International Journal of Nursing, Midwife and Health Related Cases 10 (2), 1-11, 2024
Print ISSN: 2397-0758 (Print),
Online ISSN: 2397-0766 (Online)
Website: https://www.eajournals.org/
Publication of the European Centre for Research Training and Development -UK

Anaemia Prevention Among Pregnant Women

Abigail Adebisi Abioye (RN, RM, M.Sc.)
Department of Maternal and Child Health Nursing,School of Nursing Science,
Babcock University, Ilishan-Remo, Ogun State

Christiana Adetoun Owopetu (RN, RM, PhD)
Department of Nursing Science,Lead City University, Ibadan, Oyo State

Foyekemi Oyebola Adamu-Adedipe (RN, RM, M.Sc)
Department of Maternal and Child Health Nursing, School of Nursing Science,
Babcock University, Ilishan-Remo, Ogun State

Lydia Olubukola Odesanya (RN, RM, M.Sc.)
Department of Maternal and Child Health Nursing,School of Nursing Science,
Babcock University, Ilishan-Remo, Ogun State

Mary Ayodeji Olofin-Samuel (RN, RM, RPHN M.Sc.)
Department of Nursing, Faculty of Basic Medical Sciences,
Ekiti State University, Nigeria

doi: https://doi.org/10.37745/ijnmh.15/vol10n2111 Published February, 15 2023

Citation: AbioyeA.A., Owopetu C.A., Adamu-Adedipe F.A., Odesanya L.O., and Olofin-Samuel M.A. (2024) Anaemia Prevention Among Pregnant Women, *International Journal of Nursing, Midwife and Health Related Cases*, 10 (2), 1-11

ABSTRACT: *This paper offers a thorough analysis of the worldwide occurrence and consequences of anaemia, with particular emphasis on its effects during pregnancy. Anaemia, a condition marked by inadequate red blood cells, is widely prevalent worldwide, with the African area having the greatest occurrence. The study highlights the complex and varied character of anaemia, which may be caused by factors such as insufficient nutrition, infections, and genetic predispositions. Pregnant women are at a higher risk, thus specific measures are needed to manage iron deficiency and reduce the possibility of negative effects for both the mothers and neonates. The article discusses diagnostic techniques, highlighting the need of thorough examinations that take into account several elements. The repercussions of anaemia go beyond its immediate health effects, affecting cognitive and motor development, productivity, and increasing the chances of maternal and neonatal death. The research elucidates the interdependence of maternal and foetal health outcomes, underscoring the comprehensive care necessary throughout pregnancy. Suggestions include giving priority to evidence-based treatments and programmes for the prevention and management of anaemia, especially in groups at high risk. Effective implementation of preventative interventions relies on the essential collaboration of healthcare practitioners, dietitians, legislators, and communities. Ongoing research, education, and sharing of knowledge are crucial elements of a comprehensive worldwide strategy to tackle anaemia and improve the health outcomes of both mothers and their unborn babies.*
KEYWORDS: anaemia, prevention, pregnant women

INTRODUCTION

Anaemia is a prevalent health issue with worldwide consequences, characterised by a lack of red blood cells or a diminished capacity of these cells to carry oxygen. The World Health Organisation (WHO) stated in 2020 that the African area had the greatest prevalence of anaemia, with a 62.3% incidence rate among the population. This article examines the idea of anaemia, its frequency, and its consequences, with a particular emphasis on anaemia during pregnancy. This debate involves a wide range of variables that contribute to anaemia, such as insufficient nutrition, infections, chronic illnesses, pregnancy difficulties, and hereditary susceptibility. Pregnant ladies, specifically, encounter a heightened susceptibility as a result of the augmented need for nutrients by the growing foetus. The article also explores the diagnostic techniques for anaemia, classification according to the degree of severity, and the significance of taking into account underlying variables beyond traditional haemoglobin testing.

Anaemia's ramifications go beyond its direct physical consequences, acting as a marker of impaired nutrition and general state of well-being. The article examines the correlation between anaemia and negative consequences, including cognitive and motor development impairments, decreased productivity, and maternal and neonatal fatalities. This analysis delves into the crucial impact of iron deficiency on the worldwide occurrence of anaemia, highlighting its prevalence across various demographic cohorts. The conversation thereafter shifts its attention to anaemia during pregnancy, specifically examining the increased need for iron at this time and the possible repercussions of anaemia for both the mother and the growing foetus. An in-depth analysis of many risk variables, such as age, geographical location, and socioeconomic position, is conducted to get a thorough grasp of the intricate aspects related to anaemia during pregnancy.

The article provides guidelines for evaluating and diagnosing anaemia, highlighting the need of taking into account other variables in addition to the standard measurement of haemoglobin levels. An essential aspect in comprehending and tackling anaemia is the significant role played by the interaction among iron deficiency, infections, and dietary inadequacies. The concluding segment examines preventative methods and tactics to address anaemia, including dietary and nutritional interventions as well as the treatment of infections. The significance of mother education and dietary choices in the prevention of anaemia during pregnancy is emphasised, offering a comprehensive perspective on possible therapies.

Concept of Anaemia

Anaemia is a condition characterised by insufficient red blood cells in the body. In 2020, the African region had the greatest incidence of anaemia, as reported by the World Health Organisation (WHO), with 62.3% of the population affected by this ailment. Anaemia is a very prevalent illness that is widely spread. Anaemia may result from reduced erythropoiesis, accelerated erythrocyte hemolysis, or substantial erythrocyte loss. Anaemia may arise from a multitude of circumstances including inadequate nutrition, infections, chronic diseases, complications during pregnancy, and a familial predisposition (WHO, 2023). Pregnant women have a higher need for a well-balanced diet of nutrients compared to non-pregnant individuals due to the demands imposed on the foetus. The developing embryo within the pregnant

woman's womb obtains a portion of the nutrients that the pregnant woman ingests, which are then distributed between the two entities. Robinson et al. (2014) state that the growing foetus utilises the mother's red blood cells to support its own development and growth, leading to a decrease in the mother's available red blood cell count.

Anaemia, as defined by the World Health Organisation (WHO, 2023), is a disorder characterised by an inadequate quantity of red blood cells or a reduced ability of these cells to transport oxygen, resulting in an insufficient supply to fulfil the body's physiological requirements. These requirements vary according on an individual's age, gender, altitude of residence, smoking habits, and various phases of pregnancy. Anaemia may also result from a reduction in dietary iron intake. It may occur at any stage of an individual's lifespan, but it is more prevalent among small children and expectant mothers. Evidence has shown that this issue has an impact on the overall well-being of populations in nations throughout the economic spectrum, including those with low, medium, and high incomes. As to the World Health Organisation (2018), it has detrimental impacts on both social and economic progress, as well as significant adverse consequences for health. The primary component that may lead to this illness is iron deficiency, however it may also be attributed to other variables. Iron deficiency is responsible for over 50% of all occurrences of anaemia in females globally, as reported by the WHO in 2019. Infections, deficiencies in folate, vitamin B12, A, and C, as well as inherited illnesses such sickle cell disease and thalassemia, are major factors contributing to the global incidence of anaemia (WHO, 2018).

Anaemia serves as an indicator of inadequate nutrition and compromised health. The measurement of haemoglobin concentration, when combined with other tests assessing iron levels, may provide insights into the extent of iron shortage. Anaemia serves as a sign of inadequate nutrition and compromised health. The prevalence of iron deficiency anaemia is highest in South Asia, according to UNICEF's 2017 report. This kind of anaemia has detrimental effects on cognitive and motor development, induces weariness and reduced productivity, and, if it arises during pregnancy, may be linked to a decreased likelihood of maternal and perinatal death (WHO, 2023). The iron requirement during pregnancy is much higher compared to non-pregnant periods. The increased iron demand is primarily caused by the expansion of the mother's red blood cell mass. This expansion is necessary to deliver more oxygen to the growing foetus and placental structures. It also serves as a reserve for blood loss and lochia during childbirth. Tembhare, et al.'s (2015) study indicates that a considerable proportion of women have anaemia during pregnancy due to heightened iron demands.

Anaemia is often diagnosed with a blood test called a complete blood count, which measures the levels of haemoglobin in the blood. The World Health Organisation recommends using a whole blood count test for the most precise diagnosis of anaemia during pregnancy. When diagnosing anaemia during pregnancy, the preferred method is using a haemoglobinometer rather than haemoglobin colour scales (WHO, 2018). The reason for this is because a haemoglobinometer is not dependent on the presence of certain infrastructure. Red blood cells include the protein haemoglobin, which transports oxygen to the body's cells. Usually, the haemoglobin levels are compared to the reference ranges defined by the World Health Organisation (Samson et al., 2014). The ranges vary according on variables like age, gender, physiological situations (such as pregnancy or nursing), altitude, and smoking status. Anaemia

is categorised based on its severity. The degrees of intensity span from severe to moderate to mild. Anaemia is categorised as severe when the haemoglobin concentration drops below 7.0 g/dl, moderate when it ranges from 9.9 to 10.9 g/dl, mild when it falls between 10.9 and 11.0 g/dl, and at any point when it falls below 11.0 g/dl. The conventional blood test for haemoglobin fails to include all the factors that may lead to anaemia. McLean et al.'s 2019 study and WHO's 2020 studies indicate that iron deficiency is responsible for around 50% of all instances of anaemia. The medical examiner may do further diagnostic procedures, such as ferritin testing and physical exams, to determine the underlying cause of the patient's anaemia.

Anaemia in Pregnancy

According to a study conducted by Maneethorn et al. (2015), the iron requirement of women during pregnancy is much higher compared to when they are not pregnant. During the first trimester of pregnancy, a woman's iron requirements decrease because she does not have her menstrual period. However, these requirements gradually increase afterwards. In the first month of pregnancy, the daily iron intake should be around 0.8 mg, but it should reach approximately 10 mg per day during the last six weeks of pregnancy. The rise in iron demand is a result of an increase in the quantity of red blood cells in pregnant women. This increase is necessary to improve the transportation of oxygen, including the transfer of iron, to both the developing foetus and the placental structures. Additionally, it serves as a reserve for potential blood loss and lochia during delivery (Gofin 2015). During the puerperium, a woman may have lochia, which is a vaginal discharge including blood, mucus, and uterine tissue, after childbirth. In clinical practice, the emergence of anaemia is marked by symptoms that are often vague and may include tiredness, debility, dyspnea, or reduced muscular endurance. The onset of acute anaemia is often accompanied by more pronounced symptoms, such as cognitive impairment, pre-syncope, syncope, or heightened thirst. The packed cell volume (PCV) has several uses, including being a direct screening test for anaemia, serving as a reference technique for calibrating automated blood count systems, and providing an approximate indication of the accuracy of haemoglobin values (WHO 2023).

Due to the shared utilisation of nutrients between a pregnant woman and the growing baby, pregnant women are at an elevated risk of getting anaemia. Furthermore, her red blood cells provide as sustenance for both the growing foetus and herself. The growth and development of the foetus rely on its accessibility. Due to these variables, the pregnant woman is at a higher risk of developing anaemia as a consequence of her sickness and has a reddish complexion. Infections, particularly malaria and helminthiasis, may influence the occurrence of anaemia in pregnant women. Nutrition and the physiological condition of the pregnant lady are essential variables. Additional, less consequential variables, such as hereditary illnesses and socioeconomic status, may also contribute to the severity of anaemia in pregnant women.

Anaemia is linked to women under the age of 20, the last stage of pregnancy, people living in rural areas, and women who have given birth several times (Coad & Zewde 2014). Asia and Africa have the highest prevalence of anaemia, with around 60% and 52% of pregnant women in these regions being affected by anaemia. Additionally, between 1% and 5% of pregnant women in Asia and Africa respectively suffer from severe anaemia. A group of specialists from the United Nations has determined that severe anaemia is a significant cause in up to 50% of all maternal fatalities worldwide. The estimated maternal death rates attributed to anaemia vary

from 34 per 100,000 live babies in Nigeria to as high as 194 per 100,000 in Pakistan. The large variances might be ascribed to disparities in the prevalence of anaemia in these two nations. Based on the findings of Dim and Onah in 2017, it is projected that anaemia is responsible for twenty percent of maternal fatalities in sub-Saharan Africa.

Anaemia increases the likelihood of prenatal problems for both mothers and newborns, and also correlates to a higher rate of infant death. Both foetal development limitation and low birth weight have a threefold greater risk. The chance of delivering delivery preterm is more than doubled. A pregnant woman who is anaemic is at risk of a potentially fatal outcome even from a little bleed. The impact of anaemia on the developing foetus and newborn Red blood cells are given more priority for iron allocation than other organs, such as the brain, throughout the development of a foetus and newborn. This is a key principle in the study of iron biology. According to Dim and Onah (2017), insufficient iron availability relative to demand may pose a danger to the foetal brain, even if the infant does not have anaemia.

Pregnant women, due to their increased physiological demands for supporting life development, as well as hormonal changes and heightened nutritional requirements, are inherently more susceptible to nutritional deficiencies. Nutritional deficits arise from a confluence of variables. Ivoke (2013) found that the rates of both ID and IDA are similar across people in both wealthy and poor nations. According to the study conducted by De Benoist and quoted by McMahon, the prevalence of anaemia in pregnant women worldwide is reported to rise by about 20% compared to non-pregnant anaemic women in the community. McMahon also alluded to a research performed on pregnant women in China, India, Zimbabwe, and Mexico. The research revealed a greater prevalence of iron deficiency (ID) and iron deficiency anaemia (IDA) during the third trimester of pregnancy. Furthermore, this author found that 43–73 percent of typical pregnant women have identification. The diagnostic utility of ferritin concentration was used in this investigation, as well as in McMahon's comprehensive body of work (Xu, et al., 2016). During all stages of pregnancy, a significant decrease in ferritin content below 15 mg/L was seen in instances with substantial iron deficiency.

Anaemia is linked to insufficient nutrition and compromised health. The World Health Organisation (WHO) issued a study in 2021 indicating that iron deficiency during pregnancy is linked to many adverse consequences for both the mother and the newborn. The consequences include a heightened susceptibility to bleeding, infection, maternal death, infant death, reduced work efficiency, compromised cognitive growth in youngsters, and underweight newborns. Maternal iron deficiency anaemia during pregnancy has been associated with a higher likelihood of preterm birth and a consistently reduced birth weight for the infant. Conversely, a low birth weight is a substantial determinant of both infant mortality and morbidity rates. The reference is MacDonald et al., 2017. There is enough evidence to support the fact that a low birth weight infant who survives is at a higher risk of experiencing various physiological, developmental, and cognitive impairments. The presence of these deficiencies is very probable to adversely affect the infant's overall quality of life. An analysis was conducted on data obtained from the Nutrition and Health Surveillance System in rural Indonesia to assess the haemoglobin levels of babies aged 3-5 months and the variables that are linked to these levels. Infants born to anaemic mothers were shown to have reduced iron levels in their bodies by the time they reach one year of age.

Anaemia, a medical disorder, may manifest in several symptoms including tiredness, dizziness, weariness, headache, coldness, shortness of breath, heart palpitations, low blood pressure, changes in stool colour, yellowish colouring of the skin, pale complexion, and enlargement of the spleen. Severe anaemia, defined as having a haemoglobin level of less than 6g/dl, may result in symptoms such as chest discomfort (angina) or headache.

In addition to these consequences, anaemia may have significant impacts such as decreased birth weight in infants, increased death rates for both mothers and their children, decreased productivity in adults, and hindered physical and cognitive development in children (McLean et al., 2019).

Risk Factors of Anaemia in Pregnancy

The age-specific demographics with the greatest prevalence of iron deficiency anaemia (IDA) patients globally consist of newborns, premenopausal women, and elderly adults. Idowu et al. (2021) reported that IDA is prevalent among the elderly. Anaemia was seen in 11.0% of males and 10.2% of women aged 65 and above. The effects of ageing, including a weakened immune response, a higher occurrence of gastrointestinal disorders due to reduced peristalsis, and diminished function in senses and other physiological processes, are thought to contribute to the higher susceptibility of older adults to develop this micronutrient deficiency. However, it is important to note that anaemia, specifically iron deficiency anaemia (IDA), should not be expected or seen as an inherent aspect of the ageing process. The references used are from the American Society of Harrison (2019) and Chang et al. (2019). Idiopathic hemolytic anaemia (ID) is more likely to occur in senior adults due to additional variables often linked with ageing, such as chronic illness and nutritional imbalance.

The consumption of iron-rich and nutrient-dense meals directly affects the occurrence of iron deficiency (ID) and iron excess illness (IDA) due to the primary intake of iron via food. Furthermore, the digestive system plays a crucial role in the assimilation of iron from ingested food. Iron deficiency (ID) occurs when an individual's diet fails to meet any of these two requirements. Over time, this may lead to the development of iron deficiency anaemia (IDA). The extent of the deficit, together with other variables, affects the severity of these disorders. Various foods contain dietary iron, with the largest quantities of this element found in red meats, seafood, green leafy vegetables, dark chocolate, beef liver, and nuts. Cereal and most other grain products are fortified with iron, however their red colour has been chemically modified by the government to meet the regulations set by the Food and Drug Administration (FDA). Those who adhere to diets low in or devoid of meat and iron-fortified foods, such as vegans and vegetarians, have a notable need for supplementary sources of iron.

Conversely, it is well acknowledged that ascorbic acid, sometimes referred to as vitamin C, as well as meats and seafood, may enhance the assimilation of nonheme iron. The most optimal method to enhance iron absorption is by combining the intake of an iron supplement with vitamin C-rich meals, such as orange juice. Conversely, foods that include significant amounts of phytate and polyphenols, such as certain grain products and legumes, have been shown to somewhat impede the absorption of iron (National Institutes of Health, 2019).

Individuals who have had a significant loss of blood may or may not exhibit initial indications and symptoms of iron deficiency (ID), but they will ultimately develop iron deficiency anaemia (IDA) if they do not undergo medical intervention. For example, persons who have a daily blood loss of up to 100 mL may not exhibit bloody stools, as shown by a negative faecal occult blood test (FOBT). This might be attributed to several things Allen and Gillespie (2017) state that if the daily iron loss reaches 5-10 mL, it surpasses the gastrointestinal system's ability to absorb iron from dietary sources.

IDA is not a standalone sickness; instead, it is a condition that often coexists with or results from other conditions. These concurrent illnesses might manifest acutely, although they are often chronic or progressive, such as inflammatory bowel disease (IBD). Iron deficiency, sometimes referred to as ID, is prevalent in 36–76% of individuals with inflammatory bowel disease (IBD). Chronic inflammation has the potential to impact any part or the whole of the digestive system, however it tends to mostly affect the intestines in individuals with this disorder. Crohn's disease and ulcerative colitis are the predominant and prevalent types of inflammatory bowel disease (IBD). If any of these illnesses are already present in the body, the likelihood of obtaining IDA is increased. Malnutrition, including deficiencies in vitamins such as iron (ID), is the most notable consequence of IBD that impacts the overall functioning of the body. Ulcers and fistulas, which are linked to these diseases, hinder the efficient absorption of nutrients in the intestines, leading to malnutrition (Goldberg, 2020; Mayo Clinic, 2019).

Prevention of and Strategies of Combating Anaemia in Pregnancy

The measures used to prevent or control anaemia depend on the underlying cause of the condition, whether it is in a community or an individual. This applies to both of these situations. In most cases, consuming meals that contain enough amounts of easily absorbable iron should be enough. The main emphasis in preventing and treating anaemia is in the avoidance of iron deficiency, which is the fundamental cause of the majority of cases of this illness. Anaemia is mostly caused by iron deficiency. The World Health Organisation (WHO) has developed a set of guidelines that provide recommendations for reducing anaemia in different societies, based on the frequency of anaemia among certain age groups in those cultures. These recommendations were developed in response to the prevalence of anaemia being higher among younger age cohorts in some countries. As to the World Health Organisation (WHO) in 2019, the majority of therapies consist of regularly or intermittently using iron supplements. The presence of folic acid in these dietary supplements is uncertain and not guaranteed. Pregnant women are obligated to consume these nutritional supplements, and during the first trimester of their pregnancies, they must also administer medicine to avoid helminth infections.

Food and Food Supplement Based Approaches

The increased occurrence of anaemia during pregnancy is mostly attributed to deficiencies in micronutrients, including iron, folate, and vitamin B12. Therefore, the use of dietary and nutritional supplements is a key strategy that may be employed to avoid anaemia during pregnancy. During antenatal care (ANC), pregnant women often get nutrition guidance, which primarily emphasises the need of diversifying nutritional intake and consuming foods rich in certain micronutrients. Furthermore, the World Health Organisation (WHO) advises that pregnant women should be given daily supplements of iron and folic acid (30–60 mg of elemental iron and 400 g of folic acid), especially in regions with a high incidence of anaemia

(WHO, 2023b). This suggestion is rigorously followed in most nations and their districts, including Hohoe, the area where this research took place. The World Health Organisation (WHO) recommends increasing the daily intake of elemental iron supplements to 120 milligrammes (mg) for pregnant women diagnosed with anaemia, until their haemoglobin levels are restored to normal. One may buy food from sources other than the hospital that have been enriched with a diverse range of micronutrient combinations to address nutritional deficits.

Combating Infections

Parasitic infections, including malaria and helminthiasis, are major causes of anaemia in pregnant women. Consequently, one of the strategies used to mitigate the effects of anaemia in pregnant women is the management of viral illnesses. One preventative approach is to provide insecticide-treated bed nets to pregnant women who attend antenatal care (ANC). In a recent research conducted by Olise (2015), it was shown that insecticide-treated bed nets are a very effective approach for reducing the transmission of malaria-causing vectors. The World Health Organisation (WHO) recommends promoting the use of insect repellent garments (ITNs) among pregnant women as a component of a comprehensive approach to ensuring a safe pregnancy (WHO, 2023). According to the World Health Organisation (WHO), pregnant women should be given IPTp-SP at every ANC check after the first trimester of pregnancy, starting from the second trimester and continuing beyond. A minimum of three doses of IPTp-SP must be given to a pregnant woman before she reaches full term (Olubukola et al., 2011; WHO, 2023). This contributes to the fight against the parasites accountable for malaria. Regrettably, the provision of ITNs does not automatically ensure their use. Multiple studies have shown that only a small fraction of households who own an insecticide-treated net (ITN) actually use it. The GDHS reports that 68% of families own an ITN, although only 43% of pregnant women in these households used the nets for sleeping on the night before to the survey. The discrepancy arises from the fact that only 43% of pregnant women in these homes used the nets for sleeping. Furthermore, it was shown that the prevalence of individuals getting intermittent preventive treatment in pregnancy (IPTp) in some African nations was both insufficient and declining. This mostly stemmed from health practitioners' limited understanding of SP administration. Significant advancements occurred with the implementation of streamlined and focused messaging, as well as the adoption of regulations by nations to provide a minimum of three doses of SP during pregnancy (WHO, 2023).

The World Health Organisation (WHO) advises administering preventive anthelmintic treatment to pregnant women residing in endemic areas (where the prevalence of soil-transmitted helminths exceeds 20%) and where anaemia is a significant public health concern. During the second trimester of pregnancy, a single dose of either 400 milligrammes of albendazole or 500 milligrammes of mebendazole is given for therapy. This very economical approach may effectively prevent anaemia and enhance food intake. Conversely, based on the GSS 2019 data, just 40% of Ghanaian women reported using deworming medication throughout their most recent pregnancies.

Maternal knowledge and dietary practices

Prioritising the preservation of nutritious dietary patterns throughout pregnancy is an essential prerequisite to enhance the probability of giving birth to a healthy infant. Chang et al.

(2019) suggests that the mother's diet should meet the nutritional requirements of both the mother and the developing foetus. It is important to ensure that adequate nutrient reserves are maintained for the health of the foetus, newborn, and future breastfeeding. The degree of nutritional knowledge possessed by PW is a major determinant of their eating behaviours. Knowledge and conduct are distinct, however knowledge may influence dietary behaviour (Haggaz et al., 2017). Knowledge has a crucial role in shaping dietary habits. The main obstacles to behaviour change, as determined by Kever et al. (2015) in their research on the knowledge, attitude, and behaviour of pregnant women, were recognised as a lack of information, negative attitudes, and erroneous beliefs. The research was carried out on expectant mothers. Shole, R. N. (2015) found that most pregnant women rely on diverse sources of information when it comes to pregnancy nutrition and dietary patterns. The sources of information include health systems educational settings, the mainstream media, and, most significantly, their own personal experiences during pregnancy.

Implications for Nursing Practice

Nurses play a crucial role in antenatal care, education, and support for pregnant women, and understanding the complexities of anaemia is essential for providing effective care. Some implications for nursing practice include:

1. Nurses should be equipped with up-to-date knowledge about the causes, risk factors, and consequences of anaemia, especially during pregnancy. This knowledge is crucial for educating pregnant women about preventive measures and the importance of maintaining a well-balanced diet.
2. Antenatal care is a key aspect of nursing practice, and nurses should routinely assess pregnant women for the risk of anaemia. Regular screening for haemoglobin levels and understanding the factors contributing to anaemia help in early detection and intervention.
3. Nurses should provide tailored nutritional counseling to pregnant women, emphasizing the importance of iron-rich foods and supplementation. This includes educating women about the significance of meeting increased iron requirements during different stages of pregnancy.
4. Nurses should conduct thorough risk assessments, taking into account demographic factors, geographic location, and socioeconomic status, as these influence the prevalence and severity of anaemia. This information is vital for tailoring interventions to individual needs.
5. Given the association between infections and anaemia, nurses should actively engage in preventive measures. This includes advocating for and facilitating interventions such as insecticide-treated bed nets and preventive anthelmintic treatment for pregnant women in endemic areas.
6. Nurses should collaborate with other healthcare professionals, including dietitians, obstetricians, and public health professionals, to develop and implement effective strategies for preventing and managing anaemia. Additionally, nurses can advocate for policies and programs that address the social determinants of anaemia.

Conclusion

The study highlighted the widespread influence of anaemia on a global scale, with a particular focus on the African continent. This emphasises the need for specific treatments in places where the incidence of anaemia is particularly high. The research examined many risk factors and reasons associated with anaemia, including insufficient nutrition and genetic predispositions. A substantial amount of the research concentrated on the increased

susceptibility of pregnant women to anaemia as a result of heightened dietary requirements, underscoring the need to tackle iron deficiency and alleviate possible negative consequences for both mothers and babies.

Moreover, the research emphasised the need for precise diagnostic methods that go beyond traditional haemoglobin tests, arguing for a thorough evaluation that takes into account aspects such as age, gender, and physiological circumstances. The extensive consequences of anaemia on the health of both the mother and the foetus were clarified, including problems with cognitive and motor development, decreased productivity, and increased chances of maternal and perinatal death. The interdependence of various health outcomes was emphasised, highlighting the comprehensive nature of treatment needed throughout pregnancy.

The research also outlined many preventative measures and techniques to address anaemia, including as nutritional interventions, infection control, and focused prenatal care. The text underscored the crucial significance of nurses in the domains of education, prenatal care, and comprehensive assistance for expectant mothers. It particularly emphasised the need of cultural sensitivity, risk evaluation, and cooperation with healthcare practitioners.

Healthcare systems and policy makers should prioritise the adoption of evidence-based treatments and programmes to prevent and manage anaemia, particularly in high-risk groups like pregnant women. Further investigation, instruction, and the widespread sharing of knowledge among medical practitioners and the general public would enhance the overall and efficient strategy in tackling anaemia and enhancing maternal and foetal health results on a worldwide level. In addition, promoting coordination among healthcare professionals, dietitians, public health authorities, and communities will bolster the effectiveness of preventative measures and treatments.

References

Allen L, de Benoist B, Dary O, Hurell R (2020). Guidelines on food fortification with micronutrients. Geneva. World Health Organization/Food and Agricultural Organization of the United Nations. retrieved at: http://www.who.int/nutrition/publications/guide_food_fortification_micr onutrients.pdf

Allen, L. and Gillespie, S. (2017). What Works? A Review of the Efficacy and Effectiveness of Nutrition Interventions. (NPP No. 19)

Chang Y, Dibley MJ, Zhang X, Zeng L, Yan H (2019). Assessment of dietary intake among pregnant women in a rural area of Western China. *BMC Public Health* 9:222.

Coad J, and Pedley K. (2014) Iron deficiency and iron deficiency anaemia in women. *Scand J Clin Lab Invest*. 2014;74(Suppl 244):82-9. https://doi.org/10.3109/00365513.2 014.936694.

Dim, C.C, & Onah, H.E. (2017). The prevalence of anaemia among pregnant women at booking in Enugu, South Eastern Nigeria. *Med Gen Med*; 9:11-25.

Gofin, J. (2015): Community Oriented Primary Care and Primary Health Care. *American Journal of Public Health.* 95(5), P. 757.

Haggaz, A.D., Radi, E.A. & Adam, I. (2017) "Anaemia and low birth weight in Western Sudan. *Transactions of the Royal Society of Tropical Medicine and Hygiene,* 04, 234-236. 2010

Harrison K. A. (2011). Anaemia in pregnancy, In; *Maternity care in developing countries*. John Carson, Harrison K. A. Stoffen Bergston (eds) RCOG press; 112 – 128

Idowu, O.A., Mafiana, C.F., and Sotiloye Dapo.(2021). Anaemia in pregnancy: a survey of pregnant women in Abeokuta, Nigeria. *African Health Sciences Vol 5 No 4,5(4): 295 – 299*

Ivoke N (2013). Anaemia prevalence and associated factors among women attending antenatal clinics in South- Western Ebonyi State, Nigeria. *Inter-national Journal of Medicine and Medical Sciences.* 46(4), 1354–1359.

Kever, R.T., Martins, S.D., Lola, N., Dathini, H.,Habu, H., Fatima, A.A., &Sambo, B.D. (2015). Knowledge and attitude of pregnant Women towards dietary practices in Yerwa Clinic, Maiduguri Metropolitan Council, Borno State. *Journal of Research in Nursing and Midwifery*, 4(1), 12-19.

Maneethorn, K.S., G.C. Marks, G. Williams and V. Changsuvivatwong, 2015. Food and nutrient consumption patterns in third trimester among thaimuslim pregnant women in rural southern Thailand. *Asia Pac. J. Chin. Nut*., 13(3): 236-241.

Olise P. (2015). *Primary Health Care for Sustainable Development.* 2nd ed. Abuja: Ozege Publications. Pg. 17.

Olubukola, A, Odunayo, A., and Adesina, O. (2011). Anaemia in pregnancy at two levels of health care in Ibadan, South West Nigeria. *Ann Afr Med*;10: 272-7.

Robinson C.O, Olisaemeka P.E, Odidika U.J, Toochukwu J.O, Bonaventure O.A,& Azubuike K.O. (2014). *Anaemia in pregnancy in Abakaliki, South East Nigeria*. International Federation of Gynaecology and Obstetrics Ireland: Elselvier Ireland Ltd. http://dx.doi.org/10.1016/j.ijgo.201401.004

Samson, G., Fikre, E. & Melaku, U. (2014). Prevalence and Correlates of Maternal Anaemia in Rural Sidama, Southern Ethiopia. *Afr J Reprod Health; 18[1]: 44-53*

Shole, R. N. (2015). An Impact of Socio-Cultural Practices on Maternal Mortality in Masasi District, Tanzania. *Malaysian Journal of Medical and Biological Research,* 2(3), 45-78.

Tembhare A, Shelke S, Shivkumar PV, Tayade S (2015). Socio-demographic determinants associated with iron deficiency anaemia in pregnancy in rural population of central India. *International Journal of Biomedical and Advance Research,* 6(12): 817-823. doi: 10.7439/ijbar.

World Health Organization (2023). Vitamin and Mineral Nutrition Information System Evidence and Programme Guidance Unit Nutrition for Health and Development, Geneva, Switzerland.

World Health Organization, Micronutrient Deficiencies (2018).: Prevention and Control Guidelines, World Health Organization, Geneva, Switzerland, 2015, http://www.who.int/nutrition/topics/ida/en/ index.html.

World Health Organization. (2023). WHO, UNICEF, UNFPA, The World Bank, and the United Nations Population Division. *Trends in Maternal Mortality:* 1990 to 2015.

Xu X, Liu S, Rao Y, Shi Z, Wang L, Sharma M, Zhao Y (2016). Prevalence and socio demographic and lifestyle deter-minants of anaemia during pregnancy: a cross-sectional study of pregnant women in China. *Int J Environ Res Public Health,* 13(9): 908. doi: 10.33-90/ijerph13090908.