

# ASSESSING THE AWARENESS OF NUTRITION AND ITS EFFECTS AMONG EXPECTANT MOTHERS IN SELECTED HOSPITALS IN KUMASI METROPOLIS OF GHANA

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## ABSTRACT

*This research assessed the awareness of nutrition and its effects among expectant mothers in selected hospitals in Kumasi Metropolis. The mixed methods design was used. Expectant mothers who accessed antenatal services and nurses at the Tafo and Suntreso government hospitals formed the population. The quota and convenience sampling techniques were used to select 100 expectant mothers and 10 nurses for the study. Questionnaires and interviews were administered to collect data. Frequencies and percentages were used to report findings from the quantitative data. Content analysis brought out themes from the qualitative data to which explanations were done. The study revealed that the level of nutritional knowledge of expectant mothers in Kumasi Metropolis was moderate. The mothers had moderate awareness that nutrition meant the types of food consumed (46%), best methods of acquiring good nutrition was to eat sufficient and different types of food (52%), and expectant mothers to avoid uncooked/undercooked meals (41%). The mothers perceived the importance of nutritive diets to be for health accomplishment (35%) and to become*

*strong to support the foetus (30%). Having babies with low birth weights, high incidence of anaemia, and inability to fight diseases were the likely effects of malnutrition on expectant mothers. It was recommended that the hospital administration should intensify their education of expectant mothers to deepen their knowledge in nutrition. Nurses and other medical staff are to encourage these mothers to consume well balanced diets.*

**Key words:** Proper nutrition, expectant mothers, malnutrition, Pregnant Women, Nursing Mothers, Tafo Hospital

## Introduction

Proper nutrition is essential for optimal growth and development of all living creatures. Without the correct nutrients, there will be suboptimal maturation and possibly malformation (Sachdeva & Mann, 1994). One special time that correct nutrition is vital, is during a woman's pregnancy. At that time, a woman's body is growing and changing, thus requiring additional nutrients. In addition to her growth, the foetus inside her womb is developing. If the woman's diet is lacking in essential vitamins, protein, and/or energy, her foetus will not

have the opportunity to build a strong foundation for growth. This will result in a child being physically or mentally handicapped throughout the rest of its life.

The special effects of foetal undernourishment can take many forms. The infant may be small-for-gestational age; an infant whose weight at birth is less than normal for the gestational period (Nian, 2009) or of low birth weight; an infant weighing less than 2500 grams at birth regardless of gestational age. Small-for-gestational age and low birth weight babies generally have numerous problems such as difficulties establishing respiration and circulation immediately after birth (Lankinen, & Bergström, 2006). They are more prone to suffer asphyxia during the labour process, resulting in varying degrees of brain damage or even death. Statistically, there is a higher mortality rate for these infants (Mahsid, 2006; Naeye, 1979).

There has been a national concern for maternal mortality in the country as a result of the inadequate nutritional status of expectant mothers. When a woman is poorly nourished while pregnant, she and her foetus will suffer from the lack of nutrients. If the nutritional needs of expectant mothers are not addressed, they may remain unresolved. We cannot assume that the patient will address her nutritional needs.

Personal observations made on expectant mothers in the study area has revealed that most of the women eat or take in food and non-food substances that they have the appetite for regardless of the sufficiency or adequacy of the required food nutrients and in the right proportions. The resultant effects of this eating habit seems to be unknown by the women. The need to ascertain the nutritional knowledge

or practices and the effects malnutrition has on the gestational and post-gestational periods of expectant mothers attending selected hospitals in the Kumasi Metropolis triggered this research.

### **Nutritional Status and Dietary Knowledge of Pregnant Women Nutrition**

The council on food and nutrition of the American Medical Association (2014) defines nutrition as “the science of food, the nutrients and the substances therein, their action, interaction, and balance in relation to health and disease, and the process by which the human organism ingests, digests, absorbs, transports, utilises, and excretes food substances” (online). Food provides both the energy and the materials needed to build and maintain all body cells. Nutrients are the beneficial elements available in food. These substances are vital for growth and maintenance of a healthy body throughout life. For a nutrient to be considered an essential nutrient, Gordon (2002) espoused that three characteristics are needed. First, its omission from the diet must lead to a decline in certain aspects of human health, such as function of the nervous system. Second, if the omitted nutrient is restored to the diet before permanent damage occurs, those aspects of human health hampered by its absence should regain normal function. Third, a specific biological function in the body must be identified.

Nutrition, according to Gordon (2002), is the key to developing and maintaining a state of health that is optimal to the individual. In addition, a poor diet coupled with a sedentary lifestyle is known to be risk factors for life-threatening chronic diseases and deaths. Not meeting nutrient needs in younger years also makes humans more likely to suffer health consequences of poor

nutrition habits in later years, such as bone fractures and iron deficiency anaemia. is another possibility. Gordon hinted that taking too much of a nutrient supplement, such as vitamin A, vitamin D, vitamin B-6, calcium, or copper can be harmful. Another dietary problem, drinking too much alcohol, is associated with cirrhosis of the liver, some forms of cancer, accidents, and suicides. Gordon concluded that nutritional requirements differ at each stage of human development; nutritional needs of children differ from that of adults. Likewise expectant mothers need special balance diet to ensure proper development of the foetus.

#### **Dietary knowledge of pregnant women**

Nutritional education concerning the correct diet during pregnancy will have an impact on the foetal outcome (Barasi, 1997). Without proper knowledge concerning nutritional needs and the dietary changes needed during pregnancy, the woman cannot be expected to eat an adequate diet. Myer and Harrison (2003) provided low income pregnant women with instructions concerning improved eating habits, how to shop and cook economically, and essential information on nutrition and handling of food storage, sanitation and safety. They found that women who received these instructions had an improved nutritional state. They further hypothesised that where essential knowledge is lacking, nutritional status is poor but when dietary knowledge is improved, the nutritional status also improves which in turn affect the foetus. Pregnancy is a period of time that is influenced by beliefs about eating. Eating habits during this period are not only affected by the health of the foetus but also by specific beliefs concerning eating during pregnancy.

Some factors influencing diet during pregnancy are common beliefs such as the woman having an appetite surge during pregnancy (Derbyshire, 2008), or a woman limiting what she eats in order to prevent bearing a large baby (Tamura & Picciano, 2006). Another common belief is that a pregnant woman will crave for foods that are calcium and energy rich, but will avoid foods that are rich in proteins. Derbyshire hinted that some cravings are based on the belief that pregnant women crave for certain foods such as watermelon, pickles and ice cream. Others believe that an overeaten craved food will have an adverse effect on the infant. For example, a strawberry birth mark will result from eating too many strawberries during pregnancy (Williamson, 2006).

Another type of craving that will influence the diet is pica. Pica is eating any non-food items such as dirt, clay or laundry starch. The origin of pica is not well understood, but when Anderson (2001) questioned pregnant women, they responded that they “had to have it” and “it felt like when you run out of cigarettes”. Anderson found that about 27% of pregnant women practiced pica.

The consumption of these non-food items may cause a feeling of fullness, thus the intake of nutritious food items may be decreased. Older medical theories, now disproved, have reinforced food restricting beliefs. A woman with a small pelvis was once prescribed the prochowick diet; this diet consisted of fluid restrictions, low carbohydrates and high protein. It was believed that this eating regimen would yield a smaller baby. With time, its use was expanded to other women, not just those with inadequate pelvis. This particular diet is still practiced today as well as other out-dated information that

actually is detrimental to foetal health (Williamson, 2006).

### **Nutritional status during pregnancy**

Nutritional status during pregnancy is an important variable to measure because the foetus is directly affected by the mother's nutritional state. When pregnant, the woman needs to change her food intake in order to compensate for the increase in her metabolic rate. An increased basal metabolic rate requires an increase in calories in order to maintain optimal physical function (Eastwood, 1997). Actually, during the pregnant state, a woman's calorie consumption should exceed her expenditure. This imbalance will allow for the deposition of glycogen, fat and protein which are needed to sustain foetal growth and development, and at the same time maintain the woman's own physical functioning.

Eastwood (1997) conducted a study which correlated specific nutrients in the diets of 47 pregnant women with the birth weight of their infants. The information was collected from women of various socioeconomic groups. A questionnaire concerning what foods were eaten was completed by each woman at multiple times during her pregnancy. The data collected indicated that there is a positive correlation between the infants' birth weight and the quality of the mother's diet.

Nutritional status is very difficult to measure. Several methods are used, but no one way is known to be better than the others. Nutritional status may be assessed through anthropometric measurements, such as triceps skin fold thickness, upper arm circumference, height and weight. Laboratory studies, including haemoglobin measurement, may be indicators of nutritional status. Some form of a diet recall is also used.

Skin fold thickness is a means of measuring the important fat stores. Skin fold thickness may be a better determinant of body fat than weight ratios because weight ratios are more dependent on components of body weight such as fluid retention. Fluid retention does not have an influence on skin fold thickness (Kamau-Mbuthia & Elmadfa, 2007). Derbyshire (2008) study of 84 pregnant women involved measuring the skin fold thickness at seven different sites. These measurements were done four times on each subject, at 10, 20, 30 and 38 weeks of gestation. His results provided information about the changes that occurred in skin fold thicknesses during the course of a pregnancy and showed the triceps skin old values for women at 10 weeks of gestation. Tamura and Picciano (2006) performed various anthropometric measurements on 86 pregnant women.

### **Diet during Pregnancy and Effects on the Mother**

Pregnancy induces a series of changes in maternal physiology in the brain and peripheral tissues (Kafatos, 1991). Almost all organs adapt to allow growth in maternal, placental and foetal tissues, and respond to the increased energy and nutrient demands. However, these physiological responses may be modulated by dietary factors.

### **Material and Methods**

The mixed methods approach was used to conduct the survey. This method is designed to portray accurately the characteristics of particular respondents' or groups situation. The purpose of employing the mixed method for this study was to describe in detail the knowledge level of expectant mothers on nutrition and its related effects. The target population of this study consisted of expectant mothers who attended antenatal services between

May and July 2014 at Tafo and Suntreso government hospitals and nurses at the said hospitals. The sample size selected for study was 110. This comprised 100 expectant mothers and 10 senior nurses of the selected hospitals. To obtain the sample size of 110, a combination of the quota and convenience sampling techniques were used. The quota sampling technique was used to select 50 expectant mothers and five senior nurses from each of the hospitals who gave consent to participate in the study. The convenience sampling method was used to select the subjects until the sample frame of 55 at each hospital was realised. The quota and convenience sampling method methods were used because they economise time and enables one to obtain reliable information at a much reduced cost and time (Pickard, 2007). The researchers-generated questionnaire and structured interview were the main data gathering tools. This was because of the need to collect adequate data and for triangulation purposes. Employing multiple data collection instruments helped the researcher to combine, strengthen and amend some of the inadequacies of the data and for triangulating it (Creswell, 2009). The interview guide was made up of 10 items. The items focused on the demographics, effects of malnutrition and the educational tools and methods used by the nurses to create nutrition awareness in expectant mothers at the said hospitals.

Different statistical techniques were employed on the basis of the nature of the data collected. Consequently, the data collected from the nurses was analysed qualitatively while those collected from the expectant mothers was analysed quantitatively. In analysing the quantitative data the responses were categorised and frequencies were tallied. Percentage scores

and frequency counts were used to analyse the characteristics of the population as it helps to determine the relative standing of the respondents. The alternate choice items were coded 1-5 depending upon the number of options available.

The research was conducted in an ethical manner and all participants treated with dignity and utmost respect. All participants were directly asked for permission to participate in the study in addition to the research permit. Each questionnaire had a self-explanatory note on the purpose of the research and an assurance that the information obtained was for research purposes. Issues of ethics were strictly adhered to, especially in data collection, analysis and reporting and where information could not be obtained, this was highlighted and explanation given if possible.

## RESULTS AND DISCUSSION

### Demographic Characteristics of Respondents

**Table 1: Demographics of Nurses**

Characteristics	Options	Frequency	Percentage
Age	Less than 30 years	3	30
	30-39 years	2	20
	40+ years	5	50
Work experience	Less than 6 years	1	10
	6-10 years	3	30
	11+ years	6	60
Rank	Senior staff nurse	4	40
	Midwi	6	60

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**Source: field survey, 2015**

From Table 1, 50% of the nurses were 40 years and above and 30% were less than 30 years. Most of the nurses (60%) have had more than 11 years' experience in the profession. Only 10% had worked for less than 6 years. Sixty percent of the nurses were midwives whilst senior staff nurses made up the remaining 40%. The results indicate that a greater number of the nurses were midwives, were of age, and highly experienced in the profession.

**Table 2: Demographics of Expectant Mothers**

Characteristic	Options	Frequency	Percentage
Age	Less than 30 years	22	22
	30-39 years	57	57
	40+ years	21	21
Marital status	Married	83	83
	Single	17	17
Number of children	Less than 3	35	35
	3-5	55	55
	6+	15	15
Educational level	None	9	9
	BECE	25	25
	WASSCE	39	39
	Degree	22	22
	Postgraduate	5	5
Occupational status	Unemployed	14	14
	Hairdressing/dressmaking	26	26
	Trading	34	34
	Teaching	20	20
	Public servant	6	6

**Source: field survey, 2015**

Table 2 shows that the dominant age group of the expectant mothers was 30-39 years (57%). Majority (83%) were married. The 17% who were single comprised of divorcees and accidentally pregnant women from non-formal relationships.

Fifty-five percent of the mothers had 3-5 children with 15% having six and above children. Nine percent of the expectant mothers had no formal education but 39% had accessed West Africa Senior Secondary Certificate Examination (WASSCE), with 5% being postgraduates. A greater number (34%) of the mothers were traders with 14% being unemployed. The results indicate that the expectant mothers were of age, well-educated and well employed.

**Table 3: Expectant Mothers' Knowledge on the Meaning of Nutrition**

Statement	Frequency	Percentage
The different types of food we consume	46	46
The relationship between food eating and body health	22	22
Condition of being fat	18	18
Ability to be able to select foods	14	14

Note: Total number of responses = 100

**Source: field survey, 2015**

From Table 3, the two most prominent meanings expectant mothers attached to nutrition were the different types of food we consume (46%) and the relationship between food eating and body health (22%). This is in line with Haas (2008) who claimed that nutrition encapsulate various groups of food nutrients that makes food balance. He added that nutrition is the sum of the processes involved in ingesting, assimilating and utilising nutrients for the health of the body. The 46% level of nutritional knowledge (the different types of food we consume) was found to be moderate since it falls between 41-70.

**Table 4: Importance of Food Nutrients to Pregnant Women**

Statement	Frequency	Percentage
They are good for the woman's health	35	35
They help the woman become strong to support the foetus	30	30
They are good for foetal growth and development	20	20
They help fight infections	15	15

Note: Total number of responses = 100

**Source: field survey, 2015**

From Table 4, all the 100 expectant mothers sampled for the study subscribed to the functions of food nutrients in the body. They were aware that carbohydrates provide energy and strength to the body, proteins built the body, and vitamins helps in disease prevention, recovery from illness, and healing of wounds. The two topmost importance of nutritive diets to the expectant mothers were for health accomplishment (35%) and to become strong to support the foetus (30%). Fifteen percent also mentioned that food nutrients helped fight infections.

The findings are in line with Hathcock (1997) that an increased energy intake during the first weeks of pregnancy leads to an improvement in condition (energy and strength). Hathcock also reported that foods in the meat, fish, and beans group supply protein, B vitamins, iron, and zinc. He further explained that these are primarily responsible for building and repairing muscles and tissues, digesting nutrients, and improving immunity and blood quality. He recommended that expectant mothers should eat dry beans and peas, fish, poultry, nuts, and high-

protein vegetarian alternatives more often than meat. Also, Christian and Greger (1994) found out that fruits mostly supply vitamins A and C as well as potassium that are safe and good for expectant mothers. It stabilises their metabolism to remove unwanted substances from the body.

Research (Haider, Olofin & Wang, 2013; Williamson, 2006) on the study findings has indicated that daily prenatal use of iron substantially improves birth weight, potentially reducing the risk of low birth weight. To buttress the importance of adequate food nutrients to pregnant women, Haider *et al.* (2013) recommended the intake of mineral supplements. According to the authors, magnesium and zinc supplementation helps to bind hormones at their receptor sites, folic acid for the regular growth of the follicle, and regular vitamin D to decrease the chances of deficiencies in adolescence (for example, rickets with pelvic malformations which makes normal delivery impossible except through a caesarean section). Murkoff (2010) added that regular vitamin B12 supplementation was also needed to reduce the chances of infertility and ill health, and Omega-3 fatty acids to increase blood flow to reproductive organs, and may help regulate reproductive hormones. According to Murkoff, (2010) the best dietary source of omega-3 fatty acids is oily fish, flaxseeds, walnuts, pumpkin seeds, and enriched eggs.

The results imply that expectant mothers need to use the sources of carbohydrates, proteins and vitamins in adequate quantities to realise the benefits to be derived from them. This will make them healthy and strong and carry their pregnancies to term without issues of birth weight. This will also lead to the bringing forth of strong and healthy children to augment the working force of the nation.

**5.0 Summary of Major Findings**

The following findings were arrived at in the present study:

1. The level of nutritional knowledge of expectant mothers in selected hospitals in Kumasi Metropolis was found to be moderate. The mothers had moderate awareness that nutrition meant the types of food consumed (46%), best methods of acquiring good nutrition was to eat sufficient and different types of food (52%), and expectant mothers to avoid uncooked/undercooked meals (41%).
2. The expectant mothers' perception about the importance of nutritive diets was for health accomplishment (35%) and to become strong to support the foetus (30%).
3. Having babies with low birth weights, high incidence of anaemia, and inability to fight diseases are the likely effects of malnutrition on expectant mothers.
4. Nurses in selected hospitals in Kumasi Metropolis use images and video clips (100%) to educate expectant mothers thereby creating nutritional awareness in them. They however, fail to demonstrate the correct cooking and eating habits to them.

### **Conclusion**

Expectant mothers in Kumasi Metropolis have a moderate knowledge of nutritional dietary practices. To the expectant mothers the importance of taking nutritive diet during pregnancy is for health benefits and to become strong to support their foetus. Low birth weights and high incidence of anaemia are the likely effects of malnutrition on expectant mothers. Although the expectant mothers had moderate knowledge of nutritional

practices, the nurses failed to demonstrate the correct cooking and eating habits to them.

### **Recommendations**

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

1. Since the expectant mothers who accessed antenatal services at the selected hospitals in Kumasi Metropolis have a moderate level of nutritional knowledge, strategies must be put in place by the hospital administration to further deepen the education of the mothers on nutrition to acquire more knowledge. Appropriate nutritive food items should be supplied by the hospitals at subsidised prices and their consumption monitored.
2. To reduce the effects of low birth weights, high incidence of anaemia, and inability to fight diseases, expectant mothers should be encouraged by their husbands, relatives, nurses and other medical staff to consume well balanced diets. Efforts must be made by all to acquire and prepare some of the foods for these mothers.
3. Nurses in hospitals at Kumasi should intensify their education of expectant mothers on the right foods to eat to further deepen their knowledge of nutrition. They should use real food items and cooking gadgets to demonstrate the correct way of cooking or preparing the food items.

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