

Strengthening Maternal Nutrition *within Antenatal Care in Ethiopia*

KEY FINDINGS FROM IMPLEMENTATION RESEARCH

Background

There is wide recognition of the importance of integrating maternal nutrition interventions in antenatal care (ANC) to improve maternal and child health. In Ethiopia, despite the availability of national maternal nutrition guidelines and promising maternal nutrition interventions, key maternal nutrition indicators still lag. According to the Ethiopian Demographic Health Survey (EDHS 2016), 23.6% of women (15-49 years), 29.1% of pregnant women, and 28.6% of lactating women are anemic. Only 5.1% of women took 90+ iron-folic acid (IFA) tablets during pregnancy. There are interventions available to address maternal nutrition needs, but little is known about how well they are implemented in routine health services.

Alive and Thrive (A&T) provided technical assistance to the Government of Ethiopia (GOE) to strengthen the delivery and uptake of ANC services and immediate postnatal care (PNC) services while carrying out implementation research between 2019 and 2021 to better understand how to effectively integrate proven maternal nutrition interventions into Ethiopia's existing package of maternal nutrition interventions (National Nutrition Program – NNPII). To strengthen the evidence base for maternal nutrition programs and policies, A&T developed and tested the integration of an intensive package of maternal nutrition interventions into existing ANC services delivered through government health facilities that will align with the latest global evidence and the NNPII.

Evaluation design

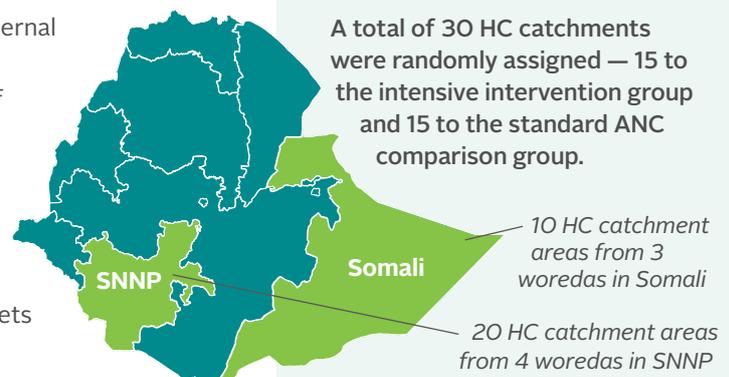
The evaluation was designed as a two-arm cluster-randomized non-masked trial, consisting of two cross-sectional surveys at baseline and endline. The baseline survey was used to check comparability between the intervention and comparison groups. The endline survey evaluated the impacts by comparing the two groups. Data was collected from pregnant women, recently delivered women (RDW), health centers (HC), health posts, ANC observations, nurse-midwives, and Health Extension Workers (HEW). The study was designed to answer these questions:

- What are the **impacts** of the interventions on maternal nutrition practices (consumption of diversified foods during pregnancy; consumption of IFA supplements; and early breastfeeding practices)?
- Can the **coverage and utilization** of key maternal nutrition interventions during ANC be improved through health system strengthening approaches?
- What **factors influence** the integration and strengthening of maternal nutrition interventions into the government ANC service delivery platform?

This brief summarizes the notable highlights from the household and facility surveys.

STUDY LOCATION

A total of 30 HC catchments were randomly assigned — 15 to the intensive intervention group and 15 to the standard ANC comparison group.



ABOUT THE SAMPLE

Household survey

The endline sample included:

540
Pregnant women
(270 Intervention, 270 Comparison)

1,889
RDW within 6 months
(945 Intervention, 944 Comparison)

920
Husbands of RDW
(475 Intervention, 445 Comparison)

Health facility survey

30
Nurse-midwives — 1 per HC
(15 Intervention, 15 Comparison)

90
HEWs — 1 per health post
(45 Intervention, 45 Comparison)

Health facility assessment

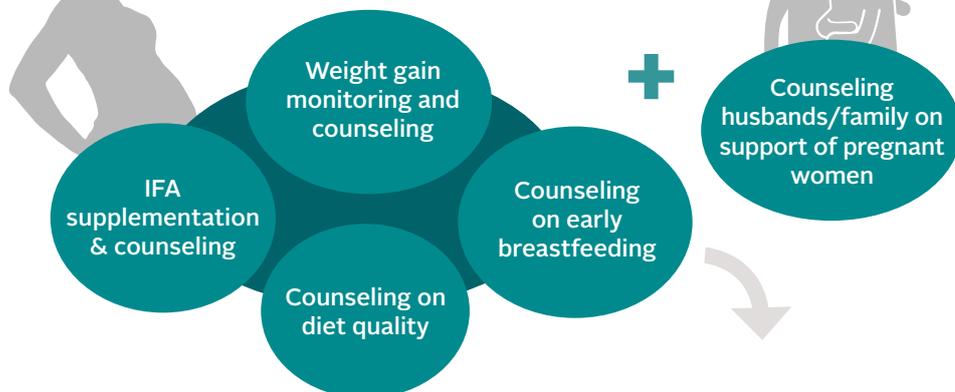
30
Health centers
(15 Intervention, 15 Comparison)

118
Health posts
(59 Intervention, 59 Comparison)

INTERVENTION OVERVIEW

THE PACKAGE OF ANC SERVICES

These maternal nutrition services were added or strengthened in the 15 HC catchment areas:



DELIVERY OF ANC SERVICES

Home visits by HEWs and community volunteers were used to deliver the enhanced ANC package and to refer women to the Pregnant Women's Conference (PWC) and mother's support groups.



SYSTEM STRENGTHENING INPUTS

Health system support included:

- Training on maternal nutrition for heads of health centers, nurse-midwives, HEWs, community volunteers, and other health staff.
- Supportive supervision of health staff on maternal nutrition activities.
- Data review meetings of health facility data and feedback sessions at *woreda* health offices for service delivery managers.
- Capacity building for healthcare providers on early forecasting and requisition of IFA tablets and stock monitoring.



TIMELINE



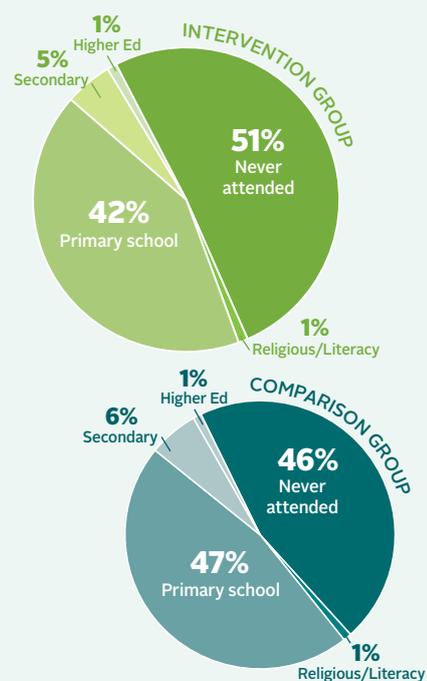
CHARACTERISTICS OF THE SAMPLE

Most of the RDW surveyed were married housewives who had their first child at age 20, on average. There were no major differences between the intervention and comparison groups. Below are more statistics for RDW:

Average age
28 years old

Education

Most RDW never attended school or only attended primary.



Household food security

More than half of the RDW's households surveyed were mildly to severely food insecure.



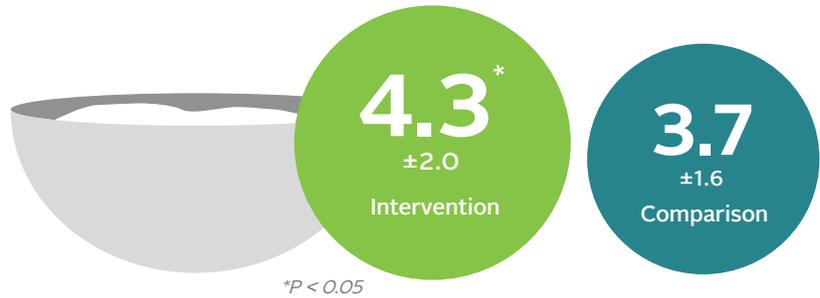
Results

MATERNAL DIET

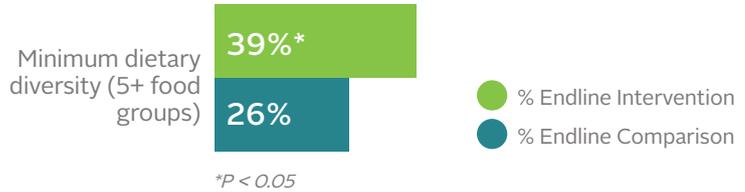
Diet diversity and nutrients

- Minimum dietary diversity requires women to eat at least 5 of 10 recommended food groups.
- A significant impact was observed on the number of food groups consumed by pregnant women in the intervention group as compared to the comparison group at endline.

Number of food groups consumed by pregnant women



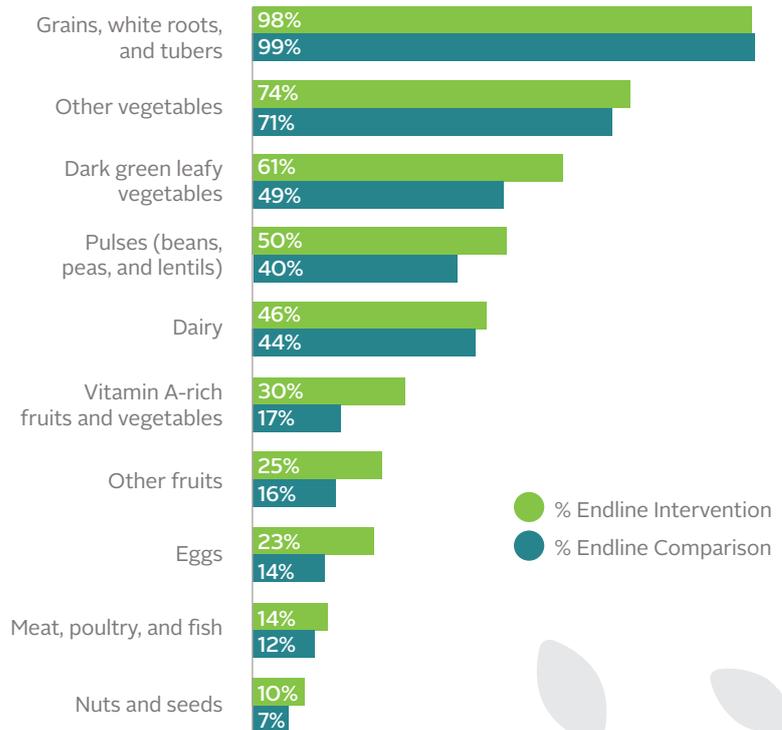
Pregnant women who consumed at least 5 food groups in the last 24 hours



Types of foods consumed

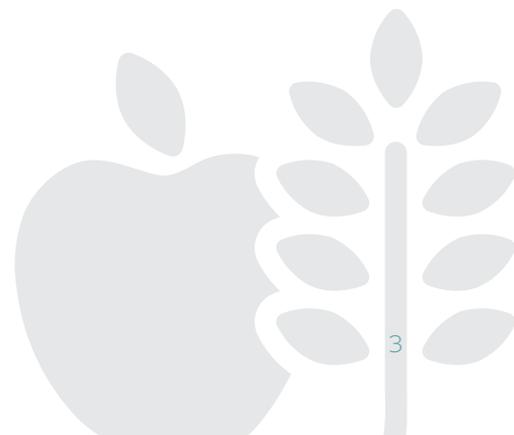
- Pregnant women in the intervention group appeared to have slightly higher consumption of nearly all food groups compared to the comparison group.

Foods consumed by pregnant women in last 24 hours*



The differences between intervention group, accounting for clustering are designated as follows for all results in this document:

P < 0.05, **P < 0.01, *P < 0.001*

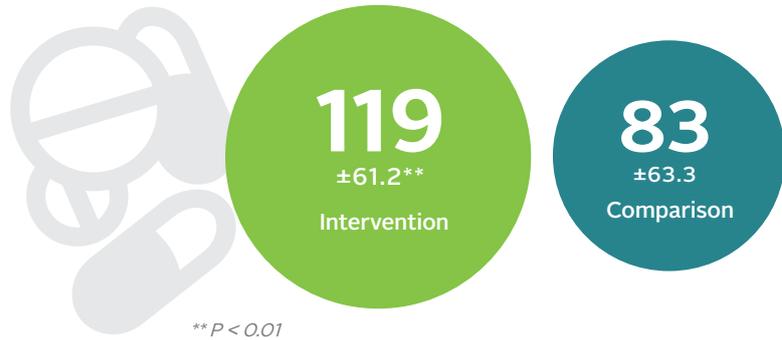


SUPPLEMENTATION

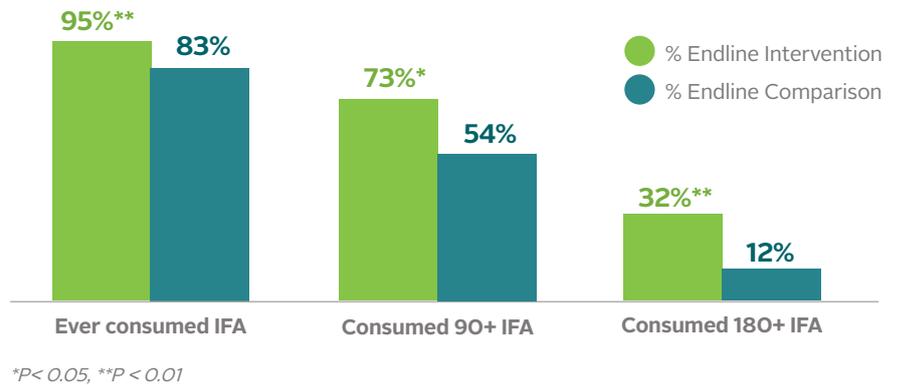
IFA consumption

- During their last pregnancy, RDW in the intervention group consumed significantly more IFA tablets at endline than women in the comparison group.
- The proportion of RDW who consumed the recommended 180+ tablets during their last pregnancy was significantly higher at 32% in the intervention group compared to 12% in the comparison group.

Number of IFA tablets consumed by RDW during pregnancy



Consumption of IFA supplements by RDW during pregnancy

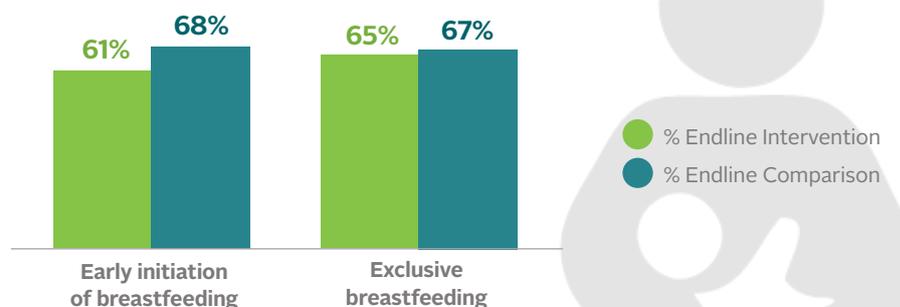


BREASTFEEDING PRACTICES

Early initiation of breastfeeding (EIBF) and exclusive breastfeeding (EBF)

- There was no impact of the intervention on EIBF or EBF.

Recently delivered women who practiced recommended breastfeeding practices

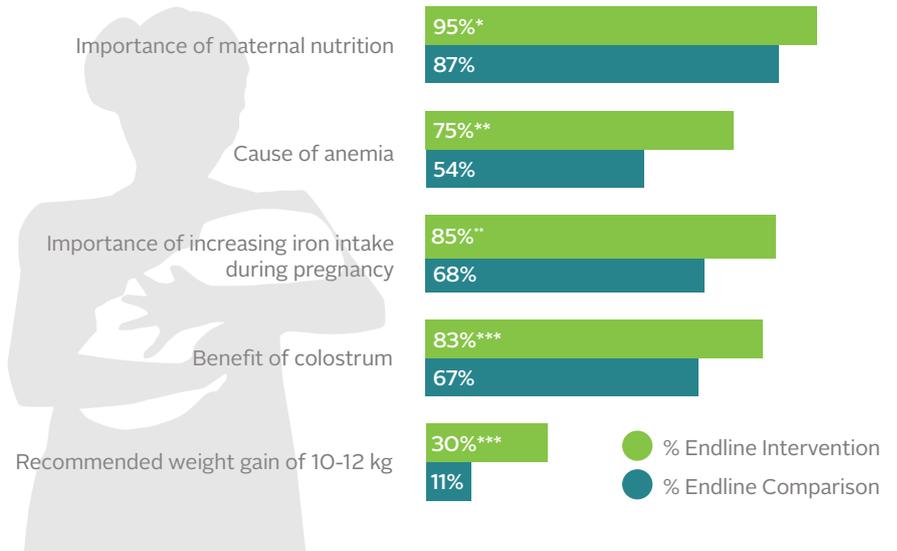


MOTHERS' KNOWLEDGE

Maternal nutrition knowledge

- A significantly higher proportion of RDW in the intervention group could recall the key messages on maternal nutrition than those in the comparison group.

Recall of key messages by recently delivered women



* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

USE AND DELIVERY OF ANC SERVICES

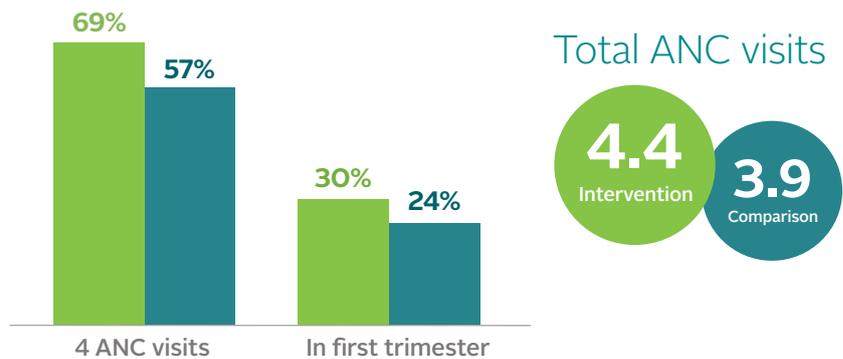
ANC visits

- RDW in the intervention group attended more ANC visits, and they started attending earlier than RDW in the comparison group at endline.



The average gestational age at the first ANC visit was **4.4 months** in the intervention group and **4.7 months** in the comparison group.

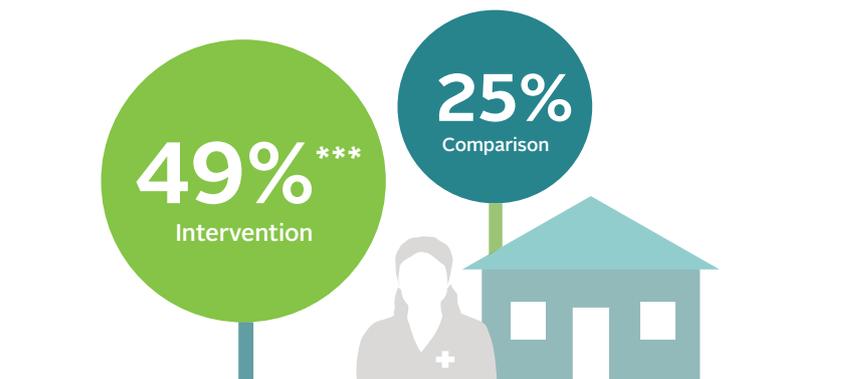
Attendance of ANC visits at health facilities



Home visits

- RDW in the intervention group were twice as likely to receive home visits by HEWs compared to those in the comparison group.

Pregnant women who ever received a home visit

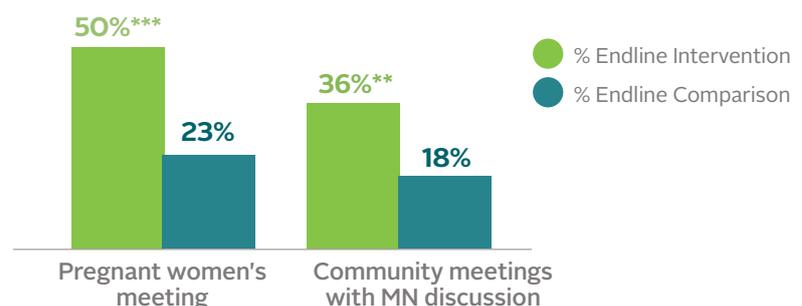


*** $P < 0.001$

Community events

- There were significantly higher levels of community-based contacts with pregnant women in the intervention group compared to the comparison group.

Pregnant women who ever attended community events for maternal nutrition



** $P < 0.01$, *** $P < 0.001$

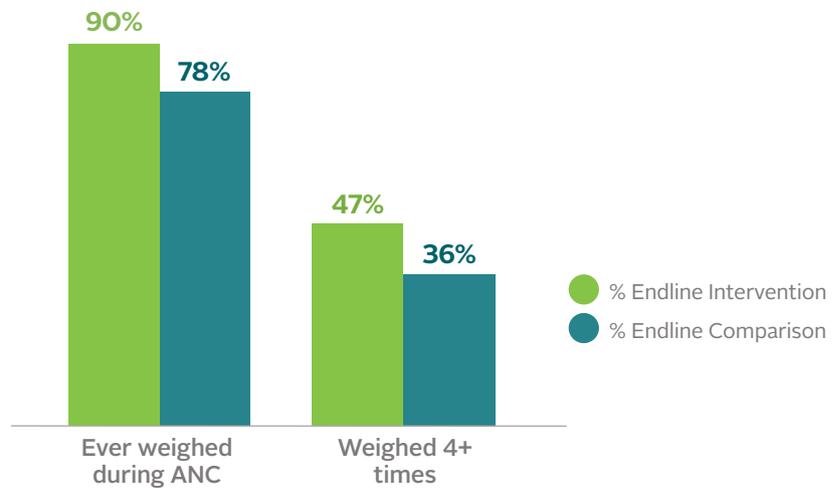
MATERNAL WEIGHT GAIN

Weight monitoring

- The proportion of pregnant women weighed by providers was high in both the intervention and comparison groups.

Nearly half of women in the intervention group were **weighed 4+ times** during pregnancy.

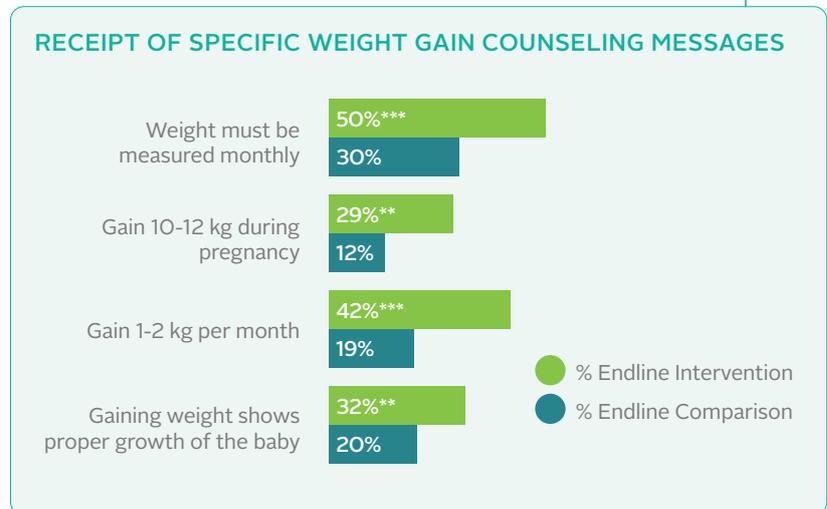
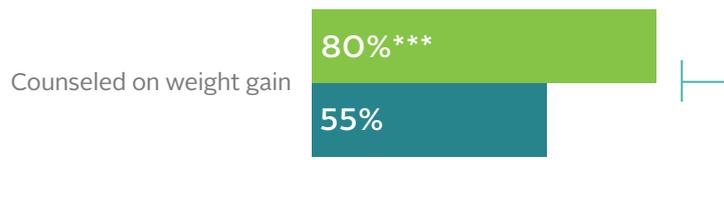
Pregnant women weighed during ANC



Weight gain counseling

- Counseling on weight gain was significantly higher in the intervention areas.

Pregnant women counseled on weight gain during ANC



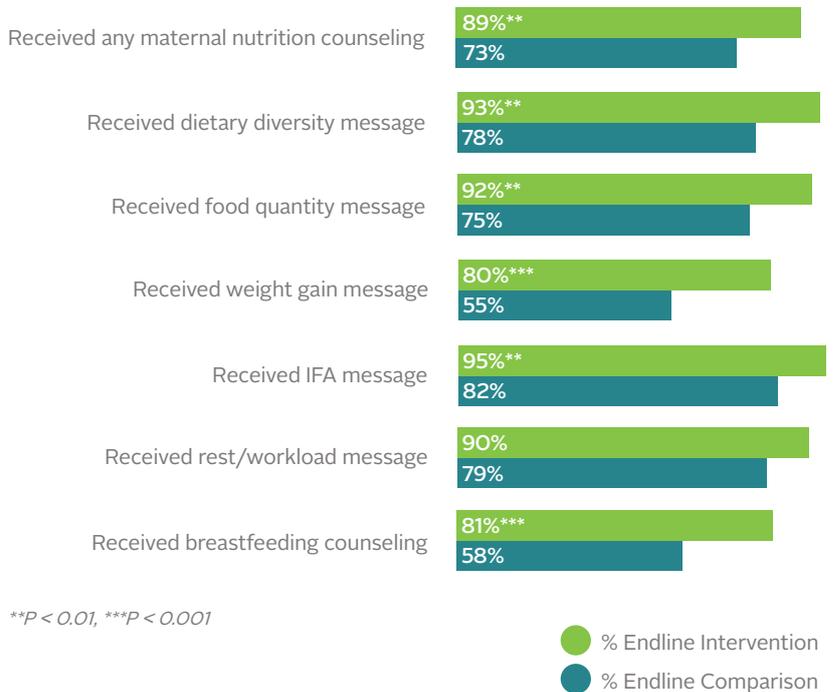
P < 0.01, *P < 0.001

MATERNAL NUTRITION COUNSELING

Exposure to nutrition counseling

- RDW had received significantly higher levels of counseling on maternal nutrition topics during ANC visits in the intervention group compared to the comparison group at endline.

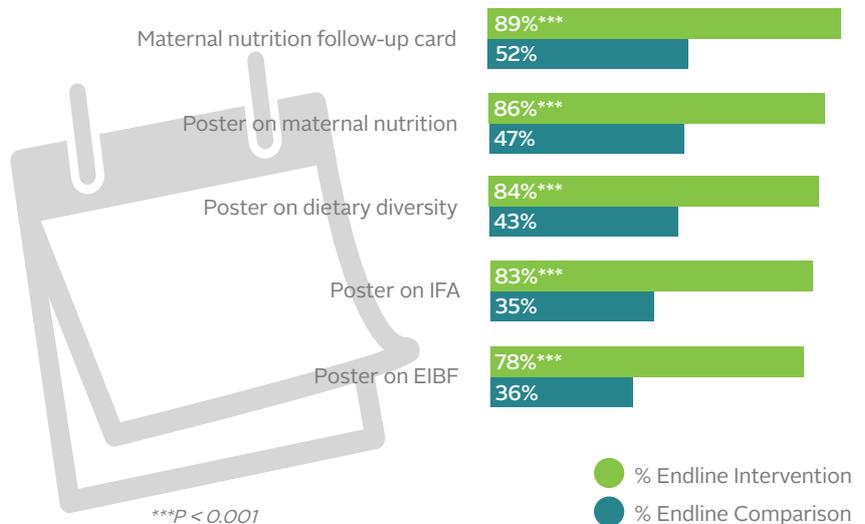
Counseling received during ANC visits



Exposure to educational materials

- Significantly more RDW in intervention areas had seen educational materials on maternal nutrition during their last pregnancy.

RDW who had ever seen educational materials during pregnancy



Conclusion

KEY FINDINGS

- 1.** Can the **coverage and utilization** of key maternal nutrition services be improved within the government's existing ANC platform?
 - Yes, it is feasible to strengthen MN interventions in ANC services through contacts at health facilities and community level utilizing the existing government health system. Improvements were documented even within a short implementation period amid the COVID-19 pandemic.
- 2.** What were the notable **impacts of the intervention package** on maternal nutrition practices (consumption of diversified foods during pregnancy; consumption of IFA supplements; and early breastfeeding practices)?
 - A significant impact was observed on maternal dietary diversity (number of food groups consumed during pregnancy).
 - A large significant impact of 35 additional IFA tablets consumed during pregnancy was observed.
 - RDW in the intervention group had better knowledge on maternal nutrition and IFA tablets than those in the comparison group.
 - During ANC visits at health facilities, more RDW in the intervention group received maternal nutrition counseling compared to those in the comparison group.
 - There were no significant impacts on EIBF, EBF in the last 24 hours, or on the number of ANC visits during pregnancy.
- 3.** What **factors should be considered when integrating maternal nutrition** interventions into a well-established government ANC service delivery platform?
 - Detailed service delivery protocols were specified for each MN intervention.
 - Capacity to deliver MN in ANC services improved through training, supervision, job aids and IEC materials, record keeping and use of data. SBCC approach was used to convert knowledge into practices.
- 4.** What **external factors** might have affected the results?
 - There appeared to be substantial spillover in comparison areas, potentially reducing impacts and differences observed between groups.
 - COVID-19 restrictions affected service delivery and utilization of ANC, reducing the exposure to MN interventions.



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