



# Stories of Change in Nutrition

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## Evidence Review



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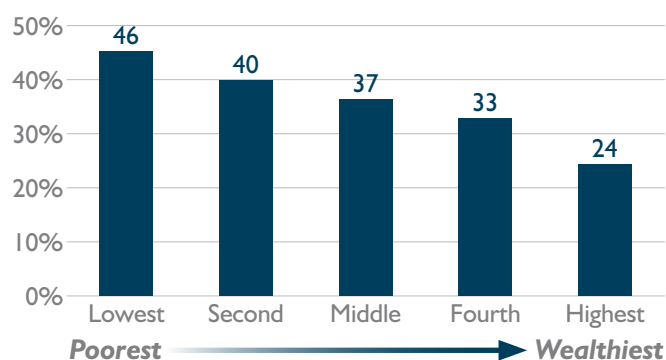
A review of evidence was conducted to understand the trends and determinants of malnutrition and identify interventions and programmes that improved maternal and child nutrition in Malawi. While children are less malnourished than two decades ago, one in three children remains stunted (37%) and 63% are anaemic. Children born from younger and less educated mothers, or from poorer rural households are more likely to be malnourished. One in ten children are born with a low birth weight (< 2.5kgs), with nearly half of them stunted by age two. The main causes of malnutrition include recurring sickness, poor infant and young child feeding and hygiene practices and low use of health and nutrition services, influenced by a wide range of factors, including food insecurity, poverty, gender inequality and food taboos. Programme evaluations and intervention trials have shown mixed results but overall highlight the need to address the multiple underlying drivers of malnutrition, rather than focus on one intervention.

### Malnutrition in Malawi trends and determinants

While the prevalence of child undernutrition in Malawi has decreased over the years from 47% stunting in 2010 to 37% in 2015 (DHS 2015–16), with the most recent data suggesting 36% (MICS 2019), it remains high. 63% of children under five are anaemic, a rate which has stayed the same since 2010. Wasting has historically been less widespread, ranging from

6% in 2000 to 3% in 2015. Women are increasingly facing a triple burden of malnutrition with 21% overweight or obese, 33% anaemic and 7% too thin, however with substantial differences between population groups (DHS 2015–16). There is an urgent need for more recent data, especially given recent crises (the pandemic, climate shocks, war in Ukraine) which have increased prices of food and agricultural inputs, affected harvests and livelihoods, and may be reversing the gains from previous decades.

**Figure 1: Prevalence of stunting by wealth group**



Source: DHS 2015–16

## Evidence on key determinants of malnutrition in Malawi

### Geography and wealth

Undernutrition is mostly a **rural phenomenon**, while overweight and obesity more of an urban issue. Stunting is more pronounced in the Central and Southern regions and children born from mothers from **poorer households** are significantly more likely to be stunted (Figure 1, (DHS 2015–16).

### Maternal and early nutrition

Children reported to be **very small at birth**, born from **thin mothers**, or with **mothers with no education**, are also more likely to be stunted (DHS 2015–16) suggesting stunting starts in utero. **Low birthweight** (<2.5kg), an indicator of intra-uterine growth retardation affects 12% of new-borns,

## Infant and young child feeding

For optimal child growth, the World Health Organisation recommends that children are exclusively breastfed for 6 months, receive age-appropriate complementary feeding (frequent meals and nutritious foods) and are

with the highest prevalence seen among mothers younger than 20 years of age (16%) and those older than 35 years of age. **Improvements in early initiation of breastfeeding** and a **decrease in the prevalence of low birthweight** were indirectly associated with reduced stunting (Argaw *et al.* 2019). While stunting starts with the mother, it increases with the child's age, peaking at 42–45% between 18–47 months.

### Gender

**Thinness is highest among teenage women** (13%) and **anaemia among pregnant women** (45%) (DHS 2015–16). **Intimate Partner Violence (IPV)**, an indicator of **gender inequality**, was also associated with child stunting and mortality in DHS analyses for Malawi and other countries (Rico *et al.* 2019). Malnutrition was found to be less prevalent in households with more **economically empowered women** (Chirwa, 2009). Data pooling from 50 Demographic and Health Surveys since 2000 in 14 countries (including Malawi), found that **greater income equality** and improvement in **women's decision making**, were associated with lower levels of stunting (Chirwa, Ngilawa 2009).

### Health

**Malaria** (Scarcella *et al.* 2016), **chronic infections** (Kenneth, 2021); low birth weight, foetal anaemia, parity, placental and maternal malaria at delivery (LeCessie *et al.* 2002; Verhoeff *et al.* 2001) are also associated with malnutrition. A decrease in stunting between 2013 and 2018 in districts targeted by the Support for Nutrition Intervention Component (SNIC) programme coincided with improvements in handwashing and ANC practices (Osendarp *et al.* 2019).

protected from disease through good hygiene and disease management. The table below summarises the situation in Malawi with regards to these key infant and young child feeding behaviours.

What?	Situation in Malawi?
<b>Breastfeeding</b>	Most children in Malawi are breastfed at some point (98%) and rates of exclusive breastfeeding are relatively high (61%). However, there has been a <b>decline in exclusive breastfeeding</b> in the past decade (from 72% in 2010) after two decades of tremendous progress (up from 4% in 1992). Most babies are put to the breast within 1 hour of birth (76%) or 1 day of birth (96%) and only 3% are given pre-lacteal feeds. However, exclusive breastfeeding decreases with age, from 80% at 0–1 month to 34% at 4–5 months of age. Generally, children living in rural areas from poorer households with less educated mothers are more likely to be exclusively breastfed for a longer time (DHS 2015–16).
<b>Complementary feeding</b>	As children start complementary feeding, the adequacy of their diets drops substantially with only 8% of children (6–23m) meeting the minimum acceptable diet standard. <b>Only 25% have a sufficiently diverse diet</b> (minimum dietary diversity) and 29% are fed frequently enough for their age (minimum meal frequency). While consumption of vitamin A rich foods are relatively high (79%), consumption of iron rich food remains low (38%) (DHS 2015–16).
<b>Diarrhoea and hygiene practices</b>	22% of children under five have diarrhoea (2 weeks before the survey), but <b>diarrhoea episodes rise sharply</b> (from 13% to 41%) <b>after 6 months</b> when complementary foods and other liquids are introduced, and children start moving around. Appropriate management of diarrhoea can prevent more severe consequences (dehydration and malnutrition), yet only 31% of children with diarrhoea are given more fluids (as recommended), while 4 out of 10 children are given less or no fluids. The use of appropriate Oral Rehydration Therapy (homemade or packaged salts) to treat diarrhoea rose from 43% in 1992 to 69% in 2010, then declined slightly to 65% in 2015. Safe disposal of stools is relatively high at 86% (DHS 2015–16; Doctor, Nkhana-Salimu 2017).
<b>Determinants</b>	<b>Infant and young child feeding practices</b> have been shown to be <b>influenced by a few factors</b> , including motivation through gained knowledge; children liking the improved food; reduced morbidity. Participation of caregivers in group discussions enhanced adoption, while shortage of food or an unsupportive community hindered the adoption of recommended practices (Chiutsi-Phiri <i>et al.</i> 2017). Food taboos during pregnancy commonly affect women's diets and nutritional status (Walters, Bendulo, Stoecker 2019).

## Use of health and nutrition services

Access and use of essential health and nutrition services before, during and after pregnancy, until the child is five years of age, will improve pregnancy outcomes and child growth by reducing the risk of disease, anaemia and improving maternal and child caregiving behaviours. The recommended services include regular Ante-Natal Care (ANC) visits (8 or more visits), with provision of daily Iron and Folic Acid (IFA) supplementation to prevent maternal anaemia, as well as deworming and intermittent malaria treatment. Post Natal care (PNC) visits are

recommended within 24h of the child's birth and should include maternal nutrition and breastfeeding counselling including breastfeeding initiation within the first hour of a child's birth and exclusive breastfeeding for the first six months. Children under five years should receive vitamin A every 6 months, deworming every year through Child Health Clinics and monthly Growth Monitoring and Promotion (GMP) until 23 months. The table below summarises the situation in Malawi with regards to access and use of health and nutrition services.

What?	Situation in Malawi?
<b>ANC and iron supplementation for pregnant women</b>	While most women (95%) do receive ANC, only <b>51% receive at least four ANC visits</b> (down from 62% in 1992) and 24% have ANC in their first trimester (up from 9% in 1992). <b>One in three pregnant women took</b> the recommended <b>iron supplements</b> for 90 days, with 11% taking no iron at all. 52% took deworming tablets. Women with a higher level of education were generally more likely to take the full course of iron (50% amongst women with secondary education versus 24% amongst women with no education) (DHS 2015–16). Adherence to iron supplementation during pregnancy is highest among younger, more educated, wealthier, urban women and those receiving antenatal care from their first trimester (Titilayo, Palamuleni, Omisakin 2016). A study of pregnant women in Lilongwe hospital found that women who took more than 60 IFA supplements were less likely to deliver a low-birth-weight baby (Chikakuda <i>et al.</i> 2018).
<b>PNC for women</b>	Breastfeeding counselling is most important after delivery, which mothers should receive through PNC check-ups. Yet only <b>42% of women receive a PNC</b> check-up within 24 hours of giving birth, with much lower rates among women with no education or from poorer households. Seven out of ten women reported having problems accessing health services, especially in rural areas (76%), with the most common problems being distance to the health facility (56%), obtaining money for treatment (53%), not wanting to go alone (30%) or needing permission to go (16%) (DHS 2015–16).
<b>Vitamin A deworming and GMP</b>	<b>64% and 45%</b> of children 6–59 months <b>received vitamin A</b> and <b>deworming</b> in the previous 6 months; 12% of 0–24 months children received <b>iron supplements</b> and 2% micronutrient powders in the previous 7 days (DHS 2015–16). Under five child health clinics are the main outreach platform to provide vitamin A, deworming and growth monitoring and promotion, alongside other essential health services. However, 30% of children under five do not attend these clinics (IHS5 2019).

## Food security and dietary diversity

Food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life. When a household has low

food security, it affects diets, including dietary diversity which in turn affects maternal and child nutrition outcomes. The table below summarises the situation in Malawi with regards to food security and dietary diversity.

What?	Situation in Malawi?
<b>Food Security</b>	<b>Malawian diets are heavily dominated by staple foods</b> (especially maize but also rice and cassava in some areas). Most households are food insecure with 63% of households (68% in rural areas) experiencing very low food security, in some districts reaching nearly 80% (e.g. Zomba). Coping mechanisms include limiting portions of food (50%), reducing the number of meals per day (46%) or restricting consumption of foods by adults (24%), with 30% of households relying on borrowed food or assistance by others. <b>Nearly half of children</b> under five are only <b>consuming two meals per day</b> . 70% of households experience food shortages with lack of farm inputs (29%), high food prices (28%) and weather events like drought, poor rains, floods and water logging (20%) as the main reasons for food shortages (IHS5 2019).
<b>Dietary Diversity</b>	<b>Household food insecurity</b> was found to be associated with <b>low dietary diversity</b> among pregnant and breastfeeding women in rural Malawi (Kang <i>et al.</i> 2019). Increased use of irrigated farming by smallholders was found to contribute to food diversity by reducing seasonal food insecurity. However, household food security alone did not lead to improved nutrition reinforcing the need to focus more strongly on diet quality (availability and affordability of nutrient-dense foods) and nutrition education and behaviour change interventions (Aberman, Meerman, Benson 2015). Women in rural areas have a particularly <b>monotonous diets</b> , with <b>low dietary diversity</b> (Kang <i>et al.</i> 2019). Recent Cost of the Diet and Household Economy Approach studies recorded a 25% increase in the cost of a nutritious diet (2021–2022), with substantial seasonal variations. The pandemic, climate and global conflicts are exacerbating the affordability gap (Save the Children 2022).



## Interventions that improve maternal and child nutrition in Malawi

While rigorous evidence of impact of interventions on nutritional outcomes is relatively limited in Malawi, the following section summarises available published data:

### Nutrition education alone improves diets with mixed results on child growth

A cluster randomised trial in Mchinji district found that nutrition counselling (five home visits from pregnancy to 5 months) provided by trained female volunteers (peer counsellors) targeting mothers and children under 6 months, over a 3.5 year period improved household mother's knowledge of nutrition (especially on breastfeeding when the child is ill and food preparation practice), food consumption of children under and over 6 months, overall household consumption through increased consumption of proteins, fruit and vegetables. The intervention also improved physical growth in children over 6 months. The long time-span and intensity (monthly home visits) of the intervention, coupled with an increase in labour supply to fund the increased consumption were seen as key factors to explain the positive impact of the intervention (Fitzsimons *et al.* 2016).

A cluster randomised trial conducted in Kasungu and Mzimba districts found that nutrition education sessions targeting caregivers of children aged 5–18 months, as part of a larger Farmer Field and food security and livelihood intervention, improved dietary diversity. This was largely through increased consumption of eggs and groundnuts. However, they did not improve child growth. The authors recommended targeting children under 6 months with more focus on exclusive breastfeeding (Kenchenbecker *et al.* 2017).

### Micronutrient interventions show modest impact on wasting but none on growth or anaemia.

Globally, nutritional supplements are recommended and have been shown to be effective in improving child growth. However, supplementation studies in Malawi have found mixed results:

A cluster randomised trial comparing different formulations of **lipid based nutrient supplements** given to children aged 6–18 months did not improve linear growth (Maleta *et al.* 2015), nor infant development scores (Prado *et al.* 2016). Another cluster randomised trial found that lipid-based supplements given daily to underweight children aged 6–18 months had a modest impact on weight gain, however daily corn soya blend rations did not (Thakwalakwa *et al.* 2012). Longitudinal and quasi-experimental cross-sectional evaluations of a district wide nutrition supplementation programme, including lipid based nutrient supplementation to children aged 6–24 months combined with social and behaviour change communication recorded improvements in weight gain and diets but not on stunting or anaemia after 18 months when compared with children in a neighbouring district over the same period (Hurley *et al.* 2021; Christian *et al.* 2020). A four year stunting prevention programme which provided

small quantity lipid based nutrient supplements (SQ-LNS) to children aged 6–23 months; fortified blended flour (as well as sugar and oil) to pregnant and lactating women suffering from moderate acute malnutrition; social and behaviour change communication; and support to government services (IFA, deworming, vitamin A and WASH promotion) recorded a reduction in moderate and severe acute malnutrition cases, compared to a neighbouring district, when comparing cross-sectional surveys (Mason-Mackay *et al.* 2019).

A study of **IFA** compliance among pregnant women who attended Bwaila Maternity Wing of Lilongwe District Hospital found that women who took more than 60 IFA supplements (pills) had significantly lower odds of delivering low birth weight babies, compared with pregnant women who took  $\leq 30$  pills. The more prenatal IFA pills that were taken by pregnant women, the lower the risk of having a low-birth-weight child (Chikakuda *et al.* 2018). However, a randomised control trial comparing **daily IFA, multiple micronutrients and Small Quantity Lipid based Nutrient Supplement (SQ-LNS)** given to pregnant women did not record any additional benefits from the multiple micronutrients or SQ-LNS (over IFA) on birth size (Ashorn *et al.* 2015).

### Nutrition sensitive and multi-sector interventions improve key drivers of malnutrition, with mixed findings on child growth

A case-control longitudinal mixed method evaluation of the Soils, Food and Healthy Communities (SFHC) Project over a six-year period (2000–2006) found that the participatory, **gender and nutrition sensitive agro-ecological project** improved household food security, crop diversity, gender relations, community, as well as child growth. The nutrition component included home visits and group discussions (Kerr *et al.* 2011).

A longitudinal cluster randomised trial in 60 community-based childcare centres in Zomba district, found that an integrated **nutrition and agriculture intervention** delivered through community based childcare centres (gardens and kitchens) improved production of nutritious foods, dietary diversity and nutrient intake, and prevented stunting in the younger siblings. However, it did not improve growth in older preschool children (3–5y) (Gelli *et al.* 2018, Gelli *et al.* 2020).

The integrated **community-based micronutrient and health (MICAH)** programme targeting children aged 6–59 months, which reached 270,000 beneficiaries across fourteen of Malawi's twenty-six districts between 1996 and 2004, with a wide range of nutrition and health interventions (weekly iron supplementation to children under 5 years; child immunisation; boreholes and latrines; and infant and young child feeding promotion; control and treatment of parasitic infections) was evaluated through three cross sectional studies across MICAH and non-MICAH districts. While the prevalence of stunting in children under 5 years dropped substantially from 60% in 1996 to less than 45% in 2004, there was little or no difference between the MICAH and non-MICAH districts. However, the prevalence of anaemia among non-pregnant women fell from 53% in 2000 to 44% in 2004, while remaining at 54% in the non-MICAH districts (Kalimbira, MacDonald, Simpson 2010).

Finally, a cross sectional study comparing households that benefitted from the national social cash transfer programme versus households that did not, found that participation in the programme played no role in improving the nutritional status of under-five children, as households allocated more income to education and less on food (Mpeniuwawa, 2013).

## Conclusion

There is a relatively large amount of evidence from Malawi to help understand the trends and determinants of malnutrition. National surveys such as the DHS or IHS5 identify the most at-risk populations and factors associated with malnutrition,

as well as trends over time. They show that a range of factors contribute, directly or indirectly to malnutrition, including – poverty, food insecurity, gender inequality, maternal nutrition, adolescent pregnancy, inadequate infant and young child feeding, poor hygiene practices and recurring illness. Many interventions and programmes have been effective at improving these driving factors, however their impact on child growth or nutritional status is mixed and sometimes surprising. For example no impact of lipid-based nutrient supplements. However, a consistent recommendation from most studies is to use a multi-sector approach to address as many of these underlying drivers of malnutrition.

This work is based on a non-systematic review of evidence, conducted under the advocacy component of the European Union funded [Afiikepo](#) project, implemented by Save the Children, in partnership with the Civil Society Agriculture Network (CISANET) and the Institute of Development Studies (IDS). It is part of a Stories of Change in Nutrition series for Malawi to unpack the factors contributing to changes in nutrition in the country. It builds on a wider Stories of Change project, which has captured narratives of change in nutrition outcomes and policy processes in over 20 countries so far, to improve our understanding of what drives undernutrition reductions, and how enabling environments and pro-nutrition policy and implementation processes can be cultivated and sustained.

See more at <https://www.ifpri.org/project/stories-change-nutrition>

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