

CHRONIC MALNUTRITION

AN ACTION FRAMEWORK FOR A PREVENTIVE AND MULTI-SECTOR APPROACH

JULY 2023



This document *Chronic Malnutrition: An action framework for a preventive and multi-sector approach* was developed by Action against Hunger Spain technical team.

First edition: July 2023

Author: Eva Iráizoz Domínguez. Nutrition and Health technician, chronic malnutrition and prevention expert. Department of Technical Engineering. Action against Hunger Spain.

Technical direction and validation (in alphabetical order):

Antonio Vargas Brizuela. Head of the Nutrition and Health area. Department of Technical Engineering. Action against Hunger Spain.

Amador Gómez Arriba. Director of the R+D+i Department.

Action against Hunger Spain.

Luis González Muñoz. Director of the Technical Engineering Department.

Action against Hunger Spain.

Reviews and contributions (in alphabetical order):

Bruno Abarca Tomás. Nutrition and Health technical referent. Production Department. Action against Hunger Spain.

Caroline Colette Andre. Nutrition and Health technical referent. Production Department.

Action against Hunger Spain.

Catherine Darriulat. Water, Sanitation and Hygiene (WASH) technical referent. Production Department. Action against Hunger Spain.

Cristina Ribas. Nutrition Coordinator. Emergency Pool. Operations Department.

Action against Hunger Spain.

Hélène Pasquier. Head of the Food Security and Livelihoods area.

Department of Technical Engineering. Action against Hunger Spain.

Manuel Sánchez. Director of the Institutional Relations Department.

Action against Hunger Spain.

Menna Seged Abraha. Advocacy and Institutional Relations Desk.

 $\label{lem:perment} \mbox{ Department of Institutional Relations. Action against Hunger Spain.}$

Pablo Alcalde Castro. Head of the Water, Sanitation and Hygiene (WASH) area.

Department of Technical Engineering. Action against Hunger Spain.

Pilar Charle Cuéllar. Nutrition and Health technician, community interventions expert.

Department of Technical Engineering. Action against Hunger Spain.

Sara Tulipani. Nutrition and Health technician, research expert.

Department of Technical Engineering. Action against Hunger Spain.

Silvia Rodríguez Rivero. Nutrition and Health technician, psychosocial approach expert.

Department of Technical Engineering. Action against Hunger Spain.

Editors (in alphabetical order):

Cristina Ribas. Nutrition Coordinator. Emergency Pool. Operations Department.

Action against Hunger Spain.

Eva Iráizoz Domínguez. Nutrition and Health technician, chronic malnutrition and prevention expert.

Department of Technical Engineering. Action against Hunger Spain.

Sara Tulipani. Nutrition and Health technician, research expert.

Department of Technical Engineering. Action against Hunger Spain.

Silvia Rodríguez Rivero. Nutrition and Health technician, psychosocial approach expert.

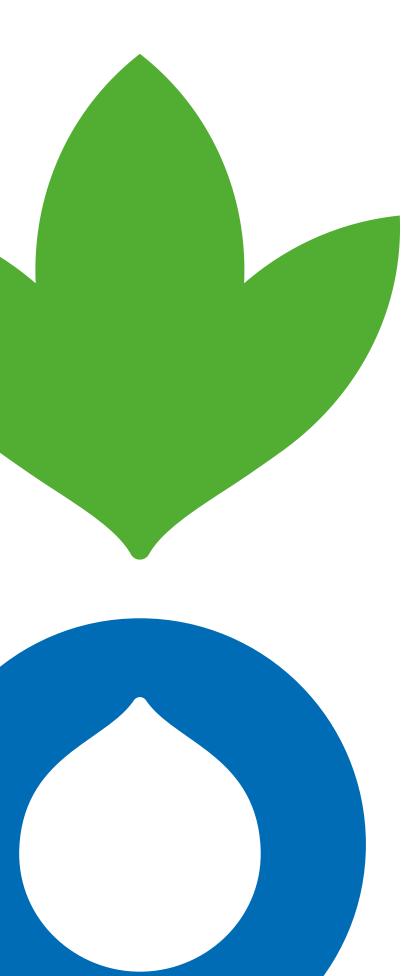
Department of Technical Engineering. Action against Hunger Spain.

Cover photo: Oriol Castillo · Action against Hunger.

Lay-out: Álex Delgado · La Oveja Perdida Estudio.

TABLE OF CONTENTS

1.	WHA	T IS CHRONIC MALNUTRITION?	6
2.	<u>WHY</u>	MUST WE ACT?	7
	2.1.	The consequences of chronic malnutrition	7
	2.2.	Causal pathways of chronic malnutrition	11
3.	HOW	SHOULD WE ACT?	17
	3.1.	The preventive perspective guides our actions	17
	3.2.	The gender and protection perspectives are mainstreamed and made visible in our actions	18
	3.3.	The environmental protection perspective is incorporated into our actions	19
4.	INTER	EVENTION STRATEGY	20
	4.1.	Intervention area to protect, save lives and build resilience	22
	4.2.	Research area	33
	4.3.	Advocacy area	35
5.	HOW	TO MAKE THE THEORY OF CHANGE OPERATIONAL	36
BI	BLIOG	RAPHY	40



ACRONYMS

CF	Complementary Food
EED	Environmental Enteric Dysfunction
LAZ/ HAZ	Length for Age/Height for Age Z-score
IFPRI	International Food Policy Research Institute
IYCF	Infant and Young Child Feeding
TPF	Technical Programming Framework
WHO	World Health Organization
GDP	Gross Domestic Product
CAR	Central African Republic
DRC	Democratic Republic of the Congo
SD	Standard Deviation
UNICEF	United Nations Children's Fund
HIV	Human Immunodeficiency Virus
WASH	Water Sanitation and Hygiene

FIGURES AND TABLES

Figure 1.	Impact of chronic malnutrition throughout the life cycle.
Figure 2.	Adapted causal framework for stunting.
Figure 3.	Theory of change proposed for the preventive approach to chronic malnutrition.
Table 1.	Proposal of TPF modalities for the preventive approach to chronic malnutrition.
Table 2.	Adaptation of the proposed modalities to access

WHAT IS CHRONIC MALNUTRITION?

Chronic childhood malnutrition reflects a complex, chronic and cumulative situation that tends to originate during conception and the first months of life manifesting itself as stunted child growth and development. A child is considered to have stunted growth or chronic malnutrition¹ when their height for their age is less than two standard deviations (SD) below the median WHO child growth pattern (LAZ/HAZ <-2 SD) (1).

Childhood height is an important indicator of appropriate growth, given its relationship to morbidity and mortality risk, non-communicable diseases in adulthood, and learning capacity and adult productivity. It is also closely related to child development in several areas, such as cognitive, linguistic and sensorimotor abilities (2).

Worldwide, one in four children under five are stunted, with around 150 million children under five not reaching their full developmental potential in adulthood. The percentage is growing in regions such as sub-Saharan Africa, East Africa and South Africa, with more than 30% of children under five affected by stunting (3,4).

By country, according to UNICEF estimates (5), the data are alarming, with some being considered a nutritional emergency. At least 10 countries in the world have a prevalence of chronic malnutrition greater than 40% in children under five years of age, seven of which are countries on the African continent: Burundi (58%), Eritrea (49%), Niger (47%), Libya (44%), DRC (40%), Madagascar (40%), CAR (40%). They are closely followed on the same continent by Angola and Mozambique, both with a 38% prevalence. In Asia, East Timor and Papua New Guinea are at the top of the list with 49% and 48% respectively.

1. Although child growth stunting, defined as a short height for age (Length or Height for Age Z-score under 2 SD, UNDER 2 Z-score), is an indicator of chronic malnutrition, in this document we will use the terms "chronic malnutrition" and "stunting" interchangeably.

In central Asia, Pakistan (37%) and Afghanistan (35%) trail closely behind. Guatemala stands out throughout the Latin American region with 43% prevalence in children under five years of age.

In addition, around the world, at least 16 million children under the age of five suffer from acute and chronic malnutrition at the same time, and nearly a third of women of reproductive age and 40% of pregnant women suffer from anaemia (3,6). According to the available data, the concurrence of chronic malnutrition, anaemia and overweight is a reality for about thirty countries spread across the African continent, Southeast Asia, the Middle East and Central Europe (6). These figures mean we are far removed from the targets for reducing maternal and child malnutrition that were committed to at the World Health Assembly nearly a decade ago (7,8).

Of all forms of malnutrition, chronic malnutrition is the most prevalent form globally. Because of its prevalence and serious consequences, it is one of the most important public health problems worldwide and the main one for many countries, threatening the survival of children and the ability of entire societies to thrive.

However, the fact that it has not traditionally been framed as an emergency problem has caused donors, humanitarian organizations and the entire international community to look only at other more visible forms of malnutrition. The level of care for chronic malnutrition in emergency settings is still low, despite the enormous burden it has on persistent humanitarian crises. It is therefore urgent that the reduction of chronic malnutrition must be taken into account as a legitimate humanitarian objective in itself, just like the prevention and treatment of acute malnutrition, as a development goal (9).





2.1. THE CONSEQUENCES OF CHRONIC MALNUTRITION

The consequences of this health problem can be seen in terms of individuals and at society, country and regional level. Chronic malnutrition is considered one of the main constraints on development, both for individuals and communities, and leads to a loss of opportunities to improve quality of life in general. We address these impacts in more detail reflecting the need to act decisively and effectively as an organization.

> DEVELOPMENTAL HINDRANCES SURROUNDING THE 1000 DAYS

At individual level, chronic malnutrition prevents children who are affected from reaching their full developmental potential in early childhood, adolescence and adulthood (11). Behind its most visible manifestation, short stature for age, lies a profound stunting in the motor and neurocognitive development in children who suffer from it (12).

The 1000-day period is critical in brain development. The first two years of life are decisive in establishing brain structure and function. Thus, chronic malnutrition in early childhood is associated with impaired motor, cognitive and language functions of the infant and the child (11,13,14). Subsequently, this will result in a decrease in learning and relationship capacity, worse school performance and, in adult life, lower labour productivity and, ultimately, a higher risk of poverty (11,15). Neurocognitive impairment will also influence the receptivity of these children to stimuli, as they may display a certain apathy, less exploratory behaviour and late acquisition of motor skills, such as crawling or walking. This leads to a decrease in interaction with their environment and with their caregivers, which means a loss of opportunity for stimulation, learning, generating affective bonds (16) and, ultimately, recovery.

> THE SEQUESTERING OF A HEALTHY FUTURE

Stunting is associated in the short term with increased infant mortality and morbidity. Children under the age of five who are severely stunted² have up to four times the risk of dying in their first years of life than those who grow up properly (13). Largely because their immune system is weakened and they are more unprotected from infectious diseases, such as pneumonia and diarrhoea (13,17) and other subclinical manifestations such as Environmental Enteric Dysfunction (EED) (16). The interaction between poor nutrition and frequent infections leads to a vicious circle of worsening nutritional status and increased susceptibility to infections (11). They also have an increased risk of suffering at the same time, acute malnutrition, anaemia and other micronutrient deficiencies (18). The risk of mortality increases when chronic and acute malnutrition coexist in the same individual (19). In the long term, these delays are also associated with a shorter adult height and an increased risk of obesity and chronic diseases, such as cardiovascular disease or diabetes, possibly mediated in part by metabolic and body composition changes experienced in childhood (16).

> ECONOMIC AND SOCIAL CONSEQUENCES

Loss of motor and cognitive potential and increased morbidity perpetuate the intergenerational cycle of poverty, reduce individual opportunities and household resilience, and undermine the economies of families and communities, and it is one of the great pitfalls for the development of countries. Chronic diseases pose an economic burden to households, associated with the direct and indirect costs of access to health services and loss of productivity and employment. It is estimated that adults who have suffered from chronic childhood malnutrition earn 20% less than those who have fully developed and it is estimated that losses in GDP per capita could be up to 13%³ (20–22).

- 2. Severe stunting is defined by a height for age below three standard deviations from the WHO median child growth pattern (height/age <-3 Z-score) (1).
- 3. A World Bank study estimated that, at the time of analysis, 57% of workers in Ethiopia had suffered from chronic childhood malnutrition and this led to a 13% reduction in GDP per capita, affecting the whole country (20).

For the global economy, child malnutrition in all its forms translates into a cost of 3.5 trillion USD, derived from the costs and financial burdens borne by families and the loss of productive human capital (22). For the private sector in low- and middle-income countries, chronic child malnutrition translates into an estimated loss of at least 135 billion USD in sales annually (23). A price paid by entire societies due to the lack of capabilities and prioritization by governments and the international community, which, in turn, contributes to generating more poverty and inequality around the world.

> A QUESTION OF GENDER

Chronic malnutrition is closely linked to gender inequities. Gender-related determinants of health are one of the main social determinants of health and nutrition inequities. Girls and women are often subjected to discrimination, violence and weak decision-making and autonomy in their families and homes. This is often translated into exposed to risk factors that make them more vulnerable to malnutrition. As for its consequences, a girl who suffers a delay in her growth will not only see her nutritional and health status affected, but also situations of inequality and poverty will worsen that will only widen the gender gap and undermine her autonomy, for example, when deciding on her health, including her reproductive health, or entering the labour market. Reproductive and mental health of women are closely linked (24). In low- and middle-income countries, the prevalence of mental health problems during pregnancy and in the first year after childbirth is significantly high and is associated with delays in childhood growth and psychosocial development, low birth weight, inadequate or non-existent breastfeeding practices, malnutrition, diarrhoea and reduced compliance with childhood vaccination guidelines (25).

Dropping out of school early, a lack of family planning, early and adolescent pregnancies, and short birth intervals (birth-spacing less than 24 months), are associated with an increased risk of malnutrition and health problems for the mother and future generations, within the vicious cycle of malnutrition throughout the life cycle (figure 1) (16,26).

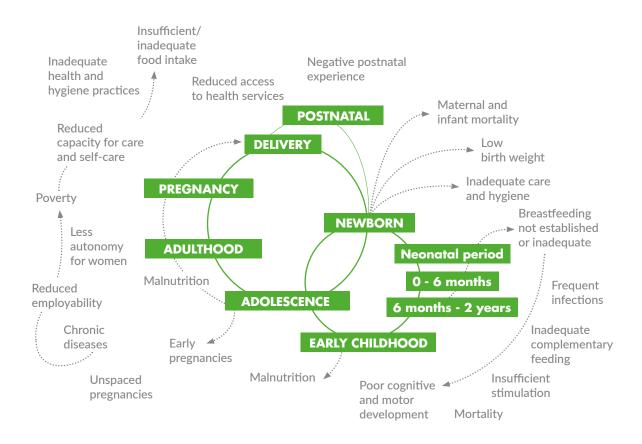


FIGURE 1. Impact of chronic malnutrition throughout the life cycle. Adapted from ACC/SCN and IFPRI (2000) (27).

> THE DOUBLE BURDEN OF MALNUTRITION: CHALLENGE AND OPPORTUNITY

The coexistence of several forms of malnutrition. acute and chronic malnutrition, obesity and/or micronutrient deficiencies, is widely recognized by the scientific community and would justify stopping working in silos (28). This situation, called double or triple burden of malnutrition, is observed at the individual level and can occur at the same time (for example, when acute and chronic undernutrition develop simultaneously) or in different time frames (for example, an obese adult who suffered chronic malnutrition as a child). Secondly, it manifests itself at the household level, when different people in the family have different types of malnutrition. Finally, also at the population level many low- and middle-income countries are experiencing this coexistence of the double burden, with an increase in the prevalence of overweight with a slow and insufficient reduction in undernutrition (29). This makes the situation more critical and complicates the solution.

The main determinants of this coexistence are found, among others, in the so-called nutritional, epidemiological and demographic transitions, which refer to changes in dietary patterns in the population as a result, among other factors, of globalization and migration to urban environments, the transition to a greater burden of chronic versus communicable diseases and the trend to increasingly aging populations, respectively (29,30).

The double or triple burden of malnutrition is a global challenge, but at the same time it provides the opportunity to work comprehensively in the prevention of all forms of malnutrition and to address the underlying and structural causes (29).

CHRONIC MALNUTRITION IS A NEGLECTED PROBLEM THAT IMPACTS THE INDIVIDUAL, THE COMMUNITY AND THE ENTIRE SYSTEM AND ADDRESSING IT IS KEY TO SOLVING THE PROBLEM OF HUNGER.

Impact on the individual

- In certain contexts it is one of the major contributors to infant and adult morbidity and mortality.
- It impacts the future of current and future generations, it slams the brakes on personal development.
- It is a stigmatizing problem.

Impact on the community

- It deepens social inequalities.
- It increases the gender gap.
- It diminishes the resilience capacities of the population to cope with the problem of hunger.

Impact on the system

- It makes the situation more critical and demands more complex solutions.
- It weakens health and social protection systems that try to address the consequences it generates both in the short and long term.

Focusing on women, early childhood and adolescence is fulfilling the obligation to guarantee the right of every child to survive and thrive and is one of the best investments a country can make to boost economic growth and prosperity, promote peaceful and sustainable societies and eliminate poverty and inequality.

2.2. CAUSAL PATHWAYS OF CHRONIC MALNUTRITION

Childhood malnutrition in all its forms is associated with a complex network of factors. Based on the latest available evidence, it is increasingly difficult to separate the causal mechanisms that lead to different forms of malnutrition in childhood. Therefore, working from a preventive and multisectoral perspective has the potential to have a positive impact on the prevention of other forms of malnutrition (31), beyond chronic, and on health in general.

> AN ADAPTED CAUSAL FRAMEWORK

Almost a decade ago, the World Health Organization proposed an adapted framework for chronic malnutrition (32) based on the UNICEF causal framework (33) (Figure 2) that reflects the complexity of the causes and divides them into four major blocks: (1) household and family factors (related to maternal health and family environment), (2) inadequate breastfeeding practices, (3) inadequate complementary feeding, and (4) clinical and subclinical infectious processes.

In addition, it recognizes the underlying determinants of access to health services, water and sanitation, food security, access to quality education and social, economic and political contexts.

Although it is not the object of this document to delve into the analysis of the causal framework, we below outline some of the causal pathways and their associated factors.



Respiratory infections infrastructure and services Clinical and subclinical enteric dysfunction, Loss of appetite due Enteric infections: Diarrheal disease, Labour productivity Water, sanitation and environment Water and sanitation Working capacity Infections infections environmental helminthiasis Population density Natural and human Inflammation to infections Climate change catastrophes Malaria Urbanization Inappropriate practices Early discontinuation Delayed initiation Long-term consequences Breastfeeding of breastfeeding Non-exclusive Agriculture and food systems breastfeeding potential not reached School performance Availability of foods rich Food safety and quality Development Learning capacity in micronutrients Food production and processing Non-safe storage and Unhygienic practices Food and water safety preparation of food Contaminated food Obesity and associated and water Reproductive health Social support networks Children's parents and Society and culture STUNTING AND DELAYED DEVELOPMENT Health comorbidities Situation of women Adult height Beliefs and norms Inadequate complementary feeding caregivers nappropriate practices Community and social factors Insufficient quantity Inadequate feeding Infrequent feeding Poor consistency during and after Non-perceptual diseases feeding of food Access to quality education Infrastructure (schools and Qualified health educators Qualified teachers Education training centres) Anti-nutrient content Low caloric content of complementary foods Low quality in terms Opportunity cost for the care of the sick child Poor quality food of micronutrients diet and reduced animal products consumption of Non-diversified Healthcare expenses Economy Concomitant problems and short-term consequences Health systems and policies and health care services Availability of supplies Inadequate stimulation and Inadequate food allocation Inadequate sanitation and Qualified healthcare Low educational level of Access to health Home environment parents or caregivers Health Infrastructures Home environment, language development children's activities professionals Cognitive, motor and Inadequate care Food insecurity Development water supply **Domestic and family factors** hygiene Food prices and trade policy **Employment and livelihoods** Poverty, income and assets restriction and prematurity and during pregnancy and Poor nutrition in women, Political economy Short spacing between Short maternal height Marketing regulations High blood pressure Maternal factors Intrauterine growth Teenage pregnancy Financial services Political stability Mental health breastfeeding Health pregnancies Morbidities Infections Mortality

FIGURE 2. Adapted causal framework for stunting. WHO, 2014 (32)

Where does the problem start? Possible windows of opportunity.

Stunting can begin in the womb and throughout the first two years of the baby's life (11,34). Recent evidence shows that a large part of linear growth faltering is observed during pregnancy, at birth, and during the first three months of life (35,36). This gives an idea of the influence of prenatal factors on foetal development from conception to birth. Women's physical and mental health, nutritional status, and degree of autonomy go hand in hand and frame some of these prenatal factors associated with stunting and delayed development. This is the case of maternal age, pregnancy spacing, HIV status, mother's educational level, (37) and women's

mental health in the perinatal stage, (38) among others. Babies born to adolescent mothers are at increased risk for stunting (39,40). Additionally, a less than two-year interval between pregnancies in women increases the risk of having low-weight or premature babies and is associated with a higher prevalence of stunting in childhood (34,41). Less spacing between pregnancies is in turn associated with a lack of access to family planning services and early abandonment of breastfeeding. In addition, these women will be at higher risk of complications during pregnancy such as anaemia, high blood pressure or bleeding, and worsen their health status (41). Additionally, maternal depression is a risk factor for chronic child malnutrition (39,40,42) because it will determine the provision of care and stimulation of the baby.





Role of associated infectious diseases and limited access to the health system.

Recurrent infections, especially respiratory infections, such as malaria or pneumonia, and diarrhoea, common in low-income settings, are contributing factors to stunting. Malaria, which has an important presence in Action Against Hunger working contexts, can have repercussions during pregnancy and is associated with stunted growth. Some studies suggest that malaria has negative effects on nutritional status in early childhood and vice versa, although the evidence is inconclusive in this regard (43). A recent study found that the probability of stunting among children under two years of age was 10% lower when their mothers had received antimalarial prophylaxis during pregnancy and that the H/A indicator improved when they had also received iron and folic acid supplements (44).

The WASH component in the source and progress of the problem.

Stunting is directly associated with the number of episodes of diarrhoea in children under two years of age (45) and environmental enteric

dysfunction (EED). It is estimated that 13.5% of the global prevalence of chronic malnutrition can be attributed to diarrhoea (46). For its part, EED is a silent condition in which chronic inflammation occurs at the intestinal level. This inflammatory process leads to a loss of intestinal microvilli and an increase in intestinal permeability, which directly results in a decrease in the absorption of nutrients, and at the same time compromises the immune system and increases energy expenditure. Environmental Enteric Dysfunction is directly associated with iron-deficiency anaemia and chronic malnutrition (47). In general, enteric infections and undernutrition increase the risk bidirectionally in a vicious circle (48).

The level of access to safe water and sanitation in the home and community, among other context factors, will largely determine the frequency of diarrhoea and other clinical and subclinical infections in the mother, baby and the whole family, as well as the possibility of having proper hygiene practices. In this sense, the effectiveness of interventions that aim to interrupt faecal-oral transmission in reducing chronic malnutrition is evident (49).

Breastfeeding and complementary feeding: at the centre of immediate factors

After birth, starting and continuing breastfeeding is decisive for the nutritional status, development and survival of the baby. Breastfeeding is a protective factor for the mother (50) and her baby, especially relevant in low- and middle-income countries where the lack of access to quality and abundant water and safe food can expose the baby to an increased risk of diarrhoea and infectious diseases that endanger their nutritional status and health (51). Evidence suggests a strong association between stunting and inadequate breastfeeding practices such as delayed initiation, non-exclusivity in the first six months, or premature discontinuation (46,52,53).

Stunting manifestations in terms of linear growth faltering mostly appear between the six months and two years of age, when **complementary foods** (CF) are introduced (32,54,55). During this period, the baby ceases to depend entirely on breast milk for feeding and mobility increases, in the same way, its direct exposure to other environmental and dietary factors increases (32).

There are many factors related to the suitability of CF in this period: from the nutritional quality and diversity of the diet to the frequency and quantity or what kind of foods are offered to the baby, through other aspects, as fundamental as hygiene during the preparation and storage of food at home or the lack of access to drinking water.

> ORIGIN, CHRONICITY AND EXPOSURE THROUGHOUT THE 1000 DAYS

We are faced with a multicausal and multifactorial framework common to other manifestations of undernutrition. However, if we look at the consequences, the weight of each of these causal factors on the physical and neurocognitive development of the baby could be strongly dependent on the time at which these exposures occur. In this way, it is expected that exposure to these factors over the 1000 days, the most vulnerable period that includes pregnancy and the first two years of life, plays a greater role in brain development and growth (in terms of height) than if it occurs later in childhood (54).



In addition, continued exposure to any of these factors differentially contributes to the establishment of chronic malnutrition in the individual. This is the case of exposure to poor health conditions in the environment and to the environmental enteric dysfunction (EED).

> RECOVERY IS POSSIBLE

Intrauterine stunting results in babies who, at birth, already have deficits in their development. However, evidence suggests that there may be a positive evolution in the growth patterns of these babies if the environmental exposure, feeding and care they receive are adequate and effectively adapted (37). This justifies working on chronic malnutrition from a preventive and recuperative perspective also during the postnatal period and in early childhood under the assumption that, if the main causal pathways are interrupted, these babies have the possibility of regaining their developmental potential and even reestablishing certain neuromotor functions, beyond the recovery of growth curves in terms of height. It is also important to rescue the concept of nurturing care (10,56-58). In fact, just improving the stimulation and care of children with chronic malnutrition⁴ can have a great impact on their psychosocial recovery, compared to other more complex interventions (59).

> THE SECOND WINDOW OF OPPORTUNITY IN ADOLESCENCE

Adolescence is another of the periods with an acceleration in growth and development in the individual and is considered the "second window of opportunity" to positively influence nutritional status, after the 1000 days window (60,61).

4. For example, through weekly play sessions with the mother or caregiver provided in the IYCF/ANJE intervention modality (promotion of feeding and care practices for infants and early childhood).

A state of malnutrition in adolescence can slow down growth or aggravate the existing stunting (62), with implications, not only for the individual's own development but also for that of their future offspring, perpetuating the intergenerational cycle of malnutrition. Babies born to teenage mothers are more likely to be premature, have low birth weight, and suffer stunting.

Adolescence is also a period of special vulnerability for girls. An estimated 21 million girls aged 15 to 19, and two million girls under 15, become pregnant each year, especially in low- and middle-income countries (63). The nutritional needs of a pregnant teenager are higher than those of an adult pregnant woman, and competition between the nutritional requirements of the foetus and the adolescent can lead to a restriction of foetal growth and a delay in the woman's growth. Adolescent mothers are often at a disadvantage in terms of access to sexual and reproductive health services, family planning and prenatal care, and are at increased risk of maternal and neonatal anaemia, mortality and morbidity (61). In addition, teenage pregnancy also carries economic and social consequences, such as the need to drop out of school, which results in fewer skills for care and self-care and fewer employment opportunities (64).

On the contrary, ensuring good nutritional and health status in adolescence can help break the cycle of malnutrition and lay the foundations for optimal growth and development for future generations (62,65). Adolescence is also a period of opportunity for growth recovery and for cerebral, emotional and behavioural development (66). Including adolescents in programmes and interventions as beneficiaries, but also as active participants, encouraging their participation and empowerment, is also an opportunity to advance the fight against gender inequities and advance the rights of children and adolescents.

During the 1000-day period, during pregnancy and up to the first two years of a baby's life, nutrition, care and environment will be decisive for their cerebral development, learning ability, future social and emotional well-being and overall health. Likewise, attention will need to be paid to the state of health, the psychosocial well-being of women and their access to basic resources, as well as that of the whole family unit, including adolescents.

We are certain that there are solutions and opportunities for action and that the time is now. We must pursue the greatest impact of our interventions to prevent chronic malnutrition from a multisectoral perspective to cut through the main causal pathways during the most critical periods of development and with a cross-sectional gender perspective that allows eliminating the gender-related factors that contribute to this health problem.



© Elisa Bernal · Action against Hunger



© Action against Hunger



Our intervention framework rests upon three fundamental perspectives; prevention, gender/protection and the integration of measures and actions aligned with respect for the environment.

3.1. THE PREVENTIVE PERSPECTIVE GUIDES OUR ACTIONS

We want to end chronic malnutrition from a preventive perspective towards the individual and their ecosystem. We understand prevention in its broadest definition (WHO, 1978) as the set of "measures designed not only to prevent the onset of the disease, such as the reduction of risk

factors, but also to stop its progress and mitigate its consequences once established" (67).

This results in actions aimed at three levels of prevention: Primary, aimed at reducing prevalence and exposure to the main risk factors with the aim of preventing the occurrence of new cases; secondary, to slow the progress of chronic malnutrition once established from a detection perspective and acting on the possibility of early recovery toward adequate development; and tertiary, aimed at alleviating the consequences of chronic malnutrition and providing an umbrella of protection at the individual, family and community levels.

Reduce the prevalence of, and exposure to, risk factors,

especially in the 1000 days and adolescence windows of opportunity.



PREVENTION

Attenuate the consequences of chronic malnutrition at the individual, household and population levels.



Reduce or delay the onset of complications or death, prevent relapses and work on recovery. Protect vulnerable households and future generations.

Stop the progress

of chronic malnutrition, detect cases and act on the possibility of physical and neurocognitive recovery/ catch-up throughout early childhood.



Early detection and intervention.

3.2. THE GENDER AND PROTECTION PERSPECTIVES ARE MAINSTREAMED AND MADE VISIBLE IN OUR ACTIONS

For Action against Hunger a key strategy is incorporating a transformative gender perspective, making actions drive changes needed to overcome the current situation regarding malnutrition. It is not merely a purpose, but rather a reality to implement context-specific actions that empower women, remove barriers that relegate them to marginalized positions and enabling their capacity to lead the solutions required.

The link between mother and child in the cycle of malnutrition in all forms is well understood, as is the need for a framework that defends women's rights and facilitates spaces for equality. Ensuring equal decision-making power among all household members is essential. Power imbalances and gender inequalities must be addressed by humanitarian programmes aiming to reduce chronic malnutrition.

Similarly, prioritizing mental health of pregnant women and mothers is of utmost importance. Maternal mental health is closely related to physical and psychological child development. In low- and middle-income countries, it is estimated that one in five mothers suffers from a mental health problem (24) and that they are often neglected. Caring for maternal mental health should be a priority in preventive programmes which encompass maternal and infant nutrition and health (25). It should be regarded as both a means to an end and a key objective itself.

Violence is an additional contributing factor in the complex equation of chronic malnutrition, especially in countries with long-standing conflict which tend to suffer the highest rates of stunted children under the age of 5. Therefore, in conjunction with the defence and promotion of other rights, actions taken to address this issue must have focused objectives aimed at ensuring safeguarding of children's right to grow and thrive while protect and support the right of their caregivers to provide care.

3.3. THE ENVIRONMENTAL PROTECTION APPROACH IS INTEGRATED INTO OUR ACTIONS

Environmental deterioration is closely interlinked to chronic malnutrition. The progressive undermining of livelihoods and the decline in resilience of populations as a result of climate change are evident and the most serious consequences of this deterioration remain to be seen. Moreover, some community's responses to this situation, such as climate induced migrations to urban

areas, translate in reduced access to food, basic needs and essential services, due to for example the increase in healthcare demands and constrained resources in overcrowded areas.

Preserving an adequate ecosystem that facilitates a salubrious and healthy environment is critical to addressing malnutrition. A framework for action with a sustainable impact on the problem of chronic malnutrition must promote and contribute to long term environmental conservation and pursue a reduction or cancellation of the environmental footprint that we incur with our interventions.





The proposed strategic framework to increase our impact on chronic malnutrition comprises three areas of action aligned with the priorities of our International Strategic Plan ISP3 2021-2025 (68):

Area INTERVENTION

Woman Newborn and early childhood Environment



We Save Lives

Lives are saved and immediate needs are met in an effective and inclusive manner in emergency contexts.



We Collectively Build Resilience

People and communities are better able to withstand future shocks. Mitigation of the climate crisis and of gender inequality is embedded in the fight against hunger.

Area **RESEARCH**



We Create and Share Knowledge

Best practice in the fight against hunger is developed collaboratively by a diversity of actors and shared for the empowerment of all.

Area ADVOCACY



We Connect and Mobilize

Citizens, communities, civil society and actors at all levels are mobilized as part of a collective movement to end hunger.

THE INTERVENTION AREA:

We save lives and build resilience capabilities

We need to strengthen our capabilities, new solutions and operational improvements. We want to achieve high-impact interventions in chronic malnutrition that save lives and offer a full development opportunity for all people and societies, improving existing ones and proposing new approaches.

We must ensure that our responses empower communities, especially women, and, with them, contribute to breaking the cycle of hunger, addressing the underlying causes of chronic malnutrition and mitigating its consequences. We want to help women and their communities strengthen their resilience by integrating prevention and long-term goals into our interventions.

We need to impregnate chronic malnutrition, as in all our approaches, with a cross-sectional gender and environmental approaches and a special focus on women and early childhood.

THE RESEARCH AREA: We create and share knowledge

We want to make progress in generating new evidence around understanding and addressing chronic malnutrition and share our knowledge and experience.

We need to identify evidence gaps around chronic malnutrition and ensure our research contributes to finding new approaches to that lead to the design of innovative and effective long-term solutions, with our field staff.

THE ADVOCACY AREA: We connect and mobilise people

We want to be a legitimate and powerful voice within our network and with all stakeholders at the international level, participate in the discussion spaces and influence the need for greater and better financing for chronic malnutrition.

We need to work from a rights-based approach and amplify the voice of women, children and communities.

We must be catalysts for evidence-based policy change, so that women and children can enjoy safe spaces for their well-being and development, access basic services and social protection mechanisms and for there to be a real commitment to reducing risk factors and addressing the consequences of chronic malnutrition.

In short, this framework aims to **end hunger and change the way we understand it** and guarantee the right of every child to survive and thrive.

4.1. INTERVENTION AREA TO PROTECT, SAVE LIVES AND BUILD RESILIENCE

People and communities are at the heart of everything we do, so our programmatic framework translates into a proposal for multi-sectoral (nutrition, health, WASH...) and multi-level interventions that pivot around three complementary and interdependent objectives that involve improving the health and nutrition of women, newborns and young children and ensuring a safe, healthy and supportive environment, with a transformative and transversal gender approach.



WOMAN

Improve the health and nutritional status of women and mothers and promote equal rights.



Improve child health, nutrition and development.



Ensure a safe, healthy and supportive environment.

Below, the three lines of action in which we propose to work, and the expected results for each of these objectives that contribute to the preventive approach to chronic malnutrition around the intergenerational cycle of hunger and specifically to the 1000-day window of opportunity are explained.





WOMAN

Improve the health and nutritional status of women and mothers and promote equal rights.



© Christophe Da Silva · Action against Hunger

We propose a new gender-transformative perspective (69,70), acknowledging women beyond their maternal role. We challenge interventions that limit the role of women to caregivers, with a functional approach, and that can often have negative side effects on mothers, such as over-burdening care or generating distorted expectations regarding their family and social role, without forgetting the power relations that, due to gender, establish dynamics of exclusion and inequality in households and communities. We will always start from a gender-sensitive context analysis that favours the understanding of gender norms and other gender-related factors that influence women's health and nutrition.

Gender equality is a precondition in addressing chronic malnutrition and any type of malnutrition. Women's health, nutrition and full personal development must be an end in itself, not just a means to improve child health. We can see a woman whose health decisions, specifically in terms of sexual and reproductive health, and her access to resources will also depend on gender and power relationships established in her family and community context (71).

In parallel, we continue to look to the mother/ baby dyad to break the cycle of poverty and malnutrition (72). Pregnancy is a period when individual nutritional requirements increase. The nutritional and health status of the woman before and during pregnancy marks the starting point of future generations and prenatal and perinatal care must be guaranteed (73,74).

In addition, we recognize that, once the baby is born, women's needs are neglected too often even though it is a time when more support and attention to physical and mental health are needed (74). The mother is often the main provider of food and care for the newborn in the first months of life, in the most critical periods of development. In the post-natal period, the physical and mental health of the mother affect her ability to breastfeed her newborn and to provide adequate protection and care⁵, and to generate a healthy affective bond, stimulate optimal development along with other attachment figures and have sufficient autonomy to develop in their environment and seek the best care for herself and her child when necessary inside and outside the home (40,42).

^{5.} Maternal and infant care is defined as the provision of time, care and support to meet the physical, mental and social needs of the pregnant woman, the growing child and their mother. In this sense, care practices that contribute to achieving an adequate nutritional status are defined as household habits that transform food and available resources into health, survival, growth and optimal development of the child(75–77).

LINES OF ACTION

- Reduce risk factors to ensure a good starting point and provide resources for women to make decisions regarding their sexual and reproductive health, self-care and feeding, stimulation and care of the baby.
 - Access to basic health and nutrition services, including sexual and reproductive health services, family planning and prenatal and postnatal care.
 - Nutritional supplementation during pregnancy: Iron and folic acid, micronutrients and other nutritional supplements⁶.
 - Promotion of breastfeeding:
 Accompaniment in the beginning for determined and committed breastfeeding.
 - Psychosocial support before and during pregnancy and after childbirth for mothers and main caregivers.
 - Awareness raising and health education to provide the mother/father/caregivers with resources for the provision of child care and maternal self-care (physical and psychological) from a gendertransformative perspective.
 - Prioritize the group of adolescents in the reduction of risk factors and promotion actions.
 - Promote the employability of women and their economic autonomy.
 - Identify and address situations of gender violence established in the family.

- 2. Stop the progression of chronic malnutrition established in pregnancy or later in the infant's first months.
- Access to post-natal care and promotion of maternal health care.
- Support for the continuation of breastfeeding and monitoring of the decision-making processes of the mother on the feeding of her child. Support for mothers in emergency settings and other situations where the continuation of breastfeeding is not possible or desired.
- Psychosocial support for mothers, families and other caregivers, especially premature babies and multiple births, babies with low weight or with an illness and / or disability.
- Support the empowerment and autonomy of women in their homes and communities. Raise awareness and education for families, mothers and fathers, and the different caregivers in the home to transform gender and power relations.
- **3.** Mitigate consequences of chronic malnutrition for women at home.
- Access to social protection systems for mothers and families with infants and children with chronic malnutrition at home.
- Promote psychosocial support for all people in the family that needs it.

CRITICAL PERIODS









6. Nutritional supplementation beyond the WHO recommendations (iron and folic acid) (73,78–80) must be duly justified and based on the needs of the context.

Adolescence Adulthood Pregnancy Post-natal

EXPECTED RESULTS ON IMPROVING WOMEN'S HEALTH, NUTRITIONAL STATUS AND RIGHTS

- Increased access to basic health and family planning services: Later age of first pregnancy, spacing of pregnancies, prevention and treatment of anaemia before and during pregnancy.
- Improved care and nutritional practices at home, from and for women, co-responsibility with men and among family members.
- A positive postnatal experience⁷ in terms
 of the physical and mental health of the
 mother and where the needs of the woman
 are acknowledged and their decisions and
 sociocultural conditions are respected.
- 7. The WHO considers a positive postnatal experience to be one where women, infants, their partners, caregivers and families receive information, peace of mind and support consistently from motivated health workers; where there is a flexible and resourceful health system that recognizes the needs of women and babies, and respects their cultural context.

- Improving breastfeeding and the well-being
 of the mother in the process. Early start
 and maintenance of exclusive breastfeeding
 until six months and continued later. The
 socio-cultural barriers and facilitators to
 breastfeeding are known and analysed,
 and the decision-making processes of the
 mother are followed at all times regarding
 breastfeeding.
- Access to social protection systems for women and families.
- Improvement of the psychosocial status of women participating in the programmes.
 Improvement of psycho-affective relationships at home.







© Eric Dessons · Action against Hunger

We want to promote the best physical, emotional, social and cognitive development so that children reach their maximum potential, acting especially from birth and during their first two years of life⁸.

We focus on the early start and maintenance of breastfeeding, exclusively up to six months, with breast milk or substitutes according to the context, and on the transition to complementary foods from six months. Adequate complementary foods involve ensuring access to quality food in sufficient quantity and adapted to the development of the baby and the cultural preferences of the household. In addition, it is important to ensure that they are properly prepared and administered under safe hygiene conditions.

We believe that it is essential that the baby, from birth, receives adequate postnatal care both at home and from the healthcare structures.

We want to work to prevent anaemia and other nutritional deficiencies and support improved access to health services and vaccination campaigns and other preventive programmes, such as micronutrient supplementation.

We recognize the need for early psycho-stimulation as part of that care, the advantages of the mother-baby bond and encourage attachment for nurturing care (57). Support for nurturing care and early learning should be included as part of optimal nutrition interventions for newborns, infants and young children (74).

We look at the baby throughout its trajectory in terms of growth curves and do not just in static measurements. We promote a continuous and comprehensive monitoring of the growth of the child. A baby born with a small size may improve or worsen their trajectory based on their health, environmental factors, and the care they receive.

^{8.} Depending on the context, it can be extended to children under five years of age and/or other age groups can be considered.

LINES OF ACTION

- 1. Reduce risk factors to promote best practices for care, feeding and stimulation in infancy and early childhood.
- Access to basic health and nutritional services during infancy and early childhood. Close monitoring during the first 28 days of life and childhood development goals (reaction to stimuli, motor skills, language acquisition...).
- Resources, promotion and support in good child feeding practices:
 - > Breastfeeding: Early start, exclusive breastfeeding up to six months and maintenance.
 - > Transition to complementary foods from six months on.
- Early stimulation of the baby, adapted to their physical and psychomotor evolution and generation of safe and healthy spaces for play.
- Promotion and resources to facilitate good child care practices in health and hygiene (prevention of enteropathies and infectious diseases).
- Nutritional supplementation from the age of six months with micronutrients and other supplements (e.g., lipid-based), especially in food-insecure contexts⁹.

- 2. To slow the progress of chronic malnutrition once established and to promote practices aimed at the recovery of growth and psychomotor development.
- Detection and treatment of cases of chronic malnutrition and in coexistence with other forms of undernutrition in children under two years old.
- Access to health and nutritional services with a recuperative nature in early childhood.
- Support for the continuation and/or recovery of breastfeeding – or substitutes when it is not possible or not the decision of the mother – in malnourished infants.
- Promoting stimulation and the generation of affective links with the mother/caregiver and their environment, especially in infants or children who already suffer from chronic malnutrition, or more vulnerable infants, or those with an underlying condition (low weight, disability...) to ensure their recovery within the 1000 days.
- **3.** Mitigate the consequences of chronic child malnutrition once established.
- Access to social protection systems for households with infants and children with chronic malnutrition.

CRITICAL PERIODS



Newborns



First 28 days of life



0-6 months



6-11 months



12-24 months

EXPECTED OUTCOMES FROM IMPROVING CHILD HEALTH, NUTRITION AND DEVELOPMENT

- Improvement in the provision of food, stimulation and adequate care for full growth and development.
- Breastfeeding is established successfully from the start and is maintained exclusively until six months and continues for at least the first two years.
- Complementary foods are introduced from six months of age progressively and with an ageappropriate, diverse and quality diet.
- Increased knowledge, skills and resources to carry out appropriate hygienic practices by the mother, parents and/or other caregivers in the household, including in food preparation, which contributes to the prevention of EED, diarrhoea and infectious diseases.
- There are support systems for the recovery of children with chronic malnutrition and greater resilience in households with one or more malnourished children.







© Lys Arango · Action against Hunger

We want the baby to be born and grow up in a safe and healthy environment. Women must also have the opportunity to develop fully in this environment, find safe spaces, have healthy relationships and decide on their nutrition, health and motherhood.

We are aware of the role that Environmental Enteric Dysfunction plays as a mediator of chronic malnutrition and, therefore, it is key to ensure that the baby grows up in hygienic environments for play and for their psychomotor development and that these spaces are facilitators for adequate hygiene and feeding practices. The contribution of food insecurity in this regard is clear, and we recognize that human, animal and environmental health¹⁰ are connected and interdependent, and that more efforts are needed in the multisectoral coordination of interventions (49,81).

We need to strengthen an ecosystem that ensures that all women, mothers and their babies can have their basic needs covered, access quality basic services, and ensure attention in terms of sexual and reproductive health, nutrition, maternal and child health and access to safe water and sanitation at household and community levels.

10. The "One Health" perspective was introduced over two decades ago and refers to the fact that human and animal health are interdependent and linked to the ecosystems where they coexist. It defends the need to work in a multisectoral and transdisciplinary manner (public health, planetary and environmental health, animal and plant health...) to prevent, detect and effectively respond to health challenges arising from the relationship between humans, animals and the environment(81,82).

We need an ecosystem that facilitates good maternal and child care practices for women throughout the life cycle and that reduces imbalances in terms of gender and decision-making regarding child care and health in general for women, mothers and children.

We will address the changes in the food ecosystem experienced by migrants, displaced persons or refugees through analysis and addressing the conditions of geographical accessibility to food, the financial situation and resources of the household, and the individual influences, cultural and psychosocial backgrounds when making health and nutrition decisions (83).

We must take into account the variability of risk factors and their impact at different times in the life of the woman and the baby, and how their needs change. We need to respond to the lack of economic opportunities, seasonal variations and negative social and political dynamics that contribute to increasing malnutrition.

We must contribute to ensuring social protection in countries as part of integrated and multi-sectoral packages, especially for women of reproductive age, breastfeeding mothers, infants and children and their caregivers, and promote synergies in public health programmes and policies to ensure long-term, sustainable and comprehensive impacts on malnutrition.

LINES OF ACTION

- Reduce risk factors related to the environment in which women and children live and their communities.
- Ensure access to basic services:
 - Access to basic nutritional and health services.
 - Access to drinking water and sanitation to interrupt faecal-oral transmission (WASH).
- Promote good hygiene practices for babies, women, households and communities and create safe and healthy spaces for play.
- Identify and work on barriers (economic, social...) and facilitators in the nutritional ecosystem of women, children and households. Promote strategies in households and communities to change norms, attitudes and behaviours in favour of gender equality from a transformative perspective.
- Promote policies sensitive to chronic malnutrition and create favourable social environments through working with institutions and civil society and advocating for universal access to essential services.

- 2. Stop the progress of chronic malnutrition at the individual, community and population levels.
- Access to health and social structures that comprehensively support the development and, specifically, the recovery of chronically malnourished babies or support for pregnant women with chronic malnutrition, anaemia or other nutritional deficiencies.
- Advocacy on policies sensitive to chronic malnutrition and the coexistence of different forms of malnutrition at the individual, community and population levels.
- **3.** Mitigate the consequences of chronic malnutrition in households.
- Advocate for the implementation of social protection policies for families suffering the burden of chronic malnutrition in their homes.
- Strengthen and support institutions in addressing the social consequences of chronic malnutrition and the protection of livelihoods.

CRITICAL PERIODS

The first 1000 days

Adolescence

Reproductive age

EXPECTED OUTCOMES TO ACHIEVE A SAFE, HEALTHY AND SUPPORTIVE ENVIRONMENT FOR WOMEN AND CHILDREN

- The nutritional ecosystem facilitates healthy decision-making in terms of health, breastfeeding, food practices and maternal and infant care and hygiene.
- Greater access to basic maternal and infant health services, drinking water and sanitation and social support structures.
- It improves the **social protection** of women, mothers and families with difficulties arising from chronic malnutrition in their homes.
- It increases commitment from governments in terms of developing policies sensitive to chronic malnutrition.



AND FULL DEVELOPMENT OF CHILDREN UNDER FIVE

households with stunting Identification and addressing barriers and facilitators in the Social protection policies for recovery support for infants Institutional strengthening and support: Addressing the Access to health and social structures: Comprehensive Guaranteed basic health services, clean water and sanitation, social consequences of Commitment from governments, development of chronic Social protection umbrella: Women, mothers, vulnerable nutritional ecosystem Nutritional ecosystem facilitator of healthy decisions and CM mothers stunting malnutrition- sensitive policies ENVIRONMENT accessible social structures households 小多多 household/community level drinking water, sanitation and practices and safe and healthy Promotion of good hygiene Access to health services, Chronic malnutritionhygiene resources at sensitive policies spaces for play Reduction in prevalence and exposure to major risk factors for chronic malnutrition during 1000 days and adolescence : The consequences of chronic malnutrition are attenuated at the individual, household and population levels Early detection of cases and physical and neurocognitive recovery in early childhood are addressed Early and active detection of relactation (or substitute) in Access to health & nutrition Breastfeeding continuation/ Early start of breastfeeding, exclusive until 6m and continued Access to social protection Adequate complementary feeding (time, quantity and quality) Generation of affective Working towards recovery/catch-up of stunted children Stimulation and adequate mother and infant health care services for recovery bonds, especially for vulnerable babies stunted infants systems EARLY CHILDHOOD **NEWBORN AND** Adequate hygiene practices young child feeding practices Access to neonatal and child health & nutrition services hygiene/health practices Promotion of infant and (prev. EED, diarrhoea) Early stimulation and Promotion of good affective bonds **(** Access to social protection Provision of resources for Delay in age of first pregnancy, birth spacing, reproductive Psychosocial support care and self-care Adequate care practices at home, by and for women. Conscious and supported breastfeeding Positive postnatal experience Social protection for women health, prenatal care co-responsibility NOM N planning) services 🤌 😭 Access to healthcare, pre- and autonomy and empowerment post-natal care, sexual and reproductive health (family Provision of resources for **Breastfeeding support** (gender-transformative) **TDA9MI** RESULTS **SNOIT2A**

FIGURE 3. Theory of change proposed for the preventive approach to chronic malnutrition.



4.2. RESEARCH AREA

Multi-sectoral interventions aimed at improving the health and nutritional status of women and young children throughout the 1000 days and creating a safe and healthy environment have the potential to contribute to the prevention of chronic malnutrition. However, much remains to be understood about the impact of any of these interventions in the field and when it comes to operationalization.

We need to generate evidence that will enable us to advance new solutions and improved responses for the prevention of chronic malnutrition and that will be able to shape the development of our programmatic approaches.

In this sense, the operational research projects will contribute, not only to the generation of knowledge, but mainly to respond to operational challenges, to support our programmes and our missions in the implementation of this approach according to their needs.

In short, they will contribute to the improvement and development of essential, equitable, scalable and sustainable packages of actions that strengthen strategies to prevent chronic malnutrition.

Our priority operational research focuses for chronic malnutrition and prevention are aligned with Action against Hunger- Spain research strategy, and with some of the evidence gaps already identified in the bibliography (84–86).

The challenges identified are concentrated in five research areas within the first and second blocks of the strategy:

(1) **Healthy living**, promote community-based perspectives to optimize coverage of, and access to, basic services and nutritional care;

and (2) **Sustainable future**, resilience and prevention of malnutrition from a community-based perspective.

PRIORITY OPERATIONAL RESEARCH FOCUSES:

Block 1 Healthy living

Promote community-based perspectives to optimize coverage of, and access to, basic services and nutritional care.

- > More cost-effective RUTF alternative formulas.
- What are the actions, complementary to the ICCM+ intervention, to achieve a greater impact on malnutrition-related morbidity and mortality at the community level?

Focus 1 Nutritional supplementation products and strategies

Currently existing recommended products and formulas need to be improved and adapted to the needs of the population groups most affected by chronic malnutrition. There aren't enough product alternatives. A product that is quick and safe to distribute in emergency situations is needed. We are also highly dependent on food distributions that are expensive and risky in certain contexts.

It is also necessary to improve strategies that break down the barriers the population have on accessing services where these products or foods are provided. It is necessary to break away from the verticality of the interventions and deploy actions and strategies integrated into already existing and accessible programs or structures.

Working hypothesis:

H1: The new maternal and infant nutritional supplementation products for the prevention of chronic malnutrition will increase our impact, while reducing intervention costs.

H2: The service delivery strategy based on community health workers allows greater efficiency in prevention actions including the distribution of supplementation products.

Block 2 Sustainable future

Resilience and prevention of malnutrition from a community perspective.

- Prevention actions that should be applied along with treatment.
- Interventions that strengthen systems and facilitate access to quality nutrition.

Focus 2 High-impact and scalable cost-effective interventions

It is necessary to identify a minimal package of actions with great impact to reduce the risk of suffering from any type of malnutrition and specifically chronic malnutrition. Current intervention models are too generic or fail to identify the key actions to be deployed within the different windows of opportunity. It is necessary to improve the efficiency of interventions and steer away from the emergency approach.

Working hypothesis:

H3: Actions on promotion and protection of exclusive breastfeeding is an opportunity to improve efficiency on preventing chronic malnutrition.

H4: Developing a minimum package of activities at the community level within the 1000-day window would improve the efficiency of the intervention.

H5: Developing a minimum package of activities at the community level during the adolescence window of opportunity would improve the efficiency of the intervention.

4.3. ADVOCACY AREA

Addressing chronic malnutrition is contributing to human and social development by addressing one of the biggest public health problems today globally. Chronic malnutrition reflects the existence of constant and entrenched structural problems, at the social and political level, which lie at the base of the causal tree. It is the cause and consequence of perverse socio-political dynamics, poverty, social instability and violence.

Thus, the response to chronic malnutrition necessarily involves building capacities and transforming systems, working from a rights-centred approach (especially in sexual and reproductive health) and addressing major issues such as universal health coverage or free access to the population, among others.

For this reason, this approach also translates into concrete advocacy actions that pursue the following results:

R1: Promotion and improvement of chronic malnutrition- sensitive policies.

Action against Hunger will contribute to the reviewing of protocols on chronic malnutrition and prevention and participate in public consultations whenever possible. We will increase the visibility and focus on the problem as a nutritional emergency and a condition for the development of people and nations. The position of Action against Hunger in Cluster mechanisms is fundamental for this result.

Actions aimed at greater and better cross-sector and multisectoral financing in chronic malnutrition will be promoted. Discussions and a greater commitment of stakeholders will be pushed on the topic in scientific or advocacy technical forums.

R2: Incorporate actions that aim to prevent and eliminate gender-based violence.

All interventions carried out by Action against Hunger will incorporate actions that strive for this result. It is key to having an impact on reducing chronic malnutrition with a prevention approach.

To this end, incorporating actions that contribute to ending gender-based violence into policies and action plans will be a priority demand in all Action against Hunger's advocacy spaces.

R3: Advocate for initiatives that promote a healthy environment.

Being able to live in a healthy environment is key to reduce chronic malnutrition. Action against Hunger has an environmental policy that will be defended in every advocacy spaces.

R4: Networking and collaboration with other multisectoral actors.

Networks will be promoted to make visible the problem of chronic malnutrition, the opportunities and possible solutions. The group with the greatest relevance and capacity for impact on the subject will be identified and participation will be considered.

Technical discussion tables will be established in the R4Nut space and in the biannual Together Against Hunger meeting to raise awareness among donors and partners.

R5: Internal communication and sensitisation, at Action against Hunger and in the International network.

Awareness and advocacy actions will be developed at the internal level of the organization. Projects with chronic malnutrition and prevention approaches are still scarce or unstructured in the different missions and contexts. To meet this result, tools and specific support will be put in place aimed at improving operationalization. We will work with missions to raise awareness and for the incorporation of the subject within their strategies and programmatic approaches.

Lastly, the topic will be incorporated into the training for all technicians. This will allow us to generate a greater understanding about the problem and the preventive and multisectoral approach.

HOW TO MAKE THE THEORY OF CHANGE OPERATIONAL: MODALITIES FRAMEWORK FOR A PREVENTIVE AND MULTISECTORAL APPROACH

Action against Hunger has a Technical Programming Framework (TPF) that is made up of different modalities that make the design and implementation of programmes and multi-sector interventions easier. These modalities, classified into three axes of actions, describe the reference standard for the implementation of the different technical solutions, in line with international recommendations. The framework described to address chronic malnutrition is multisectoral and its actions can be included in different intervention modalities from different sectors.

A proposal of modalities of intervention for a preventive and multisectoral approach to chronic malnutrition is presented in Table 1. The selected modalities respond to the actions previously described in the theory of change (Figure 3) and are the modalities that have the greatest expected impact on chronic malnutrition according to the revised literature.

Some modalities of direct provision of health services are included given the importance of ensuring basic reproductive, maternal, infant and child health care in situations where functional health structures are not available or not accessible, as well as protection of IYCF in emergencies. Table 2 shows, as an example, two possible scenarios differentiated by the situation of access to health services.

The objective of providing this framework of intervention modalities is to assist teams and missions in the formulation of programme proposals that, in line with the technical programming framework, seek to reduce chronic malnutrition from a preventive and multisectoral approach. However, the formulation of programs should be adapted to each specific strategy and context and the most relevant modalities will be selected based on at least the following criteria:

CRITERION 1	CRITERION 2	CRITERION 3
Alignment with the mission strategy.	Identified needs and analysis of context-specific direct and underlying causes.	Complementarity with other actors in the field or other ongoing projects.
The framework of action in each context is regulated by the strategy that each mission has defined. This not only considers needs but also opportunities for implementation as a humanitarian actor.	It is necessary to do a causality analysis or to know the direct and underlying factors in order to establish the best possible intervention framework. The intervention must be adapted to these unmet needs and to the specific causality of the context.	Action against Hunger must give added value to its interventions. Thus, it must consider the intervention ecosystem and build on complementarity with other projects already underway. In this framework it is essential to develop the localization approach of the organization.

AXIS	PROGRAMME	INTERVENTION	MODALITY
			Restoration of the capacity of primary care services for reproductive, maternal, infant and child health
		Health and nutrition rapid responses	Direct and mobile provision of reproductive, maternal, infant and child health services
	Health and nutrition		IYCF- E
PROTECT	III (EL VEILLIOII)		Micronutrients
LIVES	<u> </u>	Feeding interventions	Blanket feeding
		Disease prevention within WASH and nutritional structures	Health promotion in health and nutritional settings
			Cash based interventions
	Ensure coverage of basic needs	Health Care / WASH / FSL	Psychosocial support
			Health promotion outside of health and nutritional structures
		Knowledge and practices of maternal	IYCF
		and infant health care	BabyWASH
	Changes in knowledge and practices		Wash&Nut&Health Behaviour Change
PROMOTE	-	Self-confidence and empowerment	Decision-making at home
CAPABILITIES			Personal leadership
			Strengthening primary care services
	Reinforcement of essential services	Reinforcement of essential services	WASH Strengthening: Water and Sanitation
			MAMI / MIYCN (Management of At-risk Mothers and Infants)
TRANSFORM SYSTEMS	Institutional strengthening and policy-facilitating environment	Strengthening of institutions	Technical assistance to public institutions

Note: In **blue**, there are eight modalities for the nutrition and health sector; in **green**, three modalities for the WASH sector; in **orange**, six modalities that are intersectoral, for the food security or livelihoods sector; and in **grey**, there is a modality for advocacy. The selection of priority modalities presented here is not exclusive of others that are considered by the teams based on the criteria previously described.

SCENARIO

reproductive, maternal, infant and child health services **Development** context in which there are **functional** and / or the population has access to them.

existing functional reproductive, maternal, infant and child health An emergency or prolonged crisis situation in which there are no services, and / or the population has reduced access to them.

SCENARIO

Capacity restoration of reproductive, maternal, newborn, and child primary health care services Direct and mobile reproductive, maternal, newborn and child health service provision Protection of Infant and Young Child Feeding in Emergencies (IYCF-E)

Micronutrients strengthening in specific target groups within the family in emergencies and crisis

Health promotion in health care and nutritional settings

Blanket feeding

Health promotion outside of health care and nutritional settings

Health promotion outside of health care and nutritional settings

Multipurpose cash assistance

Health promotion in health care and nutritional settings

Promotion of infant and young child feeding (IYCF)

Primary health care services strengthening

sychosocial support based on gender and protection approach

Multipurpose cash assistance

Sychosocial support based on gender and protection approach

BabyWASH

Behavior change

Household decision making

Personal leadership

Water and sanitation services strengthening

MAMI (Management of At-risk Mothers and Infants under six months)

access to essential services

Nater and sanitation services strengthening

Household decision making

Behavior change

BabyWASH

ersonal leadership

echnical assistance of public institutions for of policies aimed at universal access to essential services echnical assistance of public institutions for of policies aimed at universal

TABLE 2. Example of adaptation of the proposed modalities to different scenarios of access and functionality of reproductive, maternal, infant and child health services.

FOR CHILDREN THAT GROW UP STRONG, AGAINST LIVES CUT SHORT.

Action against Hunger's mission is to "save, improve and protect lives by eliminating hunger, through prevention, detection and treatment", go from "crisis to sustainability", address the causes and effects and provide "long term solutions".

Our strategy calls on us to save and protect lives, enhance capacities and resilience from both a curative and preventive approach, and promote innovative solutions.

We are a coherent and efficient network and will continue to expand our technical expertise and knowledge to achieve greater impact from our programmes and interventions (87).

PREVENTING AND ADDRESSING
CHRONIC MALNUTRITION MEANS
IMPROVING THE HEALTH OF MOTHERS,
CHILDREN AND THE ENTIRE COMMUNITY.

IT MEANS PROMOTING EQUAL OPPORTUNITIES TO END POVERTY AND HUNGER.



BIBLIOGRAPHY

- WHO child growth standards: length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: methods and development [Internet]. Available at: https://www.who.int/publications-detailredirect/924154693X
- 2. Stunting in a nutshell [Internet]. Available at: https://www.who.int/news/item/19-11-2015-stunting-in-a-nutshell
- 3. 2021 Global Nutrition Report [Internet]. Available at: https://globalnutritionreport.org/reports/2021-global-nutrition-report/
- 4. UNICEF-WHO-World Bank: Joint Child Malnutrition Estimates 2021 edition interactive dashboard [Internet]. UNICEF DATA. 2021. Available at: https://data.unicef.org/resources/joint-child-malnutrition-estimates-interactive-dashboard-2021/
- 5. Data Warehouse [Internet]. UNICEF DATA. Available at: https://data.unicef.org/resources/data_explorer/unicef_f/
- 6. 2020 Global Nutrition Report [Internet]. Available at: https://globalnutritionreport.org/reports/2020-global-nutrition-report/
- 7. Resolutions and decisions. Annexes. Sixty-fifth World Health Assembly [Internet]. 2012. Available at: https://apps.who.int/gb/ebwha/pdf_files/WHA65-REC1/A65_REC1-en.pdf
- 8. Comprehensive implementation plan for maternal, infant and young child nutrition [Internet]. Ginebra: Organización Mundial de la Salud; 2014. Report No.: WHO/NMH/NHD/14.1. Available at: https://apps.who.int/iris/bitstream/handle/10665/113048/WHO_NMH_NHD_14.1_eng.pdf
- 9. Network (ENN) EN. Time for a change: Can we prevent more children from becoming stunted in countries affected by crisis? A briefing note for policy-makers and programme implementers. 25 April 2019; Available at: https://www.ennonline.net/resources/timeforachange
- 10. Improving early childhood development: WHO guideline, WHO ECD guideline [Internet]. Available at: https://www.who.int/publications-detail-redirect/97892400020986
- 11. de Onis M, Branca F. Childhood stunting: a global perspective. Matern Child Nutr. 17 May 2016;12(Suppl 1):12-26.
- 12. Childhood stunting Joint article from UNICEF, WFP, WHO and FAO [Internet]. 2017. Available at: https://scalingupnutrition.org/news/childhood-stunting-joint-article-from-unicef-wfp-who-and-fao/
- 13. Black RE, Allen LH, Bhutta ZA, Caulfield LE, Onis M de, Ezzati M, et al. Maternal and child undernutrition: global and regional exposures and health consequences. The Lancet. 19 January 2008;371(9608):243-60.
- 14. Childhood Stunting: Challenges and Opportunities [Internet]. Ginebra: OMS; 2014. Available at: https://apps.who.int/iris/bitstream/handle/10665/107026/WHO_NMH_NHD_GRS_14.1_eng.pdf?sequence=1
- 15. Leroy JL, Frongillo EA. Perspective: What Does Stunting Really Mean? A Critical Review of the Evidence. Adv Nutr. 1 March 2019;10(2):196-204.
- 16. Prendergast AJ, Humphrey JH. The stunting syndrome in developing countries. Paediatr Int Child Health. April 2014;34(4):250-65.
- 17. Olofin I, McDonald CM, Ezzati M, Flaxman S, Black RE, Fawzi WW, et al. Associations of Suboptimal Growth with All-Cause and Cause-Specific Mortality in Children under Five Years: A Pooled Analysis of Ten Prospective Studies. PLOS ONE. 29 May 2013;8(5):e64636.
- 18. Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, Onis M de, et al. Maternal and child undernutrition and overweight in low-income and middle-income countries. The Lancet. 3 August 2013;382(9890):427-51.
- 19. Briend A, Khara T, Dolan C. Wasting and Stunting—Similarities and Differences: Policy and Programmatic Implications. Food Nutr Bull. March 2015;36(1_suppl1):S15-23.
- 20. Galasso E, Wagstaff A. The Aggregate Income Losses from Childhood Stunting and the Returns to a Nutrition Intervention Aimed at Reducing Stunting. :38.
- 21. Hoddinott J, Alderman H, Behrman JR, Haddad L, Horton S. The economic rationale for investing in stunting reduction. Matern Child Nutr. 2013;9(S2):69-82.
- 22. The Cost of Malnutrition: why policy action is urgent [Internet]. Londres: Global Panel on Agriculture and Food Systems for Nutrition; 2016. Available at: https://glopan.org/sites/default/files/pictures/CostOfMalnutrition.pdf
- 23. Akseer N, Tasic H, Onah MN, Wigle J, Rajakumar R, Sanchez-Hernandez D, et al. Economic costs of childhood stunting to the private sector in low- and middle-income countries. eClinicalMedicine [Internet]. 1 March 2022;45. Available at: https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(22)00050-5/fulltext
- 24. Research Topics: Reproductive Health and Mental Health in LMICS: Women's Health. Front Glob Womens Health [Internet]. Available at: https://www.frontiersin.org/research-topics/36005/reproductive-health-and-mental-health-in-lmics-womens-health#overview
- 25. Maternal mental health and child health and development in low- and middle-income countries [Internet]. Available at: https://www.who.int/publications-detail-redirect/9789241597142

- 26. Marphatia AA, Cole TJ, Grijalva-Eternod C, Wells JCK. Associations of gender inequality with child malnutrition and mortality across 96 countries. Glob Health Epidemiol Genomics. 23 March 2016;1:e6.
- 27. Fourth Report on The World Nutrition Situation: Nutrition throughout the Life Cycle [Internet]. Ginebra: ACC/SCN in collaboration with IFPRI; 2000 p. 144. Available at: https://www.unscn.org/layout/modules/resources/files/rwns4.pdf
- 28. Wells JC, Sawaya AL, Wibaek R, Mwangome M, Poullas MS, Yajnik CS, et al. The double burden of malnutrition: aetiological pathways and consequences for health. The Lancet. 4 January 2020;395(10217):75-88.
- 29. The double burden of malnutrition: policy brief [Internet]. Available at: https://www.who.int/publications-detail-redirect/WHO-NMH-NHD-17.3
- 30. Shrimpton R, Rokx C. The Double Burden of Malnutrition: A Review of Global Evidence [Internet]. Washington, DC: World Bank; November 2012. Available at: https://openknowledge.worldbank.org/handle/10986/27417
- 31. Keats EC, Das JK, Salam RA, Lassi ZS, Imdad A, Black RE, et al. Effective interventions to address maternal and child malnutrition: an update of the evidence. Lancet Child Adolesc Health. May 2021;5(5):367-84.
- 32. Stewart CP, Iannotti L, Dewey KG, Michaelsen KF, Onyango AW. Contextualising complementary feeding in a broader framework for stunting prevention. Matern Child Nutr. September 2013;9 Suppl 2:27-45.
- 33. UNICEF Conceptual Framework [Internet]. Available at: https://www.unicef.org/documents/conceptual-framework-nutrition
- 34. Christian P, Lee SE, Donahue Angel M, Adair LS, Arifeen SE, Ashorn P, et al. Risk of childhood undernutrition related to small-for-gestational age and preterm birth in low- and middle-income countries. Int J Epidemiol. 1 October 2013;42(5):1340-55.
- 35. Preprint: Early childhood linear growth faltering in low- and middle-income countries. Available at: https://scholar.google.com/scholar_lookup?title=Early+childhood+linear+growth+failure+in+low-+and+middle-income+countries&author=Benjamin-chung,+J.&author=Mertens,+A.&author=Colford,+J.M.,+Jr.&author=Hubbard,+A.E.&author=van+der+Laan,+M.J.&author=Coyle,+J.&author=Sofrygin,+O.&author=Cai,+W.&author=Nguyen,+A.&author=Pokpongkiat,+N.N.&publication_year=2020&journal=medRxiv&doi=10.1101/2020.06.09.20127001
- 36. Preprint: Causes and consequences of child growth failure in low-and middle-income countries [Internet]. Available at: https://scholar.google.com/scholar_lookup?title=Risk+factors+and+impacts+of+child+growth+failure+in+low-+and+-middle-income+countries&author=Mertens,+A.&author=Benjamin-Chung,+J.&author=Colford,+J.M.,+Jr.&author=Co-yle,+J.&author=van+der+Laan,+M.J.&author=Hubbard,+A.E.&author=Rosete,+S.&author=Malenica,+I.&author=Heja-zi,+N.&author=Sofrygin,+O.&publication_year=2020&journal=medRxiv&doi=10.1101/2020.06.09.20127100
- 37. Namirembe G, Ghosh S, Ausman LM, Shrestha R, Zaharia S, Bashaasha B, et al. Child stunting starts in utero: Growth trajectories and determinants in Ugandan infants. Matern Child Nutr. n/a(n/a):e13359.
- 38. Fisher J, Cabral de Mello M, Patel V, Rahman A, Tran T, Holton S, et al. Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: a systematic review. Bull World Health Organ. 1 February 2012;90(2):139-149H.
- 39. Wemakor A, Garti H, Azongo T, Garti H, Atosona A. Young maternal age is a risk factor for child undernutrition in Tamale Metropolis, Ghana. BMC Res Notes. December 2018;11(1):877.
- 40. Surkan PJ, Kennedy CE, Hurley KM, Black MM. Maternal depression and early childhood growth in developing countries: systematic review and meta-analysis. Bull World Health Organ. 1 August 2011;89(8):608-615E.
- 41. Damtie Y, Kefale B, Yalew M, Arefaynie M, Adane B. Short birth spacing and its association with maternal educational status, contraceptive use, and duration of breastfeeding in Ethiopia. A systematic review and meta-analysis. PLOS ONE. 3 February 2021;16(2):e0246348.
- 42. Anato A, Baye K, Tafese Z, Stoecker BJ. Maternal depression is associated with child undernutrition: A cross-sectional study in Ethiopia. Matern Child Nutr [Internet]. July 2020 [cited on 4 January 2022];16(3). Available at: https://onlinelibrary.wiley.com/doi/10.1111/mcn.12934
- 43. Das D, Grais RF, Okiro EA, Stepniewska K, Mansoor R, van der Kam S, et al. Complex interactions between malaria and malnutrition: a systematic literature review. BMC Med. 29 October 2018;16(1):186.
- 44. Godha D, Tharaney M, Nanama S, Sanghvi T, Laillou A, Diop FT, et al. The Association between Iron and Folic Acid Supplementation and Malaria Prophylaxis and Linear Growth among Children and Neonatal Mortality in Sub-Saharan Africa—A Pooled Analysis. Nutrients. January 2022;14(21):4496.
- 45. Checkley W, Buckley G, Gilman RH, Assis AM, Guerrant RL, Morris SS, et al. Multi-country analysis of the effects of diarrhoea on childhood stunting. Int J Epidemiol. 1 August 2008;37(4):816-30.
- 46. Danaei G, Andrews KG, Sudfeld CR, Fink G, McCoy DC, Peet E, et al. Risk Factors for Childhood Stunting in 137 Developing Countries: A Comparative Risk Assessment Analysis at Global, Regional, and Country Levels. PLoS Med. November 2016;13(11):e1002164.
- 47. Budge S, Parker AH, Hutchings PT, Garbutt C. Environmental enteric dysfunction and child stunting. Nutr Rev. April 2019;77(4):240-53.
- 48. Guerrant RL, DeBoer MD, Moore SR, Scharf RJ, Lima AAM. The impoverished gut—a triple burden of diarrhoea, stunting and chronic disease. Nat Rev Gastroenterol Hepatol. April 2013;10(4):220-9.

- 49. Waller A, Lakhanpaul M, Godfrey S, Parikh P. Multiple and complex links between babyWASH and stunting: an evidence synthesis. J Water Sanit Hyg Dev. 1 December 2020;10(4):786-805.
- 50. Chowdhury R, Sinha B, Sankar MJ, Taneja S, Bhandari N, Rollins N, et al. Breastfeeding and maternal health outcomes: a systematic review and meta-analysis. Acta Paediatr. 2015;104(S467):96-113.
- 51. Campos AP, Vilar-Compte M, Hawkins SS. Association Between Breastfeeding and Child Stunting in Mexico. Ann Glob Health. 86(1):145.
- 52. Khan MdN, Islam MM. Effect of exclusive breastfeeding on selected adverse health and nutritional outcomes: a nationally representative study. BMC Public Health. 21 November 2017;17(1):889.
- 53. García Cruz LM, González Azpeitia G, Reyes Súarez D, Santana Rodríguez A, Loro Ferrer JF, Serra-Majem L. Factors Associated with Stunting among Children Aged 0 to 59 Months from the Central Region of Mozambique. Nutrients. May 2017;9(5):491.
- 54. Victora CG, de Onis M, Hallal PC, Blössner M, Shrimpton R. Worldwide Timing of Growth Faltering: Revisiting Implications for Interventions. Pediatrics. 1 March 2010;125(3):e473-80.
- 55. Dewey KG, Huffman SL. Maternal, infant, and young child nutrition: combining efforts to maximize impacts on child growth and micronutrient status. Food Nutr Bull. June 2009;30(2 Suppl):S187-189.
- 56. Nirmala Rao en R Carrie Lau, Ann M Weber, Jin Sun, Gary L Darmstadt, Alanna Sincovich, John Bacon Shone & Patrick Ip. Associations among Early Stimulation, Stunting, and Child Development in Four Countries in the East Asia-Pacific. Int J Early Child. 2020;52:175-93.
- 57. Nurturing care for early childhood development [Internet]. Available at: https://www.who.int/publications-detail-redirect/9789241514064
- 58. Jeong J, Franchett EE, Oliveira CVR de, Rehmani K, Yousafzai AK. Parenting interventions to promote early child development in the first three years of life: A global systematic review and meta-analysis. PLOS Med. 10 May 2021;18(5):e1003602.
- 59. Walker SP, Chang SM, Powell CA, Simonoff E, Grantham-McGregor SM. Effects of psychosocial stimulation and dietary supplementation in early childhood on psychosocial functioning in late adolescence: follow-up of randomised controlled trial. BMJ. 2 September 2006;333(7566):472.
- 60. The Adolescent Brain: A second window of opportunity A Compendium World | ReliefWeb [Internet]. Available at: https://reliefweb.int/report/world/adolescent-brain-second-window-opportunity-compendium
- 61. Prentice AM, Ward KA, Goldberg GR, Jarjou LM, Moore SE, Fulford AJ, et al. Critical windows for nutritional interventions against stunting. Am J Clin Nutr. May 2013;97(5):911-8.
- 62. World Health Organization. Guideline: implementing effective actions for improving adolescent nutrition [Internet]. World Health Organization; 2018. 58 p. Available at: https://apps.who.int/iris/handle/10665/260297
- 63. Adolescent pregnancy [Internet]. Available at: https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy
- 64. Economic Impacts of Child Marriage: Global Synthesis Report World | ReliefWeb [Internet]. Available at: https://reliefweb.int/report/world/economic-impacts-child-marriage-global-synthesis-report
- 65. Digital S. Engaging Adolescents to Accelerate Progress on the first 1,000 Days [Internet]. Save the Children's Resource Centre. Available at: https://resourcecentre.savethechildren.net/pdf/engaging_adolescents_to_accelerate_progress_on_the first 1000 days.pdf/
- 66. Innocenti UO of R. Handbook of Adolescent Development Research and Its Impact on Global Policy [Internet]. UNICEF-IRC. Available at: https://www.unicef-irc.org/publications/987-handbook-of-adolescent-development-research-and-its-impact-on-global-policy.html
- 67. Health Promotion Glossary of Terms 2021 [Internet]. 2021. Available at: https://www.who.int/publications-detail-redirect/9789240038349
- 68. Plan Estratégico Internacional 2021-2025 [Internet]. Acción Contra el Hambre; Available at: https://nohungerforum. sharepoint.com/acfin/d4/Forms/AllItems.aspx?id=%2Facfin%2Fd4%2F3%2E%20International%20Strategic%20 Plan%203%202021%2D2025%2FFinal%20document%20ISP%202025%2FAction%20Against%20Hunger%20International%20Strategical%20Plan%202025%2Epdf&parent=%2Facfin%2Fd4%2F3%2E%20International%20 Strategic%20Plan%203%202021%2D2025%2FFinal%20document%20ISP%202025
- 69. Gender considerations in project design: A briefing note on the gender coding scales and gender equality continuum [Internet]. Nutrition International; July 2022. Available at: https://www.nutritionintl.org/wp-content/uploads/2022/08/Gender-Considerations-Briefing-Note-FINAL-1.pdf

- 70. Política de Igualdad de Género. Red Internacional de Acción Contra el Hambre. [Internet]. 2021. Available at: https://nohungerforum.sharepoint.com/sites/GENERO/Policies%20%20Protcols/Forms/AllItems.aspx?id=%2Fsites%2FGENERO%2FPolicies%20%20Protcols%2FGender%20 Policy%2F2021%2FAAH%2DGender%20equality%20Policy%5FESP%2Epdf&viewid=49570b11%2D16ea-%2D4bdd%2D88f4%2D99a5ffbd9167&parent=%2Fsites%2FGENERO%2FPolicies%20%20Protcols%2FGender%20 Policy%2F2021
- 71. Yaya S, Odusina EK, Uthman OA, Bishwajit G. What does women's empowerment have to do with malnutrition in Sub-Saharan Africa? Evidence from demographic and health surveys from 30 countries. Glob Health Res Policy. December 2020;5(1):1.
- 72. Siddiqui F, Salam RA, Lassi ZS, Das JK. The Intertwined Relationship Between Malnutrition and Poverty. Front Public Health. 28 August 2020;8:453.
- 73. WHO recommendations on antenatal care for a positive pregnancy experience [Internet]. Available at: https://www.who.int/publications-detail-redirect/9789241549912
- 74. WHO recommendations on maternal and newborn care for a positive postnatal experience [Internet]. Available at: https://www.who.int/publications-detail-redirect/9789240045989
- 75. Nutrition and development : a global assessment [Internet]. Available at: https://apps.who.int/iris/handle/10665/61044
- 76. Asia S, Engle P. The Role of Caring Practices and Resources for Care in Child Survival, Growth,.
- 77. Conceptual Models of Child Malnutrition. The ACF approach in mental health and care practices [Internet]. 2013. Available at: https://www.actionagainsthunger.org/sites/default/files/publications/Conceptual_Models_of_Child_Malnutrition_The_ACF_approach_in_mental_health_and_care_practices_01.2013.pdf
- 78. WHO antenatal care recommendations for a positive pregnancy experience. Nutritional interventions update: Multiple micronutrient supplements during pregnancy [Internet]. Ginebra: Organización Mundial de la Salud; 2020. Available at: https://www.who.int/publications-detail-redirect/9789240007789
- 79. Nutritional interventions update: zinc supplements during pregnancy [Internet]. Available at: https://www.who.int/publications-detail-redirect/9789240030466
- 80. Nutritional interventions update: vitamin D supplements during pregnancy [Internet]. Available at: https://www.who.int/publications-detail-redirect/9789240008120
- 81. Gharpure R, Mor SM, Viney M, Hodobo T, Lello J, Siwila J, et al. A One Health Approach to Child Stunting: Evidence and Research Agenda. Am J Trop Med Hyg. 8 March 2021;104(5):1620-4.
- 82. One health [Internet]. Available at: https://www.who.int/health-topics/one-health
- 83. Sawyer ADM, van Lenthe F, Kamphuis CBM, Terragni L, Roos G, Poelman MP, et al. Dynamics of the complex food environment underlying dietary intake in low-income groups: a systems map of associations extracted from a systematic umbrella literature review. Int J Behav Nutr Phys Act. 13 July 2021;18(1):96.
- 84. Rueda-Guevara P, Botero-Tovar N, Trujillo KM, Ramírez A. Worldwide evidence about infant stunting from a public health perspective: A systematic review. Biomédica. 22 September 2021;41(3):6017-554.
- 85. Raiten DJ, Bremer AA. Exploring the Nutritional Ecology of Stunting: New Approaches to an Old Problem. Nutrients. February 2020;12(2):371.
- 86. Angood C, Khara T, Dolan C, Berkley JA, WaSt Technical Interest Group. Research Priorities on the Relationship between Wasting and Stunting. Bhutta ZA, editor. PLOS ONE. 9 May 2016;11(5):e0153221.
- 87. Plan Estratégico Internacional (ISP3). Acción contra el Hambre. 2021-2025. 2021.

Link to the full bibliography: ACF Chronic malnutrition | Zotero

