



Evaluation of Iron Supplementation in Pregnant Women: Cases of Women seen in Prenatal Consultation in the Kollo Health District.

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ABSTRACT

Introduction: Malnutrition due to micronutrient deficiency, particularly among pregnant women, is of concern because it affects fetal and child health. In Niger, one in 23 women dies during pregnancy or childbirth (compared to 1 in 42 in Africa).

Objectives: This study aims to assess iron supplementation among pregnant women and methods for diagnosing anemia in the district health of KOLLO, based on a sample of 50 women between September and October 2023.

Materials and Methods: To conduct the study, we used various materials, including a scale to measure the weight of pregnant women and a measuring tape to measure their height. The main data collection tool was a survey form (questionnaire) intended for pregnant women.

The method employed was a cross-sectional descriptive study involving 50 pregnant women encountered during prenatal consultations at the KOLLO Health District between September 1st and October 30th, 2023. The data were analyzed using Epi-info version 3.3.2 software for data encoding, analysis, and processing, as well as Microsoft Office 2010 for writing the report.

Results: Regarding the profile of the surveyed women, the majority (60%) are under 25 years old, with ages ranging from 15 to 42 years. Their average weight is 78.5 kg, with a range from 42 to 115 kg, while their average height is 1.61 m, ranging from 1.38 to 1.84 m. 70% of the women are in their first to third pregnancies. During the survey, over half of the women (52%) were in their second trimester of pregnancy, while 42% had no formal education. Homemakers represent 70% of the surveyed women. Regarding diet during pregnancy, almost all women (90%) consumed iron-rich foods, but 62% of them consumed food stimulants. However, none of the women underwent hemoglobin examination. Regarding iron supplementation, all women were supplemented with one tablet per day, but only 28 reported adhering to the prescribed dosage. Additionally, hemoglobin examination was conducted on 31 parturients, and the most prescribed molecule was FétonTM/FefolMT at an average dose of 17 capsules per woman.

Conclusion: Recommendations arising from this study include the need to replenish pharmacies with iron supplements, to make hemoglobin testing freely accessible to all pregnant women, and to promote health education on pregnancy-appropriate nutrition.

Keywords: Anemia, Iron, Tillabéry

Introduction

Micronutrient deficiency malnutrition, particularly among pregnant women, is concerning as it affects fetal and infant health. Deficiencies in iron and folic acid intake are recognized causes of intrauterine growth retardation and anemia in pregnant women (Sandalinas, 2005). Studies also show that iron-deficiency anemia in early pregnancy is associated with an increased risk of preterm delivery and low birth weight infants (Sendwe, 2012). Data from different regions of the world show varying prevalences of anemia among pregnant women. For example, in France, the prevalence of anemia is higher among women of childbearing age than among menopausal women (ENNS, 2006). Globally, the prevalence of anemia among pregnant women is alarming, especially in regions of Africa and Asia, highlighting the link between anemia and socioeconomic development (Badham, 2007). Health is one of the sectors that concerns authorities the most. In 2004, according to the World Health Organization (WHO), in Niger, one out of 23 women dies during pregnancy or childbirth (compared to 1 out of 42 in Africa). (INS-Niger, 2015). Thus, we set out to evaluate the practices of iron supplementation among pregnant women in the Health District of the Kollo department in Niger, thereby providing valuable data for policymakers and researchers to improve maternal and child health on a large scale.

Materials and Methods

To conduct the study, we utilized various materials, including a scale to measure the weight of pregnant women and a measuring tape to assess their height. The primary data collection tool was a survey form (questionnaire) intended for pregnant women encountered during prenatal consultations at the KOLLO Health District. Additionally, the mother and child health records, along with a prenatal consultation form, were utilized. The method employed was a descriptive cross-sectional study involving 50 pregnant women encountered during prenatal consultations at the KOLLO Health District between September 1st and October 30th, 2023. The data were analyzed using Epi-info software version 3.3.2 for data encoding, analysis, and processing, and Microsoft Office 2010 for writing the report. The results were presented in the form of tables and figures, accompanied by commentary for each outcome. Ethical considerations were considered, particularly by isolating each pregnant woman during the interview to prevent communication of responses among them. Participants were encouraged to provide objective information, and the questionnaire was anonymous to ensure response confidentiality. Challenges were encountered, such as the refusal of some pregnant women to respond to the questionnaire and difficulties faced by pregnant women during their first visit in answering certain questions.

Results

Results of our study are presented in the following figures and tables:

Table 1 show that the minimum age of the respondents is 15 years, and the maximum age is 42 years. It is also noted that 60% of the respondents are under the age of 25. The minimum number of pregnancies is 1, and the maximum is 9, with 70% of the respondents being between their first and third pregnancies (**Table 2**). Analysis of **Table 3** shows that over half (52%) of pregnant women are in their second trimester. It emerges from **Table 4** that the majority (42%) of the sample consists of non-educated women and 70% are household (**Table 5**).

Data analysis revealed that 94% of the respondents are married women, while 6% are widows or single (**Table 6**). Results of **table 7** shows that 64% of the surveyed women started prenatal care between the 4th and 6th months of pregnancy.

Analysis of **Figure 1** shows the proportions of consumption of iron-rich foods, with 76% for offal, 86% for meat, 90% for fish, and 90% for fruits and vegetables. Data analysis revealed that no women underwent a complete blood count (CBC) or hemoglobin examination. It appears from this study that 20% of the respondents from this figure exhibit all clinical signs of anemia (**Figure 2**). The survey revealed that all surveyed women were supplemented with iron with one tablet per day and claimed to have adhered to the prescribed dosage. It is observed in the **Figure 3** that 37% of surveyed women are receiving their first tetanus vaccination.

Table 1: Representation of mothers surveyed according to age

The age of pregnant women	Number	%
< 25 old	30	60
25 à 30	15	30
> 35	5	10
Total	50	100

Table 2: Pregnancy rank of the women surveyed

Number of pregnancies	Number	%
1 to 3	35	70
4 to 6	10	20
≥ 7	5	10
Total	50	100

Table 3: distribution of mothers surveyed according to duration of pregnancy

Duration of pregnancy	Number	%
First trimester	10	20
Second trimester	26	52
Third trimester	14	28
Total	50	100

Table 4: distribution of mothers surveyed according to education level

Educational level	Number	%
None	21	42
Primary school	19	38
Secondary school	10	20
Total	50	100

Table 5: distribution of mothers surveyed according to their occupation

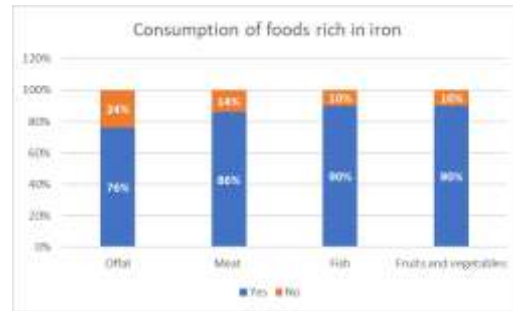
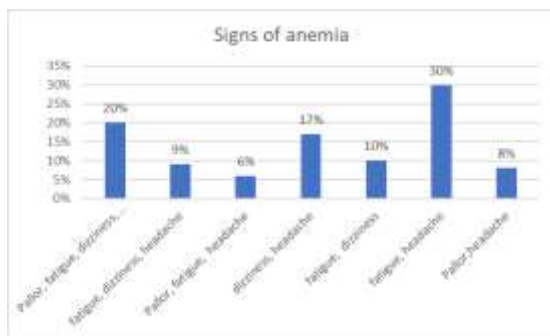
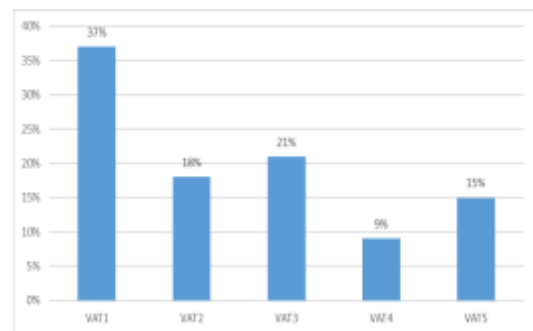
Occupation	Number	%
Household	35	70
Student	7	14
Official	4	8
Trader	4	8
Total	50	100

Table 6: distribution of mothers surveyed according to marital status

Marital status	Number	%
Married	47	94
Widowed	2	4
Single	1	2
Total	50	100

Table 7: distribution of mothers surveyed according to started period of prenatal consultation

Started period of prenatal consultation	Number	%
< 4 Months	14	28
4 to 6 Months	32	64
>6 Months	4	8
Total	50	100

**Figure 1: distribution of mothers surveyed according to according to the consumption of foods rich in iron****Figure 2: distribution of mothers surveyed according to anemia signs****Figure 2: distribution of mothers surveyed according tetanus vaccination**

Discussion

The minimum age of the surveyed women was 15 years, and the maximum was 42 years. Notably, 60% of the surveyed women were under 25 years old, which is higher than findings reported by **Dogoni (2014)** in Bamako, who had 43.70% of participants aged 14 to 24 years. The weight of the surveyed women ranged from 42 to 115 kg, with an average of 78.5 kg. Similarly, the height varied between 1.38 and 1.84 m, with an average of 1.61 m. These results align with those reported by **Safae (2009)** in Morocco, who found weight variations from 48 to 90 kg and height variations from 1.46 to 1.77 m, with an average of 1.61 m.

Seventy percent (70%) of the surveyed women were in their first to third pregnancies, consistent with findings by **Dogoni (2014)**, who reported a total of 62.2% in the same gestational range. It was noted that anemia is five times more common after the fifth pregnancy, emphasizing the role of closely spaced pregnancies in maternal iron deficiency. More than half (52%) of the surveyed women were in their second trimester of pregnancy, consistent with findings by **Safae (2009)**, who observed delayed initiation of prenatal care among adolescents. Forty-two percent (42%) of the surveyed women had no formal education, contrasting with findings by **Sendwe (2012)**, who reported only 4.9% of pregnant women with no education. Homemakers represented the majority (70%) of the pregnant women, differing from **Dogoni's (2014)** findings, which showed 99% homemakers. The vast majority (94%) of the surveyed women were married, consistent with **Dogoni's (2014)** findings of 93.20% married women. Sixty-four percent (64%) of pregnant women began prenatal consultations during the second trimester, lower than **Sendwe's (2012)** finding of 85.3% starting consultations during this period. Iron-rich food consumption was nearly universal among the surveyed pregnant women. However, 62% reported consuming dietary stimulants, consistent with findings by **Lioret (1997)**. The most common reasons for consultation were fatigue and headaches, representing 30% of cases. Pale skin, dizziness, fatigue, and headaches accounted for 20% of cases, although **Dogoni (2014)** noted low sensitivity of conjunctival pallor as an indicator of anemia. All surveyed pregnant women received iron supplementation, aligning with recommendations from UNICEF (1994). However, adherence to prescribed dosages was only 28%. Some authors argue against systematic iron supplementation during pregnancy unless specific risk factors are present, advocating for a balanced diet rich in iron-absorption-promoting factors to maintain satisfactory iron reserves (**Beau-frère et al., 1995; Lioret, 1997**).

Six percent (6%) of surveyed women received their first tetanus vaccination, despite **WHO's (2019)** recommendation of five properly spaced doses for lifelong protection if vaccination begins in adolescence or adulthood.

Conclusion:

The literature on anemia in pregnant African women is extensive, with varied methodological approaches. This study conducted a descriptive cross-sectional observation in the KOLLO's health center, sampling 50 pregnant women attending antenatal consultations from September 1st to October 30th, 2023. The overarching objective was to enhance maternal and neonatal health, with specific aims including assessing iron supplementation coverage, describing diagnostic methods for anemia, and identifying prescribed molecules and doses. Data collection employed interviews based on a pre-established questionnaire, utilizing materials such as pens and duplicate paper. Analysis was conducted using Epi-info version 3.3.2 and Microsoft Office Word 2013. Findings revealed zero iron supplementation coverage, although 33 pregnant women received prescriptions, with 28 adhering to recommended dosages. Hemoglobin examination was the sole diagnostic method for anemia, conducted in 31 parturient. The most prescribed molecule was FétonTM/FefolMT, with an average dosage of 17 capsules per woman. In conclusion, adherence to iron supplementation recommendations during pregnancy was lacking, and pregnant women bore the financial burden of prescribed molecules.

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