

Malnutrition in Pregnancy: Causes and Prevention

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Abstract

Malnutrition remains the world's most serious public health problem and the single biggest contributor to maternal and child mortality. Adequate nutrition is important for all stages of life especially during pregnancy, as pregnancy is a time of heightened nutritional vulnerability. The paper expressed that malnutrition in pregnancy occurs when a pregnant woman does not consume the proper amount of micronutrients, vitamins and minerals, and consequently their physical function is impaired. The paper categorized malnutrition into three groups, namely: under-nutrition, over-nutrition and imbalance. Causes of malnutrition in pregnancy were highlighted to include: ignorance, poverty, Agriculture and food production, illness and infection and culture. Bleeding, severe nausea and vomiting, decline in baby's activity level, early contractions in the third trimester, amniotic fluid breaks and a persistent severe headache, abdominal pain, visual disturbance and swelling were among the identified signs and symptoms of malnutrition in pregnancy. The paper also discussed malnutrition in pregnancy to have higher risks for maternal mortality, miscarriage, dental problems, anaemia, still birth, premature birth, birth defects among others. Prevention of malnutrition discussed in this paper includes eating a variety of food, balancing food choices among others. However, health educators should create awareness through seminars and workshops in the communities, schools and media on the need to always provide pregnant mothers with good meals and encourage them not to eat junks or stay hungry unnecessarily in order to prevent malnutrition from occurring and promote wellbeing.

Keywords: Malnutrition, Nutrition, Pregnant mothers, Causes, Prevention

Introduction

Malnutrition remains the world's most serious health problem and the single biggest contributor to maternal and child health. Malnutrition is an unbearable burden, not only on the health system, but the entire socio-cultural and economic status of the society. In general, malnutrition is a major cause of illness and death throughout the world, which affects mainly pregnant mothers and children. Globally, about 2.5 million mothers are affected by severe and acute malnutrition. Poor nutrition in pregnancy causes half of the deaths of pregnant mothers each year, and poor pregnancy outcomes due to malnutrition ranks highest among the pressing reproductive health challenges globally (United Nations Children Fund [UNICEF], 2009). The UNICEF further disclosed that malnutrition is a problem which can be found in every country in the world, centering in poorer populations, putting malnourished individuals at an increased risk of acquiring an infectious disease as their bodies cannot properly fight infections. Malnutrition in pregnancy is widespread across regions and countries. It is estimated that

approximately 32 million pregnant women are anaemic worldwide, 19 million suffer vitamin A deficiency and millions suffer from insufficient iron, folate, zinc and iodine stores (WHO, 2015). Vitamin A and mineral deficiencies have been associated with pregnancy complications and poor birth and infant outcomes.

Issues related to malnutrition in pregnancy have continuously posed a tremendous change in low income countries in the face of extensive advancement in economic growth (Desyibelew & Dadi, 2019). Malnutrition in pregnancy remains unacceptably high across regions in South-Central and South-West Asia and Sub-Saharan Africa. According to 2018 World Health Organization (WHO), African region data between 2000 and 2015, nine countries had prevalence rates of malnutrition above 15% which is related to underweight, underweight among pregnant women in Ethiopia, Madagascar and Senegal are relatively high while the lowest rate of underweight is found in Benin, Cameroon, Ghana, Lesotho, Rwanda, Swaziland and Togo.

In Nigeria, malnutrition is regarded as a silent national emergency. Nigeria is home to the third largest number of chronically undernourished pregnant mothers, and malnutrition is widespread, especially in the rural areas (Nnununukwe, 2018). This is partly due to inadequate food and nutrient supply. Annual estimate of 600,000 women aged 15-49 years die of pregnancy-related causes with 99 per cent coming from the developing world (Addai, 2008; Population Reference Bureau, 2009; World Health Organization [WHO], 2010) and Nigeria alone accounts for 10 per cent of this total (Okolocha, Chinwizie, Braimoh, Unuigbe, & Olumeko, 2008).

Nutrition during pregnancy is a significant public health concern (Wen et al., 2010) because pregnancy it is a critical period during which good maternal nutrition is a key factor influencing the health of both mother and child. During prenatal period, the developing foetus obtains all of its nutrients through the placenta, so dietary intake has to meet the needs of the mother as well as the product of the conception and enable the mother lay down stores of nutrients required for the development of their foetus (Williams, 2006). According to WHO (2014), nutrition is the intake of food considered in relation to the body's dietary needs. Good nutrition in pregnancy as well as balanced diet combined with regular physical activity is a cornerstone of good health, whereas poor nutrition can lead to reduced immunity, increased susceptibility to diseases, impaired physical and mental development and reduced productivity (WHO, 2014). Therefore, pregnant women should maintain good nutritional status through a lifestyle that optimizes maternal health and reduces the risks of birth defects, sub optimal fetal growth and development and chronic health problems in their children. The key components of health promoting lifestyles during pregnancy includes appropriate weight gain, appropriate

physical activities, consumption of varieties of foods in accordance with the dietary guidelines for pregnancy, appropriate and timely vitamin and mineral supplementation, avoidance of alcohol, tobacco and other harmful substances and safe food handling (Kasier & Allen, 2008).

Malnutrition in Pregnancy

Food is a fundamental human need, in that each individual must have access to necessary nutrient to survive, remain in sound health and to participate actively in the society. Moreover, when there is shortage of food nutrient in an individual, it causes malnutrition. Malnutrition can be described as insufficient, excessive or imbalance consumption of food or nutrients. Malnutrition may be the result of lack of essential nutrients bringing about poorer health, which arises when there is an imbalance or a deficiency in all the nutrients. Dhaar and Robbani (2008) described malnutrition as a pathological state resulting from absolute or relative deficiency or excess of one or essential nutrients. Malnutrition is a condition that results from taking an unbalanced diet in which certain nutrients are lacking or in excess or in the wrong proportion (United Nations Children Fund [UNICEF], 2009). Malnutrition is a medical condition caused by improper or insufficient diet in the body (Kats & Lambros, 2011). Malnutrition is the cellular imbalance between supply of nutrients and energy and the body's demand for them to ensure growth, maintenance and specific conditions (Ebuehi, 2012). Malnutrition is 'the cellular imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth, maintenance, and specific functions (WHO, 2013). Malnutrition can be described as an impairment of health resulting from a deficiency, excess or imbalance of nutrient. In common parlance, it is a state in which a prolonged lack of one or more nutrients retards physical development or causes specific clinical disorders (Nnunukwe, 2018). Contrary to the common use, the term malnutrition refers not only to deficiency states but also to excess and imbalance in the intake of calories, proteins and/or other nutrients. The WHO (2013) also asserted that malnutrition occurs when an individual does not consume the proper amount of micronutrients, vitamins and minerals, and consequently their physical function is impaired. Malnutrition in pregnancy occurs when pregnant mothers are been deprived of their very basic nutritional needs such as calories, protein, vitamins, minerals and healthy fats which are essential to their body. Pregnancy is such a critical phase in a woman's life when the expecting mother needs optimal nutrients of superior quality to support the developing foetus. In 2013, 289,000 women died during and following pregnancy and childbirth, and almost all of these deaths occurred in low-resource settings, and almost all maternal deaths (99%) occur in developing countries (Masresha, Maleda, & Mohammed, 2019). The authors added that more than half of these deaths occur in sub-Saharan Africa, and 20 per cent of maternal deaths in Africa have been attributed to malnutrition.

A malnourished woman often finds out that the body has difficulty with functions, such as: growth, pregnancy, lactation, physical work and immunity. Clinically, malnutrition is characterized by inadequate (under-nutrition) or excess (over-nutrition) intake of protein, energy and micronutrients, such as: vitamins or minerals and the frequent infections and disorders that results of this malnutrition. Pregnant and nursing women require nutrients to fulfill their bodily functions (Imdad & Bhutta, 2012). The author added that during pregnancy for example, women need more food, varied diet and micronutrients supplementation. Also, when energy and other nutrients intake do not increase, the body's own reserves are used, leaving a pregnant woman feeling weak. Energy needs increase in the second and particularly third trimester of the pregnancy. The Institute of Medicine recommends that women who have a Body Mass Index (BMI) below 19.8 before pregnancy gain a total of 28-40 pounds, a woman between 19.8 and 26 BMI gain 25-30 pound and a woman between 26-29 gain 15-25 pounds during her pregnancy (National Academy Press, 2012). A woman who has been well nourished before conception begins her pregnancy with reserves of several nutrients so that the recurrent needs of the growing foetus can be met without adversely affecting her health. Infants who have been well nourished in the uterus have an enhanced chance of entering life in very good health. Mothers' diets should be provided with adequate nutrients so that maternal stores do not get depleted (Singh, Jain, & Choudry, 2009). Nutrition during preconception as well as throughout pregnancy has a major impact on pregnancy outcomes (King, 2010).

Types of Malnutrition

Malnutrition can be categorized into several types. According to Dhaar and Robbani (2008), malnutrition may be an outcome of three groups namely: under-nutrition, over-nutrition and imbalance.

Under-nutrition.

Under-nutrition is one of the types of malnutrition identified and discussed by scholars. Undernourishment is most often due to not enough high quality of food available to eat (Rajkumar, Gualler, & Tilahun, 2012). This is often related to high food prices and poverty in that, extreme under-nourishment known as starvation according to Peter (2006), may have symptoms, such as: short height, thin body, very poor energy level, swollen legs and abdomen. Under -nutrition as of year 2010 was the cause of 1.4 per cent of all disability adjusted life years (Murray, 2012). The main symptoms of under-nutrition include: sever wasting, leaving little or no edema, minimal subcutaneous fat, severe muscle wasting and non-normal serum albumin levels (Nicolas, 2011).Investment in nutrition prevents under-nutrituion, builds human capital, boosts shared prosperity and improves health outcomes (Ahmed, 2013).

Over-nutrition.

Over-nutrition is another form of malnutrition. When there is excessive quantity of food over an extended period of time due to excessive food or ignorance it leads to over-nutrition (Basavanthappa, 2008). When a pregnant mother feeds on a particular type of food because of its availability in that locality it becomes a problem thereby causing health challenge in general. The main symptoms of over-nutrition include forgetfulness, lack of strength, tiredness at all times, inability to walk, pains all over the body, fatigue and heaviness of the entire body system.

Imbalance.

Imbalance is a form of malnutrition. Imbalance is an outcome of relative deficiency or excess of one or more nutrients in a diet. Young (2012) disclosed that in a balanced diet, the nutrients exist in physiological properties: a distortion in the relative proportion of nutrients resulting in excess and deficiency. Some of the signs and symptoms of imbalance malnutrition include: body weakness, dizziness and poor balance, stunted growth, dry scaly or flaking skin to mention but a few.

Causes of malnutrition in pregnancy.

Malnutrition in pregnancy is caused by several factors including: ignorance, poverty, Agriculture and food production, illness and infection and culture.

Ignorance.

Ignorance plays a vital role in the cause of malnutrition especially among pregnant mothers. It is obvious that each person must eat an adequate amount of good quality and safe food throughout the year to meet all nutritional needs for body maintenance, work and recreation and for growth and development. Most mothers are ignorant of choosing the right kind of food that will provide them with adequate nutrition throughout the period of pregnancy, which exposes them to serious environmental, mental, social, physical and emotional hazards, which on long run causes damages that may not be repaired or handled (Nnunukwe, 2018). Besides, it is necessary for parents, especially pregnant mothers to have good knowledge of adequate diets to be provided, so as to avoid malnutrition.

Poverty.

Poverty can be seen in the lack of basic human needs, such as: nutritious food, good nutrients, clothing and health services. Poor pregnant mother are likely to be affected by malnutrition due to inadequate diets or nutrients (Aderere, 2015). Poverty imposes poor maternal nutrition when there is no available food to eat, no resources to get it, the quantity of food are not balanced, in some cases the frequency of its intake to body's development is affected. The economist Sen (2012) observed that in recent decade, feminine has always been associated with food distribution or poverty resulting to insufficient food to feed the whole population of the world. The author further stated that the malnutrition and feminine were more

related to the problem of food distribution and purchasing power. Socio-economic conditions and economical constraints do not permit large chunk of people to go to school and have access to balance diets to untold hardship.

Agriculture and food production.

Agriculture or food production is another cause of malnutrition. Local foods shortages can be caused by lack of land adverse weather, lower farming skills, such as: crop rotation or lack of technology or resources needed for higher yields found in modern agriculture such as fertilizers, pesticides, irrigation, machinery and irrigation facilities. As a result of widespread poverty, farmers cannot afford food or governments cannot provide the resources necessary to improve yields. John (2012) added that wealthy countries should invest in fertilizers and seed for Africa's farmers.

Illness and infection.

Prevalence of parasitic and infectious diseases leads to severe malnutrition in pregnant mothers. Some mothers may eat well but their bodies cannot absorb the nutrients due to disease conditions. Example includes mothers with colon disease or ulcerative colitis. Also, mothers who experiences serious bouts of diarrhoea or vomiting may lose vital nutrients and are at higher risk of suffering malnutrition. Sawaya (2006) also posed that some mothers with mental health conditions, such as depression may develop malnutrition because they are ingesting too little food.

Culture.

Culture is the characteristics of a particular society (Aboad, 2002). Most cultures affect the nutritional status of pregnant mothers because of the lifestyle they practice. According to Basavanthapa (2008), cultural foods fads prevents people from using the locally available nutritious foods, cooking methods also differs according to traditions.

Signs and Symptoms of malnutrition in pregnancy.

Some symptoms during pregnancy are par for the course, but others are cause for alarm. The signs and symptoms identified in literature for malnutrition in pregnancy include: bleeding, severe nausea and vomiting, decline in baby's activity, early contractions in the third trimester, amniotic fluid breaks and a persistent severe headache, abdominal pain, visual disturbance and swelling.

Bleeding.

Bleeding means different things throughout the course of pregnancy. If a pregnant mother is bleeding heavily and have severe abdominal pain and menstrual-like cramps or feel like she is going to faint during first trimester, it could be a sign of severe anaemia. This is because during pregnancy, the body produces more blood to support the growth of the baby. By

contrast, bleeding with abdominal pain in the third trimester may indicate placental abruption, which occurs when the placenta separates from the uterine lining due to insufficient nutrient supply. Bleeding is always serious. Any bleeding during pregnancy needs immediate attention.

Severe nausea and vomiting.

It's very common to have some nausea when pregnant. But if it gets to be severe, that may be more serious. If a pregnant woman cannot eat or drink anything, she will run the risk of becoming dehydrated. Being malnourished and dehydrated can harm the baby. Dehydration can be problematic any time but it's especially during pregnancy. The pregnant women do not need water alone but the baby needs it too. Water is essential to life, it plays a critical role in foetal development.

Baby's activity level significantly declines.

Iodine is an essential mineral for growth and development, especially during the gestational phase when its deficiency will lead to changes in mental development and decline in activity level. There is no optimal or critical number of movements, but the mothers should establish a baseline and have a subjective perception of whether the baby is moving more or less. As a general rule, you should have 10 or more kicks in two hours. Anything less should prompt immediate medical attention. Doctors have monitoring equipment that can be used to determine if the baby is moving and growing appropriately.

Contractions early in the third trimester.

Contractions could be a sign of preterm labour. But a lot of first-time mothers may confuse true labour and false labour. False labour contractions are called Braxton-Hicks contractions. They are unpredictable, non-rhythmic, and do not increase in intensity. They will subside in an hour or with hydration, but regular contractions are about 10 minutes apart or less and increase in intensity. Causes of early contractions include: stretching of the ligaments around the uterus, dehydration, micro-nutrients deficiency, constipation and gas pain.

Aminotic fluid breaks.

During pregnancy, the enlarged uterus can cause pressure on the bladder, so it could be urine leakage. Sometimes, water breaking is a dramatic gush of fluid due to insufficient nutrient supply which is known as oligohydramnios, but other times it is more subtle. Low aminotic fluid is usually developed in the latter part of third trimester although it can happen early in pregnancy and its normally caused by dehydration.

Persistent severe headache, abdominal pain, visual disturbances, and swelling during the third trimester.

These symptoms could be a sign of preeclampsia. That is a serious condition that develops during pregnancy as a result of over-nutrition and is potentially fatal. The disorder is

marked by high blood pressure and excess protein in your urine that typically occurs after the 20th week of pregnancy. Good prenatal care can help catch preeclampsia early.”

Health Risks of Malnutrition in Pregnancy

Malnutrition during pregnancy can cause several health problems in both the mother-to-be and her developing baby. Here are the health risks of malnutrition during pregnancy:

Risks for the mother.

Maternal Mortality: Women who are under-nourished before and during pregnancy have a higher risk of dying during pregnancy or childbirth.

Risk of Miscarriage: Under-nourished women are at a higher risk of experiencing spontaneous abortion (miscarriage).

Dental Problems: Mothers-to-be who are malnourished can suffer from tooth decay and other dental problems.

Osteomalacia: This is a condition where the bones of a malnourished woman become too soft and brittle.

Anaemia: Iron deficiency can cause anaemia in mothers-to-be. This means that they have fewer red blood cells than normal, so the body’s cells do not receive enough oxygen.

Toxaemia: Preeclampsia or toxaemia is a condition where the blood pressure and the protein level in the blood of a pregnant woman are dangerously high. This can endanger the life of both the mother and the baby.

Risks for the baby.

Malnutrition during pregnancy has effects on the baby inside the uterus, too.

Stillbirth: Babies that are malnourished do not grow and develop properly and could die in the uterus.

Premature birth: Babies born prematurely are underdeveloped and could suffer from various problems, such as: poor vision, weak muscles, brain damage, poor growth rate, etc. They can also get necrotizing enterocolitis, where bacteria invade and destroy their intestines.

Perinatal mortality: Babies of women who were undernourished during pregnancy have a higher risk of dying in the 1st week of birth.

Birth defects: Deficiency of micronutrients during pregnancy can cause serious birth defects in the baby. For example, deficiency of folic acid can cause Spina bifida in babies, where the baby is born with a deformed spinal cord. This affects their ability to walk, and control bowel and bladder movements.

Underdeveloped organs: Malnourished babies can be born with underdeveloped organs, which can seriously affect the quality of their lives.

Long term health risk for the child.

Diabetes mellitus: Malnourished babies are at a much higher risk of developing type-2 diabetes later in their lives.

Cardiovascular diseases: These babies also develop high blood pressure and heart disease in adulthood.

Osteoporosis: Under-nourished babies suffer from osteoporosis, a condition where the bones are weak and brittle and prone to fractures

Prevention of Malnutrition in Pregnancy

Malnutrition causes a variety of metabolic disturbances. Improvement of nutrition of people especially pregnant mothers and under five is an essential component of primary health care. It is therefore necessary to keep the pregnant mothers under nutritional surveillance, in order to take appropriate decision to prevent malnutrition and promote their health. A healthy and varied diet is important at all times in life, but particularly during pregnancy. Therefore to plan a healthy and varied diet, it is crucial to understand food guide pyramid. Manore and Thompson (2000) explained that the food pyramid provides the conceptual framework for selecting specific kinds and amounts of food to eat on daily basis. The authors further noted that it is not a rigid prescription of what people must eat, rather a general guide for healthful eating that allows people to fit to a variety of dietary patterns into the pyramid framework. Begun (2008) postulated that the food guide pyramid is the foundation of a healthy diet. Dietary guidelines are a set of diet and lifestyle recommendation designed to promote health and reduce the risk of chronic diseases. Food guide pyramid was developed to implement these dietary guidelines. Overall, food guide pyramid incorporates the foundations of a healthy diet; variety, balance and moderation. These foundations of a healthy diet for the prevention of malnutrition are elucidated below.

Eating a variety of food.

A variety they say is a spice of life. No single food contains all the nutrients the body needs for optimal health. Variety here therefore means choosing foods from diverse food groups: cereals, pulses, vegetables, fruit, milk, egg, fresh foods, fats and sugar. It can also mean choosing various foods from within each food group, example different vegetables provide different nutrients. Nutrients and other food components interact positively (enhancing nutrient utilization) or negatively (inhibiting nutrient availability), variety therefore average out these interactions (Begum, 2008). It is pertinent to note that food variety should be done not only in a day or month but throughout one's longevity.

Balance your choices.

There is no such thing as a good food or bad food but a healthy and unhealthy diet. Choosing a healthy diet is a balancing act. It does not mean giving up your favorite food but

incorporating other nutrients lacking in your favorite food .When you choose a food high in fat or low in fat in fibre, balance it with another low in fat or high in fibre. This balance enables energy intake into equal output in one's daily activities in order to keep the body weight at a healthy range.

Practice moderation.

Moderation means keeping within due bounds. It involves watching the portion sizes and passing up the super sizes. It entails no too much salt, fat, sugar, calorie, protein, alcohol, etc. It helps to maintain the body weight, balance meal, enjoy a variety of foods and prevent some chronic diseases. It can be ensured by using a smaller bowl which aids in reducing portion, sharing your restaurant meal with a friend and push back from the table before you are stuffed and go for a walk.

Conclusion

One of the strategic ways of maintaining health and fitness for pregnant mothers and children is getting control of their diet. Eating is undoubtedly the habit which exerts the greatest influence upon the health of the individuals, and there is a reason, for the habit of eating repeats itself throughout life. Since feeding is an everyday affair, this makes nutrition a vital key to health maintenance. Hence, the need of optimizing nutrition. Exercise in synergy with nutrition helps shed extra weight that could cause complications during birth and maintains the health of both pregnant mothers and children.

Recommendations

The following recommendations have been made as intervention strategies to ensure maintenance of health and fitness of pregnant mothers and children through good and adequate nutrition.

1. Health educators should create awareness through seminars and workshops in the communities, schools and media on the need to always provide pregnant mothers with good meals and encourage them not to eat junks or stay hungry unnecessarily in order to prevent malnutrition from occurring and promote wellbeing.
2. The economic status of the woman's family goes a long way in determining her nutritional status. Families in the upper wealth quintile has been found to optimize nutrition hence women should be allowed and encouraged to work by providing job opportunities for them and even opportunities to be self employed. This is a bid to raise the economic status of the family hence their nutritional status.
3. Nutritional programmes of the country should be expanded especially food fortification. This is germane to combating micronutrients malnutrition.
4. Health workers should periodically monitor pregnant mothers eating habits.

5. Appropriate counseling on nutritional intake should be given to pregnant mothers.
6. Pregnant mothers should be targeted with educational programmes in order to reduce high rate of malnutrition.

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