

# Knowledge, Attitude And Practices Towards Prevention Of Anaemia Among Pregnant Women Aged 18- 45 Years In Gulu Regional Referral Hospital, Gulu District. A Cross-sectional Study.

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## Abstract



### Background:

The purpose of the study was to assess the knowledge, attitude, and practices toward the prevention of anaemia among pregnant women aged 18-45 years in the Gulu regional referral hospital, Gulu district.

### Methodology:

The study employed a cross-sectional study design with simple random sampling as the sampling technique. Data were collected on a sample size of 50 respondents using semi-structured questionnaires written in the English language with open and ended questions as data collection tools; analysis was done manually using tally sheets, pens, and paper, entered in an excel computer program; presented in tables and figures; then interpreted.

### Results:

(94%) of respondents agreed that going for antenatal visits is important, (85%) agreed that a mother and a child can benefit from taking iron supplements, (72%) disagreed that cultural or religious beliefs prevent pregnant women from eating certain types of food, (60%) always preferred to sleep under ITNs and (70%) reported that they feel normal when they sleep under ITNs.

(56%) of respondents had attended three ANC visits, (62%) of iron supplements they had ever taken were folic acid, (68%) usually take the iron supplements, (50%) commonly feed on carbohydrates, (60%) utilize meals three times daily and (90%) receive an iron supplement from a health facility.

### Conclusion:

The study established a research gap in regards to types of food they commonly feed on, low uptake of ITNs, ANC and irregular iron supplements intake among a notable few women and inadequate access to iron supplements at the hospital which needs to be addressed for equitable anaemia prevention interventions.

### Recommendation:

Therefore, health workers at Gulu regional referral hospital should continue to sensitize pregnant women on the dangers of not sleeping under ITNs, irregular ANC visits, and iron intake which was observed.

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## 1 Background of the study

Globally, the prevalence of anaemia among women of reproductive age was 29.9% in 2019; Anaemia

impacts 36.5 % of pregnant women and 29.6 of non-pregnant women (World Health Organization, 2020).

Despite anemia being a global concern, women in less developed countries are disproportionately affected. Only about 5% of pregnant women in developed countries were estimated to be anemic compared to 80% in some developing countries (Sun et al, 2017).

In Zambia, 31% of women aged 15-49 were anaemic, with 16% being mildly anaemic, 14% being moderately anaemic, and 1% being severely anaemic. There is provincial variation in the prevalence of anaemia from a low of 24% in Central to a high of 38% in Western.

The prevalence of anaemia was lower among breastfeeding women (28%) than among pregnant women (41%) (Zambia Statistics Agency & ICF, 2019).

According to Nigeria's demographic and health survey 2018, over half (58%) of women aged 15-49 had some degree of anaemia. Twenty-eight percent each were mildly anaemic and moderately anaemic, and 2% were severely anaemic. Anaemia prevalence was higher in rural areas (62%) than in urban areas (54%) (National Population Commission Nigeria & ICF, 2019).

In Rwanda, thirteen percent of women aged 15-49 were anemic. Most of these women were mildly anemic (9%); 4% were moderately anemic, and less than 1% with severe anemia. Pregnant women (25%) and women in the lowest wealth quartile (16%) were more likely to be anemic than other women (National Institute of Statistics of Rwanda & ICF, 2020).

In Uganda, the prevalence of anaemia among women reproductive-aged 15-49 in 2019 was (32.8%), among pregnant women 38.9%, and 32.1 among non-pregnant women. The majority of these pregnant women were mildly anaemic (25%); 6% were moderately anaemic, and less than 1% severely anaemic (MoH, 2020). The specific objectives of the study were to assess the; knowledge towards prevention of anaemia among pregnant women aged 18-45 years, attitude towards prevention of anaemia among pregnant women aged 18-45 years, and practices towards prevention of anaemia among pregnant women aged 18-45 years.

## 2 Methodology

### Study design

A cross-sectional descriptive research design in nature was used in this study. The design was considered favorable because it helped the researcher to use various survey methods to gather quantitative data within a reasonable period.

### Study area

Gulu regional referral hospital is located in the Northern part of Uganda city of Gulu approximately 332 kilometers (206 mi) from Kampala. The hospital comprised of the following clinics and departments; Eye, ART, Dental, Laboratory, pharmacy, antenatal, inpatient and outpatient department, Accident and Emergency; Wards that included; medical, surgical, gynecological and obstetrics, pediatrics, maternity, major and minor theatres plus Nutrition department. The hospital acted as a referral unit to health centers like Layibi Techo health III, Ongoko health center III, Awach health center IV, Lalogi health center IV, and others. The facility receives an average of 300 patients on daily basis.

### Study population

A study population refers to a large group of people possessing one or more characteristics in common on which a research study focuses. Therefore, the study targeted a population of pregnant women attending antenatal care and present during the period of data collection in the selected area of study.

### Sample size determination

Kothari & Gaurav (2014), defined sample size determination as to the number of items to be selected from the universe to constitute a sample. The sample size was calculated using Burton's formula (1905).

$S=2(QR)O$ : where

S= required sample size

Q= number of days the researcher spent while collecting data

R= maximum number of people per day

O= maximum time the interviewer spent on each participant.

$5 \times 10 \times 1$  hr

=50

Therefore the researcher used 50 respondents.

### Study variables

#### Dependent variable

The dependent variable in this study was anaemia in pregnancy.

#### Independent variables

Independent variables were knowledge, attitude, and practices toward the prevention of anaemia among pregnant women.

#### **Selection criteria**

##### **Inclusion criteria**

The inclusion group was composed of pregnant women aged 18-45 years in Gulu regional referral hospital utilizing ANC services present during the period of data collection and willing to consent to take part in carrying out the study.

##### **Exclusion criteria**

The exclusion criteria group was composed of women attending antenatal care in the Gulu regional referral hospital present during the period of data collection and not willing to consent to take part in carrying out the study.

##### **Sampling technique**

A simple random sampling technique was used to select respondents from the source population. This technique was preferred because it ensures freedom from human bias and each member of the target population had an equal and independent chance of being included.

##### **Data collection method**

A semi-structured questionnaire was designed and used by the researcher to collect data from respondents. The questionnaire was designed according to the specific objectives of the study with open and closed questions, written in English language and later translated into the local language (Luo) for respondents who could not be able to comprehend the English language. The questionnaire was preferred because it was suited to collect data from a larger sample considering the nature of the study population.

##### **Pre-testing of the questionnaire**

For uniformity of the data collection, pretesting of the questionnaire was done among 15 pregnant women in Awach health centre IV, Gulu District to ensure that questions were easily understood by all the respondents and the pre-tested instruments helped to identify questions that might have caused ambiguity and contradiction.

##### **Data collection procedure**

After approval of the research proposal; an introductory letter from the Kampala School of Health Sciences research committee to the study area was obtained. When permission was granted the researcher and trained two research assistants administered the questionnaire to the respondents through an interview in a local language (Luo). The

purpose of the study was explained to the participants and data collection began with a signing of a consent form among pregnant women at ANC unit. The data collection process was done in a way that alphabet letters written on paper were given to the respondents to pick; those who picked the letter "A" were interviewed first after consenting and the process continued until the required sample size was attained. The respondents were asked questions following the designed questionnaire to avoid being biased. After the interview, each respondent was thanked for participating in the study.

##### **Quality control**

Right respondents were selected through the inclusion and exclusion criteria.

All activities regarding data collection were done under the monitoring and supervision of the research assistants.

The research team met after data collection to review the collected data and cross-checked the filled questionnaires for correctness and completeness.

Standard operating procedures for coronavirus were also followed and maintained to protect the study participants and data collectors from risks of coronavirus. Therefore, quality control was done to ensure the accuracy and validity of the data collected.

##### **Data analysis and presentation**

Data was analyzed manually using tally sheets and entered into a computer using the Microsoft excel computer program to generate tables, pie charts, and bar graphs for easy presentation of findings.

##### **Ethical considerations**

Ethical considerations in the conduct of research were followed to prevent ethical dilemmas. To ensure the ethical conduct of the study, a letter of introduction was obtained from Kampala School of Health Sciences and addressed to the medical director of Gulu regional referral hospital, Gulu district; requesting permission to conduct the study. When permission was granted, consent was obtained from each participant, and respondents were assured of utmost confidentiality. The respondents were assured of anonymity and the ability to withdraw from the study at any time. No names were written on the questionnaire. The questionnaires were kept separate from consent forms to avoid the association between the two.

### 3 Study Findings

#### 4 Demographic data

From the table above, most of the respondents (40%) were within the age bracket of 24-29 years whereas the least (18%) were within the age bracket of 40-45 years.

As regards education levels, half of the respondents (50%) had attained a secondary level of education whereas the least (8%) had attained a tertiary institution/ University level of education.

The study further revealed that almost half of the respondents (44%) were Catholics by religion whereas the least (6%) were Muslims by religion.

Findings obtained from 50 respondents showed that the majority of the respondents (64%) were married education whereas the minority (4%) were widows.

The study revealed that most of the respondents (54%) were Acholi by tribe whereas the least (6%) were Alur by the tribe.

Based on the study findings, the majority of the respondents (70%) were unemployed whereas the minority (10%) were employed.

The study discovered that most of the respondents (52%) were within the gestation age of 7-9 months whereas the least (8%) were within the gestation age of 1-3 months.

#### 5 knowledge towards prevention of anaemia among pregnant women aged 18-45 years

From the figure above, more than half of the respondents (70%) had ever heard about anaemia whereas the least (30%) had never heard about anaemia.

From the table above, most of the respondents (57%) obtained information about anaemia from hospital whereas the least (6%) obtained information about anaemia from media.

From the table above, half of the respondents (50%) knew malaria as the cause of anaemia in pregnancy whereas the least (6%) knew virginal bleeding as the cause of malaria in pregnancy.

From the table above, most of the respondents (44%) knew paleness as the sign and symptom of anaemia whereas the least (4%) knew fatigue as the sign and symptom of anaemia.

From the figure above, more than half of the respondents (62%) knew death as the side effect of anaemia whereas the least (2%) didn't know the effects on anaemia in pregnancy.

From the table above, majority of the respondents (76%) reported that pregnant women are supposed to take folic acid supplements everyday whereas the minority (6%) reported that pregnant women are supposed to take folic acid supplements 5-6 times a week.

#### 6 Attitude towards prevention of Anaemia among Pregnant Women aged 18-45 years

From the figure above, almost all respondents (94%) agreed that going for antenatal visits is important whereas the least (6%) disagreed.

From the table above, majority of the respondents (85%) agreed that a mother and a child can benefit from taking iron supplements whereas the minority (15%) disagreed.

From the figure above, more than half of the respondents (72%) disagreed that cultural or religious beliefs prevent pregnant women from eating certain types of food whereas the least (28%) disagreed that cultural or religious beliefs prevent pregnant women from eating certain types of food.

From the table above, most of the respondents (60%) always preferred to sleep under insecticide treated nets whereas the least (40%) didn't always preferred to sleep under insecticide treated nets.

From the figure above, majority of the respondents (70%) reported that they feel normal when they sleep under insecticide treated net whereas the minority (30%) reported that they feel bad when they sleep under insecticide treated net.

#### 7 Practices towards Anaemia Prevention among Pregnant Mothers aged 18-45 Years

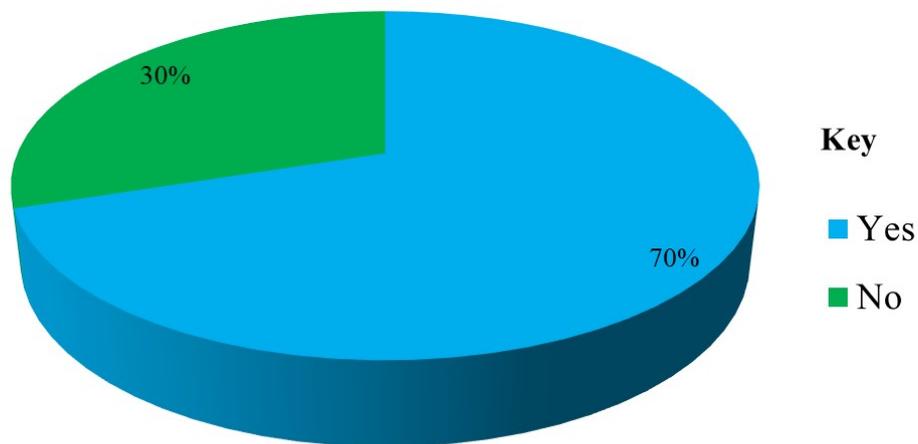
From the figure above, most of the respondents (56%) had attended three ANC visits whereas the least (10%) had attended one ANC visit.

From the table above, majority of the respondents (62%) iron supplement they had ever taken was folic acid whereas the minority (8%) iron supplement they had ever taken was traditional medicine.

**Table 1.** Shows the distribution of respondents according to demographic data (N=50)

<b>Response</b>	<b>Frequency(f)</b>	<b>Percentage (%)</b>
<b>Age</b>		
18-23 years	9	18
24-29 years	20	40
30-34years	11	22
35-39 years	6	12
40-44 years	4	8
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Education levels</b>		
Never went to school	7	14
Primary	14	28
Secondary	25	50
Tertiary institution/ University	4	8
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Religion</b>		
Protestant	9	18
Catholic	22	44
Muslim	3	6
Others	16	32
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Marital status</b>		
Single	9	18
Married	32	64
Separated	7	14
Widowed	2	4
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Tribe</b>		
Acholi	27	54
Langi	7	14
Alur	3	6
Dinka	5	10
Others	8	16
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Occupation</b>		
Un employed	35	70
Self employed	10	20
Employed	5	10
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Gestation age</b>		
1-3 months	4	8
4-6 months	20	40
7-9 months	26	52
<b>Total</b>	<b>50</b>	<b>100</b>

(Primary data, 2022)



**Figure 1.** Shows the distribution of respondents according to whether they had ever heard about anaemia(N=50)

**Table 2.** Shows the distribution of respondents according to where they obtained information about anaemia (N=35)

Response	Frequency(f)	Percentage (%)
Media	2	6
Family member	6	17
Hospital	20	57
Others	7	20
<b>Total</b>	<b>35</b>	<b>100</b>

(Primary data, 2022)

**Table 3.** Shows the distribution of respondents according to what causes anaemia in pregnancy (N=50)

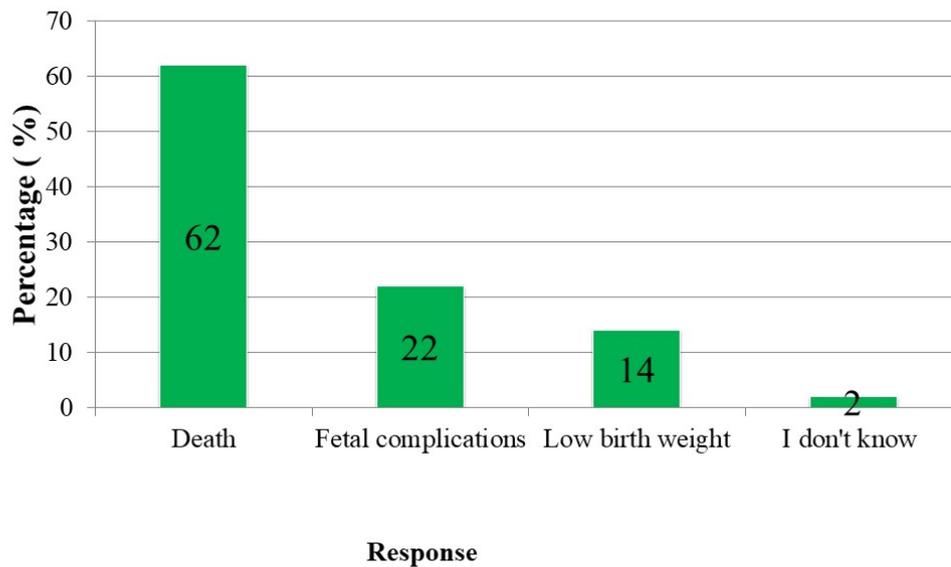
Response	Frequency(f)	Percentage (%)
Malaria	25	50
Inadequate food intake	13	26
Virginal bleeding	1	2
Hook worm infestation	5	10
I don't know	6	12
<b>Total</b>	<b>50</b>	<b>100</b>

(Primary data, 2022)

**Table 4.** Shows the distribution of respondents according to their knowledge about the signs and symptoms of anaemia (N=50)

Response	Frequency(f)	Percentage (%)
Dizziness	14	28
General body weakness	7	14
Paleness	22	44
Fatigue	2	4
I don't know	5	10
<b>Total</b>	<b>50</b>	<b>100</b>

(Primary data, 2022)

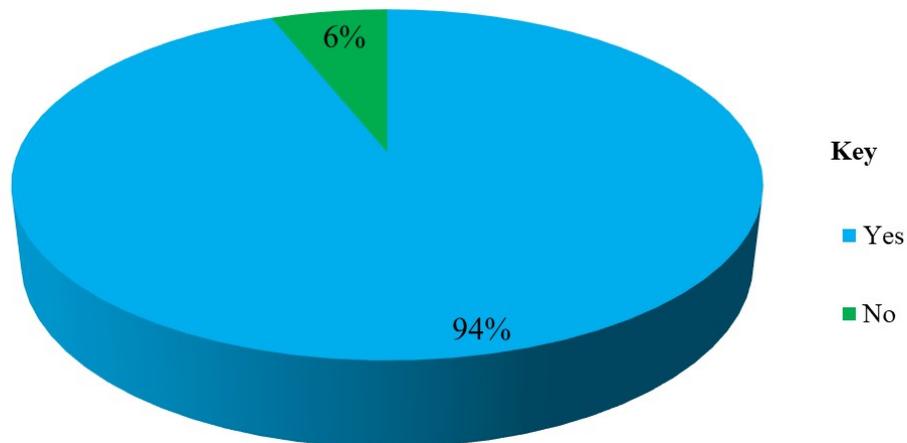


**Figure 2.** Shows the distribution of respondents according to their knowledge about the side effects of anaemia in pregnancy

**Table 5.** Shows the distribution of respondents according to their knowledge about how frequently a pregnant woman is supposed to take folic acid supplements (N=50)

Response	Frequency(f)	Percentage (%)
Every day	38	76
Twice in a day	5	10
Two-three times a week	3	6
5- 6 times a week	4	8
<b>Total</b>	<b>50</b>	<b>100</b>

(Primary data, 2022)



**Figure 3.** Shows the distribution of respondents according to whether they think going for antenatal visits is important (N=50)

**Table 6.** Shows the distribution of respondents according to whether they think a mother and a child can benefit from taking iron supplements (N=47)

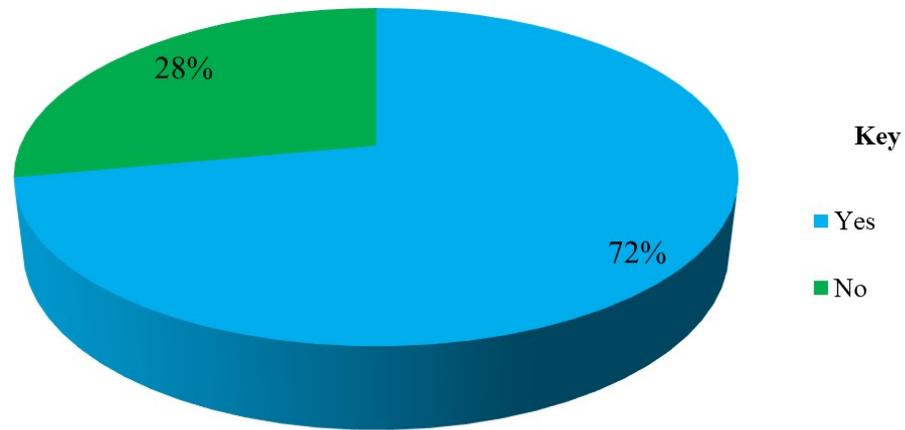
Response	Frequency(f)	Percentage (%)
Yes	40	85
No	7	15
<b>Total</b>	<b>47</b>	<b>100</b>

(Primary data, 2022)

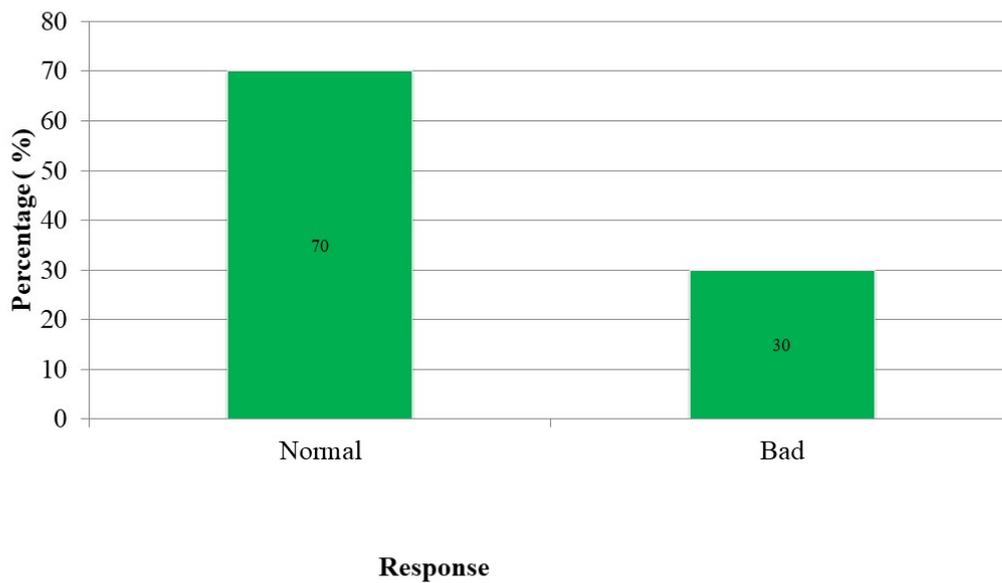
**Table 7.** Shows the distribution of respondents according to whether they always preferred to sleep under insecticide treated nets (N=50)

Response	Frequency(f)	Percentage (%)
Yes	30	60
No	20	40
<b>Total</b>	<b>50</b>	<b>100</b>

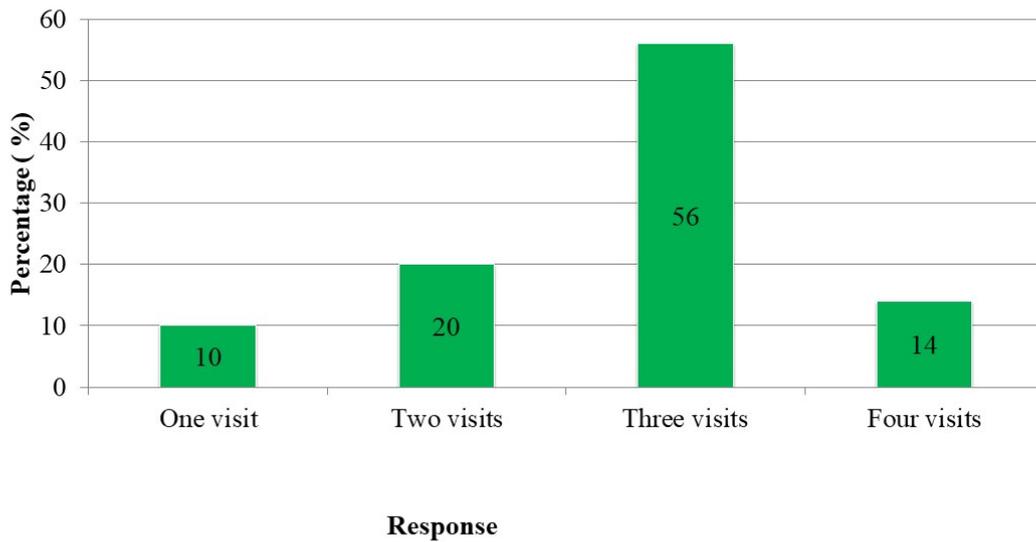
(Primary data, 2022)



**Figure 4.** Shows the distribution of respondents according to whether cultural or religious beliefs prevent pregnant women from eating certain types of food (N=50)



**Figure 5.** Shows the distribution of respondents according to how they feel when they sleep under insecticide treated nets.



**Figure 6.** Shows the distribution of respondents according to the number of ANC visits they had attended

**Table 8.** Shows the distribution of respondents according to iron supplements they had ever taken (N=50)

Response	Frequency(f)	Percentage (%)
Ferrous sulphate	7	14
Folic acid	31	62
Traditional medicine	4	8
I have never taken any	8	16
<b>Total</b>	<b>50</b>	<b>100</b>

(Primary data, 2022)

From the figure above, more than half (68%) reported that they usually take the iron supplements whereas the least (32%) reported that they don't usually take iron supplements.

From the table above, most of the respondents (71%) reported non-availability of the supplements as the reason as to why they don't usually take the iron supplements whereas the least (3%) reported that it is unnecessary to take iron supplements.

From the table above, half of the respondents (50%) reported carbohydrates as the type of food they commonly feed on whereas the least (10%) reported balanced diet as the type of food they commonly feed on.

From the figure above, more than half of the respondents (60%) reported that they have meals

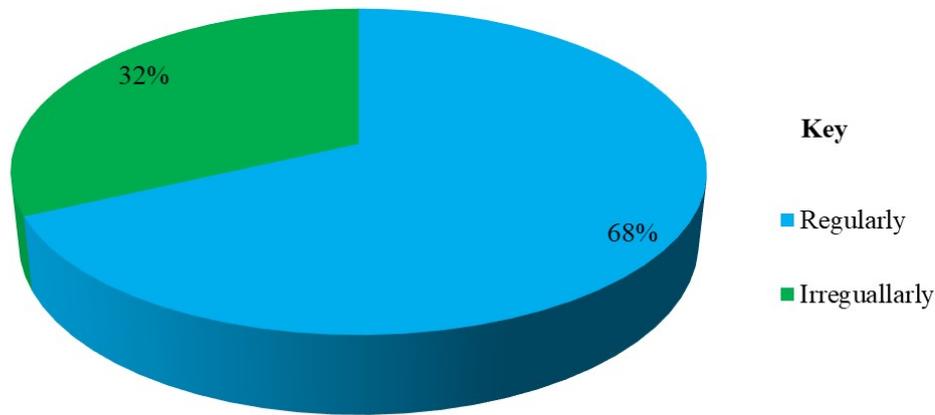
three times daily whereas the least (4%) reported that they have meals once in a day.

From the figure above, majority of the respondents (90%) reported that they receive iron supplement from health facility whereas the least (2%) reported that they receive iron supplements from traditional herbalists.

## 8 Discussion, Conclusion and Recommendations:

Knowledge towards prevention of anaemia among pregnant women aged 18-45 years

Findings obtained from a sample of 50 respondents showed that more than half of the respondents (70%) had ever heard about anaemia. This



**Figure 7.** Shows the distribution of respondents who had taken iron supplements according to how often they take iron supplements (N=50)

**Table 9.** Shows the distribution of respondents according to the reasons as to why they don't always utilize iron supplements (N=34)

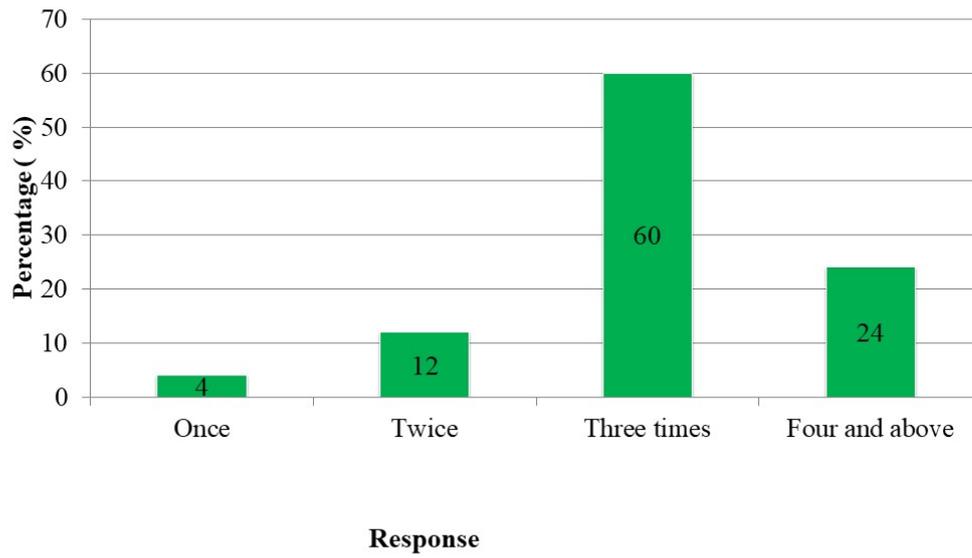
Response	Frequency(f)	Percentage (%)
I always forget	7	21
suffer from side effects	2	6
Non- availability of the supplements	24	71
It is un necessarily to take them	1	3
<b>Total</b>	<b>34</b>	<b>100</b>

(Primary data, 2022)

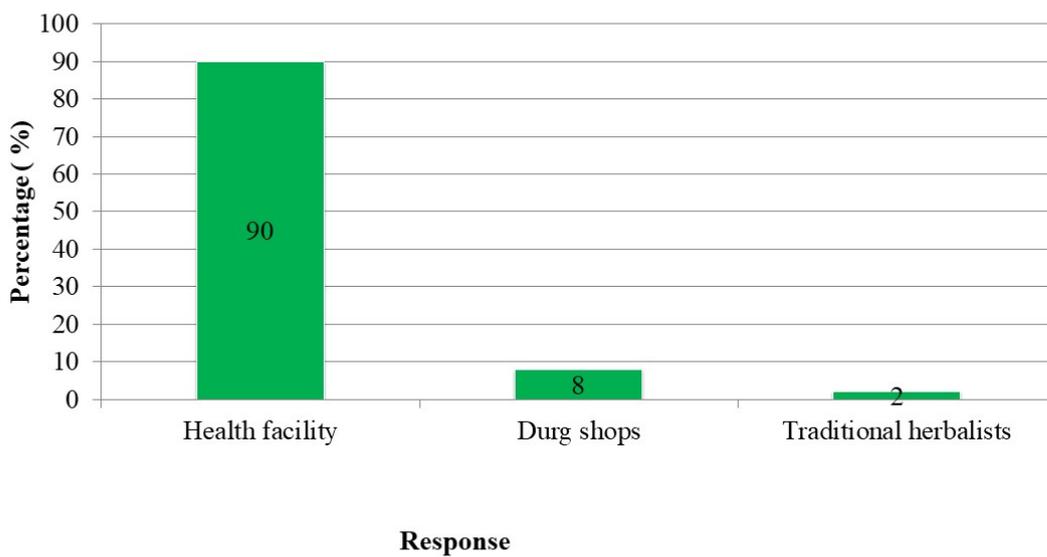
**Table 10.** Shows the distribution of respondents according to the types of foods they commonly feed on (N=50)

Response	Frequency(f)	Percentage (%)
Carbohydrates	25	50
Balanced diet	5	10
Green leafy vegetables	7	14
Others	13	26
<b>Total</b>	<b>50</b>	<b>100</b>

(Primary data, 2022)



**Figure 8.** Shows the distribution of respondents according to the number of times they have meals daily



**Figure 9.** Shows the distribution of respondents according to where they obtain iron supplements (N=50)

specifies that an outstanding number of study participants were responsive to the study background. The current study results were in line with Gowri et al, (2017), where results regarding awareness of anaemia showed that 79.3% of the women had heard about anaemia.

Additionally, most of the respondents (57%) obtained information about anaemia from the hospital. This is attributed to the fact that within hospitals, health workers provide detailed information about different medical conditions and the probability of being the most considerable source was expected. The study results were in line with Swapna (2017), where most of the mothers (64%) had information about anemia from health workers.

The study further revealed that half of the respondents (50%) knew malaria as the cause of anaemia in pregnancy. This could be a result of the fact that during ANC visits women were oriented about danger signs of anaemia. Findings were consistent with Justina & Athumani (2018), where results in regards to knowledge of anaemia prevention showed that about two-fifths (36.7%) of the respondents were able to mention the causes of anaemia.

In regards to signs and symptoms of anaemia, most of the respondents (44%) knew paleness. This signifies a direct relationship between women's sources of information and general awareness of the study context. The study results were consistent with Keneni et al (2018), where results showed that 71.6% of them were able to identify the symptom of anemia as paleness.

More than half of the respondents (62%) knew death as the side effect of anaemia and therefore, this showed that respondents were aware of the side effects of anaemia. Study results were in disagreement with Swapna (2017), where 62 of the mothers knew about fetal complications like low birth weight.

Given the study findings, the majority of the respondents (76%) knew that pregnant women are supposed to take folic acid supplements every day. This could be attributed to the fact that women had ever been informed about the purpose of using folic acid from different sources. This is in line with a study that was done by Sobia et al (2017), where

57.1% noted that pregnant women are supposed to take folic acid supplements every day (single tablet).

Attitude towards prevention of anaemia among pregnant women aged 18-45 years

The study discovered that almost all respondents (94%) agreed that going for antenatal visits is important and therefore, this denotes that an outstanding number of study participants had perceived vital reasons as to why they should go for ANC visits. Study findings were consistent with Adesuyi (2016), where 63.1% strongly agreed that regular antenatal visits are necessary for pregnant women.

The majority of the respondents (85%) agreed that a mother and a child can benefit from taking iron supplements. Such perception divulges that a significant number of study participants had a favorable attitude toward anaemia prevention. This is in agreement with Hiwot et al, (2021), where findings showed that 84% of women agreed that IFS can prevent anemia.

Based on study findings, more than half of the respondents (72%) disagreed that cultural or religious beliefs prevent pregnant women from eating certain types of food. This could be attributed to the fact that most of the study participants didn't perceive cultural beliefs to be of great importance in their daily lives. Study results were in line with Tewelde et al (2021), where findings showed that (80%) of the mothers disagreed that their cultural beliefs do not prohibit women from eating certain types of food.

The study revealed that most of the respondents (60%) always preferred to sleep under insecticide-treated nets. This indicates that a substantial number of participants were afraid of being at risk of getting malaria infection. The study results were in line with Nasreen et al (2017), where (72%) of the respondents strongly preferred to sleep under insecticide-treated nets

The majority of the respondents (70%) reported that they feel normal when they sleep under insecticide-treated nets. This implies that the majority of the women were feeling comfortable when they sleep under ITNs. The current findings were consistent with a study that was done by Arega (2015), where findings showed that (52%) of the respondents reported having felt normal when they sleep under ITNs.

Practices towards prevention of anaemia among pregnant women aged 18-45 years

From study findings, most of the respondents (56%) had attended three ANC visits. This implies that an average number of study participants had

tried their best to utilize ANC services. The study results were consistent with Arega (2015), where results related to access to ANC showed that most of the respondents (52%) had attended four ANC visits.

Findings from the study revealed that the majority of the respondents (62%) iron supplement they had ever taken was folic acid. This could be a result of the fact that most of the women had utilized ANC and therefore, were most likely to have been given folic acid to prevent themselves from anaemia. The study findings were in line with Hiwot et al (2021), where findings showed 84.9% of the study participants had taken iron folic supplementation during the current pregnancy.

The study revealed that more than half (68%) reported that they usually take iron supplements. This signifies good practices toward the prevention of anaemia. Results from the study were in agreement with Nivedita & Fatima (2016), where 74.36% claimed to have taken iron supplementation regularly.

However, among the study participants who didn't usually take the supplements, (71%) reported non-availability of the supplements as the reason why they don't usually take the iron supplements. This implies that the hospital does not have enough supplements in stock compared to the ratio of pregnant women. The study results were in agreement with Gowri et al (2017), where 22.5% attributed non-availability (more than one response) as the reason for not taking iron tablets.

The study findings revealed that half of the respondents (50%) reported carbohydrates as the type of food they commonly feed on. This could be attributed to the fact that the types of food commonly preferred or respondents had access to were mostly carbohydrates. Hence lowering their immunity. Study results were in line with Tewelde et al (2021), where 40.5% correctly listed millet as a source of carbohydrate they commonly fed on.

Given the study results, more than half of the respondents (60%) reported that they have meals three times daily. This indicates that pregnant women had an appetite for food. The study findings were in line with Masresha & Maleda (2019), where the majority of the women 76(59.4%) fed on following 3 regular meals.

The majority of the respondents (90%) reported that they receive iron supplements from health facilities. This shows that the health facilities were

the convenient and trusted places among the respondents. The study results were quite similar to findings obtained from AlDuraibi & Al-Mutawa (2020), where 86.7% of pregnant women took folic acid from health facilities.

## 9 Conclusion

Given the findings obtained from 50 respondents, the following conclusions were made:

The study established that study participants unveiled fairly pleasing knowledge towards prevention of anaemia because (70%) had ever heard about anaemia, (57%) obtained information about anaemia from hospital, (50%) knew malaria as the cause of anaemia in pregnancy, (44%) knew paleness, (62%) knew death as the side effect of anaemia and (76%) knew that pregnant women are supposed to take folic acid supplements every day.

The study concealed that study participants had a reasonable attitude towards the prevention of anaemia as (94%) of respondents agreed that going for antenatal visits is important, (85%) agreed that a mother and a child can benefit from taking iron supplements, (72%) disagreed that cultural or religious beliefs prevent pregnant women from eating certain types of food, (60%) always preferred to sleep under insecticide-treated nets and (70%) feel normal when they sleep under insecticide-treated nets.

The researcher noticed that study participants possessed fair practices towards anaemia prevention since (56%) had attended three ANC visits, (62%) had ever taken folic acid, (68%) usually taken the iron supplements, (60%) have meals three times daily and (90%) receives iron supplement from a health facility.

The researcher generally concluded that; even though knowledge, attitude, and practices towards prevention of anaemia among pregnant women were fairly noteworthy but the study established a research gap in regards to the types of food they commonly fed on, low uptake of ITNs, ANC, and irregular iron supplements intake among a notable few women and inadequate access to iron supplements at the hospital which needs to be addressed for equitable anaemia prevention interventions.

### Source of funding

The study was not funded.

### Conflict of interest

Authors declared no conflict of interest.

## 10 Limitations of the study and their solutions

Some respondents didn't have enough time to fill out the whole questionnaire due to more time required for the study. To solve this, the researcher politely talked to the respondents and pleaded for their time.

The researcher encountered financial constraints to run the study since research is a lengthy process and the study area was a little bit far away. Therefore, the researcher solved this by soliciting financial help from friends and family members and following a strict budget.

COVID 19 also affected the study purpose, since it was difficult for the researcher to get access to respondents for safety purposes. This was solved by strictly following standard operating procedure measures with the help of research assistants.

### Recommendations:

The MOH of health should make sure ferrous sulphate and folic acid are readily available in all public health facilities so that they can be availed to these pregnant mothers as the need arises and this will reduce maternal anaemia incidences.

Health workers at Gulu regional referral hospital should continue to sensitize pregnant women on the dangers of not sleeping under ITNs, irregular ANC visits, and iron intake which was observed among a notable percentage rate of women to close the research gaps.

Health workers at Gulu regional referral hospital should also continue to educate pregnant mothers on the benefits of taking iron supplements through community outreaches to implement better behavior of change and this will eliminate the noted challenges women face and unpleasant attitudes.

### A acknowledgement:

I would like to thank the almighty Lord who gave me strength and direction. Without you, my life would have no meaning.

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### Key Terms

**Questionnaire:** Is a research instrument consisting of a series of questions prepared by the researcher to gather information from the respondents.

**Anaemia:** It is defined as a haemoglobin concentration of less than 11g/dl, it is considered to be severe when haemoglobin concentration is less than 7.0g/dl, moderate when haemoglobin falls between 7.0 and 9.9g/dL (WHO, 2012).

**Antenatal care:** This refers to the care given to a pregnant woman before giving birth.

**Attitude:** Refers to emotional, motivational, perceptive, and cognitive beliefs that positively or negatively influence the behavior of an individual.

**Folic acid:** A vitamin B9 category used to prevent neural tube defects or congenital anomalies of the fetus.

**Iron:** Iron is a micronutrient used for the development of fetus and prevention of anemia.

**Mortality rate:** Rate at which people die

## 11 Anaemia: Is a hemoglobin level of 10 to 10.9 g/dl

**Moderate anemia:** Is a hemoglobin level of 7 to 9.9 g/dl

**Practices:** The observable actions of an individual that could affect her nutrition.

**Pregnancy:** Refers to the state of carrying a developing embryo or fetus within the female body.

**Research design:** This refers to the arrangement of conditions for the collection, analysis, and presentation of data in sequential frameworks to reach the intended end.

**Severe anaemia:** Is a haemoglobin level of less than 7 g/dl

### List of Abbreviation

ANC: Antenatal Care

Hb: Haemoglobin

HIMS: Health Information Management System

ICF: International Classification of Functioning

IDA: Iron Deficiency Anaemia

IFA: Iron Folic Acid

IPT: Intermittent Preventive Therapy

ITNs: Insecticide Treated Mosquito Nets

MoH: Ministry of Health

UBOS: Uganda Bureau of Statistics

WHO: World Health Organization

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