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Socioeconomic Inequalities in Child Undernutrition Among Children Under Five in Kenya: Evidence from The 2022 KDHS

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Abstract

The study examined the prevalence and trends of stunting, wasting and overweight, their socioeconomic differentials, and the coverage of infant and young child feeding practices against WHO recommendations among children aged 0–59 months in Kenya. The study was guided by Grossman's Demand for Health Model and the UNICEF Conceptual Framework on the Determinants of Child Undernutrition. Descriptive cross-sectional design was adopted. The study used aggregated published indicators from the 2022 Kenya Demographic and Health Survey Key Indicators Report. Descriptive and comparative analysis was applied across study objectives. No individual-level regression analysis was conducted as the study utilized aggregated published tabulations. The study found that Kenya achieved a 22-percentage point reduction in stunting from 40% in 1993 to 18% in 2022-a 55% reduction over three decades-with the most rapid decline occurring between 2008–09 and 2022. Wasting declined from 7% to 5% and overweight from 6% to 3% over the same period. Moreover, the study found socioeconomic inequalities persist in 2022: children in the poorest wealth quintile record stunting of 27.6% compared to 8.7% in the richest-a gap of 18.9 percentage points. Children of mothers with no education record wasting of 15.4% compared to 3.2% among those with more than secondary education-a gap of 12.2 percentage points. Rural children record stunting of 20.3% compared to 12.1% among urban children. An emerging double burden of malnutrition is documented, with wealthier and urban children simultaneously recording the highest overweight rates. Infant and young child feeding practices fall critically short of WHO benchmarks: minimum acceptable diet coverage stands at only 30.8%, iron supplementation at 23.0%, sweet beverage consumption affects 49.1% of children aged 6–23 months, and bottle feeding affects 33.6% of children aged 0–23 months. The study concludes that child undernutrition in Kenya is simultaneously a problem of chronic socioeconomic inequality and inadequate feeding practices. The study recommends designation of high-burden counties as priority intervention areas, urgent scale-up of iron supplementation toward universal coverage, investment in maternal education beyond primary level, and targeted behavior change communication to improve dietary diversity and eliminate unhealthy feeding practices among children aged 0–59 months in Kenya.

Keywords: *Child undernutrition, stunting, wasting, overweight, socioeconomic inequalities, infant and young child feeding practices, Kenya, KDHS 2022*

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1.0 Background of the Study

Child undernutrition remains one of the most persistent public health challenges in low- and middle-income countries, directly contributing to increased child morbidity, mortality, impaired cognitive development, and reduced economic productivity in adulthood (Riwa *et al*., 2025). Undernutrition in children under five is measured through three key anthropometric indices: stunting-defined as height-for-age z-score below −2 standard deviations, reflecting chronic undernutrition; wasting-defined as weight-for-height z-score below −2 standard deviations, reflecting acute undernutrition; and overweight-defined as weight-for-height z-score above +2 standard deviations, reflecting over-nutrition. Despite substantial global progress over the past three decades, sub-Saharan Africa remains the only region where the absolute number of stunted children has increased, driven by persistent poverty, inadequate infant and young child feeding practices, and deep socioeconomic inequalities (Riwa *et al*., 2025).

In Kenya, child undernutrition presents a complex picture of national progress alongside persistent county-level and socioeconomic disparities that require systematic national-level examination using the most recent 2022 KDHS data. Kenya's child nutritional status has improved significantly over the past three decades but critical challenges persist. According to KNBS and ICF (2023, Key Indicators Report, Figure 6, p. 41), stunting among children under five declined markedly from 40% in 1993 to 18% in 2022-representing a 22-percentage point reduction over three decades. Wasting declined from 7% in 1993 to 5% in 2022, while overweight declined from 6% in 1993 to 3% in 2022. Despite this progress, approximately 1 in 5 Kenyan children under five remains stunted, 1 in 20 is wasted, and 1 in 30 is overweight in 2022. Infant and young child feeding practices-which are critical immediate determinants of nutritional outcomes-remain suboptimal: only 60.1% of children born in the two years preceding the 2022 survey were put to the breast within one hour of birth, 59.7% of children under six months were exclusively breastfed, only 36.9% received minimum dietary diversity, and only 30.8% received a minimum acceptable diet (KNBS & ICF, 2023, Key Indicators Report, Table 15, p. 57). Table 1 presents key national child nutritional indicators from the 2022 KDHS.

Table 1: Key Child Nutritional Status Indicators in Kenya

Indicator	Kenya National	Urban	Rural
Anthropometric Indicators			
Stunting-HAZ < -2SD (%)	**17.6**	12.1	20.3
Wasting-WHZ < -2SD (%)	**4.9**	4.0	5.3
Overweight-WHZ > +2SD (%)	**3.2**	4.0	2.8
IYCF Indicators (National)			
Early breastfeeding initiation (%)	**60.1**	—	—
Exclusive breastfeeding under 6 months (%)	**59.7**	—	—
Minimum dietary diversity (%)	**36.9**	—	—
Minimum acceptable diet (%)	**30.8**	—	—
Iron supplementation-children 6–59 months (%)	**23.0**	—	—

Source: KNBS and ICF (2023)

Table 1 reveals that despite national improvements, significant nutritional challenges persist in Kenya. Rural children experience substantially higher rates of stunting (20.3%) and wasting (5.3%) compared to their urban counterparts (12.1% and 4.0% respectively)-gaps of 8.2 and 1.3 percentage points respectively. These urban-rural disparities directly reflect differential access to economic resources, maternal education, and nutrition-specific interventions that determine child nutritional status (Grossman, 1972; UNICEF, 2020). Critical gaps in infant and young child feeding practices are equally concerning: only 30.8% of children aged 6–23 months receive a minimum acceptable diet, while iron supplementation coverage stands at a critically low 23.0% among eligible children aged 6–59 months-far below the coverage needed to prevent iron-deficiency anaemia and its consequences for child growth (KNBS & ICF, 2023, Key Indicators Report, Table 15, p. 57).

Table 2: Child Nutritional Status by Background Characteristics

Background Characteristic	Stunting (%) Too short for age	Wasting (%) Too thin for height	Overweight (%) Too heavy for height
By Maternal Education			
No education	22.2	15.4	0.7
Primary	22.1	4.3	3.5
Secondary	14.8	3.1	4.0
More than secondary	8.6	3.2	3.7
By Wealth Quintile			
Lowest (Poorest)	27.6	9.5	1.9
Second	21.5	3.0	2.6
Middle	16.2	4.2	3.9
Fourth	11.6	3.8	3.3
Highest (Richest)	8.7	2.7	4.7
By Residence			
Urban	12.1	4.0	4.0
Rural	20.3	5.3	2.8
NATIONAL TOTAL	**17.6**	**4.9**	**3.2**

Source: KNBS and ICF (2023)

Table 2 confirms pronounced socioeconomic inequalities in child nutritional status in Kenya. Children born to mothers with no education record a stunting rate of 22.2% compared to only 8.6% among children born to mothers with more than secondary education-a gap of 13.6 percentage points. Children in the poorest wealth quintile record stunting of 27.6% compared to only 8.7% among the richest quintile-a gap of 18.9 percentage points. Wasting disparities are even more stark among mothers with no education, recording 15.4% compared to 3.2% among mothers with more than secondary education-a nearly fivefold difference. These inequalities confirm that household wealth and maternal education are the primary socioeconomic determinants of child nutritional status in Kenya, consistent with the predictions of Grossman's (1972) demand for health model. The 2022 KDHS, conducted between February and July 2022 with anthropometric measurements obtained for 20,319 children under five across all 47 counties at valid data rates of 96–97% (KNBS & ICF, 2023, Key Indicators Report, p. 41), provides the most recent nationally representative data to systematically examine these patterns-the central objectives of this study.

1.1 Statement of the Problem

Kenya presents a persistent challenge in child undernutrition that demands systematic national-level investigation. Despite a significant decline in stunting from 40% in 1993 to 18% in 2022, approximately 1 in 5 Kenyan children under five remains stunted, while 5% are wasted and 3% are overweight (KNBS & ICF, 2023). These national averages mask alarming county-level disparities, with stunting as high as 37% in Kilifi County and wasting reaching 22.6% in Turkana County-counties that simultaneously record the lowest household wealth and the highest rates of suboptimal feeding practices nationally (KNBS & ICF, 2023). Children in the poorest wealth quintile record stunting of 27.6% compared to only 8.7% in the richest quintile-a gap of 18.9 percentage points-while children of mothers with no education record wasting of 15.4% compared to 3.2% among children of mothers with more than secondary education (KNBS & ICF, 2023). These stark inequalities confirm that socioeconomic factors are the primary structural drivers of child undernutrition in Kenya, yet their comprehensive examination across all three nutritional indices simultaneously using the most recent 2022 KDHS national tabulations has not been undertaken.

Infant and young child feeding practices-the most proximal modifiable determinants of child nutritional status-remain critically suboptimal in Kenya, yet their systematic national-level examination alongside socioeconomic differentials is absent from the published literature. Only 30.8% of children aged 6–23 months receive a minimum acceptable diet, iron supplementation coverage stands at a critically low 23.0% among children aged 6–59 months, and while 59.7% of children are exclusively breastfed under six months, only 36.9% achieve minimum dietary diversity (KNBS & ICF, 2023). Most existing Kenyan studies examining these feeding practices are sub-county or facility-based-including Kangethe (2024) in Kitui County and Cheruiyot *et al*. (2025) in Kericho County-limiting their national generalizability. No published study has simultaneously described the prevalence and trends of stunting, wasting, and overweight alongside socioeconomic differentials and IYCF indicator coverage using the 2022 KDHS national aggregated tabulations across all 47 counties. This study therefore addresses these critical knowledge gaps by providing a comprehensive national evidence base using the 2022 KDHS published indicators.

1.2 Research Objectives

The study was guided by the following objectives:

i. To determine the prevalence and trends of stunting, wasting and overweight among children aged 0–59 months in Kenya across survey years 1993–2022.
ii. To describe socioeconomic differentials in child nutritional status by household wealth quintile, maternal education, and place of residence among children aged 0–59 months in Kenya using 2022 KDHS tabulations.
iii. To describe the coverage of infant and young child feeding practices-including breastfeeding initiation, exclusive breastfeeding, dietary diversity, iron supplementation, and deworming among children aged 0–59 months in Kenya.

1.3 Research Questions

The study will be guided by the following research questions:

i. What are the prevalence and trends of stunting, wasting, and overweight among children aged 0–59 months in Kenya across survey years 1993–2022?
ii. What are the socioeconomic differentials in child nutritional status by household wealth quintile, maternal education, and place of residence among children aged 0–59 months in Kenya?
iii. What is the coverage of infant and young child feeding practices-including breastfeeding initiation, exclusive breastfeeding, dietary diversity, iron supplementation and deworming among children aged 0–59 months in Kenya?

2.0 Literature Review

The chapter is organized into three sections: the theoretical review presents the theoretical frameworks guiding this study; the empirical literature review synthesizes key studies on the determinants of child undernutrition globally, across sub-Saharan Africa, and within Kenya; and the overview of the literature identifies the research gap that this study addresses.

2.1 Theoretical Review

The study is anchored on Grossman's Demand for Health Model as the theoretical framework and the UNICEF Conceptual Framework on the Determinants of Child Undernutrition as the conceptual model.

2.1.1 Grossman's Demand for Health Model

Grossman's demand for health model constitutes the theoretical framework for this study. Grossman (1972) conceptualized health as a durable capital stock that individuals inherit at birth, which depreciates with age and can be augmented through deliberate investment in medical care, diet, and other market goods within a household production function. The model posits that individuals do not demand medical care intrinsically but as a derived demand from the fundamental desire for good health. Critically, the model treats health and knowledge as equal parts of the durable stock of human capital, meaning households have an incentive to invest in child health to increase future productivity and earnings (Grossman, 2022). Applied to child undernutrition, the framework predicts that household wealth directly shapes the quantity and quality of nutritional inputs-food, healthcare, and supplementation-that households invest in to produce and maintain child health capital.

A central prediction of the Grossman (1972) model is that maternal education reduces the shadow price of health by increasing the efficiency with which households produce child health from any given set of nutritional inputs. More educated mothers are theoretically predicted to be more efficient producers of child health because their knowledge lowers the cost of transforming food, iron supplementation, deworming, and breastfeeding practices into healthy child outcomes. Household wealth operates by relaxing the budget constraint that limits a family's ability to purchase adequate nutritional inputs, directly predicting that children in poorer wealth quintiles will exhibit higher rates of stunting and wasting than those in wealthier quintiles (Galama & Van Kippersluis, 2013). These theoretical predictions directly justify this study's first and second objectives-examining the prevalence and socioeconomic differentials of child undernutrition across wealth quintiles, maternal education levels, and place of residence in Kenya.

2.1.2 UNICEF Conceptual Framework on the Determinants of Child Undernutrition

The UNICEF Conceptual Framework on the Determinants of Child Undernutrition, originally developed in 1990 and comprehensively updated in 2020, provides the conceptual model guiding this study. The framework identifies three interlinked levels of causation-immediate, underlying, and basic determinants-of child undernutrition (UNICEF, 2020). Immediate determinants operate at the individual child level and include inadequate dietary intake and disease, which directly cause stunting, wasting, and overweight. Underlying determinants operate at the household and community level and encompass food insecurity, inadequate care practices including breastfeeding initiation, exclusive breastfeeding, dietary diversity, iron supplementation, and deworming, and insufficient access to health services and sanitation. Basic determinants operate at the structural level and include poverty, governance, and socioeconomic inequality, which shape the resources available to households for achieving adequate child nutrition outcomes (Ruel & Alderman, 2013).

The 2020 update of the UNICEF framework explicitly acknowledges the increasing triple burden of malnutrition-undernutrition, micronutrient deficiencies, and overweight-and highlights the role of diets and care practices as the most proximal immediate determinants of child nutritional status (UNICEF, 2020). In the context of this study, the framework directly organizes the third objective by positioning breastfeeding practices, dietary diversity, iron supplementation, and deworming as modifiable underlying determinants of child nutritional status operating between household socioeconomic conditions and child anthropometric outcomes. The framework's multi-level structure confirms that child undernutrition requires simultaneous examination of immediate nutritional inputs and underlying socioeconomic conditions-the approach adopted in this study.

2.1.3 Integration of the Theory and Model

The complementary application of Grossman's (1972) Demand for Health Model and the UNICEF (2020) Conceptual Framework provides a robust dual foundation for this study. The Grossman model supplies the economic mechanism-explaining why households with constrained resources invest differentially in child health capital based on their wealth and maternal education. The UNICEF framework supplies the multi-level causal structure-organizing determinants into immediate, underlying, and basic levels that map directly onto the study's independent variables across all three objectives. Together, both frameworks predict that children in the poorest wealth quintiles, born to mothers with no education, and residing in rural areas will demonstrate the highest prevalence of stunting and wasting-consistent with the descriptive and comparative findings presented in Chapter Four of this study.

2.2 Empirical Literature Review

Riwa *et al*. (2025) conducted a systematic scoping review following the 2018 PRISMA extension for scoping reviews, searching five electronic databases to explore the prevalence and determinants of undernutrition among infants and children aged 6 months to 5 years across sub-Saharan African countries. A total of 59 publications from 11 countries were included, with most studies conducted in Ethiopia and Tanzania. The review found that stunting prevalence ranged from 8% to 64%, wasting from 1% to 58%, and the most frequently reported determinants were child age above 24 months, male sex, maternal illiteracy, and low household socioeconomic status. Critically, 56% of included studies reported higher stunting prevalence than national surveys, suggesting that published national-level estimates may systematically understate the true burden of stunting across sub-Saharan Africa.

Moloro *et al*. (2026) conducted a secondary analysis of recent Demographic and Health Survey data from 35 sub-Saharan African countries covering the period 2011–2024, including a total weighted sample of 191,953 children under five years. Using a multilevel mixed-effects Poisson regression model with robust variance, the study established a pooled prevalence of stunting of 29.89%, ranging from 13.91% in Gabon to 55.80% in Burundi. Being male (aPR = 1.24), being aged 12 months or older (aPR ≥ 1.81), insufficient antenatal care visits (aPR ≥ 1.17), and living in poor or average wealth households (aPR ≥ 1.23) were significant predictors of stunting. Elmighrabi *et al*. (2024) similarly demonstrated in Tunisia that stunting, wasting, and underweight increased by 3.3%, 0.5%, and 2.1% respectively between 2011 and 2023, with the odds of stunting, wasting, and underweight increasing by 22%, 16%, and 70% respectively-confirming that even middle-income countries face growing undernutrition challenges.

Anteneh *et al*. (2025) examined wealth-related inequalities in undernutrition among children under five across 35 sub-Saharan African countries using 202,290 weighted samples from DHS datasets. Concentration index and Wagstaff decomposition analysis were employed. The overall pooled prevalence of undernutrition was 35.5%, and the concentration index indicated a pro-poor distribution at −0.1719, signifying undernutrition was significantly concentrated among poorer children. Decomposition analysis revealed that media exposure, access to improved water sources, improved toilet facilities, and maternal education were inversely associated with undernutrition, while rural residence showed a positive association. Birhanu *et al*. (2024) similarly analyzed 334,502 children from 24 low- and middle-income countries and found that wealth-related inequality in child undernutrition was consistently observed across income categories, with undernutrition most concentrated among poor households in Türkiye and Cameroon.

Ijaiya *et al*. (2024) applied Blinder-Oaxaca decomposition to DHS data from 27 countries and found that compositional effects including child age, maternal education, maternal health behavior, and place of residence influenced inequality in childhood malnutrition rates. Fagbamigbe *et al*. (2020) pooled DHS data from 51 low- and middle-income countries including Kenya and found that neighborhood socioeconomic disadvantage and location of residence were the most important factors explaining educational inequalities in severe acute malnutrition. Kangethe (2024) examined predictors of stunting in Kitui County, Kenya, finding that household income below Kshs 10,000 was the strongest predictor (OR = 5.125), followed by complementary feeding before six months (OR = 2.601) and lack of access to a latrine (OR = 6.811). Prasad *et al*. (2021) confirmed in India that odds of stunting (OR = 2.67) and underweight (OR = 2.74) were more than two times higher among children from poor households, with poor households accounting for approximately 40% of all stunted and underweight children.

Aboagye *et al*. (2024) assessed the prevalence and predictors of minimum dietary diversity, minimum meal frequency, and minimum acceptable diet among 87,672 mother-child pairs from 32 sub-Saharan African countries using multilevel binary logistic regression. The prevalence of minimum dietary diversity, minimum meal frequency, and minimum acceptable diet in sub-Saharan Africa were only 25.3%, 41.2%, and 13.3% respectively-well below the Kenyan 2022 values of 36.9%, 71.2%, and 30.8%-confirming that Kenya performs above the regional sub-Saharan average on feeding practices. Christian *et al*. (2023) used data from 22 DHS surveys across sub-Saharan African countries and found that child feed index score, high household wealth, maternal secondary education, and improved household sanitation were significantly associated with lower odds of co-occurring anaemia and stunting. Decision tree analysis confirmed that maternal education level was the most important predictor.

Toweet *et al*. (2026) established in Kenya using the 2017 Performance Monitoring for Action survey that timely complementary feeding prevalence was only 51.7%, with household wealth (aOR = 3.32 for richest) and urban residence (60.6%) as the strongest predictors. Cheruiyot *et al*. (2025) found in Kericho County, Kenya, that only 39.2% of children achieved minimum dietary diversity and minimum acceptable diet, and that introduction of complementary food after 6 months reduced the likelihood of wasting and stunting. Mekonnen *et al*. (2021) demonstrated in Ethiopia that appropriate IYCF practice was found in only 65.8% of mothers, with bottle feeding prevalent in 77.6%-highlighting the problem of inappropriate feeding practices that also characterizes Kenya's 33.6% bottle feeding rate.

Omutoj *et al*. (2026) conducted a cross-sectional analysis of 2022 KDHS data comprising 819 children under five born to adolescent mothers. The study found that 11.03% of children born to adolescent mothers were underweight, and that children of married adolescent mothers were more likely to be underweight (APR = 2.22), with underweight increasing with child age-children aged 6–23 months (APR = 2.73) and those aged ≥24 months (APR = 4.35) were significantly more likely to be underweight. Mbogori and Muriuki (2021) analyzed 2014 KDHS data and found that 22.7% of children aged 0–23 months were stunted, 6.2% were wasted, and wasting and stunting were significantly higher in children from rural areas, poorer wealth index categories, and mothers with no education. Siddiqa *et al*. (2026) analyzed DHS data from Kenya, Ethiopia, Madagascar, and Tanzania and found that children from middle (AOR = 0.683) and rich (AOR = 0.535) households in Kenya had significantly lower odds of anthropometric failure, and that female children had lower odds of anthropometric failure across all four countries.

3.0 Research Methodology

This chapter presents the methodology adopted to investigate the prevalence and trends of child undernutrition, its socioeconomic differentials, and the coverage of infant and young child feeding practices against WHO recommendations among children aged 0–59 months in Kenya.

3.1 Research Design

The research design applied in this study was a descriptive cross-sectional research design based on secondary analysis of aggregated published indicators from the 2022 Kenya Demographic and Health Survey. A cross-sectional design was appropriate for estimating the prevalence of health phenomena and describing associations between socioeconomic determinants and health outcomes within a defined population at a single point in time. This design was especially appropriate in this study as it allowed the simultaneous description of stunting, wasting and overweight prevalence, their socioeconomic differentials and IYCF practice coverage among children aged 0–59 months across Kenya's 47 counties using nationally representative published tabulations.

The 2022 KDHS utilized a two-stage stratified cluster sampling design from which aggregated indicators were extracted for analysis. In the first stage, 1,692 clusters were selected from the Kenya Household Master Sample Frame through the Equal Probability Systematic Sampling Method, with Kenya's 47 counties stratified into 92 urban and rural strata (KNBS & ICF, 2023). In the second stage, 25 households were systematically selected per cluster, resulting in 42,022 sampled households nationally, with data collected between February and July 2022 at a 95% response rate among women respondents. The analytical data for this study comprised aggregated published indicators for children aged 0–59 months extracted from the 2022 KDHS Key Indicators

Report, including nutritional status tabulations by age, sex, residence, maternal education, wealth quintile, and county, as well as infant and young child feeding indicators.

3.2 Theoretical Framework

This study was guided by Grossman's (1972) Demand for Health Model as the theoretical framework and the UNICEF (2020) Conceptual Framework on the Determinants of Child Undernutrition as the conceptual model. The Grossman model conceptualizes health as a durable capital stock that households invest in through nutritional inputs, medical care, and education, predicting that household wealth and maternal education will positively influence child nutritional outcomes by determining the quantity and quality of health investments made on behalf of children (Grossman, 2022). The UNICEF framework organizes the determinants of child undernutrition into three interlinked levels-immediate determinants including inadequate dietary intake, underlying determinants including breastfeeding practices, dietary diversity, iron supplementation, deworming, and healthcare access, and basic determinants including poverty and socioeconomic inequality-providing the organizing structure for variable classification across this study's three objectives (UNICEF, 2020). Together, both frameworks generate the following conceptual model guiding this study's analytical approach:

Nutritional Status = f (Wealth Quintile, Maternal Education, Place of Residence) [Objective 2]

IYCF Coverage = Assessed against WHO Benchmarks [Objective 3]

Consistent with the Grossman model's prediction that household wealth reduces the shadow price of child health investment and the UNICEF framework's identification of feeding practices as proximal immediate determinants, the theoretical framework predicts that children in the poorest wealth quintiles, born to mothers with no education, and residing in rural areas will demonstrate the highest prevalence of stunting and wasting in Kenya. The IYCF coverage analysis in Objective 3 is grounded in the UNICEF framework's identification of breastfeeding, dietary diversity, and micronutrient supplementation as the most modifiable underlying determinants of child nutritional status.

3.3 Analytical Model

This study employed descriptive and comparative analysis as the primary analytical approach. Given that the study utilized aggregated published tabulations from the 2022 KDHS Key Indicators Report rather than individual-level microdata, the analytical framework centered on systematic description and comparison of published prevalence estimates across defined socioeconomic subgroups. No regression analysis was conducted, as the aggregated nature of the data source does not permit individual-level statistical modeling. Three analytical models correspond directly to the three study objectives:

Model 1-Trends in Child Undernutrition (Objective 1):

Trend analysis describing the direction and magnitude of change in stunting, wasting, and overweight prevalence across six KDHS survey rounds spanning 1993 to 2022. Percentage point changes between consecutive survey rounds were calculated to quantify the direction and magnitude of change in each nutritional indicator over time.

Model 2-Socioeconomic Differentials (Objective 2)

Descriptive comparative analysis examining the prevalence of stunting, wasting, and overweight across household wealth quintiles, maternal education levels and urban-rural residence categories. Absolute differentials-measured as percentage point differences between the highest and lowest socioeconomic subgroups-quantify the magnitude of socioeconomic inequalities.

Model 3-IYCF Coverage Assessment (Objective 3)

Coverage rates for each IYCF indicator are assessed for adequacy relative to WHO targets, with gaps calculated in percentage points where specific numerical targets exist.

3.4 Data Type, Data Source and Data Collection

This study utilized secondary aggregated data extracted from the 2022 Kenya Demographic and Health Survey Key Indicators Report, a nationally representative household survey implemented by the Kenya National Bureau of Statistics in collaboration with the Ministry of Health and ICF International, with funding from USAID, the World Bank, UNICEF, UNFPA, WHO, and other development partners (KNBS & ICF, 2023). The 2022 KDHS is the seventh DHS survey conducted in Kenya since 1989, with data collection conducted between February 17 and July 19, 2022. The 2022 KDHS Key Indicators Report is publicly available without registration at https://dhsprogram.com/pubs/pdf/PR143/PR143.pdf and contains all aggregated tabulations required to address the three study objectives. The sample comprised 42,022 households of which 37,911 were successfully interviewed, yielding a household response rate of 98%. Anthropometric measurements were obtained for 20,319 children under age five, with valid data for height-for-age, weight-for-height, and weight-for-age of 96%, 97%, and 97% respectively (KNBS & ICF, 2023). The analytical sample for this study comprises all children aged 0–59 months with valid anthropometric measurements, as reported in the published aggregated tabulations of the 2022 KDHS Key Indicators Report.

3.5 Measurement and Operationalization of Variables

Table 3 presents the measurement and operationalization of all variables used in the three analytical models.

Table 3: Measurement and Operationalization of Variables

Variable Name	Description / Plain Meaning	Measurement
Outcome Variables		
Stunting	Too short for age-Height-for-Age Z-score below −2SD	% of children under 5
Wasting	Too thin for height-Weight-for-Height Z-score below −2SD	% of children under 5
Overweight	Too heavy for height-Weight-for-Height Z-score above +2SD	% of children under 5
Socioeconomic Variables-Objective 2		
Household Wealth Quintile	Composite wealth index based on household assets	1=Poorest; 2=Poorer; 3=Middle; 4=Richer; 5=Richest
Maternal Education Level	Highest level of education attended by mother	0=None; 1=Primary; 2=Secondary; 3=Higher

Place of Residence	Urban or rural place of residence at time of survey	0=Rural; 1=Urban
Iycf Indicators-Objective 3		
Early BF Initiation	% of children put to breast within 1 hour of birth	%-compared to WHO ≥70% target
Exclusive Breastfeeding	% of children 0–5 months fed breast milk only	%-compared to WHO ≥60% target
Minimum Dietary Diversity	% of children 6–23 months fed ≥5 of 8 food groups per day	%-compared to WHO maximise target
Minimum Acceptable Diet	% receiving both min. dietary diversity AND min. meal frequency	%-compared to WHO maximise target
Iron Supplementation	% of children 6–59 months given iron supplements in last 12 months	%-compared to WHO universal target
Trend Variable-Objective 1		
KDHS Survey Year	Survey round year-1993 to 2022	1993, 1998, 2003, 2008–09, 2014, 2022

Source: KNBS and ICF (2023); WHO Child Growth Standards (WHO, 2006)

3.6 Data Analysis

The analysis of data was performed in three sequential stages corresponding directly to the three study objectives. For Objective 1, trend analysis was conducted by extracting and tabulating national prevalence estimates of stunting, wasting, and overweight from six KDHS survey rounds spanning 1993 to 2022, as documented in Figure 6 of the Key Indicators Report (KNBS & ICF, 2023). Percentage point changes between consecutive survey rounds were calculated to quantify the direction and magnitude of change in each nutritional indicator over time. The analysis reveals that stunting declined by 22 percentage points from 40% in 1993 to 18% in 2022, representing the most substantial improvement in child nutritional status in Kenya over the study period. For Objective 2, descriptive comparative analysis was conducted by systematically extracting and tabulating the prevalence of stunting, wasting, and overweight across household wealth quintiles, maternal education levels, and urban-rural residence categories from Table 14 of the Key Indicators Report (KNBS & ICF, 2023).

Absolute differentials-measured as percentage point differences between the highest and lowest socioeconomic subgroups-quantified the magnitude of socioeconomic inequalities in child nutritional status across each background characteristic. For Objective 3, a systematic descriptive comparison was conducted between published IYCF indicator coverage values from Table 15 (KNBS & ICF, 2023) and established WHO benchmarks. Coverage adequacy was assessed for each indicator, with gaps calculated in percentage points where specific numerical WHO targets exist. All analyses were conducted using Microsoft Excel for tabulation, graphical presentation, and data compilation, with all statistics extracted directly from the published 2022 KDHS Key Indicators Report with exact page references cited throughout.

4.0 Findings and Discussions

This chapter presents the findings of the study on the prevalence and trends of stunting, wasting, and overweight among children aged 0–59 months in Kenya, their socioeconomic differentials, and the coverage of infant and young child feeding practices against WHO recommendations. The

findings are organized according to the three study objectives and are presented through tables, figures, and narrative descriptions. All data are sourced directly from the 2022 Kenya Demographic and Health Survey Key Indicators Report (KNBS & ICF, 2023, PR143.pdf), with exact page references provided for each statistic to facilitate verification.

4.1 Prevalence and Trends of Stunting, Wasting, and Overweight, Kenya 1993–2022

This section presents the prevalence and long-term trends in child nutritional status in Kenya using data from six KDHS survey rounds spanning 1993 to 2022. The trend data are extracted directly from Figure 6 of the Key Indicators Report (KNBS & ICF, 2023), which presents the percentage of children under age five who are malnourished across survey years. The 2022 national prevalence data are additionally confirmed from Table 14 of the Key Indicators Report (KNBS & ICF, 2023). Table 4 presents the complete trend dataset, followed by Figures 4.1, 4.2, and 4.3 which present the visual trends for each nutritional indicator separately.

Table 4: Trends in Child Nutritional Status Among Children Under Age 5, Kenya 1993–2022

KDHS Survey Year	Stunting (%) Too short for age	Wasting (%) Too thin for height	Overweight (%) Too heavy for height	Change in Stunting (pp from prev. round)
1993 KDHS	40	7	6	Base year
1998 KDHS	38	7	6	−2
2003 KDHS	36	6	6	−2
2008–09 KDHS	35	7	5	−1
2014 KDHS	26	4	4	−9
2022 KDHS	18	5	3	−8
Overall Change 1993→2022	−22 pp	−2 pp	−3 pp	—

Source: KNBS and ICF (2023, Key Indicators Report). pp = percentage points. Note: Data from 2003 onward are nationally representative; pre-2003 data exclude North Eastern region and parts of Eastern and Rift Valley regions.

Table 4 reveals Kenya's sustained and significant progress in child nutritional status between 1993 and 2022. Stunting declined by 22 percentage points from 40% in 1993 to 18% in 2022, representing a 55% reduction over three decades. The most rapid period of stunting reduction occurred between 2008–09 and 2022, during which stunting fell by 17 percentage points from 35% to 18%-accounting for 77% of the total reduction achieved over the entire 29-year period. Wasting declined modestly by 2 percentage points from 7% in 1993 to 5% in 2022, though it remained relatively stable across most survey rounds, ranging between 4% and 7%. Overweight declined by 3 percentage points from 6% in 1993 to 3% in 2022, reaching its lowest recorded level in the 2022 survey. The following three figures present the visual trend for each indicator separately.

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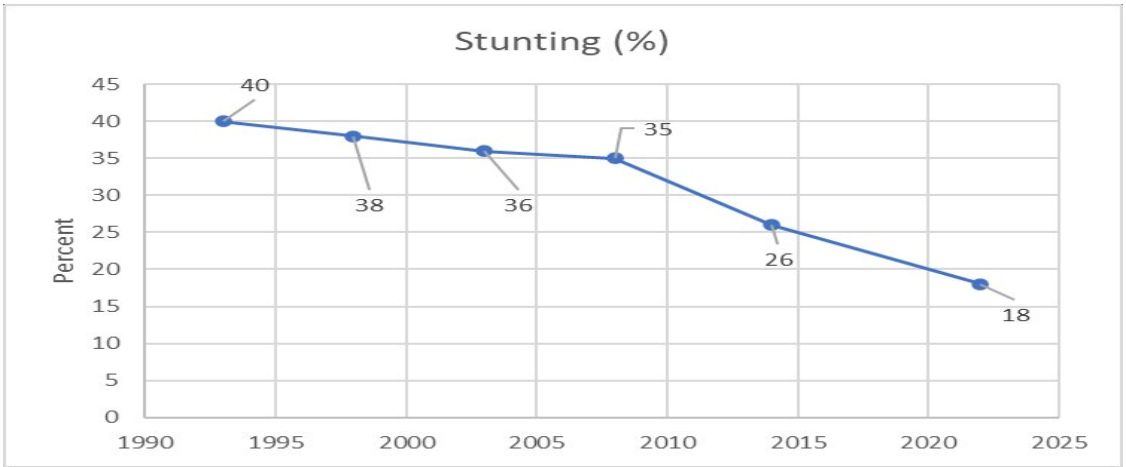

Figure 1: Trends in Stunting (%) Among Children Under Age 5, Kenya 1993–2022

Source: KNBS and ICF (2023)

Figure 1 demonstrates the consistent and accelerating decline in stunting prevalence in Kenya between 1993 and 2022. Stunting declined steadily from 40% in 1993 through 38% (1998), 36% (2003), and 35% (2008–09), before accelerating dramatically to 26% in 2014 and 18% in 2022. The most notable inflection point occurred between 2008–09 and 2014, during which Kenya achieved a 9 percentage point reduction in a single intercensal period-the largest single-period reduction on record. Despite this encouraging trajectory, 17.6% of children nationally remain stunted as of 2022 (KNBS & ICF, 2023, Key Indicators Report, Table 14, p. 43), and county-level data confirms that Kilifi County records stunting as high as 37.0%, West Pokot at 33.5%, and Samburu at 31.4%-all more than double the national average (KNBS & ICF, 2023, Key Indicators Report, Table 14C, p. 44). These county-level disparities demonstrate that the national average conceals profound geographic inequalities that require targeted sub-national interventions.

Figure 2: Trends in Wasting (%) Among Children Under Age 5, Kenya 1993–2022

Source: KNBS and ICF (2023)

Figure 2 presents the trend in wasting prevalence in Kenya between 1993 and 2022. Unlike stunting, wasting did not follow a consistent downward trajectory, reflecting its nature as a measure of acute rather than chronic undernutrition. Wasting was 7% in 1993, remained at 7% in

1998, declined to 6% in 2003, returned to 7% in 2008–09, declined to 4% in 2014-the lowest recorded level-before increasing slightly to 5% in 2022. The fluctuating pattern of wasting is consistent with international evidence, as acute malnutrition is more sensitive to short-term shocks such as drought, food price crises, and disease outbreaks than chronic malnutrition (Riwa *et al*., 2025). The 2022 national wasting prevalence of 4.9% (KNBS & ICF, 2023, Table 14, p. 43) remains above the WHO emergency threshold of 5% in several counties-most notably Wajir at 22.8%, Turkana at 22.6%, Marsabit at 20.4%, and Mandera at 17.3% (KNBS & ICF, 2023, Table 14C, p. 44)-representing critical acute nutrition emergencies in Kenya's arid and semi-arid regions.

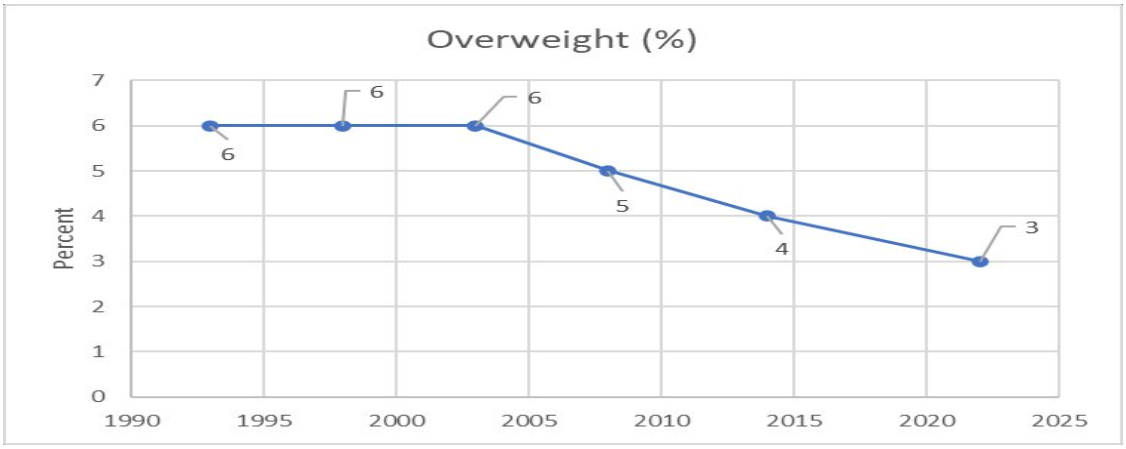

Figure 3: Trends in Overweight (%) Among Children Under Age 5, Kenya 1993–2022
Source: KNBS and ICF (2023)

Figure 3 presents the trend in overweight prevalence among children under five in Kenya between 1993 and 2022. Overweight remained stable at 6% across the first three survey rounds (1993, 1998, and 2003), before declining to 5% in 2008–09, 4% in 2014, and 3% in 2022-reaching its lowest recorded level. This declining trend in overweight is notable in the context of a global nutrition transition in which overweight in children under five is increasing in many low- and middle-income countries (Elmighrabi *et al*., 2024). The 2022 national overweight prevalence of 3.2% (KNBS & ICF, 2023, Table 14, p. 43) shows an important socioeconomic reversal pattern: children in the richest wealth quintile record overweight at 4.7% compared to only 1.9% among the poorest quintile, and urban children record overweight at 4.0% compared to 2.8% in rural areas (KNBS & ICF, 2023, Table 14, p. 43). This reversal-where wealthier and urban children are more likely to be overweight while poorer and rural children are more likely to be stunted and wasted-reflects the dual burden of malnutrition emerging in Kenya's nutrition transition.

4.2 Socioeconomic Differentials in Child Nutritional Status, Kenya 2022

This section presents the socioeconomic differentials in child nutritional status by household wealth quintile, maternal education level, and place of residence among children aged 0–59 months in Kenya using 2022 KDHS tabulations. All data are extracted directly from Table 14 of the Key Indicators Report (KNBS & ICF, 2023, p. 43). Table 5 presents the complete socioeconomic differentials dataset, including stunting, wasting, and overweight prevalence across all three socioeconomic dimensions and the national total.

Table 5: Socioeconomic Differentials in Child Nutritional Status Among Children Under Age 5, Kenya 2022

Background Characteristic	Stunting (%) Too short for age	Wasting (%) Too thin for height	Overweight (%) Too heavy for height
By Place Of Residence			
Urban	12.1	4.0	4.0
Rural	20.3	5.3	2.8
By Maternal Education			
No education	22.2	15.4	0.7
Primary	22.1	4.3	3.5
Secondary	14.8	3.1	4.0
More than secondary	8.6	3.2	3.7
By Household Wealth Quintile			
Lowest (Poorest)	27.6	9.5	1.9
Second	21.5	3.0	2.6
Middle	16.2	4.2	3.9
Fourth	11.6	3.8	3.3
Highest (Richest)	8.7	2.7	4.7
National Total	17.6	4.9	3.2

Source: KNBS and ICF (2023). Stunting = < -2SD (too short for age). Wasting = < -2SD (too thin for height). Overweight = > +2SD (too heavy for height). SD = Standard Deviation from WHO Child Growth Standards median.

Table 5 reveals profound socioeconomic inequalities in child nutritional status across all three dimensions in Kenya. By place of residence, rural children record stunting of 20.3% compared to 12.1% among urban children-a gap of 8.2 percentage points-and wasting of 5.3% compared to 4.0% among urban children. Overweight follows the opposite pattern, with urban children recording 4.0% overweight compared to 2.8% among rural children, reflecting the nutrition transition dynamic in which wealthier and more urbanized populations face increasing over-nutrition risks simultaneously with persistent undernutrition. These findings are consistent with Grossman's (1972) theoretical prediction that the enabling conditions of urban residence-including access to markets, healthcare services, and higher household incomes-facilitate greater investment in child health capital.

By maternal education, the most striking differentials are observed in wasting, where children of mothers with no education record 15.4% wasting compared to only 3.2% among children of mothers with more than secondary education-a gap of 12.2 percentage points, representing a nearly fivefold difference. Stunting gaps are equally pronounced: 22.2% among children of mothers with no education compared to 8.6% among those with more than secondary education-a difference of 13.6 percentage points. Mothers with primary education record stunting almost identical to those with no education (22.1% vs 22.2%), suggesting a threshold effect in which secondary and higher education is required to meaningfully reduce stunting risk. These findings are consistent with Fagbamigbe *et al*. (2020) who established significant pro-illiterate inequality in severe acute malnutrition in Kenya. The overweight pattern reverses above primary education-mothers with secondary and more than secondary education record higher overweight rates among their children (4.0% and 3.7% respectively)-further confirming the nutrition transition dynamic.

By household wealth quintile, the wealth gradient in stunting is steep and consistent: from 27.6% among the poorest quintile to 8.7% among the richest-a gap of 18.9 percentage points. Wasting follows the same gradient, declining from 9.5% in the poorest quintile to 2.7% in the richest-a gap of 6.8 percentage points. These findings confirm that household wealth is the single most powerful socioeconomic predictor of child undernutrition in Kenya, consistent with Anteneh *et al*. (2025), who established a pro-poor concentration index of −0.1719 across 35 sub-Saharan African countries, and Birhanu *et al*. (2024), who found wealth-related inequality in child undernutrition in 11 of 24 low- and middle-income countries. Overweight again reverses, increasing from 1.9% in the poorest quintile to 4.7% in the richest quintile-a gap of 2.8 percentage points-confirming that the double burden of malnutrition disproportionately affects the wealthiest Kenyan households.

4.3 Coverage of IYCF Practices Against WHO Recommendations, Kenya 2022

This section presents the coverage of infant and young child feeding practices and their adequacy against WHO recommendations among children aged 0–59 months in Kenya. All IYCF indicator values are extracted directly from Table 15 of the Key Indicators Report (KNBS & ICF, 2023, p. 57), with iron supplementation, vitamin A supplementation, and deworming from the Summary Report (KNBS & ICF, 2023, p. 14). Table 6 presents the complete IYCF coverage dataset with WHO sources and adequacy assessments.

Table 6: Coverage of Infant and Young Child Feeding (IYCF) Practices Against WHO Recommendations, Kenya 2022

IYCF Indicator (Plain Meaning)	Kenya 2022 (%)	WHO Target / Benchmark	Gap (pp)	WHO Source
Breastfeeding Practices				
Early initiation of breastfeeding-% of children put to breast within 1 hour of birth	60.1	≥ 70% by 2030	−9.9	WHO/UNICEF Global Breastfeeding Scorecard 2024
Exclusive breastfeeding under 6 months-% of children 0–5 months fed breast milk only	59.7	≥ 60% by 2030	−0.3	WHO/UNICEF Global Breastfeeding Scorecard 2024
Complementary Feeding (Children Age 6–23 Months)				
Minimum dietary diversity-% fed from ≥5 of 8 defined food groups per day	36.9	Maximise population coverage	—	WHO/UNICEF IYCF Indicators 2021
Minimum meal frequency-% fed solid/semi-solid foods minimum times per day for age	71.2	Maximise population coverage	—	WHO/UNICEF IYCF Indicators 2021
Minimum acceptable diet-% receiving BOTH min. dietary diversity AND min. meal frequency	30.8	Maximise population coverage	—	WHO/UNICEF IYCF Indicators 2021

Micronutrient Supplementation and Deworming				
Iron supplementation-% of children age 6–59 months given iron supplements in last 12 months	23.0	Universal in settings where anaemia ≥40%	—	WHO Guideline: Intermittent Iron Supplementation, 2011
Vitamin A supplementation-% of children age 6–59 months given Vitamin A in last 6 months	64.0	≥ 80% coverage target (WHO)	−16.0	WHO Global Reference List of 100 Core Health Indicators, 2018
Deworming-% of children age 12–59 months given deworming medication in last 6 months	66.7	Maximise-universal periodic deworming	—	WHO Guideline: Preventive Chemotherapy, 2017
Unhealthy Feeding Practices (Children Age 6–23 Months)				
Sweet beverage consumption-% of children given sugary drinks the day before the survey	49.1	Minimise-target 0%	+49.1	WHO/UNICEF IYCF Indicators 2021
Unhealthy food consumption-% given foods high in sugar, salt or unhealthy fats	26.4	Minimise-target 0%	+26.4	WHO/UNICEF IYCF Indicators 2021
Bottle feeding-% of children age 0–23 months fed from a bottle with a nipple	33.6	Minimise-target 0%: 'No bottles, teats or pacifiers should be used'	+33.6	WHO Guideline: Complementary Feeding 6–23 Months, 2023

Source: KNBS and ICF (2023). Iron supplementation, Vitamin A, and deworming from Summary Report. Positive gap (+) = unhealthy practice exceeds zero target. Negative gap (−) = recommended practice falls below target.

Table 6 reveals a mixed picture of IYCF practice coverage in Kenya in 2022, with several indicators falling critically below WHO benchmarks while others perform at moderate levels. Regarding breastfeeding practices, early initiation of breastfeeding stands at 60.1% against the WHO/UNICEF target of ≥70% by 2030-a gap of 9.9 percentage points-meaning that approximately 4 in 10 Kenyan newborns do not receive the critical first breastfeeding contact within the first hour of life. Exclusive breastfeeding under six months stands at 59.7%, marginally below the WHO/UNICEF target of ≥60% by 2030, representing a gap of only 0.3 percentage points. While this near-target performance on exclusive breastfeeding represents substantial progress from the 13% recorded in 2003 (KNBS & ICF, 2023, KIR, Figure 7, p. 55), it underscores the challenge of sustaining exclusive breastfeeding practices through six months in the face of widespread bottle feeding at 33.6% and early introduction of complementary foods.

Complementary feeding practices reveal a stark dichotomy between meal frequency and diet quality. Minimum meal frequency stands at 71.2%, indicating that most children aged 6–23 months receive an adequate number of feeding occasions per day. However, minimum dietary diversity stands at only 36.9%, meaning that fewer than 4 in 10 children receive foods from at least

five of the eight recommended food groups per day. As a consequence, the minimum acceptable diet-which requires both dietary diversity and meal frequency-stands at only 30.8%, meaning that 7 in 10 children aged 6–23 months do not receive an adequate overall diet. This gap between meal frequency and diet quality is consistent with Aboagye *et al*. (2024), who found sub-Saharan African minimum acceptable diet coverage of only 13.3%-indicating that Kenya's 30.8% performance, while low in absolute terms, substantially exceeds the regional average. The quality gap reflects the reliance on staple foods-particularly maize-without adequate animal source foods, eggs, fruits, and vegetables, as similarly documented by Ngure *et al*. (2023) in Tanzania.

Micronutrient supplementation coverage is critically low in Kenya, with iron supplementation at only 23.0% among children aged 6–59 months-meaning that 77% of eligible children do not receive iron-containing supplements, despite iron deficiency being the leading cause of anaemia in this age group. This critically low iron supplementation coverage stands in stark contrast to the high national burden of anaemia and directly contributes to the impaired cognitive development and growth faltering associated with iron deficiency. Vitamin A supplementation at 64.0% falls 16 percentage points below the WHO target of ≥80%, leaving approximately 36% of eligible children without this critical intervention that reduces mortality from measles and diarrhoea by up to 50% and 30% respectively. Deworming coverage at 66.7%-approximately 2 in 3 eligible children-represents a moderate performance that approaches but does not meet the universal target for periodic deworming in high-prevalence settings.

Unhealthy feeding practices constitute a serious and underrecognized nutritional challenge in Kenya. Sweet beverage consumption stands at 49.1%-meaning that nearly 1 in 2 children aged 6–23 months consumed a sugary drink on the day preceding the survey-against a WHO target of zero. Unhealthy food consumption at 26.4% means that 1 in 4 children consumed foods high in sugar, salt, or unhealthy fats on the preceding day. Bottle feeding at 33.6%-meaning 1 in 3 children aged 0–23 months is fed from a bottle with a nipple-directly contradicts the WHO (2023) recommendation that 'no bottles, teats or pacifiers should be used,' as bottle feeding is associated with reduced breastfeeding duration, increased infection risk, and excessive weight gain. The prevalence of 33.6% bottle feeding in Kenya is consistent with the 34% reported by Multilevel modeling analysis of bottle feeding in East Africa (Multilevel modeling analysis, 2024), and aligns with the observation that urbanization and higher maternal education are associated with increasing bottle feeding rates.

4.4 Discussion of Findings

The discussion of the findings are presented per objective.

4.4.1 Trends in Child Nutritional Status

The trend findings confirm Kenya's remarkable progress in reducing stunting from 40% in 1993 to 18% in 2022-a 55% reduction over three decades. This performance exceeds the sub-Saharan African regional reduction over the same period, confirming Kenya as one of the region's success stories in chronic undernutrition reduction. The acceleration of stunting decline between 2008–09 and 2022 coincides with major policy milestones in Kenya, including the launch of free primary healthcare services (2013), the Jubilee Government's free maternity programme Linda Mama (2013), and the scale-up of community health worker programs through the Community Health Strategy. These policy investments are consistent with the Grossman (1972) model's prediction

that public investment in health infrastructure reduces the shadow price of health investments for all households, disproportionately benefiting the poor.

The fluctuating wasting trend-from 7% in 1993 to a low of 4% in 2014, before rising to 5% in 2022-is consistent with acute undernutrition's sensitivity to short-term environmental and economic shocks. The slight increase between 2014 and 2022 may reflect the impacts of prolonged drought in Kenya's arid and semi-arid counties between 2018 and 2022, which is consistent with Moloro *et al*.'s (2026) finding that insufficient antenatal care visits and poor household wealth are significant predictors of wasting across sub-Saharan Africa. The declining overweight trend from 6% in 1993 to 3% in 2022 is notable, as it diverges from global trends showing increasing overweight in children in many low- and middle-income countries. However, the cross-sectional socioeconomic data in Objective 2 reveals that overweight is already concentrated among the richest and most urban children, suggesting that aggregate national overweight declines may be masking a growing dual burden of malnutrition within specific socioeconomic subgroups.

4.4.2 Socioeconomic Differentials in Child Nutritional Status

The socioeconomic differential findings confirm that child undernutrition in Kenya is profoundly shaped by household wealth, maternal education, and place of residence-fully consistent with the predictions of both the Grossman (1972) model and the UNICEF (2020) conceptual framework. The 18.9 percentage point stunting gap between the poorest and richest wealth quintiles (27.6% vs 8.7%) confirms that wealth is the most powerful single socioeconomic predictor of stunting in Kenya, consistent with Anteneh *et al*. (2025), whose concentration index of −0.1719 across 35 sub-Saharan African countries demonstrates significant pro-poor concentration of undernutrition. The Grossman model's budget constraint mechanism directly explains this gradient: poorer households cannot afford the nutritional inputs-quality food, healthcare, supplementation-required to produce adequate child health capital.

The education differential-particularly the 12.2 percentage point wasting gap between children of mothers with no education (15.4%) and those with more than secondary education (3.2%)-is among the most striking findings of this study. The disproportionate wasting burden among children of uneducated mothers confirms the Grossman model's efficiency pathway: educated mothers are more efficient producers of child health from any given set of inputs, recognizing danger signs of acute undernutrition earlier and responding with appropriate feeding and health-seeking behavior. This finding is consistent with Fagbamigbe *et al*. (2020), who established significant pro-illiterate inequality in severe acute malnutrition in Kenya, and with Prasad *et al*. (2021), who found that 60% of stunted and 56.6% of underweight children in India had illiterate mothers. The threshold effect-where primary education provides minimal additional protection over no education for stunting-suggests that quality of education and nutrition knowledge may be more important than years of schooling per se.

The overweight reversal pattern-where wealthier and urban children have higher overweight rates-provides important evidence for the emerging double burden of malnutrition in Kenya. While the richest quintile has the lowest stunting (8.7%) and wasting (2.7%), they record the highest overweight (4.7%), and urban children record overweight of 4.0% compared to 2.8% in rural areas. This pattern is consistent with the nutrition transition described by Elmighrabi *et al*. (2024), in which economic development leads to dietary shifts toward energy-dense but nutrient-poor foods, increasing overweight risk while undernutrition persists among poorer subgroups. Kenya's nutrition policy must therefore simultaneously address undernutrition among poorer and rural

children and emerging overweight among wealthier and urban children-a dual policy challenge that requires a whole-of-diet approach beyond traditional undernutrition-focused interventions.

4.4.3 IYCF Coverage Against WHO Recommendations

The IYCF findings reveal a fundamental paradox in Kenya's nutrition situation: the country has achieved near-target exclusive breastfeeding coverage (59.7% against a target of ≥60%) and relatively high meal frequency (71.2%), yet simultaneously records critically low dietary diversity (36.9%), critically low minimum acceptable diet (30.8%), critically low iron supplementation (23.0%), and very high unhealthy feeding practices-with 49.1% sweet beverage consumption and 33.6% bottle feeding. This paradox confirms the UNICEF (2020) framework's distinction between sufficient feeding frequency and adequate dietary quality: a child can be fed frequently while still consuming an insufficiently diverse and nutritionally inadequate diet.

The critically low iron supplementation coverage of 23.0% is particularly alarming given that iron deficiency is the most prevalent nutritional deficiency in sub-Saharan Africa. Kenya's stunting rate of 17.6% and wasting rate of 4.9% are both partly attributable to micronutrient deficiencies that adequate iron supplementation could prevent. The 16 percentage point gap between Kenya's Vitamin A supplementation coverage (64%) and the WHO ≥80% target similarly represents a preventable exposure to increased child mortality risk from measles and diarrhoea. These gaps in micronutrient supplementation are consistent with the UNICEF framework's identification of micronutrient deficiencies as immediate determinants of child undernutrition that operate alongside inadequate dietary diversity. The high sweet beverage consumption (49.1%) and unhealthy food consumption (26.4%) represent an additional nutritional threat-displacing nutritious foods with energy-dense, low-nutrient alternatives-consistent with Toweet *et al*.'s (2026) finding that wealth and urban residence are the strongest predictors of timely complementary feeding in Kenya.

5.0 Conclusion

The study concludes that Kenya has achieved substantial progress in reducing chronic child undernutrition-stunting declined by 22 percentage points from 40% in 1993 to 18% in 2022, with the most rapid acceleration occurring between 2008–09 and 2022. However, at 17.6% nationally, stunting remains far above the global SDG target, and county-level disparities-from 9.0% in Kisumu to 37.0% in Kilifi-confirm that aggregate national progress masks profound geographic inequalities (KNBS & ICF, 2023, Key Indicators Report, Table 14C, p. 44). Socioeconomic inequalities in child nutritional status are stark and consistent across all three dimensions examined. Children in the poorest wealth quintile record stunting of 27.6% compared to 8.7% in the richest-a gap of 18.9 percentage points. Children of mothers with no education record wasting of 15.4% compared to 3.2% among those with more than secondary education-a gap of 12.2 percentage points. These inequalities are fully consistent with the Grossman (1972) demand for health model's prediction that household wealth and maternal education determine the efficiency and quantity of child health investment, and with the UNICEF (2020) framework's identification of poverty and education as basic determinants of child undernutrition. An emerging double burden of malnutrition is also documented, with wealthier and urban children simultaneously recording the lowest stunting and wasting yet the highest overweight rates.

In addition, the study concludes that infant and young child feeding practices in Kenya fall critically short of WHO recommendations across multiple dimensions simultaneously. Only

30.8% of children receive a minimum acceptable diet, iron supplementation coverage is only 23.0%, sweet beverage consumption affects 49.1% of children aged 6–23 months, and bottle feeding affects 33.6% of children aged 0–23 months-all representing serious gaps between current practice and WHO benchmarks. The exclusive breastfeeding coverage of 59.7%-while nearly at the WHO ≥60% target-coexists with widespread unhealthy feeding practices that undermine nutritional quality. These IYCF gaps represent a critical modifiable pathway through which child nutritional outcomes can be improved without waiting for broader socioeconomic development, as feeding practices can be changed through targeted behavior change communication and nutrition-specific interventions.

6.0 Recommendations

Based on the findings, the following recommendations are made:

i. National and County Governments-Stunting Reduction Priority Counties:

The Government of Kenya should designate Kilifi (37.0%), West Pokot (33.5%), Samburu (31.4%), Turkana (23.0%), and Mandera (20.5%) as priority intervention counties for stunting reduction, with ring-fenced county nutrition budgets, enhanced community health worker deployment, and targeted social protection transfers for the poorest wealth quintile households. The Social Health Authority and county health departments should track progress at sub-county level using quarterly MUAC-based nutrition surveillance.

ii. Maternal Education Investment:

The Ministry of Education and the Ministry of Health should jointly invest in nutrition education within the school curriculum from primary school level, recognizing that primary education alone does not significantly reduce stunting risk-the threshold effect observed between no education (22.2%) and secondary education (14.8%) requires active nutrition education content, not passive schooling years alone.

iii. Iron Supplementation Scale-up:

The National Nutrition Action Plan must urgently prioritize the scale-up of iron supplementation coverage from 23.0% toward universal coverage, particularly in counties with the highest stunting and wasting rates. Iron supplementation should be integrated into routine child welfare clinic visits and community health worker household visits to reach the 77% of children currently missed.

iv. IYCF Behavior Change Communication:

The Ministry of Health, UNICEF, and development partners should invest in targeted behavior change communication campaigns to address the three simultaneous IYCF challenges: inadequate dietary diversity (36.9% vs WHO maximise target), high sweet beverage consumption (49.1% vs 0% target), and high bottle feeding (33.6% vs 0% target). Campaigns should specifically target urban and wealthier households where unhealthy feeding practices are most prevalent.

v. Vitamin A Supplementation:

Kenya should close the 16 percentage point gap between current Vitamin A supplementation coverage (64.0%) and the WHO ≥80% target through integration of Vitamin A supplementation with routine immunization services and community health outreach programs, particularly in counties recording low vaccine coverage.

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