pinpointing the precise protective elements present in these foods has proven more challenging to ascertain. The antioxidant systems of the body work with vitamins C and E, carotenoids like beta-carotene (a plant-based precursor to vitamin A), and selenium, a trace mineral, to help stop reactive molecules called free radicals from damaging DNA (Jean, 2019). Sulforaphane and a few other compounds called isothiocyanates are found in certain vegetables, particularly the cruciferous vegetables (cauliflower, broccoli, kale, Brussels sprouts, and other members of the cabbage family). These compounds have been shown in animal studies to protect against cancer by inducing the enzymes that detoxify carcinogens. Dietary fiber from plant-based diets may also be protective because it can bind to and dilute potential carcinogens while also accelerating their passage through the gut to reduce exposure. Phytochemicals, or biologically active plant substances, are abundant in fruits

and vegetables and are currently being studied for their possible anticarcinogenic properties (Awuchi, 2019; Jean, 2019). Diets high in plant-based foods, such as fruits, whole grains, nuts, beans, and vegetables (especially cruciferous ones), low in fat (especially animal fats), balancing energy intake and physical activity to maintain a healthy body weight, and consuming moderate amounts of alcohol, if any, are the most likely to reduce cancer risks. Eliminating burnt areas and slicing meat before eating can also reduce the intake of carcinogens.

- Breast Cancer

In the same way that diets high in fruits and vegetables are undoubtedly healthful but offer no known protective effect against breast cancer, high-fat diets have been accused of contributing to breast cancer based on the international correlations between breast cancer rates and fat intake. However, large prospective studies have not proved this connection, although a high-fat diet might not be advisable for other reasons. Alcohol intake has been linked to breast cancer, but increased risk seems to be limited to heavy drinking. Sustained regular exercise has been shown to be protective against breast cancer because it aids in weight control and obesity which is linked to an increased risk of postmenopausal breast cancer. The two main factors that have been shown to significantly impact the risk of breast cancer are genetic inheritance and lifetime oestrogen levels.

In industrialized nations, interest in soy products and food as a preventative measure against breast cancer has recently increased. While Japanese women

have a lifetime exposure to high soy diets and have low rates of breast cancer, their situation is not always the same as Western women's midlife soy supplementation with isoflavones, or estrogen-like compounds. When isoflavones are in an environment with low estrogen levels, like in postmenopausal women, they have weak estrogenic effects. This is because isoflavones appear to compete with estrogen, as seen in premenopausal women, for example. The effects of dietary soy after cancer has started are unknown, and there is no solid evidence that soy prevents any type of cancer, including breast cancer (Jean, 2019). Additionally, estrogen itself is known to promote cancer. Consuming soy diets, such as tofu, is recommended due to the encouraging ongoing research on the health benefits of soy; however, consuming isolated soy components, such as is of lavones, which have no known risks, is not recommended.

- Diabetes mellitus and metabolic disorders

Diabetes mellitus (DM), also commonly referred to as diabetes, is a metabolic disorder of the metabolism of carbohydrates. It is typified by hyperglycemia, or elevated blood glucose levels, and is frequently brought on by insufficient insulin production (type 1 diabetes) or an ineffective cell response to insulin (type 2 diabetes). Gestational diabetes is one of the other types of diabetes. The hormone insulin, which is secreted by the pancreas, is necessary for transferring glucose, or blood sugar, into cells. Diabetes mellitus is a major cause of blindness in adults and a major risk factor for cardiovascular disease. Additional long-term consequences include kidney failure, nerve damage, and

lower limb amputation due to compromised circulation (Jean, 2019). Diabetes type 1 (also referred to as insulin-dependent or juvenile-onset diabetes) can strike at any age, but it typically starts in late childhood when the pancreas is unable to secrete enough insulin. Although there is a strong genetic component to type 1 diabetes, the majority of cases are caused by an autoimmune disease that is most likely triggered by a virus, poison in the environment, or foreign protein. Sugars and carbohydrates in the diet are not the cause of diabetes, though they are among its risk factors; elevated blood glucose is a major characteristic of the disease. Insulin injections are used to treat type 1 diabetes, along with small, frequently spaced meals and snacks that spread glucose intake throughout the day and lessen blood glucose swings. Previously referred to as adult-onset diabetes or non-insulin-dependent diabetes, type 2 diabetes is the most prevalent form of the disease, accounting for 90% to 95% of all cases of diabetes. This disease is characterized by insulin resistance, which prevents cells from absorbing glucose and causes it to build up in the blood.Though type 2 diabetes in general begins in middle age, it has been increasingly reported in childhood, mostly in obese children. Genetic vulnerability to type 2 diabetes might not be expressed except a person has excessive body fat, especially abdominal obesity. Loss of weight often helps to normalize the regulation of blood glucose, and oral anti-diabetic agents can also be used. Lifestyle interventions, such as diet and exercise, are highly effective in preventing or delaying type 2 diabetes in people at high-risk of developing the disease. Specific treatment plans for people with diabetes mellitus (DM) are designed

after medical assessment of individual and consultation with qualified nutrition professional or registered dietitian. The therapeutic diet, which of course has changed significantly over the years, focuses more on dietary fiber (particularly the soluble fiber), complex carbohydrates, and regulated proportions of protein, fat, and carbohydrate. As the leading cause of death among diabetics is heart disease, saturated fatty acids as well as trans-fatty acids are restricted too, while weight control and physical activity are strongly encouraged. Earlier dietary recommendations restricted sugars in the diabetic diets, but recent guidelines allow moderate sugar intakes, provided that other carbohydrates are reduced in the diets. Exercise and diets are also used to manage another type of diabetes known as gestational diabetes, which develops in small percentage of pregnant women and normally resolves itself after child delivery, although such women are consequently at increased risk of developing the type 2 diabetes.

The Role of Culture in Contributing to Nutritional Diseases and Toxicities

Cultural variation plays an important role in human nutrition as well as nutritional diseases and nutritional toxicities and must be considered in either clinical or public health intervention. There is currently a substantial corpus of literature available that discusses the eating customs and beliefs of numerous cultural groups. This literature includes large-scale epidemiological surveys conducted in highly developed nations, as well as participant-observation studies conducted in small pre-industrial societies that are newly exposed to western cultures (Andrew, 2018). Evaluating the interplay between cultural influences and nutritional status has proven challenging due to the complexity

of nutritional assessment, as well as the potentially confounding effects of political, economic, and individual variation.

Numerous recent studies have concentrated on populations going through the acculturation process in an effort to clarify the nutritional significance of culture and it’s role in nutritional diseases and nutrient toxicities. Any form of intervention must take into account the culturally determined beliefs and practices surrounding food consumption and health. There are two types of pressures that can affect a transitional group's eating habits: acculturative and environmental. There is proof that certain eating behaviors can be healthy in one setting but unhealthy or deficient in nutrients in another. In addition, dietary habits may change in response to "demands" for acculturation; these modifications may have an impact on the epidemiology of multiple chronic diseases, such as adult-onset diabetes mellitus, dental caries, hypertension, and coronary artery disease, as well as improve or worsen the nutritional quality of the diet. The natural history of these diseases can be more precisely described, and some tentative recommendations for prevention can be made, by examining the correlation between dietary changes and shifts in the prevalence of these conditions. There is link between cultural practices and beliefs to good nutrition.

Cultural variation complicates the measurement of food intake and nutritional assessment. A number of culturally determined factors, such as the frequency of meals eaten away from home, the type and content of sporadic ceremonial meals, and the degree of regularity of consumption patterns, have been

highlighted by Jerome and Pelto (2017) as being important for nutrition. Several researchers have proposed using growth standards that are specific to an ethnic group, acknowledging the significance of biological variation among ethnic groups. The phenomena of catch-up growth and secular changethrough which cultural and socioeconomic shifts can significantly alter growth patterns have been emphasized by other researchers. In contrast, studies of Southeast Asian refugee children in the United States suggest that rapid acculturation and dietary transition may destabilize nutritional status. Hemoglobin levels in this population were found to be relatively normal when they arrived in the US and then to decline for a few weeks before stabilizing.

People from different cultures may have different health risks due to differences in diet and food consumption. For instance, the body sizes of the northern and southern regions of Nigeria differ significantly. Due to their diet high in fat and carbohydrates, many Southerners are more susceptible to diseases like diabetes and heart disease than people in the north of Nigeria, where most meals consist primarily of cereals and proteins and obesity is nonexistent (Nnedum, 2018). Exercise routines, income levels, and restricted access to healthier foods may all be important factors. According to Mohammed and Ling (2018), diets that emphasize lower-fat foods and an abundance of vegetables, like those found in many Asian cultures, can lead to healthier diets and even lower the risk of diseases like diabetes and cancer. Due to taboos and ethnic or cultural beliefs, women and young children are not

allowed to eat certain foods in some sub-Saharan African societies, and these foods may include foods high in micronutrients (Ling, 2018).

Food taboos are defined as a systematized set of rules about which foods, or combinations of foods, are forbidden in practically all human societies. Food taboos frequently target expectant mothers in an effort to prevent what is thought to be harmful effects of these foods on the unborn child. For instance, pregnant women are typically prohibited from consuming the highest food sources of iron, carbohydrates, animal proteins, and micronutrients in Ethiopia, Ghana, Nigeria, Gabon, and the Democratic Republic of the Congo. This is primarily due to fears that the child may be born with diseases or develop bad habits after birth, that large babies will cause labor to be delayed, and that certain foods encourage continuous menstruation, which causes infertility in women. There have also been reports of food taboos in low and middle income Asian nations. Pregnant women may choose to eat fewer and lower-quality foods due to these strong taboos.

Dietary Recommendations

The connection between nutritional disorders and nutrient toxicities, as well as chronic illnesses, is intricate. This is because certain disorders take years to manifest, and it can be very challenging to pinpoint a specific dietary cause. Many prospective epidemiologic studies track their subjects over an extended period of time in an attempt to get around this challenge. Even so, it is still challenging to establish the causal relationships because of the extremely complex diet and the complex etiology and roots of chronic illnesses (Jean,

2019). Moreover, a number of food ingredients appear to function synergistically (as a whole diet rather than as individual agents), and single-agent research may overlook these interactive effects.

Since the groundbreaking Framingham Heart Study, which began in 1948, first revealed in the early 1960s that smoking elevated high blood pressure and blood cholesterol were predictors of an individual's likelihood of dying from heart disease, the risk factors concept has been ingrained in the public discourse for several decades. Subsequent investigations validated and clarified these findings, and a substantial body of research has subsequently demonstrated the strong correlation between particular behaviors or conditions and particular diseases.Not every person with a risk factor goes on to acquire a particular disease, but the likelihood of getting a disease increases with the presence of known risk factors and increases even more in the presence of multiple risk factors. Certain risk factors, like diet, exercise, and the use of tobacco, alcohol, and other drugs, can be changed, but even for those who are most likely to become disabled or die young, it can be challenging to do so (Jean, 2019). Some are not, such as age, sex, or heredity.The exposure to sunlight and other forms of radiation, biological agents, and chemical agents (such as air and water pollution) are among the modifiable risk factors. These agents may contribute to genetic mutations that have been linked to an increased risk of certain diseases, primarily cancer.

Even though childhood is the time when plaque formation starts, there should be no dietary restrictions on fat or cholesterol for newborns or children under

two years old. Following the age of two, dietary guidelines aimed at reducing the risk of coronary heart disease (CHD) typically concentrate on limiting consumption of total fat, dietary cholesterol, and saturated and trans-fatty acids in conjunction with weight control and physical activity (Jean, 2019).Such diets are thought to be beneficial not only for the general public but also for those with high LDL cholesterol (also known as bad cholesterol) or other CHD risk factors because atherosclerosis is so common.Adults may consume 20–35% of their calories from fat in their diet, with 10% of their calories from saturated and trans fats, and less than 300 mg of cholesterol daily, as part of a preventive diet. Even more restrictive is a therapeutic diet, which needs to be overseen by a registered dietitian or other certified nutritionist.Practical suggestions include reducing intakes of organ meats, fatty meats, full-fat dairy products, fatty spreads, egg yolks, baked goods and fried foods; removing the skin from poultry; and thoroughly reading food labels to lessen hidden fats in processed food. An emphasis on oats, oat meals, and other whole grains, fruits, and vegetables, with the inclusion of low-fat or nonfat dairy products, fish, poultry, lean meats, and legumes, is likely to benefit overall health, not only cardiovascular health.

Summary of Reviewed Literature

The energy source needed for the body to perform all of its functions is nutrition. The combination of macro- and micronutrients makes up a balanced diet. Nutritional deficiency refers to significantly low levels of one or more nutrients, which prevent the body from carrying out its regular functions and

raise the risk of various illnesses like cancer, diabetes, and heart disease. Nutritional inadequacy refers to nutrient intake that is below the estimated average requirement. Nutritional diseases and nutrient toxicities could be caused by environmental factors, like food scarcity, as well as disease conditions, like anorexia nervosa, fasting, swallowing inability, persistent vomiting, impaired digestion, intestinal malabsorption, or other chronic diseases. For the assessment of nutrient intake and dietary exposure, nutritional biomarkers such as serum or plasma levels of nutrients like folate, vitamin C, B vitamins, vitamin D, selenium, copper, and zinc may be utilized. Micronutrient deficiencies, such as those in iron, folate, zinc, iodine, and vitamin A, result in intellectual impairment, poor growth, perinatal complications, degenerative diseases linked to aging, and higher morbidity and mortality. Nutritional deficiencies can also cause kwashiorkor, marasmus, ketosis, growth retardation, wound healing, and increased susceptibility to infections. Preventing macro- and micronutrient deficiency is crucial and this could be achieved through supplementation and food based approaches.

CHAPTER THREE
METHODOLOGY

An overview of the procedures and methods employed for the study is provided in this chapter. The subheadings that the chapter is covered under are as follows:

- Research Design
- Population of the Study

- Sample and Sampling Technique
- Research Instrument
- Validity of the Instrument
- Reliability of the Instrument
- Administration of the Instrument
- Method of Data Analysis.

Research Design

The descriptive survey design was employed as the research design in this study to obtain responses to my research questions. In order to determine the relative incidence, this design examines both large and small populations through sample selection and analysis.

The study is set up so that the researcher could easily draw conclusions from it. These method includes formulating the study's goal, gathering data required for a thorough data analysis to draw a conclusion, examining previous research, posing important research questions, and investigating the nutritional diseases and nutrient toxicities among women attending Oluku Primary Health Care (PHC) centre, Benin city.

Population of the Study

The population for the study was 70, consisting of all the women attending Oluku Primary Health Care (PHC) centre, Benin city.

Sample and Sampling Technique

The sample size for this study is seventy (70). The purposive sampling was used to select the respondents for the study.

Research Instrument

The questionnaire was selected as the appropriate research instrument for this study. After the researcher made revisions to the literature review, a self-structured questionnaire was created. Two sections made up the questionnaire, part A and part B. Part A solicited for the respondents bio-data information, while part B had twenty (20) items that which respondents were expected to respond by ticking either strongly agree, agree, disagree or strongly disagree depending on how well the statement suites their response.

Validity of Instrument

The items went through the validation process to ensure every statement chosen to be included in the questionnaire could elicit the responses required to measure the study's goals. The items were submitted by the researcher to the project supervisor and then after it was reviewed, the researcher was referred to two experts in the Department of Health Safety and Environmental Education (HSE) in the University of Benin. An approval was given after corrections were made. This indicated the items or statements are valid enough to carry out the stated objectives.

Reliability of the Instrument

The reliability of the instrument was established using the split-half method of reliability. This involved giving copies of the instrument to the twenty respondents. At the end of the test, the total set of items relating to a construct

of interest were divided into halves of odd-numbered and even-numbered questions and compared the results obtained from the two subsets of items thus created. The reliability coefficient obtained was 0.724 and was gotten using the cronbach's alpha formula from the split-half reliability.

Administration of the Instrument

During the process of carrying out the research, questionnaires was distributed by the researcher to the respondents. The questionnaires were collected immediately after they were filled. This was to ensure high rate of response and return.

Method of Data Analysis

The data was analysed using frequency counts and simple percentages.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

This chapter presents the results and discussion of findings. The research questions were analyzed. The data were carefully examined and analyzed to offer answers to the research questions. The number of responses in the items were counted and the corresponding percentages calculated. Furthermore, seventy (70) questionnaires were used to sample the respondents opinions. The respondents were drawn from all the women attending Oluku Primary Health Care (PHC) centre, Benin city.

Research Question One: What is the level of knowledge regarding nutritional diseases and toxicities among women attending Oluku Primary Healthcare Center?

Knowledge tables: respondents who scored between; 0-2 are interpreted as low knowledge, 3-5 are interpreted as having high knowledge.

Table 1: Respondents level of knowledge regarding nutritional diseases and toxicities

S/N	Level of knowledge	Frequency & Percentage	Total
1.	0-2 (Low knowledge)	44 (62.9%)	100%
2.	3-5 (High Knowledge)	26 (37.1%)	100%

***Source**: Field survey, 2024*

From table 1 above 62.9% of the total respondents had low knowledge regarding nutritional diseases and toxicities while 37.1% of the total respondents had high knowledge regarding nutritional diseases and toxicities.

Therefore, it can be inferred that the level of knowledge of the respondents regarding nutritional diseases and toxicities is low.

Research Question Two: What are the common dietary patterns contributing to nutritional diseases among women attending Oluku Primary Healthcare Center?

Table 2: Common dietary patterns contributing to nutritional diseases among women attending Oluku Primary Healthcare Center

S/N	Item	SA	A	D	SD	Total
6.	I consume soft drinks, Milo and other beverages	26 (37.1%)	18 (25.7%)	15 (21.4%)	11 (15.7%)	70 (100%)
7.	I consume carrots, cucumber and other vegetables	13 (18.6%)	33 (47.1%)	16 (22.9%)	8 (11.4%)	70 (100%)

8.	I consume more than two bottles of alcohol at a go	7 (10%)	11 (15.7%)	19 (27.1%)	33 (47.1%)	70 (100%)
9.	I consume restaurant food regularly	23 (32.9%)	28 (40%)	9 (12.8%)	10 (14.3%)	70 (100%)
10.	My diet is balanced and rich in the necessary nutrients required by the body regularly	15 (21.4%)	17 (24.3%)	18 (25.7%)	20 (28.6%)	70 (100%)

***Source**: Field survey, 2024*

Table 2 depicts the common dietary patterns contributing to nutritional diseases among the respondents. Item 6 showed that majority of the respondents 44 (62.8%) agreed to consuming soft drinks, milo and other beverages. In item 7, a higher percentage of the respondents 46 (65.7%) agreed to consuming carrots, cucumber and other vegetables. In item 8, majority of the respondents 52 (74.3%) disagreed to consuming more than two bottles of alcohol at a go. Item 9 showed that majority of the respondents 51 (72.9%) agreed to consuming restaurant food regularly. In item 10, 38 (54.3%) disagreed to their diet being balanced and rich in the necessary nutrients required by the body regularly.

Data from table 2 showed that the dietary patterns common among the respondents were; consumption of soft drinks and beverages, consumption of carrots, cucumbers and other vegetables as well as eating out at restaurants.

Research Question Three: What are the perceptions and attitudes towards nutritional diseases and toxicities among women attending Oluku Primary Healthcare Center?

Table 3: Perceptions and attitudes towards nutritional diseases and toxicities among women attending Oluku Primary Healthcare Center

S/N	Item	SA	A	D	SD	Total
11.	I consider my current weight to be harmful to my health	14 (20%)	8 (11.4%)	25 (35.7%)	23 (32.9%)	70 (100%)
12.	Regular breakfast intake is part of a healthy lifestyle	26 (37.1%)	22 (31.4%)	11 (15.7%)	11 (15.7%)	70 (100%)
13.	Eating a variety of food items each days is a healthy option	23 (32.8%)	29 (41.4%)	16 (22.9%)	2 (2.9%)	70 (100%)
14.	I consider small and frequent meals to help in weight reduction	13 (18.6%)	19 (27.1%)	22 (31.4%)	16 (22.9%)	70 (100%)
15.	I don't have to watch my diet to protect myself from nutritional diseases	25 (35.7%)	23 (32.8%)	8 (11.4)	14 (20%)	70 (100%)

***Source**: Field survey, 2024*

Table 3 depicts the perceptions and attitudes towards nutritional diseases and toxicities among the respondents. In item 11, majority of the respondents 48 (68.6%) disagreed to considering their current weight to be harmful to their health. In item 12, majority of the respondents 48 (68.6%) agreed that regular breakfast intake is part of a healthy lifestyle. Item 13 showed that majority of the respondents agreed that 52 (74.3%) agreed that eating a variety of food items each days is a healthy option. In item 14, majority 38 (54.3%) disagreed to considering small and frequent meals to help in weight reduction. 48 (68.6%) in item 15 representing majority of the respondents agreed to the statement "I don't have to watch my diet to protect myself from nutritional diseases"

Therefore it can be inferred that the perception and attitude of the respondents towards nutritional diseases and toxicities is positive.

Research Question Four: What are the risks of nutrient toxicities among women attending Oluku Primary Healthcare Center?

Table 4: Risks of nutrient toxicities among women attending Oluku Primary Healthcare Center

S/N	Item	SA	A	D	SD	Total
16.	I get tired often and become unproductive at work	27 (38.6%)	14 (20%)	16 (22.9%)	13 (18.6%)	70 (100%)
17.	I have stomach cramps regularly	23 (32.8%)	18 (25.7%)	17 (24.3%)	12 (17.1%)	70 (100%)
18.	I have diarrhea regularly	13 (18.6%)	5 (7.1%)	24 (34.3%)	28 (40%)	70 (100%)
19.	My blood sugar level is higher than the normal	8 (11.4%)	17 (24.3%)	26 (37.1%)	19 (27.1%)	70 (100%)
20.	I experience unintentional weight change	29 (41.4%)	20 (28.6%)	6 (8.6%)	15 (21.4%)	70 (100%)

***Source**: Field survey, 2024*

Table 4 depicts the risks of nutrient toxicities among the respondents. Majority of the respondents 41 (58.6%) agreed to getting tired often and become unproductive at work. Majority of the respondents 41 (58.6%) agreed to having stomach cramps regularly. In item 17, majority of the respondents 52 (74.3%) disagreed to having diarrhea regularly. Item 18 showed that majority of the respondents, 45 (64.3%) disagreed to their blood sugar being higher than the normal. In item 20, majority 49 (70%) agreed to experiencing unintentional weight change. Therefore from table 4 it can be inferred that nutrient toxicities

poses certain risks among the respondents which includes; unproductivity at work due to fatigue, stomach cramps and unintentional weight changes.

Discussion of Findings

This study focused on Evaluating the prevalence and impact of nutritional diseases and nutrient toxicities among women attending Primary Health Care (PHC). Four research questions were raised and appropriate answers were provided by the respondents.

Results obtained from the respondents on the first research question revealed that the level of knowledge of the respondents regarding nutritional diseases and toxicities is low. This finding is in consonance with findings of Andrew (2014), which revealed that despite the high level of awareness of nutritional diseases among the respondents, the majority had poor knowledge of the disease and nutrient toxicities. The findings showed that while the majority of had heard of nutrition, only a small percentage had knowledge of nutritional diseases and toxicities. On another study carried out by Kelvin, (2018) it was discovered that the knowledge of nutritional diseases and nutrient toxicities was poor.

Results obtained from the sample with regards to the second research question on the common dietary patterns contributing to nutritional diseases among the respondents showed the dietary patterns common among the respondents which were; consumption of soft drinks and beverages, consumption of carrots, cucumbers and other vegetables as well as eating out at restaurants. According to Dempsey (2017) during their adolescence, women need certain essential

nutrients for the best possible growth and development, including protein, calcium, and iron this is because they are at risk for nutritional vulnerability and deficiencies due to their rapid growth rate and lower nutrient intake. The findings of Stern (2019) was also in agreement with this with his position that women who adopt unhealthy eating habits may experience chronic non-communicable diseases as a result of their dietary patterns.

The results obtained from research question three showed that the perception and attitude of the respondents towards nutritional diseases and toxicities is positive. According to Morgan, (2019) lack of knowledge, wrong perceptions and negative attitudes concerning proper nutrition, nutritional diseases and toxicities can have an impact on the general health and nutritional status of individuals including their family. However this was in contrast to Adeleke's (2018) study where his findings showed that although there is a growing public interest in nutritional health, there is still evidence of the rising prevalence of non-communicable diseases linked to diet, such as obesity as a result of the perceptions of women as well as their attitudes resulting to a series of nutritional diseases and nutritional toxicities.

Further findings were revealed with reference to the fourth research question on the risks of nutrient toxicities among the respondents. The findings revealed that nutrient toxicities poses certain risks among the respondents which includes; less productivity at work due to fatigue, stomach cramps and unintentional weight changes. According to Hutchinson (2023), Nutrient toxicities alter the normal body functioning and further impairs the organs and

system of the body. He further stressed that certain supplements, especially the fat-soluble vitamins, including vitamins A, D, E and K, can produce toxicities in the body.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter presents the conclusion and recommendations of this study.

Summary

This study examined the nutritional diseases and nutrient toxicities among women attending Oluku Primary Health Care (PHC) Centre. In examining this

work, four research questions were raised and answered to guide this study. Literature pertinent to this study were discussed and reviewed.

The descriptive survey research design was adopted for the study and population of the study consisted of consisting of all the women attending Oluku Primary Health Care (PHC) centre, Benin city. A sample size of 70 respondents was selected using the simple random sampling technique. The instrument for data collection was a well-designed structured questionnaire which was validated by the project Supervisor and two other lecturers from the Department of Health, Safety and Environmental education. The test-retest method was used to determine the reliability of the instrument. Collated data was analyzed using descriptive statistical tools such as frequency and percentage tables.

The findings revealed that the level of knowledge of the respondents regarding nutritional diseases and toxicities is low. However the perceptions and attitudes of the respondents towards nutritional disease was adequate. The findings also revealed the dietary patterns among the respondents. It was revealed that majority consumed beverages and soft drinks, carrots, cucumbers and vegetables.

It is thus recommended that there is a need for awareness on the importance of adopting good dietary patterns and meal plans which are essential to enable the body's immune system fight various toxicities and to eat meals that reduces nutritional diseases and nutrient toxicities. Promotion of meal plans, visiting a dietitian, intentionality about type of meals should be encouraged by healthcare

providers to enable these women to reduce the risks posed by nutritional diseases and toxicities.

Conclusion

From the findings made from the study, the researcher was able to draw the following conclusion;

1. That the knowledge of of the women regarding regarding nutritional diseases and toxicities is poor. Hence campaigns and awareness should be provided to improve their knowledge.
2. That the perceptions and attitudes of the women towards nutritional disease was adequate.
3. There are significant challenges faced by the women in choosing an adequate meal plan and dietary patterns. Majority consume beverages and soft drinks, carrots, cucumbers and vegetables.
4. The women find it very difficult to adopt the practice eating balanced diet hence they should be encouraged to visit a dietitian regularly as this can help create a meal plan for them.

Recommendations

Based on the findings of the study, the following recommendations were made;

1. Public awareness and education should be carried out periodically to emphasize the importance of proper nutrition and the importance of adopting healthy meal plans and balanced diet.

2. Healthcare providers should engage these women on the importance of having a good diet and help to recommend those who find difficulties in creating a good meal plan to dietitians.
3. The women should be encouraged to avoid non-nutritious beverages such as black coffee and tea; instead choose milk and juices.
4. The women should be enlightened to focus on healthy diets on foods to help boost vitamin and mineral intake such as green, leafy vegetables, orange and red produce, nuts and seeds.
5. Private sectors should be encouraged on the involvement in alleviating the burden of acquiring healthy foods by these women particularly among those who may not be able to acquire them.

Suggestions for Further Studies

1. Effect of nutritional diseases and nutrient toxicities among women.
2. Impact of health education on the knowledge of nutritional diseases and nutrient toxicities among women.

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APPENDIX I

QUESTIONNAIRE ON THE INFLUENCE OF ENVIRONMENTAL EDUCATION TOWARDS ADOPTING PRO-ENVIRONMENTAL BEHAVIOUR

UNIVERSITY OF BENIN, BENIN CITY, EDO STATE

FACULTY OF EDUCATION

Dear respondents,

I am an undergraduate in the department of Health Safety and Environmental Education in the aforementioned university. Presently, I am carrying out a study on the topic; **The nutritional diseases and nutrient toxicities among ywomen attending Oluku Primary Health Care (PHC) centre, Benin city.** While I ask for your response to the items on the questionnaire, I promise utmost confidentiality of information received from each respondent and organization in general. Thank you for your co-operation.

SECTION A: Demographic data

INSTRUCTIONS: Answer all questions. Please indicate your answer with (✓) in the appropriate cell.

Marital Status: Single ( ) Married ( )

Age range: 25-30 years ( ) 31-35 years ( ) 36 - 40 years ( ) 41-45 years ( ) 46-50 years ( ) 51-55 years ( ) 56-60 years ( ) 60 years and above ( )

Religion: Christianity ( ) Muslim ( ) Others ( )

SECTION B

INSTRUCTION: Please read each question carefully and answer accurately. Tick (√) appropriately to indicate the level of your agreement or disagreement with each of the following statement using these options; **SA;** Strongly Agree, **A;** Agree, **N**; Neutral, **D;** Disagree, **SD;** Strongly Disagree as it applies.

Level of knowledge regarding nutritional diseases and toxicities among women attending Oluku Primary Healthcare Center

1. Which of the following is not a function of vitamin D in the body?

a. Vitamin D helps our bodies absorb calcium, which makes our bones strong.
b. Vitamin D helps our immune system fight off infections and keeps us healthy.
c. Vitamin D helps to remove waste from the blood

2. Which of the following is important for healthy nutrition
    a. Consuming a balanced diet including different food groups, such as, vegetables, fruits rice, and healthy fats.
    b. Eating only snacks
    c. Drinking enough soda daily
3. Vitamin A can be gotten from the following except
    a. Carrots
    b. Milk
    c. Oranges
4. A lack of iron in the diet can result in the following except
    a. Fatigue
    b. Illness
    c. Overfeeding
5. Which of the following is not an effect of the excessive intake of nutrients in the body?
    a. Nutrient toxicities
    b. Illness
    c. Balanced diet

S/N	ITEMS				
	Common dietary patterns contributing to nutritional diseases among women attending Oluku Primary Healthcare Center	**SA**	**A**	**D**	**SD**
6	I consume soft drinks, Milo and other beverages				
7	I consume carrots, cucumber and other vegetables				
8	I consume more than two bottles of alcohol at a go				
9	I consume restaurant food regularly				
10	My diet is balanced and rich in the necessary nutrients required by the body regularly				

S/N	ITEMS				
	Perceptions and attitudes towards nutritional diseases and toxicities among women attending Oluku Primary Healthcare Center	**SA**	**A**	**D**	**SD**
11	I consider my current weight to be harmful to my health				
12	Regular breakfast intake is part of a healthy lifestyle				
13	Eating a variety of food items each days is a healthy option				
14	I consider small and frequent meals to help in weight reduction				
15	I don't have to watch my diet to protect myself from nutritional diseases				

S/N	ITEMS				
	What are the risks of nutrient toxicities among women attending Oluku Primary Healthcare Center	**SA**	**A**	**D**	**SD**
16	I get tired often and become unproductive at work				
17	I have stomach cramps regularly				
18	I have diarrhea regularly				
19	My blood sugar level is higher than the normal				
20	I experience unintentional weight change				

Reliability

Scale; ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded[a]	0	.0
	Total	20	100.0

a.Listwisedeletionbasedonallvariablesinth eprocedure.

ReliabilityStatistics

Cronbach's Alpha[a]	No of items
.724	20