

Dynamics of the nutritional status of children under five years old in northwest Syria

By Bakhodir Rahimov, Tarig Mekkawi and Vilma Tyler



Bakhodir Rahimov is a Nutrition Specialist for the United Nations Children's Fund (UNICEF) in Gaziantep, Turkey. He has worked in UNICEF's nutrition and health programme for nine years.



Tarig Mekkawi is Nutrition Cluster Coordinator and Nutrition Manager for UNICEF in Gaziantep, Turkey. He has over 10 years' experience working with the UNICEF nutrition programme.



Paul Binns is a community-based management of acute malnutrition specialist at Brixton Health.



Vilma Tyler is a Senior Nutrition Specialist for UNICEF Regional Office for Middle East and North Africa, based in Amman, Jordan. She has over 10 years' experience working with the UNICEF nutrition programme in different regions.

This survey was conducted and implemented by Physicians Across Continents Turkey (PAC); Dr Katham Saaty, Programme Manager at PAC and Nutrition Cluster Co-coordinator; and Dr Beshr Alkhateeb, Al-Ameen Foundation in northwest Syria. Technical guidance was provided by Mr Hailu Wondim, SMART Emergency Nutrition Assessment Manager, Action Against Hunger – Canada (AAH-CA) and Mrs Lindsay Baker, Regional SMART Advisor. The authors would especially like to thank Mrs Susan Andrew, Child Protection Manager, UNICEF Amman and Mr Tareq Abukhadijeh, Information Management Officer, iMMAP, for designing the child protection module of the SMART survey questionnaire. The survey was implemented with the financial support of the Office for the Coordination of Humanitarian Assistance (OCHA) and UNICEF in Gaziantep.

Location: Northwest Syria

What we know: Adolescent motherhood, associated with early marriage, may contribute to low birth weight and child stunting.

What this article adds: An expanded SMART nutrition survey led by the United Nations Children's Fund (UNICEF) in northwest Syria aimed to examine the association between child marriage and stunting. Consistent with year-on-year trends, wasting prevalence was low and stunting prevalence was high, although there was variation by operational area. Adolescent mothers (under 18 years old) and child marriage were common. Survey method shortfalls meant that the association between stunting and child marriage could not be examined; this should be addressed in future survey design. In conflict situations, child marriage may increase as a coping mechanism; work to build evidence on the problem and the consequences of early marriage in this region is underway across sectors. In the meantime, UNICEF has initiated an integrated health, nutrition and child protection (including disability) emergency programme response, and a surveillance programme to detect cases of family abuse/violence to help prevent child marriage.

Background

United Nations Children's Fund (UNICEF) operations in Syria are divided into two programme areas with changeable borders, depending on military activity: northwest Syria (Idlib Governorate, part of Hama Governorate, and areas united under rural Aleppo and Euphrates Shield); and operational areas in southern Syria (under control of the Syrian Government working out of Damascus). While child wasting is well controlled, stunting prevalence has increased in almost all operational areas of the northwest. The highest prevalence of stunting among children under five years old is observed in the northern Hama Governorate (25.5% in 2019¹) and in Afrin district in Euphrates Shield area (21.8% in 2019). In Idlib, stunting prevalence was 17.4% in 2019 compared with 14.2% in 2017.²

Attention tends to focus on chronic food insecurity, sub-optimal child feeding practices,

chronic infection and non-infectious diseases as the main contributing factors to child stunting. However, reports from non-governmental organisations (NGOs) and other United Nations agencies point to additional causal factors, including poor adolescent nutrition and high rates of early marriage and early pregnancy. To examine the possible association between early marriage (and therefore early pregnancy), a SMART nutrition survey conducted jointly by UNICEF northwest and southern Syria offices was expanded to collect child protection information, including information on child marriage, birth registration and family composition. This article describes main findings and limitations of the survey, how it has informed current programming, and recommendations for the future.

Methodology

The survey was carried out in northwest Syria operational areas during May 2019 using standard

SMART methodology. The SMART regional advisory group for UNICEF Middle East and North Africa (MENA) validated all data collected daily. The quality of the field data was controlled using data plausibility testing. Data from Hama and Idlib operational areas were consolidated with data from rural Aleppo and Euphrates Shield and was also analysed by single operational areas to identify the most nutritionally vulnerable governorate. Eligible households with children under five years old were visited and anthropometry of those children measured. No information was gathered on household children over five years of age. Mothers were interviewed regarding their age at marriage and information was gathered about the birth registration of children under five years old and family composition (single-parent household or mother and father present). Maternal age at marriage was then analysed against nutrition outcomes. A total of 1,233 children (628 boys and 605 girls) aged 6-59 months from 786 households in 63 clusters in Idlib, northern Hama, rural Aleppo, Euphrates Shield and Afrin district were included in the anthropometric measurements. The sample size was representative of the northwest Syria operational area.

Results

Among the sample, the prevalence of global acute malnutrition (GAM), defined as weight-for-height z-score (WHZ) <-2 and/or oedema, was 0.73% (0.4 - 1.3 95% C.I.) and the prevalence of severe acute malnutrition (SAM), defined as WHZ <-3 and/or oedema, was 0.16% (0.0 - 0.7 95% C.I.), with no cases of oedema (Table 1).

¹ The sample size for northern Hama was not representative. The authors provided the data on it to show the vulnerability of the area. Currently, northern Hama is not part of the northwest Syria emergency response.

² Data from the SMART nutrition survey 2017, northwest Syria (not available publicly).

Table 1 Consolidated results of the SMART survey from northwest Syria, May 2019 (wasting: WHZ)

	All n = 1,232	Boys n = 628	Girls n = 604
Prevalence of global acute malnutrition (GAM) (<-2 z-score and/or oedema)	0.7 % (9) (0.4 - 1.3 95% C.I.)	0.2 % (1) (0.0 - 1.2 95% C.I.)	1.3 % (8) (0.7 - 2.5 95% C.I.)
Prevalence of moderate acute malnutrition (MAM) (<-2 z-score and >=-3 z-score, no oedema)	0.6 % (7) (0.3 - 1.2 95% C.I.)	0.2 % (1) (0.0 - 1.2 95% C.I.)	1.0 % (6) (0.5 - 2.1 95% C.I.)
Prevalence of severe acute malnutrition (SAM) (<-3 z-score and/or oedema)	0.2 % (2) (0.0 - 0.7 95% C.I.)	0.0 % (0) (0.0 - 0.0 95% C.I.)	0.3 % (2) (0.1 - 1.3 95% C.I.)

Table 2 Consolidated results of the SMART survey from northwest Syria, May 2019 (stunting: HAZ)

	All n = 1,232	Boys n = 628	Girls n = 604
Prevalence of stunting (<-2 z-score)	19.4 % (239) (16.9 - 22.2 95% C.I.)	20.9 % (131) (17.2 - 25.1 95% C.I.)	17.9 % (108) (15.0 - 21.2 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	14.6 % (180) (12.2 - 17.4 95% C.I.)	16.1 % (101) (12.5 - 20.5 95% C.I.)	13.1 % (79) (10.6 - 16.0 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	4.8 % (59) (3.6 - 6.3 95% C.I.)	4.8 % (30) (3.3 - 6.8 95% C.I.)	4.8 % (29) (3.2 - 7.1 95% C.I.)

Prevalence of GAM was higher in girls (1.3%) than boys (0.2%), but the difference was not statistically significant (p=0.203). The highest GAM prevalence was observed in Idlib Governorate (1.1%), an area greatly affected by intense, ground-level military action, especially in southern areas, a deteriorating food-security situation and limited access to essential nutrition services.

The prevalence of child stunting, defined as height-for-age z-score (HAZ) <-2 was 19.4 % (16.9 - 22.2 95% C.I.) (Table 2). Stunting prevalence was higher in northern Hama (25.5%) compared to other operational areas (which is consistent with the 2015 SMART survey). Figure 1 presents the consolidated results of the SMART survey in 2019 and the dynamics of wasting and stunting among children in northwest Syria starting from 2014. This demonstrates a clear divergence in prevalence and patterns between stunting and wasting (SAM) over time, including 2019. Stunting is prevalent in more than 25% of children, whereas less than 1% of children are

wasted. The proportion of children who are both stunted and wasted was not examined.

Over 45% of women reported their age of marriage as below 18 years (in some cases, below 13 or 14). This may be an underestimate due to high cultural sensitivity regarding child marriage. Unfortunately, it was not possible to examine associations between age of marriage of the mother and stunting in her child due to methodological problems in data collection. SMART surveys only include children under five years old; however, many mothers who were married as children now had children over the age of five. As these children could not be included in the survey, the association between maternal age at marriage and child stunting could not be consistently examined.

Discussion

Results confirm high levels of stunting and low levels of wasting in northwest Syria. Pre-crisis, Syria had very low prevalence of GAM, and interventions at an early stage of the conflict, in-

cluding capacity-building of the screening and treatment of acute malnutrition, worked to prevent the deterioration of the situation. Nutrition surveys (SMART 2014-2019) demonstrate an almost stable plateau of under-five GAM prevalence in the northwest of Syria throughout the crisis, with levels never exceeding 3%. This is in spite of the borders of northwest Syria dynamically changing and continued high rates of movement of internally displaced people (IDPs).

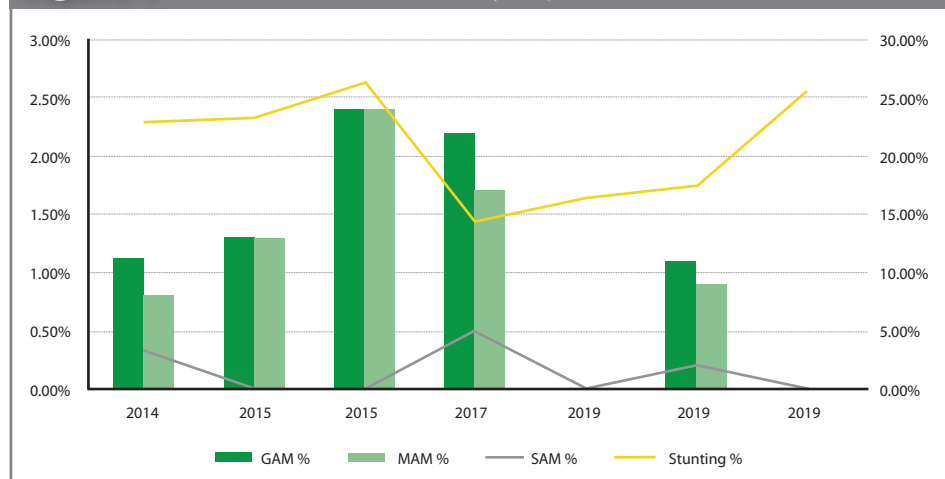
Stunting has risen, however, as indicated by the results of this study. Likely direct causes of this are increased food insecurity, poor access to health facilities and loss of livelihoods resulting in poor quality diets. Sub-optimal infant and young child feeding (IYCF) practices are also an important causal factor. Non-exclusive breastfeeding and poor complementary feeding are widespread in northwest Syria operational areas, both of which likely contribute to high prevalence of child stunting. A 2017 IYCF barriers analysis (no external report available) found that less than 42% of mothers practiced exclusive breastfeeding, due to perceptions of breastmilk inadequacy and lack of family support, and only around 57% of mothers practiced recommended complementary child feeding, with food insecurity cited by mothers as a major constraint to child food diversity. Coverage of IYCF programmes in northwest Syria is low. In particular, there is a lack of availability of one-to-one counselling, partly due to constraints associated with working with IDPs on the move.

Investigations into indirect causes of stunting are also required. Results of this study confirm high levels of child marriage in northwest Syria (45%). This reflects a context where the legal age for marriage is 15 years. NGOs report that, pre-conflict, marriage tended to be deferred until girls had completed high school; however, it is likely that the practice has increased during the conflict. According to the UNICEF Child Protection, Health and Education Clusters of Cross-border Emergency Response programme, child marriage is a common negative coping and protective mechanism during war. There are moves to examine this more closely; for example, information collated by the United Nations Population Fund (UNFPA) Sexual and Reproductive Health Technical Working Group in Gaziantep shows an increase in the number of caesarean sections among mothers below 18 years old compared with the previous five years, which could provide a useful proxy indicator for an increase in child marriage.

The SMART survey 2019 reported here did not measure maternal anthropometry. However, a community surveillance survey demo project conducted in Idlib, Aleppo and Hama governorates found that pregnant and lactating women (PLW) less than 18 years of age (about 12%) all had a mid-upper arm circumference less than 230 mm, a higher prevalence than among PLW over 18 years of age (among whom were higher levels of overweight and obesity). This indicates that adolescent mothers are at risk of undernutrition.

It was not possible to examine the association

Figure 1 Malnutrition trends in northwest Syria operational areas (SMART 2014-2019)



between the age a woman was married and stunting in her children due to limitations of the study. The child protection team required that ages were categorised during data collection, which made it impossible to perform an analysis of the association. There is, however, considerable research that substantiates this link. Adolescent girls are at risk of poor nutrition (in particular anaemia), which increases the risk of their infants having low birth weight, which in turn increases the risk of the infant being stunted in childhood (Soo Hyun Yu, 2016). To date, there has been little scrutiny or research into the relationship between child marriage in northwest Syria and its consequences for adolescent and child health. This is an area that needs more attention to inform interventions.

Conclusions

The nutrition situation in northwest Syria is unique, with high – and, in some areas, increasing – levels of child stunting, alongside declining acute wasting. Reports from NGOs also report increasing rates of child marriage related to the conflict, high levels of which were confirmed in the SMART survey reported here.

Unfortunately, the design of the SMART nutrition survey 2019 did not allow examination of the associations between child marriage and child stunting. Further analysis of the association between child marriage and stunting of subsequent children is warranted, with a better-designed survey to capture the data needed. While we did not statistically confirm the association between child stunting and child marriage, we believe that only a holistic approach can prevent chronic malnutrition and that child protection is a fundamental component that needs to be addressed in this context.

Given this, from July 2019 UNICEF for northwest Syria has been supporting partners to implement an integrated health, nutrition (community-based management of acute malnutrition and IYCF), and child protection (including disability) programme response. Work is ongoing to find ways for the nutrition programme to support the identification of child protection cases, using the nutrition-screening programme as one of the entry points to detect cases of family abuse/violence; this information could enable the instigation of measures to pre-

vent child marriage. Educational programmes may provide another entry point to change community behaviours that sustain child marriage; in particular, to discourage child marriage as a negative coping mechanism for war. Social protection networks for the most vulnerable families and adolescent health programmes are also essential in preventing malnutrition.

To improve the overall nutrition situation, nutrition-specific field interventions aiming to address the immediate causes of undernutrition should be prioritised. Additional supporting mechanisms (such as cash transfers to stimulate adequate and diverse diets, and continuous promotion of optimal IYCF and practices and nutrition behaviours for PLW) should remain core, integrated emergency-response interventions.

For more information, contact Bakhodir Rahimov MD MHA, Nutrition Specialist (partnership), brahimov@unicef.org

References

Soo Hyun Yu *et al* (2016) Differential effects of young maternal age on child growth. *Glob Health Action*. 2016; 9: 10.3402/gha.v9.31171. Available at www.ncbi.nlm.nih.gov/pmc/articles/PMC5112350/

Cost of the Diet analysis in Bria, Central African Republic

By Esther Busquet



Esther Busquet is a Nutrition Advisor with International Medical Corps (IMC), currently supporting the nutrition programmes in the western, central and southern Africa region, as well as providing global support. Before joining IMC, she worked with Save the Children UK, where she was responsible for the Cost of the Diet (CotD) tool for more than two years.

The author would like to thank Marius Rodrigue Koyangbanda Gomassili, IMC Central African Republic (CAR) MEAL Officer, Yewoinshet Adane Berihun, IMC CAR Nutrition Coordinator, Christian Mulamba, IMC CAR Country Director, and the Bria team of IMC CAR for all their contributions and support, and all data collectors and participants in this CotD study for their active participation.

These activities were made possible by a grant from the United States Agency for International Development (USAID) Office of Foreign Disaster Assistance (OFDA).



One of the CotD data collectors weighing sweet potato on the market, Market, Bria, Haute Kotto, CAR

Location: Central African Republic (CAR)

What we know: Dietary habits and food costs are key determinants of a household's capacity to meet energy and nutrition needs.

What this article adds: A Cost of the Diet (CotD) study was carried out among internally displaced persons (IDPs) and host communities of Bria Town and PK3 IDP camp in Haute Kotto region of CAR in November 2018 to determine whether communities could meet energy and nutrient requirements through food assistance (20-day ration) and purchases of locally-available foods. Results show that, for a typical family of nine, a 'nutritious diet' and a 'food habits nutritious diet' (meets energy and nutrient requirements and is acceptable) are both available in the rainy season. However, for poor and very poor families, even meeting basic energy needs is unaffordable. Extending food rations to 30 days, plus the provision of free vegetables (through kitchen gardens and other possible means), would make all diets affordable to all wealth groups. Multisector collaboration and advocacy, including military support for access to insecure areas, is needed to enable this.

Background

In Central African Republic (CAR) an estimated 2.9 million out of a population of 4.6 million currently require humanitarian support. Results of the 2018 SMART survey show a global acute malnutrition (GAM) prevalence of 7.5% and severe acute malnutrition (SAM) prevalence of 2.7% for Haute Kotto region. Aggravating factors include insecurity, food insecurity, high numbers of internally displaced persons (IDPs) in camps and host communities, and poor infant and young child feeding (IYCF) practices. In sites with a high number of IDPs (Alindao, Bambari, Bria, Kaga Bandoro, Batangafo), most households have limited access to land to engage in agricultural activities and are dependent on humanitarian food assistance and food-market purchases. Food