

Feed the Future Ethiopia Growth through Nutrition Activity



Improving maternal nutritional status in Ethiopia

Exploring the need for focused multi-sectoral action for better pregnancy and growth outcomes

SUMMARY

Maternal mortality is high in Ethiopia as is under nutrition in reproductive age women and anemia in pregnancy. Findings from a longitudinal birth cohort study of 4680 pregnant women in Oromia region show high rates of maternal under nutrition (over 40%) but lower rates of anemia (24%), the latter was more common in women with multiple pregnancies and less in women who were numerate. This was further compounded by low dietary diversity across all the pregnant women. Only half of the pregnant women followed consumed iron/folate supplements, less than half had actually had the recommended 4 visits through pregnancy and less than 5% had received deworming medication. Use of health facilities was low and only those women who lived close to a health facility were likely to have visited one and/or were visited by a health extension worker compared to those who did not live close to a health facility. Maternal deficits in pregnancy including low

MUAC and height were significantly associated with adverse birth outcomes including birth weight and birth length emphasizing the importance of addressing service deficits in reaching women during pregnancy in Ethiopia. Use of iron/folate supplements, deworming and ANC services is low during pregnancy and efforts must be made to understand the barriers and challenges to improving coverage as well as quality of nutrition-specific services towards optimal and recommended level and determine appropriate solutions.

INTRODUCTION

Poor nutritional status in pregnancy and pre-pregnancy is linked to poor birth outcomes and subsequent linear growth (1,2). Maternal height is strongly associated with reduced risk of stunting and the intergenerational nature of maternal and infant nutrition is well documented (3-6). Targeted interventions for women in pregnancy or

preconception can significantly improve birth outcomes and growth patterns of the child, even for infants born to stunted women (7). This is particularly important for Ethiopia as in 2016, about 38% of children under five were stunted with 17% severely stunted. Underweight was estimated at 24% while wasting was 10%. Furthermore, maternal mortality in Ethiopia is high (412 deaths per 100,000 live births) as is under nutrition in reproductive age women with 22% underweight (BMI < 18.5) and 24% anemic in pregnancy (1)(2).

The USAID Empowering New Generations to Improve Nutrition and Economic opportunities (ENGINE) operational research component was designed to generate rigorous learning outcomes on key questions and innovative policy and operational approaches that would support the successful scale up of programs to improve nutrition in Ethiopia, such as those promoted by the National Nutrition Plan (NNP), which is currently in its second phase. This research brief presents findings of secondary analysis utilizing DHS data and analysis of data from a longitudinal birth cohort study implemented by USAID ENGINE from 2014 to 2016 in Oromia Region of Ethiopia which followed pregnant women from recruitment in pregnancy through birth and the first 12 months of their infant's life, collecting information on various health, socio-economic, dietary, and agricultural aspects of the woman and household.

KEY RESEARCH FINDINGS

FACTORS ASSOCIATED WITH NUTRITIONAL STATUS IN PREGNANCY.

Secondary analysis of DHS 2011 found that maternal height and BMI, birth size, infant diet diversity specifically consumption of animal source foods, household wealth, access to services, water, hygiene and sanitation as strong predictors of stunting in infants and young children under 24 months of age (8). Longitudinal follow ups on 4680 women in three woredas of Oromia region confirms the role of maternal nutrition particularly in young mothers. Both prevalence of anemia and low mid upper arm

¹ Prevalence of anemia in pregnancy is defined as hemoglobin level <11 g/dl, prevalence of low mid arm upper circumference is defined as MUAC < 23 cm. DHS 2016 anemia prevalence for women in Oromia region.

circumference (MUAC), an indicator of preconception weight and early pregnancy weight, were high in the longitudinal study. Prevalence of altitude-adjusted anemia in the study population was 24%, a rate similar to the DHS 2016 (24 %),¹ while over 40% of women had a low MUAC (9, 10) (Figure 1).

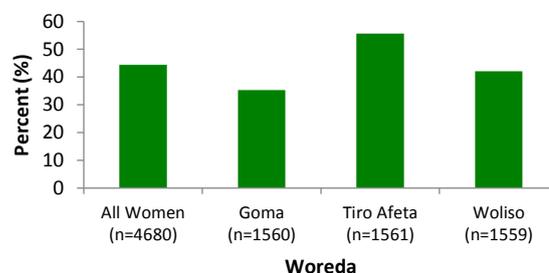


Figure 1: Prevalence of low MUAC in study population by woreda in Oromia region (n=4680)

Women who had multiple pregnancies were more likely to be anemic (50% more likely) while women with better hygiene practices (higher hand washing score²) and higher numeracy are 10% and 30% were less likely to be anemic (11). Anemia and low MUAC in pregnancy are correlated, with anemic women 35% significantly more likely to have a low MUAC. Low food security and greater distance from the health clinic are associated with poor nutritional status in pregnancy. In addition to individual WASH practices, wealth and maternal education (reflected as literacy and numeracy) are protective of nutrition in pregnancy (11).

UTILIZATION OF HEALTH SERVICES AND NUTRITION MESSAGING.

In Ethiopia, significant efforts are being made on improving access and utilization of health services by pregnant women including delivery in a health facility, increasing number of women using antenatal care services, and higher percentages reporting meeting the recommended four visits throughout pregnancy. Women are the primary target of nutrition specific messaging as they are the most likely to need and utilize health services for preventive, antenatal and post-natal care. The most common types of nutrition messages that women report receiving include exclusive breastfeeding,

² A score of seven behaviors about the critical times for hand washing including when dirt is visible, after toilet use, after cleaning a child following defecation, before preparing food, before serving a meal, before eating, before feeding a child.

complementary feeding and dietary diversity but we find very little emphasis on messaging linked to care during pregnancy. The source of nutrition messaging for most women (pregnant and non-pregnant), as ascertained by a qualitative study on nutrition messaging, is predominantly the health sector (12).

While significant efforts on health service strengthening are being made, use of services and support in pregnancy is not optimal. Fifty five percent of women reported not taking any iron/folate supplements with an average of 41 days of iron folate consumption by those who reported taking them while only 4.8% took deworming medication (national average of 6%) (1). DHS 2016 reported antenatal care usage at 62% in 2016 with about 32% making four or more recommended visits (national), but lower in the rural areas at 27% and in overall women under 20 years of age at 29% (1, 10). In our study, only 44% of all pregnant women (40% of women under 20) in the study met the recommended number of visits (four). The average number of visits made by the study population was 2.9. A small minority (9.8%) of women received home visits from health extension workers. Both women who visited a health facility in the last year and women who reported receiving visits from a health worker lived significantly closer to a health facility than those who did not (median 25 mins and 20 mins respectively, $p < 0.001$)

DIETARY DIVERSITY IN PREGNANCY AND IN REPRODUCTIVE AGE WOMEN.

Dietary diversity was low in pregnancy with an average 2.4 groups consumed, significantly lower than the recommended 5 or more food groups per day (11). Dietary diversity score during lactation was about 3.4 with only 15% of women consuming 5 or more food groups (8). Seasonality had a direct effect on nutritional status of the women, with households turning to staple foods (such as roots) over more nutrient-dense foods in the lean season (11); women recruited in the lean season were at a higher risk of having a low MUAC (8). Interestingly, an analysis of food sharing inequality within households found that women of reproductive age (non-pregnant) (along with children) generally benefitted from favorable inequality in calories and protein, while the opposite was true for iron-rich foods, with women receiving

fewer iron-rich foods than their adult male counterparts, despite the significantly higher iron needs of women of reproductive age (11).

ASSOCIATION OF MATERNAL NUTRITION, BIRTH OUTCOMES AND LINEAR GROWTH.

Maternal MUAC and height were found to be positively associated with birth length, weight, and length-for-age z-score; however, maternal anemia was not found to be a significant predictor of any birth outcome indicator (13). Notably, the prevalence of stunting at birth (< -2 SD) was higher than the prevalence of low birth weight (< 2500 g) overall and in two of the three woredas at 6.1% and 4.6% respectively; the measures were also moderately correlated with one another (Figure 2). Low birth length as reflected in stunting at birth is a function of maternal nutrition pre-conception and through pregnancy and is a marker of intra uterine growth retardation.

Linear growth patterns of infants were also associated with maternal MUAC, maternal height, maternal dietary diversity in pregnancy, gestational age, birth weight and birth length, suggesting that improvements in maternal nutrition do affect the linear growth trajectory of their offspring (13).

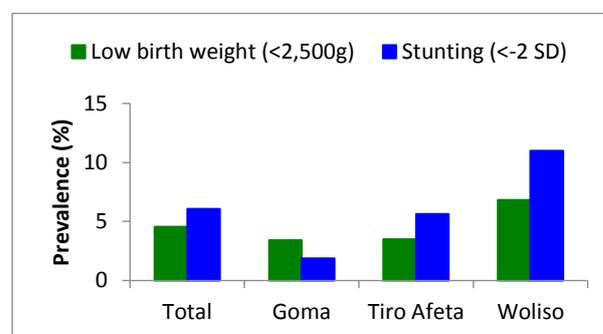


Figure 2: Prevalence of low birth weight and stunting at birth in study population by total and woreda

POLICY AND PROGRAMMATIC RECOMMENDATIONS

Maternal nutrition is an essential aspect of infant and child nutrition, growth, and health (6). This is well reflected in the 2nd National Nutrition Program of Ethiopia (14). A key strategic objective of the 2nd National Nutrition Program (2013-2015) is to improve the nutritional status of women (adolescent and non-adolescent). Within this strategic objective

are key initiatives such as providing comprehensive and routine nutritional assessment, counseling and support to pregnant and lactating women, ensuring that pregnant and lactating women have access to micronutrient services, have access to insecticide treated nets in malaria endemic areas and increase the involvement of women's development groups in nutrition sensitive agriculture and livelihood programmes. Emerging evidence from USAID ENGINE indicates that maternal nutritional status prior (reflected by MUAC) and during pregnancy (reflected by low dietary diversity and anemia) is a considerable issue in Ethiopia. Based on these findings, key recommendations for policy and programmatic and research considerations are as follows:

- The findings from the ENGINE research on maternal and infant nutrition indicate the importance of maternal nutrition in pregnancy particularly within the context of subsequent linear growth. There must be significant emphasis on nutrition in pregnancy particularly in adolescent women. Emphasis needs to be placed on initiatives targeting younger women in pre-conception, so as to break the intergenerational cycle of malnutrition.
- Dietary diversity was low in both pregnancy and lactation with very little variation across the study population. This prevents understanding if low dietary diversity is a function of lack of access, knowledge, income and/or ability to procure a nutrient dense diet? Efforts must be made within the context of policy and programming to better understand the reasons for this low access and any multi sector actions need to be reviewed.
- Nutrition sensitive factors such as wealth, education and water, hygiene and sanitation are

contributors to optimal nutrition in pregnancy and must be emphasized in any multi-sectoral actions.

- Seasonality does affect maternal nutritional status in pregnancy and subsequent birth outcomes. There has to be more emphasis on mechanisms for coping/diet smoothing in the lean season to address seasonality as well as food insecurity.
- Progress is occurring with higher rates of antenatal coverage, implying that nutrition specific actions as envisioned by the Government are bearing some fruit but more needs to be done. Use of iron/folate supplements, deworming and ANC services is low during pregnancy and efforts must be made to understand the barriers and challenges to improving coverage as well as quality of nutrition-specific services towards optimal and recommended level and determine appropriate solutions.
- Women are being reached with nutrition messaging focused on exclusive breast feeding, dietary diversity and complementary feeding. Emphasis needs to be placed on the role of diets and use of iron/folate supplementation in pregnancy as well as the importance of utilizing ante-natal care services.
- A key barrier encountered by our study participants was the distance from health service facility. There is thus a need to reach women who are further away from the health facility. While there are indications of community approaches, more emphasis needs to be placed on building capacity at the community level. Particularly important is to address the issue of low use of services by adolescent mothers.

AREAS FOR FUTURE RESEARCH

It is clear from the ENGINE findings that nutrition in pregnancy (particularly adolescent pregnancy) is directly linked to child health and nutrition and is affected by both nutrition specific and nutrition sensitive factors⁽¹³⁾. From a research perspective, we need a better understanding on how and why utilization of services is low, what are the barriers and challenges for utilization. Furthermore, while low birth weight prevalence is low, there is significant stunting at birth as demonstrated by the prevalence of low birth length for age. There are no metrics to determine the extent of stunting at birth. Research on identifying the right metrics and on how to apply it to effect nutrition programs is needed.

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ACKNOWLEDGEMENT

This policy brief was made possible through support provided by Feed the Future, the U.S. Government's Global Hunger and Food Security Initiative, through the U.S. Agency for International Development, under the terms of agreement No. AID-663-A-11-00017. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development.