BIRTH WEIGHT OF NEW BORN IN RELATION TO NUTRITIONAL STATUS OF PREGNANT WOMEN IN GUSAU LGA OF ZAMFARA STATE.

OLAJIDE OLASUNKANMI MODUPEOLUWA (M.sc PH)
Department of Public Health
National Open University of Nigeria, Abuja.
(**olasunkanmiolajide38@gmail.com**)

Tukur Ismail (MBBS, PGDE MPH, PhD)
Department of Public Health
Zamfara State University, Talata Mafara, Zamfara State
(**drsmiler2011@gmail.com**)

ODUOYE MALIK OLATUNDE (MBBS)
Department of Research, Medical Research Circle (MedReC), Bukavu,
Democratic Republic of Congo.
(malikolatunde36@gmail.com)
Oyemi Gloria Sillo (M.sc PH)
Department of Public Health
National Open University of Nigeria, Abuja
(**sillo.oyemi@gmail.com**)

ADENEKAN TOLULOPE YEMISI (M.sc PH)
Department of Public Health
National Open University of Nigeria, Abuja
(**tolu_orekoya@yahoo.com**)

&
MUTIU ABDULRAMAN OLAMIDE (BNSc)
Norfolk and Norwich University Hospital, Norwich Uk.
(Abdulramanmutiu@gmail.com)

Abstract
Impartial of this study is to describe an empirical evidence to support previous research on how anemia and poor nutritional status can affect pregnant women weight gain and that of child at birth, it also offer some insight and suggestion for more opportunity and interventions by various stakeholders who are concerned about maternal and child health interventions in Zamfara state and beyond. Retrospective research design was adopted. The population of the study consisted of simple randomly selected 247 pregnant women between the ages of 15 and 49 with singleton pregnancy that had no pregnancy complication and delivered in Federal medical Centre and Yerima Bakura Specialist Hospital between January 2023 to June, 2023, data was gotten from facility medical record. Data were inputted into SPSS and analyzed with STATA statistical software, some of the statistical analysis was done by the Chi-square test, Fisher exact test, and t-test. A P value of <0.05 was considered significant. Planned sampling Techniques was employed to choose the hospitals. Findings revealed that the rate of maternal weight gain in FMC and YBSH was reduced, but there is increased total weight gain in pregnant women attending ANC in FMC facilities compare to YBSH. Anemia prevalence was found in 92% of pregnant women in both facilities but the anemia prevalence was more in pregnant women between the ages of 19-25, with YBSH having the highest

percentage. Birth weight was associated with gestational weight gain and baby weight, and anemia prevalence was associated with gestational weight gain and baby weight. This study recommended high prevalence of anemia in both facilities ranging from mild to moderate, with no severe anemia, it was also noted that there is no relationship between gestational weight gain and age group, a reduced mean maternal weight gain with reduced baby birth weight of pregnant women in YBSH and FMC was noted. Despite this, about 7% of baby born had low birth weight which is lower than the rate of 12% of Sub-Sahara Africa, indicating that some infant's birth weight was affected by the mother nutritional status.
Keywords: *Birth weight, Nutrional Status, Pregnant women, New Born, Gusau Lga of Zamfara State.*

Introduction

Maternal Nutrition and Birth Outcomes, numerous studies worldwide have established a clear link between maternal nutrition and birth outcomes. Adequate maternal nutrition is essential for the proper growth and development of the fetus. Maternal nutrition significantly influences birth outcomes, playing a pivotal role in the health and development of both the mother and the newborn. Adequate maternal nutrition, encompassing a balanced intake of macronutrients and micronutrients, is essential for optimal fetal growth and organ development. Inadequate nutrition, marked by deficiencies in crucial elements such as iron, folic acid, and protein, is associated with adverse outcomes, including intrauterine growth restriction, low birth weight, and an increased risk of birth defects. Maternal malnutrition can contribute to conditions like iron deficiency anemia and gestational diabetes, impacting the overall well-being of both the mother and the child. Addressing global disparities in maternal nutrition is crucial, as different regions face unique challenges ranging from undernutrition to overnutrition, emphasizing the need for targeted interventions to ensure healthy pregnancies and positive birth outcomes worldwide (FAO 2020).

Low Birth Weight (LBW) is a significant public health concern globally. Infants with low birth weight are at a higher risk of mortality, as well as short-term and long-term health complications. Low birth weight (LBW), defined as infants weighing less than 2,500 grams (5.5 pounds) at birth, is a critical public health concern with far-reaching implications. LBW is often indicative of inadequate intrauterine growth and is associated with a heightened risk of neonatal mortality, as well as short-term and long-term health complications. Factors contributing to LBW include maternal malnutrition, insufficient prenatal care, maternal age, and medical conditions such as hypertension and gestational diabetes. Infants born with low birth weight are more susceptible to respiratory distress syndrome, infections, developmental delays, and chronic health issues later in life. Addressing the complex determinants of LBW requires a multifaceted approach, including improving maternal nutrition, enhancing prenatal care accessibility, and addressing socio-economic factors to ensure better maternal and child health outcomes globally (Shrivastava et al., 2020).

Impact of Undernutrition during pregnancy can lead to intrauterine growth restriction (IUGR), a condition where the baby doesn't reach its full growth potential. This can result in low birth weight and increase the risk of developmental issues. Undernutrition exerts a profound and detrimental impact on individuals and communities, particularly in the realm of maternal and child health. Insufficient intake of essential nutrients during critical stages, such as pregnancy, can lead to intrauterine growth restriction, resulting in low birth weight and an increased susceptibility to neonatal morbidity and mortality. Undernutrition not only jeopardizes immediate health outcomes but also poses long-term risks, contributing to developmental delays, compromised cognitive function, and a heightened vulnerability to infectious diseases. Furthermore, undernutrition is often intertwined with socio-economic disparities, limited access to healthcare, and food insecurity, creating a cycle of deprivation that affects the overall well-being and potential of affected populations. Addressing the multifaceted nature of undernutrition necessitates comprehensive interventions encompassing improved nutrition, healthcare infrastructure, and socio-economic support to break the cycle and promote the health and resilience of communities on a global scale (Anh Nguyen, 2019).

Micronutrient Deficiencies in addition to macronutrients, micronutrient deficiencies (such as iron, folic acid, and vitamin D) during pregnancy can impact fetal development and contribute to low birth weight. Micronutrient deficiencies represent a significant global health challenge, affecting individuals across

diverse socioeconomic contexts. Inadequate intake of essential vitamins and minerals, such as iron, vitamin A, iodine, and zinc, can lead to a range of health complications. These deficiencies are particularly concerning during critical life stages, such as pregnancy and early childhood, where they can impede proper fetal development and compromise immune function. Micronutrient deficiencies contribute to a spectrum of health issues, including anemia, impaired cognitive development, increased susceptibility to infections, and a higher risk of maternal and child mortality. Addressing micronutrient deficiencies requires comprehensive strategies, including nutritional supplementation, food fortification, and public health education, to ensure that individuals receive the necessary elements for optimal health and well-being (Am, 2014).

Global Malnutrition Trends remains a global challenge, affecting both developed and developing countries. While undernutrition is a concern in some regions, overnutrition and obesity are rising issues in others, and both can impact birth outcomes. Global malnutrition trends underscore a complex and pervasive challenge affecting populations worldwide. While undernutrition remains a critical issue in many low-income regions, overnutrition and diet-related diseases are escalating concerns in both developed and developing countries. A dual burden of malnutrition is evident, with coexisting challenges of stunting and wasting alongside rising rates of obesity and diet-related chronic conditions. Socioeconomic factors, limited access to diverse and nutritious foods, and changing dietary patterns contribute to these trends. Moreover, environmental and cultural influences play significant roles in shaping nutritional habits. Addressing global malnutrition requires multifaceted approaches, including promoting equitable access to nutritious food, enhancing public health education, and implementing policies that foster healthy eating habits across diverse contexts (FAO 2020).

Socioeconomic Factors play a crucial role in maternal nutrition. Women in lower socioeconomic strata may have limited access to nutritious food, healthcare, and education, contributing to adverse birth outcomes. Socioeconomic factors play a pivotal role in shaping health outcomes, including maternal and child nutrition. Disparities in income, education, and access to resources significantly impact individuals' ability to maintain optimal nutritional status. In lower socioeconomic strata, limited financial resources may restrict access to diverse and nutrient-rich foods, leading to a higher prevalence of malnutrition, especially among pregnant women and children. Additionally, inadequate access to healthcare and educational opportunities can hinder awareness and practices related to proper nutrition. Conversely, in higher socioeconomic groups, overnutrition and diet-related disorders may be more prevalent due to greater access to processed foods and sedentary lifestyles. Addressing maternal and child health disparities requires a comprehensive approach that tackles broader socioeconomic factors, aiming to improve access to education, healthcare, and economic opportunities, ultimately contributing to more equitable and improved nutritional outcomes globally (Shrivastava et al., 2020).

Interventions and Programs, various global initiatives and programs aim to improve maternal nutrition and reduce the incidence of low birth weight. These include interventions focused on prenatal care, education, and nutritional supplementation. Various interventions and programs worldwide are designed to address maternal and child nutrition, aiming to improve health outcomes and mitigate the impact of malnutrition. Prenatal care initiatives often incorporate nutritional counseling, emphasizing the importance of a balanced diet and providing essential supplements such as iron and folic acid. Community-based programs focus on enhancing access to nutritious food, particularly in economically disadvantaged areas, through measures like food distribution, nutritional education, and agricultural support. National and international organizations collaborate on initiatives that include fortification of staple foods with essential micronutrients to combat deficiencies on a larger scale. Additionally, educational campaigns targeting mothers and caregivers play a crucial role in promoting optimal breastfeeding practices, introducing complementary foods, and fostering overall nutritional awareness. By combining clinical, community, and educational strategies, these interventions and programs strive to create comprehensive and sustainable approaches to improve maternal and child nutrition globally (Anh Nguyen, 2019).

Cultural and dietary practices vary across regions, influencing maternal nutritional habits. Understanding these variations is essential for designing targeted interventions that respect cultural contexts. Cultural and dietary practices wield a profound influence on maternal and child nutrition, shaping habits that vary widely across regions and communities. Cultural norms often dictate dietary choices, meal patterns,

and food taboos during pregnancy and lactation. Traditional diets, rich in local staples, may contribute to a diverse nutrient intake or, conversely, pose challenges if they lack essential elements. Cultural practices, such as early marriage and family dynamics, can affect the timing and quality of maternal nutrition. Additionally, beliefs about body image and societal expectations may impact women's dietary choices during pregnancy. Understanding and respecting these cultural nuances are crucial for designing effective interventions that promote optimal nutrition without undermining cultural identities. Collaborative efforts that integrate cultural competence into healthcare practices and educational campaigns can bridge the gap between traditional wisdom and contemporary nutritional knowledge, fostering improved maternal and child health outcomes globally (Am, 2014).

Impact on Long-Term Health, birth weight is not only a predictor of neonatal health but can also have implications for long-term health outcomes. Low birth weight is associated with an increased risk of chronic diseases later in life. The impact of maternal and child nutrition on long-term health is profound, setting the foundation for lifelong well-being. Adequate nutrition during crucial developmental periods, such as pregnancy and early childhood, not only influences immediate outcomes like birth weight but also shapes an individual's susceptibility to chronic diseases later in life. Children born to well-nourished mothers are more likely to achieve optimal physical and cognitive development, reducing the risk of developmental issues and chronic health conditions. Conversely, those facing undernutrition during critical stages may be at a higher risk of stunted growth, cognitive impairments, and increased vulnerability to infections. The long-term consequences extend into adulthood, where early nutritional experiences can influence the risk of obesity, diabetes, and cardiovascular diseases. Recognizing the enduring impact of early nutrition underscores the importance of holistic interventions and public health efforts to break the cycle of intergenerational malnutrition and promote sustained health across the lifespan (Am, 2014).

Research in this field faces challenges such as diverse genetic backgrounds, environmental factors, and the need for longitudinal studies. However, advancements in technology and collaborative efforts provide opportunities for deeper insights. Understanding the global context of the relationship between the birth weight of newborns and the nutritional status of pregnant women can inform policymakers, healthcare providers, and researchers in developing effective strategies to improve maternal and child health outcomes worldwide (Shrivastava et al., 2020).

According to food and agriculture organization (FAO 2020), nutritional status is "a physiological state of an individual, resulting from the relationship between nutrient intake and requirements, and from the body's ability to digest, absorb, and use these nutrients." Both groups and individuals' nutritional status can be assessed. A person nutritional status is typically as a result of variety of factors that interact with one another in various ways. One of the major factors that significantly affects nutritional status is the intake of a proportional amount of food, both quantity and quality factor must be put in to consideration (Shrivastava et al., 2020).

Fetal weight at birth is recognized as the only factor that is linked to the mother's nutrition and health status, it plays an important role in detecting the likelihood that the baby will survive and have healthy growth and development. Previous findings show that exercise before pregnancy and nutritional factors may be more effective in health placenta development, nutritional support and fetal growth promotion during pregnancy (Am, 2014).

Gestational period (pregnancy), according to Spong, (2013), is the time when a woman's uterus is home to one or more gestating children. Due to the significant changes in her life that occur during gestation, a woman should be given close monitoring. The pregnant lady needs to be fed a quality and nutrient rich diet to ensure she reaches the right growth because the baby will be entirely dependent on its mother for nutrients during this period. During this phase, the placenta serves as the mother's direct feeding tube for the fetus. An adequate dietary balance is necessary to maintain the mother's pregnancy without depleting her own tissues (Anh Nguyen, 2019).

STATEMENT OF PROBLEM

In the Gusau LGA of Zamfara State, Nigeria, the relationship between the birth weight of newborns and the nutritional status of pregnant women presents a critical concern that demands comprehensive

investigation. Limited research has been conducted in this specific region to assess the intricate interplay between maternal nutrition and birth outcomes. The scarcity of data raises questions about the prevalence of maternal malnutrition, the adequacy of prenatal care, and the potential impact on the birth weights of infants. Understanding the specific factors contributing to variations in birth weight is essential for informing targeted interventions and public health strategies to improve maternal and child health in Gusau LGA. According to Stevens et al, (2017). anaemia affects one third of women who are not pregnant and half of gestational women worldwide. Vitamin A and iodine deficits are also common. According to estimates, 19.2 million pregnant women worldwide are diagnosed of low retinol concentrations, and 9.8 millions of these women suffer night blindness (WHO, 2017). The largest percentages are seen in Africa and South-East Asia. Micronutrient deficiencies in mothers can reflect on the size of their unborn kids, and inadequate vitamin A consumption raises the risk of night blindness in mothers (WHO, 2017). In Gusau local government area of Zamfara state (General Hospital Gusau), anemia has been identified as the leading cause of hospital admissions in pregnancy. LBW is responsible for about 60 to 80 percent of newborn deaths, and it is strongly correlated with maternal nutrition (Girma et al., 2019.). 20% of low birth weights in Africa are caused by maternal malnutrition. This study aims to address this gap by exploring the intricate links between the nutritional status of pregnant women and the birth weights of newborns in order to provide evidence-based insights for effective health policies and interventions in the region.

Research Question/ Hypothesis
The following questions and hypothesis were formulated in order to guide this research paper.
- What is the average mean weight gain of expectant mothers receiving antenatal care at Gusau government hospital?
- H01: Is there any association between mothers' age group, infant birth weight and gestational weight gain in woman who registered for Antenatal care in Gusau government hospital?
- What is the rate of aneamia among pregnant women in Gusau government hospital?

Methodology
Retrospective study design was adopted for this study. This observational study is considered appropriate because it would give the opportunity to gather responses from a large number of respondents in the study area. The sample population of this study consisted of 247 pregnant women between the ages of 15 and 49 with singleton pregnancy who had no pregnancy complication and delivered in Federal medical Centre and Yerima Bakura Specialist Hospital between January 2023 to June, 2023, data was gotten from facility medical record through simple random sampling. Data were inputted into SPSS and analyzed with STATA statistical software, some of the statistical analysis was done by the Chi-square test, Fisher exact test, and t-test. A P value of <0.05 was considered significant. Planned sampling Techniques was employed to choose the hospitals.
The sample size was calculated using the probability sampling formula below:

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

Where, n = sample size

z = statistical certainty chosen

p = proportion of pregnant women with poor nutritional status

q = 1- p (percentage of pregnant women with good nutritional status)

d = precision desired (0.005)

the value of p = 20% or 0.2

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

$s = 1.96^2 \times 0.2(1- 0.2) / 0.005^2$

$s = 3.8416 \times 0.2 \times 0.8/ 0.0025$

$s = 247.$

Result

Research Question Q1: What is the average mean weight gain of expectant mothers receiving antenatal care at Gusau government Hospital (FMC and YBSH)?

Table 1

The table below indicated the analysis of the average rate of weight gain

		First Trimester(kg	Second Trimester (kg)	Third trimester(kg)	Total average weight gain(kg)
YBSH	Average Weight of Pregnant women	60.47	64.32	70.80	10.34
	Average weight gain by Pregnant women		3.85	6.48	
FMC	Average Weight of pregnant women	59.86	62.97	72.18	12.32
	Average Rate of weight gain		3.11	9.21	

Table 2: Average weight gain by trimesters and average total gestational weight gain
Source: field survey by researcher

Kruskal wallis test was conducted to check if the rate of weight gain by pregnant women in YBSH and FMC was statistically significant as can be seen in the table below.

Kruskal Wallis test	Mean Rank First	Second	Third	Kruskal-Wallis H	Df	Asymp. Sig.
FMC	152.3	210.76	313.44	118.222	2	0.00
YBSH	99.68	127.9	210.43	90.845	2	0.00

Table 3: Kruskal Wallis table showing significant difference in average weight gain by trimesters and average total gestational weight gain
Source: field survey by researcher

Since P-value is less than 0.05, it is acceptable to state that the rate of weight gain and total weight gain at both YBSH and FMC is statistically significant.

Q2 Is there any association between mothers age group, infant birth weight and gestational weight gain in woman who registered for Antenatal care in Gusau government hospital (FMC and YBSH)?

The frequency chart shown below explains the count as well as the percentage of having a birth weight above or below 2.5kg by pregnant women in both facilities. Percentage wise, the data showed there was a lower percentage in birth weight below 2.5 with increasing age group in FMC, but this pattern was not observed in YBSH.

	Age	>=2.5	<2.5	Total
FMC	<19	6 (85.7%)	1(14.3%)	7
	20-25	81 (95%)	4(5%)	85
	26-30	45(95.7%)	2(4.3%)	47
	31-35	9(100%)	0	9
	Above 35	2(100%)	0	2
YBSH	<19	4	0	4
	20-25	52(98.1)	1(1.9%)	53
	26-30	25(89.3%)	3(11.7%)	28
	31-35	10(90.9%)	1(9.1%)	11
	Above 35	1(100%)	0	1

Table 3: Frequency table showing association between age group and baby birth weight
To test the association between age group and birth weight. The result of the chi square table shown below indicated that there is no association between baby birth weight and age of respondent.
Source: field survey by researcher

		Value	Df	Asymptotic Significance (2-sided)
FMC	Pearson Chi-Square	2.012[a]	4	.733
	Likelihood Ratio	2.031	4	.730
	Linear-by-Linear Association	1.092	1	.296
	N of Valid Cases	150		
YBSH	Pearson Chi-Square	3.548	4	.471
	Likelihood Ratio	3.699	4	.448
	Linear-by-Linear Association	2.057	1	.152
	N of Valid Cases	97		

Table 4: **Chi square table showing significant association between age group and baby birth weight**
Source: field survey by researcher

The association between the maternal weight gain and age group was also examined. To that effect, the mean maternal weight gain was checked against the age groups. The details are shown in the table below. The result didn't show any clear constant reduction or constant increase in maternal weight gain with increase or decrease in age group in FMC but in YBSH, there was a continuous decrease in mean maternal weight gain up till age group of 31 to 35 and then a continuous increase in mean maternal weight gain from that point to 35 and above. Details in the table below.

	Age group	Mean	N	Std. Deviation
FMC	<19	10.43	7	2.507
	20-25	10.54	85	2.366
	26-30	10.77	47	2.436
	31-35	11.11	9	3.296
	Above 35	8.50	2	2.121
YBSH	<19	12.85	4	2.574
	20-25	12.17	53	2.576
	26-30	12.08	28	3.176
	31-35	13.40	11	2.710
	Above 35	15.00	1	.
	Total	12.34	97	2.766

Table 5: **Table showing mean distribution of maternal weight gain across age group**
        Source: field survey by researcher

To check the association between age group and maternal weight gain of pregnant women in both facilities. ANOVA test was conducted which is analysis of variance to test if the association between age group and maternal weight gain was statistically significant. For both facilities, the association was not statistically significant. So we accept the null hypothesis which states that there is no statistically significant association between age and maternal weight gain in pregnant women attending ANC in FMC and YBSH.

				Mean square	Df	Sum of square	F	Sig
FMC	Total_GWG * Age_group	Between Groups	(Combined)	13.000	4	3.250	.54	.706
		Within Groups		872.147	145	6.015		
		Total		885.148	149			
YBSH	Total GWG * Age group	Between Groups	(Combined)	23.941	4	5.985	.78	.544
		Within Groups		710.570	92	7.724		
		Total		734.511	96			

Table 6: ANOVA table showing association between age group and maternal weight gain

Q_3 What is the rate of aneamia among pregnant women in Gusau Government?
To determine the association between anaemia status and baby birth weight of pregnant women attending ANC and delivered in FMC and YBSH. The baby birth weight was categorized into ≤ 2.5kg and above >2.5kg. From the table below, it shows that there was a higher percentage of anemia, pregnant mothers who had mild./moderate anemia gave birth to 7 (4.7%) babies with low birth weight in FMC facility and 5 (5%) baby with low birth weight recorded in YBSH .
Details are shown in the table below.

			Baby Birth weight >=2.5	<2.5	Total
FMC	Anemia	Mild	134 (97%)	4(3%)	138(100%)
		Moderate	9 (75%)	3(25%)	12(100%)
YBSH	Anemia	Mild	87(97.8%)	2(2.2%)	89(100%)
		Moderate	5(62.5)	3(37.5%)	8(100%)

Table 7: Frequency table showing association between Anemia and baby birth weight

To ascertain if the association between anemia and birth weight was statistically significant in both facilities, a chi square test was conducted to that effect which shows that there was a statistical association between anemia rate in pregnant women who had their ANC and delivery in FMC and YBSH and their baby birth weight. The Fisher exact test also conducted showed a significance level of less than 0.05 for both facilities.

		Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2sided)	Exact Sig.(1-sided)
FMC	Pearson Chi-Square	12.122	1	.000		
	Continuity Correction	7.663	1	.006		
	Likelihood Ratio	6.868	1	.009		
	Fisher's Exact Test				.012	.012
	Linear-by-Linear Association	12.041	1	.001		
	N of Valid Cases	150				
YBSH	Pearson Chi-Square	18.659a	1	.000		
	Continuity Correction	12.145	1	.000		
	Likelihood Ratio	9.669	1	.002		
	Fisher's Exact Test				.004	.004
	Linear-by-Linear Association	18.466	1	.000		
	N of Valid Cases	97				

Table 8: Chi square table showing significant association between anemia and baby birth weight

To buttress on the point above, the mean baby weight was recorded and grouped by anemia status of pregnant women in YBSH and FMC. Then independent sample t test was used to check if the difference in mean was statistically significant. The table below shows that the mean baby weight reduced with increased level of anemia with the values of average birth weight of mild anemia at 3.13 and 3.12 for FMC and YBSH respectively and the values of average birth weight of moderate anemia at 2.66 each for both facilities. It indicated that there was a lower baby birth weight from 11 pregnant women with mild or moderate anemia in both facilities.

T- test was also used to test the association between anemia and baby birth weight. The T-test conducted showed that the difference was statistically significant, p value less than 0.05, hence, there is an association between anemia and baby birth weight

			Anaemia	N	Mean	Std. Deviation	Std. Error Mean	P value
FMC	Baby	birth weight	Mild	138	3.13	.282	.024	.000
			Moderate	12	2.66	.274	.079	
YBSH	Baby	birth weight	Mild	89	3.12	.242	.026	.000
			Moderate	8	2.66	.338	.120	

Table 9: Independent sample T-test showing significant association between anemia in pregnant mother in both facilities and baby birth weight

ASSOCIATION BETWEEN ANEMIA PREVALENCE AND MATERNAL WEIGHT GAIN
To check the association between anemia and maternal weight gain in FMC and YBSH. The mean maternal weight gain was analysed against the anemia prevalence in both facilities. In FMC, the mean maternal weight gain for mild anemia and moderate anemia was at 10.67kg and 10kg respectively while that of YBSH was at 12.52kg and 10.33kg respectively. The result showed that there was a lower mean maternal weight gain of pregnant with increased level of anemia in both YBSH and FMC. The hypothesis was tested to determine if there is any association between anemia and maternal weight gain. An independent sample t-test showed that the association between anemias was statistically significant in YBSH and FMC.

	Anaemia	N	Mean	Std. Deviation	Std. Error Mean	P value
FMC	Mild	138	10.67	2.402	.204	.034
	Moderate	12	10.00	2.860	.826	
YBSH	Mild	89	12.52	2.724	.289	.031
	Moderate	8	10.33	2.569	.908	

Table 10: **Independent sample T-test showing significant association between anemia and mean maternal weight gain**
The table below shows that the mean baby weight reduced with increased level of anemia with the values of average birth weight of mild anemia at 3.13 and 3.12 for FMC and YBSH respectively and the values of average birth weight of moderate anemia at 2.66 each for both facilities. It indicated that there was a lower baby birth weight from 11 pregnant women with mild or moderate anemia in both facilities.
T- test was also used to test the association between anemia and baby birth weight. The T-test conducted showed that the difference was statistically significant value less than 0.05, hence, there is an association between anemia and baby birth weight.

			Anaemia	N	Mean	Std. Deviation	Std. Error Mean	P value
FMC	Baby weight	birth	Mild	138	3.13	.282	.024	.000
			Moderate	12	2.66	.274	.079	
YBSH	Baby weight	birth	Mild	89	3.12	.242	.026	.000
			Moderate	8	2.66	.338	.120	

Table 11: Independent sample T-test showing significant association between anemia in pregnant mother in both facilities and baby birth weights
The result above showed a reduced rate of maternal weight gain in FMC and YBSH, but there is increased total weight gain in pregnant women attending ANC in FMC facilities compare to YBSH. Anemia prevalence was found in 92% of pregnant women in both facilities but the anemia prevalence was more in pregnant women between the ages of 19-25, with YBSH having the highest percentage. Birth weight was associated with gestational weight gain and baby weight, and anemia prevalence was associated with gestational weight gain and baby weight.

Conclusion
This study examined the Nutritional status of pregnant women in relation to birth weight of new born among pregnant women in Yerima Bakura Specialist Hospital and Federal Medical Centre Gusau Zamfara state retrospectively, it suggested that there is a reduced mean maternal weight gain with reduced baby birth

weight of pregnant women in YBSH and FMC and there is high prevalence of anemia in both facilities ranging from mild to moderate, no severe anemia was noted in the respondent, it was noted that there is no relationship between gestational weight gain and age group, which means the gestational weight gain isn't associated to age factor, it was noted that there is prevalence of anemia between pregnant mother ≤19- 25 years with anemia status ranging from mild to moderate anemia.it is also suggested that the mode of weight gain can be induced by the respondent occupation in which majority are house wives which might not give them the required financial power to eat required food supplement in pregnancy.

Recommendation
Based on the findings of this study on the nutritional status of pregnant women and its relation to birth weight in Yerima Bakura Specialist Hospital and Federal Medical Centre Gusau, Zamfara State, the following recommendations are proposed:
1. Nutritional Education and Counseling Programs: Given the observed reduced mean maternal weight gain and its association with lower birth weights, implementing targeted nutritional education and counseling programs for pregnant women in Yerima Bakura Specialist Hospital and Federal Medical Centre Gusau is crucial. These programs should focus on promoting a balanced diet, proper weight gain during pregnancy, and the importance of adequate nutrient intake for both maternal and fetal well-being. This initiative can be integrated into routine antenatal care to empower pregnant women with the knowledge and skills to make informed dietary choices.
2. Anemia Prevention and Management Strategies: Considering the high prevalence of anemia, ranging from mild to moderate, it is imperative to develop and implement effective strategies for anemia prevention and management in both facilities. This may include routine iron and folic acid supplementation, periodic screening for anemia during antenatal visits, and nutritional interventions aimed at improving iron-rich food intake. Health education campaigns on the importance of iron supplementation and dietary practices that enhance iron absorption should be incorporated to address the specific needs of pregnant women in the region.
3. Community Empowerment and Support for Pregnant Women: Recognizing the potential influence of occupation on the mode of weight gain, there is a need to initiate community-based empowerment programs that specifically target pregnant women, particularly those who are housewives with limited financial resources. These programs could include skill development initiatives, income-generating activities, or community support systems to enhance the financial capacity of pregnant women to access essential food supplements. Collaborative efforts between healthcare providers, local authorities, and community leaders can help create a supportive environment for pregnant women to prioritize their nutritional needs during pregnancy.

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