



Prevalence of Iron Deficiency Anaemia among Pregnant Women in Migratory Community, Narok County

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Abstract

Globally, Iron Deficiency Anaemia (IDA) has been known to have negative effects on the lives of more than 2 billion people. Currently, pregnant women are the most vulnerable population corresponding to 24.8% of 3.7 billion people. The highest prevalence of anaemia exists in the developing world which is thought to be associated with the following factors; socio-economic factors, inadequate food intake, cultural taboos that hinder intake of certain foods known to be good sources of iron, infections, multiple pregnancies and low contraceptive prevalence use. However, there is limited published data on prevalence of Iron deficiency anaemia and possible risk factors among pregnant women attending Antenatal clinics in Kenya including Narok County. Therefore, the aim of this study was to establish the haemoglobin levels of pregnant women in the migratory community, Narok County. In this cross-sectional study, pregnant women aged 15-49 years and were attending antenatal clinic at Ewaso Ng'iro Health Centre in Narok County were randomly enrolled into the study using the clinic registers and table of random numbers generated using Micro Soft Excel 2007. Pregnant women who had Severe low haemoglobin levels were 3.0%, Moderate Haemoglobin levels 19.6%, while Mild haemoglobin levels were 38.9%. Those who had low haemoglobin levels were 61.5%, while normal haemoglobin levels above 11g/dL were 38.5%. The prevalence of Iron Deficiency Anaemia from the findings was reported to be at 61.5%, which was much higher than the national figure of 55.1% according to KDHS, 2014. This depicted that IDA is still a major concern in the migratory community. The County Ministry of Health should strengthen the policies for combating micronutrient deficiencies through integration of programmes and services at the community levels. In addition, review of the IFA policy should be done to incorporate early screening and management of IDA.

Key words: Prevalence, Iron Deficiency Anaemia, Pregnant women, Migratory community

Introduction

According to World Health Organization (WHO), anaemia during pregnancy has been defined as haemoglobin concentration less than 11 g/dl (World Health Organization, 2011). Anaemia is considered severe when haemoglobin concentration is less than 7.0 g/dl, moderate when haemoglobin falls between 7.0 and 9.9 g/dl, and mild when haemoglobin is from 10.0 to 10.9 g/dl (World Health Organization, 2011).

Currently, pregnant women are the most vulnerable population corresponding to 24.8% of 3.7 billion people (Kaur, 2016). The highest prevalence of anaemia exists in the developing world which is thought to be associated with the following factors; socio-economic factors, inadequate food intake, cultural taboos that hinder intake of certain foods known to be good sources of iron, infections, multiple pregnancies and low contraceptive prevalence use (Okube, Mirie, Odhiambo, Sabina, & Habtu, 2016).



The prevalence of anaemia in developing and developed countries is estimated to be (43%) and (9%) , respectively (Addis Alene & Mohamed Dohe, 2014). The difference in maternal mortality rates between developing and developed countries shows the greatest disparity of all health indicators.

However, it was revealed that almost 90% of all global maternal deaths occur in sub-Saharan Africa (Van Den Broek & Falconer, 2011). Moreover, in Sub-Saharan Africa, iron and folate deficiencies are the most common causes of anaemia among pregnant women (VanderJagt et al., 2007). In addition, the prevalence of anaemia in Africa is estimated to be as high as 66.8% (Okube et al., 2016). A study by Addis et al. reported that 17% of Ethiopian women of reproductive age were anemic and out of which, 22% of those women were found to be pregnant (Addis Alene & Mohamed Dohe, 2014a).

According to the Kenyan Demographic and Health Survey (KDHS, 2014) maternal deaths are approximately 14% among women of reproductive age and about 1 in 67 women are likely to die during pregnancy, during childbirth, or within two months of childbirth because of iron deficiency anemia even with iron and folic acid intervention by the government of Kenya.

Narok County is mostly inhabited by the Maasai community who occupy both Arid and Semi-arid land. The Maasai communities are people who migrate from one place to another in search of greener pasture because of seasonal weather changes and attempt to optimize their livelihood. This migration pattern encourages the mothers to miss their antenatal clinic appointments with associated services such as iron and folic acid supplementation. The migration patterns make it difficult to diagnose iron deficiency anemia because of lack of access to health facilities in some regions of the county.

Most of the Maasai people practice semi-nomadic kind of life whereby, the movement of livestock is based on seasonal rotation to greener pastures (Lennox, Petrucka, & Bassendowski, 2017). In addition, Livestock such as cattle, goats and sheep are the primary source of income to them and therefore may not be utilized for food even when they are rich sources of iron especially for pregnant mothers. The cultural practices such as pregnant mothers being not allowed to consume, milk, eggs and green leafy vegetables because it is believed that the baby will grow huge and delivery will be a problem worsen the access of iron in food believed to be good sources of iron (Lennox et al., 2017).

Furthermore, traditions and cultural beliefs surrounding nutritional practices during pregnancy have advanced the iron deficiency anemia. In addition, a pregnant woman is only supposed to eat after all the members of the family have eaten in order to reduce on the amount of food she will consume so that the baby does not grow bigger forcing the woman to deliver in a health facility or even go for a caesarian section. All the aforementioned practices have contributed highly by posing negative impact on iron deficiency anemia. Besides, dietary taboos are most often enforced by the elders and mother-in-laws and there is a wide range of foods that should be eaten and those that should not be eaten during pregnancy, which are indigenously-informed (Lennox et al., 2017).

Traditionally, during pregnancy Maasai women consumed a modified diet that included restricting caloric consumption during and after 6 months of pregnancy (Brady, Suksiri, Tan, Dodds, & Aine, 2008). The dietary restrictions in the community is believed to guarantee smaller babies, thereby facilitating safe delivery and limiting medical interventions during childbirth (Brady et al., 2008). Moreover, the community elders and the TBAs often enforce this practice in the first pregnancy, and women opt to follow this pattern in subsequent pregnancies. According to a study that was conducted in rural Gambia, a study site with similar social demographic characteristics with the study area, it was noted that the Maasai pregnant women's dietary pattern on average, had a lower intake of carbohydrates, proteins, and fats per day than the recommended daily intakes (Lowe, Chen, & Huang, 2016).



Further, literature reveals that there is insufficient data on anaemia levels among pregnant women and young children in Narok County yet they are considered the most vulnerable population. Also, mortality rates have been reported, but the possible causes of the deaths remain unknown (National Bureau of Statistics-Kenya and ICF International, 2015). Despite the known serious effects of anaemia on health, there is very little research-based evidence on the vital public health problem in Narok County.

In summary, Iron deficiency Anaemia is still a major public health concern, especially among pregnant women being in the vulnerable group. The negative social cultural practices and beliefs that are inflicting on the rights of pregnant women and the unborn children to access adequate and nutritious foods should be looked into, as this may be the root cause for IDA among pregnant women. Therefore, this study will be carried out in order to establish the maternal determinants of Iron deficiency anaemia among pregnant women.

Materials and Methods

The study participants were checked for signs of anaemia, which included paleness of the skin, nails and lips, weakness, shortness of breath, dizziness and irregular heartbeats. The study participants were then informed on the procedure of obtaining the blood sample. The participants were notified that the procedure of drawing blood from them was going to be done by a qualified laboratory technician and therefore there was no need to be anxious.

In addition, the study participants were notified that during the procedure, there would be a slight pain or discomfort. This was to put them at ease and make them cooperate during the procedure. After the laboratory technician put on gloves, capillary sampling was done, whereby the subjects' hand was ensured that it was warm and relaxed. The middle finger was pricked to obtain the blood sample. The finger was then disinfected and allowed to dry or wiped using a dry cotton wool. Using a thumb, the middle finger was slightly pressed from the top of the knuckle towards the tip. This stimulated the blood flow towards the sampling point.

The sample was obtained from the side of the fingertip and not the center, for best blood flow and least pain. The finger was then punctured using a lancet as slight pressure was applied towards the fingertip. The first 2-3 drops of blood were wiped with a lint free wipe. Another light pressure was applied towards the fingertip until another drop of blood appeared. About 4 millimeters of blood was obtained using a capillary tube and put in a cuvette. The excess blood was wiped from the outer surface of the cuvette with a lint free wipe, if there were any air bubbles, another cuvette was filled. The cuvette was then placed in its holder and gently pushed to its measuring position (photometer) on the Mission Plus HB machine after it was turned on and the measurements were read out after 15-60 seconds.

The data was cleaned, edited, coded and checked for completeness using word excel. The 24 hour recall data analysis was carried out using Nutrisurvey 2007 statistical software to check for key nutrient consumption. Data was analysed using SPSS version 25.0. Data analysis involved determination of the prevalence of IDA. The significance was accepted at a P-value, of less than 0.05 and data was presented using tables. Prior to data collection clearance for data collection was obtained from the institute of post graduate studies of Kabarak University and the ethical clearance was sought out from the Institutional ethical review committee of Kabarak University. A research permit was also obtained from NACOSTI (National Commission for Science Technology and Innovation). In addition, approval was also obtained from Ministry of Health, Narok County. Prior to data collection, the study participants gave a consent form and an assent form was obtained from the study participants who were below 18 years before the commencement of the research work. To ensure confidentiality, participants' data was linked to a code number.



Results

Pregnant women who had Severe low haemoglobin levels were 3.0%, Moderate Haemoglobin levels 19.6%, while Mild haemoglobin levels were 38.9%. Those who had normal haemoglobin levels above 11g/dL were 38.5%.

Table 1 Haemoglobin Levels of Pregnant Women in Migratory community

Classification of Haemoglobin Status (g/dL)	Frequency (n)	Percentage (%)
Below normal	214	61.5
Severe (<7.0)	11	3.0
Moderate (7.0-9.9)	73	19.6
Mild (10.0 - 10.9)	130	38.9
Normal (>11.0)	159	38.5

*Classification of Haemoglobin levels as per (WHO,2015)

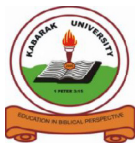
Discussion

According to WHO (2011) report, anaemia globally is classified as a public health concern. The results from this study were higher than the national prevalence in Kenya despite the government efforts of providing the iron and folic acid supplementation during the antenatal visits (National Bureau of Statistics-Kenya and ICF International, 2015). The overall prevalence of anemia in the present study was similar with the findings of a study in Ugandan by Mbule et al., 2013. Further, the findings of the overall prevalence of anemia was relatively higher compared to a study findings in Hindawi India by Little et al., 2018 and Nigeria by Okube et al., 2016.

Contrary, results from this present study were different from the findings that were published in a research studies in Srilanka in 2016, which reported a lower prevalence of anaemia (Adikari et al., 2016). In addition, prevalence results from study in Western Ethiopia were lower when compared to the present study (Alemayehu et al., 2016). Further, the findings from this study were also different with the documented results of a study that was conducted in Colombia (Adikari et al., 2016). These differences might have been due to the variation in the study area characteristics and the number of study participants enrolled. The study also contrasted with a study in Western Ethiopia, which reported that Iron Deficiency Anemia was statistically significantly associated with occupation of pregnant women (Alemayehu et al., 2016). In addition, the results of the current study did not agree with those of a study in Indonesia in 2017, which reported that there was no correlation between IDA and parity status but also documented statistical significance correlation between iron deficiency and the maternal pregnancy trimesters (Susanti et al., 2017).

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