

SCALING UP NUTRITION (SUN) 2.0/ FIRST 1000 MOST CRITICAL DAYS PROGRAMME PHASE II (MCDP II) INFANT AND YOUNG CHILD FEEDING SUMMARY REPORT

INFANT AND YOUNG CHILD FEEDING PRACTICES AND THE RELATIONSHIP TO STUNTING IN ZAMBIA

Optimal infant and young child feeding (IYCF) practices are among the most effective ways to improve child health (see Box 1). The scientific rationale for actions on IYCF is based on peer-reviewed research, including several *Lancet Series* journals on Child Survival 2003,¹ Nutrition 2008,² Newborn Health 2005,³ Childhood Development 2007,⁴ and Maternal and Child Nutrition 2013,⁵ which confirms the essential role of IYCF practices as a major factor in child survival, growth, and development.

Uptake of these optimal IYCF practices, however, remains low among children 0–23 months of age. The First 1000 Most Critical Days Programme Phase II (MCDP II) aims to reduce stunting by 2% per year (from 2018 to 2022) among children under 24 months of age by implementing nutrition-specific and nutrition-sensitive interventions for households, pregnant mothers, and children 0–23 months of age. Nutrition-specific interventions aim to address the immediate determinants of foetal and child nutrition and development, including improving optimal IYCF practices (see Box 2).

Box 1: Optimal IYCF Practices

- Early initiation of breastfeeding within 1 hour of birth
- Exclusive breastfeeding for children 0–6 months of age
- Introduction of nutritionally adequate and safe complementary foods starting at 6 months of age
- Consumption of a diverse diet
- Frequent feedings for children 6–24 months of age
- Continued breastfeeding up to 23 months of age

Box 2: IYCF-related MCDP II Interventions

Interventions to mothers:

- Nutrition-specific social and behavioural change communication:
 - Exclusive breastfeeding
 - Diet during breastfeeding
 - Complementary feeding
 - Feeding the sick child
- Nutrition-sensitive:
 - Access to safe water
 - Latrines/toilets
 - Handwashing station with soap

Interventions to children (6–23 months of age):

- Nutrition-specific:
 - Child deworming every 6 months
 - Vitamin A every 6 months
 - Growth monitoring every 4 weeks

IYCF Highlights

- Breastfeeding practices were not significantly associated with stunting; however, poor feeding practices (dietary diversity, meal frequency, and minimum acceptable diet) between 6 to 23 months of age were important predictors of stunting.
- Children in urban areas have poorer achievements with respect to breastfeeding, including early initiation of breastfeeding and continued breastfeeding at 1 and 2 years of age, but do better than children in rural areas with regards to complementary feeding.
- Food insecure households were significantly more likely to start early initiation of breastfeeding and to continue breastfeeding at age 1 than food secure households. Conversely, food insecure households were significantly less likely to meet complementary feeding requirements as compared to food secure households.

Interventions with a nutrition-sensitive focus target the underlying determinants of stunting, including food security, adequate caregiving resources, access to health services, and a safe and hygienic environment. The convergence of nutrition-specific and nutrition-sensitive interventions has demonstrated high impact on stunting reductions.⁶

Sub-optimal coverage of breastfeeding and complementary feeding practices puts children at high risk for undernutrition and its associated outcomes, including stunting, underweight, wasting, and micronutrient deficiencies, and associated risks for mortality, morbidity, and irreversible poor cognitive development. This summary report details findings from the MCDP II Baseline Survey that are specific to optimal IYCF practices and the relationship to stunting and is intended to inform and improve programme implementation and practices.

MCDP II Baseline Methodology

The MCDP II Baseline Survey was a cross-sectional survey completed in 2019 in 30 priority Scaling Up Nutrition (SUN) 2.0 districts. The objective of the survey was to assess the efforts of MCDP II interventions towards reducing stunting among children under 24 months of age. Box 3 provides details about the survey.

Box 3: MCDP II Baseline Methodology

Cross-sectional household survey:

- Purposively sampled 30 SUN 2.0 districts, each with 10 enumeration areas.
- Enumeration areas included a random selection of 25 households with children under 24 months of age.
- Anthropological measurements (height/length and weight) were taken from an eligible child in each sampled household; if more than one child was eligible, random selection was employed.
- Data were collected from a total of 7,434 households.

2019 MCDP II BASELINE SURVEY FINDINGS

The 2019 Baseline Survey findings found wide disparities in nutritional status and feeding practices across socio-economic levels and between regions and provinces. The survey found that among children 0–24 months of age in the 30 SUN target districts, 30.2% were stunted, 9.8% were underweight, and 3.4% were wasted. The risk of stunting increased with age, sub-optimal breastfeeding under 6 months of age, and failure to achieve IYCF practices. Children in rural areas were more at risk for stunting and low IYCF coverage than children in urban areas. Analyses demonstrated that maternal factors were associated with stunting levels. These factors will be further explored in this report in relation to IYCF.

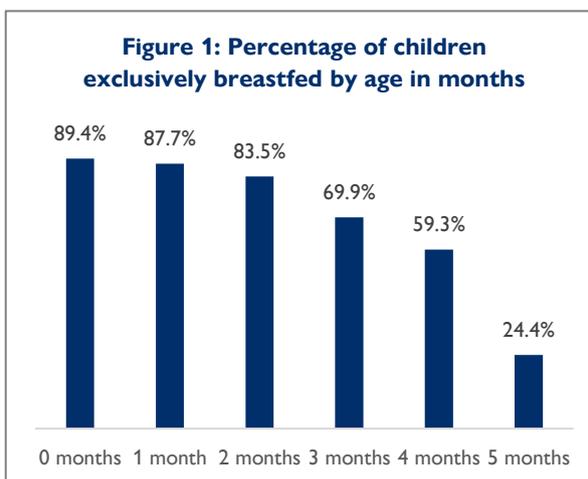
Early Initiation of Breastfeeding

Early initiation of breastfeeding is the proportion of children 0–23 months of age who are breastfed within the first hour of birth. Overall, among children 0–23 months of age, 73.6% started breastfeeding early (within an hour of birth), with no significant differences observed between girls (74.0%) and boys (73.2%) (Table 1). More infants in rural areas (75.3%) initiated early breastfeeding than those in urban areas (69.8%) ($p < 0.001$). Young mothers 25–39 years of age were most likely to breastfeed early (73.4%–75.6%), and the oldest mothers 45–49 years of age were least likely (65.2%) ($p < 0.05$). Mothers with higher education were less likely than other groups to breastfeed early, with no strong differences among other groups ($p < 0.001$). Early breastfeeding was highest among children whose mothers were farmers (75.9%), followed by those in the informal sector (73.8%), with other employment (72.1%), unemployed

(71.4%), and with formal employment (67.6%) ($p < 0.001$). Households that were food insecure* were more likely to practice early breastfeeding (75.0%) than those that were food secure (69.1%) ($p < 0.001$).

Exclusive Breastfeeding

Exclusive breastfeeding (EBF) is defined as the proportion of infants 0–5 months of age who are solely fed with breastmilk and never given other foods or liquids. Overall, 68.2% of children ages 0–5 months were reported to have been exclusively breastfed, with more girls (70.4%) than boys (65.8%) exclusively breastfed ($p < 0.01$) (Table 1). Children in rural areas were slightly more likely to be exclusively breastfed (69.4%), compared to children in urban areas (65.6%), although these differences were not statistically significant. Figure 1 details EBF by child's age in months, showing that the practice decreases with age, from 89.4% in the first month of life to 24.4% among children 5 months of age ($p < 0.001$). This analysis found that EBF was widely practiced until children turned 3 months of age, with continued reductions in EBF with each subsequent age by month. Further analyses by rural and urban areas found similar significant downward trends in EBF with child's age, from 85.5% exclusively breastfed at 0 months of age to 26.7% at 5 months of age in rural areas, compared to 98.2% at 0 months of age to 18.8% at 5 months of age in urban areas ($p < 0.001$).



EBF was not significantly associated with maternal age, education, and economic activity. The data showed a trend towards less EBF adherence among older mothers (46.7% for mothers 45–49 years of age), those with higher education (65.4%), and those working in the formal sector (65.7%).

Household food security was not significantly associated with EBF.

Table 1: Factors associated with early initiation and EBF practices

| Independent variable of interest | Early initiation of breastfeeding (n=5,432) | EBF (n=1,322) |
|----------------------------------|---|---------------------|
| <i>Child sex</i> | <i>n/s</i> | <i>p < 0.01</i> |
| Male | 73.2% | 65.8% |
| Female | 74.0% | 70.4% |
| <i>Child age in months</i> | | <i>p < 0.001</i> |
| 0 months | -- | 89.4% |
| 1 month | -- | 87.7% |
| 2 months | -- | 83.5% |
| 3 months | -- | 69.9% |
| 4 months | -- | 59.3% |
| 5 months | -- | 24.4% |

* Household food security is defined as the proportion of households with moderate or severe hunger using the household food insecurity access scale for measurement of food access. See Coates, J., Swindale, A., & Bilinsky, P. (2007). *Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide*. Washington, DC: United States Agency for International Development.

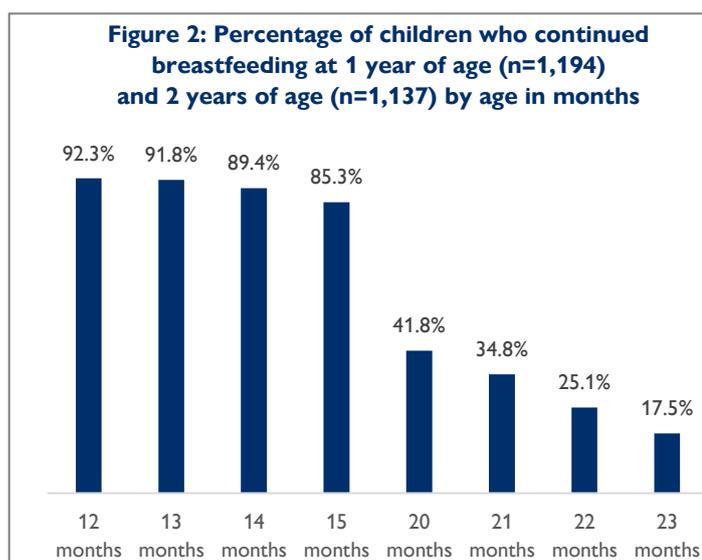
| Independent variable of interest | Early initiation of breastfeeding (n=5,432) | EBF (n=1,322) |
|-----------------------------------|---|---------------|
| <i>Residence type</i> | <i>p<0.001</i> | <i>n/s</i> |
| Rural | 75.3% | 69.4% |
| Urban | 69.8% | 65.6% |
| <i>Maternal age in years</i> | <i>p<0.01</i> | <i>n/s</i> |
| 15–19 | 70.5% | 69.5% |
| 20–24 | 73.9% | 72.1% |
| 25–29 | 75.6% | 66.3% |
| 30–34 | 73.4% | 69.0% |
| 35–39 | 75.5% | 70.0% |
| 40–44 | 69.7% | 61.0% |
| 45–49 | 65.2% | 46.7% |
| <i>Maternal education level</i> | <i>p<0.05</i> | <i>n/s</i> |
| None | 73.9% | 69.0% |
| Primary | 74.6% | 67.5% |
| Secondary | 73.6% | 71.4% |
| Higher | 65.7% | 65.4% |
| <i>Maternal economic activity</i> | <i>p<0.001</i> | <i>n/s</i> |
| None | 71.4% | 71.5% |
| Farmer | 75.9% | 67.1% |
| Formal sector | 67.6% | 65.7% |
| Informal sector | 73.8% | 68.8% |
| Other | 72.1% | 71.2% |
| <i>Household food insecurity</i> | <i>p<0.001</i> | <i>n/s</i> |
| Household was food insecure | 75.0% | 68.9% |
| Household was not food insecure | 69.1% | 66.2% |

n/s=not significant

Continued Breastfeeding

Continued breastfeeding at 1 year of age is the percentage of children 12–15 months of age who are breastfed, and continued breastfeeding at 2 years of age is the percentage of children 20–23 months of age who are breastfed.

Most children (89.5%) were still breastfed at 1 year of age, with continued breastfeeding practices decreasing to 28.9% at 2 years of age. There were no statistical differences in continued breastfeeding at 1 year of age or at 2 years of age between boys and girls (Table 2). Continued breastfeeding decreased with age, with a 50% reduction from 12 months of age (92.3%) to 20 months of age (41.8%) ($p<0.05$) (Figure 2). Children in rural areas were more likely (93.6%) to continue breastfeeding at 1 year of age than children in urban areas (80.5%) ($p<0.001$).



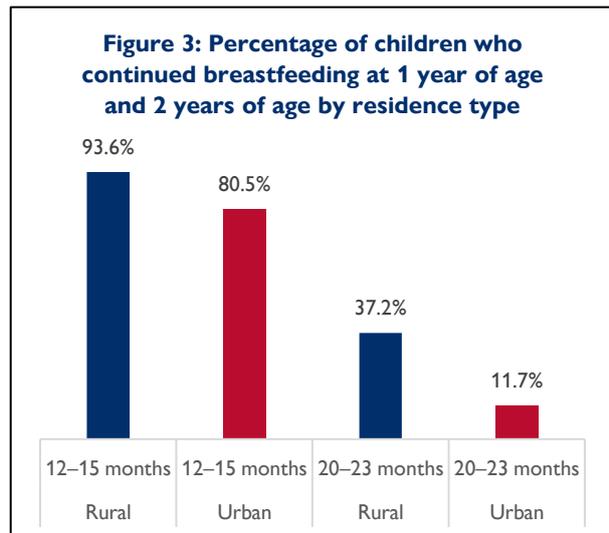
This difference was greater at 2 years of age, with 37.2% of rural children reporting continued breastfeeding, compared to 11.7% of urban children ($p<0.001$) (see Figure 3).

Continued breastfeeding at 1 year of age was highest for children with mothers 15–19 years of age (94.4%) and 35–39 years of age (94.1%), and lowest among children with mothers 45–49 years of age (60.0%) ($p<0.001$) (Table 2). Children were less likely to continue breastfeeding at 1 year of age and at 2 years of age as maternal educational level increased ($p<0.001$), with only 63.3% of children of mothers with post-secondary education continuing to breastfeed at 1 year of age and 6.7% continuing to breastfeed at 2 years of age.

Children of mothers who were farmers were more likely to continue breastfeeding at 1 year of age (96.8%) than children of those who were unemployed (88.3%), worked in the informal sector (87.7%), had other employment (86.1%), or worked in the formal sector (64.9%) ($p<0.001$). A similar trend is observed with continued breastfeeding at 2 years of age, with children of mothers who were farmers (41.3%) and children of mothers without employment (24.7%) more likely to continue breastfeeding than children of those with informal employment (14.1%), other (12.5%), or formal employment (12.5%) ($p<0.001$).

Food insecure households were more likely to continue breastfeeding at 1 year of age (91.4%) than food secure households (83.3%) ($p<0.001$). Analysis of household food security and continued breastfeeding at 2 years of age was not significantly associated.

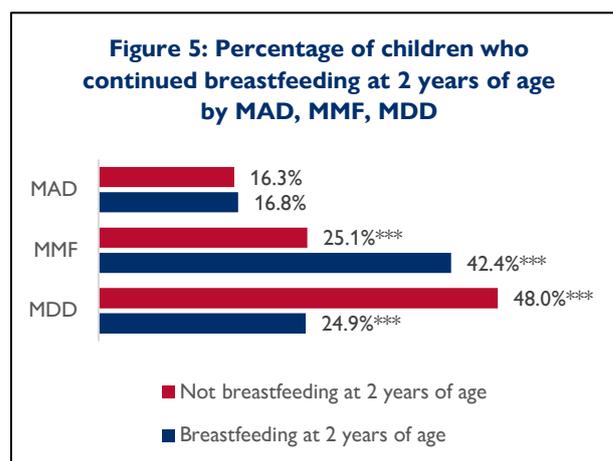
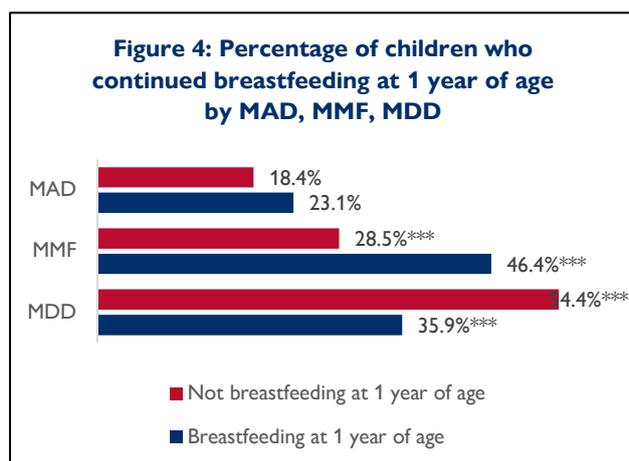
Children who continue breastfeeding at 1 year of age were more likely to achieve minimum meal frequency (MMF)[†] and a minimum acceptable diet (MAD)[‡] than children who were no longer breastfeeding (Figure 4). However, they were significantly less likely to meet minimum dietary diversity (MDD)[§] than non-breastfed children ($p<0.001$). At 2 years of age, children continuing to breastfeed were more likely to meet MMF and MAD standards than those who stopped breastfeeding (Figure 5). They were also less likely to meet MDD requirements than children who stopped breastfeeding at 2 years of age ($p<0.001$). Achieving MAD was not associated with continued breastfeeding at either 1 year of age or 2 years of age.



[†] MMF is the number of meals a child is provided according to the age of the child and is a proxy for energy or calorie requirements.

[‡] MAD measures the acceptability of diet based on micronutrient adequacy and meal frequency. This is a composite indicator, including both MDD and MMF.

[§] MDD is the diversity or quality of the foods offered and a proxy for adequate nutrients and micronutrients with five or more food groups out of eight offered each day. Food groups include breastmilk; grains, roots, and tubers; legumes and nuts; dairy products; flesh foods (meat, fish, poultry, and liver/organ meats); eggs; vitamin A-rich fruits and vegetables; and other fruits and vegetables.



Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

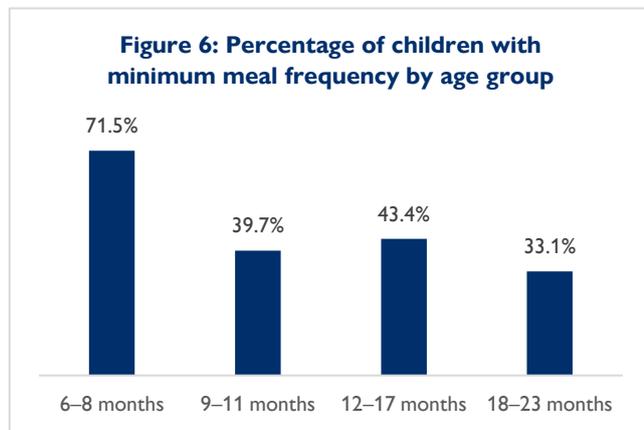
Table 2: Factors associated with continued breastfeeding at 1 and 2 years of age

| Independent variable of interest | Continued breastfeeding at 1 year of age (n=1,194) | | Continued breastfeeding at 2 years of age (n=1,137) | |
|-----------------------------------|--|-------|---|-------|
| | | | | |
| <i>Child sex</i> | n/s | | n/s | |
| Male | 90.1% | | 28.0% | |
| Female | 88.9% | | 30.0% | |
| <i>Child age in months</i> | $p < 0.01$ | | $p < 0.001$ | |
| | 12 months | 92.3% | 20 months | 41.8% |
| | 13 months | 91.8% | 21 months | 34.8% |
| | 14 months | 89.4% | 22 months | 25.1% |
| | 15 months | 85.3% | 23 months | 17.5% |
| <i>Residence type</i> | $p < 0.001$ | | $p < 0.001$ | |
| Rural | 93.6% | | 37.2% | |
| Urban | 80.5% | | 11.7% | |
| <i>Maternal age in years</i> | $p < 0.001$ | | n/s | |
| 15–19 | 94.4% | | 22.2% | |
| 30–34 | 89.9% | | 28.1% | |
| 35–39 | 94.1% | | 36.2% | |
| 40–44 | 88.5% | | 40.3% | |
| 45–49 | 60.0% | | 28.6% | |
| <i>Maternal education level</i> | $p < 0.001$ | | $p < 0.001$ | |
| None | 95.7% | | 37.1% | |
| Primary | 94.4% | | 39.6% | |
| Secondary | 89.9% | | 19.7% | |
| Higher | 63.3% | | 6.7% | |
| <i>Maternal economic activity</i> | $p < 0.001$ | | $p < 0.001$ | |
| None | 88.3% | | 24.7% | |
| Farmer | 96.8% | | 41.3% | |
| Formal sector | 64.9% | | 12.5% | |
| Other | 86.1% | | 12.5% | |
| Informal sector | 87.7% | | 14.1% | |
| <i>Household food insecurity</i> | $p < 0.001$ | | n/s | |
| Household was food insecure | 91.4% | | 30.4% | |
| Household was not food insecure | 83.3% | | 24.5% | |

n/s=not significant

Complementary Feeding of Children 6–23 Months of Age

MMF is the number of meals a child is provided according to the age of the child, which serves as a proxy for energy or calorie requirements. Among children 6–23 months of age (breastfed and non-breastfed), 44.6% met the MMF standards according to age-relevant energy or calorie requirements. Boys were only slightly more likely (45.1%) than girls (44.2%) to meet MMF, and there were no significant differences in achieving MMF by sex (Table 3). Figure 6 shows results from analyses assessing children with MMF by age group ($p < 0.001$). MMF was highest at 6–8 months of age (71.5%) and was significantly lower among children 9–11 months of age (39.7%), 12–17 months of age (43.4%), and 18–23 months of age (33.1%) ($p < 0.001$). Children in urban areas (52.8%) were more likely to achieve MMF than children in rural areas (40.7%) ($p < 0.001$). Maternal age was not significantly associated with MMF.

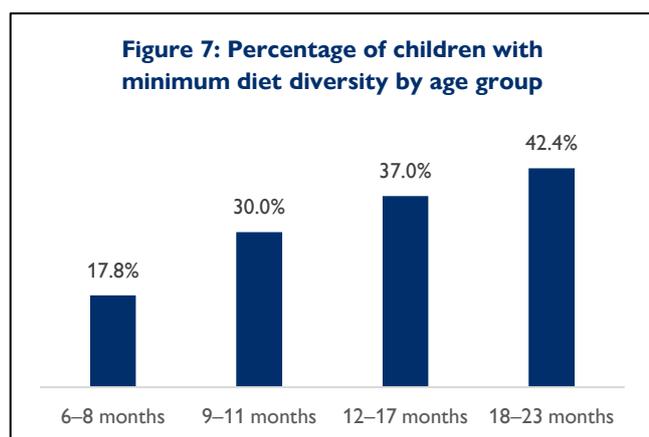


MMF increased with maternal education levels, from 36.0% among mothers with no education to 72.5% among mothers with higher education ($p < 0.001$). Mothers with formal employment (73.3%), informal employment (48.2%), and other employment (48.2%) were more likely to have children meeting MMF than mothers who were unemployed (45.7%) or farmers (41.2%) ($p < 0.001$). Children from food insecure households were less likely to achieve MMF (40.9%) than children from food secure households (56.1%) ($p < 0.001$).

MDD measures the diversity or quality of the foods offered and is a proxy for adequate nutrient and micronutrient intake. To meet MDD, a child must consume five or more food groups in a 24-hour period. Food groups include breastmilk; grains, roots, and tubers; legumes and nuts; dairy products; flesh foods (meat, fish, poultry, and liver/organ meats); eggs; vitamin A-rich fruits and vegetables; and other fruits and vegetables.

Only 33.6% of children ages 6–23 months met MDD. Slightly more girls (34.3%) achieved MDD than boys (33.0%), although these results are not significant. Children's diets became more diverse as they aged

(Figure 7), increasing from 17.8% at 6–8 months of age to 42.4% at 18–23 months of age ($p < 0.001$). Children 6–23 months of age in urban areas (47.9%) were more likely to achieve MDD than children in rural areas (27.0%) ($p < 0.001$). MDD was highest among children whose mothers were 25–34 years of age and lowest among children of older mothers 45–49 years of age (22.6%) and young mothers 15–19 years of age (29.5%) ($p < 0.001$). MDD increased with maternal education, from 18.6% among mothers with no education to



69.2% among mothers with higher education ($p < 0.001$). Mothers with formal (66.7%) and informal (40.8%) employment were more likely to meet MDD for their children than mothers who were unemployed (34.7%), farmers (26.0%), or had other employment (44.1%) ($p < 0.001$). Food insecure households were less likely to meet MDD requirements (29.1%) than food secure households (48.2%) ($p < 0.001$).

MAD measures the acceptability of diet based on micronutrient adequacy and meal frequency. This indicator is a composite indicator, including both MDD and MMF. Only 19.1% of children 6–23 months of age met the MAD requirements, with boys slightly more likely (19.5%) than girls (18.7%) to meet MAD. Association with sex was not significant. Children 12–17 months of age (21.9%) were most likely to meet MAD requirements, with children 6–8 months of age least likely (15.6%) ($p<0.001$). Figure 8 shows distribution by age category in months. Children in urban areas (28.5%) were more likely to meet MAD than children in rural areas (14.7%) ($p<0.001$). Associations with maternal age were not significant. Children whose mothers completed secondary education (45.3%) were more likely to achieve MAD than those whose mothers had a primary education (34.0%), higher education (14.9%), or no education (5.9%) ($p<0.001$). Children whose mothers were farmers (35.4%) and whose mothers were unemployed (32.9%) were most likely to achieve MAD, followed by children whose mothers were employed in the informal sector (17.7%), employed in the formal sector (10.6%), and had other employment (3.4%) ($p<0.001$). Food insecure households were less likely to achieve MAD standards (15.3%) than food secure households (31.1%) ($p<0.001$).

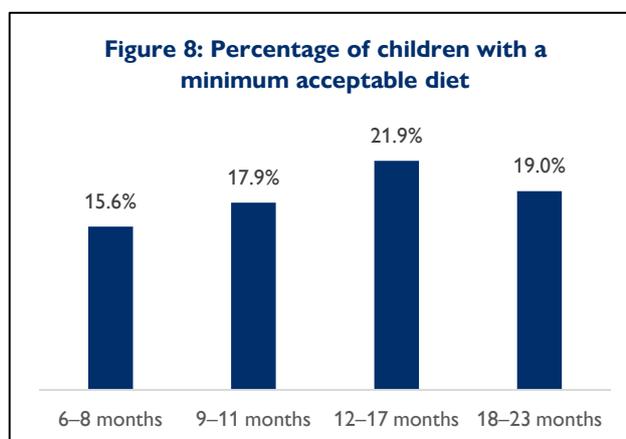


Table 3: Factors associated with MAD, MMF, and MDD

| Independent variable of interest | MAD (n=5,480) | MMF (n=5,181) | MDD (n=5,489) |
|----------------------------------|-------------------|-------------------|-------------------|
| <i>Child sex</i> | <i>n/s</i> | <i>n/s</i> | <i>n/s</i> |
| Male | 19.5% | 45.1% | 33.0% |
| Female | 18.7% | 44.2% | 34.3% |
| <i>Child age in months</i> | <i>p<0.001</i> | <i>p<0.001</i> | <i>p<0.001</i> |
| 6–8 months | 15.6% | 71.5% | 17.8% |
| 9–11 months | 17.9% | 39.7% | 30.0% |
| 12–17 months | 21.9% | 43.4% | 37.0% |
| 18–23 months | 19.0% | 33.1% | 42.4% |
| <i>Residence type</i> | <i>p<0.001</i> | <i>p<0.001</i> | <i>p<0.001</i> |
| Rural | 14.7% | 40.7% | 27.0% |
| Urban | 28.5% | 52.8% | 47.9% |
| <i>Maternal age in years</i> | <i>n/s</i> | <i>n/s</i> | <i>p<0.001</i> |
| 15–19 | 9.8% | 46.8% | 29.5% |
| 20–24 | 27.0% | 44.5% | 30.8% |
| 25–29 | 25.6% | 43.4% | 36.7% |
| 30–34 | 18.3% | 47.3% | 35.6% |
| 35–39 | 12.4% | 44.4% | 30.7% |
| 40–44 | 6.3% | 47.8% | 31.9% |
| 45–49 | 0.6% | 40.0% | 22.6% |
| <i>Maternal education level</i> | <i>p<0.001</i> | <i>p<0.001</i> | <i>p<0.001</i> |
| None | 5.9% | 36.0% | 18.6% |
| Primary | 34.0% | 40.2% | 26.9% |
| Secondary | 45.3% | 49.8% | 39.7% |
| Higher | 14.9% | 72.5% | 69.2% |

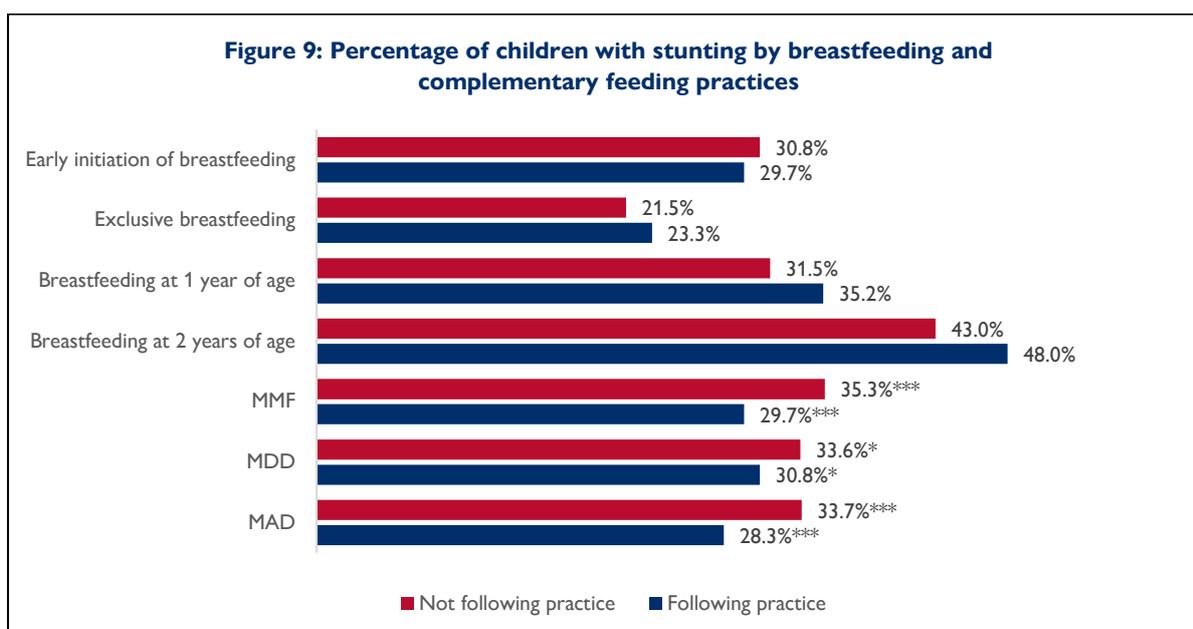
| Independent variable of interest | MAD (n=5,480) | MMF (n=5,181) | MDD (n=5,489) |
|-----------------------------------|-------------------|-------------------|-------------------|
| <i>Maternal economic activity</i> | <i>p<0.001</i> | <i>p<0.001</i> | <i>p<0.001</i> |
| None | 32.9% | 45.7% | 34.7% |
| Farmer | 35.4% | 41.2% | 26.0% |
| Formal Sector | 10.6% | 73.3% | 66.7% |
| Informal Sector | 17.7% | 48.2% | 40.8% |
| Other | 3.4% | 48.2% | 44.1% |
| <i>Household food insecurity</i> | <i>p<0.001</i> | <i>p<0.001</i> | <i>p<0.001</i> |
| Household was food insecure | 15.3% | 40.9% | 29.1% |
| Household was not food insecure | 31.1% | 56.1% | 48.2% |

n/s=not significant

Stunting

Stunting is defined as the proportion of children 0–23 months of age with moderate or severe stunting by a height-for age z-score <-2 standard deviations. Breastfeeding practices were not significantly associated with stunting (Figure 9). Among children who did not start breastfeeding early, 30.8% were stunted, compared to 29.7% among those who started breastfeeding early. Among children 0–5 months of age who practiced EBF, 23.3% were stunted, compared to 21.5% among those who did not practice EBF. Stunting was slightly higher, albeit not statistically significant, among children who continued breastfeeding at 1 year of age (35.2%), compared to those who no longer breastfed at that age (31.5%), and also slightly higher among children who continued breastfeeding at 2 years of age (48.0%), compared to those who no longer breastfed at that age (43.0%).

Complementary feeding practices, on the other hand, were significantly associated with stunting. Children who met MMF were less likely to be stunted (29.7%), compared to children who did not meet MMF (35.3%) ($p<0.001$). Those who met MDD were less likely to be stunted (30.8%) than children who missed MDD requirements (33.6%) ($p<0.05$). Children who met MAD were less likely to be stunted (28.3%) than those who missed MAD requirements (33.7%) ($p<0.001$).



Note: * $p<0.05$, ** $p<0.01$, *** $p<0.001$

WHAT DOES THIS MEAN FOR IMPROVING OPTIMAL IYCF?

Findings from the MCDP II Baseline Survey show the urgent need for improved nutrition among children under 24 months of age in Zambia. High levels of stunting persist, and critical IYCF practices are infrequent. Optimal coverage of IYCF practices ensures that the child is protected from both undernutrition and overnutrition, potentially reducing nutrition-related consequences later in life. For infants who already have inadequate growth, rapid catch-up weight gain in the first 2 years is critical for preventing long-term undernutrition, improving cognitive development, and achieving decreases in morbidity and mortality.

Stunting was significantly associated with inadequate complementary feeding practices, and children who did not meet MMF, MDD, and MAD requirements were more likely to be stunted. These findings highlight the need to intensify interventions that improve complementary child feeding practices, particularly among children at risk for low MMF, MDD, or MAD attainment, including those whose mothers have lower education (none or primary) or are unemployed or farmers, as well as those who reside in food insecure households in rural areas. However, even among children who meet IYCF standards, stunting levels are alarmingly high. The Baseline Survey found multiple factors that should also be addressed or taken into consideration, such as maternal factors (age, education level, weight) and household food security, as comprehensive approach that addresses all these factors is needed.

Breastfeeding practices, including early initiation and continued breastfeeding at 1 and 2 years of age, were lowest among those whose mothers worked in the formal sector, compared to other groups. Early initiation, along with continued breastfeeding at 1 and 2 years of age, was highest among children whose mothers were farmers, followed by those whose mothers were not working. These findings suggest that mothers' employment in the formal sector may hinder their ability to breastfeed during infancy and at later ages. Maternal formal employment, while hindering breastfeeding, is associated with improved complementary feeding practices. Advocacy efforts should focus on improving work environments and policies for lactating mothers.

Findings indicate that infants in urban areas were at higher risk for sub-optimal breastfeeding practices, while infants in rural areas were at higher risk for sub-optimal complementary feeding practices. Urban areas have poorer achievements with respect to breastfeeding, including early breastfeeding initiation and continued breastfeeding at 1 and 2 years of age, but they do better than rural areas with regards to complementary feeding through MMF, MDD, and MAD. Programming should emphasise the importance of EBF for the first 6 months of age, followed by optimal complementary feeding practices.

Household food security was significantly associated with most IYCF practices examined. In terms of breastfeeding, food insecure households were significantly more likely to start early initiation and to continue breastfeeding at 1 year of age than food secure households. These findings suggest that breastfeeding for infants under 15 months of age was a potential coping mechanism in food insecure homes to mitigate food scarcity because these families may continue breastfeeding instead of introducing new foods. Conversely, food insecure households were significantly less likely to meet MMF, MDD, and MAD requirements, compared to food secure households. This indicates that food insecure households are at risk for sub-optimal complementary feeding practices as children age. Messages and programming should focus on promoting MDD with continued breastfeeding until 2 years of age. Furthermore, the convergence of nutrition-specific and nutrition-focused interventions must address food insecurity and access to nutritious foods by the most marginalised households.

ENDNOTES

¹ Jones, G., Steketee, R.W., Black, R.E., Bhutta, Z.A., Morris, S.S., & Bellagio Child Survival Study Group. (2003). How many child deaths can we prevent this year? *The Lancet*, 362(9377), 65-71.

² Black, R.E., Allen, L.H., Bhutta, Z.A., Caulfield, L.E., De Onis, M., Ezzati, M., ... & Maternal and Child Undernutrition Study Group. (2008). Maternal and child undernutrition: Global and regional exposures and health consequences. *The Lancet*, 371(9608), 243-260.

³ Horton, R. (2005). Newborn survival: putting children at the centre. *The Lancet*, 365(9462), 821-822.

⁴ Jolly, R. (2007). Early childhood development: The global challenge. *The Lancet*, 369(9555), 8-9.

⁵ Bhutta, Z.A., Das, J.K., Rizvi, A., et. al. (2013). Evidence based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *The Lancet*, 382, 452-77.

⁶ Guo, A., Bowling, J.M., Bartram, J., & Kayser, G. (2017). Water, sanitation, and hygiene in rural health-care facilities: A cross-sectional study in Ethiopia, Kenya, Mozambique, Rwanda, Uganda, and Zambia. *The American Journal of Tropical Medicine and Hygiene*, 97(4), 1033-1042.

ABOUT SCALING UP NUTRITION ZAMBIA

The Government of the Republic of Zambia (GRZ) is a member of Scaling Up Nutrition (SUN)—a global movement uniting governments, civil society, businesses, and citizens in a worldwide effort to end undernutrition. Phase 1 of the Zambia SUN programme began in 2013 with the goal to reduce stunting among children less than 24 months old in 15 districts.

Currently in its second phase, SUN has increased from 15 to 30 districts, coordinated by the National Food and Nutrition Commission of Zambia, and supported by a variety of partners and donors, including USAID/Zambia who supports the SUN programme through the SUN Learning and Evaluation (SUN LE) project.

This Summary Report was made possible with the generous support of the American people through the U.S. Agency for International Development under USAID contract no. 72061119C00003.

Authors:

- Molly Lauria, Senior Research Specialist, ICF
- Mona Mehta Steffen, Senior Monitoring and Evaluation Lead, ICF
- Lwendo Moonzwe Davis, Manager, Monitoring, Evaluation and Research, ICF
- John Manda, Learning and Dissemination Advisor, SUN LE (ICF)
- Patricia Sakala, Strategic Information Advisor, SUN LE (Khulisa Management Services)
- Mathews Onyango, Chief of Party, SUN LE (Khulisa Management Services)
- Dr. Patricia Mupeta Bobo, Assistant Director Child Health & Nutrition, MoH
- Dr. Mathews Manoj, National Paediatrics Coordinator, MoH
- Raider Mgode, Training and Coordinator, NFNC
- Dorothy K Sikazwe, Chief Nutrition Officer, MoH
- Agnes Mwenda Mugala Aongola, Chief Nutrition Liaison Officer, MoH
- Ruth Siyandi (PhD), Nutrition Specialist, UNICEF
- Dorothy Nthani, Lecturer, University of Zambia
- Beatrice Mazinza Kawana, Nutrition and Child Health Expert, DAI
- Martin K. Mzumara, Nutrition Officer, MoH
- Chiza Kumwenda (PhD), Lecturer, Human Nutrition, University of Zambia
- Alice Ngoma-Hazemba (PhD, MPH, BSc), Lecturer/Researcher, University of Zambia
- Marjolein Smit-Mwanamwenge, Programme Policy Officer, WFP

CONTACT US

Scaling Up Nutrition Learning and Evaluation (SUN LE)
Khulisa Management Services, Inc.
4550 Montgomery Avenue, Suite 220
Bethesda, MD 20814 USA
Tel: +1 (301) 951-1835
info@khulisa.com