



Childhood Stunting: Context, Causes and Consequences

WHO Conceptual framework

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Ref: Stewart CP, Iannotti L, Dewey KG, Michaelsen KF & Onyango AW. Contextualising complementary feeding in a broader framework for stunting prevention. *Maternal and Child Nutrition* 2013;9(Suppl 2):27-45.

Concurrent problems & short-term consequences

Health

↑ Mortality
↑ Morbidities

Developmental

↓ Cognitive, motor,
and language
development

Economic

↑ Health
expenditures
↑ Opportunity costs
for care of sick child

Long-term consequences

Health

↓ Adult stature
↑ Obesity and
associated co-
morbidities
↓ Reproductive
health

Developmental

↓ School
performance
↓ Learning capacity
Unachieved
potential

Economic

↓ Work capacity
↓ Work productivity

Stunted Growth and Development

Household and family factors

Maternal factors

- Poor nutrition during pre-conception, pregnancy and lactation
- Short maternal stature
 - Infection
- Adolescent pregnancy
 - Mental health
- IUGR and preterm birth
 - Short birth spacing
 - Hypertension

Home environment

- Inadequate child stimulation and activity
- Poor care practices
- Inadequate sanitation and water supply
- Food insecurity
- Inappropriate intra-household food allocation
- Low caregiver education

Inadequate Complementary Feeding

Poor quality foods

- Poor micronutrient quality
- Low dietary diversity and intake of animal-source foods
- Anti-nutrient content
- Low energy content of complementary foods

Inadequate practices

- Infrequent feeding
- Inadequate feeding during and after illness
- Thin food consistency
- Feeding insufficient quantities
- Non-responsive feeding

Food and water safety

- Contaminated food and water
- Poor hygiene practices
- Unsafe storage and preparation of foods

Breastfeeding

Inadequate practices

- Delayed initiation
- Non-exclusive breastfeeding
- Early cessation of breastfeeding

Infection

Clinical and subclinical infection

- Enteric infection: Diarrhoeal disease, environmental enteropathy, helminths
- Respiratory infections
 - Malaria
- Reduced appetite due to infection
- Inflammation

Community and societal factors

Political economy

- Food prices and trade policy
- Marketing regulations
 - Political stability
- Poverty, income and wealth
 - Financial services
 - Employment and livelihoods

Health and Healthcare

- Access to healthcare
- Qualified healthcare providers
- Availability of supplies
 - Infrastructure
- Health care systems and policies

Education

- Access to quality education
 - Qualified teachers
- Qualified health educators
- Infrastructure (schools and training institutions)

Society and Culture

- Beliefs and norms
- Social support networks
- Child caregivers (parental and non-parental)
- Women's status

Agriculture and Food Systems

- Food production and processing
- Availability of micronutrient-rich foods
- Food safety and quality

Water, Sanitation and Environment

- Water and sanitation infrastructure and services
- Population density
- Climate change
- Urbanization
- Natural and manmade disasters