

Dietary Patterns and Practices Among Pregnant Women Attending Antenatal Clinic at Kaneshie Polyclinic in Accra, Ghana

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LIST OF ABBREVIATIONS

ACOG: American Congress of Obstetricians and Gynaecologists

SPSS: Statistical Package for Social Sciences

WHO: World Health Organization

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ABSTRACT

➤ **Background:**

Pregnant women should be aware that proper nutrition during pregnancy is essential to a healthy outcome for mother and child. Optimal nutrition during this crucial period of development can cement a solid foundation which leads to good health, strong development and potentially better quality of life for the unborn baby in the future. It is important for pregnant women to not just consume enough calories but also follow their doctor-recommended prenatal care plan, including receiving enough nutrients from key food groups such as fruits, vegetables, dairy, fish or other lean protein sources, whole grains and other vitamin-rich foods. By taking steps now to ensure nutritional adequacy, mothers can provide their growing baby with the best opportunity for long-term success and wellbeing.

➤ **Aim:**

This proposal aims to determine the knowledge of nutrition and dietary practices among pregnant women attending antenatal clinic at the Kaneshie Polyclinic.

➤ **Method:**

A cross-sectional survey was used to gather data from pregnant women who gave their agreement. One hundred and fifty pregnant women attending antenatal at Kaneshie Polyclinic were chosen using convenience sampling technique. Participants filled out a structured questionnaire which was self-administered as well as interviewer administered on the study's aims. (SPSS Version 25.0) and Microsoft Excel were used to analyze the data that had been gathered.

➤ **Results:**

Out of 150 respondents, 56% had good dietary knowledge while 82.7% had good dietary practices. A test for association between demographic characteristics and dietary knowledge were significant in age (0.011), marital status (0.016), educational background (0.003) and ethnic group (0.001) as well as monthly income (0.046). Also, association of demographic characteristics with dietary practices had only pregnancy stage been significantly associated with a p- value of (0.044). it was also found that dietary knowledge and dietary practice among pregnant women was not statistically significant with a p – value of (0.266).

➤ **Conclusion:**

Based on the findings of this study, the following conclusions were drawn; pregnant women dietary knowledge was good. Their dietary practices were generally good even though a few of them exhibited poor dietary practice. Also, association between dietary knowledge and practices was not significant.

CHAPTER ONE

INTRODUCTION

➤ Background

Diet refers to the total amount of food consumed by individuals (Zohoori, 2020). According to WHO, a healthy diet is essential for good health and nutrition and it protects one against many chronic noncommunicable diseases, such as heart disease, diabetes and cancer. Eating a variety of foods and consuming less salt, sugars and saturated and industrially-produced trans-fats, are essential for healthy diet. (WHO, 2023)

Dietary practice is defined as an observable actions or behavior of dietary habit and can be classified as good dietary practices and poor dietary practices. The incidence of dietary inadequacies as a result of dietary habits and patterns in pregnancy is higher during pregnancy when compared to any other stage of the life cycle (Nana & Zema, 2018).

Pregnant mothers must be mindful of their dietary decisions, as the effects can last far beyond childbirth. Poor nutrition during pregnancy may have lasting repercussions for both mother and child, leading to a multitude of potential complications throughout gestation (Wong et al., 2018). A mom's diet during pregnancy is essential to a healthy, successful childbirth. Eating well can help prevent anemia and premature delivery while promoting optimal weight gain for both mother and baby - all of which add up to longer term health benefits (Ota et al., 2015). Pregnancy is an important time as it requires a special focus on nutrition and health since the mother's dietary choices have huge implications for both her own well-being, as well as that of her unborn baby. Eating right during this period has far reaching effects - from influencing maternal weight gain to impacting fetal outcomes. It is therefore very crucial to ensure that optimal levels of energy and nutrients are consumed throughout pregnancy (Rosen et al., 2018).

During pregnancy, the World Health Organization recommends expectant mothers take extra care to ensure their nutrition is up-to-par. Eating a balanced diet with plenty of green and orange veggies, lean proteins from meat and fish sources, legumes like beans or nuts for healthy fats and complex carbohydrates as well whole grains can provide essential energy, vitamins and minerals needed during this special time (WHO., 2016).

With proper nutrition education, women who have a low pre-pregnancy BMI can increase their nutrient intake to ensure better perinatal outcomes. Research has demonstrated that the implementation of nutritional instruction and dietary knowledge is essential for pregnant mothers with previous undernourishment issues (Nnam, 2015). Nutritional education can help reduce the risk of preterm birth and low birth weight in undernourished mothers, according to a recent review of intervention studies. In fact, this type of educational program was shown to improve infants' overall health by almost half a kilogram at birth! Surprisingly though, such interventions had no effect on well-nourished women's babies - illustrating how effective nutrition is for maintaining good prenatal care (Wong et al., 2018). Despite the known importance of nutrition during pregnancy, several external influences can affect a mother's ability to follow ideal consumption practices. These factors range from healthcare providers' expertise and parenting background to access to food resources, as well as deeply-rooted belief systems adopted by mothers and their families – all culminating in an intricate web that must be navigated for pregnant women across diverse geographic locations (Nchangmugyia., 2016).

Zerfu et al. (2016) emphasize the importance of misconceptions, food taboos, and beliefs targeting pregnant women in affecting dietary practices. Pregnant women possess a diverse range of beliefs within indigenous knowledge systems, offering powerful insight into the dietary practices they choose to implement. These findings have been explored in recent studies concerning nutrition and its impact on maternity (Perumal., 2013). In certain African cultures, expectant mothers may avoid eating certain foods due to associating them with negative pregnancy outcomes. This practice has implications not just for the mother's health but also her baby's nutrition since these avoided foods are typically full of vitamins and minerals needed by both during this special time (Lennox, 2017). Some foods are restricted during pregnancy to prevent the baby from becoming too large and leading to childbirth complications (Rosen et al., 2018). Traditional wisdom can often conflict with modern medical advice. When it comes to the nutritional needs of pregnant women, there is a clash between customary practices and what the World Health Organization recommends as optimal dietary habits.

➤ Problem Statement

Appiah et al. (2021) expressed that 55.1% of pregnant women had poor dietary habits with 3.8% indulging in the intake of fruits and vegetables on a daily basis. This presents poor nutritional knowledge that has translated into poor practices and it is expected that dietary deficiencies should be rife in such a population of pregnant women (WHO, 2020). Other issues that affect the knowledge and practices of pregnant women are traditional practices such as intake of snails, and eggs and indulgence in pica. These affect the health of the pregnant women and the developing fetus as it can introduce infections. In another study by Laketty and Darko-Gyakye (2017) mentioned the intake of alcohol among pregnant women in James Town. They indicated that 48% of the pregnant women consumed alcohol during pregnancy and were exposed to stillbirth, congenital malformations and miscarriages. This foretells the magnitude of nutritional malpractices such as alcohol intake in pregnant women.

The impact of the above-mentioned problems needs to be curbed and one main way that seems probable is the use of health

education to correct the practices. Without this correction of the knowledge on nutrition and dietary practices, the problems of low birth weight, infection, anemia and some congenital malformations would be common in the outcome of pregnancies (Quansah and Boateng, 2020). This study is therefore necessary to determine the exact knowledge and practices of diet in pregnant women and to best educate and prevent diet related diseases conditions in the pregnant women and their unborn child.

➤ Justification

Per the aim of this study, a picture of the knowledge and practices of diet among pregnant women will be obtained. In effect, the researcher will be privy to such important knowledge that will be useful in strategizing education, targeting pregnant women that will go a long way to correct their dietary deficiencies where necessary. The study will also be beneficial to health planning since the pattern of dietary issues in the study will determine the pregnancy conditions that may show up prenatally, intrapartum and post-partum and precautions that need to be taken for cases such as severe anemia and post-partum hemorrhage.

The pregnant women and the developing fetus are the focus of this study and the medical benefits of this study are to prevent anemia in pregnancy with its associated morbidity and mortality. Prominent is the prevention of maternal mortality through dietary measures. The prevention of congenital malformations, Low birth weight and the incidence of non-communicable diseases in adulthood. The study's findings will also be useful as literature that can be reviewed in worldwide after it has been published to make it digitally accessible.

➤ Conceptual Framework

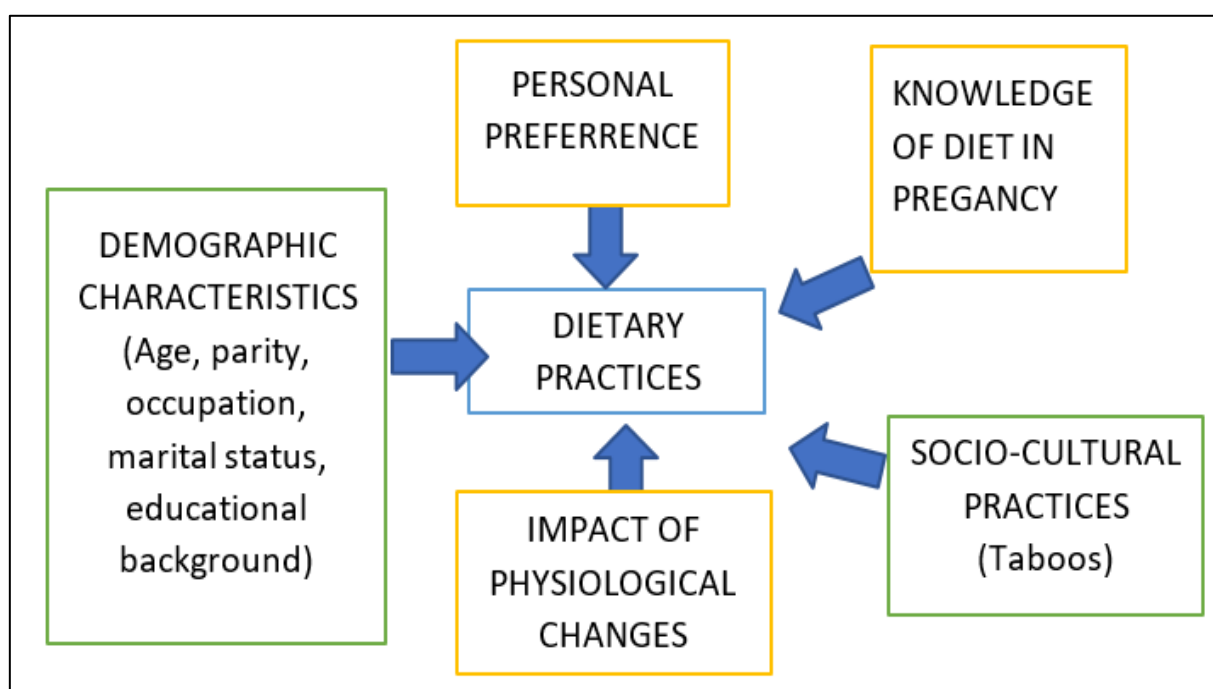


Fig 1 Social Cognitive Theory Framework of Perceived Factors Affecting Dietary Practices Among Pregnant Women.

Dietary practices stem from knowledge of food and their importance ascribed to them. The intake of particular foods is deep rooted in the pregnant women's general knowledge of diet, demography, personal preferences, sociocultural predisposition and beliefs, and during pregnancy, the impact of the pregnancy state (Alimoradi et al., 2020; Skouteris et al., 2013). This is what has been conceptualised in figure 1 above.

➤ Aim and Objectives

• Aim

This study mainly seeks to determine the knowledge on nutrition and dietary patterns in pregnant women attending antenatal clinic at Kaneshie Polyclinic.

• Objectives

- ✓ To assess the knowledge of nutrition among pregnant women attending antenatal clinic at Kaneshie Polyclinic
- ✓ To determine the dietary practices among pregnant women attending antenatal clinic at Kaneshie Polyclinic.
- ✓ To determine association between demographic factors and dietary practices among pregnant women attending antenatal

clinic at Kaneshie Polyclinic.

➤ *Research Questions*

- What is the knowledge of nutrition among pregnant women attending antenatal clinic at Kaneshie Polyclinic?
- Which dietary practices are prominent among pregnant women attending antenatal clinic at Kaneshie Polyclinic?
- What is the association between demographic factors and dietary practices among pregnant women attending antenatal clinic at Kaneshie Polyclinic?

CHAPTER TWO

LITERATURE REVIEW

➤ *Introduction to Pregnant Women Nutrition*

During pregnancy, the right nutrients are essential to ensure a healthy mom and baby. Research suggests that even modest improvements in maternal nutrition can have far-reaching benefits for both short-term fetal growth as well as long-term health outcomes of the child (Cetin & Koletzko, 2008). As such, healthcare providers must equip pregnant women with guidance on proper nutrition during this vital life stage for optimal results.

One of the key nutrients that pregnant women require is folic acid, which is important for the development of the neural tube in the fetus. The World Health Organization (WHO) recommends that all pregnant women consume at least 400 micrograms of folic acid daily (WHO, 2016). Other important nutrients for pregnant women include iron, calcium, and protein. According to the American College of Obstetricians and Gynecologists (ACOG), pregnant women require 27 milligrams of iron per day, 1,000 milligrams of calcium per day, and an additional 25 grams of protein per day (ACOG, 2018).

According to ACOG (2018), healthcare providers should advise pregnant women to consume a balanced diet consisting of fruits, vegetables, whole grains, lean proteins, and low-fat dairy products. They should also advise women to avoid certain foods and beverages, such as alcohol, raw or undercooked meats, and high-mercury fish.

Research from Barker et al. (2013) suggests that inadequate maternal nutrition during pregnancy can have a devastating impact on both mother and fetus, with the offspring facing an increased risk of chronic diseases like obesity or diabetes. Moreover, poor prenatal nutrition has been linked to low birth weight, preterm birth, and potentially even physical deformities in some cases - making it essential for expecting mothers to get proper nourishment before giving life! It is therefore imperative to assess the nutritional status and dietary practices patterns in pregnant women attending antenatal clinic.

➤ *Knowledge of Nutrition Among Pregnant Women*

Pregnancy is an undeniably critical period for a woman's health and wellbeing, requiring important nutritional considerations to ensure the growth and development of her fetus. Unfortunately, many pregnant women in lower-income countries are not equipped with sufficient knowledge on nutrition due to limited access or resources - something which can have severe consequences for both maternal and fetal well-being (Arimond et al., 2013; Asefa et al., 2019; Gyampoh et al., 2019; Kavle et al., 2015; Wrottesley et al., 2018). It has become imperative then that we first gain understanding regarding these populations' dietary literacy levels before developing any interventions so as to advocate positive outcomes when it comes to physicality of motherhood.

Despite a wealth of studies assessing the nutrition knowledge among pregnant women, findings demonstrate that their understanding and intake levels remain inadequate. Specifically, in Ethiopia Asefa et al., (2019) discovered only 16.8% exhibited good dietary recommendations during pregnancy - with limited comprehension regarding balanced diets and key nutrient intakes such as iron, calcium, and folic acid. This finding was echoed by Gyampoh et al., (2019) research from Ghana which found similar deficiencies amongst its sample set of expectant mothers' nutritional skillset & awareness level for important nutrients like iron, folic acid & calcium etc... A recent study into pregnant women's understanding of nutrition found that, generally speaking, they are quite knowledgeable about the importance of eating a balanced diet. The majority had accurate understandings regarding key nutrients such as folic acid and calcium; however, there were some misconceptions around fats and fruit consumption. Interestingly though, these same findings didn't correspond to results from similar research conducted in Tanzania by Kavle et al., (2015). In this instance it was evident that local knowledge surrounding nutritional requirements during pregnancy was already adequate prior to any interventions being put forward.

Studies in various nations within Sub-Saharan Africa have uncovered wide discrepancies in knowledge of nutrition amongst pregnant women. Aboagye et al., (2020) elucidated that expectant mother had inadequate awareness about the need for a diversified, balanced diet during pregnancy. Furthermore, Fadare et al., (2019), conducted in Nigeria, determined that these same women lacked comprehension concerning the proper amounts and types of key nutrients such as iron, folic acid and calcium which should be incorporated into their diets daily. The study also found that pregnant women had misconceptions about certain foods and food groups, such as the belief that they should avoid all fats or eat large quantities of fruit.

In regions across the globe, pregnant women often lack comprehensive knowledge of nutrition during pregnancy. Imdad et al., (2011) research in Pakistan concluded that many expecting mothers were not aware of how important it is to have a balanced and varied diet for optimal health throughout the journey into motherhood. Additionally, Schramm et al., (2018) study saw similar results among US-based participants; most had limited understanding of what nutrients are essential - such as folic acid, calcium and iron - as well their daily nutrient requirements while carrying a child.

Wrottesley et al., (2018) uncovered a troubling lack of knowledge among pregnant women in South Africa about the importance of adequate nutrition for maternal health. Moreover, their study revealed misconceptions regarding proper dietary intake

during pregnancy, with many expecting mothers believing it was necessary to consume more food rather than incorporating key nutrients such as folate, iron and calcium into their diets.

➤ *Dietary Practices Among Pregnant Women*

Rehman et al., (2021) discovered that expecting mothers are generally cognizant of the importance of a balanced diet packed with essential macronutrients, micronutrients and water for promoting maternal health. Meanwhile, Hossain et al., (2020). findings indicate that Bangladeshi women prioritize iron-fortified supplements alongside higher intakes of fruits & vegetables during pregnancy to ensure adequate nourishment both prenatally and postpartum.

Pregnant women in Nigeria have demonstrated an affinity for traditional meals that are rich in carbohydrates and low on protein or fat. This dietary choice has been confirmed by multiple studies, including Olayinka & Fasanu (2019) and Olagbuji et al., (2019), both of which documented a preference among pregnant women to consume nourishing starchy foods such as rice, yam, vegetables soups and fish. Expectant mothers' frequent ingestion of high-fat, sugary snacks has been identified as a major health concern. A 2021 study by van den Boogaard et al., conducted in the Netherlands found that almost one third of pregnant women reported having consumed junk food products during gestation. Similarly, Nohr et al., (2020). Danish research concluded that expectant mothers had an increased consumption rate for soft drinks and fast foods beyond what was recommended.

Despite the nutritional importance of eggs, meat and fish for pregnant women, a 2019 study in Nigeria revealed that many avoided such foods owing to cultural beliefs. This finding was mirrored by another Nigerian survey conducted as recently as 2020 that highlighted how snails, crayfish and certain vegetables were also shunned due to prevailing customs.

While it is no surprise that pregnant women often choose to incorporate herbal supplements into their diet, the safety and efficacy of such approaches remain uncertain. A 2019 study conducted by Owolabi et al in Nigeria found a considerable number of expecting mothers taking herbs for various cultural or health-related purposes. Nevertheless, caution should be exercised when it comes to supplementing with any herb during pregnancy; thus, healthcare provider consultation beforehand is highly recommended.

➤ *Association between Demographic Factors and Dietary Practices Among Pregnant Women*

A recent survey of Nigerian and Tanzanian women revealed a stark contrast in dietary practices between younger versus older expectant mothers. Those under 25 years old consumed fewer calories, proteins, and other vital nutrients than their counterparts over 25 (Ogunba et al., 2017). Conversely, those below 20 experienced increased risk for poor nutritional habits compared to the more mature group above that age bracket (Giragosov et al., 2018).

Education levels can have a significant impact on pregnant women's eating habits, as evidenced by two studies conducted in Ethiopia and Nigeria. The Ethiopian study found that those with higher educational backgrounds generally had greater knowledge of maintaining healthy dietary practices (Girma et al., 2019). Likewise, the Nigerian research indicated an increased likelihood for these individuals to consume varied meals which met their nutritional requirements (Ogunba et al., 2017).

Results from a study in Ghana suggest that individuals of lower socio-economic standing are more likely to maintain poorer dietary habits during pregnancy than those with higher incomes (Sakyi et al., 2019). This was corroborated by Nigerian research demonstrating an increased risk for nutritional deficiencies due to the lack of variety in meals among pregnant women living below poverty level (Ogunba et al., 2017)

Kenya and Nigeria have seen the harmful effects of certain cultural practices on pregnant women's nutrient intake. Studies conducted in these countries discovered that fasting during pregnancy, along with other dietary restrictions due to traditional beliefs, can lead to an increased risk for nutritional deficiencies (Abuya et al., 2012; Ogunba et al., 2017).

Demographic considerations, including age, education level and income have an undeniable effect on the dietary choices of pregnant women across Africa. It appears that younger mothers armed with less educational opportunities or living in households struggling to make ends meet are more likely to be exposed to nutritional deficiencies due their diet composition. Consequently, targeted initiatives addressing nutrition awareness alongside efforts providing access to a broader range of incomes can play an instrumental role in uplifting maternal health outcomes throughout Africa's regions.

➤ *Summary*

The literature reviews make some interesting findings that impact on the nutritional knowledge and practices of pregnant women. It is identified that knowledge was not adequate among most of the studies reviewed with regards to the nutrition in pregnancy. It was expected the knowledge and awareness of nutrition and its importance in pregnancy should have led to a behavioural change and caused the pregnant women to eat nutritious foods, however, this was not achieved. It was also found that educational level did influence the practice of right nutritional practices among pregnant women as indicated by a study conducted in Ethiopia. The intake of soft drinks and innutritious materials also dominated among significant population of pregnant women. Food supplementation was also identified as a useful and effective way of enhancing dietary intake for the proper development of the fetus in pregnancy and to prevent complications of pregnancy such as anemia.

CHAPTER THREE METHODOLOGY

➤ *Study Design*

A descriptive cross-sectional method was used to assess the dietary patterns and practices among pregnant women attending antenatal clinic at Kaneshie Polyclinic.

Descriptive cross-sectional studies provide data for describing the status of phenomena or relationships among phenomena at a fixed point in time. A questionnaire was constructed to obtain the information.

➤ *Study Area*

The was conducted at the Obstetrics and Gynaecology Department at Kaneshie Polyclinic. The Kaneshie Polyclinic which serves as the Headquarters of the Okaikoi Sub-Metropolitan. Health Directorate and located adjacent the Ga Mantse Palace was established in 1966 by the Swedish Government to provide domiciliary midwifery services to the community and was later upgraded to a Polyclinic status to meet the growing demands of health services by its catchment population The Kaneshie Polyclinic provides 24 hours 7 days services to its clientele as well as run three (3) shifts per day. It has three (3) Consulting Rooms, two (2) Recovery Wards and forty-seven (47) recovery beds.

The hospital offers services such as Obstetrics and Gynaecology, OPD, reproductive and child health services, adolescent health services, family planning services, pharmacy, laboratory, community psychiatry, nutrition services, ANC/Delivery services and HIV/AIDS/TB services, ultrasound and radiology services. Also, there is an Eye and ENT services without specialist support.

➤ *Study Population*

The population of this study consisted of pregnant women attending antenatal clinic at the Kaneshie Polyclinic Obstetrics and Gynaecology Department.

• *Inclusion Criteria*

Pregnant women who were in their first to third trimester of pregnancy attending antenatal clinic at the Kaneshie Polyclinic at the department of Obstetrics and Gynaecology.

• *Exclusion Criteria*

Pregnant women who were eligible for the study but were not around at the time of the study or during the study.

Pregnant women attending antenatal clinic at Kaneshie Polyclinic but were not in a good condition at that exact time the study was done.

➤ *Sample Size Calculation*

The sample size is determined using the Cochran's formula.

In a study done by Gezimu et al. 2022 among 378 pregnant women, 60.9% had good knowledge on nutrition

$$n = z^2 p(1-p)/e^2$$

Where n= sample size,

p= prevalence of study variable, d= margin of error.

For this study, Confidence interval (CI) is 95% and margin of error 5% (0.05) At 95% CI, Z=1.96

From z table, p= 0.609 and 1-p= 0.391 $n = (1.96)^2 (0.609) (0.391) / (0.05)^2$

n= 365.9

The minimum sample size calculated is 366 participants.

However, due to financial constraints and time-constraint of the study, 150 pregnant women were sampled to participate in this study.

➤ *Sampling Strategy*

Participants were selected using the convenience sampling method. Convenience sampling assumes that the population units

are all alike, then any unit may be chosen for the sample. This involved taking responses from pregnant women attending antenatal clinic at the Kaneshie Polyclinic during the period of the study accidentally.

➤ *Sampling Procedure*

Participants who satisfied the inclusion criteria above were interviewed. The aims, objectives, benefits, and discomforts were explained, after which they were asked to sign an informed consent form. It was highlighted however that involvement in the study is voluntary and there is no penalty for declining to participate. Confidentiality of information was assured.

➤ *Data Collection Tools and Methods*

A structured questionnaire by the researcher using closed ended questions was used. The questionnaire was self-administered as well as interviewer administered to obtain the data. Prior to administering the questionnaires, consent was sought from participants before filling the questionnaire. The questionnaire was divided into three sections. Section 1 contained Socio-Demographic Data, Section 2 assessed knowledge on nutrition, and Section 3 assessed Dietary practices.

➤ *Data Handling and Analysis*

Data collected were inspected for adequate response and were then coded into a statistical software, Statistical product for service solution (SPSS Version 25.0). Data were entered into the software accordingly. Great care was taken to reduce errors during the data entry. The data were analyzed using descriptive and inferential analysis where necessary. Frequencies and percentages were calculated on the independent variables.

➤ *Validity and Reliability*

Validity of a research instrument is the degree to which it can elicit the needed responses therefore being fit to acquire the data it is meant to while reliability is its power of reproducibility. To ensure this, a pretesting of the research questionnaire was done at the Korle-Bu Teaching Hospital on ten pregnant women at the ANC unit. This aimed at finding out how understandable the questions on the questionnaire were and the need for any amendments before the main data were collected. The questionnaire was examined by the supervisor as well as to make any needed amendments.

➤ *Ethical Consideration*

The purpose of this study was explained to the pregnant women attending antenatal at Kaneshie Polyclinic and only willing participants were made to complete the questionnaire. Permission was sought from the Community Health Dissertation Review Committee and the Administration of the Kaneshie Polyclinic.

CHAPTER FOUR

RESULTS AND DATA ANALYSIS

➤ Introduction

This chapter is a presentation of the results obtained from a sample of 150 respondents. Presentation has been sectioned into demographic information, dietary knowledge and dietary practices.

● Demographic Characteristics of Respondents

Table 1 Socio-Demographic Information

		Frequency	Percent
AGE	20 or younger	7	4.7
	21-25	24	16.0
	26-30	57	38.0
	31-35	48	32.0
	36-40	14	9.3
	Total	150	100.0
MARITAL STATUS	Single	21	14.0
	Married	108	72.0
	Divorced	1	0.7
	Co-habiting	20	13.3
EDUCATION	Total	150	100.0
	None	8	5.3
	Basic education	51	34.0
	Senior High/ O-level/ A-level	65	43.3
	Tertiary	26	17.3
	Total	150	100.0
RELIGIOUS AFFILIATION	None	2	1.3
	Christianity	132	88.0
	Islam	16	10.7
ETHNIC GROUP	Total	150	100.0
	Ga-Adangbe	31	20.7
	Ewe	17	11.3
	Akan	76	50.7
	Guan	2	1.3
	Other	24	16.0
EMPLOYMENT	Total	150	100.0
	Employed	35	23.3
	Self-employed	95	63.3
	Unemployed	20	13.3
MONTHLY INCOME	Total	150	100.0
	Less than Ghs 500	77	51.3
	Ghs 500 - Ghs 1000	56	37.3
	above Ghs 1000	17	11.3
FAMILY SIZE	Total	150	100.0
	2-4	129	86.0
	5-7	19	12.7
	more than 7	2	1.3
	Total	150	100.0

Table 1 summarizes the demographic characteristics of respondents and considers age, marital statuses, religious affiliation, educational background, employment, monthly income, and family size. According to the table, majority of the respondents, 57(38.0%) were within the 26-30years age bracket while the least group with regards to age grouping was 7(4.7%) for ages 20years or younger.

Among the respondents, majority of them being 108(72.0%) were married but 21(14.0%) were not married.

With regards to educational background, most of the respondents representing 43.3% had obtained senior high school education.

Christians among the respondents were the majority with a frequency of 132(88.0%).

Akans represented the highest frequency, 76(50.7%), under ethnicity of respondents while 2(1.3%) were Guans. Among the respondents, 24(16.0%) belonged to other ethnic groups such as Sisala, Dagbani, Gonja, Nzema etc.

With regards to employment statuses of respondents, most of them being 130(86.67%) were self-employed or employed by others while the rest being 20(13.3%) were unemployed. A further probe into the monthly income made 77 which represented the majority of the respondents with a percentage of 51.3% earned less than Ghc 500 while 17(11.3%) earned above Ghc 1000 each month.

The family sizes of respondents as captured were 2-4 by 129(86.0%) of them, 5-7 by 19(12.7%) and more than 7 individuals in a family for 2(1.3%) of the respondents.

➤ *Figure 2 Obstetric Information*

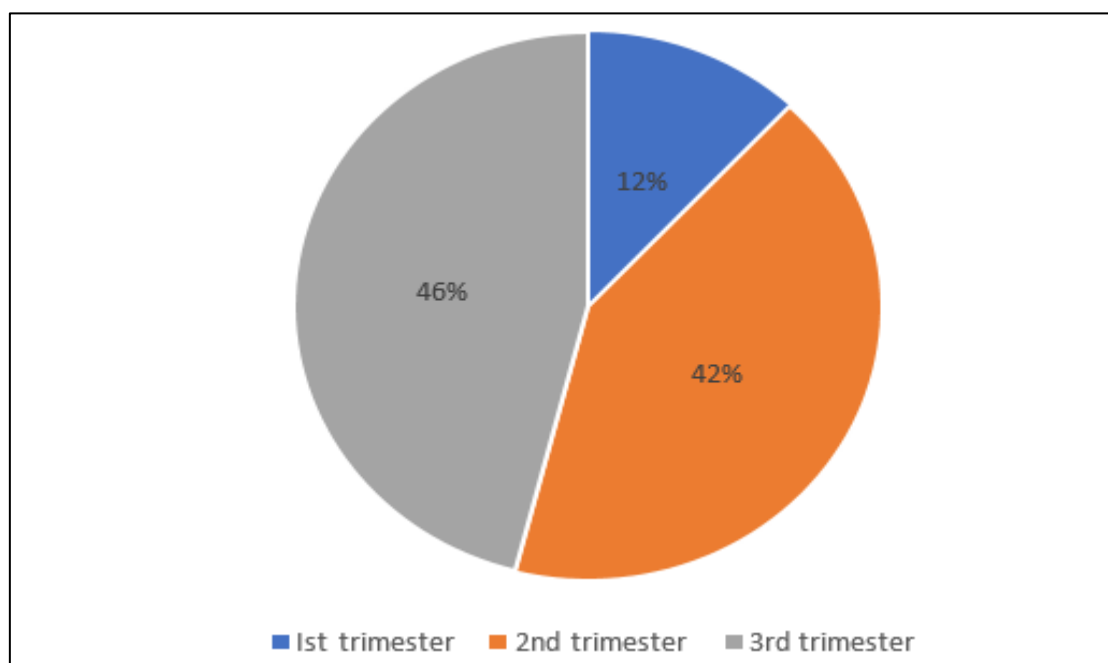


Fig 2 (a) Shows Respondents' Pregnancy Stage and their Percentages

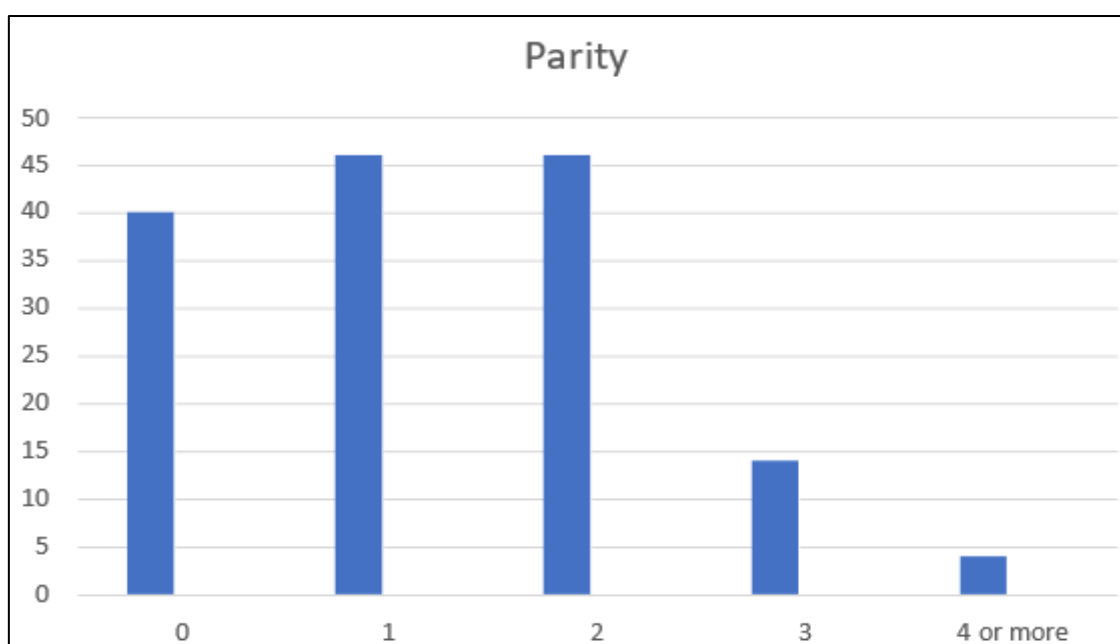


Fig 2 (b) shows Respondents' Parity as Against Frequency

Figure 2 (a) and (b) shows obstetrics information of respondents with regards to pregnancy stage and parity. Figure (a) shows that 69(46.0%) which is the majority were in the third trimester of their pregnancies. Figure (b) on the other hand shows that parity of 1 and 2 both recorded 46(30.7%) and represented the highest.

Table 2 Responses on Special Dietary Requirement

	Frequency	Percent
No special dietary requirements	150	100.0

The intake of *special* diet or adherence to special dietary requirements negative among all respondents as shown by table 2

Table 3 Underlying Medical Condition Prior Pregnancy

	Frequency	Percent
Diabetes	1	0.7
Hypertension	2	1.3
Sickle Cell disease	3	2.0
Other	2	1.3
None	142	94.7
Total	150	100.0

Among the 150 respondents captured in this study, 142(94.7%) had not any underlying condition prior to pregnancy. `

- Dietary Knowledge Among Pregnant Women*

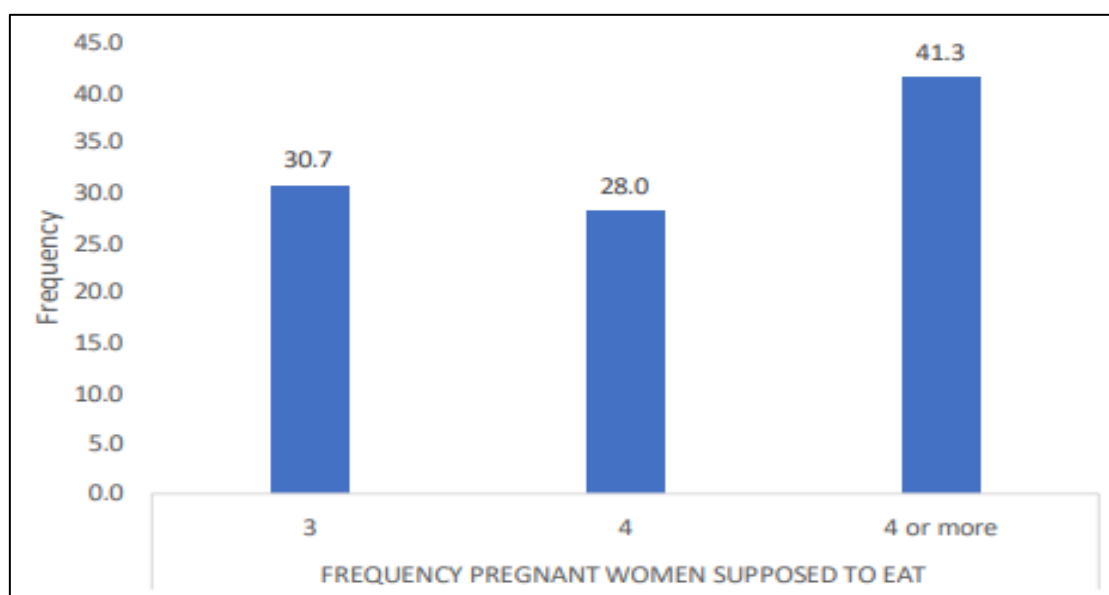


Fig 3 Number of Times Pregnant Women is Supposed to Eat Expressed in their Frequencies and Percentages

Figure 3 presents results on number of times pregnant women were supposed to eat and was brought forth that majority of them being 62(41.3%) indicated 4 or more time.

Table 4 Knowledge of a Balanced Diet

		Frequency	Percent
Food containing proteins and carbohydrates		15	10.0
Food containing all the needed nutrients growth and development	for	106	70.7
Food that is delicious		5	3.3
Do not know		24	16.0
Total		150	100.0

Table 4 presents results on probe into knowledge of respondents on balanced diet and found that majority of them, 106(70.7%) indicated that balanced diet was a food containing all the needed nutrients for growth and development.

Table 5 Recommended Diet for Pregnant Women

	Frequency	Percent
Intake of high carbohydrate diet	4	2.7
Intake of high fat and protein	2	1.3
Intake of food made up of all food elements in their right proportions without vegetables and fruits	23	15.3
Intake of a balanced diet with vegetables and fruits	105	70.0
Cannot tell	16	10.7
Total	150	100.0

With regard the recommended diet for pregnancy, majority of the respondents being 105(70/0%) mentioned the intake of balanced diet with vegetables and fruits. On the contrary, 16(10.7%) could not tell what diet is recommended in pregnancy.

Table 6 Food Groups to be Avoided in Pregnancy

		Frequency	Percent
Alcohol only		10	6.7
Caffeine only		6	4.0
Caffeine and and other toxic	alcohol foods	120	80.0
Do not know		13	8.7
Other		1	0.7
Total		150	100.0

Food groups that should not be taken during pregnancy were indicated as caffeine and alcohol by majority of the respondents that is 120(80%).

➤ Dietary Practices Among Pregnant Women

Table 7 Dietary practices among respondents

	Yes	No
Consumption of meat/ chicken 2-3 times per week	114	36
	76.0%	24.0%
Consumption of fish 1-2 times per week	141	9
	94.0%	6.0%
Regular consumption of 2-3 portions of fruits/vegetables	127	23
	84.7%	15.3%
Daily consumption of dairy product	43	107
	28.7%	71.3%
Whole grain carbohydrate consumption at least once a day	126	24
	84.0%	16.0%
Folic acid supplementation consumption	124	26
	82.7%	17.3%
Consumed alcohol in the pregnancy	8	142
	5.3%	94.7%
Daily consumption of eggs	148	2
	98.7%	1.3%

The various dietary practice of respondents is summarized in table 7 above. Meat or chicken consumption 2-3 times per week was a practice among 114(76.0%) of the respondent. Consumption of fish 1-2 times per week was practiced among 141(96.0%) of the respondents as against 9(4.0%) of them. It was also recorded that regular consumption of 2-3 portions of fruits/vegetables was a practice among 127(84.7%) of respondents in this study. Dairy consumption was done daily among 43(28.7%) of respondents. Consumption of whole grain carbohydrates at least once a day was a practice among majority of the respondents being 126(84.0%).

Majority of the respondents, 124(82.7%) supplemented their diet with folic acid as against 26(17.3%) who did not.

Eight of the respondents, representing 5.3% took alcohol in their pregnancy while as many as 148(98.7%) out of the 150 respondents consumed eggs daily.

➤ Inferential Analysis

Table 8 Overall Knowledge and Practice and Impact of Knowledge on Practice

Overall Practice		Poor	Good	Total	p-value
Overall,	Poor	14	52	66	0.266
Knowledge	knowledge	21.2%	78.8%	100.0%	
	Good	12	72	84	
	knowledge	14.3%	85.7%	100.0%	
Total		26	124	150	
		17.3%	82.7%	100.0%	

Table 8 shows a cross tabulation between overall knowledge and practice and the association between knowledge and practice. From the table, 66 of the respondents had poor dietary knowledge as against 84 who had good knowledge. Good practices were recorded for 124 respondents and poor practices by 26 respondents. Among those with poor knowledge, 14(21.2%) indulged in poor practice while 52(78.8%) had good practice. Out of the 84 pregnant women with good knowledge, 12(14.3%) had poor practices and 72(85.7%) had good practices.

The grouping of respondents as having good or poor knowledge and practices was based on a carefully derived scoring system after the responses were summed and a midpoint value was derived. A probability value obtained on chi-square analysis was 0.266 which indicates a no significant association between dietary knowledge and dietary practice among pregnant women in this study.

Table 9 Cross Tabulation between Overall Knowledge and Practices As Well As Socio-Demographic Characteristics of Respondents

	Dietary knowledge p-value	Dietary p-value	practices
Age	0.011	0.569	
Marital Status	0.016	0.820	
Religious Affiliation	0.006	0.358	
Education	0.003	0.656	
Ethnic Group	0.001	0.452	
Employment	0.844	0.880	
Monthly Income	0.046	0.647	
Family Size	0.103	0.321	
Pregnancy Stage	0.556	0.044	
Parity	0.301	0.763	

Tests of association between socio-demographic characteristics and knowledge as well as practices on diet is presented on table 9 above. This was tested at 95% confidence interval which required that the p-values be compared against an alpha of 0.05. According to the table, association of demographic characteristics with dietary knowledge were significant in age (0.011), marital status (0.016), educational background (0.003) and ethnic group (0.001) as well as monthly income (0.046). Also, association of demographic characteristics with dietary practices had only pregnancy stage been significantly associated with a p- value of (0.044).

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

➤ Introduction

Discussion of findings is done in this section to analyze results and contrast them with findings from other studies. This is followed by a conclusion on the findings that have been discussed and recommendations aimed at solving the problems presented in the first chapter. The discussion seeks to answer the research questions.

➤ Discussion

• Demographic Characteristics of Respondents

The study captured pregnant women who were mostly aged 26–30 as they formed the majority. 38.0% of the distribution by age. This can be due to the fact that the women endeavored to give birth at younger but matured ages so as to avoid birth complications that come with pregnancy at older ages. With regard to age's association with dietary knowledge, a p-value of 0.011 was obtained, which indicates that age differences lead to knowledge disparities, and it can be opined that younger, inexperienced pregnant women had poorer levels of knowledge. According to Giragosov et al., (2018), more mature pregnant women are more adherent to the recommended dietary knowledge as compared to less mature women. This led to the consumption of low calories and needed proteins by mature pregnant women. This finding agrees with that of this study due to the positive association.

Also, majority of the respondents representing 72% were married and this is linked to the culture that upholds birth in Ghana that is marriage. A p-value of 0.016 shows a significant association between marital status and dietary knowledge. It can also be projected that the married, who were the majority, had more of them with good knowledge. Educational background has strong demographic characteristics that impact knowledge. According to the results of this study, the majority of pregnant women had at least a secondary level of education (43.3%), with a significant percentage of 17.3% having tertiary education. A test of association between educational background and knowledge also yielded a p-value of 0.003 and showed that knowledge was significantly different for different educational levels, as those who had lower or no formal education had poor knowledge of diet for pregnancy. In a study by Girma et al., (2019), educational background was associated with knowledge of a healthy diet in pregnancy. This was also buttressed by Ogunba et al., (2017), who indicated that higher knowledge of diet led to the intake of more varied meals that met the dietary nutritional requirements. An agreement is identified with the study's findings.

Lastly, monthly income had a weak association with knowledge of diet in pregnant women, evident by a probability value of 0.046. Those with a higher monthly income may probably earn better and also have a significant level of education, which can be connected to their dietary knowledge. Other points in the demographic characteristics of pregnant women did not show significance with knowledge. In the studies by Abuya et al., (2012) and Ogunba et al., (2017), there was an association between knowledge and religious affiliation, as more traditional individuals had poorer knowledge due to traditional restrictions. The reverse was seen in this study, where religion did not impact knowledge. Per the trimester of pregnant women, most, 46.0%, were in their 3rd trimester, which could be the reason why they had a very good practice on diet as most of them had received adequate information on dietary requirements while pregnant and as such practiced them.

• Dietary Knowledge Among Pregnant Women

The first specific objective of this study is to delve into the assessment of dietary knowledge among pregnant women as it affects the practice of healthy eating. Under this objective, the frequency of diets taken per day among pregnant women, the meaning of a balanced diet, and the particular diet that constituted the recommended diet for pregnant women

Upon being quizzed on the number of times a pregnant woman could eat in a day, the majority (41.3%) indicated that a pregnant woman could eat four times or more. The number of times mentioned could be from pregnant women who had a heightened appetite. This could be that they had to eat in bits to make the food look attractive; others also might have had a very good appetite, which was dynamic, and ate the foods they felt like only if they could afford them. It was worth mentioning that the number of times pregnant women ate was grossly affected by their appetite; however, their knowledge of dietary requirements helped keep them within the best limits. It can be predicted that those of the pregnant women who had a normal three-times-a-day diet (30.7%) did not have much change in their diet during the pregnancy. According to Barker et al., (2013), it is suggestive that inadequate maternal nutrition during pregnancy can have a devastating impact on both mother and fetus, with the offspring facing an increased risk of chronic diseases like obesity or diabetes. Pregnant women in this study mostly had knowledge of the importance of eating well, as evident by their intake of food at least three times a day.

The main point of analysis was the knowledge of a balanced diet among pregnant women. With regards to this result, the majority (70.7%) had the right explanation of what a balanced diet meant. It was therefore clear that the majority of them understood the importance of a balanced diet, and this should contribute to their practices. It was also found that a significant percentage of them, 10.0%, mentioned proteins and carbohydrates as the only constituents of a balanced diet, while 16.0% did not have any information on a balanced diet. This group may be individuals who had not had much information on diet or had not paid attention

to such information. Individuals with good knowledge were likely to practice dieting because they knew the benefits. On the contrary, a study by Wrottesley et al., (2018) uncovered a troubling lack of knowledge among pregnant women in South Africa about the importance of adequate nutrition for maternal health, which was likely to affect their health and the development of the fetus. The need for a balanced diet is stressed by ACOG (2018), where healthcare providers advise pregnant women on the consumption of a balanced diet.

To further test the knowledge of pregnant women, they were asked about the recommended diet for pregnancy. Once again, the majority (70.0%) acknowledged the intake of a balanced diet with fruits and vegetables as the best diet in pregnancy. The percentage of those who recommended a balanced diet was exactly the percentage that were able to tell what a balanced diet was, which foretells that knowledge can be used as a surrogate for practice in this group. The importance of vegetables and fruits was also highlighted by this group, as those who had good knowledge of a balanced diet indicated their intake. It was also found that 10.7% of the pregnant women could not tell the recommended diet but would have some information about the foods that were good for pregnant women. The specific food that is recommended for pregnant women is specifically indicated by ACOG (2018), which is in line with the findings in this study, where the majority of the respondents indicated a balanced diet of vegetables and fruits, just as mentioned by ACOG (2018).

An evaluation of diet in pregnant women could not be complete without knowledge of foods that were not recommended in pregnancy. The use of caffeine and alcohol and other toxic foods was indicated by the majority of the pregnant women (80.0%) to be food substances that need to be avoided in pregnancy. This finding can be linked to the widespread adverse effects of alcohol in pregnancy on the pregnant woman and the developing child. It was however identified that 8.7% were not aware of any food that is to be avoided in pregnancy. This situation is dangerous as it could lead to unforeseen complications with an unknown food material. In a study by Arimond et al. (2013) and Asefa et al., (2019), pregnant women in their studies had poor knowledge as they were not equipped with information on nutrition due to the minimal availability of resources. The findings of their study are contradictory to the findings of this current study.

- *Dietary Practices Among Pregnant Women*

As an end product of dietary knowledge, the practice of pregnant women with regards to diet was evaluated. This section was evaluated on eight statements on a two-point scale, and an overall practice was determined. It was found that 124(82.7%) of the pregnant women had a good level of practice following the scoring used. The intake of meat and chicken about 2-3 times weekly was practiced by the majority of them, at 76.0%. The need for proteins was highlighted as necessary due to the increase in protein demand during pregnancy. The intake of fish 1-2 times per week was a practice among almost all (96.0%) of the pregnant women. Fish is known to be a highly proteinaceous food that provides the needed nutrients for structure and function. A good level of consumption of nutritious food is therefore very important in pregnancy, as was rightly indicated. In a study by Olayinka & Fasanu (2019) and Olagbuji et al., (2019), it was identified that the dietary choice has been confirmed by multiple studies, including both of which documented a preference among pregnant women to consume nourishing foods following their knowledge. The intake of nutritious food is confirmed in this study as well, which shows agreement in findings.

The intake of fruits and vegetables was necessary since they provide needed vitamins, which act mainly as co-enzymes for metabolic processes. Further on protein provision to the pregnant woman and the fetus, milk consumption was evaluated and found to be low at 28.7%. Milk consumption was low, possibly because most adults in the sub-Saharan African region have lactose intolerance, as the lactose digesting agent is not active and leads to bloating and discomfort, which would eventually discourage milk intake. Other dairy products, aside from milk, may have been taken. The intake of milk has been encouraged across the world for pregnant women. According to the American College of Obstetricians and Gynecologists (ACOG), pregnant women require 27 milligrams of iron per day, 1,000 milligrams of calcium per day, and an additional 25 grams of protein per day (ACOG, 2018). These nutrients are also present in milk; however, milk was not well patronized among pregnant women in this study, as were other sources of nutrients like whole grains, meat, and fish, as well as vegetables and fruits.

Another critical practice of diet recommendation in pregnancy was the consumption of whole grains, which provided the body with vitamin B components such as niacin, thiamine, folate, and minerals such as iron, magnesium, zinc, manganese, and last but not least, dietary fiber. In this study, the majority of pregnant women, 84.0%, took whole grains. The highly identified level of knowledge of recommended foods in pregnancy surely contributed to the consumption of this important group of foods among pregnant women. The intake of a wide variety of nutritious foods is mentioned by ACOG (2018), which includes a balanced diet consisting of fruits, vegetables, whole grains, lean proteins, and low-fat dairy products.

The importance of folic acid in pregnancy cannot be overstated enough. Folic acid is needed for DNA replication and cell division, and if deficient in the diet of pregnant women, it leads to congenital defects such as neural tube defects. In this study, folic acid was taken as a diet supplement by 82.7%, which was a majority; however, a significant percentage (17.3%) did not take folic acid and stood the risk of their babies developing neural tube defects. The importance of folic acid and its recommendations by health workers cannot be overemphasized. It is also enshrined in the recommendations for pregnancy by the WHO (2016). In this study, the majority of the pregnant women followed the recommendations of the WHO as they supplemented their diet with folic acid.

It could be that pregnant women who had not taken folic acid did not have knowledge of its importance or were attending antenatal care for the first time. Alcohol consumption was indulged in by 5.3% of pregnant women. Despite all the dangers of alcohol to the developing fetus and even to the mother, some pregnant women still took alcohol. This situation could be because they did not know the adverse effects on their health and that of the developing fetus, such as teratogenicity and even miscarriage. It can be thought that those who desisted from alcohol intake were apprised of this effect of alcohol on pregnancy. Cetin & Koletzko (2008) expressed the negative effect of alcohol intake in pregnancy. This confirms the findings of this study, indicating that the majority of the pregnant women knew the dangers of alcohol and did not patronize alcoholic beverages. The intake of a wide variety of nutritious foods is mentioned by ACOG (2018), which includes a balanced diet consisting of fruits, vegetables, whole grains, lean proteins, and low-fat dairy products. This is in accordance with the practices of most of the pregnant women, except for the intake of milk, which was minimal.

- *Association between Demographic Factors and Dietary Practices Among Pregnant Women*

A test of association between recommended dietary practice and demographic characteristics of respondents yielded significance only with stage of pregnancy with a p-value of 0.044. This is an indication that changes in dietary practices changed with progress of pregnancy but did not significantly alter with other demographic characteristics such as, age distribution, religion, educational background, income, marital status and the rest. This finding in this study opposes studies done by (Ogunba et al., 2017 and Giragosov et al., 2018) where there was an association between pregnant women calories consumption and their age. Then again, education levels can have a significant impact on pregnant women's eating habits. Those with higher educational backgrounds generally had greater knowledge of maintaining healthy dietary practices (Girma et al., 2019).

In a study by Asefa et al., (2019), it was found that only 16.8% exhibited good dietary practice, with limited comprehension regarding balanced diets and key nutrient intakes such as iron, calcium, and folic acid. In this study, however, knowledge was high, as were practices. In this current study, 87.2% had good dietary practices which contradicts the study by Asefa et al., (2019).

- *Conclusion*

Based on the findings of this study, the following conclusions are being drawn:

The knowledge of the pregnant women was good, as evidenced by the majority of them having a good level of knowledge about a balanced diet. Dietary requirements for pregnant women were also known by the majority of the pregnant women, as they indicated the intake of a balanced diet with vegetables and fruits.

The practices of pregnant women with respect to the recommended diet in pregnancy were also adequate. It was found that the majority of them took high-protein foods, vitamins, and minerals, and the least of them took alcohol.

There was no significant association between recommended dietary practice and demographic characteristics except for stage of pregnancy.

- *Recommendations*

Based on the findings of the study, the following recommendations have been made:

- *To the Pregnant Women:*

Pregnant women are recommended to seek information on diet even before getting pregnant so they will be well educated and ready for the dietary requirements that come with pregnancy. They are also admonished to adhere to the dietary requirements recommended by health personnel.

- *To the Health Facility*

The health facility should be a welcoming place for pregnant women of all ages to ensure that antenatal visits are patronized and younger or older pregnant women are not judged or discriminated against. Health personnel, including nurses, midwives, public health nurses, nutritionists, and others, should be up to speed on giving clear information on diet. They should also make available information on how to use local foods to meet the nutritional needs of pregnant women.

- *To the Health Promoters*

Health promotion should help women understand the importance of diet and the requirements of pregnancy through conventional and social media. This will help create proper awareness of nutritious food intake and ensure pregnant women meet recommended dietary requirements.

- *To the Ministry of Health and Health Services*

Measures should be taken to make provision for needed food supplements, especially folic acid, other vitamins, minerals, and other food nutrients.

➤ *Limitations*

The study encountered time and financial constraints due to the short period it was scheduled to cover. Financial constraints were faced due to the fact that the study did not attain funding from any source.

Also, the study was supposed to be conducted with 366 respondents but because of financial constraints and time constraints, the study was carried out with 150 respondents.

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