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Review Article

Triple burden malnutrition in Africa: A narrative review of trends and challenges

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Highlights/Key Messages

- TBM is rising across Africa, with multiple burdens coexisting in households
- Inequality, urbanisation and gender gaps are key structural drivers of TBM
- Overweight/obesity is increasing while undernutrition and anaemia persist
- Integrated double- and triple-duty actions are needed, not siloed programmes
- Stronger surveillance and food-system governance can accelerate TBM reduction

Background
Malnutrition in Africa presents an increasingly complex public health dilemma characterised by the coexistence of undernutrition, overnutrition, and micronutrient deficiencies, a phenomenon now recognised as the triple burden of malnutrition (TBM).

Objective
To synthesise evidence on the prevalence, trends, determinants and policy responses related to the triple burden of malnutrition across Africa, with attention to how undernutrition, overweight/obesity and micronutrient deficiencies coexist at individual, household and population levels.

Methods
This narrative review synthesises evidence from demographic and health surveys, regional studies, and peer-reviewed research conducted across Sub-Saharan and North Africa to examine prevalence trends, determinants, and policy responses.

Results
While childhood stunting and wasting remain widespread in East and West Africa, adult overweight and obesity are rising sharply in urban centres. Micronutrient deficiencies, particularly of vitamin A and zinc, continue to affect more than half of women and children across many African countries; anaemia is also common and is often largely caused by iron deficiency. Country-specific studies demonstrate distinct yet overlapping patterns that are sensitive to how TBM is operationalised (e.g., whether all three components must co-occur within the same mother–child pair), highlighting the importance of specifying the TBM level when interpreting prevalence estimates. In Ethiopia, spatial clustering of stunting, obesity, and micronutrient deficits indicates strong geo-ecological influences, and in South Africa, stunting and obesity coexist in over one-third of households.

Conclusions
The review identifies socioeconomic inequality, urbanisation, gender disparity, and weak food-system governance as common structural drivers of the triple burden of malnutrition (TBM). Without integrated, multisectoral interventions linking agriculture, health, education, and social protection, the continent risks deepening the nutrition inequality divide. Tackling the triple burden is essential to achieving Sustainable Development Goal 2 (Zero Hunger) and Goal 3 (Good Health and Well-Being) and to realising the African Union's Agenda 2063 vision for a healthy and productive population

Keywords: undernutrition, obesity, micronutrient deficiency, Sub-Saharan Africa, public health, SDG 2

Introduction

Malnutrition remains one of Africa's most persistent and multifaceted public health challenges (WHO, 2023). Like one of its causes, food security, it embodies a complex reality that cannot be captured by a single measure (Barrett, 2010). It encompasses a spectrum of conditions ranging from chronic undernutrition and micronutrient deficiencies to rising rates of overweight and obesity. It reflects the combined influence of inadequate food intake, poor dietary quality, and the body's interaction with infections and diseases. Malnutrition affects every organ system (Norman et al., 2021) and can cause irreversible damage to growth, cognitive development, and long-term health outcomes (Forgie et al., 2020). Increasingly, these forms coexist within the same populations, households, and even individuals, creating what scholars describe as the triple burden of malnutrition (TBM) (Steyn & Mchiza 2014; FAO et al., 2025). In this review, we use the term "triple burden of malnutrition (TBM)" in three analytically distinct ways, reflecting how it is operationalised in the literature. First, individual-level TBM refers to an individual experiencing (i) stunting or a history of growth faltering, (ii) overweight/obesity, and (iii) micronutrient deficiency (hidden hunger). Second, household-level TBM refers to the coexistence of different malnutrition forms within the same household (commonly an overweight/obese mother with one or more stunted/underweight and/or anaemic children) as captured, for example, in DHS-type mother–child pair analyses. Third, population/geographic TBM refers to the overlap or clustering of undernutrition, overnutrition, and micronutrient deficiencies within the same communities, districts, or countries, as demonstrated in geospatial and subnational studies. Throughout the manuscript, we specify which TBM level is being discussed to avoid conflating distinct phenomena with different determinants and policy implications.

TBM undermines human development by impairing growth, cognitive potential, and productivity, while simultaneously fuelling non-communicable diseases (NCDs) such as diabetes and hypertension (World Bank, 2024). This coexistence of deprivation and excess has become a defining feature of Africa's nutrition transition. The global nutrition landscape has evolved dramatically over the past three decades. Despite global declines in stunting and wasting, Africa remains the only region where the absolute number of undernourished people continues to rise (FAO et al., 2025). In 2023, about 33% of African children under five were stunted, and nearly half of women of reproductive age were anaemic. Yet, at the same time, rates of overweight and obesity among adults, particularly women, have increased sharply in urban and peri-urban settings. These parallel trajectories illustrate the ongoing nutrition transition characterised by dietary shifts from traditional, fibre-rich foods to highly processed, calorie-dense products coupled with declining physical activity (Christian & Dake, 2021).

Historically, nutrition policy in Africa focused on food quantity rather than quality. However, beginning in the early 2000s, researchers began to describe the coexistence of stunting and obesity within the same communities, and sometimes within the same person, as symptomatic of a deeper systemic imbalance (Steyn & Mchiza, 2014). The triple burden concept later evolved to include micronutrient deficiencies, often termed "hidden hunger," which silently erode health and development outcomes even when caloric intake is adequate. Recent analyses of multi-country Demographic and Health Surveys confirm that all three burdens now overlap within households across the continent (Ahinkorah et al., 2021; Christian & Dake, 2021).

While TBM is beginning to get attention, most relevant evidence in Africa is still reported as separate burdens (stunting/micronutrient deficiency versus overweight/obesity), limiting interpretation of TBM as an integrated syndrome with shared drivers and policy trade-offs. This pan-African narrative consolidates evidence up to 2025, bringing together trend evidence, geo-ecological spatial findings, and cross-cutting 'double- and triple-duty' actions relevant to SDG 2/3 and Agenda 2063.

Methods

This narrative review employed a qualitative synthesis approach to integrate and interpret diverse evidence on the triple burden of malnutrition (TBM) across Africa. It follows established guidance for transparent narrative synthesis, including reproducible search documentation, explicit eligibility criteria, and structured thematic synthesis. The review was not limited by study design but rather by thematic relevance and methodological quality, allowing a broad exploration of epidemiological, sociocultural, and policy dimensions.

Sources of Evidence

The search covered studies published between January 2005 and March 2025, with the final search update completed in March 2025, using a combination of controlled vocabulary and free-text terms such as 'triple burden of malnutrition,' 'undernutrition,' 'obesity,' 'micronutrient deficiency,' 'nutrition transition,' 'Africa,' and 'developing countries.' Search strategies combined controlled vocabulary (where available) and free-text terms using Boolean operators. An example search string applied (and adapted across databases) was: ("triple burden of malnutrition" OR "double burden" OR malnutrition) AND (undernutrition OR stunting OR wasting OR underweight OR overweight OR obesity OR "micronutrient deficiency" OR anaemia OR "hidden hunger" OR "nutrition transition") AND (Africa OR "sub-Saharan Africa" OR "North Africa" OR "developing countries").

Inclusion and Exclusion Criteria

Eligible papers addressed at least one component of TBM (undernutrition, overnutrition, or hidden hunger) and provided evidence from African contexts. Studies published within the review period with primary data, DHS-based secondary analysis, or systematic reviews were included. Reports without empirical evidence or lacking regional specificity were excluded. Reports that also focused exclusively on non-nutritional health outcomes were excluded. Although the main eligibility window focused on 2005–2025 to reflect contemporary TBM evidence, selected foundational conceptual papers (e.g., Steyn & Mchiza 2014) were retained to define TBM and contextualise early framing. The review was restricted to English-language publications due to feasibility constraints; this may have excluded

relevant evidence published in French or Portuguese. A list of the included studies and some of their characteristics is presented in Table 1.

Analytical Approach

A thematic synthesis was conducted, organising evidence around three primary dimensions:

- *Undernutrition*: stunting, wasting, and underweight prevalence and causes.
- *Overweight*: obesity, overweight, and the dietary transition.
- *Hidden Hunger*: micronutrient deficiencies such as vitamin A, iodine, and zinc, as well as anaemia (commonly linked to iron deficiency, although other causes may contribute). For this review, micronutrient deficiency (hidden hunger) was treated as a TBM component when studies reported anaemia or biomarker-defined deficiency (e.g., vitamin A or zinc) using standard thresholds, rather than assumed deficiency.

Data were extracted and synthesised across four geographic subregions (West, East, North, and Southern Africa) to identify both common and region-specific determinants. Findings were then interpreted within the frameworks of the Sustainable Development Goals (SDG 2 & 3) and the African Union's Agenda 2063, providing a holistic view of trends, determinants, and policy gaps.

Table 1. Summary of included studies (n = 33), their key characteristics, and malnutrition components addressed

Author (Year)	Country/Region	Data source / design	Population	Malnutrition component(s) addressed	Key contribution to this review
Addae (2025)	Ghana (West Africa)	DHS secondary analysis (2003–2022)	Children; households	Undernutrition + Overnutrition + Hidden hunger	TBM trend estimate + determinants (education, wealth, diet diversity).
Ahinkorah et al. (2021)	Sub-Saharan Africa	DHS multi-country analysis	Mother–child pairs	Undernutrition + Overnutrition + Hidden hunger	Cross-country prevalence + household predictors of TBM.
Akseer et al. (2022)	LMICs	Economic modelling	Children (stunting)	Undernutrition	Economic cost framing; productivity losses of stunting.
Aljerf & Aljerf (2023)	General	Review / commentary	General	Overnutrition + Hidden hunger	Food product quality links to nutrition outcomes (food environment).
Ameye et al. (2025)	Africa (urban)	Review / food systems	Urban consumers	Overnutrition + Hidden hunger	Urban food environments—access/affordability/convenience/desirability.
Bai et al. (2021)	Global/LMIC-relevant	Review (price datasets)	Consumers	Overnutrition + Hidden hunger	Retail price data for monitoring nutrition-sensitive food systems.
Bailey et al (2015)	Global	Review	General	Hidden hunger	Epidemiology + mechanisms of micronutrient deficiencies.
Bain et al. (2013)	Sub-Saharan Africa	Review	General	Undernutrition	Burden, causes, and prospects—context for persistent undernutrition.
Barrett (2010)	Global	Conceptual / measurement	General	Undernutrition + Hidden hunger	Measurement framing relevant to nutrition vulnerability.
Benson & Shekar (2006)	Sub-Saharan Africa	Book chapter / synthesis	Children	Undernutrition	Trends and structural issues in child undernutrition.
Chilot et al. (2023)	LMICs	Cross-sectional study	Mother–child pairs	Undernutrition + Overnutrition + Hidden hunger	TBM prevalence across LMICs; cross-country variation.
Christian & Dake (2021)	Sub-Saharan Africa	DHS-based profiling	Households	Undernutrition + Overnutrition + Hidden hunger	Household determinants; urbanisation and wealth gradients.
Dessie et al. (2025)	Ethiopia (East Africa)	Bayesian geostatistical analysis	Population / regional	Undernutrition + Overnutrition + Hidden hunger	Hotspot overlap (stunting/overweight/micronutrients) + geo-ecological drivers.
Faber et al. (2014)	South Africa (Southern Africa)	Observational / area comparisons	Preschool children	Undernutrition + Hidden hunger	Vitamin A + anthropometry in settings with distinct dietary patterns.
FAO et al., (2020)	Global/Africa-relevant	Flagship report	General	Undernutrition + Overnutrition + Hidden hunger	Food systems transformation for affordable healthy diets.
Ford et al. (2017)	LMICs	Review	General	Overnutrition	Obesity burden, drivers, and emerging challenges in LMICs.
Forgie et al. (2020)	Global	Review	Maternal/early life	Undernutrition	Early-life malnutrition impacts; diet–microbe mechanisms.
Global Hunger Index (2014)	Global	Report	General	Hidden hunger	High-level framing of hidden hunger (context only).
Heidkamp et al. (2021)	Global	Agenda / policy synthesis	Women & children	Undernutrition	Evidence mobilisation for SDG nutrition targets.
Joint Child Malnutrition Estimates (UNICEF–	Global	Monitoring report	Under-5 children	Undernutrition + Overnutrition	Standard prevalence tracking for stunting/wasting/overweight.

Author (Year)	Country/Region	Data source / design	Population	Malnutrition component(s) addressed	Key contribution to this review
WHO–World Bank) (2022)					
Magne-Domgho et al. (2023)	Africa (Agenda 2063)	Project report	Food systems/trade	Overnutrition + Hidden hunger	Nutrition-sensitive processing & trade (policy alignment).
Martins et al. (2011)	Global	Review	General	Undernutrition	Long-lasting biological/health effects of undernutrition.
Norman et al. (2021)	Global	Review	Older adults	Undernutrition	Life-course/system impacts of malnutrition.
World Health Organization (2024)	Global	Methods / standard methodology	Monitoring systems	Overnutrition + Hidden hunger	JME standard methodology for SDG indicators (definitions/consistency).
Popkin & Ng (2021)	Global	Review	General	Overnutrition	Ultra-processed transition is not inevitable; policy levers exist.
Sserwanja et al. (2021)	Uganda (East Africa)	DHS secondary analysis	Women 20–49	Overnutrition	Urban/risk-factor profile for overweight/obesity in Uganda.
Steyn & Mchiza (2014)	Sub-Saharan Africa	Review	General	Overnutrition	Nutrition transition + obesity drivers in SSA.
Tebekaw et al. (2014)	Ethiopia (East Africa)	Cross-sectional	Women	Undernutrition + Overnutrition	Underweight and overweight coexistence among women.
Tulchinsky (2010)	Global	Review	General	Hidden hunger	Micronutrient deficiency conditions and global health implications.
World Bank (2024)	Africa	Policy report	General	Undernutrition + Overnutrition + Hidden hunger	Systems framing + policy priorities for TBM reduction.
WHO (2023)	Africa	Regional report	General	Undernutrition + Overnutrition + Hidden hunger	Urbanisation/agrifood systems and healthy diets (regional context).

Results and Discussion

To avoid conflating distinct constructs, evidence is presented according to three TBM levels frequently used in the literature: individual-level TBM, household-level TBM, and geographic/population TBM. These represent related but different phenomena with different determinants and policy implications (Ahinkorah et al., 2021; Christian & Dake, 2021; Dessie et al., 2025).

Individual-level TBM refers to the coexistence of markers of undernutrition (especially stunting or a history of growth faltering) with overweight/obesity and micronutrient deficiency within the same person. This pattern is increasingly recognised as part of the nutrition transition and life-course changes in diet and physical activity, and it is not unique to Africa (Steyn & Mchiza, 2014; Popkin & Ng, 2021). In African settings, rapid urbanisation and food-system changes contribute to increased exposure to ultra-processed, energy-dense diets, while early-life nutritional deprivation and infection burden may persist, creating conditions under which growth faltering and later excess adiposity can coexist (Steyn & Mchiza, 2014; Ford et al., 2017; Christian & Dake, 2021). Micronutrient deficiency (hidden hunger) at the individual level is most commonly operationalised in the included evidence using anaemia and/or biomarker-defined deficiencies (e.g., vitamin A or zinc), particularly among children and women of reproductive age (Tulchinsky, 2010; Bailey et al., 2015). Mechanistically, micronutrient deficits may arise not only from inadequate intake but also from impaired absorption and utilisation due to infection, inflammation, and gastrointestinal conditions (Tulchinsky, 2010; Bailey et al., 2015). Evidence from Southern Africa illustrates the persistence of micronutrient deficiencies even in settings with high overweight/obesity. For example, among South African preschool children, vitamin A deficiency and inadequate zinc intake remain important concerns (Faber et al., 2014). Taken together, the individual-level TBM construct highlights a life-course pathway in which early nutritional deprivation and ongoing micronutrient inadequacy can coexist with increasing adiposity in settings undergoing dietary and lifestyle transition (Steyn & Mchiza, 2014; Popkin & Ng, 2021).

Household-level TBM (coexistence within families, mother–child pairs)

Household-level TBM refers to the coexistence of three forms of malnutrition within the same household, commonly assessed through DHS-type mother–child pair analyses. This operationalisation captures intergenerational and intra-household inequalities—such as an overweight/obese mother coexisting with a stunted/underweight and/or anaemic child (Ahinkorah et al., 2021; Christian & Dake, 2021). Multi-country evidence demonstrates that household TBM is present across Sub-Saharan Africa and is patterned by socioeconomic status, education, and living conditions (Ahinkorah et al., 2021). Similarly, evidence from low- and middle-income settings indicates substantial variation across countries, consistent with differing stages of nutrition transition and structural vulnerability (Chilot et al., 2023).

Country-specific evidence from selected African countries demonstrates how household TBM can evolve over time. In Ghana, for example, DHS-based analyses show part of how TBM prevalence may change over the 2003–2022 period (Table 2). While Table 2 does not include information on micronutrient deficiency, young child stunting gradually decreased in Ghana during this period, as did the proportion of mothers with normal BMI levels (with overweight rather than maternal malnutrition likely explaining this change).

The table also provides indications of two potential determinants, maternal education and family wealth quintile. Determinants also include dietary diversity (Addae et al., 2025). Across Sub-Saharan Africa, household TBM is also linked to sanitation constraints and health-service access, as well as food-environment shifts that increase the availability of low-cost ultra-processed foods and low affordability of nutrient-dense diets (Ahinkorah et al., 2021; Christian & Dake, 2021; Bai et al., 2021). Country-specific evidence from Nigeria similarly shows that mothers' nutrition knowledge and household food security are associated with dietary diversity—factors that plausibly influence household-level TBM patterns through diet quality and resource constraints (Ogunniyi & Okoye, 2025). These household-level findings underscore that TBM is often rooted in the simultaneous presence of deprivation (child growth faltering, anaemia) and excess (maternal overweight/obesity), reflecting both constrained diet quality and broader structural inequities (Ahinkorah et al., 2021; Christian & Dake, 2021; Addae et al., 2025).

It should be noted that the interpretation of determinants is less clear for TBM than for each component separately. For example, increases in poverty will lead to increases in child malnutrition and micronutrient deficiencies, but decreases in maternal overweight.

Table 2. Determinants (distribution) for household-level TBM: maternal education and household wealth (DHS; most recent to oldest).

				Education (2 groups)		Wealth quintile				
Country	Survey	Children stunted	Women with normal BMI (18.5-24.9)	No education or primary	Secondary or higher	Lowest	Second	Middle	Fourth	Highest
Angola	2023-24 DHS	39.9	64.4	67.3	62.2	73.5	73.1	67.9	60.2	55.2
Angola	2015-16 DHS	37.6	NA	NA	NA	NA	NA	NA	NA	NA
Cameroon	2018 DHS	28.9	56.8	60.9	53.2	76.9	68	58.4	47.7	42.4
Cameroon	2011 DHS	32.5	60.9	63.8	57.8	75.2	70.9	61.3	56.7	49.4
Cameroon	2004 DHS	35.3	64.6	67.4	60.4	77.4	73.1	67.5	58.7	52.4
Cameroon	1998 DHS	36.2	71.5	73.1	66.9	79.2	79.6	74.2	60.8	58.1
Cameroon	1991 DHS	31.3	NA	NA	NA	NA	NA	NA	NA	NA
Ghana	2022 DHS	17.4	49.7	54.6	47.6	71.3	59.2	50.3	41.9	35.2
Ghana	2014 DHS	18.8	53.7	60.7	49.6	76.6	67.1	56.4	42.8	35.8
Ghana	2008 DHS	28	61.4	64.5	59.4	75.7	69.9	67.8	53.6	48.3
Ghana	2003 DHS	NA	65.4	68.9	62.4	76.7	75.5	70.4	63.4	50.2
Ghana	1998 DHS	30.6	72.6	76.6	67.2	77	79.9	75.4	67.6	57.2
Ghana	1993 DHS	32.5	75	76.2	57.8	82.4	80.6	75.1	75.4	59.3
Nigeria	2024 DHS	39.5	57.7	63.9	53	65.2	72.4	61.2	54.2	42.4
Nigeria	2018 DHS	36.8	59.7	64.2	55.8	69.9	69.2	64.5	54.7	46.6
Nigeria	2013 DHS	36.8	63.9	66.8	60.6	72.3	71.8	67.3	60.2	52.2
Nigeria	2008 DHS	40.6	65.7	66.9	64.3	70	71.5	69.6	65	55.6
Nigeria	2003 DHS	42.4	64.3	65.2	62.8	67.8	70	66.7	65.2	54.7
Nigeria	1990 DHS	48.7	NA	NA	NA	NA	NA	NA	NA	NA
South Africa	2016 DHS	27.4	34.7	34	34.8	43	34.3	30.3	33.6	31.9
Tanzania	2022 DHS	30	59.7	61.8	55.1	72.1	70.7	65.7	57	43.1
Tanzania	2015-16 DHS	34.4	62.1	63.9	56.4	74.8	71.6	70.7	58.5	46.6
Tanzania	2010 DHS	42	67.1	68.2	62	73.5	76.1	73.4	66.2	52.3
Tanzania	2004-05 DHS	44.3	71.8	73.3	57.5	79.6	79.2	77	73.6	56.9
Tanzania	1999 DHS	48.2	NA	NA	NA	NA	NA	NA	NA	NA
Tanzania	1996 DHS	49.5	77.5	78.5	54.3	81.1	83.9	82.2	79.1	61.6
Tanzania	1991-92 DHS	50	79	79.8	55.7	NA	NA	NA	NA	NA
Uganda	2016 DHS	28.9	67.5	69.9	63	75.5	76.1	71	68.2	53.9
Uganda	2011 DHS	33.4	69.5	70.1	67.9	71.7	72.9	78.1	69.1	60.4
Uganda	2006 DHS	38.1	71.3	71.8	69.6	71.8	77.8	74.3	73.7	62.9
Uganda	2000-01 DHS	44.8	75.8	77.3	69.2	77.2	79	82.8	76.1	66.3
Uganda	1995 DHS	45	81.6	82.1	76.7	83.5	81.6	83.8	82.6	75.9

STATcompiler (https://www.statcompiler.com/en/). Funded by USAID. NA means no data were provided for these variables in the DHS survey.

Geographic/population TBM (subnational or national overlap and clustering)

Geographic/population TBM refers to the overlap or clustering of undernutrition, overnutrition, and micronutrient deficiencies within the same geographic units (communities, districts, regions, or countries), even when the three burdens are not measured within the same individual or household. This construct is especially relevant for geospatial and subnational studies that map co-distribution and clustering, providing insight into how ecological, infrastructural, and food-system factors shape population patterns (Dessie et al., 2025).

Evidence from Ethiopia illustrates this approach clearly. Using Bayesian geostatistical methods, Dessie et al. (2025) demonstrated overlapping hotspots of malnutrition components, including stunting, overweight, and micronutrient deficiencies (notably zinc and iron), with clustering influenced by geo-socio-ecological factors such as rainfall, temperature, and soil characteristics. These findings suggest that environmental and livelihood conditions can shape dietary diversity and micronutrient availability, while urbanisation and market integration alter food environments (Dessie et al., 2025; Bai et al., 2021).

Table 3. Household-level TBM indicators from DHS surveys (most recent to oldest) child stunting, child anaemia, maternal overweight/obesity, and maternal anaemia.

Country	Survey	Children stunted	Children with any anemia	Children with severe anemia	Women who are overweight or obese according to BMI (>=25.0)
|	2023-24 DHS	39.9	57.1	1.7	21.8
Angola	2015-16 DHS	37.6	64.8	2.2	NA
Angola	2011 MIS	NA	53.3	1.3	NA
Cameroon	2022 MIS	NA	57.7	2.3	NA
Cameroon	2018 DHS	28.9	57.4	1.9	37
Cameroon	2011 DHS	32.5	60.3	1.7	32.2
Cameroon	2004 DHS	35.3	68.3	4.8	28.7
Cameroon	1998 DHS	36.2	NA	NA	20.6
Cameroon	1991 DHS	31.3	NA	NA	NA
Ethiopia	2019 DHS	36.8	NA	NA	NA
Ethiopia	2016 DHS	38.4	56.9	3.1	7.6
Ethiopia	2011 DHS	44.4	44.2	2.5	5.7
Ethiopia	2005 DHS	50.8	53.5	3.9	4.4
Ethiopia	2000 DHS	57.7	NA	NA	3.2
Ghana	2022 DHS	17.4	48.9	0.8	43
Ghana	2019 MIS	NA	54.5	1.4	NA
Ghana	2016 MIS	NA	63.2	2.2	
Ghana	2014 DHS	18.8	65.7	2.2	40.1
Ghana	2008 DHS	28	78.3	7.5	29.9
Ghana	2003 DHS	NA	76.1	5.8	25.3
Ghana	1998 DHS	30.6	NA	NA	16.1
Ghana	1993 DHS	32.5	NA	NA	12.9
Nigeria	2024 DHS	39.5	57.7	1.1	24.5
Nigeria	2021 MIS	NA	68.8	3.6	NA
Nigeria	2018 DHS	36.8	67.9	3	28.2
Nigeria	2015 MIS	NA	68.4	3.7	NA
Nigeria	2013 DHS	36.8	NA	NA	24.7
Nigeria	2010 MIS	NA	71.6	5.2	
Nigeria	2008 DHS	40.6	NA	NA	22.1
Nigeria	2003 DHS	42.4	NA	NA	20.5
Nigeria	1990 DHS	48.7	NA	NA	NA
South Africa	2016 DHS	27.4	61.3	2.4	62.2
Tanzania	2022 DHS	30	59.1	2	30.5
Tanzania	2017 MIS		58.1	1.4	NA
Tanzania	2015-16 DHS	34.4	57.7	1.6	28.4
Tanzania	2010 DHS	42	58.6	1.9	21.5
Tanzania	2004-05 DHS	44.3	71.8	4.2	17.7
Tanzania	1999 DHS	48.2	NA	NA	NA
Tanzania	1996 DHS	49.5	NA	NA	13.3
Tanzania	1991-92 DHS	50	NA	NA	11.3
Uganda	2018-19 MIS	NA	50.8	1.5	NA
Uganda	2016 DHS	28.9	52.8	2.3	23.8
Uganda	2014-15 MIS	NA	52.8	1.9	NA
Uganda	2011 DHS	33.4	49.3	1.5	18.8
Uganda	2009 MIS	NA	62.3	4.4	NA
Uganda	2006 DHS	38.1	72.6	6.8	16.5
Uganda	2000-01 DHS	44.8	70.9	8.4	13.8
Uganda	1995 DHS	45	NA	NA	8.4

Children stunted; Percentage of children stunted (below -2 SD of height for age according to the WHO standard)
Children with any anemia; Percentage of children under age 5 classified as having any anemia
Children with severe anemia; Percentage of children under age 5 classified as having severe (below 7.0 g/dl) anemia
Women who are overweight or obese according to BMI (>=25.0); Percentage of women who are overweight or obese according to BMI (>=25.0)
Women with any anemia; Percentage of women classified as having any anemia (<12.0 g/dl for non-pregnant women and <11.0 g/dl for pregnant women)
ICF, 2015. The DHS Program STATcompiler (https://www.statcompiler.com/en/).
NA means no data were provided for these variables in the DHS survey.

At the population level, the nutrition transition can therefore produce a mosaic pattern where undernutrition remains concentrated in disadvantaged or drought-affected areas while overweight/obesity rises in urban and peri-urban contexts, and micronutrient deficiencies persist across both (Christian & Dake, 2021; Steyn & Mchiza, 2014; Tulchinsky, 2010).

Overall, geographic TBM provides a planning-oriented lens: it supports identifying priority regions for integrated intervention packages—combining maternal and child nutrition, infection control/WASH, food-system actions to improve affordability of nutrient-dense diets, and regulation of unhealthy food environments—tailored to regional risk profiles (Dessie et al., 2025; WHO, 2023; World Bank, 2024).

Conclusions

This review highlights that TBM in Africa is best understood as three related constructs: individual, household, and geographic/population TBM, each shaped by distinct pathways and requiring distinct intervention levers. The key implication is that policy responses should be designed to match the TBM level being targeted, rather than assuming a single uniform set of determinants.

Figure 1 illustrates a conceptual TBM feedback loop in which consequences (including reduced productivity and higher health costs) can reinforce poverty and food insecurity, thereby intensifying upstream structural drivers.

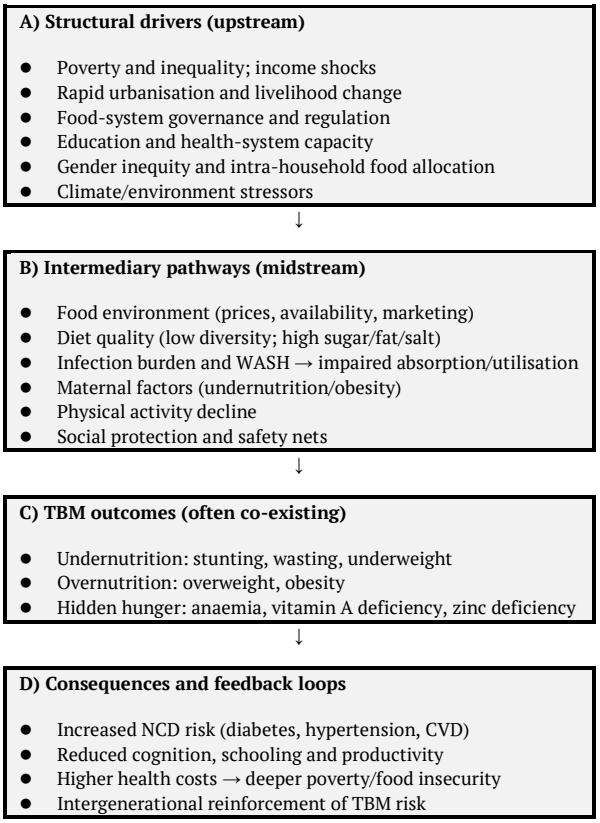


Figure 1. Conceptual framework of drivers and pathways underlying the triple burden of malnutrition (TBM) in Africa

Policy Implications and Programmatic Challenges

Because determinants differ by TBM level, responses should be targeted. Individual-level TBM requires life-course prevention: protect early nutrition and micronutrient status while reducing later obesity/NCD risk through healthier food environments and behaviour support (Steyn & Mchiza, 2014; Popkin & Ng, 2021). Household-level TBM needs integrated maternal–child services (nutrition screening/counselling, anaemia control, child growth protection), plus measures that improve the affordability of nutrient-dense diets and strengthen WASH (Ahinkorah et al., 2021; Christian & Dake, 2021). Geographic TBM supports hotspot-focused packages that combine nutrition-specific interventions with food-system actions and the regulation of unhealthy food environments, guided by spatial evidence (Dessie et al., 2025; WHO, 2023; World Bank, 2024).

The Role of Data and Research

Clear differentiation of TBM levels requires integrated surveillance that captures obesity and micronutrient indicators alongside child growth outcomes. Strengthening surveys and routine data across the life course (children, adolescents, adults) and improving subnational disaggregation will enable better targeting and evaluation. Cross-country collaboration, supported by regional bodies such as the African Union and the New Partnership for Africa's Development (NEPAD), can harmonise indicators and accelerate learning.

Aligning with Global Development Frameworks

TBM threatens progress towards SDG 2 and SDG 3 and undermines Agenda 2063 goals by simultaneously impairing child development and increasing NCD risks. Differentiating TBM levels strengthens programme design by linking household TBM to equity and geographic TBM to targeted subnational planning.

Multi-Sectoral Call to Action

Priority actions include strengthening maternal–child nutrition services, improving affordability and access to a diverse range of nutrient-dense foods, enforcing fortification and labelling, regulating the marketing/availability of ultra-processed foods, strengthening WASH and infection control, and expanding women's education and empowerment. For geographic TBM, integrated packages should be targeted to high-burden areas identified through surveillance and spatial evidence.

The triple burden of malnutrition (TBM) represents a complex nutrition transition challenge in Africa, but it is best understood as three related phenomena with distinct determinants and policy implications: individual-level coexistence of growth faltering, overweight/obesity, and micronutrient deficiency; household-level coexistence across family members (often mother–child pairs), and geographic/population overlap of multiple malnutrition burdens within the same countries or subnational areas. Recognising these distinctions reduces conceptual ambiguity and strengthens the interpretation of prevalence estimates and trends. Effective response, therefore, requires integrated, multisectoral action tailored to the TBM level. Individual-level TBM demands life-course approaches that protect early growth and micronutrient status while preventing later obesity and NCD risk. Household-level TBM requires interventions that improve diet quality, sanitation, and access to maternal–child health services while addressing the food environments that promote energy-dense, nutrient-poor diets. Geographic TBM calls for targeted subnational strategies informed by surveillance and spatial evidence, combining nutrition-specific interventions with food-system and regulatory actions. Strengthening data systems to track all TBM components across age groups will be essential for accountability, equitable targeting, and progress towards SDG 2, SDG 3, and Agenda 2063.

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Conceptualization: AEO: Writing – review and editing: AEO, BSL, OEA, GAC, FRS, FOG, EAO. Data Extraction: AEO, BSL, OEA, GAC, FRS, FOG, EAO. Manuscript preparation: AEO, BSL, OEA, GAC, FRS, FOG, EAO. Writing – final draft: AEO. All authors then critically reviewed the following versions. All authors have read and approved the final version of the paper and its submission and have given consent for publication.

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All relevant data are available within the manuscript

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Conflict of Interest

The authors declare that they have no conflicts of interest.

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