

## Factors influencing iron supplement uptake among pregnant women attending antenatal care at Ndejje Health Centre IV, Wakiso District. A cross-sectional study.

Sylvia Kembabazi, George Masete, Hasifa Nansereko, Immaculate Prosperia Naggulu, Jane Frank Nalubega\*  
Mildmay Uganda School of Nursing and Midwifery.

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### Abstract.

#### Background.

Iron deficiency anemia remains a major public health problem among pregnant women in Uganda, contributing to adverse maternal and fetal outcomes. This study aimed to assess factors influencing iron supplement uptake among pregnant women attending ANC at Ndejje Health Centre IV, Wakiso District.

#### Methodology.

A descriptive cross-sectional study was conducted among 40 pregnant women attending ANC at Ndejje Health Centre IV. Data were collected using a structured interviewer-administered questionnaire covering socio-demographic characteristics, individual factors, and health facility-related factors influencing iron supplement uptake. Data were analysed using descriptive statistics and presented in frequencies and percentages.

#### Results.

Most respondents were aged 20–29 years (50%), had secondary education (45%), and were self-employed (40%). Although half of the respondents (50%) knew that iron supplements help to make more blood, only 45% reported starting iron supplementation during the current pregnancy, and among these, only 44.4% were still taking the supplements. Forgetfulness (65%), discomfort such as bad taste, nausea, and vomiting (55%), taking multiple medicines (65%), lack of family support (35%), and limited exposure to health information (50%) negatively influenced uptake. Health facility factors included long distance to the facility (45% lived more than 5 km away), late initiation of ANC, inadequate counselling (45% never received counselling), and inconsistent supply of iron supplements (55% did not receive supplements at the facility). Although 85% reported that health workers recommended iron supplements, only 45% consistently received them.

#### Conclusion.

Iron supplement uptake among pregnant women at Ndejje Health Centre IV was low and influenced by inadequate knowledge, side effects, poor family support, limited counselling, distance to the facility, and inconsistent availability of supplements.

#### Recommendations.

Strengthening health education and counselling, ensuring a consistent supply of iron supplements, promoting early ANC attendance, and involving family members, especially spouses, in maternal health education are recommended to improve iron supplement uptake.

**Keywords:** Iron Supplement Uptake, Pregnant Women, Antenatal Care, Wakiso District, Ndejje Health Centre IV.

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**Corresponding Author:** Jane Frank Nalubega

**Email:** [janecl.nalubega@gmail.com](mailto:janecl.nalubega@gmail.com)

Mildmay School of Nursing and Midwifery.

### Background of The Study

Inadequate iron among pregnant women is a common nutritional problem because many women enter pregnancy with insufficient iron stores in their bodies (Ataide et al., 2023). Iron deficiency in pregnancy is the reduction of the concentration level of hemoglobin below 11 g/dl for the first and third trimester and 10.5 g/dl for the second trimester, which therefore causes inadequate supply to different tissues (James, 2021). Various factors influence the state of iron during pregnancy, which include intake of iron through diet, the stores of iron in the body, adaptive mechanisms of the

body through the gastrointestinal tract, and administration of iron supplements (Sangkhue et al., 2023).

Globally, 36.8% of pregnant women suffer from iron deficiency anemia, and this is due to inadequate intake of iron supplementation associated with factors such as lack of knowledge, socioeconomic status, and availability of supplements in health care facilities, among others (Mohamed et al., 2024). The differences in burden of anemia during pregnancy vary globally, with only 18% in developed countries and 35% to 75% in low and middle-income countries (Tirore et al., 2024). In Africa, results from a

multi-country analysis of 25 countries showed that only 51.7% of women were adhering to iron supplements during pregnancy, and the contributing factors included decision-making power, antenatal care visits, and level of education, among others (Zegeye et al., 2021). A study in 22 Sub-Saharan African (SSA) countries showed that only 28.7% of pregnant women reported taking iron supplements; factors like the number of antenatal care visits, socioeconomic status, education level, and even access to media can influence adherence to iron supplementation (Ba et al., 2019).

In East Africa, the level of compliance with iron supplementation during pregnancy is 31.33% (Engidaw et al., 2025). Factors influencing uptake include the number of ANC visits, maternal education, and distance to health facilities (Engidaw et al., 2025). A multilevel data analysis of the 2022 Kenyan Demographic and Health Survey showed that the prevalence of IFAS among pregnant women was 61.72%. (Alemu et al., 2025).

In Uganda, a study carried out at Bwindi Community Hospital, Western Uganda found that only 22.4% of the pregnant women were adhering to iron supplements, the reported reasons for adhering were getting advice and counselling from the healthcare worker about the good effects of iron and folic acid supplementation and knowledge about the health benefits of iron and folic acid supplementation such as preventing anaemia. Reasons for non-adherence included: taking too many pills, not knowing the usefulness of iron and folic acid supplementation, fear of the side effects of the medication, and not getting the supplement from the hospital (Nimwesiga et al., 2021). At Ndejje Health Centre IV, Wakiso district, there is no published data about iron supplement uptake among pregnant women, yet 43% of women are diagnosed with anaemia during pregnancy (HMIS 105, 2025). This study aimed to assess factors influencing iron supplement uptake among pregnant women attending ANC at Ndejje Health Centre IV, Wakiso District.

## Methodology.

### Study design.

This study adopted a descriptive cross-sectional design, and it involved the collection of quantitative data.

### Study setting.

The study was conducted at Ndejje Health Centre IV, Wakiso district. Ndejje Health Centre IV is a healthcare facility in Wakiso district, Uganda. The distance from Kampala to Ndejje Health Centre IV is approximately 8.9 km. The direction of the antenatal clinic is North-West. The services provided include: outpatient consultations, maternal health, immunisations, and emergency care. It also serves as a centre for health education and disease prevention, working with the community and local organisations. The antenatal care unit for this facility works

from Monday to Friday, and daily, it works with more than 10 pregnant women. The study area is chosen because of observed cases of anemia among pregnant women.

### Study Population.

The study targeted pregnant women attending antenatal care at Ndejje Health Centre IV, Wakiso district. This population was chosen because of the need to improve the uptake of iron supplements during pregnancy to prevent anaemia.

### Sample Size Determination.

Fisher's formula, which was developed in 1995, was used to determine the sample size.

According to Fisher's formula,  $n = \frac{z^2 pq}{r^2}$

Where;

n= Sample size in the population, z= Standard deviation at the desired degree of accuracy: standard accuracy=95% which is =1.96, P was the proportion of the level of iron supplement utilization among pregnant women in Uganda of 26% (Semugabi, 2022), r was the acceptable degree of error (in this case, 5% or 0.05)

Therefore;  $n = \frac{(1.96)^2 \times (0.26) \times (1-0.26)}{(0.05)^2}$

n=296 pregnant women. However, based on the 2025 UHPAB research guidelines, a sample size of 40 pregnant women was considered.

### Sampling Procedure.

A consecutive sampling technique was employed because it enabled the collection of the required patients within a short period of time. Every pregnant woman was approached on each day of data collection, and data was corrected within 8 days. On each day, 5 participants were recruited until 40 participants were enrolled.

### Inclusion Criteria.

The study included pregnant women attending antenatal care at Ndejje Health Centre IV, Wakiso district, who voluntarily consented to participate and were available at the time of data collection. It only included Ugandan Women who were conversant with English.

### Exclusion criteria

The study excluded pregnant women who were sick, thus unable to participate. Or withdraw during the data collection.

### Study Variables

Independent variables: These were individual and health facility factors influencing iron supplement uptake among pregnant women.

Dependent variables: The dependent variable was iron supplement uptake among pregnant women.

**Research Instruments.**

Data was collected using a questionnaire from the study participants. It consisted of closed-ended questions in the English language. The tool contained section A, which will include the demographic data of respondents, section B (individual factors), and section C (health facility factors).

**Data Collection Procedures**

First, the researcher obtained a data collection authorization letter from the research committee, Mildmay Uganda school of nursing and midwifery. Permission was sought from the principal nursing officer of Ndejje Health Centre IV. Here she explained the purpose of the study. The in charge introduced the student to the in charge of antenatal, who then introduced the researcher to the respondents. Consent was obtained from the respondents, and those who fit the inclusion criteria were given the questionnaires to fill out by themselves. This helped to improve efficiency and maintain privacy during data collection.

**Data Management.**

Questionnaires were checked before leaving the study area to ensure that there were no mistakes or areas left blank. The questionnaires were coded for easy reference and confidentiality. The collected questionnaires were kept under lock and only accessed by the researcher.

**Data Analysis.**

Data was entered into the computer using Microsoft Word and Microsoft Excel, and analysis was done. It was then

presented in the form of tables, graphs, and pie charts to establish the accuracy of the facts, and then an interpretation was done.

**Quality Assurance.**

**Validity.**

The research tool was reviewed by the supervisor to ensure that it covered all aspects of the study. It was further reviewed by the institutional review committee (IRC) to ensure that it covered the aspects of the study.

**Reliability.**

To ensure the accuracy, appropriateness, and comprehensiveness of the data collection tools, a pretest was conducted before the actual study. This pretest involved approximately 4 pregnant women at Kisenyi Health Centre IV, before data collection and corrections were made before its use on the final sample. The purpose of the pretest was to evaluate the effectiveness and suitability of the data collection tools.

**Ethical Consideration.**

Ethical clearance was obtained from Mildmay Uganda school of nursing and midwifery Research and Ethics Committee (REC/IRC), and then the researcher obtained permission from Ndejje Health Centre IV. Written consent was obtained from each study participant, and the data collected were handled with confidentiality. The study participants were also informed not to include their names on the research tool, thus ensuring the anonymity of their information.

**Results**

**Socio-Demographic Data of Respondents.**

**Table 1: Shows Socio-Demographic Data of Respondents n=40**

Variable	Category	Frequency (f)	Percentage (%)
Age	Below 20 years	4	10
	20–29 years	20	50
	30–39 years	10	25
	40 years and above	6	15
Level of education	Non-formal education	8	20
	Primary education	10	25
	Secondary education	18	45
	Tertiary education	4	10
Occupation	Unemployed	8	20
	Farmer/labourer	10	25
	Self-employed	16	40
	Government/private employee	6	15

Table 1 shows that the majority, 20(50%), were aged 20-29 years, whereas the minority, 4(10%), were aged below 20 years. Most 18(45%) had a secondary level of education,

while the least 4(10%) had a tertiary level of education. Majority 16(40%) were self-employed whereas the minority 6(15%) were private employee.

**Individual factors influencing iron supplement uptake among pregnant women attending antenatal care at Ndejje Health Centre IV, Wakiso district.**

**Figure 1: Shows whether respondents sought advice during health care seeking, n=40.**

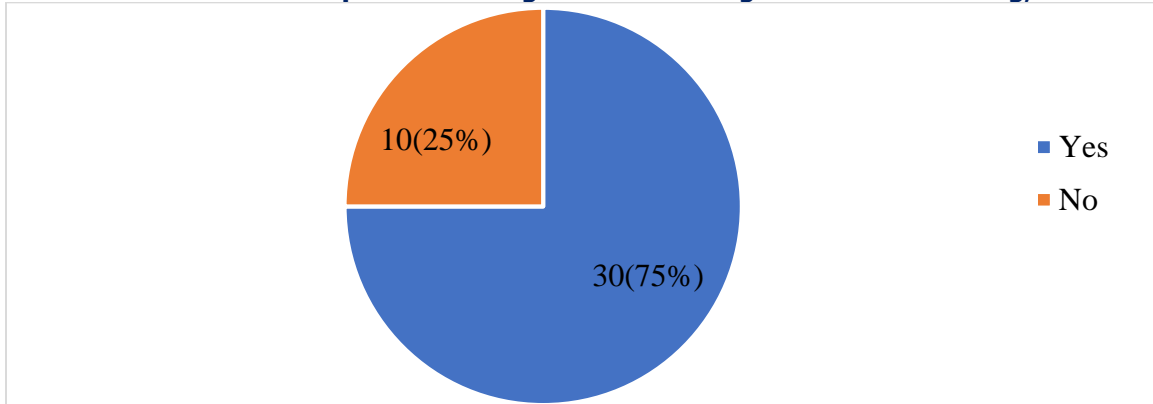


Figure one shows that the majority, 30(75%) of the respondents sought advice during health care seeking, whereas the minority, 10(25%) did not seek advice from anyone.

**Figure 2: Shows where the respondents sought advice from for those who sought it, n=40**

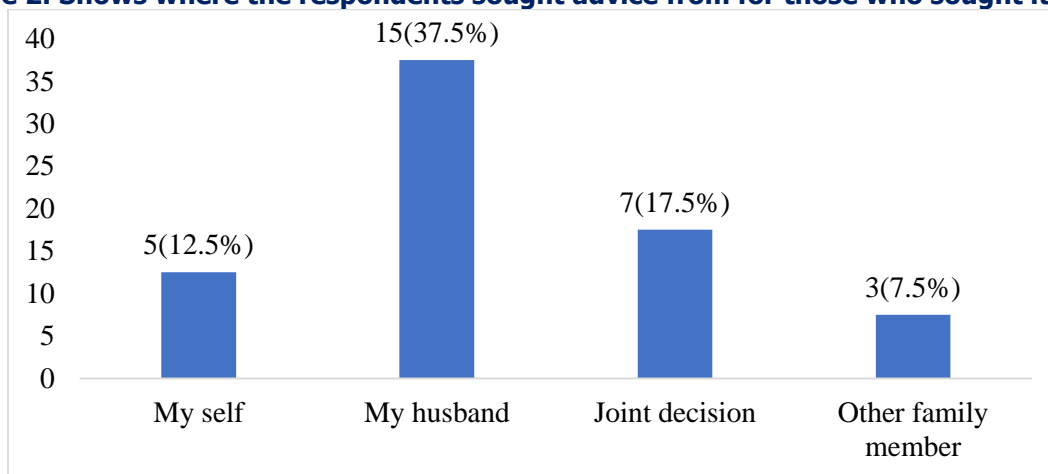


Figure 2 shows that the majority, 15(37.5%), stated that they sought advice from their husbands, whereas the minority, 3(7.5%), revealed that they sought advice from other family members.

**Table 2: Shows individual factors influencing iron supplement uptake among pregnant women attending antenatal care at Ndejje Health Centre IV, Wakiso district, n=40**

Variables	Category	Frequency (f)	Percentage (%)
Use of iron and folic acid supplements during pregnancy	To prevent sickness	6	15
	To make more blood	20	50
	To grow the baby	10	25
	I don't know	4	10
Started taking iron supplements during this pregnancy	Yes	18	45
	No	22	55
Currently taking iron and folic acid supplements.	Yes	<b>n=18</b> 8	44.4
	No	10	55.6
Frequency of forgetting to take iron supplements	Never	4	10
	Rarely	10	25
	Sometimes	14	35
	Often	12	30
Experienced any discomfort from iron supplements	Yes	22	55
	No	18	45
Experiences with iron supplements	Bad taste	<b>n=22</b> 10	45.4
	Nausea	8	36.4
	Vomiting	4	18.2
Taking multiple medicines during pregnancy is frustrating.	Yes	26	65
	No	14	35
Support from family	Good	6	15
	Intermediate	10	25
	Poor	10	25
	No support at all	14	35
Listen to any health-related information on TV, radio, or social media	Always	8	20
	Sometimes	12	30
	Never	20	50

Table 2 shows that the majority, 20(50%) of the respondents stated that iron and folic acid were used to make more blood, while the minority, 4(10%), did not know the use of iron and folic acid supplements. Most 22(55%) did not take iron supplements during pregnancy, whereas the least 18(45%) took iron supplements during pregnancy. From those who took iron supplements, the majority, 10(55.6%), were currently not taking iron and folic acid supplements, while the minority, 8(44.4%), were currently taking iron and folic acid supplements. Most 14(35%) forgot to take iron supplements, whereas the least 4(10%) never forgot to take iron supplements. The majority, 22(55%), experienced discomfort from iron supplements, while the minority, 18(44.4%), did not experience discomfort from iron

supplements. From those who experienced discomfort, most 10(45.4%) revealed that iron supplements had a bad taste, whereas the least 4(18.2%) experienced vomiting. The majority, 26(65%), stated that taking multiple medicines during pregnancy is frustrating, whereas the minority, 14(35%), revealed that taking multiple medicines during pregnancy does not frustrate. Most 14(35%) were not supported by their families, while the least 6(15%) were supported by their families during pregnancy. The majority, 20(50%), never listened to health-related information from TV or social media, whereas the minority, 8(20%), always listened to health-related information from TV or social media.

**Health facility factors influencing iron supplement uptake among pregnant women attending antenatal care at Ndejje Health Centre IV, Wakiso district.**

**Table 3: Health facility factors influencing iron supplement uptake among pregnant women attending antenatal care at Ndejje Health Centre IV, Wakiso district, n=40**

Variables	Category	Frequency (f)	Percentage (%)
Distance of the facility	Less than 2 km	7	17.5
	2–5 km	15	37.5
	More than 5 km	18	45
Frequency of visiting the health facility during this pregnancy	Before 3 months	8	20
	Between 3–6 months	22	55
	After 6 months	10	25
Antenatal care (ANC) visits attended	1	5	12.5
	2–3	18	45
	4 or more	17	42.5
Provision of counselling from health workers	Always	7	17.5
	Sometimes	15	37.5
	Never	18	45
Receive iron and folic supplements from the facility	Yes	18	45
	No	22	55
Health workers recommend taking iron supplements.	Yes	34	85
	No	6	15
Have health insurance	Yes	10	25
	No	30	75
Satisfaction with services at the health facility	Very satisfied	14	35
	Satisfied	20	50
	Not satisfied	6	15

Table 3 shows that the majority, 18(45%) of the respondents stated that the facility was more than 5 km, whereas the minority, 7(17.5%), revealed that the facility was less than 2 km. Most 22(55%) mentioned that they first visited the facility between 3-6 months during pregnancy, while the least 8(20%) stated that they first visited the facility before 3 months during pregnancy. The majority, 18(45%), attended 2-3 antenatal care visits, whereas the minority, 5(12.5%), attended 1 antenatal care visit. Most 18(45%) never received counselling from health workers about the use of iron supplements, while the least 7(17.5%) always received counselling from health workers about the use of iron supplements. The majority, 22(55%), never received iron and folic supplements whenever they visited the health facility, whereas the minority, 18(45%), received iron and folic supplements whenever they visited the health facility. Most 30(75%) did not have health insurance for covering antenatal care, while the least 10(25%) had health insurance for covering antenatal care. The majority, 20(50%), were satisfied with services at the health facility, whereas the minority, 6(15%), were not satisfied with the services at the health facility.

### Discussion.

#### Individual factors influencing iron supplement uptake among pregnant women attending antenatal care at Ndejje Health Centre IV, Wakiso district.

The purpose of this study was to assess the individual factors influencing iron supplement uptake among pregnant

mothers, and the findings showed that the majority, 15(37.5%) of the respondents stated that they sought advice from their husbands. This implied that the women lacked autonomy to make decisions regarding the use of iron supplements. This is probably because men are responsible for taking care of their wives' health during pregnancy; therefore, their decision influences the iron supplementation uptake among pregnant women. This may lead to limited uptake of iron supplements among pregnant women. This study finding is supported by Zegeye et al. (2021) in Sub-Saharan Africa, who found that the uptake of iron supplementation was limited.

This study's findings showed that the majority, 26(65%) of the respondents stated that taking multiple medicines during pregnancy is frustrating. This implied that most pregnant women were discouraged from consistent use of many medicines. This is probably because taking many medicines causes discomfort and fatigue, which may lead to poor adherence to iron supplementation. This study finding is in line with findings by Saeed et al. (2024) in Sudan, who found that 54.6% of women stated that frustration from taking many drugs.

This study's findings showed that 14(35%) of the respondents stated that they were not supported by their families. This implied that a lack of family support affected women's consistency in taking iron supplements. This is because encouragement from members motivates adherence, and its absence may lead to reduced uptake of iron supplements. This study finding is in line with findings by Nadeak (2024) in Aceh Province, who found that lack of

family support led to poor uptake, and this was reported by 56.8% of the study participants.

The study findings showed that the majority, 20(50%) of the respondents, never listened to health-related information from TV or social media. This implies that limited access to health information reduces awareness about the importance of iron supplements. This is probably because media platforms play a key role in educating pregnant women; therefore, a lack of exposure may lead to low uptake of iron supplements. This study finding is in line with findings by Mare et al. (2024), who found that non-compliance to iron supplementation in SSA was 65.1%, where lack of access to mass media was associated with this prevalence. According to the findings, individual factors are contributing to iron supplement uptake among women attending antenatal care at Ndejje Health Centre IV, Wakiso District.

### **Health facility factors influencing iron supplement uptake among pregnant women attending antenatal care at Ndejje Health Centre IV, Wakiso district.**

The purpose of the study was to assess the health facility factors influencing iron supplement uptake among pregnant women, and the study findings showed that the majority, 18(45%) of the respondents stated that the facility was more than 5 km away. This implied that distance to the health facility hindered regular iron supplement use. This is probably because long travel distances make it difficult for pregnant women to attend ANC visits, which may reduce iron supplement uptake. This study finding is similar to findings by Semugabi (2022) in Uganda, who found that women travelled less than 2km to the health facility.

This study's findings showed that the majority, 18(45%) of the respondents attended 2-3 antenatal care visits. This implied that limited ANC visits reduce opportunities for counselling and receiving iron supplements. This is probably because fewer visits limit interaction with health providers, which may lead to lower uptake of iron supplements. These study findings are contrary to findings by Alemu et al. (2025) in Kenya, who found that pregnant women received 4 or more than 4 ANC visits.

This study's findings showed that 18(45%) of the respondents never received counselling from health workers about the use of iron supplements. This implied that a lack of counselling from health workers led to poor knowledge and low adherence to iron supplements. This is probably because proper guidance motivates women to take supplements consistently, and its absence may reduce uptake. This study finding is contrary to findings by Mekonnen et al. (2021) in Ethiopia, who found that 67.6% of pregnant women had counselling on IFA supplementation.

This study's findings showed that 30(75%) of the respondents did not have health insurance to cover antenatal care. This implied that the lack of health insurance limited

respondents from accessing iron supplements. This is probably because women may face financial barriers to attending ANC visits, which may reduce uptake of iron supplements. These study findings are in line with findings by Saeed et al. (2024) in Sudan, who found that women who lacked medical insurance had limited access to iron supplements. According to the findings, health facility factors influence iron supplement uptake among pregnant women attending antenatal care at Ndejje Health Centre IV, Wakiso District.

### **Conclusion.**

The study established that the individuals included: lack of family support, lack of awareness, lack of decision-making power, and use of multiple medicines. The health facility factors included: long distance of the facility, limited counselling, lack of health insurance, and poor antenatal care visits.

### **Recommendations**

The Ministry of Health should promote community awareness campaigns on the importance of iron supplementation during pregnancy.

Health workers should provide regular counselling on the benefits and correct use of iron supplements.

Pregnant women should attend all recommended antenatal care visits to receive counselling and supplements.

Policymakers should strengthen and enforce guidelines that ensure consistent availability and accessibility of iron supplements across all healthcare facilities.

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### **List of Abbreviations and Acronyms**

**ANC:** Antenatal care.

**CDC:** Centers for Disease Control and Prevention

**HMIS:** Health management and information system.

**IFAS:** Iron and folic acid supplementation.

**REC:** Research and Ethics Committee.

**SSA:** Sub-Saharan African.

**WHO:** World Health Organization

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The study was not funded.

### Conflict of interest.

There is no conflict of interest.

### Availability of data.

Data used in this study are available upon request from the corresponding author.

### The author's contribution.

SK designed the study, conducted data collection, cleaned and analyzed data, drafted the manuscript, and GM supervised all stages of the study from conceptualization of the topic to manuscript writing and submission.

### Author's biography.

Sylvia Kembabazi is a student of diploma in midwifery at Mildmay Uganda School of Nursing and Midwifery.

George Masete is a research supervisor at Mildmay Uganda School of Nursing and Midwifery.

Hasifa Nansereko is a research supervisor at Mildmay Uganda School of Nursing and Midwifery.

Immaculate Prosperia Naggulu is a research supervisor at Mildmay Uganda School of Nursing and Midwifery.

Jane Frank Nalubega is a research supervisor at Mildmay Uganda School of Nursing and Midwifery.

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