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CENTER FOR DIETARY ASSESSMENT

Nigeria Book of Dietary Data Graphics

Results from the 2024 Nigerian National Food Consumption and Micronutrient Survey

FEDERAL MINISTRY OF
HEALTH & SOCIAL WELFARE

FEDERAL MINISTRY OF
AGRICULTURE AND FOOD SECURITY

FEDERAL MINISTRY OF BUDGET
AND ECONOMIC PLANNING

Participants of the 'Dietary Data Use Workshop' hosted by *Intake* – Center for Dietary Assessment at the Abuja Continental Hotel on August 12–14, 2024.

About the Nigeria Book of Dietary Data Graphics

This book of graphics was created by the *Intake* – Center for Dietary Assessment as an input to the *Intake*-hosted 'Dietary Data Use Workshop', convened in Abuja, Nigeria, August 12–14, 2024. This book of graphics provides a visual representation of the results of the dietary component of the 2024 Nigerian National Food Consumption and Micronutrient Survey.

This book of graphics is accompanied by interactive figures available at: https://www.intake.org/nigeria-dietary-data-visualizations.

Graphic illustrations of the outputs from the workshop are available here.

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About Intake

Intake is a Center for Dietary Assessment at FHI 360, established in 2016 with funding from the Gates Foundation. *Intake* aims to strengthen policies and programs to improve nutritional status in low- and middle-income countries (LMICs) by increasing the availability, quality, comparability, and use of dietary data. *Intake* provides flexible, on-demand technical assistance to governments for collecting, analyzing, and using dietary intake data for evidence-based decision-making in LMICs; develops tools and technologies to facilitate dietary data collection and analysis; and carries out research to advance dietary assessment methods and develop validated metrics of diet quality.

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1 Description of the Survey

1.1 Survey Design and Objectives[1]

Data for the Nigeria National Food Consumption and Micronutrient Survey (NFCMS) was collected in 2021. The survey was a population-based cross-sectional survey. The main objective of the survey was to determine the micronutrient status, anthropometric status, and dietary intake of women of reproductive age (WRA) aged 15–49 years, pregnant women aged 15–49 years, and children aged 6–59 months; and the micronutrient status of non-pregnant adolescent girls aged 10–14 years; and to identify key factors associated with poor nutrition in these demographic groups.

The specific objectives related to diet included:

1. To assess the food consumption of WRA and children aged 6–59 months, excluding breastmilk, to determine the usual intake of energy, protein, fat, and selected micronutrients, as well as the usual intake of specific nutrient-dense foods relevant for food-related nutrition policies and programmes.
2. To determine the adequacy of nutrient intake among WRA and children aged 24–59 months to identify populations at risk of inadequate intake.
3. To assess infant and young child feeding practices for children aged 6–23 months and compare the nutrient density of their complementary feeding diets to recommendations.

For the dietary component of the survey, data were collected using a diet questionnaire (topics included infant feeding, biofortification, and fortification) immediately followed by a quantitative 24-hour dietary recall collected using the INDDEX24 Mobile App. A random sub-sample of respondents completed a repeat interview two to three days later.

Data for the survey were collected from all 6 regions of Nigeria: North Central, North East, North West, South East, South South, and South West. Sampling within each region followed a two-stage random selection strategy. In the first stage, Enumeration Areas (EAs) were selected by Probability Proportional to Size (PPS) within each region. Sixty-five (65) EAs within each region were selected. In the second stage, eligible respondents for each sampling demographic group (i.e., pregnant women, non-pregnant women, and children aged 6–59 months) were randomly selected within the sampled EAs.

The final sample size for the dietary component of the survey (with a completed quantitative 24-hour dietary recall) was:

- 5241 non-pregnant women (697 lactating women and 4544 non-lactating women)
- 999 pregnant women
- 5020 children (1664 children 6–23 months and 3356 children 24–59 months)

For dietary intake, the results are presented separately for pregnant and non-pregnant women. In addition, data for non-pregnant women are presented separately for lactating women and non-pregnant, non-lactating (NPNL) women. For children, data are presented separately for children aged 6–23 months and children 24–59 months.

Data are disaggregated by area of residence (urban and rural) for pregnant women, non-pregnant women, children aged 6–23 months, and children aged 24–59 months.

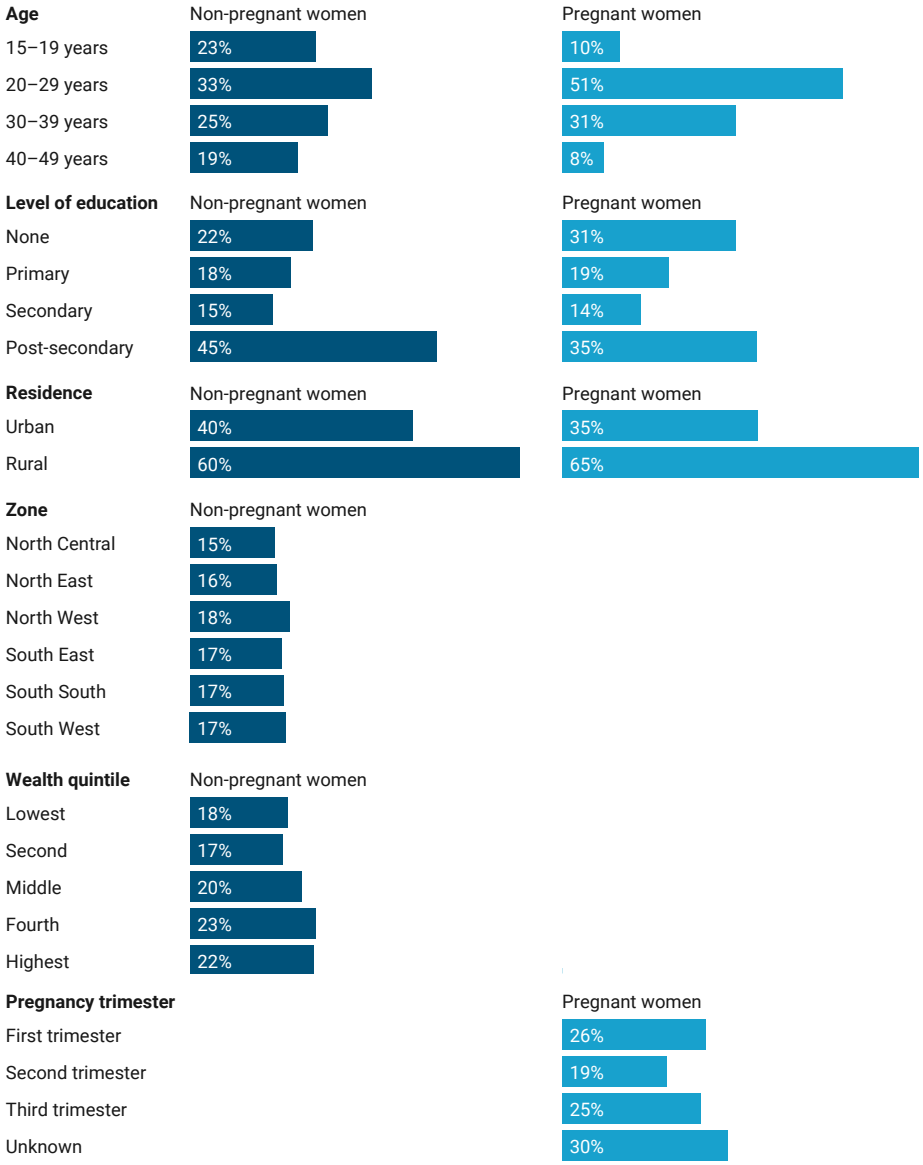
Data for non-pregnant women are disaggregated by geopolitical zone and wealth quintile[2].

1 The text for this section was adapted from (Federal Government of Nigeria (FGoN) and the International Institute of Tropical Agriculture (IITA), 2024).

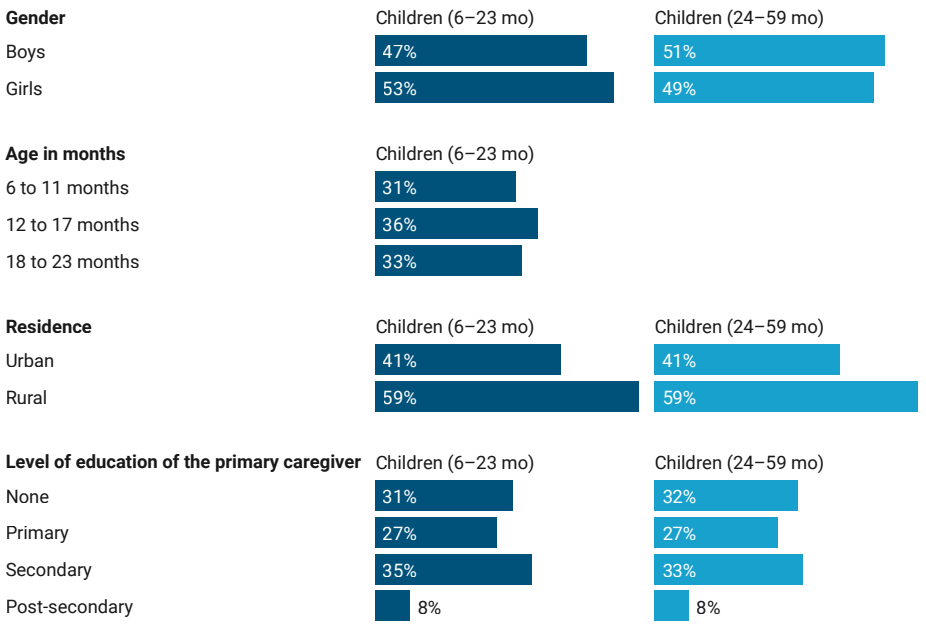
2 Wealth quintiles were derived using the asset approach, whereby all household possessions were recorded to form a wealth index score.

1.2 Characteristics of the Population Groups

Characteristics of women



Characteristics of children



2 Energy and Nutrient Intakes for Women and Children (24–59 months)

Usual energy, macronutrient, and micronutrient intakes were derived from the quantitative 24-hour dietary recall data collected for non-pregnant WRA, pregnant women, and children aged 24–59 months. Because requirements for energy and several nutrients are greater for lactating women (IOM, 2019), intakes are presented separately for lactating and non-lactating women. Usual intakes of the overall diet of children aged 6–23 months are not presented because breastmilk intakes were not measured in the survey.

The National Cancer Institute (NCI) method was used for analyses of usual nutrient and food intake. The NCI method implements statistical modelling using the information from those individuals with first and second recalls to estimate the within-person variation in nutrient and food intakes and estimates a distribution of intakes for the entire population or sub-population of interest that represents only the between-person variation.

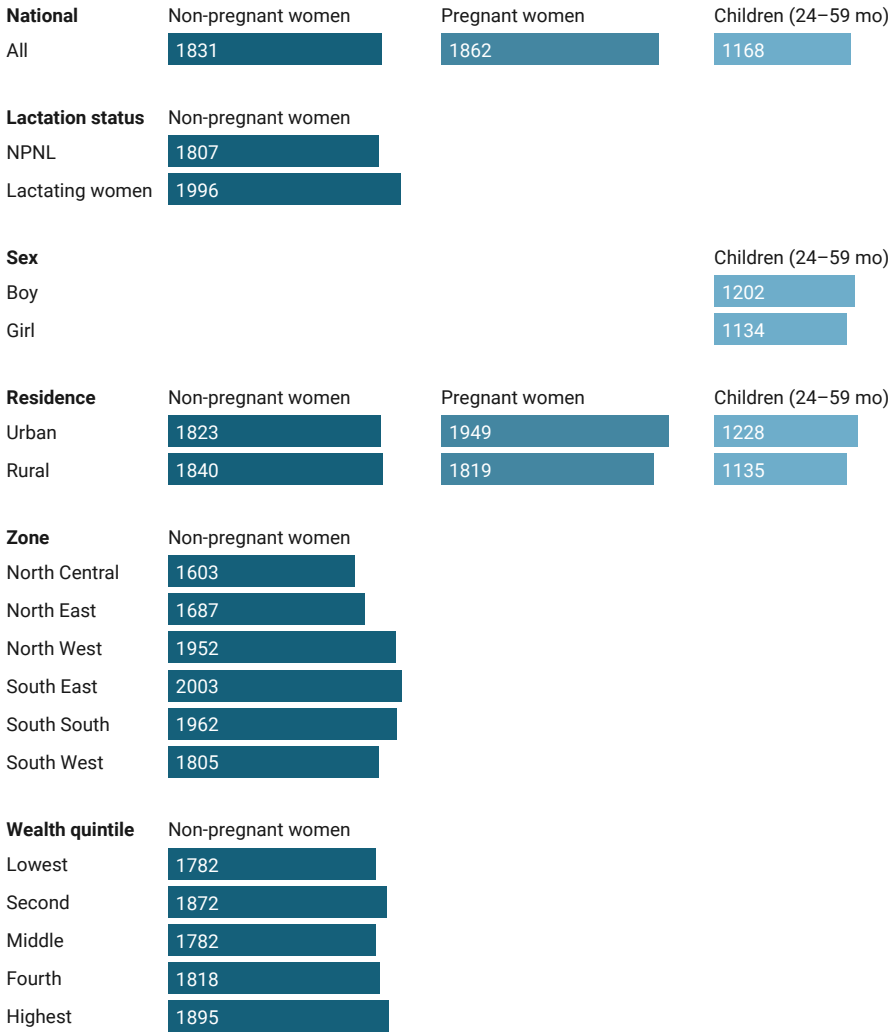
Nutrient intake adequacy was estimated with the NCI method in the same modeling procedures that produce the usual intake distributions. The Estimated Average Requirements (EAR) from the Institute of Medicine (IOM) for the United States and Canada were used to assess the adequacy of micronutrient intakes (IOM, 2019), and the methodology recommended by the International Zinc Nutrition Consultative Group (IZiNCG) was used for to assess zinc adequacy (IZiNCG, 2004).

Usual intakes are presented as medians, as the distributions of nutrient intakes tend to be skewed. The EARs for nutrient intakes obtained from the Institute of Medicine (www.nap.edu), representing the average daily requirements for a population demographic group, are shown for comparison as footnotes.

Sample weights were applied to all analyses to account for the sampling design and non-response.

2.1 Energy Intake

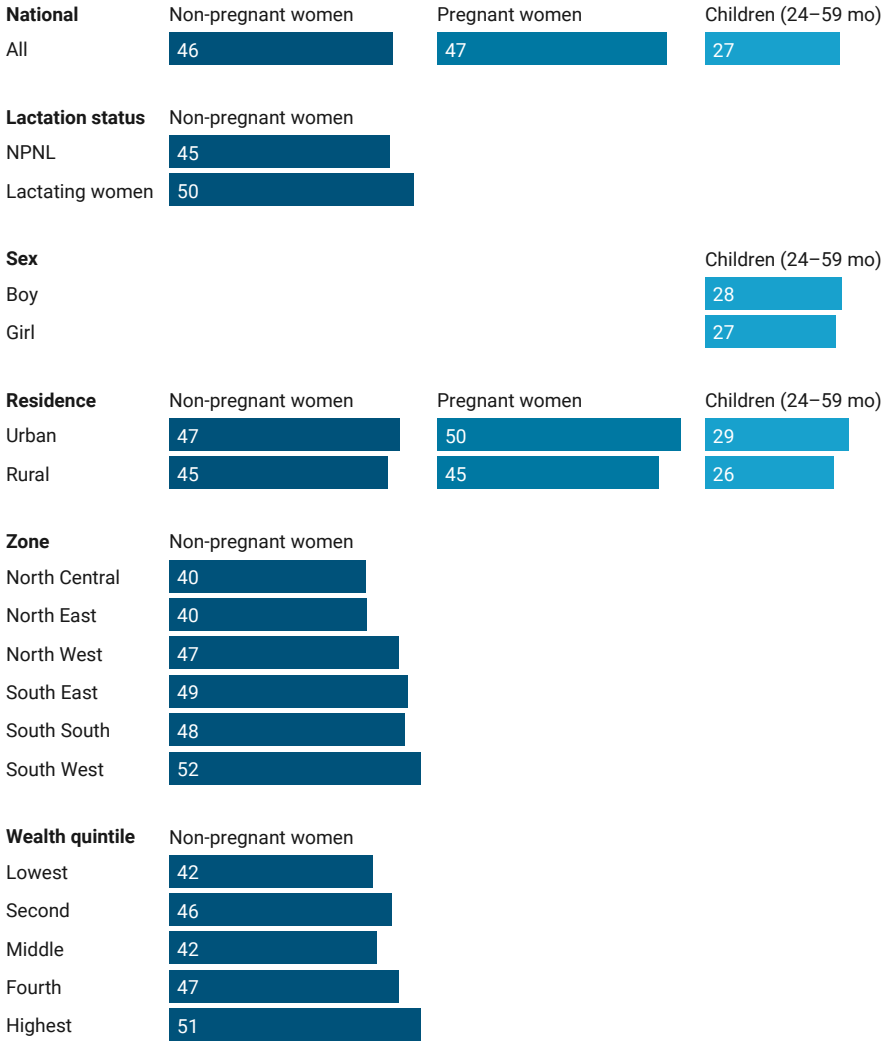
Median daily energy intake (kcal/day)



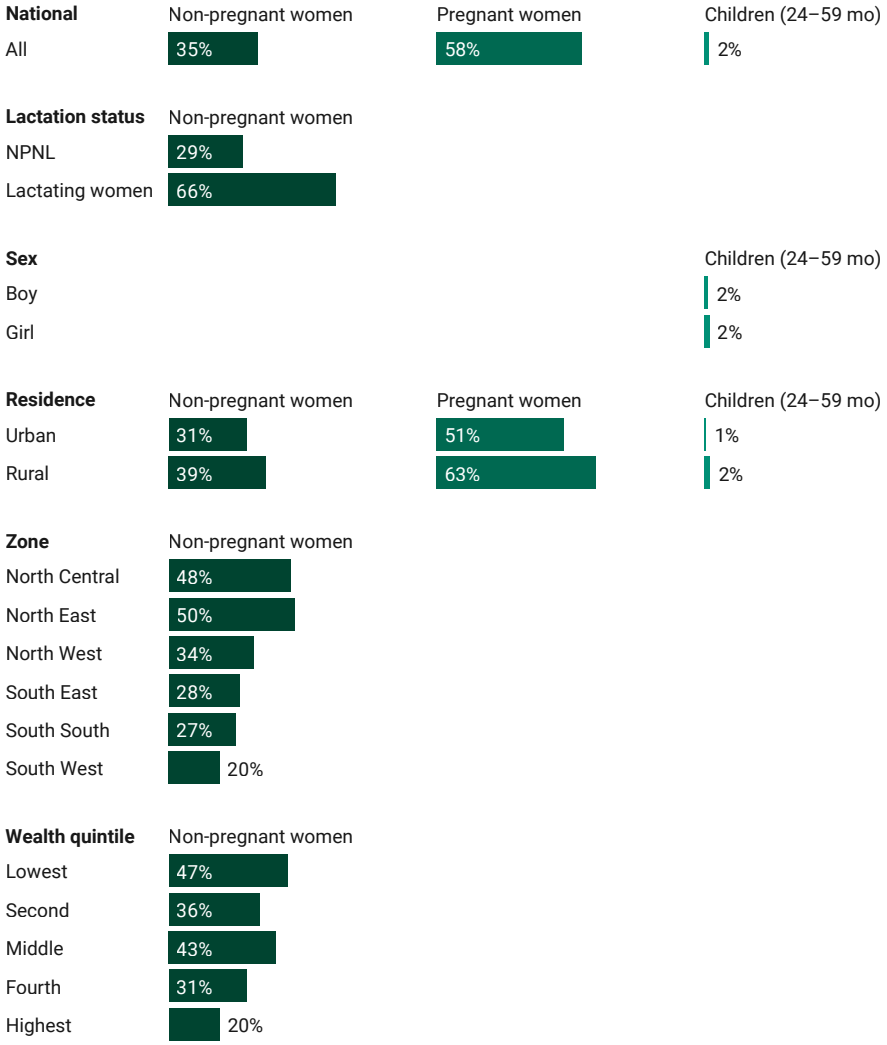
2.2 Macronutrient Intakes

2.2.1 Protein Intake and Prevalence of Inadequacy

Median daily protein intake (g/day)



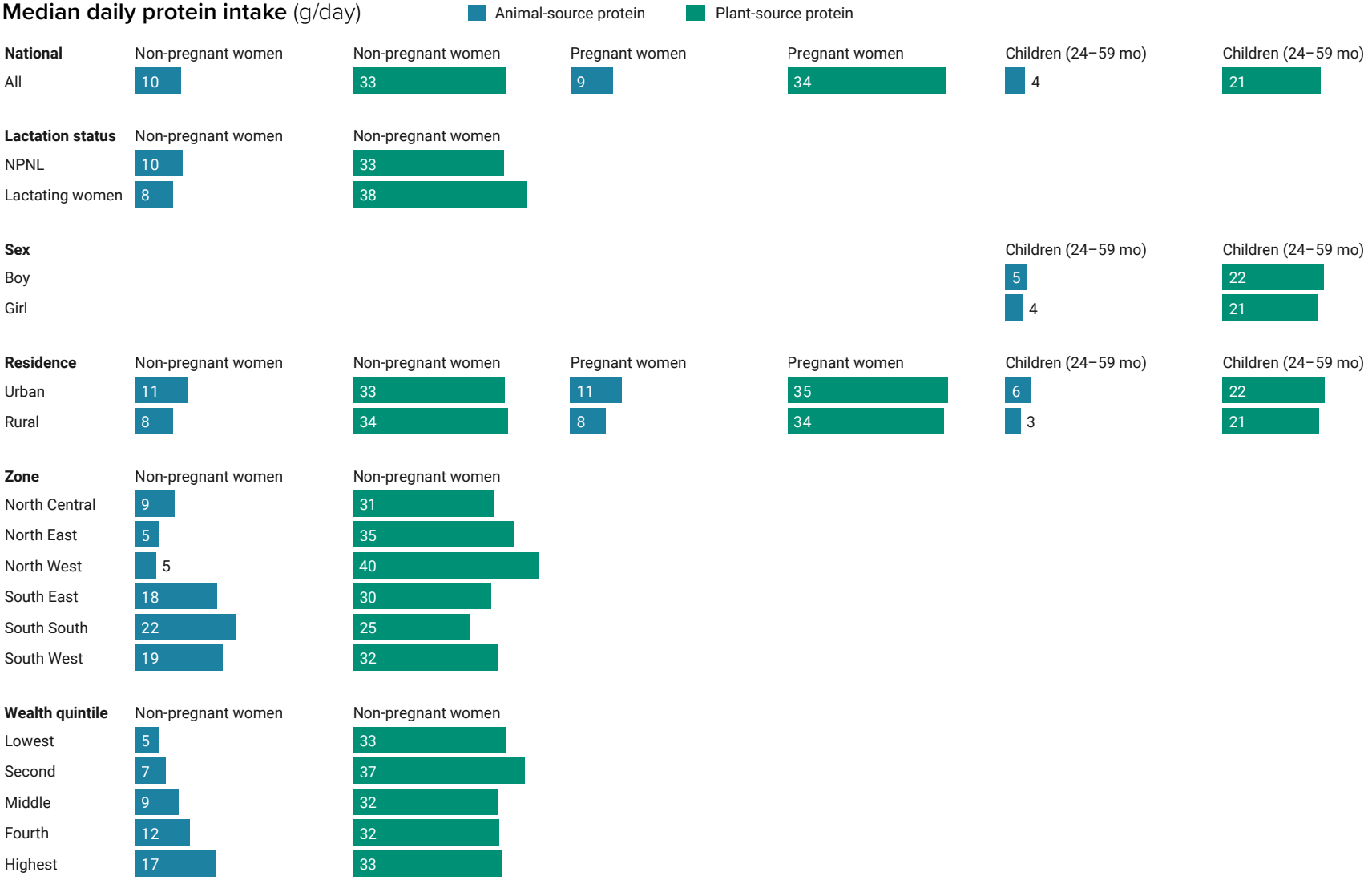
Prevalence of protein inadequacy (% < EAR)



The EAR for protein is 38 g/day for NPNL women, 59 g/day for lactating women, and 50 g/day for pregnant women. The EAR for protein was derived from grams per kg of body weight using reference body weights (IOM, 2019)

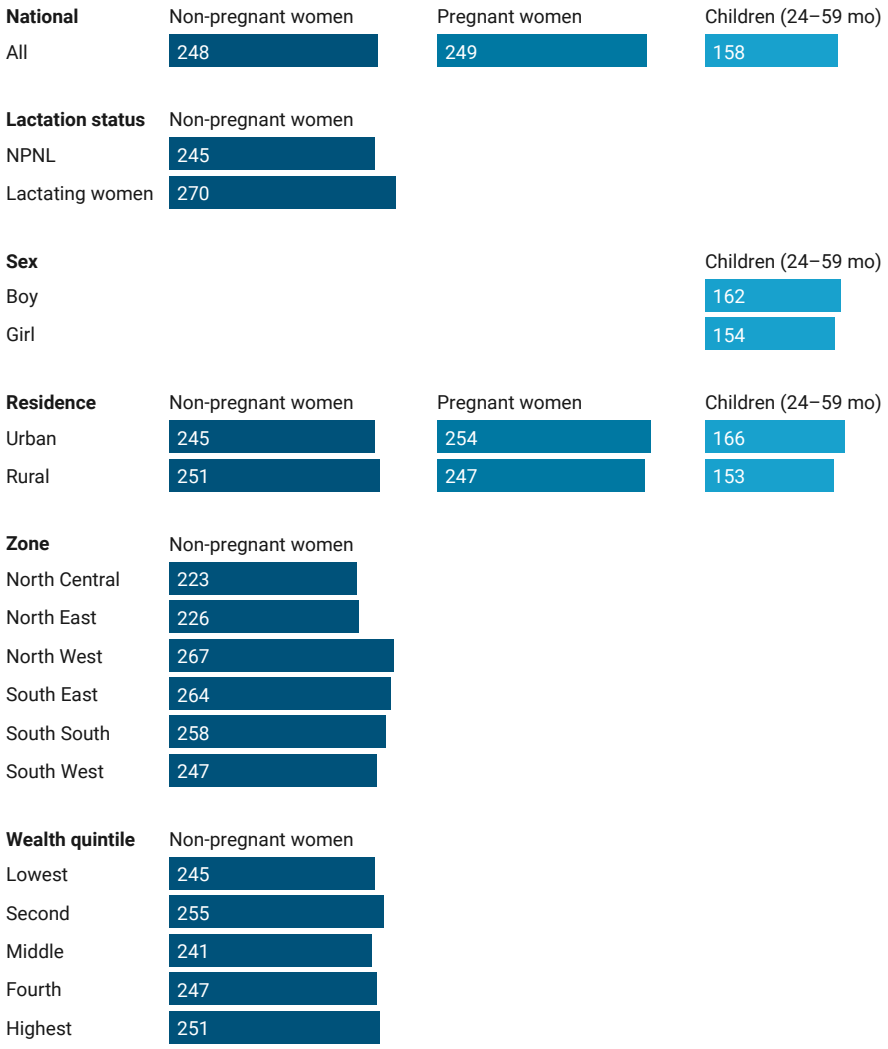
The EAR for protein is 10–15 g/day for children 24–59 months. The EAR for protein was derived from grams per kg of body weight using reference body weights (IOM, 2019)

2.2.2 Intake of Animal vs. Plant-Sources of Protein

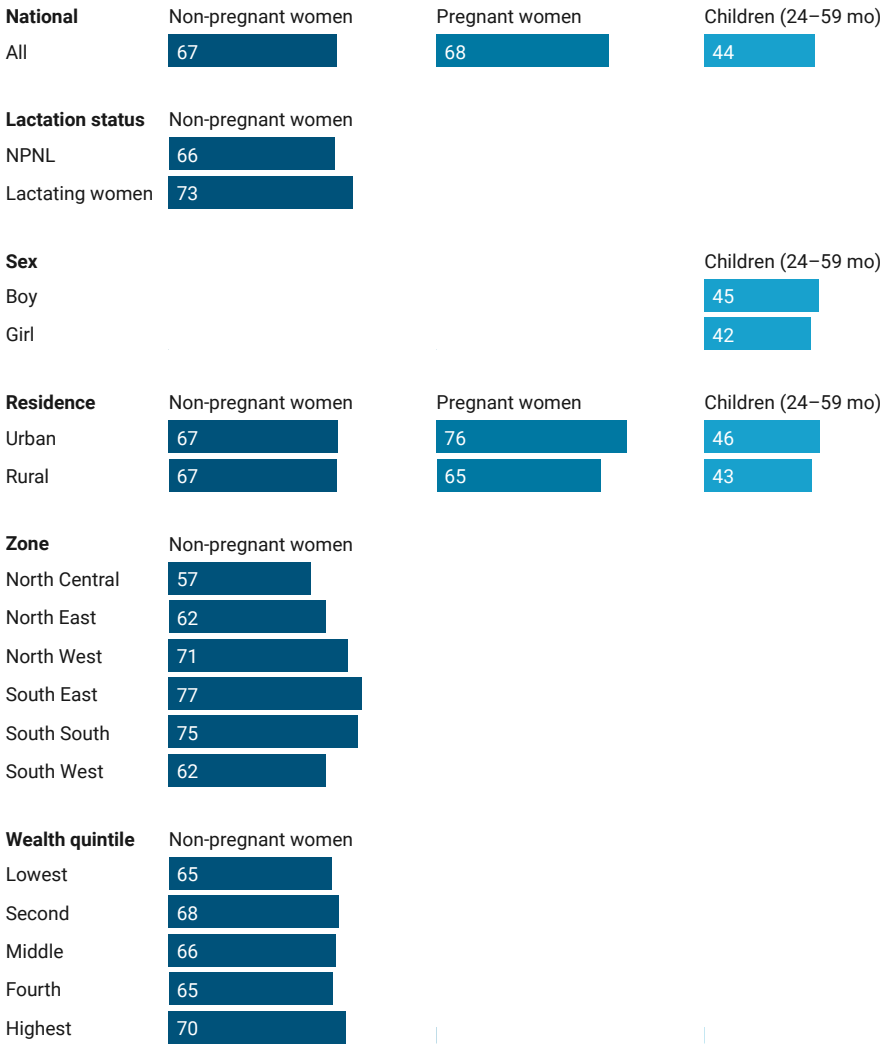


2.2.3 Carbohydrates and Fat intakes

Median daily carbohydrates intake (g/day)

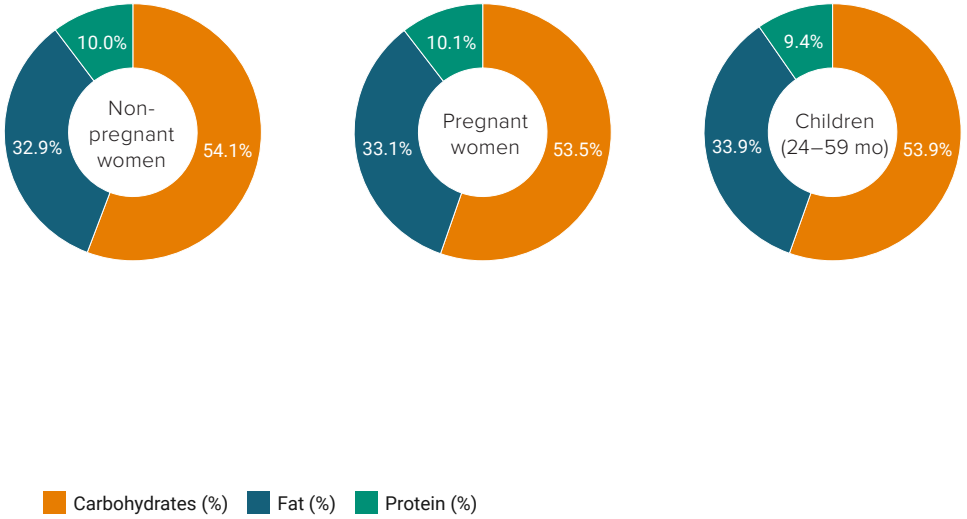


Median daily fat intake (g/day)

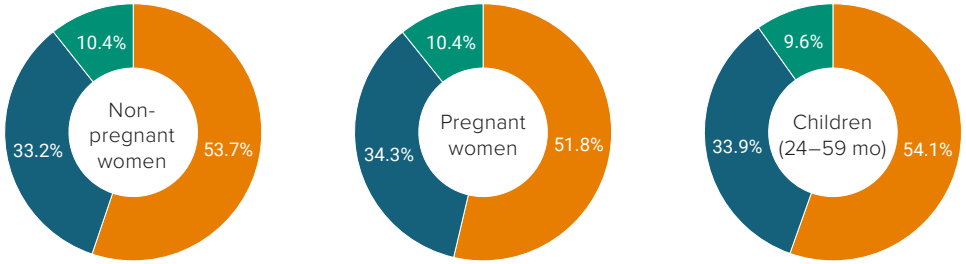


2.2.4 Energy Contribution from Macronutrients

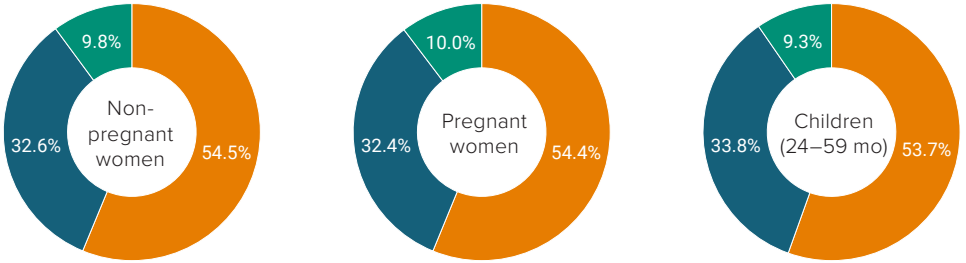
Contribution to energy intake (%) – National



Contribution to energy intake (%) – Urban



Contribution to energy intake (%) – Rural

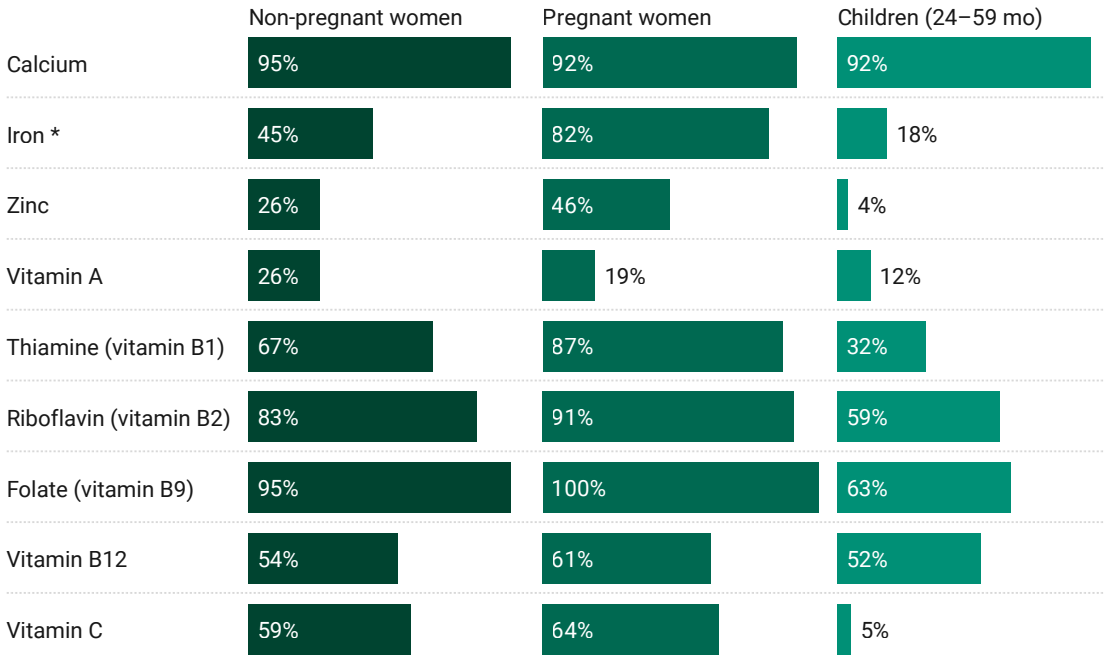


The acceptable % energy intake from protein ranges between 10% and 35% for women, 5% and 20% for children aged 24–36 months, and 10% and 30% for children aged 37–59 months (IOM, 2005).
The acceptable % energy intake from fat ranges between 20% and 35% for all demographic groups (IOM, 2005).
The acceptable % energy intake from carbohydrates ranges between 45% and 60% for all demographic groups (IOM, 2005).

2.3 Micronutrient Intakes and Prevalence of Inadequacy

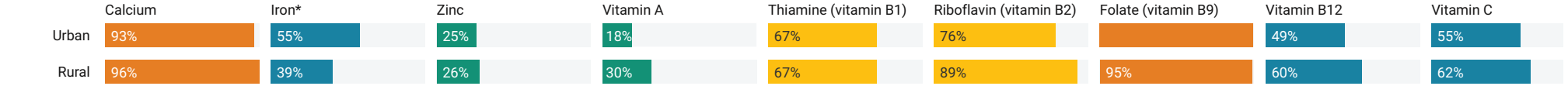
2.3.1 Overview of Prevalence of Inadequacy for Selected Micronutrients

Prevalence of inadequacy for selected micronutrients (% < EAR)

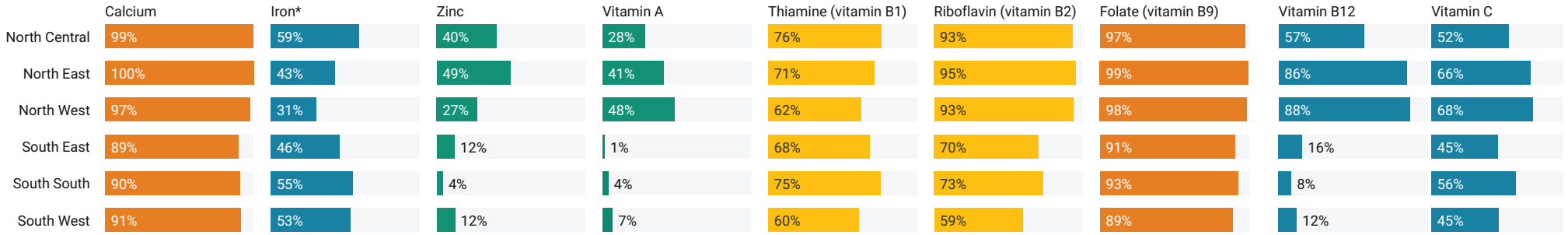


* For iron, results for non-pregnant women are those for NPNL women. Lactating women were excluded from the analyses.

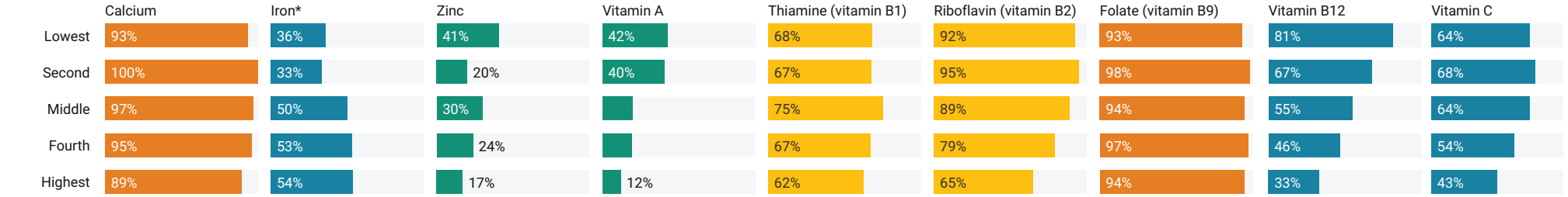
Prevalence of micronutrient inadequacy for select micronutrients among non-pregnant women, by residence (% < EAR)



Prevalence of micronutrient inadequacy for select micronutrients among non-pregnant women, by zone (% < EAR)



Prevalence of micronutrient inadequacy for select micronutrients among non-pregnant women, by wealth quintile (% < EAR)

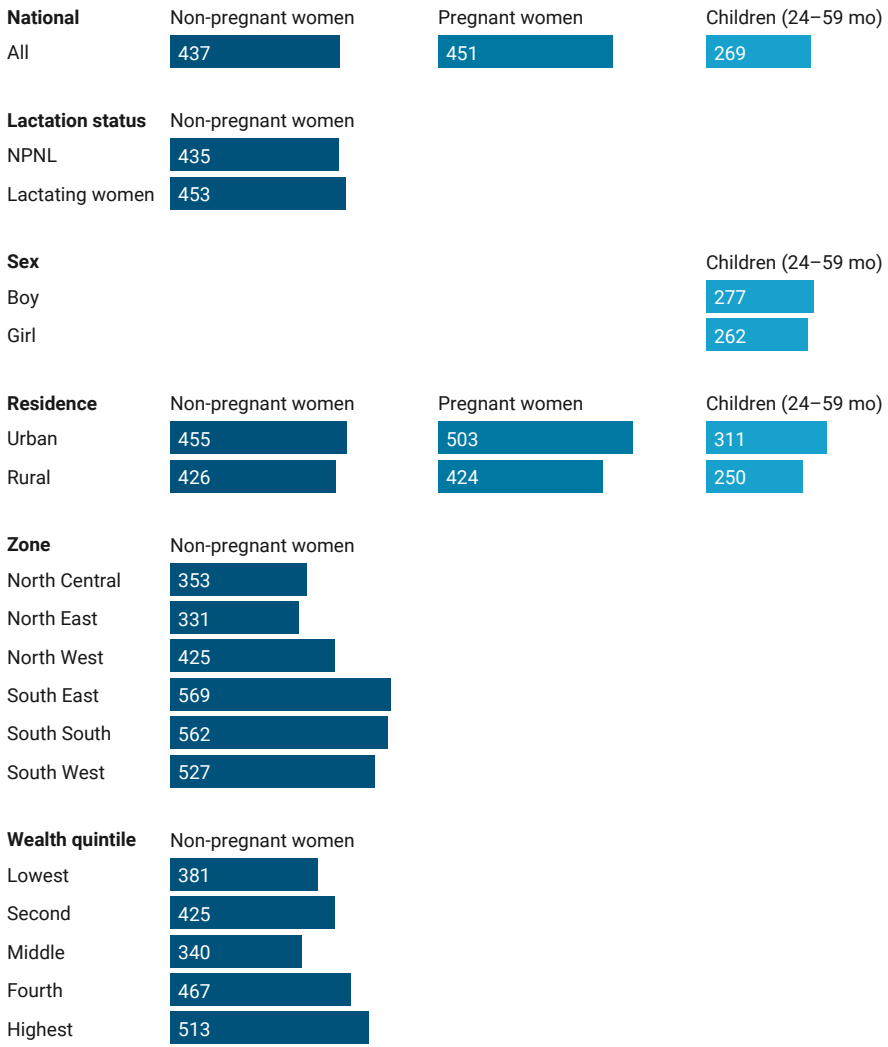


Dark orange represents nutrients with the highest prevalence of inadequacy (calcium and folate), followed by yellow (thiamine and riboflavin), followed by blue (vitamins B12 and C and iron) and then followed by green (zinc and vitamin A).

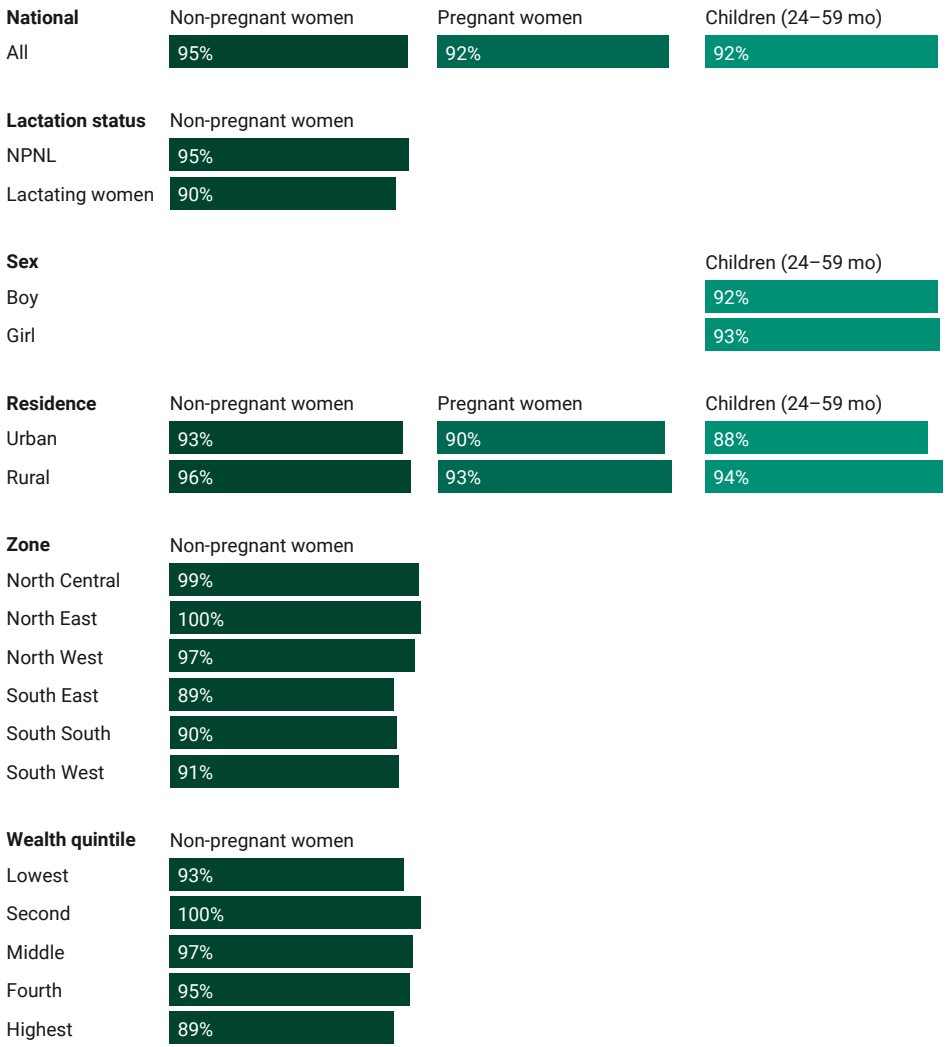
* For iron, results for non-pregnant women are those for NPNL women. Lactating women were excluded from the analyses.

2.3.2 Calcium Intake and Prevalence of Inadequacy

Median daily calcium intake (mg/day)



Prevalence of calcium inadequacy (% < EAR)



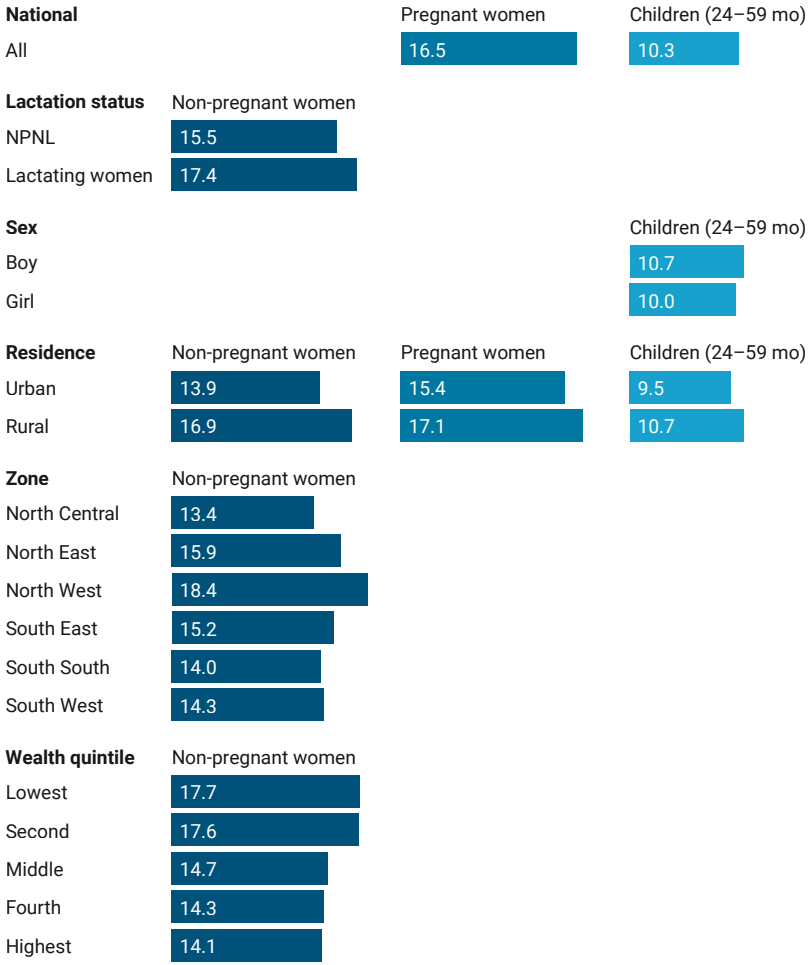
The EAR for calcium for women aged 15–18 years is 1100 mg/day for NPNL women and 1000 mg/day for pregnant and lactating women (IOM, 2019).

The EAR for calcium for women aged 19–49 years is 800 mg/day (IOM, 2019).

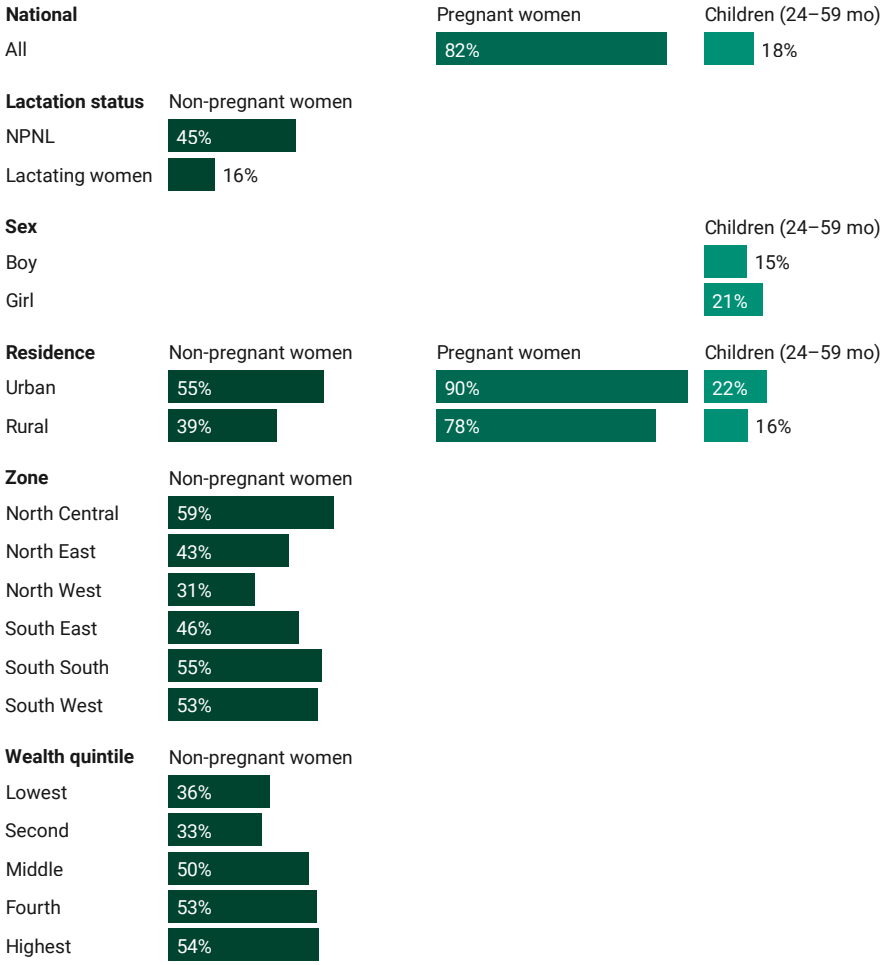
The EAR for calcium for children is 500 mg/day for ages 1–3 years and 800 mg/day for ages 4–5 years (IOM, 2019).

2.3.3 Iron Intake and Prevalence of Inadequacy

Median daily iron intake (mg/day)



Prevalence of iron inadequacy (% < EAR)



Results for non-pregnant women (lactating and non-lactating combined) are not presented due to the different methods that were used to model usual intakes. The data for non-pregnant women presented by residence, zone, and wealth quintile refer to non-pregnant, non-lactating (NPNL) women only.

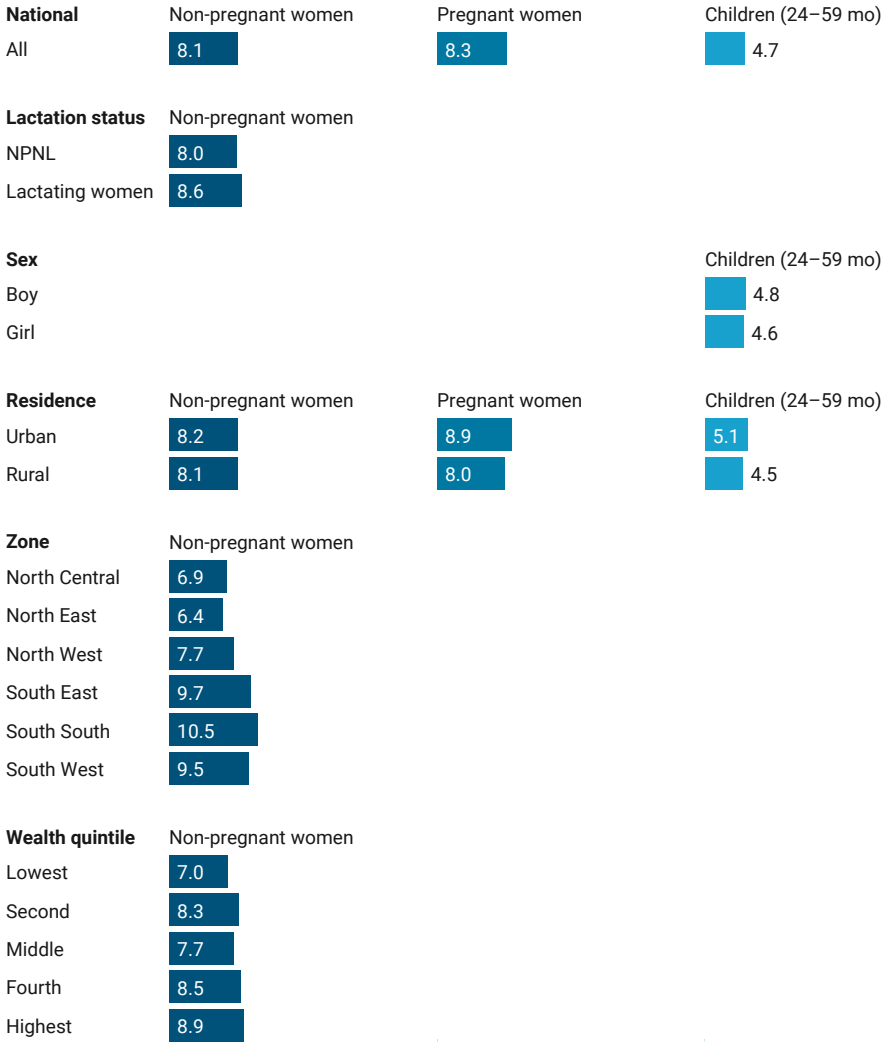
The EAR for iron for women aged 15–18 years is 14.2 mg/day for NPNL women (assuming 10% bioavailability), 12.6 mg/day for lactating women (assuming 10% bioavailability), and 23 mg/day for pregnant women (assuming 18% bioavailability) (IOM, 2019).

The EAR for iron for women aged 19–49 years is 14.6 mg/day for NPNL women (assuming 10% bioavailability), 11.7 mg/day for lactating women (assuming 10% bioavailability), and 22 mg/day for pregnant women (assuming 18% bioavailability). (IOM, 2019).

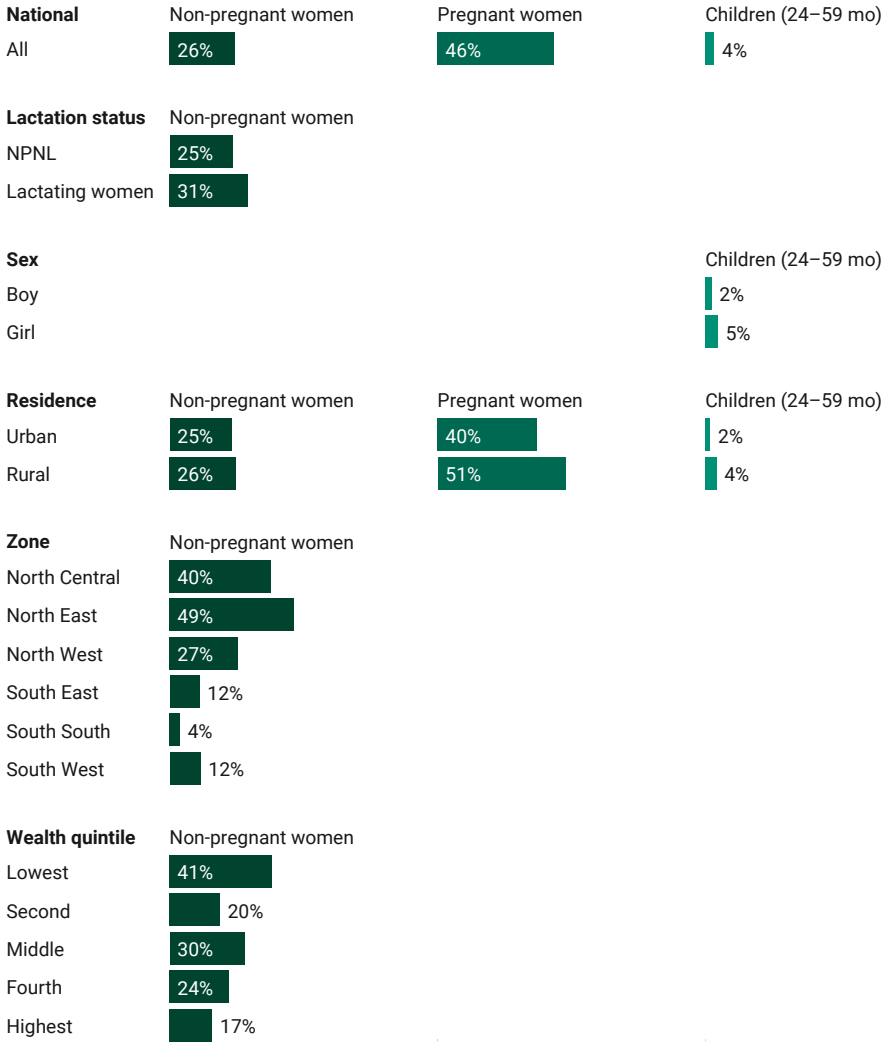
The EAR for iron for children (assuming 10% bioavailability) is 3 mg/day for ages 1–3 years and 4.1 mg/day for ages 4–5 years (IOM, 2019).

2.3.4 Zinc Intake and Prevalence of Inadequacy

Median daily zinc intake (mg/day)



Prevalence of zinc inadequacy (% < EAR)



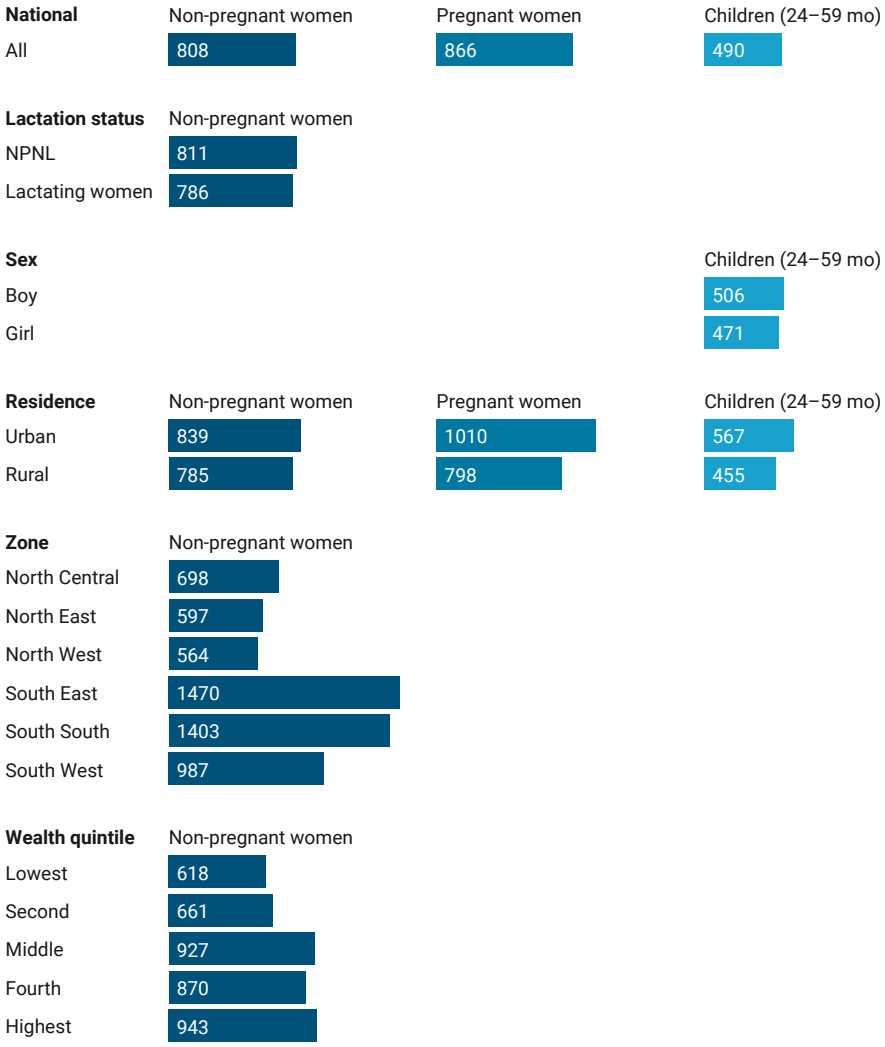
The EAR for zinc for women aged 15–18 years (assumption of a mixed refined diet) is 6.8 mg/day for NPNL women, 10.9 mg/day for lactating, and 10.5 mg/day for pregnant women (IZiNCG 2004).

The EAR for zinc for women aged 19–49 years (assumption of a mixed refined diet) is 7.3 mg/day for NPNL women, 10.4 mg/day for lactating, and 9.5 mg/day for pregnant women (IZiNCG 2004).

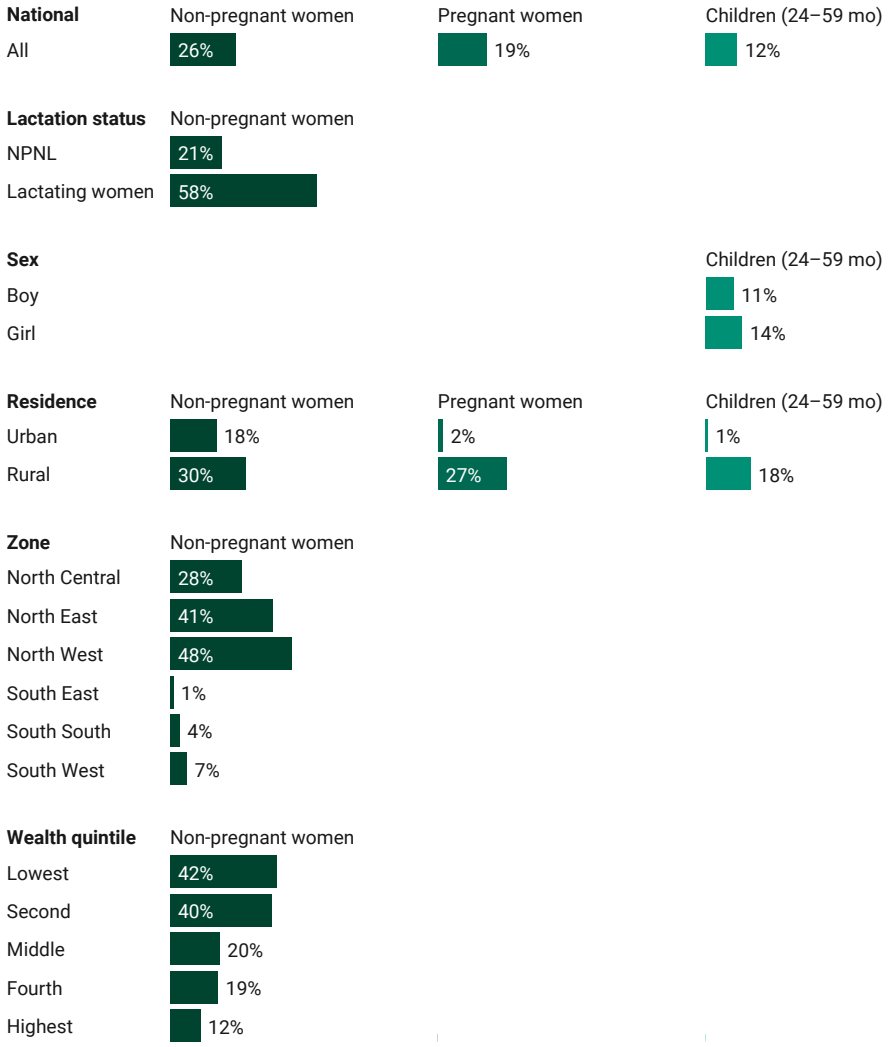
The EAR for children (assumption of a mixed refined diet) is 2.5 mg/day for ages 1–3 years and 4.0 mg/day for ages 4–5 years (IZiNCG 2004).

2.3.5 Vitamin A Intake and Prevalence of Inadequacy

Median daily vitamin A intake (µg RAE/day)



Prevalence of vitamin A inadequacy (% < EAR)



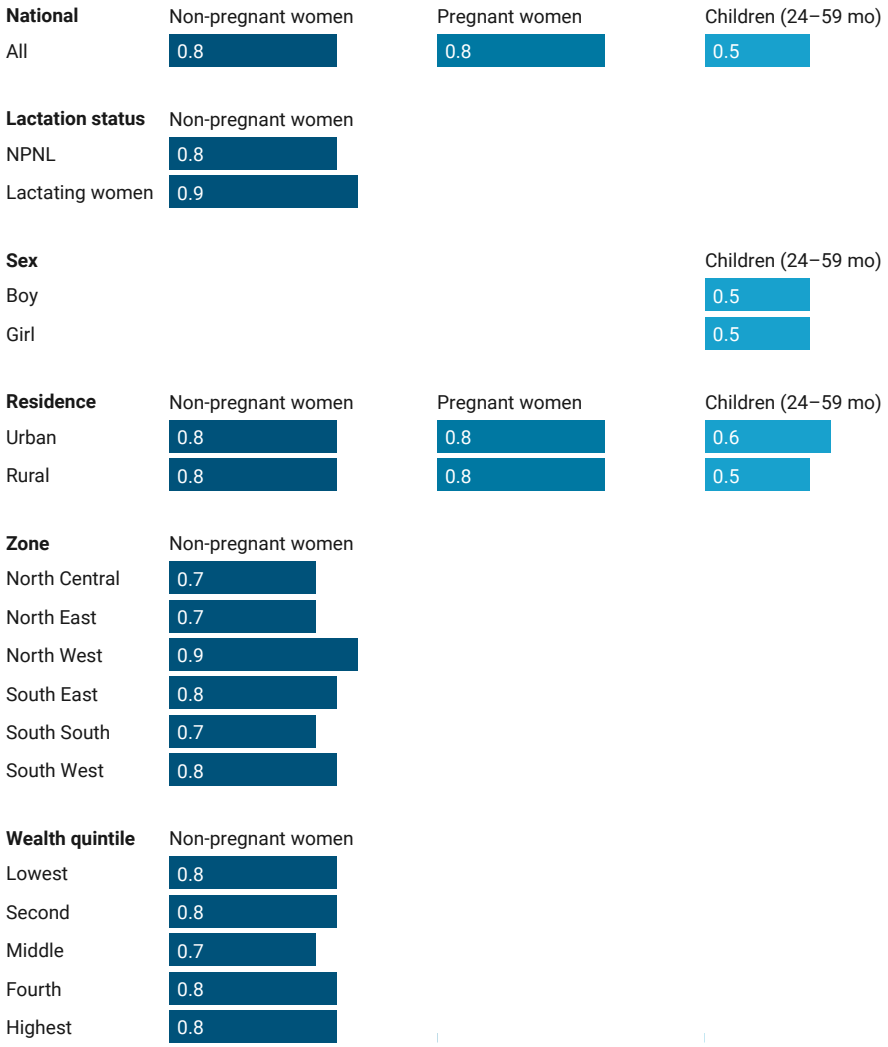
The EAR for vitamin A for women aged 15–18 years is 485 µg/day for NPNL women, 885 µg/day for lactating women, and 530 µg/day for pregnant women (IOM, 2019).

The EAR for vitamin A for women aged 19–49 years is 500 µg/day for NPNL women, 900 µg/day for lactating women, and 550 µg/day for pregnant women (IOM, 2019).

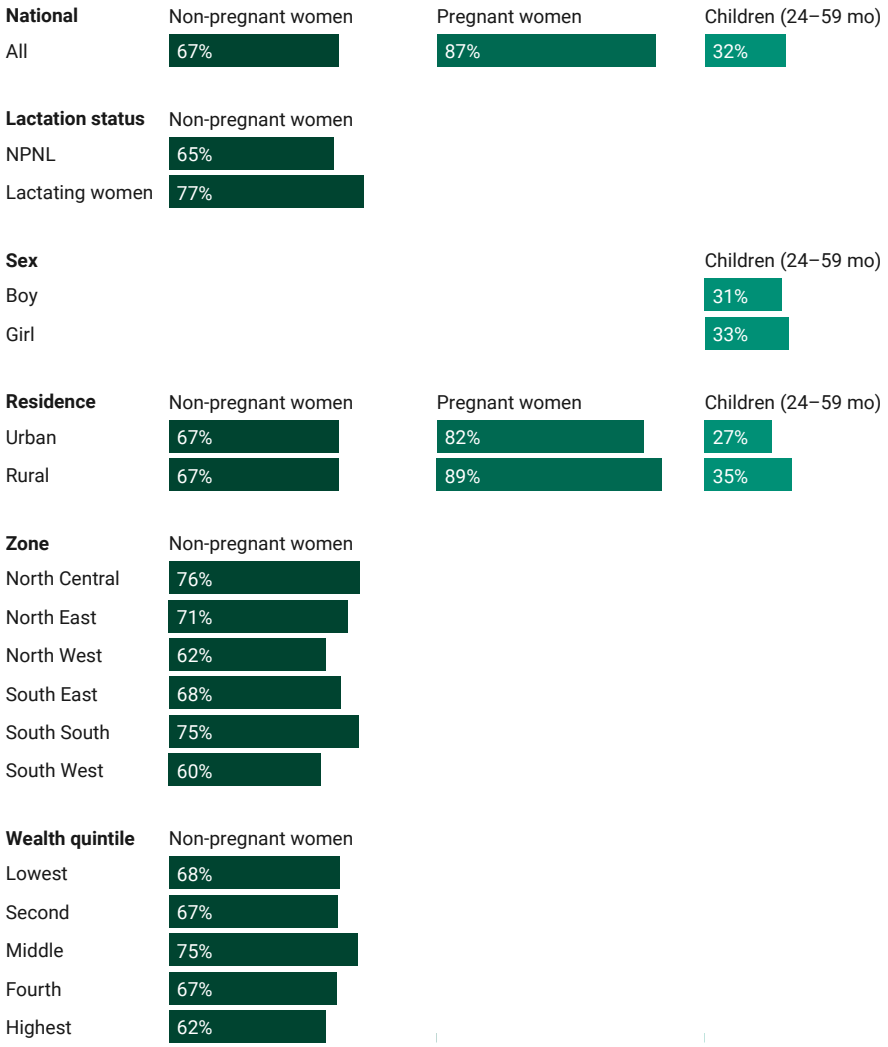
The EAR for vitamin A for children is 210 µg/day for ages 1–3 years and 275 µg/day for ages 4–5 years (IOM, 2019).

2.3.6 Thiamine (Vitamin B1) Intake and Prevalence of Inadequacy

Median daily thiamine (vitamin B1) intake (mg/day)



Prevalence of thiamine (vitamin B1) inadequacy (% < EAR)

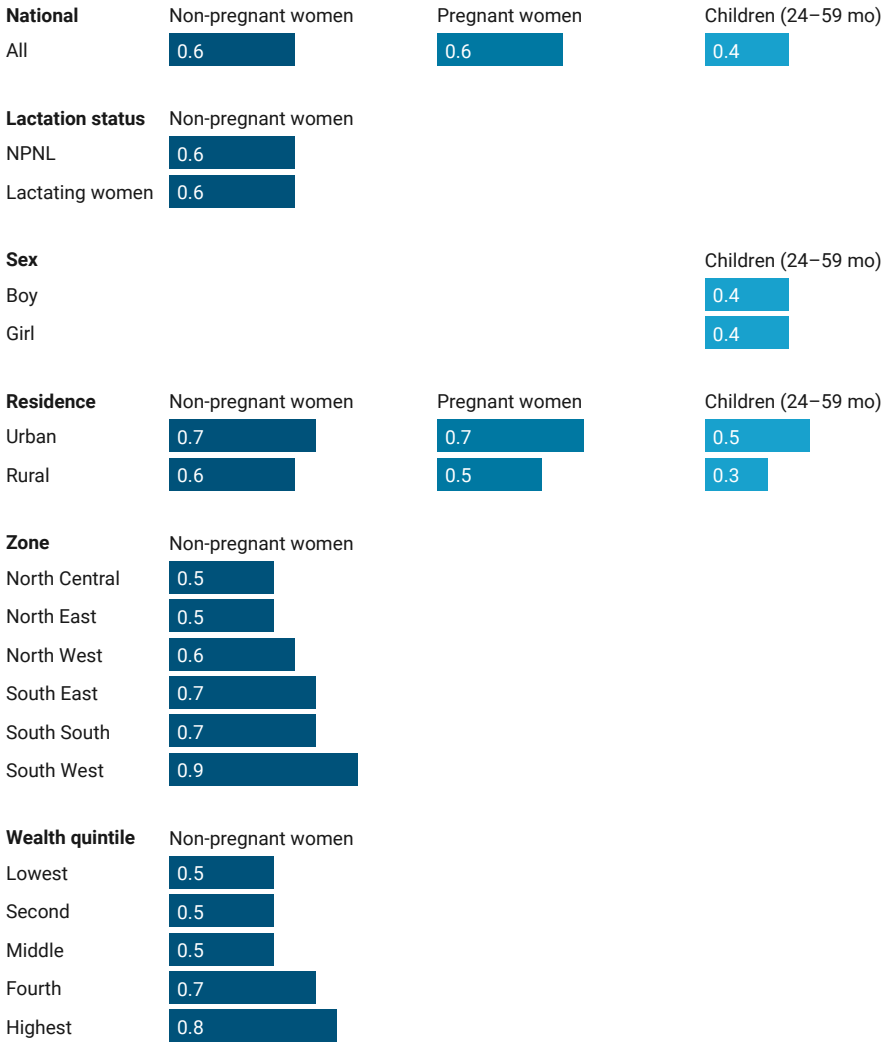


The EAR for thiamine for women aged 15–49 years is 0.9 mg/day for NPNL women, 1.2 mg / day for lactating women, and 1.2 mg /day for pregnant women (IOM, 2019).

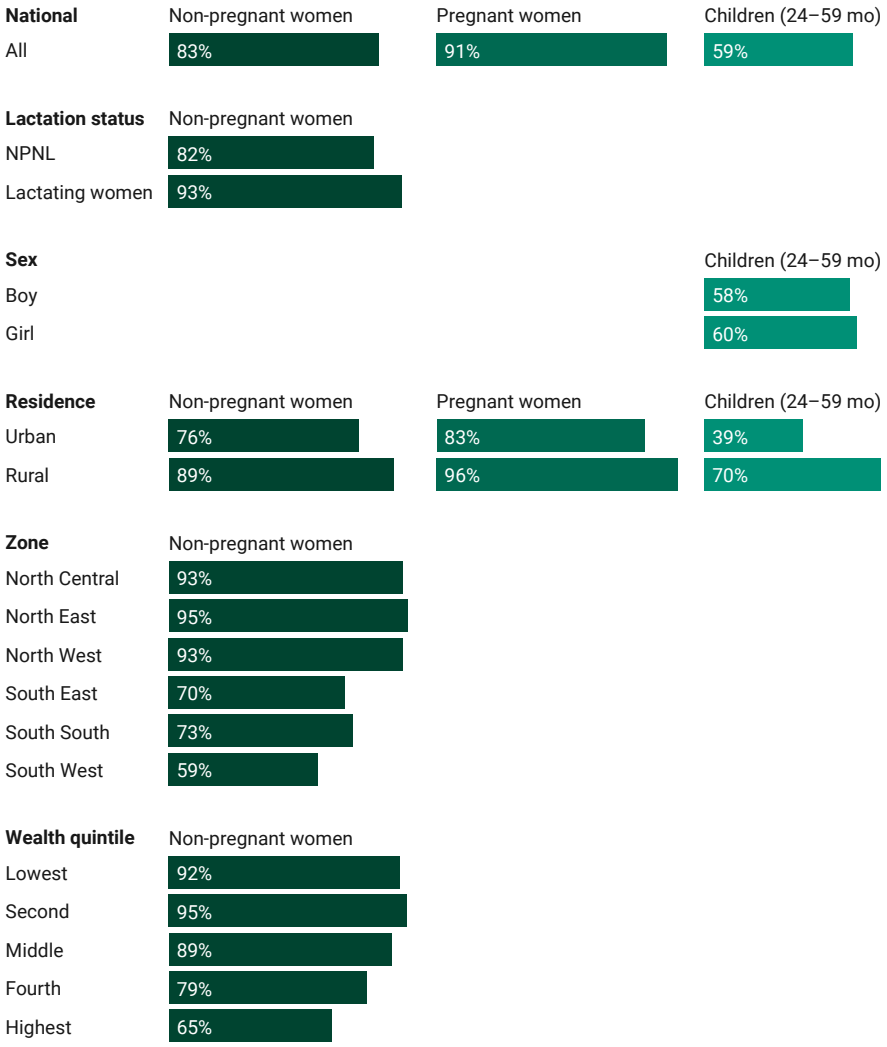
The EAR for thiamine for children is 0.4 mg/day for ages 1–3 years and 0.5 mg/day for ages 4–5 years (IOM, 2019).

2.3.7 Riboflavin (Vitamin B2) Intake and Prevalence of Inadequacy

Median daily riboflavin (vitamin B2) intake (mg/day)



Prevalence of riboflavin (vitamin B2) inadequacy (% < EAR)

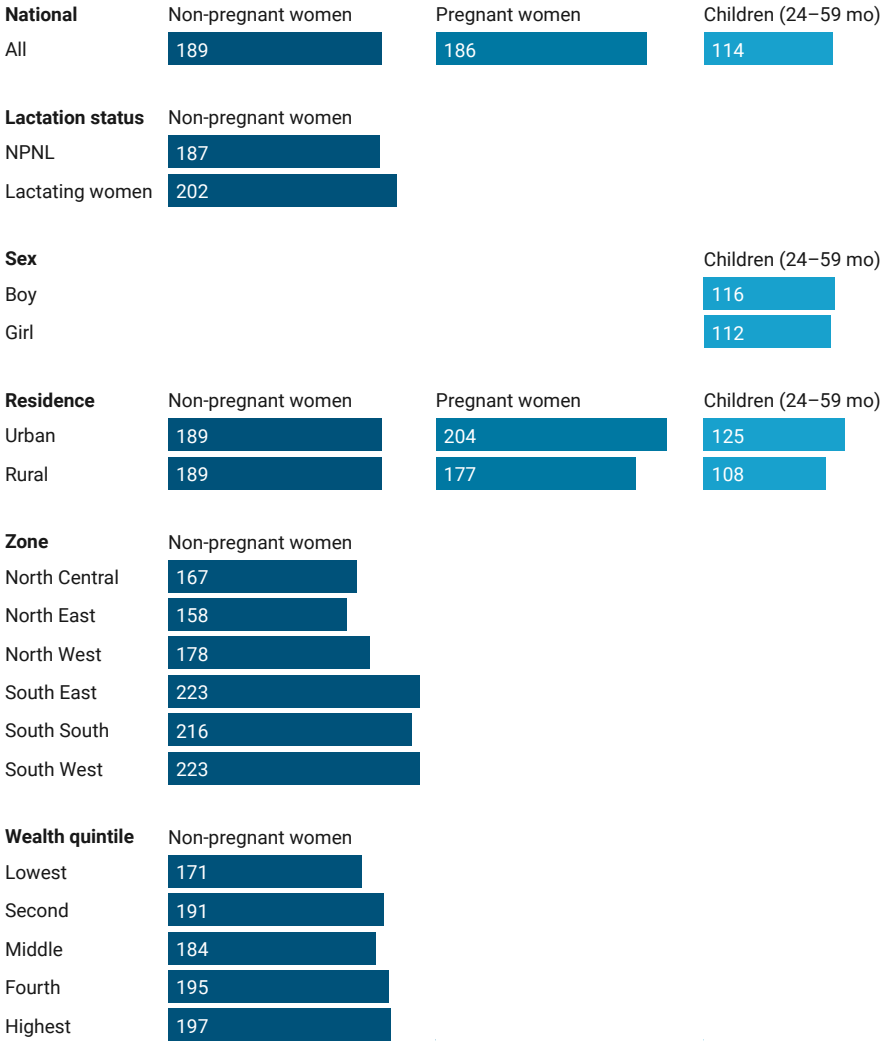


The EAR for riboflavin for women aged 15–49 years is 0.9 mg/day for NPNL women, 1.2 mg/day for lactating women, and 1.3 mg/day for pregnant women (IOM, 2019).

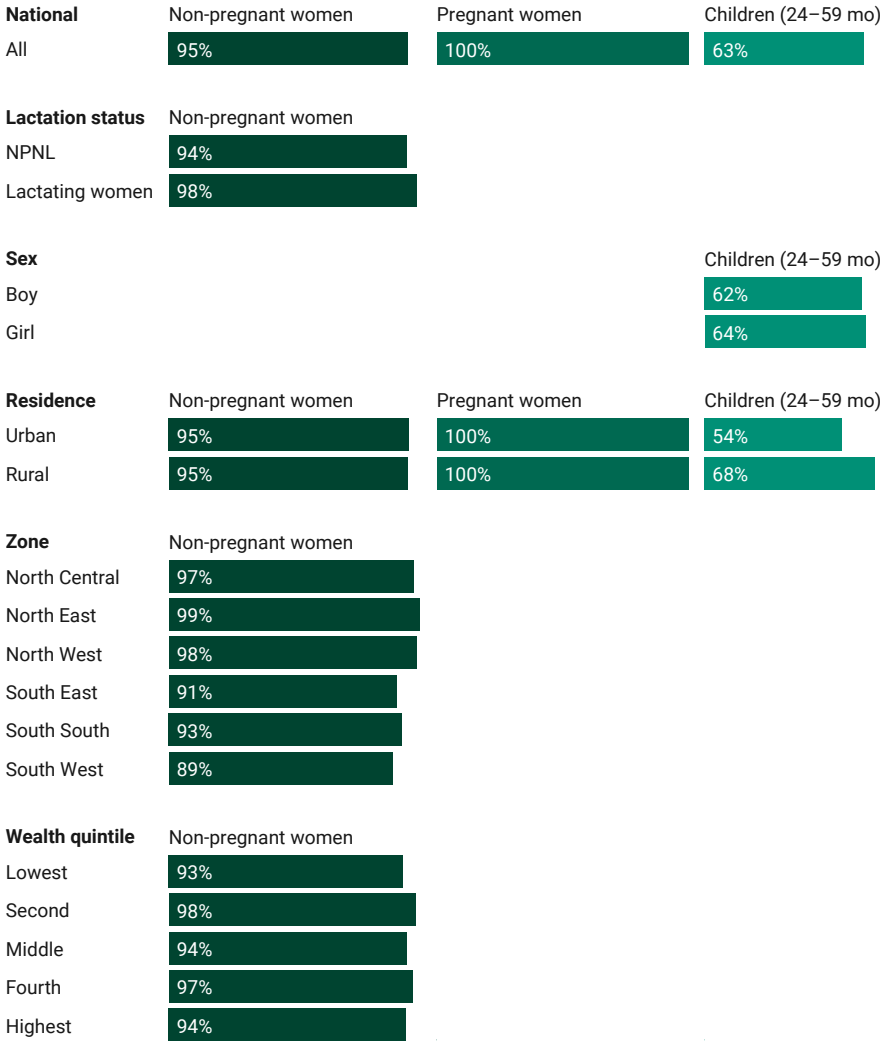
The EAR for riboflavin for children is 0.4 mg/day for ages 1–3 years and 0.5 mg/day for ages 4–5 years (IOM, 2019).

2.3.8 Folate (Vitamin B9) Intake and Prevalence of Inadequacy

Median daily folate (vitamin B9) intake (µg/day)



Prevalence of folate (vitamin B9) inadequacy (% < EAR)



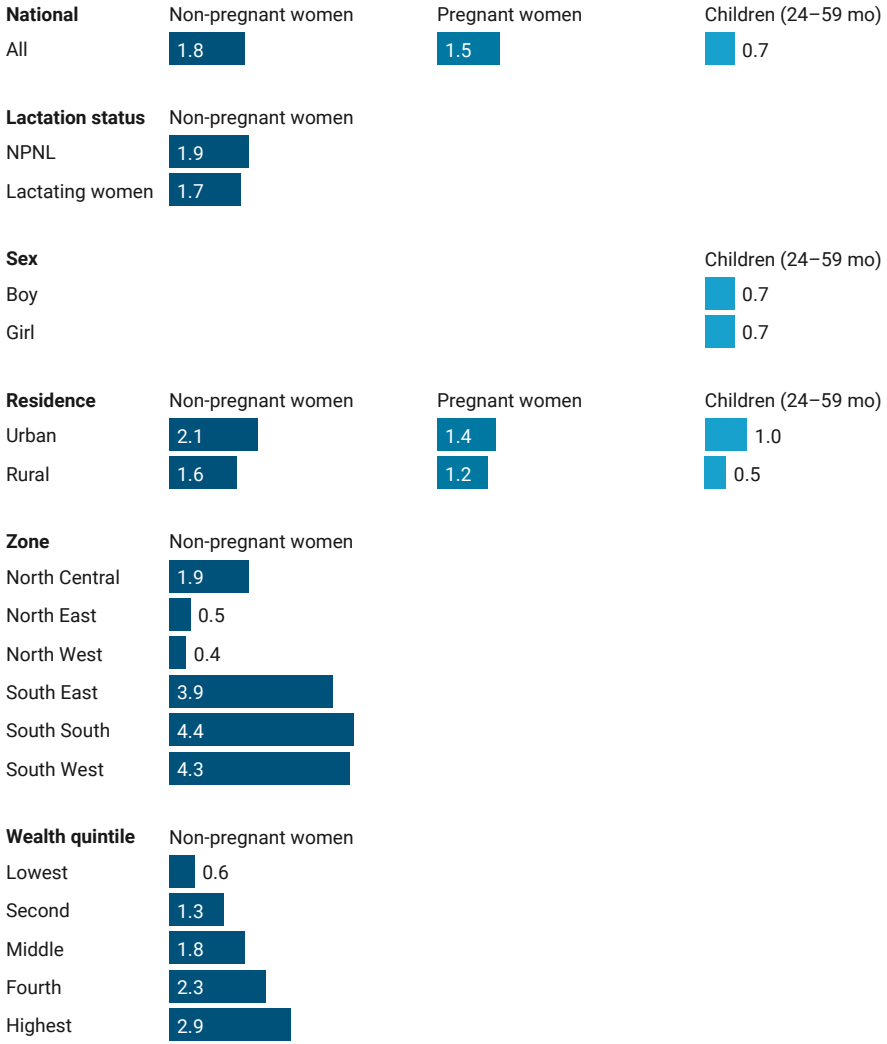
The EAR for folate for women aged 15–18 years is 330 µg/day for NPNL women, 450 µg/day for lactating women, and 520 µg/day for pregnant women (IOM, 2019).

The EAR for folate for women aged 19–49 years is 320 µg/day for NPNL women, 450 µg/day for lactating women, and 520 µg/day for pregnant women (IOM, 2019).

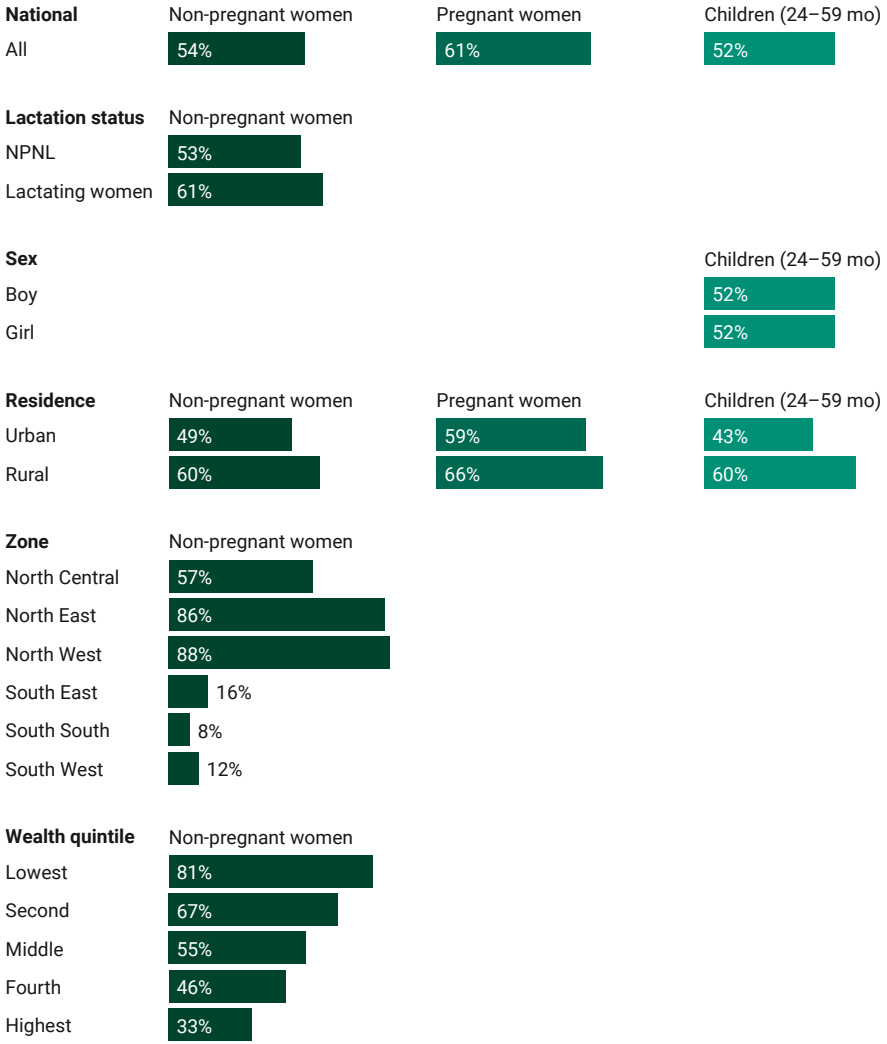
The EAR for folate for children is 120 µg/day for ages 1–3 years and 160 µg/day for ages 4–5 years (IOM, 2019).

2.3.9 Vitamin B12 Intake and Prevalence of Inadequacy

Median daily vitamin B12 intake (µg/day)



Prevalence of vitamin B12 inadequacy (% < EAR)

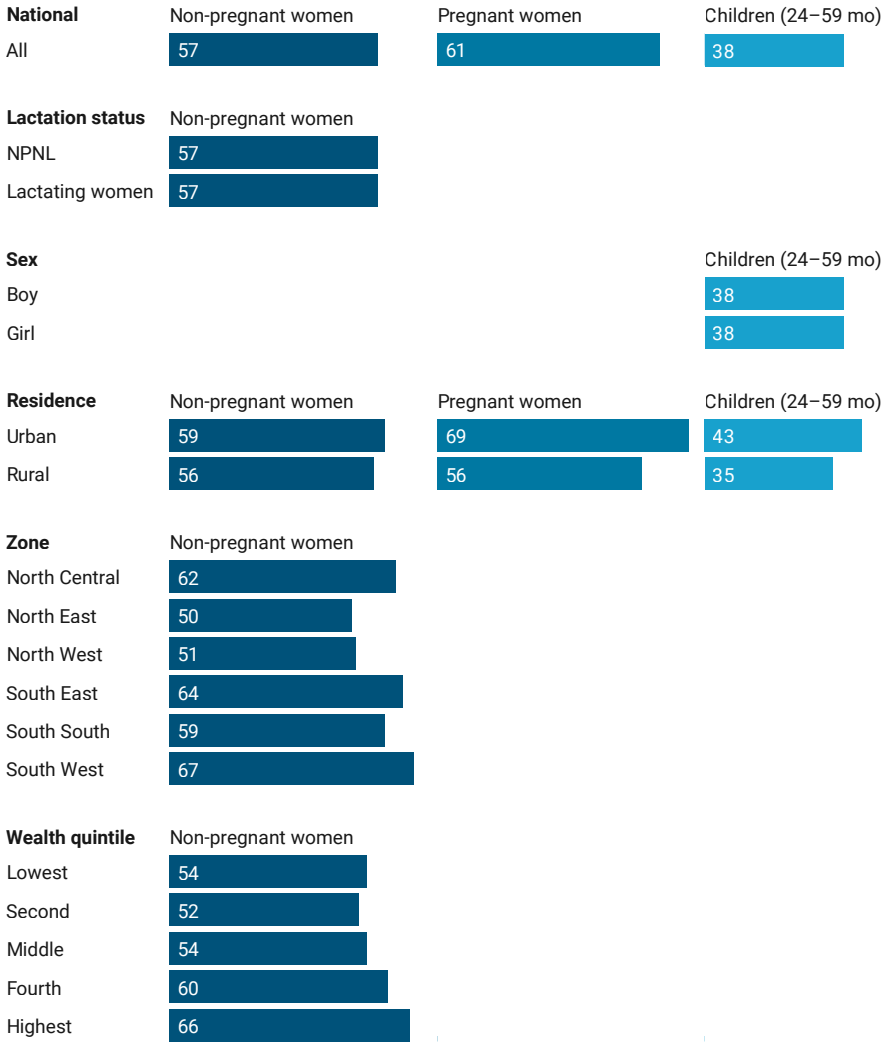


The EAR for vitamin B12 for women aged 15–49 years is 2.0 µg/day for NPNL women, 2.4 µg/day for lactating women, and 2.2 µg/day for pregnant women (IOM, 2019).

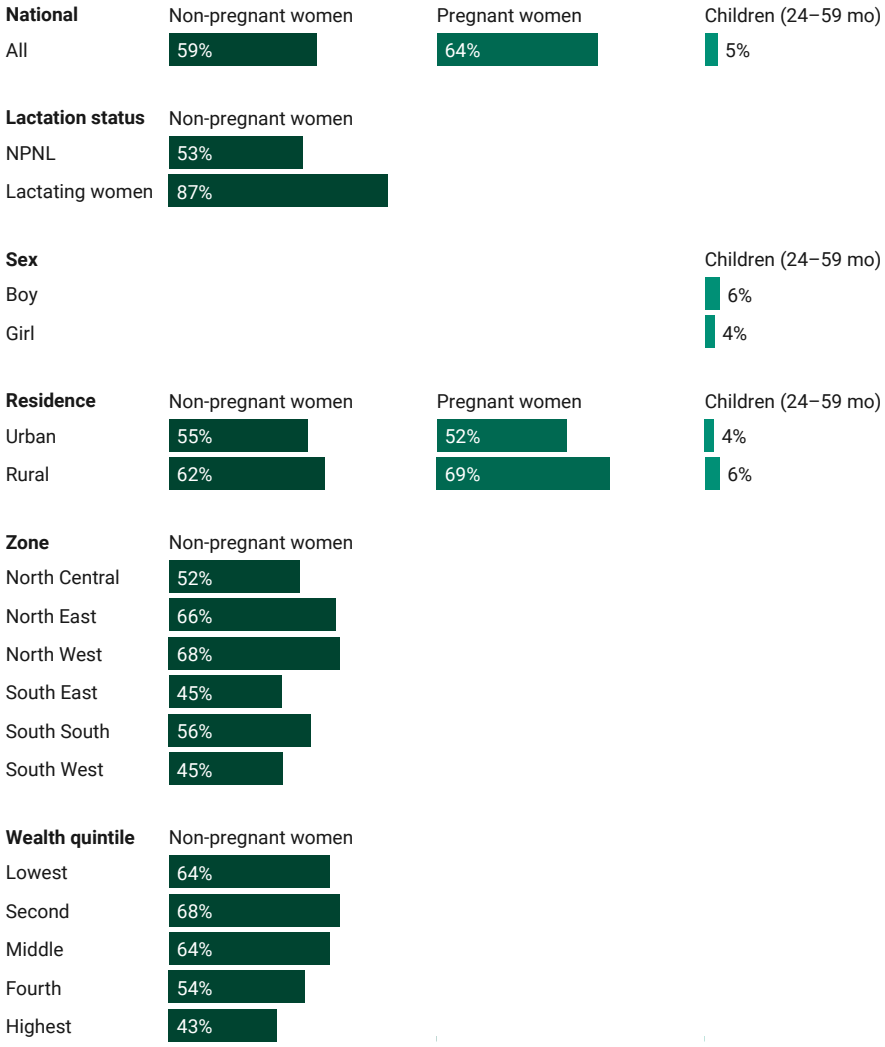
The EAR for vitamin B12 for children is 0.7 µg/day for ages 1–3 years and 1.0 µg/day for ages 4–5 years (IOM, 2019).

2.3.10 Vitamin C Intake and Prevalence of Inadequacy

Median vitamin C intake (mg/day)



Prevalence of vitamin C inadequacy (% < EAR)



The EAR for vitamin C for women aged 15–18 years is 56 mg/day for NPNL women, 96 mg/day for lactating women, and 66 mg/day for pregnant women (IOM, 2019).

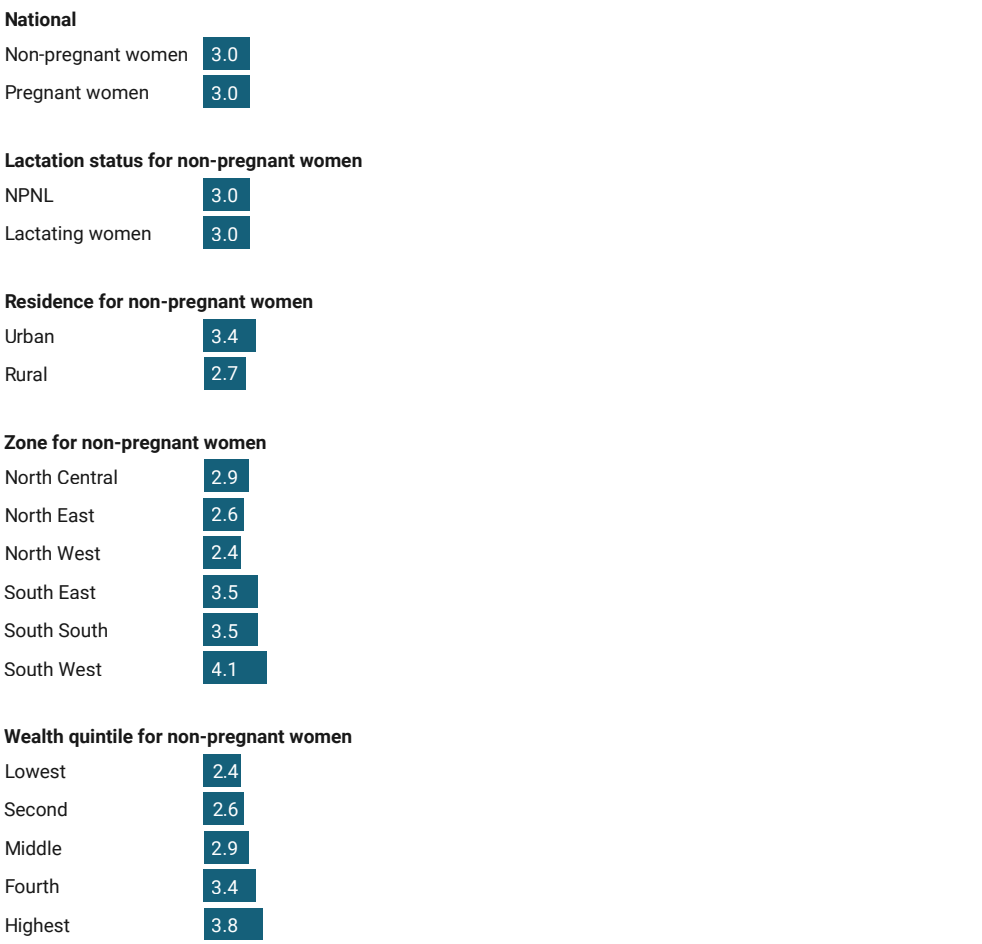
The EAR for vitamin C for women aged 19–49 years is 60 mg/day for NPNL women, 100 mg/day for lactating women, and 70 mg/day for pregnant women (IOM, 2019).

The EAR for vitamin C for children is 13 mg/day for ages 1–3 years and 20 mg/day for ages 4–5 years (IOM, 2019).

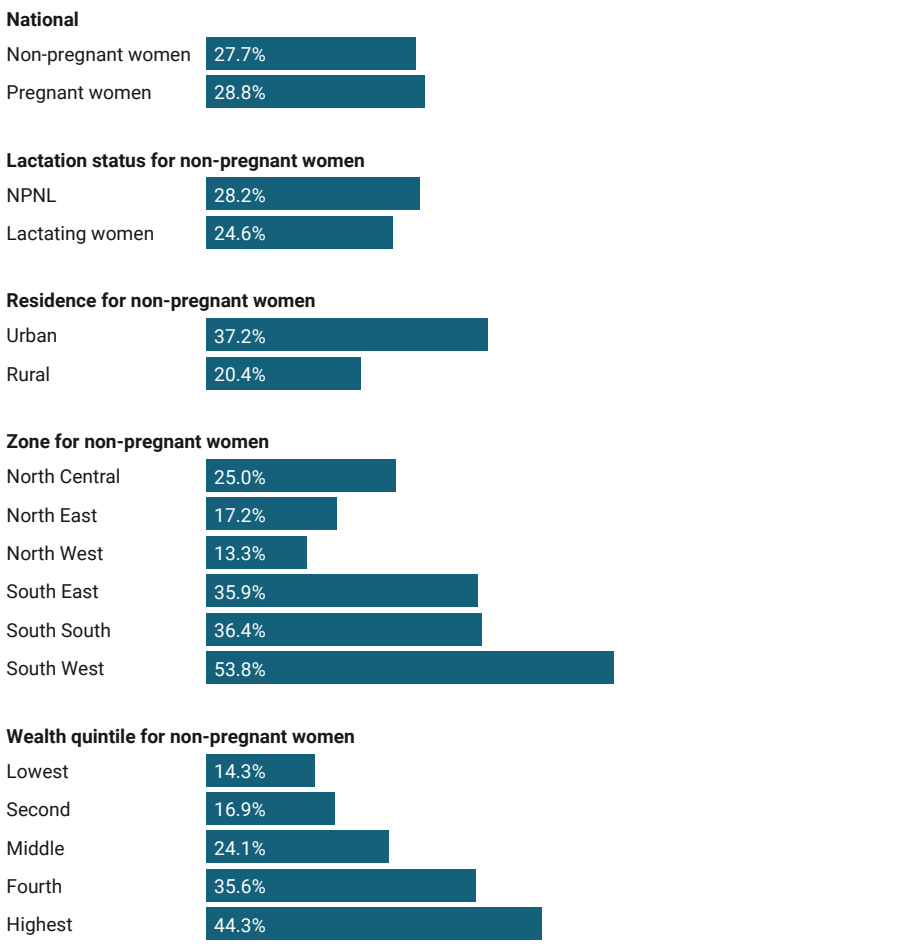
3 Diet Quality Metrics for Women

3.1 Minimum Dietary Diversity for Women (MDD-W)

Median dietary diversity score for women (using a 10 food group indicator)



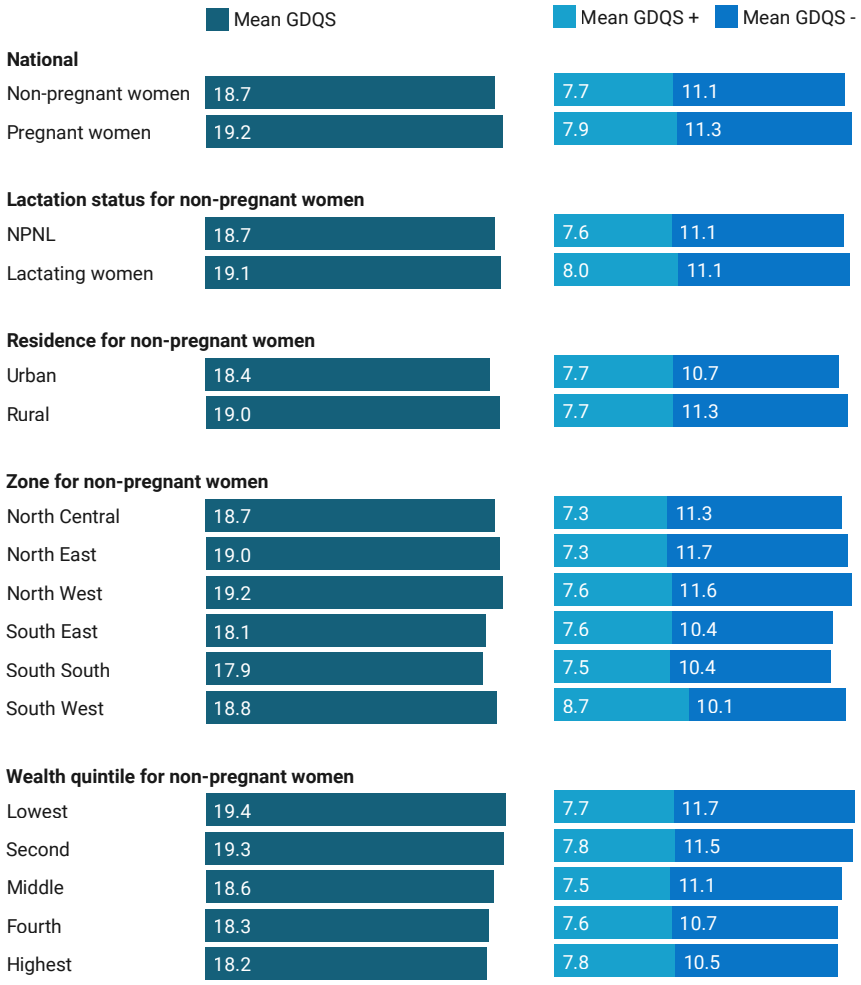
Percentage of women who achieved MDD-W



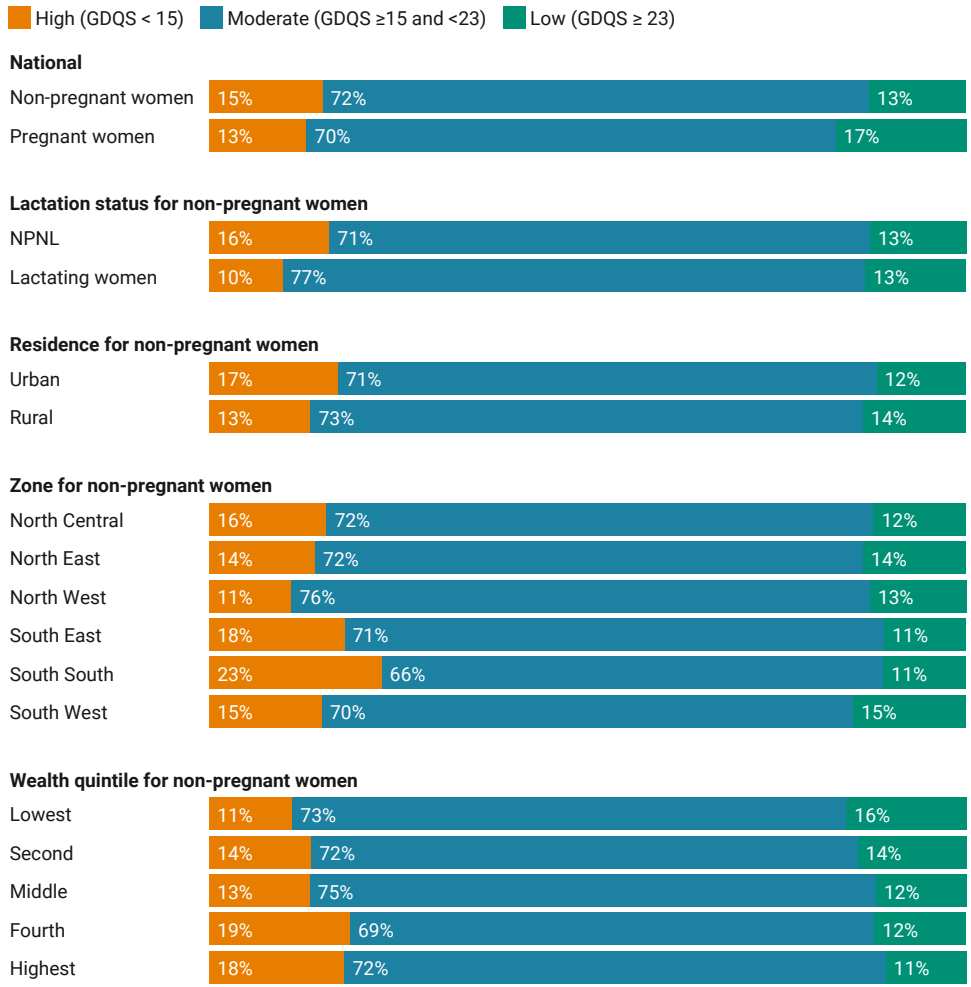
MDD-W assesses the proportion of women 15–49 years of age who consumed at least five of ten pre-defined food groups the previous day or night. It is a proxy indicator associated with higher micronutrient adequacy of the diet, through the measurement of diet diversity (FAO, 2021).

3.2 Global Diet Quality Score (GDQS)

Mean GDQS, GDQS positive (+) and GDQS negative (-)



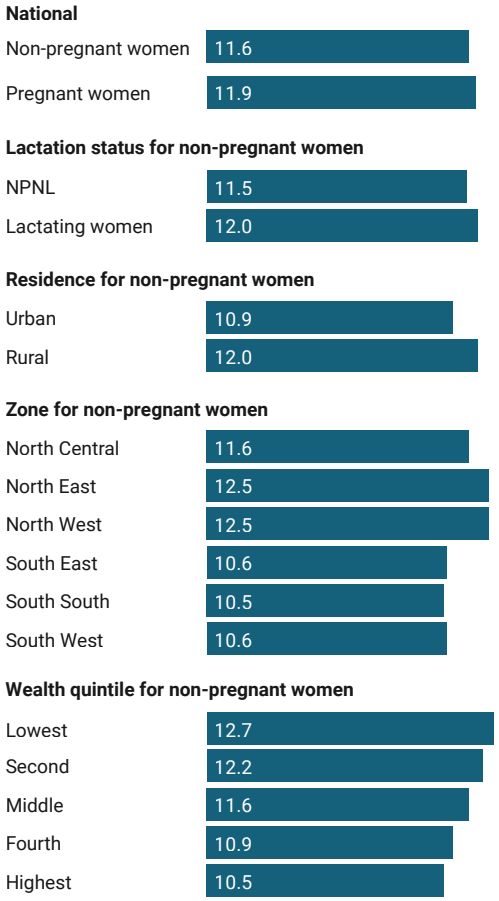
Percent of women at high, moderate, and low risk of poor diet quality outcomes



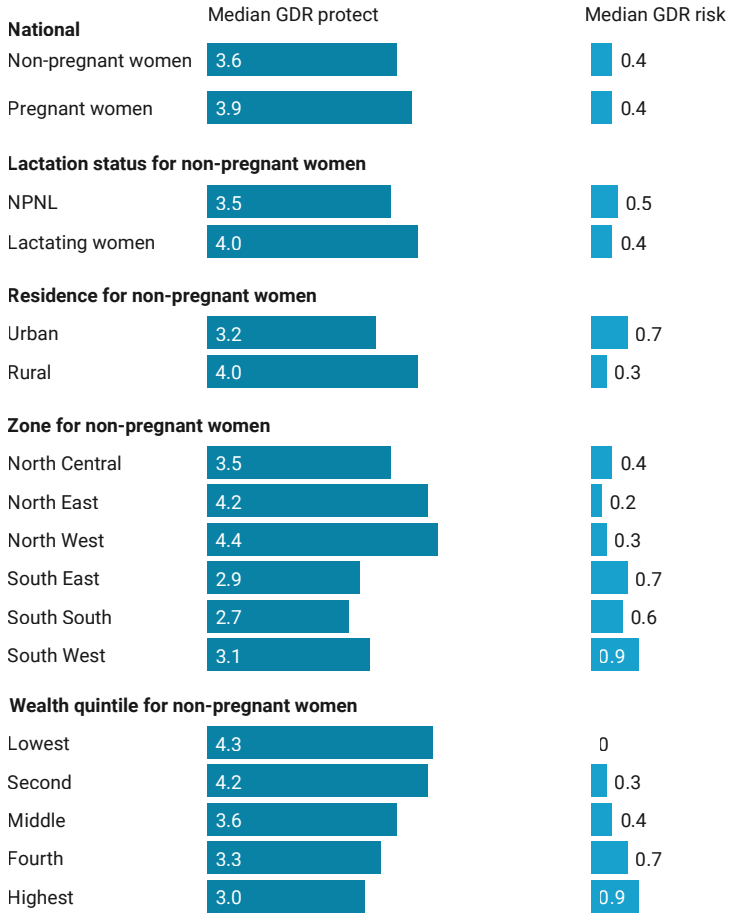
The Global Diet Quality Score (GDQS) assesses food consumption from the previous day and night for 16 healthy food groups, 7 unhealthy food groups and 2 food groups that are unhealthy when consumed in excess. The GDQS ranges between 0 and 49, the GDQS positive (+) has a possible scoring range of 0–32 while the GDQS negative (-) has a possible scoring range of 0–17. A higher GDQS+ and GDQS- is desired and reflective of more healthy food consumption patterns. A high risk for poor diet quality outcomes is defined as a GDQS < 15, a moderate risk for poor diet quality outcomes as a GDQS ≥15 and <23, and a low risk for poor diet quality outcomes as a GDQS ≥ 23 (Bromage et al., 2021).

3.3 Global Diet Recommendations (GDR) Score

Median GDR



Median GDR protect and GDR risk

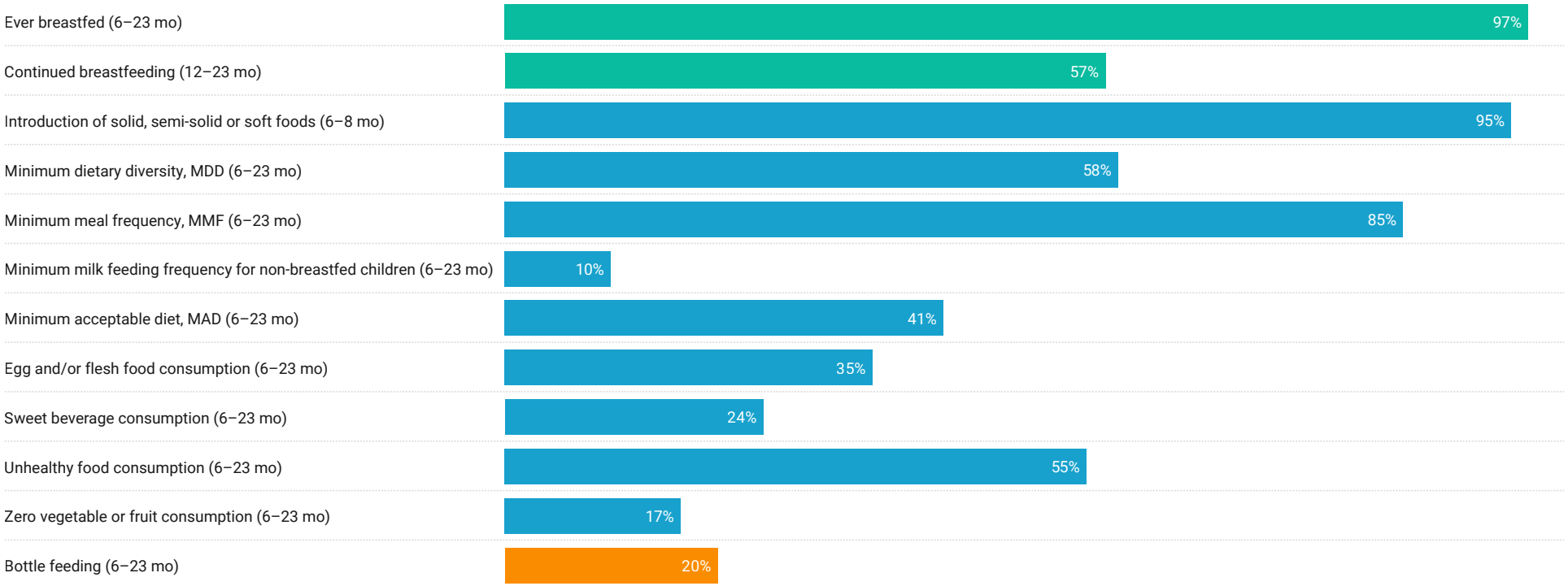


The Global Dietary Recommendations (GDR) score assesses food consumption from the previous day and night for nine health-protective food groups (NCD-Protect) and eight food groups to limit or avoid (NCD-Risk). The GDR score ranges from 0 to 18 expressed as an average score. A GDR score of 10 or more out of 18 is associated with meeting at least half of the WHO global dietary recommendations (Technical Consultation on Measuring Healthy Diets, 2021).

4 Diets of Infants and Young Children (6–23 months)

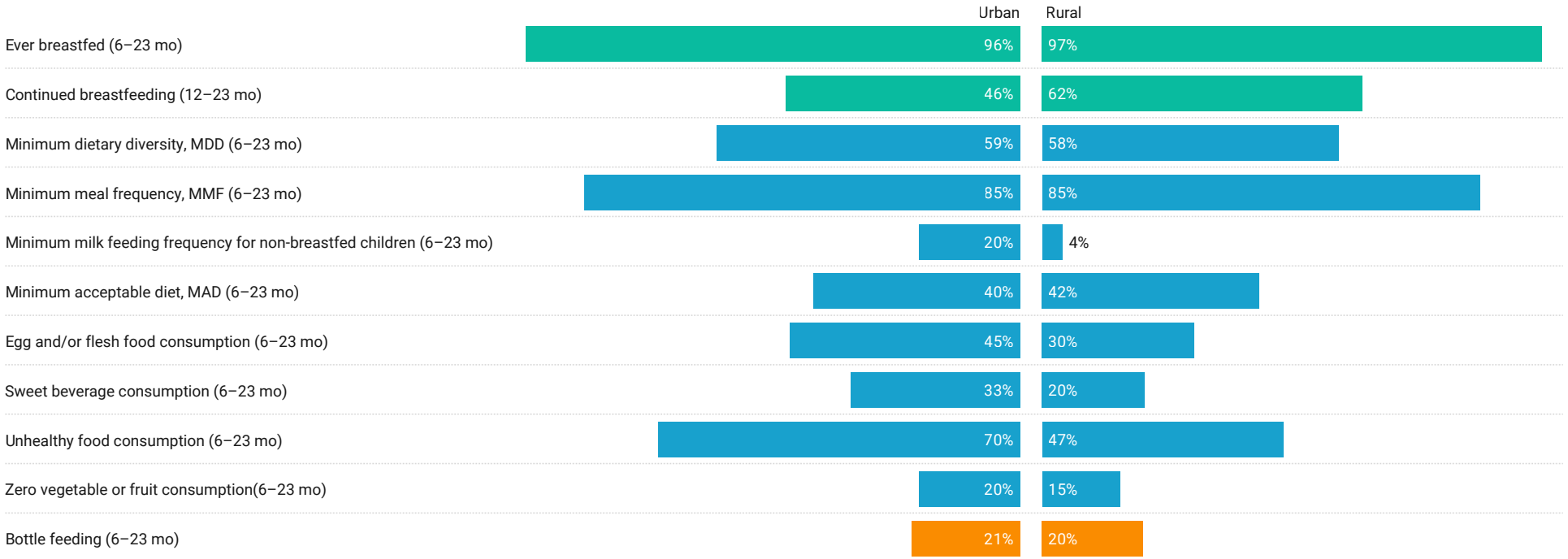
4.1 WHO/UNICEF IYCF Indicators

WHO/UNICEF IYCF indicators



Green bars represent breastfeeding indicators, blue bars represent complementary feeding indicators, and orange bars represent “other” indicators (WHO/UNICEF, 2021).

WHO/UNICEF IYCF indicators by residence area



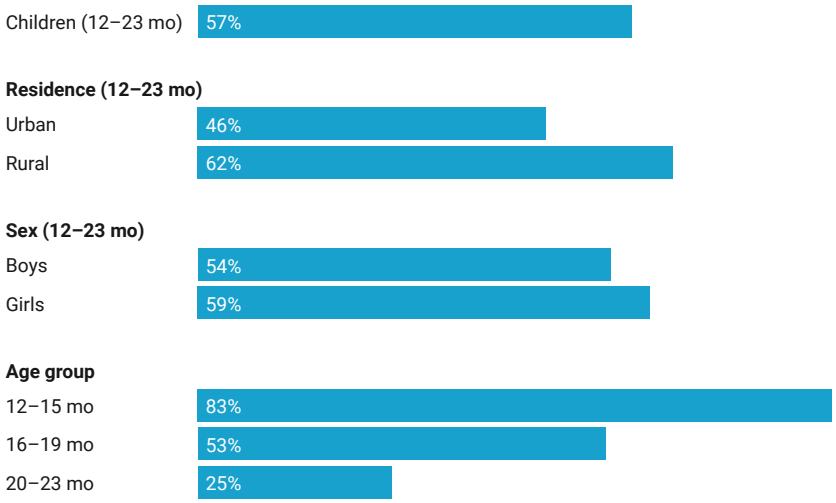
Green bars represent breastfeeding indicators, blue bars represent complementary feeding indicators, and orange bars represent “other” indicators (WHO/UNICEF, 2021).

4.1.1 WHO/UNICEF Breastfeeding Indicators

Percentage of children aged 6–23 months who were ever breastfed

Indicator definition: Percentage of children born in the last 24 months who were ever breastfed (WHO/UNICEF, 2021).

Percentage of children aged 12–23 months with continued breastfeeding



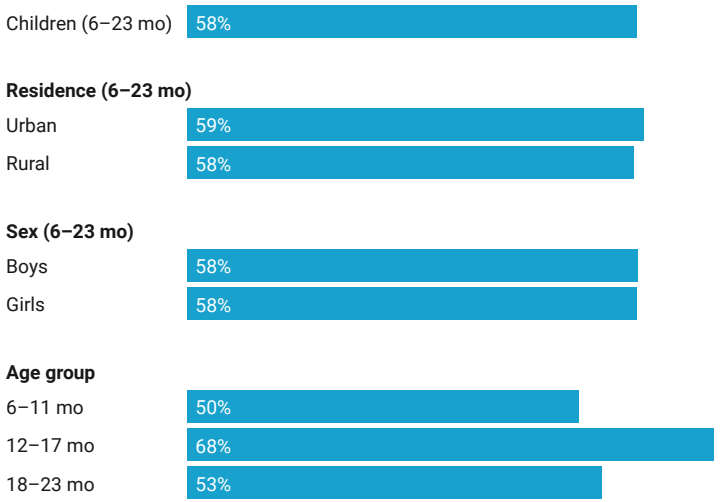
Indicator definition: Percentage of children 12–23 months of age who were fed breast milk during the previous day (WHO/UNICEF, 2021).

4.1.2 WHO/UNICEF Complementary Feeding Indicators

Percentage of children aged 6–8 months who consumed solid, semi-solid or soft foods during the previous day

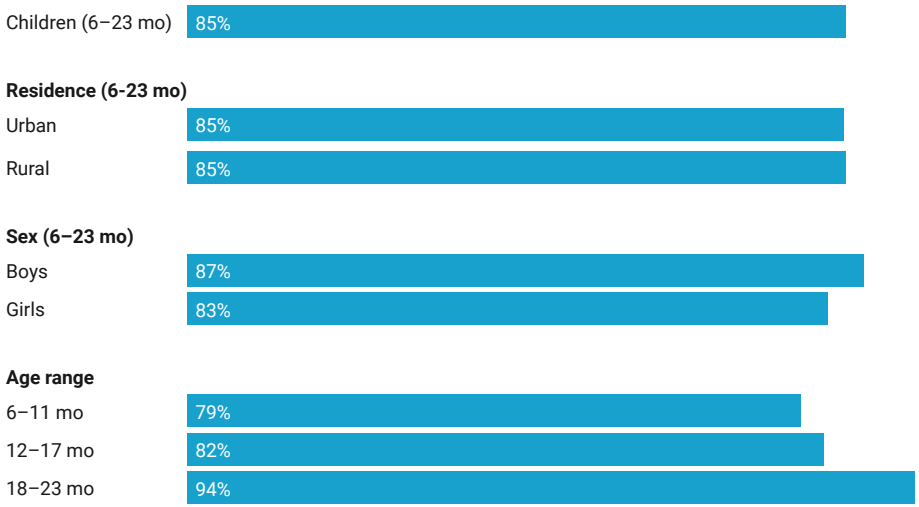
Indicator definition: Percentage of infants 6–8 months of age who consumed solid, semi-solid or soft foods during the previous day (WHO/UNICEF, 2021).

Percentage of children aged 6–23 months who achieved minimum dietary diversity



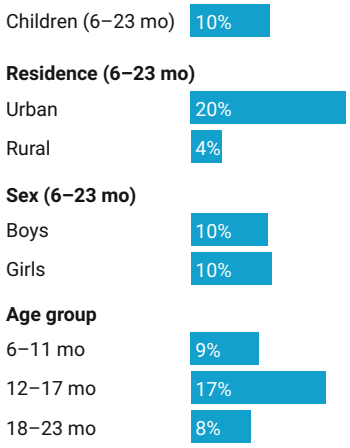
Indicator definition: Percentage of children 6–23 months of age who consumed foods and beverages from at least five out of eight defined food groups during the previous day (WHO/UNICEF, 2021).

Percentage of children aged 6–23 months who achieved minimum meal frequency (MMF)



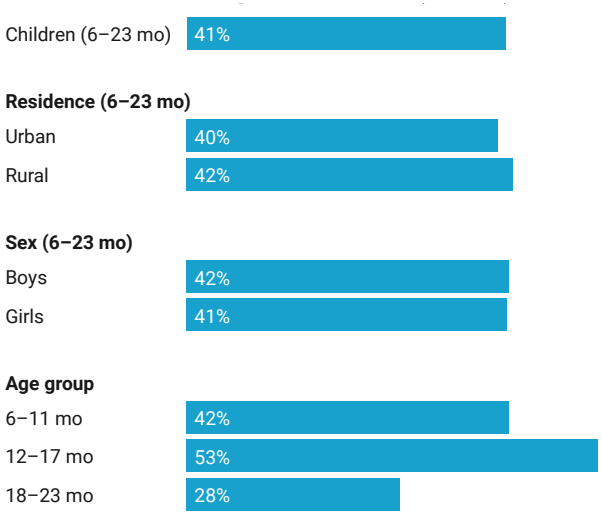
Indicator definition: Percentage of children 6–23 months of age who consumed solid, semi-solid or soft foods (but also including milk feeds for non-breastfed children) at least the minimum number of times during the previous day (WHO/UNICEF, 2021).

Percentage of non-breastfed children aged 6–23 months who consumed at least two milk feeds



Indicator definition: Percentage of non-breastfed children aged 6–23 months who consumed at least two milk feeds during the previous day (WHO/UNICEF, 2021)

Percentage of children aged 6–23 months who consumed a minimum acceptable diet (MAD)

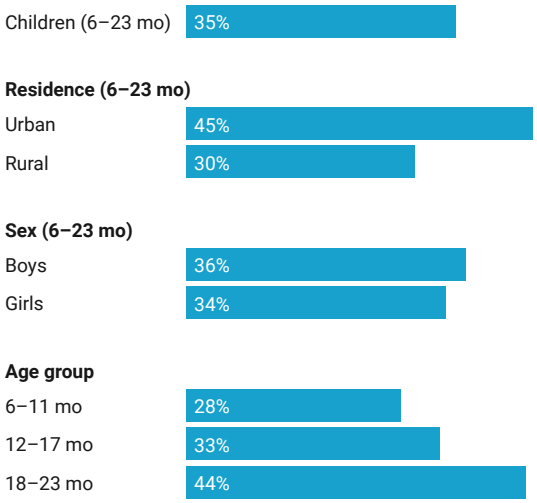


Indicator definition: Percentage of children 6–23 months of age who consumed a minimum acceptable diet during the previous day (WHO/UNICEF, 2021).

The criteria to meet a minimum acceptable diet are:

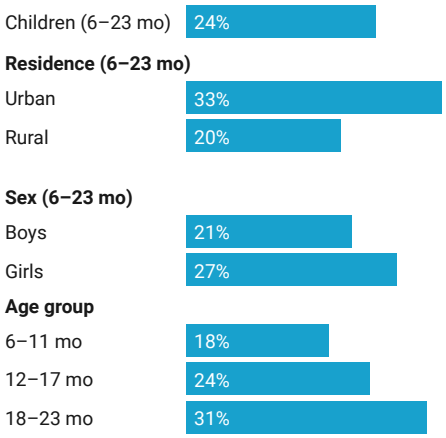
- For breastfed children: Received at least the minimum dietary diversity and minimum meal frequency for the child's age during the previous day;
- For non-breastfed children: Received at least the minimum dietary diversity and minimum meal frequency for the child's age during the previous day and received at least two milk feeds during the previous day (WHO/UNICEF 2021).

Percentage of children aged 6–23 months who consumed egg and/or flesh food



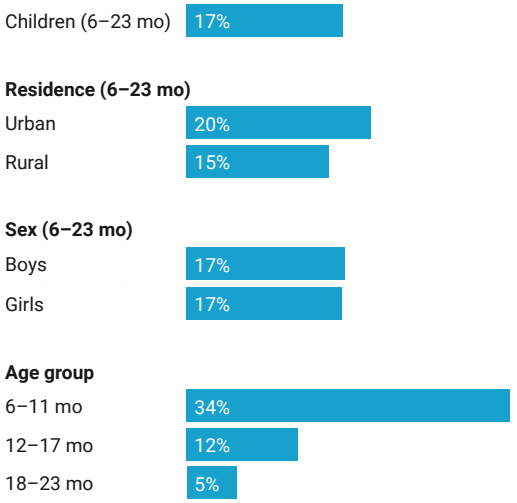
Indicator definition: Percentage of children 6–23 months of age who consumed egg and/or flesh food during the previous day (WHO/UNICEF, 2021).

Percentage of children aged 6–23 months who consumed a sweet beverage



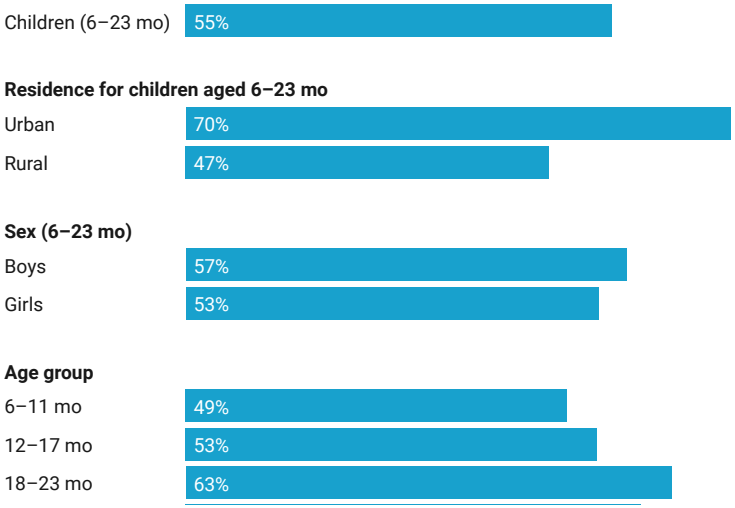
Indicator definition: Percentage of children 6–23 months of age who consumed a sweet beverage during the previous day (WHO/UNICEF, 2021).

Percentage of children aged 6–23 months who did not consume any vegetables or fruits



Indicator definition: Percentage of children 6–23 months of age who did not consume any vegetables or fruits during the previous day (WHO/UNICEF, 2021).

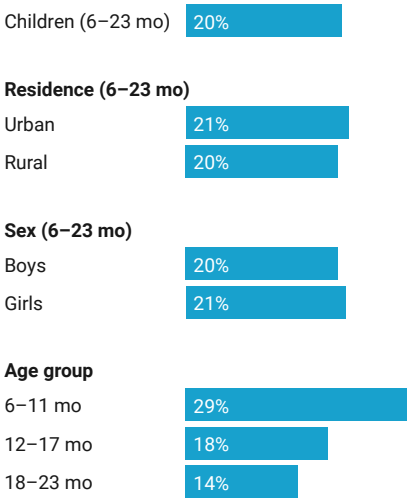
Percentage of children aged 6–23 months who consumed foods classified as unhealthy



Indicator definition: Percentage of children 6–23 months of age who consumed selected sentinel unhealthy foods during the previous day (WHO/UNICEF, 2021).

4.1.3 Other IYCF Indicator

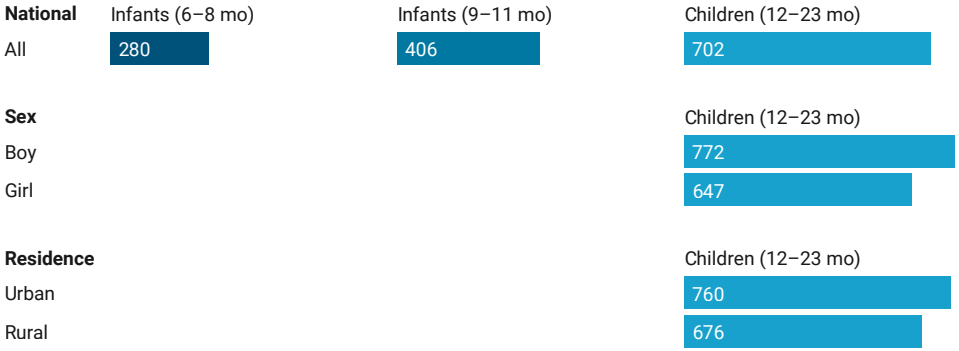
Percentage of children aged 6–23 months of age who were fed from a bottle with a nipple



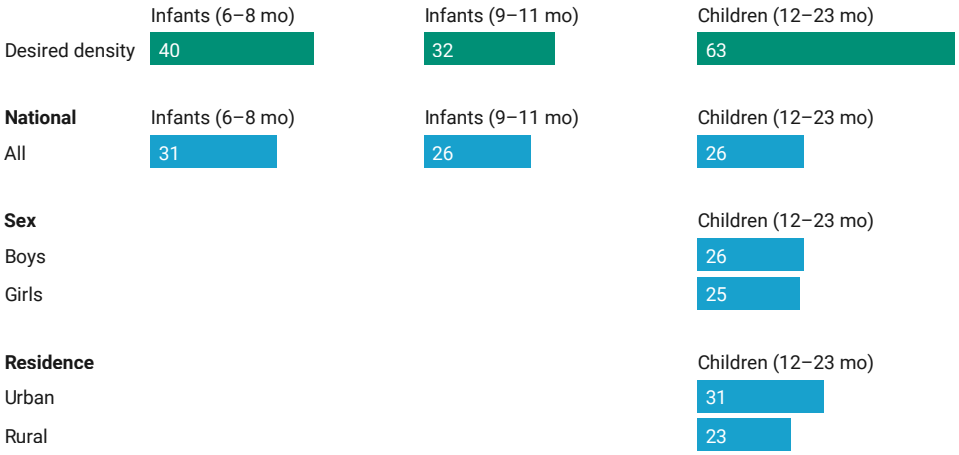
Indicator definition: Percentage of children 0–23 months of age who were fed from a bottle with a nipple during the previous day (WHO/UNICEF, 2021).

4.2 Nutrient Density of the Complementary Diet

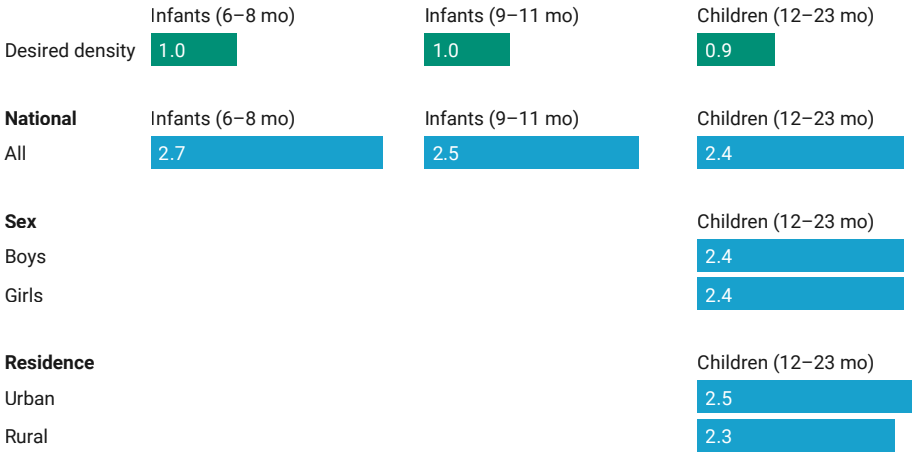
Median daily energy intake from complementary foods (kcal/day)



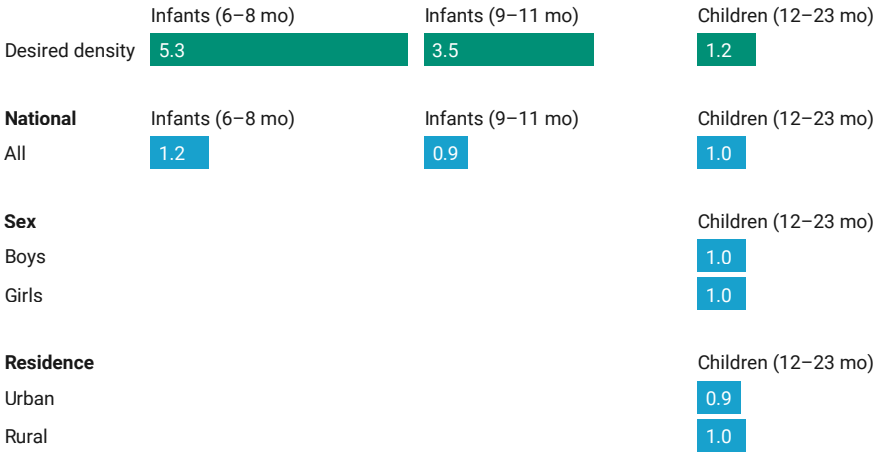
Median calcium density of the complementary diet (mg/100 kcal)



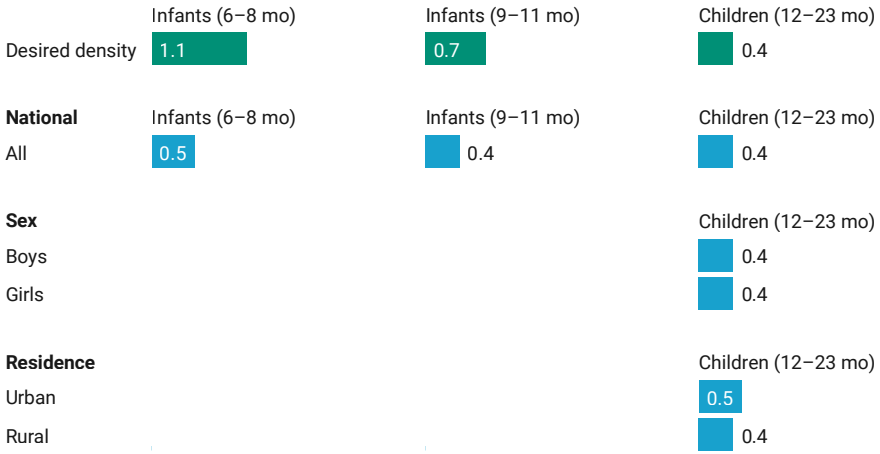
Median protein density of the complementary diet (g/100 kcal)



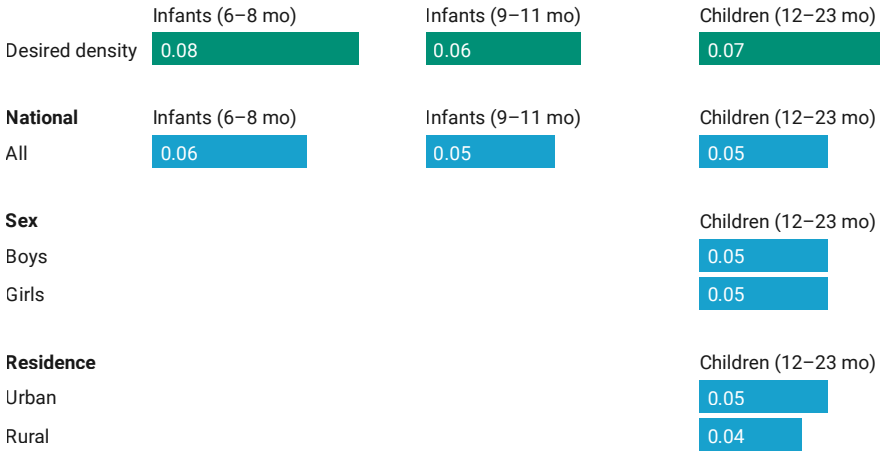
Median iron density of the complementary diet (mg/100 kcal)



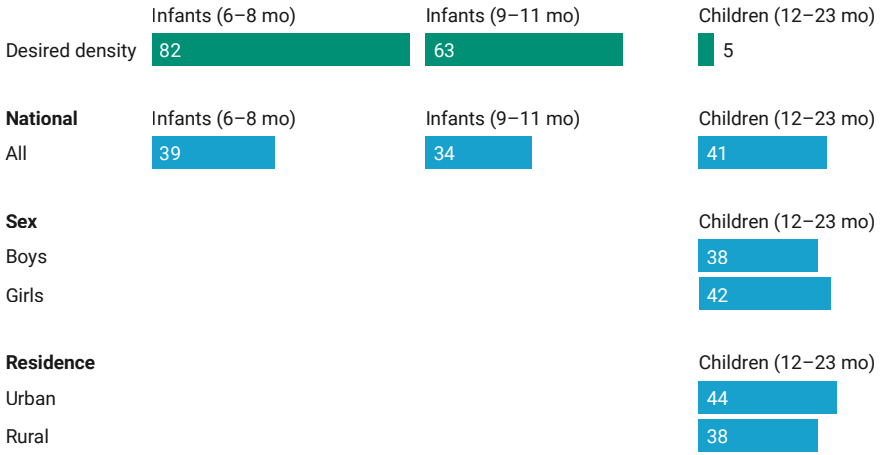
Median zinc density of the complementary diet (mg/100 kcal)



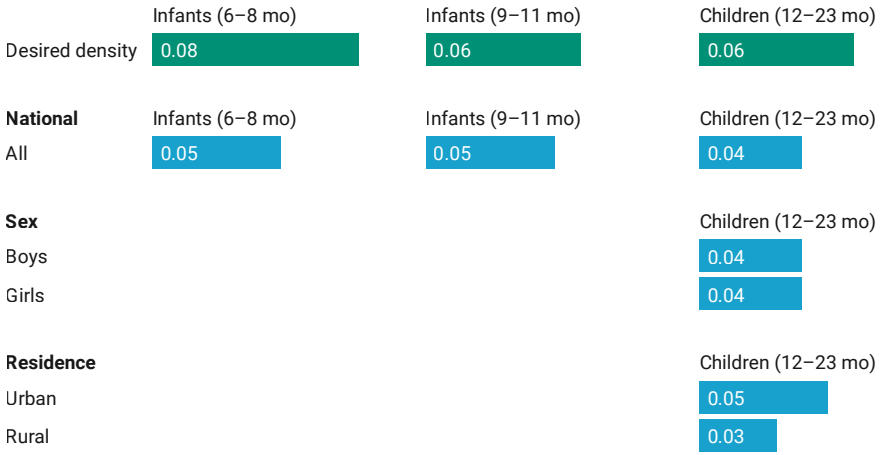
Median thiamine (vitamin B1) density of the complementary diet (mg/100 kcal)



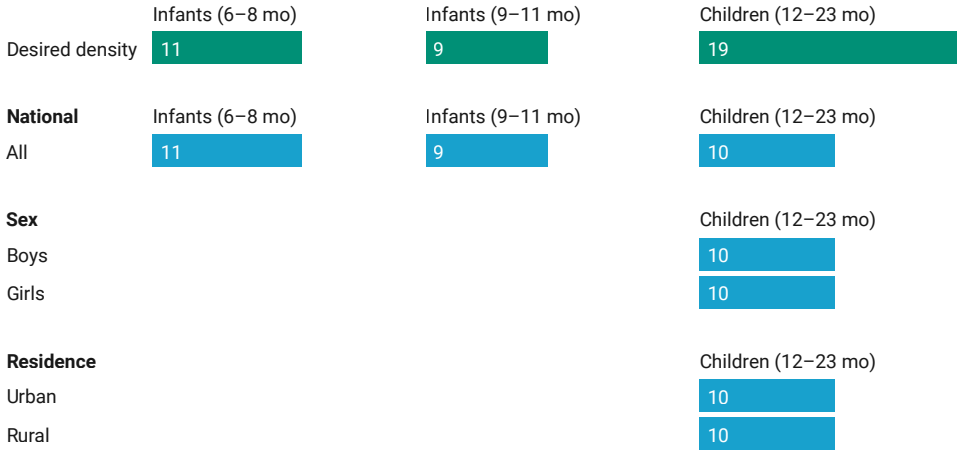
Median vitamin A density of the complementary diet (µg RE/100 kcal)



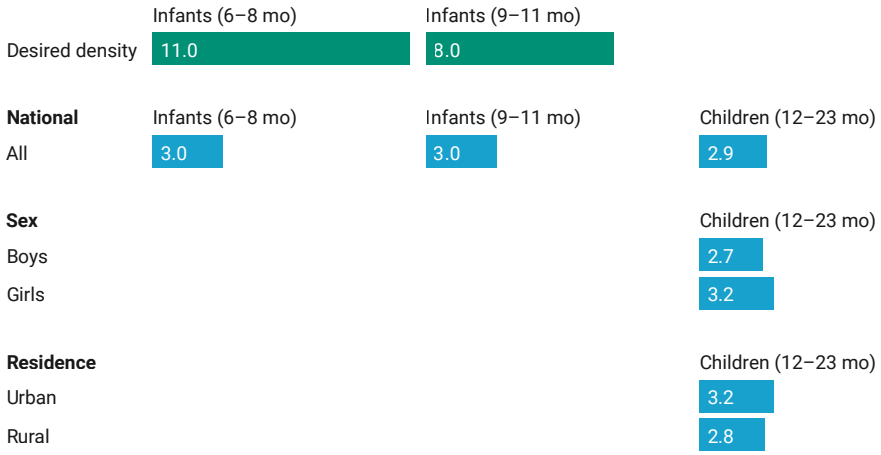
Median riboflavin (vitamin B2) density of the complementary diet (mg/100 kcal)



Median folate (vitamin B9) density of the complementary diet (µg/100 kcal)



Median vitamin C density of the complementary diet (mg/100 kcal)



There is no desired nutrient density defined for vitamin C for children aged 12–23 months (Dewey et al., 2003).

5 Biofortification Coverage and Consumption

5.1 Yellow Cassava

Percentage of non-pregnant women who consumed yellow cassava the previous 30 days (%)

National	Non-pregnant women
All	3%

Residence	Non-pregnant women
Urban	3%
Rural	4%

Zone	Non-pregnant women
North Central	3%
North East	8%
North West	1%
South East	4%
South South	4%
South West	2%

Wealth quintile	Non-pregnant women
Lowest	5%
Second	3%
Middle	3%
Fourth	2%
Highest	4%

Data were derived from the semi-structured diet questionnaire. Among the respondents who reported having consumed yellow cassava, the vast majority (77%) reported consuming it for one to nine days in the past 30 days, whereas about 2% reported consuming it daily.

Mean daily intake of raw yellow cassava (g/day)

National	Non-pregnant women	Children (24–59 mo)
All	1.4	0.4

Residence	Non-pregnant women	Children (24–59 mo)
Urban	1.3	0.4
Rural	1.4	0.4

Zone	Non-pregnant women
North Central	0.4
North East	0.2
North West	0.6
South East	1.4
South South	6.3
South West	0.5

Wealth quintile	Non-pregnant women
Lowest	0.0
Second	0.5
Middle	2.0
Fourth	1.3
Highest	2.7

Mean intakes of raw yellow cassava were derived from the quantitative 24-hour dietary recall data. The mean intakes include non-consumers. Yellow cassava contributed <1% of daily vitamin A intake.

5.2 Orange-Fleshed Sweet Potato

Percentage of non-pregnant women who consumed orange-fleshed sweet potato the previous 30 days (%)

National	Non-pregnant women
All	5%

Residence	Non-pregnant women
Urban	5%
Rural	4%

Zone	Non-pregnant women
North Central	2%
North East	17%
North West	2%
South East	2%
South South	3%
South West	2%

Wealth quintile	Non-pregnant women
Lowest	7%
Second	4%
Middle	5%
Fourth	3%
Highest	5%

Data were derived from the semi-structured diet questionnaire. Among the respondents who reported having consumed orange-fleshed sweet potato, the vast majority (84%) reported consuming it for one to nine days in the past 30 days, whereas none reported consuming it daily.

Mean daily intake of orange-fleshed sweet potato (g/day)

National	Non-pregnant women	Children (24–59 mo)
All	0.3	0.1

Residence	Non-pregnant women	Children (24–59 mo)
Urban	0.1	0.1
Rural	0.4	0.1

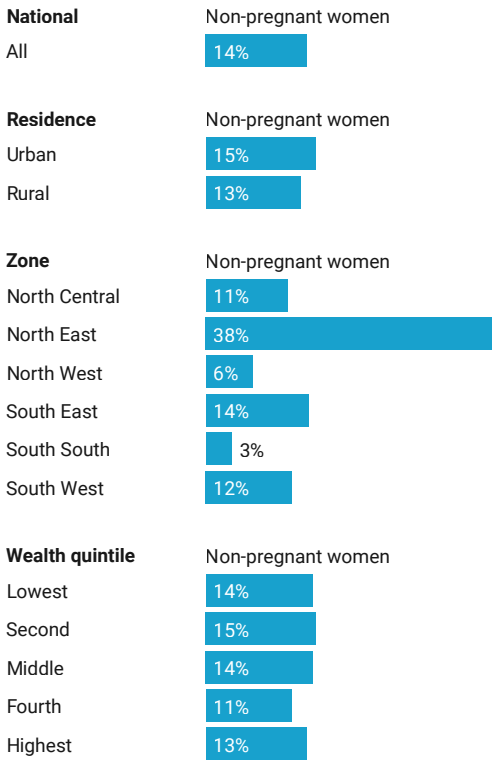
Zone	Non-pregnant women
North Central	0.1
North East	0.5
North West	0.3
South East	0.2
South South	0.4
South West	0.0

Wealth quintile	Non-pregnant women
Lowest	0.5
Second	0.3
Middle	0.1
Fourth	0.1
Highest	0.4

Mean intakes of orange-fleshed sweet potato were derived from the quantitative 24-hour dietary recall data. The mean intakes include non-consumers. Orange-fleshed sweet potato contributed <1% of daily vitamin A intake.

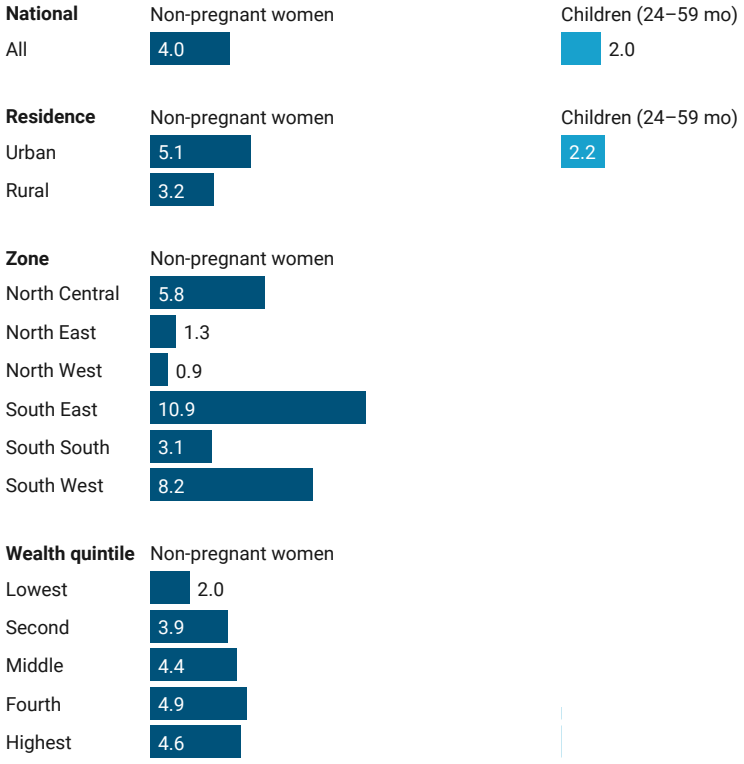
5.3 Orange Maize

Percentage of non-pregnant women who consumed orange maize the previous 30 days (%)



Data were derived from the semi-structured diet questionnaire. Among the respondents who reported having consumed orange maize, just over half (57%) reported consuming it for one to nine days in the past 30 days, whereas about 16% reported consuming it daily.

Mean daily intake of orange maize (g/day)

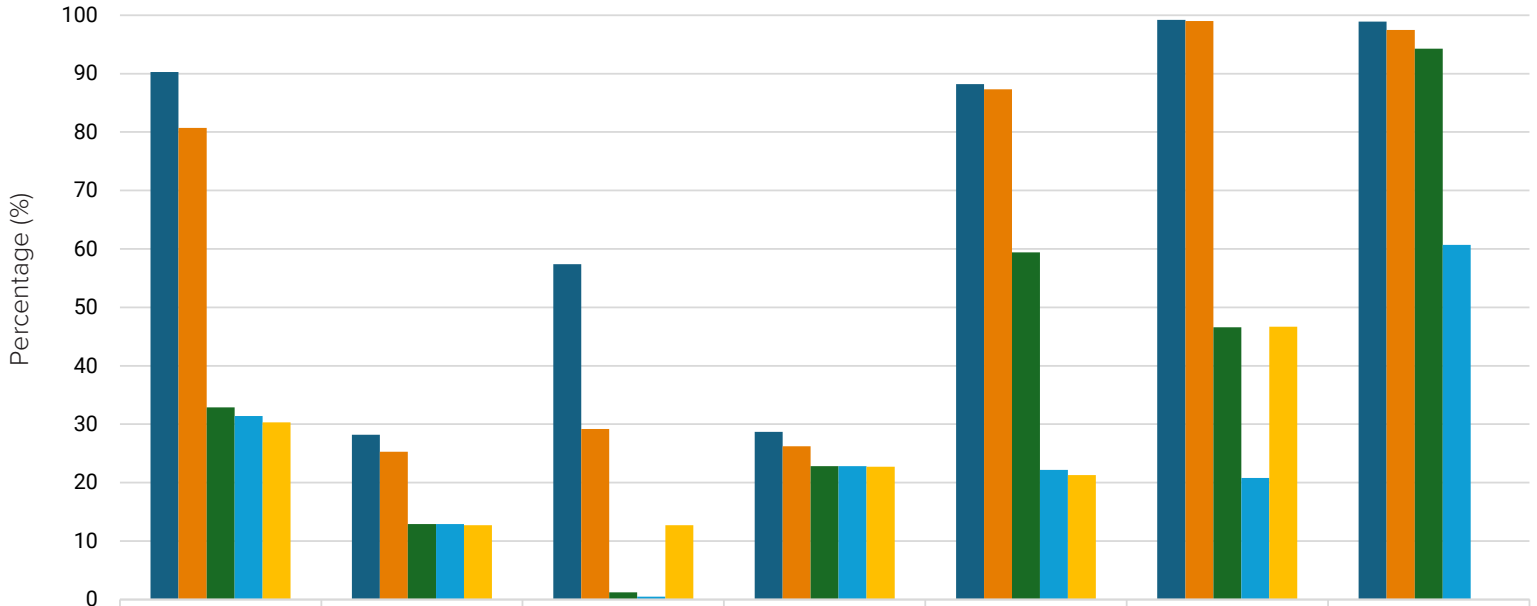


Mean intakes of orange maize were derived from the quantitative 24-hour dietary recall data. The mean intakes include non-consumers. Orange maize contributed <1% of daily vitamin A intake.

6 Fortification Coverage and Consumption

6.1 Fortification Coverage

Coverage of selected food vehicles among households of the sampled non-pregnant women

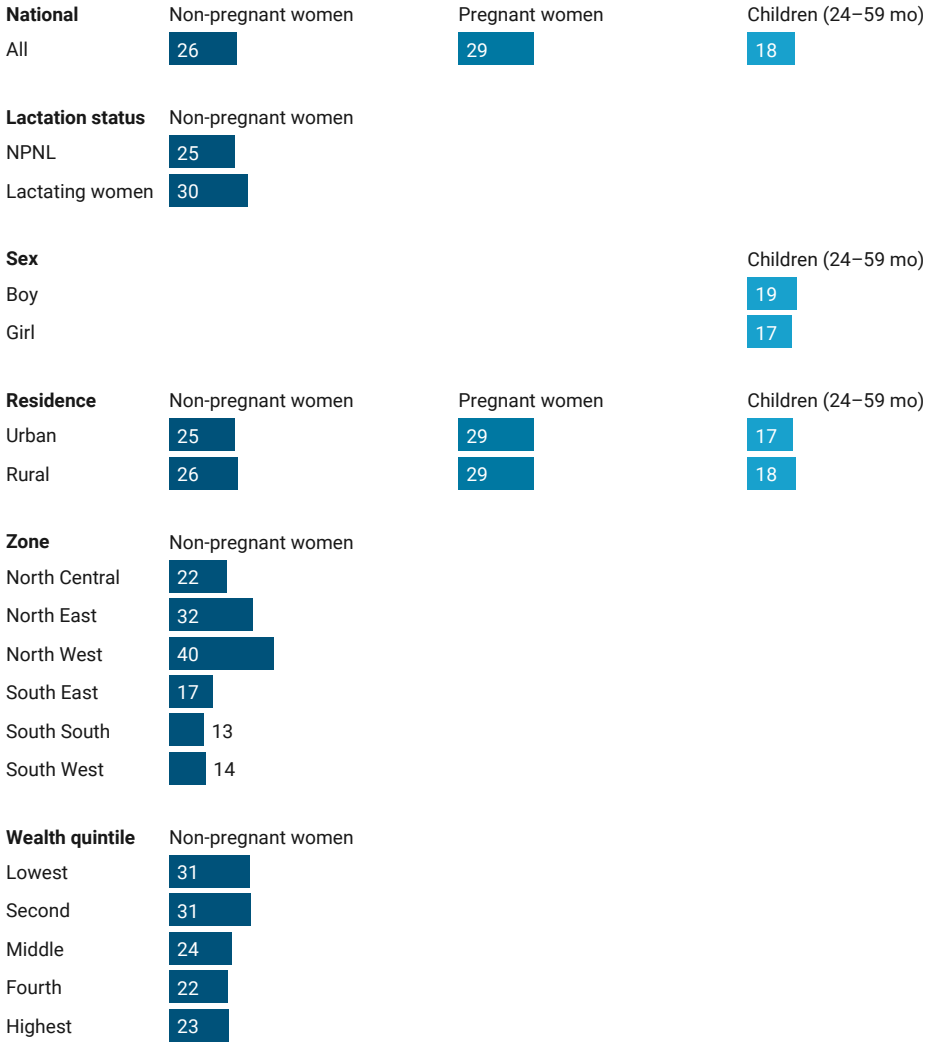


	Vegetable oil	Wheat flour	Maize flour	Semolina flour	Sugar	Salt	Bouillion
Consumed foods	90.3	28.2	57.4	28.7	88.2	99.2	98.9
Purchased foods	80.7	25.3	29.2	26.2	87.3	99.0	97.5
Branded foods	32.9	12.9	1.2	22.8	59.4	46.6	94.3
Foods labelled as fortified	31.4	12.9	0.5	22.8	22.2	20.8	60.7
Food fortified (in any amount)*	30.3	12.7	12.7	22.7	21.3	46.7	

*Each brand of food vehicle (except bouillon) was linked to the average micronutrient content from laboratory analysis of multiple food samples for the given brand using secondary data (GAIN, 2021).

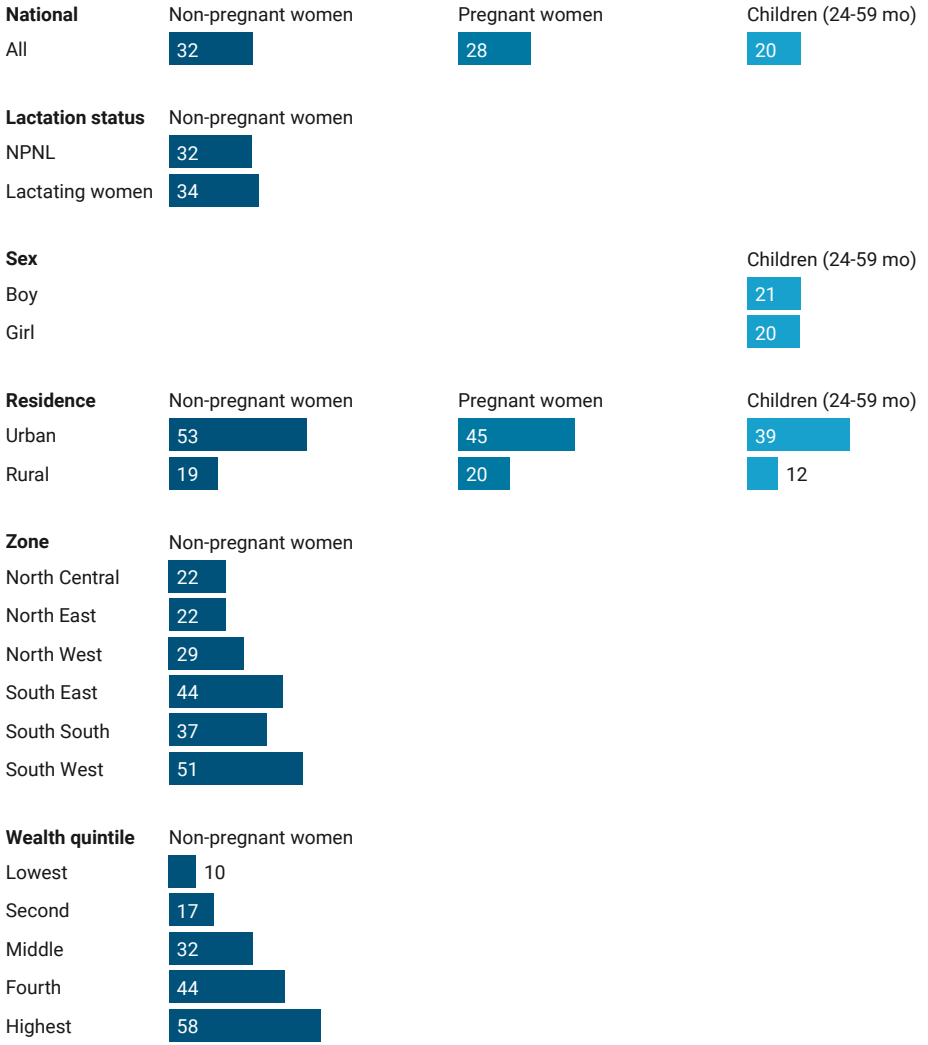
6.2 Consumption of Food Vehicles for Fortification

Median daily intake of vegetable oil (g/day)



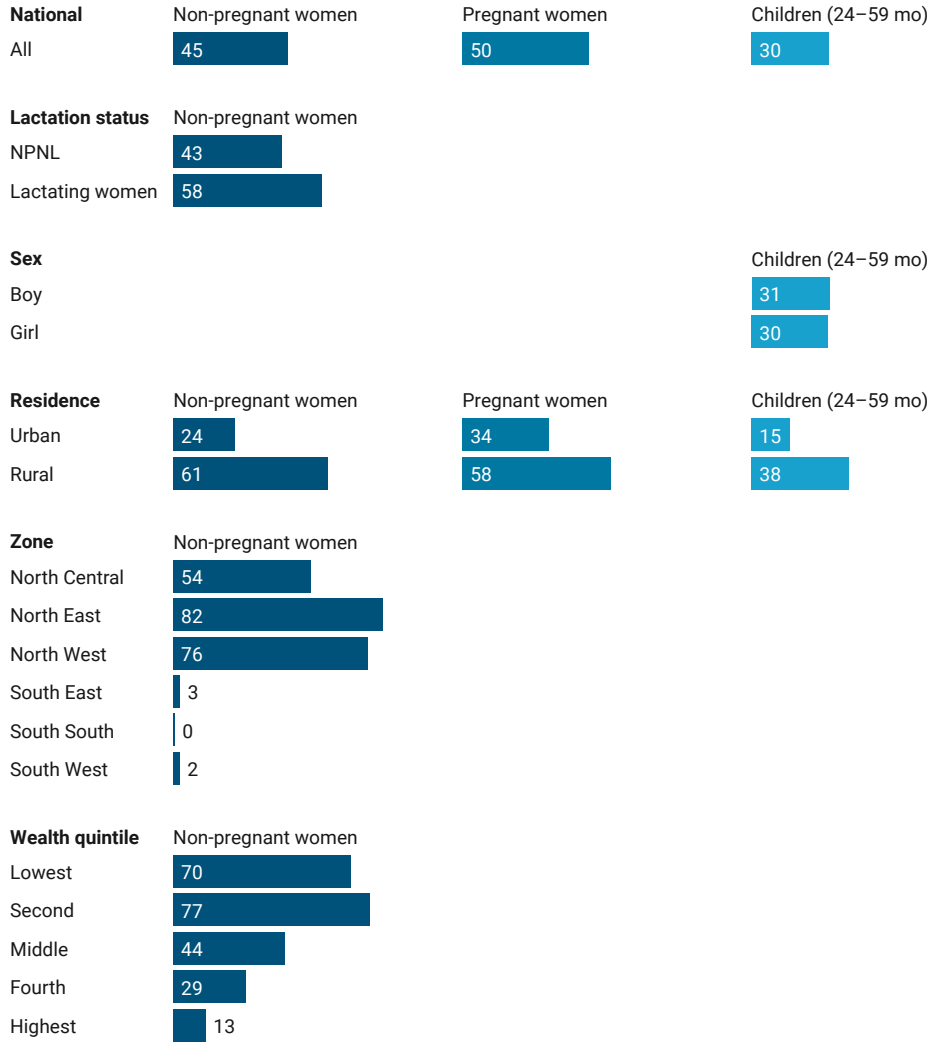
Usual intakes of vegetable oil were derived from the quantitative 24-hour dietary recall data. The median intakes include non-consumers.

Mean daily intake of wheat flour (g/day)



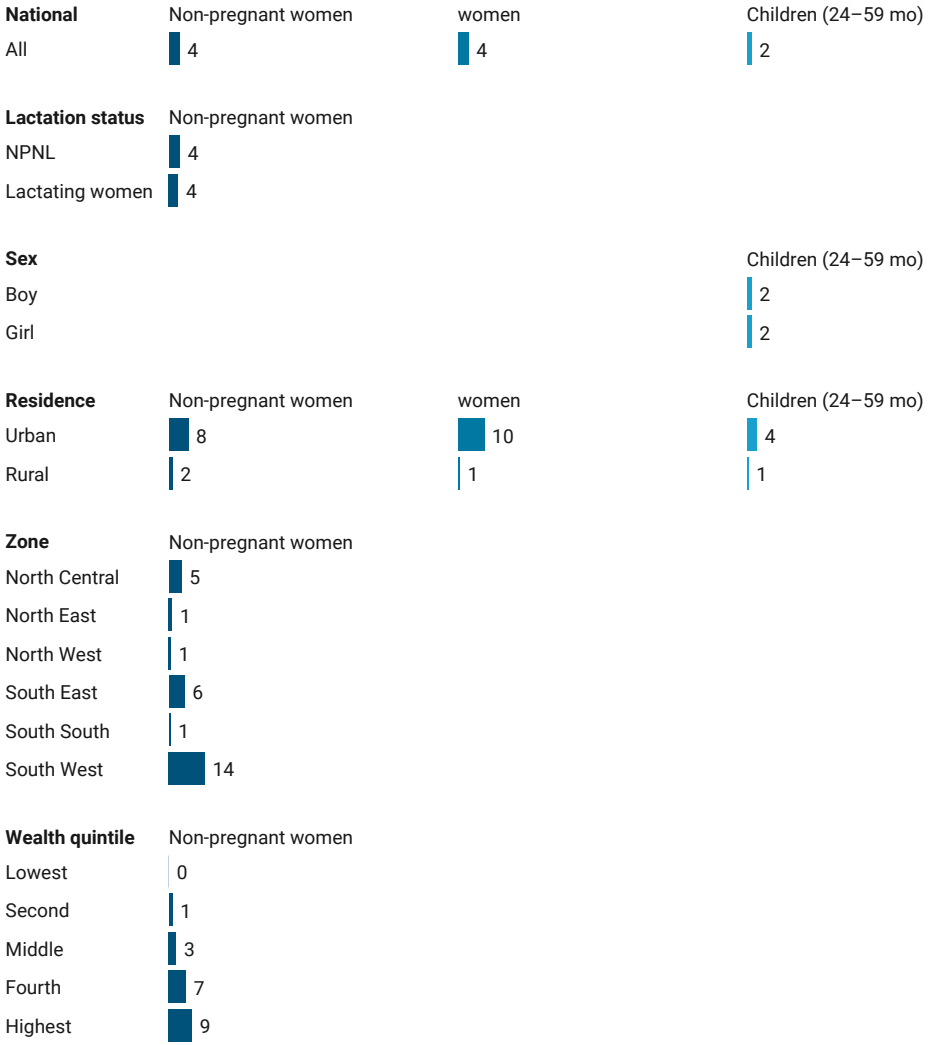
Usual intakes of wheat flour were derived from the quantitative 24-hour dietary recall data. The median intakes include non-consumers.

Median daily intake of maize flour (g/day)



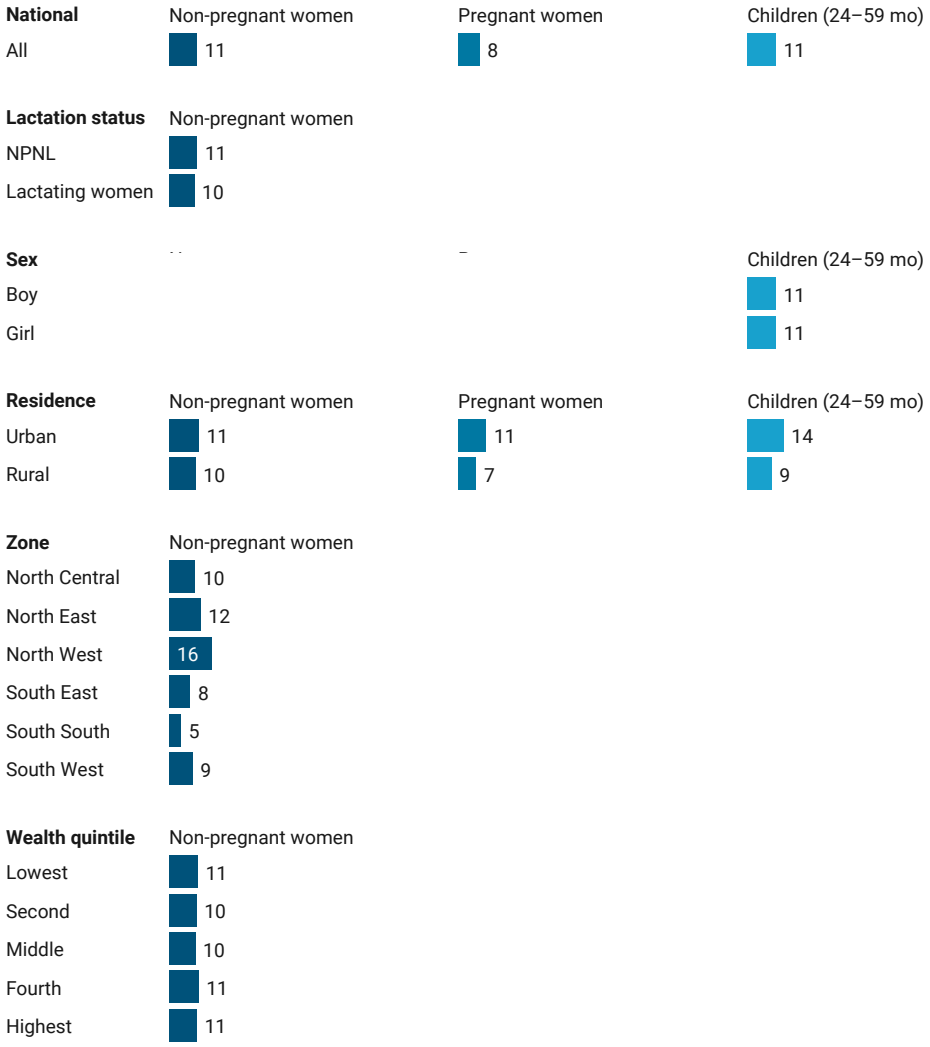
Mean intakes of maize flour were derived from the quantitative 24-hour dietary recall data. The mean intakes include non-consumers.

Mean daily intake of semolina flour (g/day)



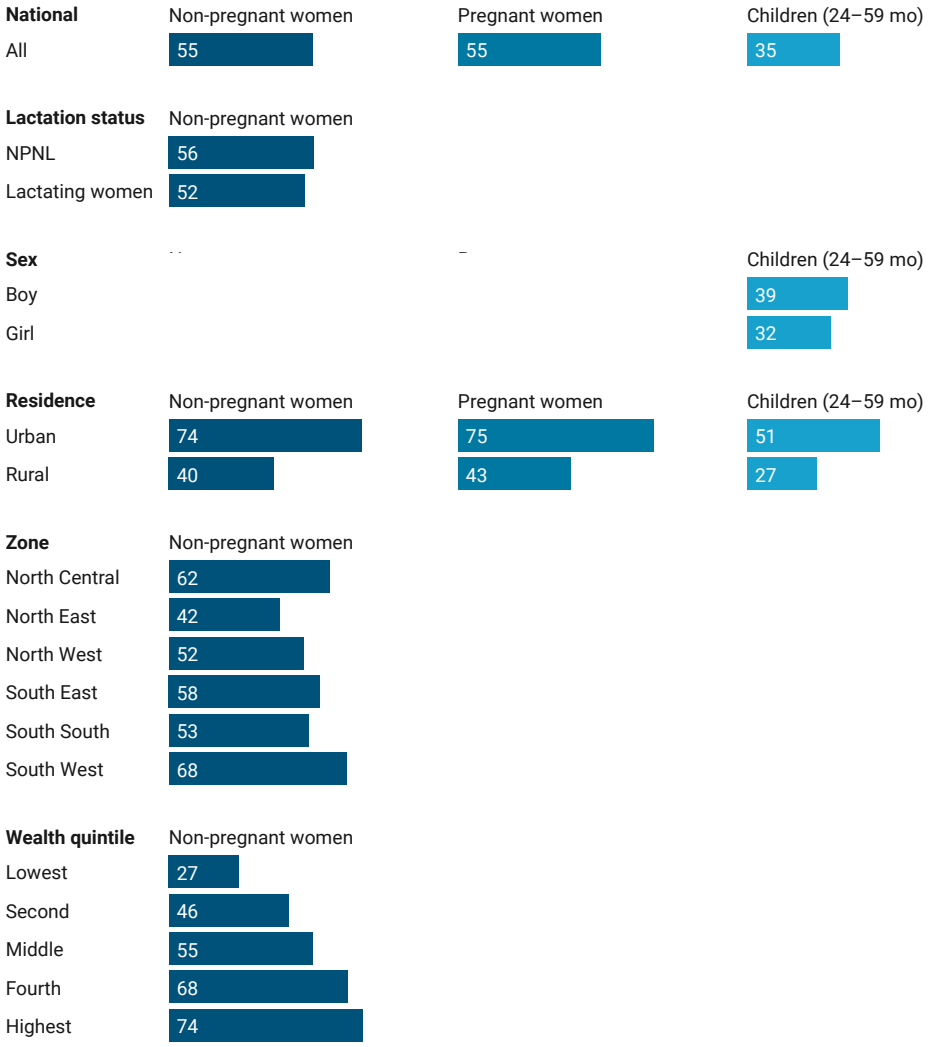
Mean intakes of semolina flour were derived from the quantitative 24-hour dietary recall data. The mean intakes include non-consumers.

Median daily intake of sugar (g/day)



Usual intakes of sugar were derived from the quantitative 24-hour dietary recall data. The median intakes include non-consumers.

Mean daily intake of rice (g/day)



Usual intakes of rice were derived from the quantitative 24-hour dietary recall data. The median intakes include non-consumers.

Median daily intake of salt (g/day)

National	Non-pregnant women	Pregnant women	Children (24–59 mo)
All	3.7	3.9	2.4

Lactation status	Non-pregnant women
NPNL	3.7
Lactating women	3.7

Sex	Children (24–59 mo)
Boy	2.4
Girl	2.4

Residence	Non-pregnant women	Pregnant women	Children (24–59 mo)
Urban	3.4	3.4	2.1
Rural	4.0	4.1	2.6

Zone	Non-pregnant women
North Central	3.4
North East	3.1
North West	3.5
South East	5.2
South South	4.7
South West	3.5

Wealth quintile	Non-pregnant women
Lowest	3.9
Second	3.7
Middle	3.7
Fourth	3.5
Highest	3.7

Usual intakes of salt were derived from the quantitative 24-hour dietary recall data. The median intakes include non-consumers.

Mean daily intake of bouillon (g/day)

National	Non-pregnant women	Pregnant women	Children (24–59 mo)
All	5.7	6.0	3.8

Lactation status	Non-pregnant women
NPNL	5.4
Lactating women	7.3

Sex	Children (24–59 mo)
Boy	3.8
Girl	3.7

Residence	Non-pregnant women	Pregnant women	Children (24–59 mo)
Urban	4.7	4.8	3.0
Rural	6.5	6.6	4.2

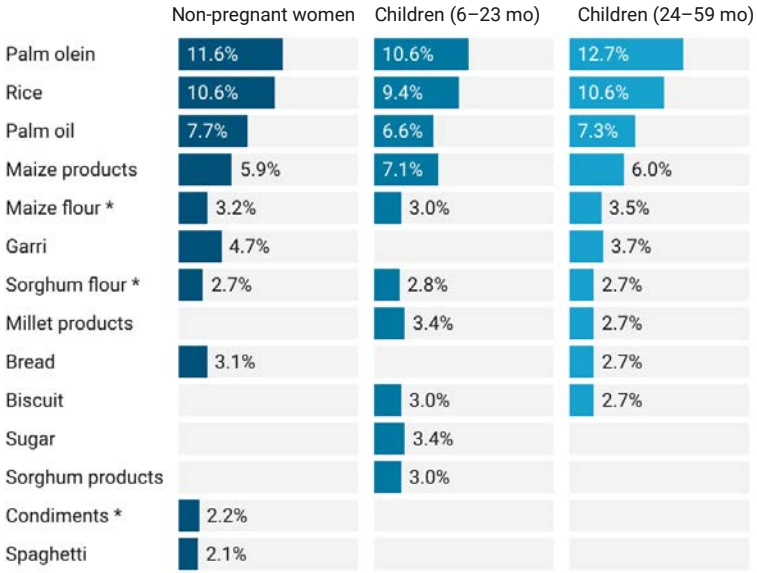
Zone	Non-pregnant women
North Central	4.6
North East	8.0
North West	8.8
South East	3.7
South South	4.6
South West	2.6

Wealth quintile	Non-pregnant women
Lowest	7.8
Second	7.6
Middle	5.3
Fourth	4.3
Highest	4.3

Usual intakes of bouillon were derived from the quantitative 24-hour dietary recall data. The median intakes include non-consumers.

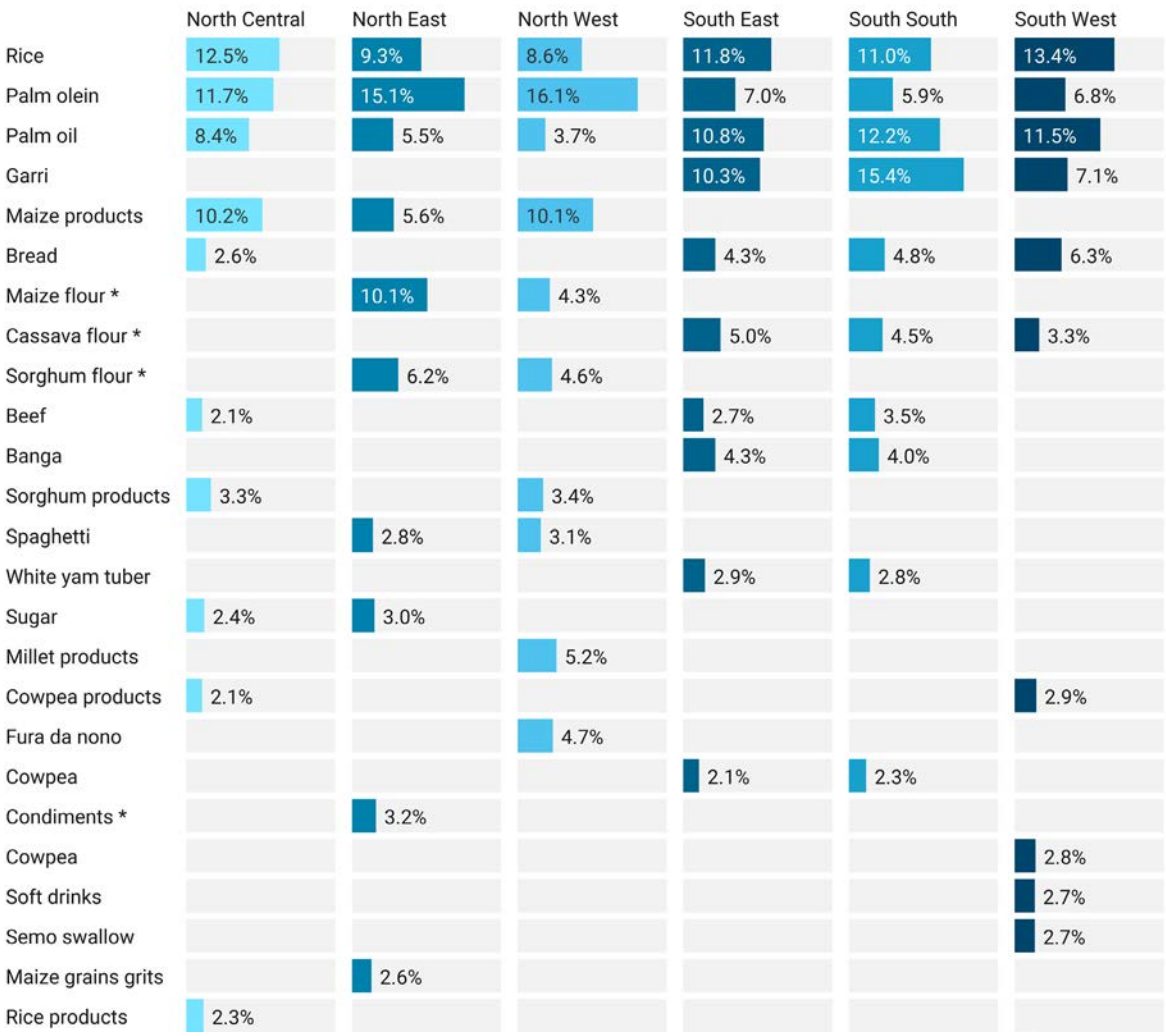
7 Main Food Sources of Energy and Micronutrient Intake

Top 10 food sources of energy intake among women and children (% contribution)



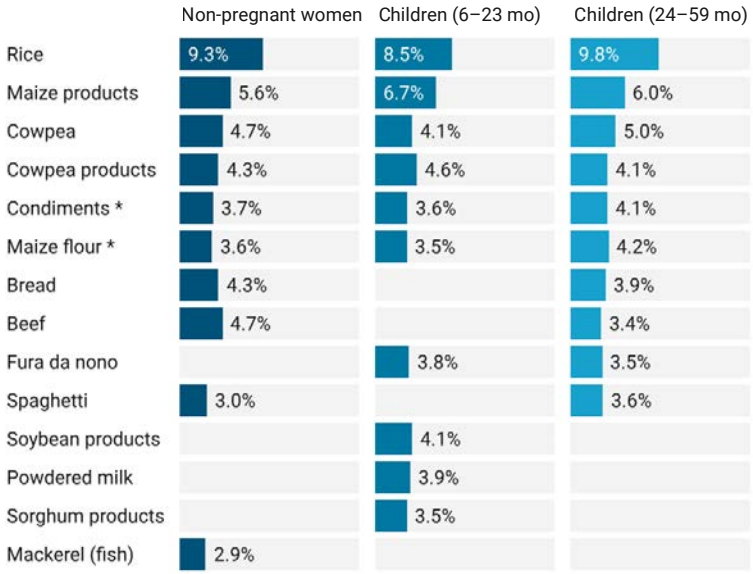
* Relates to an ingredient in a mixed dish.

Top 10 food sources of energy intake among non-pregnant women by zone (% contribution)



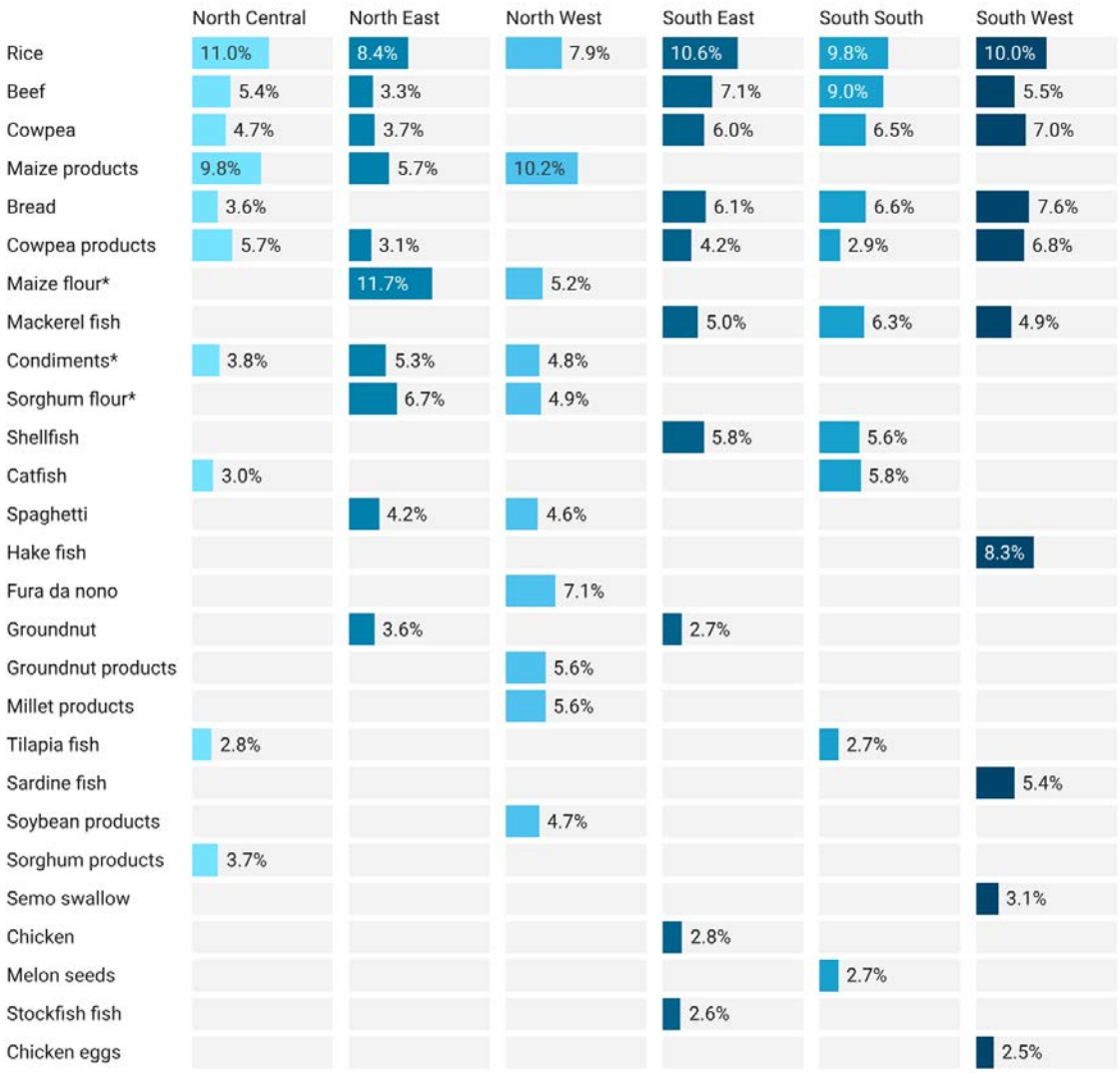
* Relates to an ingredient in a mixed dish.

Top 10 food sources of protein intake among women and children (% contribution)



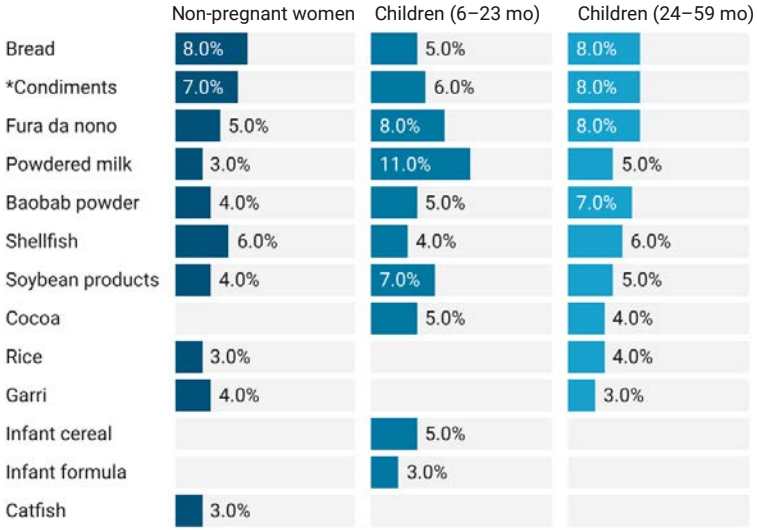
* Relates to an ingredient in a mixed dish.

Top 10 food sources of protein intake among non-pregnant women by zone (% contribution)



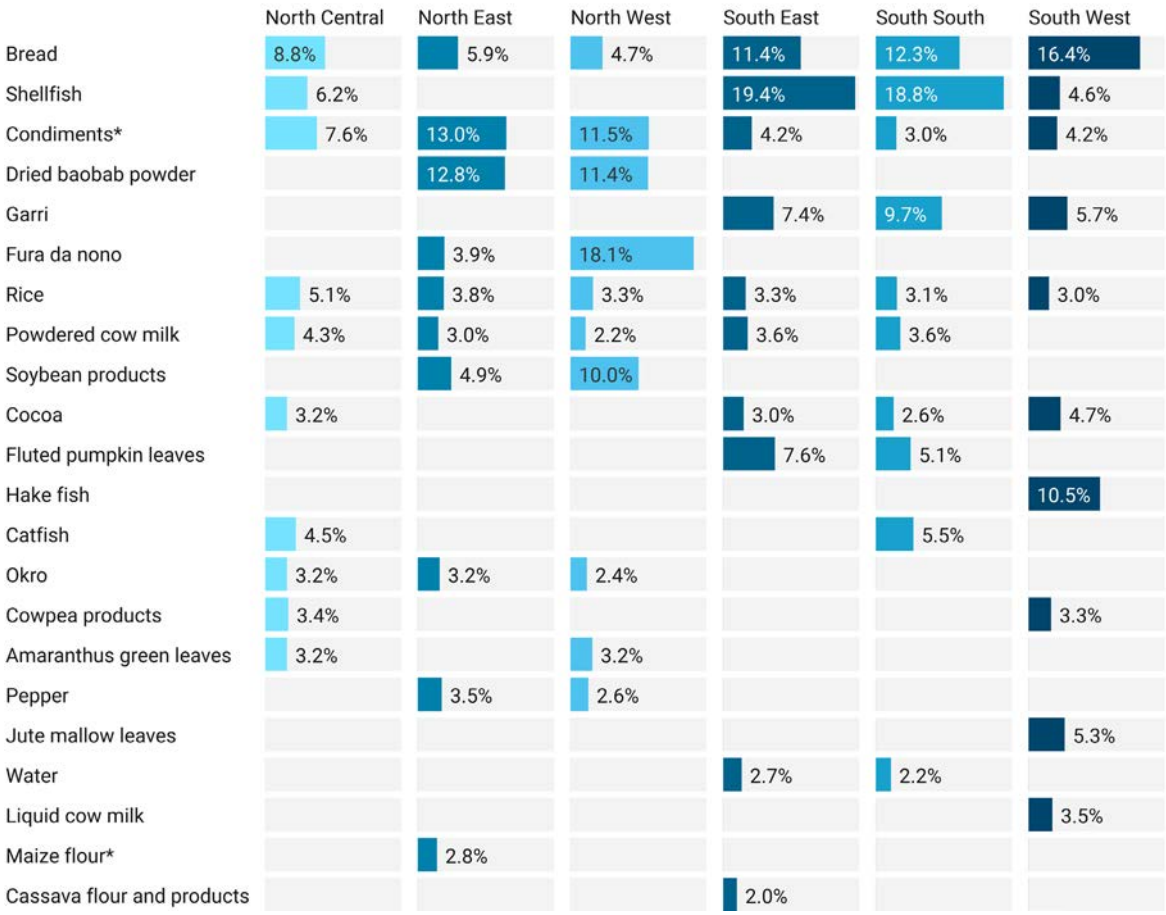
* Relates to an ingredient in a mixed dish.

Top 10 food sources of calcium intake among women and children (% contribution)



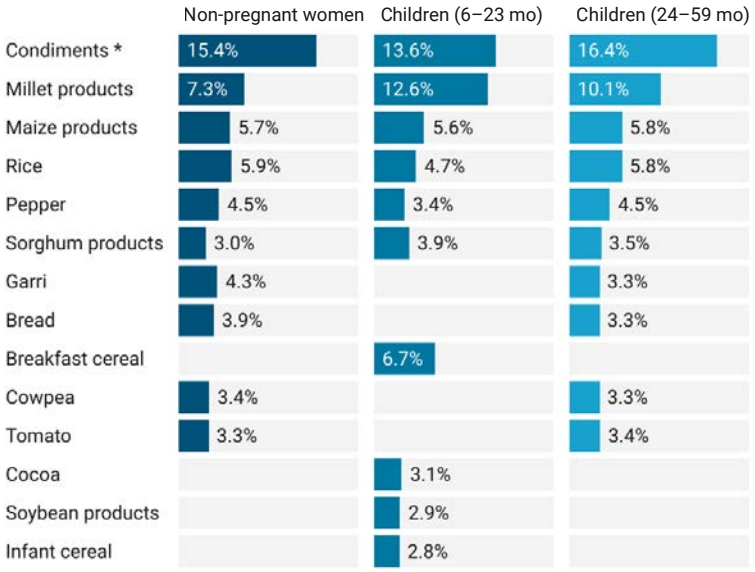
* Relates to an ingredient in a mixed dish.

Top 10 food sources of calcium intake among non-pregnant women by zone (% contribution)



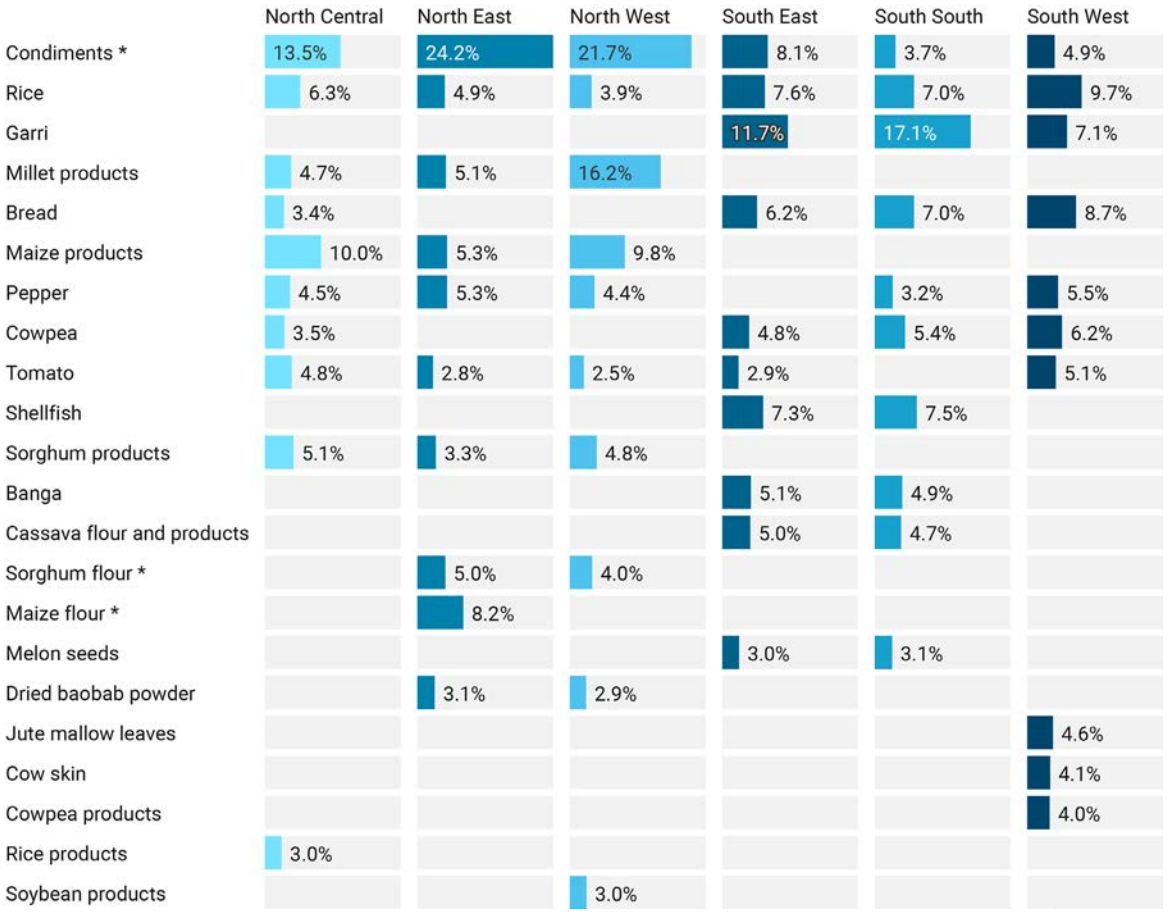
* Relates to an ingredient in a mixed dish.

Top 10 food sources of iron intake among women and children (% contribution)



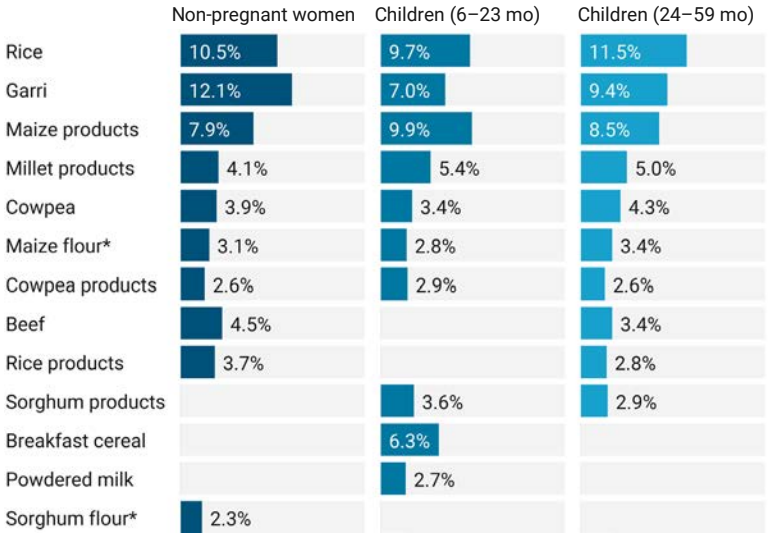
* Relates to an ingredient in a mixed dish.

Top 10 food sources of iron intake among non-pregnant women by zone (% contribution)



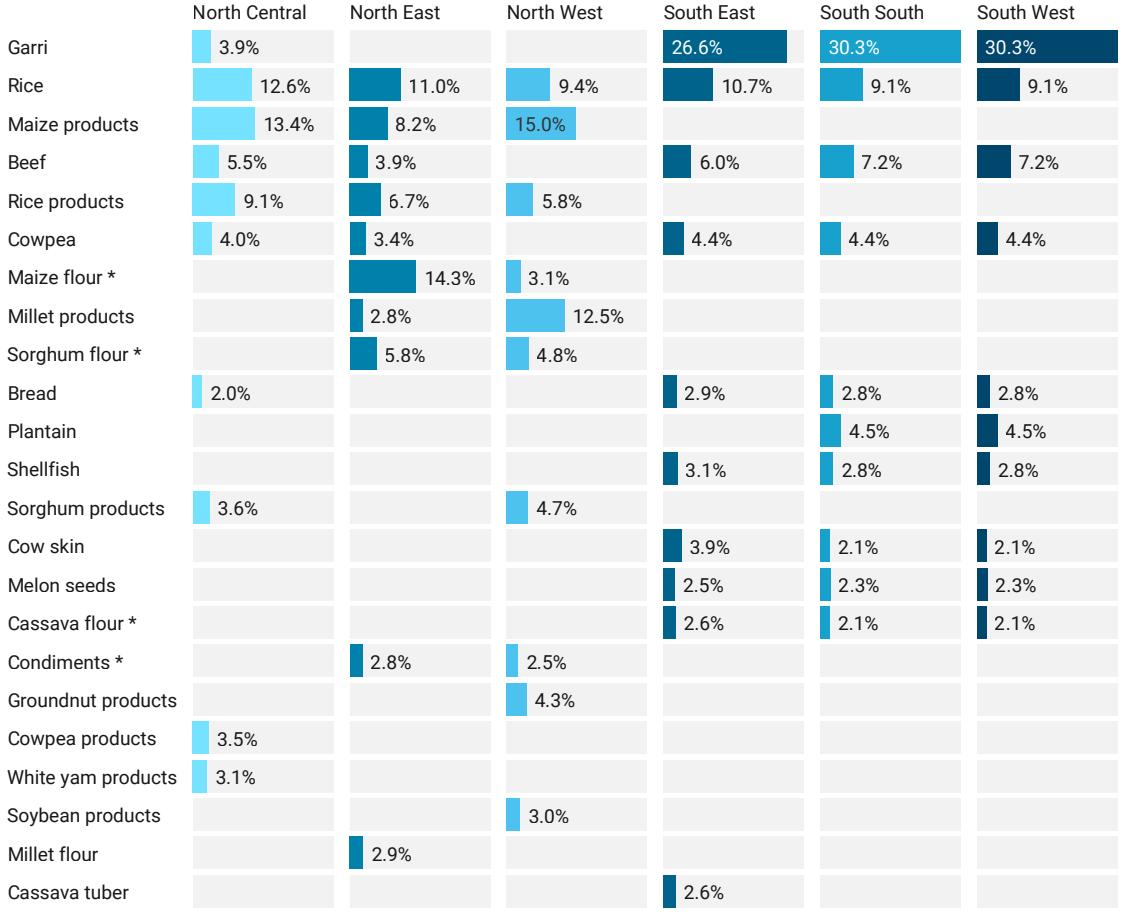
* Relates to an ingredient in a mixed dish.

Top 10 food sources of zinc intake among women and children (% contribution)



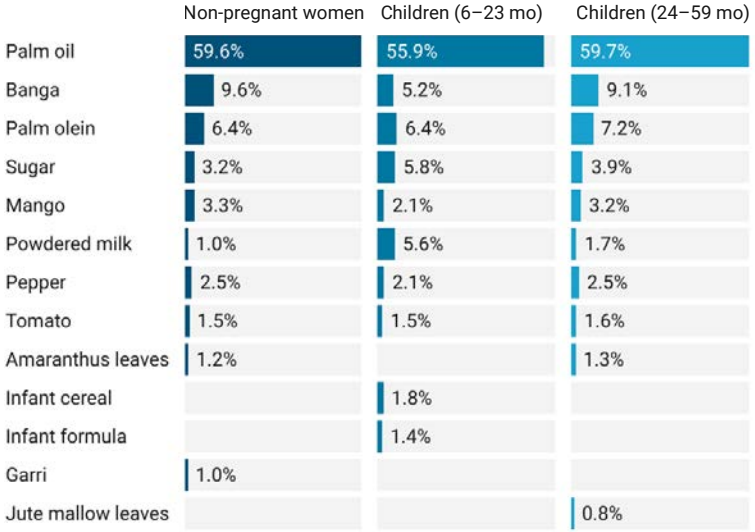
* Relates to an ingredient in a mixed dish.

Top 10 food sources of zinc intake among non-pregnant women by zone (% contribution)

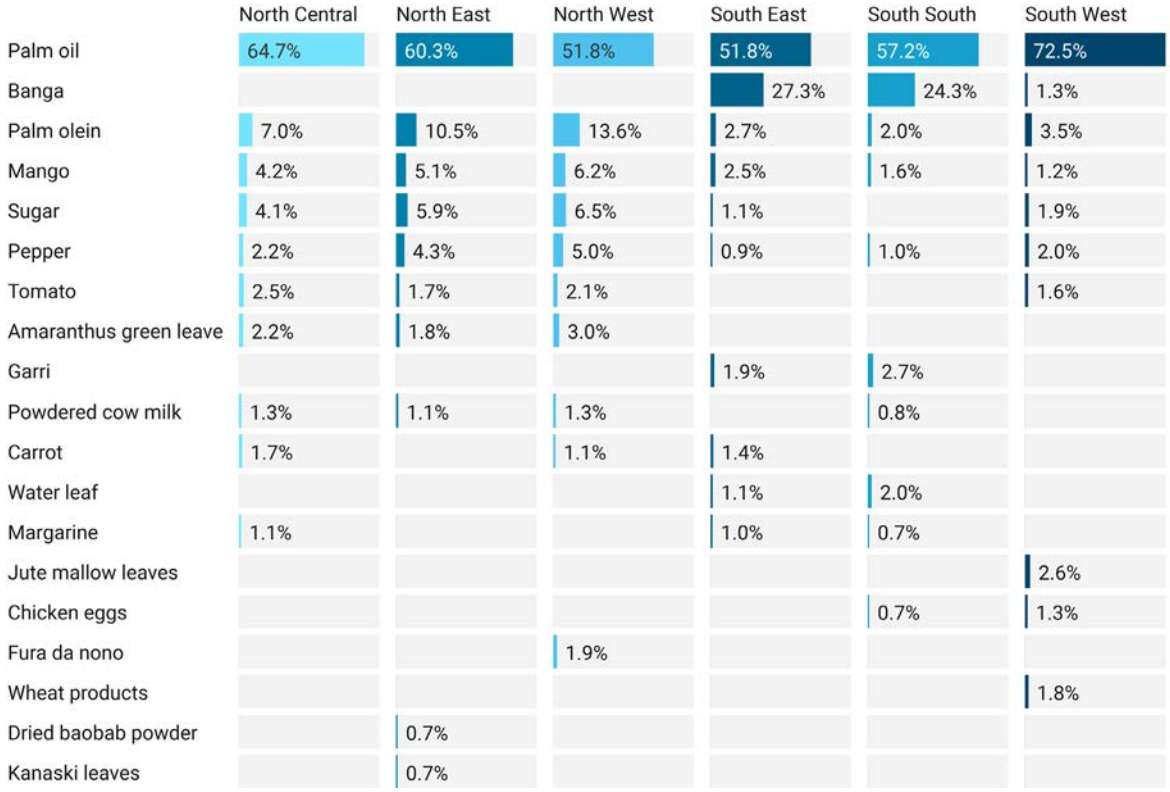


* Relates to an ingredient in a mixed dish.

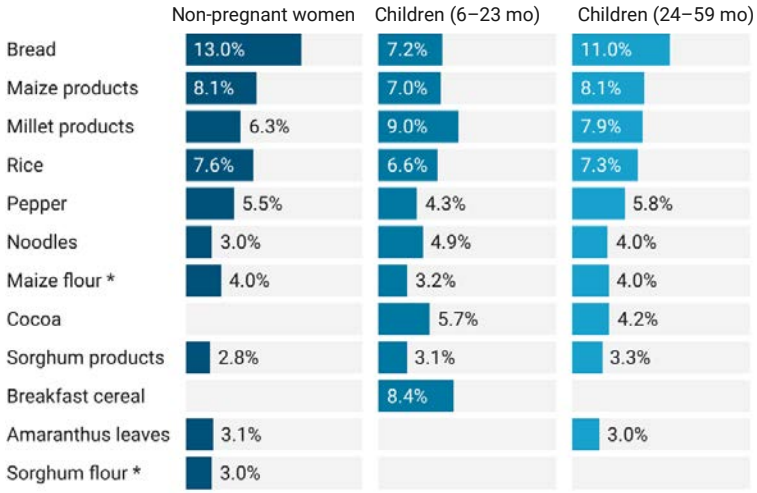
Top 10 food sources of vitamin A intake among women and children (% contribution)



Top 10 food sources of vitamin A intake among non-pregnant women by zone (% contribution)

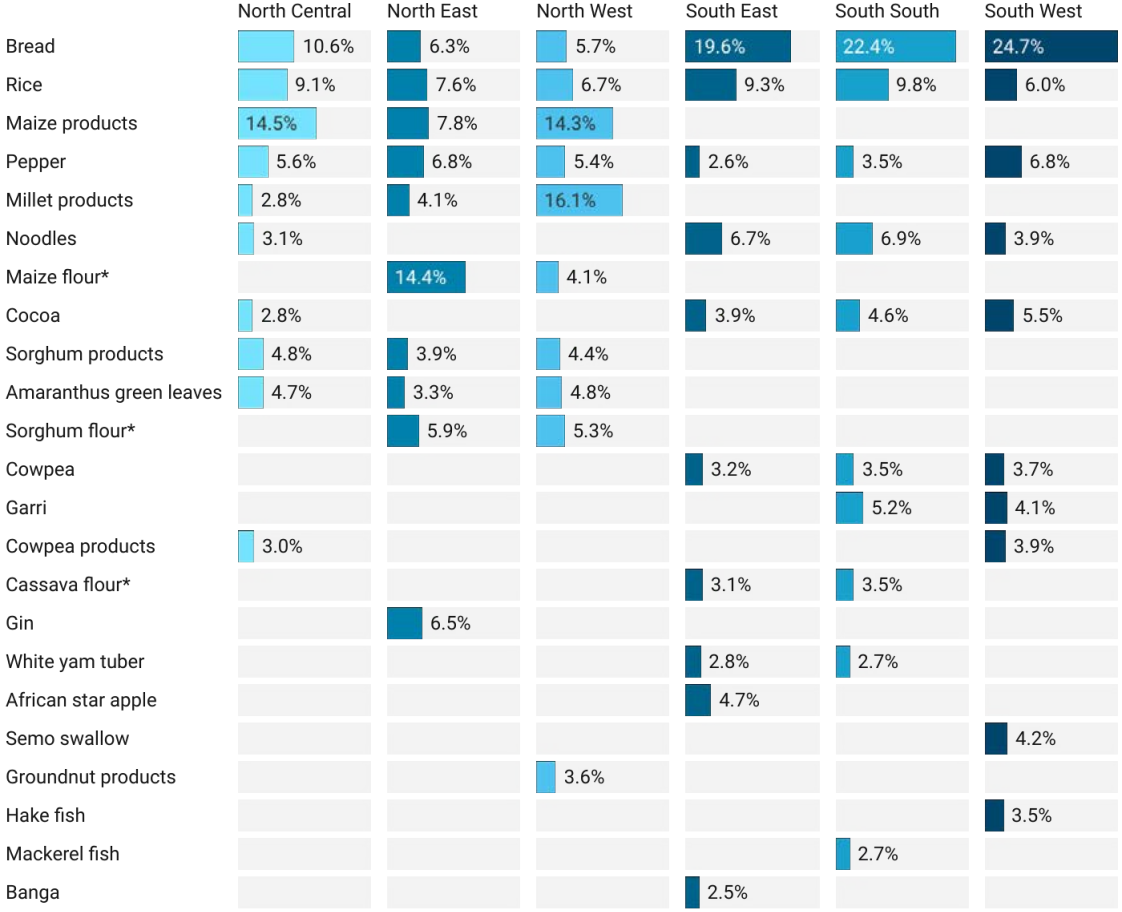


Top 10 food sources of thiamine (vitamin B1) intake among women and children (% contribution)



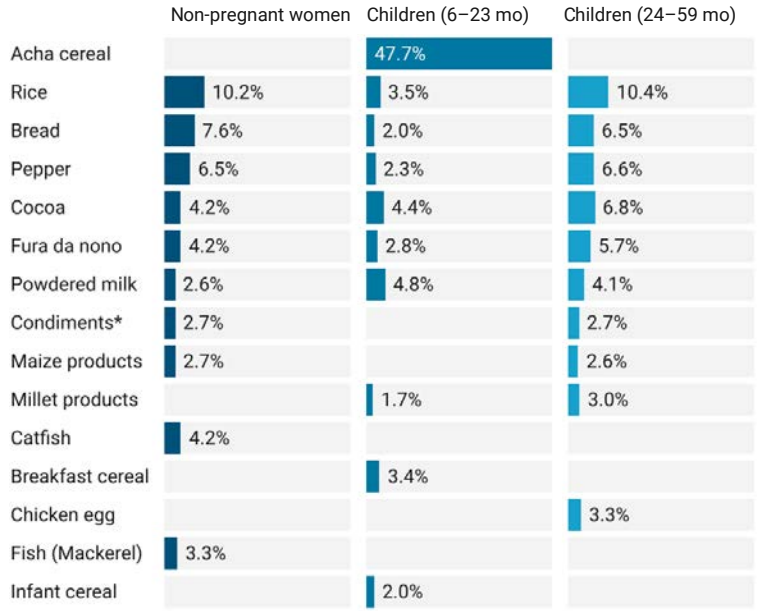
* Relates to an ingredient in a mixed dish.

Top 10 food sources of thiamine (vitamin B1) intake among non-pregnant women by zone (% contribution)



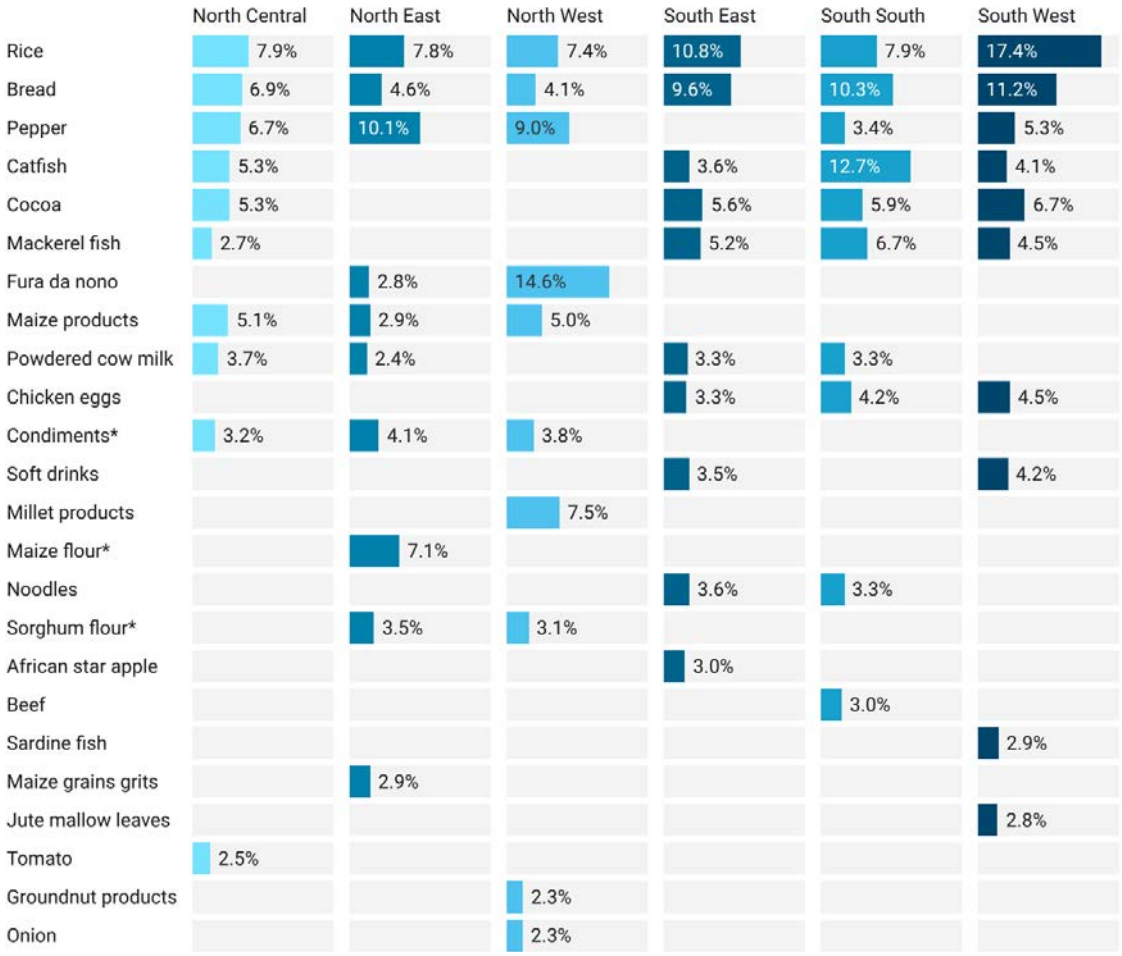
* Relates to an ingredient in a mixed dish.

Top food 10 sources of riboflavin (vitamin B2) intake among women and children (% contribution)



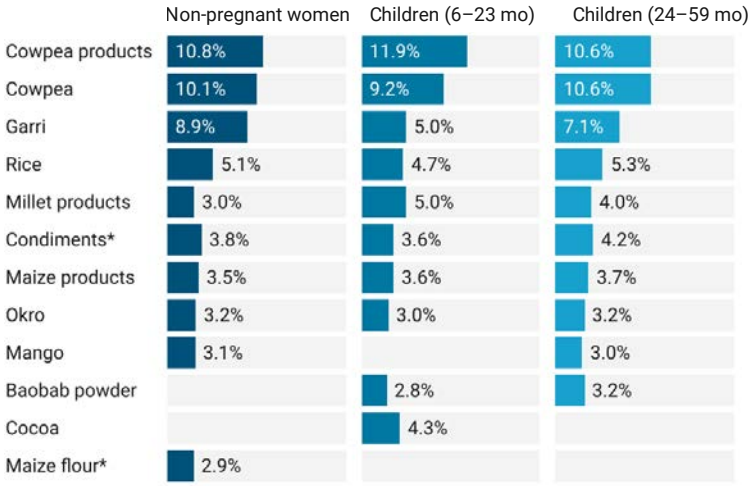
* Relates to an ingredient in a mixed dish.

Top 10 food sources of riboflavin (vitamin B2) intake among non-pregnant women by zone (% contribution)



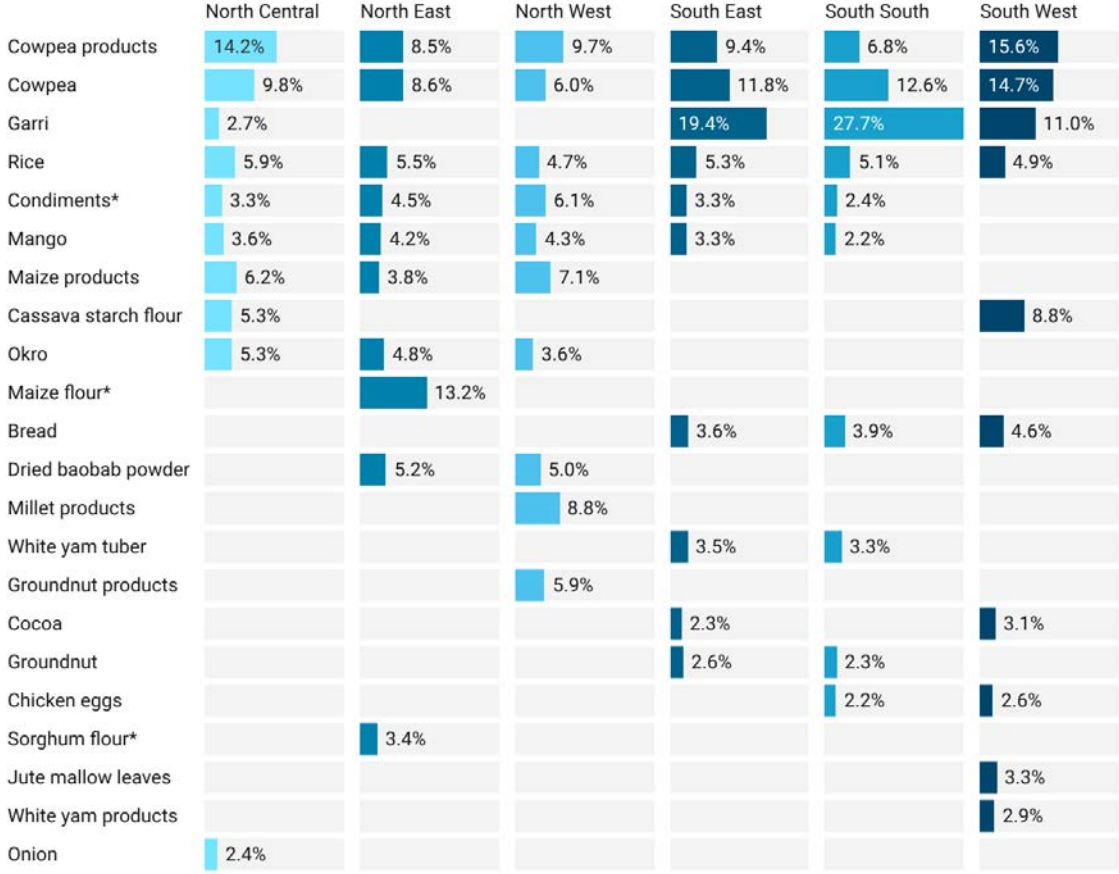
* Relates to an ingredient in a mixed dish.

Top 10 food sources of folate (vitamin B9) intake among women and children (% contribution)



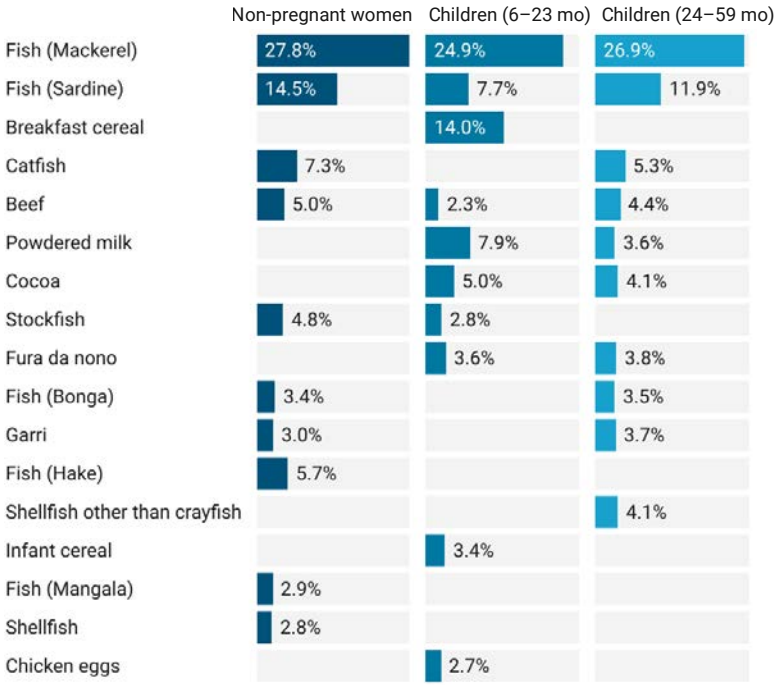
* Relates to an ingredient in a mixed dish.

Top 10 food sources of folate (vitamin B9) intake among non-pregnant women by zone (% contribution)

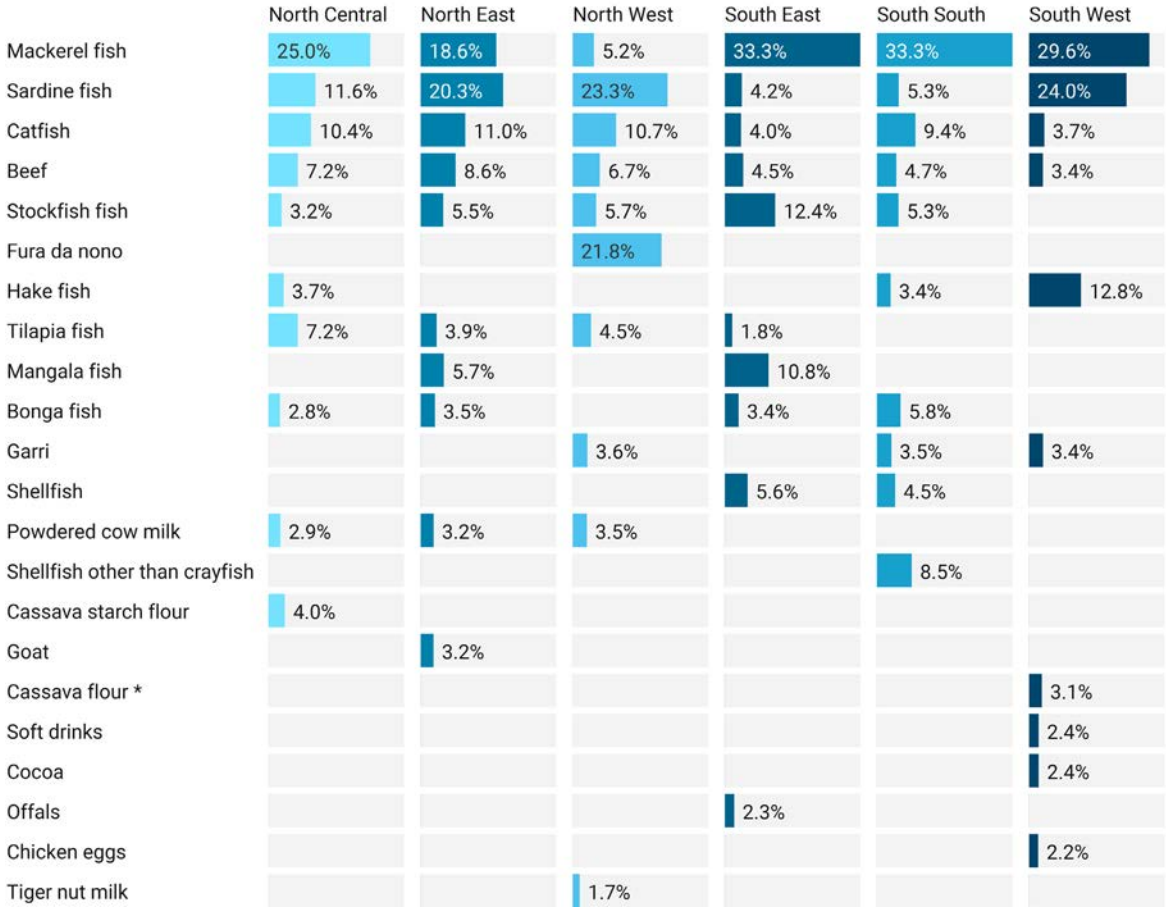


* Relates to an ingredient in a mixed dish.

Top 10 food sources of vitamin B12 intake among women and children (% contribution)

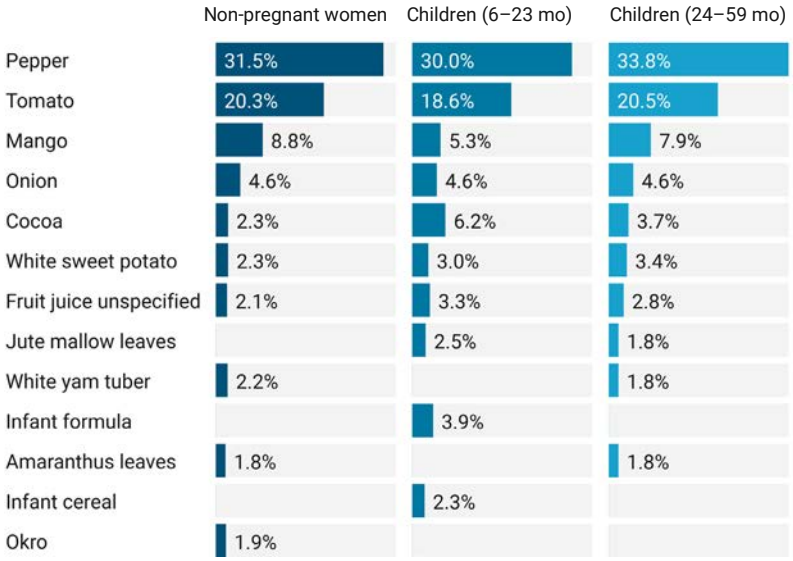


Top 10 food sources of vitamin B12 intake among non-pregnant women by zone (% contribution)

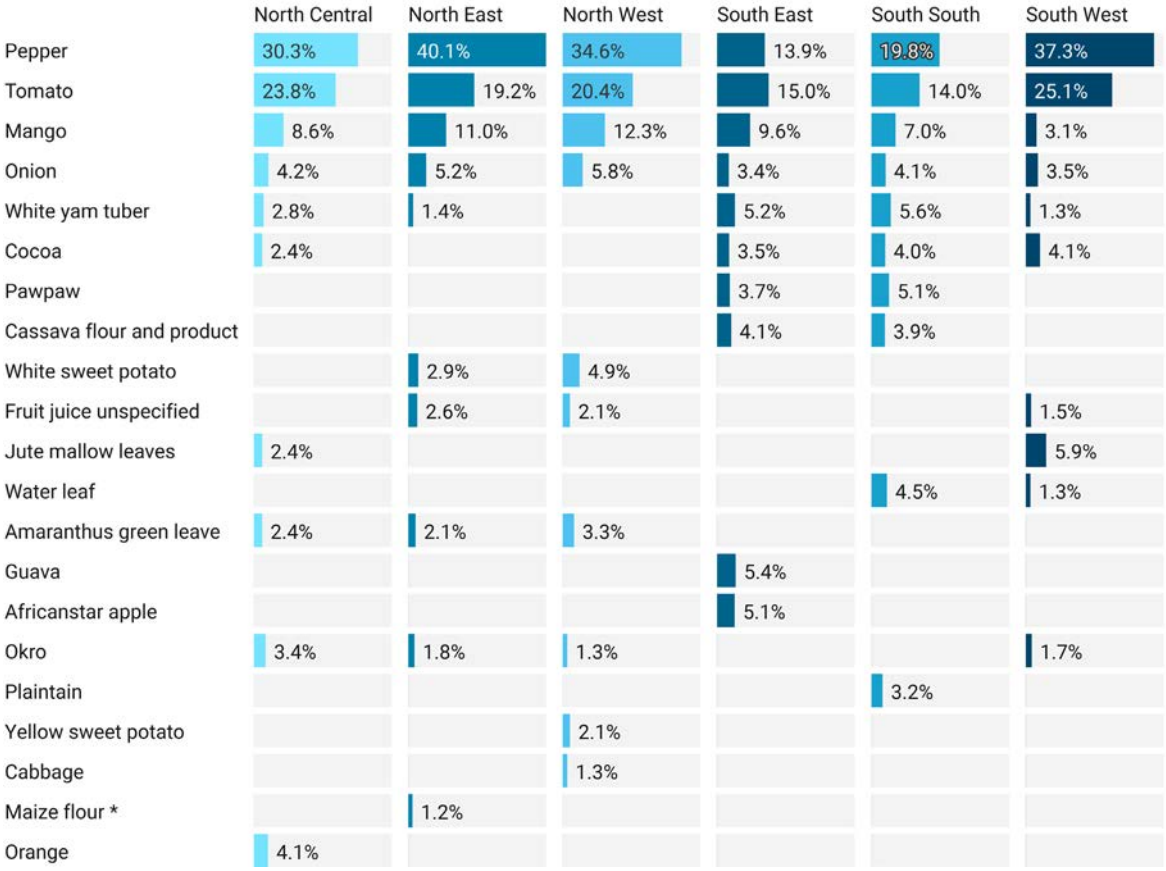


* Relates to an ingredient in a mixed dish.

Top 10 food sources of vitamin C intake among women and children (% contribution)



Top 10 food sources of vitamin C intake among non-pregnant women by zone (% contribution)



* Relates to an ingredient in a mixed dish.

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