

NATIONAL  
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ETHIOPIA 2021



GENERATION AND MOBILIZATION OF NUTRITION  
EVIDENCE TO TACKLE MALNUTRITION: FROM DATA TO ACTION

# Prevalence of folate deficiency and associated factors among pregnant women in Haramaya district, eastern Oromiya, Ethiopia

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# Presentation outline

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- Introduction
- Methods and Materials
- Results
- Discussion
- Conclusion and recommendations
- Acknowledgement

# Introduction

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- **Folate** is water-soluble compounds in the vitamin B family and occurring : -naturally in food and the synthetic
- Folate co-enzymes mediate two major interrelated metabolic cycles: DNA cycle & methylation cycle
- Methionine is the immediate precursor of S-adenosyl methionine, which functions as the universal donor in many transmethylation reactions.

# Introduction....

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## ➤ **Consequences of folate deficiency in pregnancy results:**

- Megaloblastic anemia
- NTDs and neural crest disorders
- Fetal growth retardation, low birth weight, preterm delivery & neonatal folate deficiency
- Neural-tube defect (NTD) is the most frequent and the most tragic congenital abnormality of the central nervous system

# Introduction....

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## □ What was done?

- Globally, there are limited data
- The burden of folate deficiency among pregnant women in different African countries is fluctuating.
- In Ethiopia, micronutrient deficiency are a public health problem, including folate deficiency.

# Introduction....

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## What where the gaps?

- FMOH guideline of micronutrient doesn't consider folate deficiency
- Folate fortified foods are not available in foodstuffs in the country ([FMOH, 2011](#)).
- In Ethiopia to reduce the burden of micronutrient deficiency there are policies and strategies but, the studies show that there is a gap to prevent negative birth and maternal health outcomes.
- A few study done in Ethiopia is also **only hospital based**.
- However, to our knowledge, there is no research-based information regarding pregnant women's.

# Introduction....

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- Based on the study findings, the concerned body will develop strategies:
  - To bridge the knowledge gap on folate rich foods, ANC follow up and folic acid supplementation of pregnant women,
  - The finding of this study is expected to be used as a reference by other researchers, governmental & NGOs.
  - Overall, the findings have important implications for policy and program efforts toward improved nutritional status and treatment strategies.

# Objectives

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## ➤ General objective

- ✓ To assess the prevalence of folate deficiency and associated factors among pregnant women in Haramaya District, Eastern Oromiya, from January 5<sup>th</sup> February 12, 2021.

## ➤ Specific objectives

- To determine the prevalence of folate deficiency among pregnant women.
- To assess the associated factors of folate deficiency during pregnancy



# Methods and Materials

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- The study was conducted in the Haramaya Health Demographic Surveillance and Health Research Centre (HDS-HRC), eastern Ethiopia from January 5<sup>th</sup> February 12, 2021.
- **Study design:** a community-based cross-sectional study
- **Inclusion criteria:** All pregnant women during the study period was included.
- **Exclusion criteria:** Those pregnant women who are on anti-diabetic, anti-tuberculosis, anti-convulsants, anti-malaria drugs and those severely ill
- **Sample size:** 461 pregnant women who were randomly selected from 8 selected eight kebeles

# Methods and Materials....

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- Data collection methods

- Interview administered,

- Anthropometric measurements

- 5mls venous blood and were centrifuged (separation of serum)

stored frozen at -80C and transported EPHI for later

determination

- serum Folate deficient-----  $\leq 4\text{ng/mL}$  or  $< 10\text{nmol/L}$ .

# Methods and Materials....

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- Data analysis
  - Data double entry was done
  - Binary logistic regression model was fitted to identify predictors of dependent variable
- For multivariable analyses,
- **Ethical clearance** was obtained from institutional health research ethics review committee (IHRERC) of CHMS, HU.

# Results

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## **Socio-demographic characteristics of respondents**

- A total of 461, response rate were 96.75%.
- The mean age 25.70 ( $\pm$  5.15), ranging from 16 to 36 years.
- 73.77% not read or write
- 96.64% housewives
- 76.46% had 1-5 family size

# Results....

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## Dietary Practice of respondents

- 14.8% ate dark green vegetables in the last seven days
- 29.6% adequate (DDS)
- 10.54% had poor food consumption score,
- 54.26% had acceptable food consumption score.

# Results....

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## Anthropometric and Biomarker status of respondents

- 52.91% were iron deficient
- 45.96% were anemic
- 28.03% were iron deficient anemic.
- 47.98% were under nutrition (MUAC <23CM).
- The prevalence of folate deficiency was 49.33%

# Results....

Factors associated with Folate deficiency among pregnant women in Haramaya district

Variables	Folate status deficiency (n=220)	Normal (n=226)	COR (95%CI)	AOR (95%CI)	P-value
<b>Knowledge of folate rich food</b>					
No	210 (95.45)	198( 87.61)	1	1	
Yes	10(4.55 )	28 (28.10)	0.34 (0.16, 0.71)	0.34 (0.15, 0.76)	0.008*
<b>Benefit of folic acid supplementation</b>					
No	172(78.18)	153(71.24)	1	1	
Yes	48 (21.82 )	73 (28.76)	0.58 ( 0.38, 0.89)	0.71 ( 0.42, 1.22)	0.223
<b>IDA</b>					
No	135 (61.36)	186 ( 82.30)	1	1	
Yes	85 (38.64)	40( 17.70)	2.92 ( 1.89, 4.53)	2.92 (1.84, 4.63)	<0.001**
<b>Meal frequency</b>					
< 4	168( 76.36 )	161 (71.24)	1	1	
>=4	52( 23.64)	65 (28.76)	0.76 ( 0.50, 1.17)	0.71 ( 0.42, 1.22)	0.726
<b>IFAS</b>					
No	167 ( 75.91)	136 (60.18 )	1	1	
Yes	53 ( 24.09)	90 ( 39.82 )	0.48 (0.32, 0.72)	0.57 ( 0.36, 0.89)	0.014*

# Discussion

No.	Finding of this study	Previous comparable studies	Possible justification
1	Prevalence of folate deficiency was 49.33% (95% CI: 44.59 - 54.07).	Comparatively higher than in <ul style="list-style-type: none"><li>• Niger at 44.3%</li><li>• Kenya 0.8%</li><li>• Ethiopia 26.9%</li></ul> Lower than studies conducted in <ul style="list-style-type: none"><li>• Sudan 57.7% (<a href="#">Ishraga I. et al., 2009</a>)</li><li>• Senegal 54.3% (<a href="#">Ndiaye et al., 2018</a>).</li><li>• Ethiopia, 46% of women of reproductive age had folate deficiency (<a href="#">Haidar et al., 2010</a>),</li></ul>	The variation may be due to the study setting, study area, design, study population, life style, differences of the cutoff point, and application of interventional strategies.



# Discussion....

No.	Finding of this study	Previous comparable studies	Possible justification
2	Iron deficiency anemia (AOR=2.92, 95%CI: 1.84-4.63, P=0.001)	Supported by study in Ethiopia ( <a href="#">Haidar, 2010</a> ) and In Sudan ( <a href="#">Ishraga I. et al., 2009</a> )	It is well known that both folate and iron deficiencies can cause anemia and that concurrent iron and folate deficiency are frequently noted with anemia, particularly in pregnancy when an increased folate demand can lead to folate deficiency.
3	Perceived knowledge of folate rich food (AOR=0.34, 95%CI: 0.15-0.76, P=0.008)	consistent with a study conducted in Addis Ababa, Ethiopia( <a href="#">Adela, 2018</a> ) & in nine region of Ethiopia ( <a href="#">Haidar, 2010</a> )	This indicates that there is a lower risk of folate deficiency among women with good knowledge of folate rich foods during pregnancy.

# Discussion....

No.	Finding of this study	Previous comparable studies	Possible justification
4	Iron folic acid supplementation (AOR=0.57, 95%CI: 0.36-0.89, P=0.014)	This result was in agreement with the reports of study from southern of Ethiopia( <a href="#">Yoseph et al., 2021</a> )	The folic acid requirement in non-pregnant women is 50-100 µg per day but this increases during pregnancy to as much as 400 µg per day. So, this finding was also highlighted that the importance of folic acid supplementation and other intervention during pregnancy mostly at first three months of conception for prevention of NTDs.

# Limitations of the study

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- Since this was a cross-sectional study design, it does not show risk factors in detail
- There is likely some recall bias since the study participants needed to recall all consumed food groups in the past seven days

# Conclusion

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- This study findings have shown the prevalence of folate deficiency among pregnant women was high.
- Therefore, it is important the nutrition education and counselling should be intensified to ensuring iron and folic acid supplementation be given during pregnancy.
- This will enhance dietary practice compliance to iron and folic acid supplementation and positively affect the folate status of women during pregnancy

# Recommendation

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## **Woreda & Zonal Health Department, ORHB, MOH and NGOs**

- Provision of comprehensive and routine nutritional assessments and counseling service (BCC)
- Strengthening/promoting maternal nutrition, including adequate intake of diversified foods
- Iron and folic acid supplementation

# Recommendation....

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## **Policy Makers**

➤ Emphasis the need for sustainable folate intake through dietary diversification and appropriate public health interventions, such as supplementation during the periconceptional period and food fortification

## **Researchers**

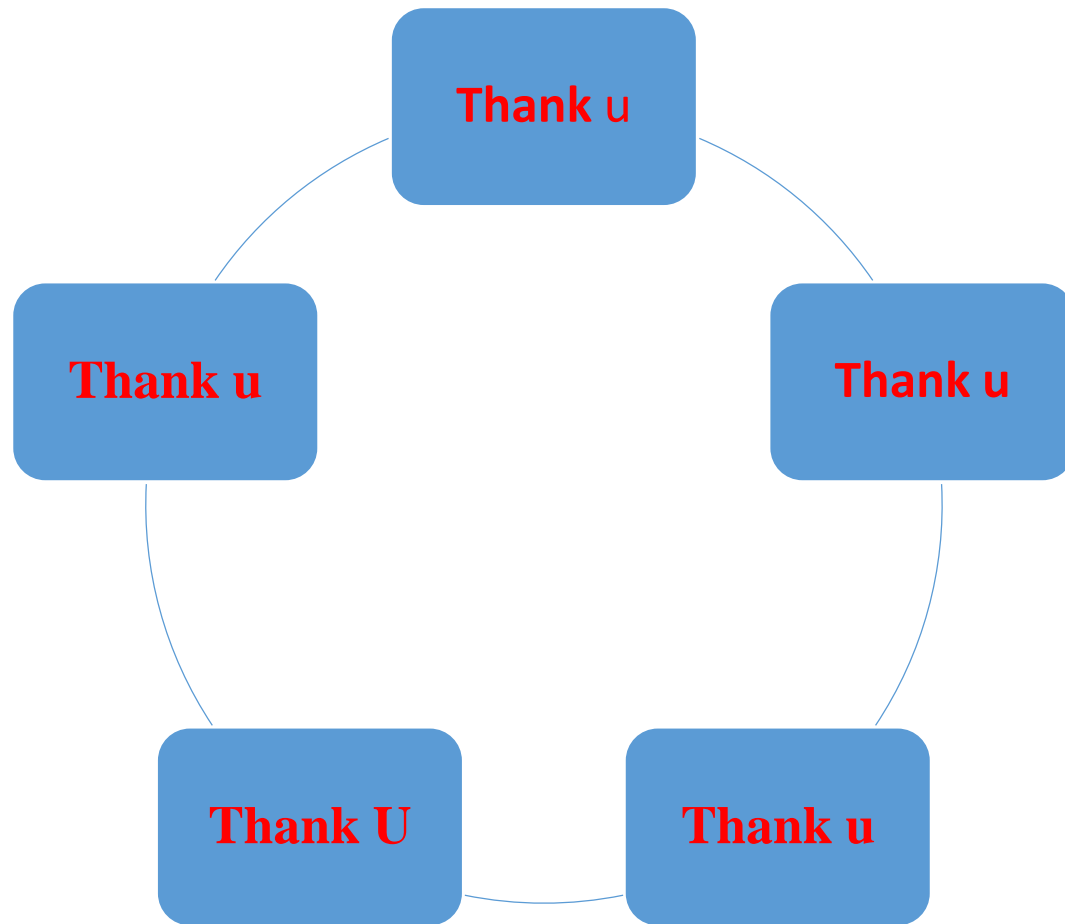
Further studies need to be conducted on large sample size and at different agro ecological zones to see the effect of folate deficiency on neural tube defect, and other birth outcomes and also to see the effects of IFAS in reducing folate deficiency.

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