KENYAN CHILDREN
NUTRITION FACT BOOK

DEVELOPED BY:

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CONTENTS

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CHILD NUTRITION LANDSCAPE IN KENYA: KEY FACTS AND TRENDS

1.0 EXECUTIVE SUMMARY

Introduction

This document presents an overview of trends in the nutritional status of children from birth to age 19 in Kenya. It is the product of demographic health surveys in the country between 2009 to 2022 together with research studies related to the nutritional status of children in Kenya. It is divided into age groups from birth to 2 years, below 5 years, and children and adolescents between the ages of 5 to 19 years. For each of these age groups, it focuses on indicators used to assess nutritional status; the prevalence of these indicators and trends in the nutritional status for each of these age groups over time; nutrition recommendations for each of these age groups, how Kenya ranks at the global level and factors associated with the different and varying trends observed.

1.1 Key Findings

- Kenya has made highly impressive gains in the area of exclusive breastfeeding (EBF) and is one of the countries that are 'on course' to meet the global nutrition target on EBF with 60% of children between 0 to 5 months being exclusively breastfed.
- Mothers with no education are more likely to initiate early breastfeeding than those with some education
- Only 31% of Kenyan children between the ages of 6 to 23 months met the minimum criteria for acceptable diets which is a collation of minimum dietary diversity, minimum meal frequency, and minimum milk feeding frequency according to the 2022 Demographic Health Survey.
- Progress has been made in reducing the prevalence of infants with low birth weight to the current 11.5%. However, the country is still not "on course" to achieve a 30% reduction in the number of infants born with a weight lower than 2500 g.
- Low birth weight was the second leading cause of infant admissions in 2019 and the leading cause of admissions in 2020.
- Kenya is among the countries 'on course' for the 2025 global maternal infant and young child nutrition targets for; achieving a 40% reduction in the number of children under-5 who are stunted, ensuring there is no increase in childhood overweight and reducing and maintaining childhood wasting to less than 5%.
- The prevalence of stunting has tremendously decreased with 18% of children below the age of 5 stunted in the most recent KDHS of 2022.
- Stunting is higher among children in rural (20%) compared to urban areas (12%).
- Variation in stunting is seen based on the level of education, wealth quintile,

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and location. Higher stunting levels are seen among mothers with no education (22%) compared to mothers with more than secondary education (9%), and stunting decreases with increasing wealth from 28% in the lowest wealth quintile to 9% in the highest quintile.

- The rates of wasting have steadily decreased but are still modest with the current prevalence of 5%.
- The current prevalence of underweight children under 5 years has markedly decreased in Kenya especially between 1998 and 2022, from 18% to the current 10%.
- The current prevalence of overweight for children below 5 years in Kenya is 3% which is the lowest since 1993 (7%). Kenya is therefore 'on course' in ensuring there is no increase in childhood overweight.
- An examination of factors associated with childhood overweight and obesity in children (3 to 5 years) found that maternal overweight, higher education attainment, and stunting were each associated with increased odds of overweight and obesity.
- The prevalence of overweight and obesity among children and adolescents in Kenya between the ages of 5 and 19 years has been steadily increasing especially overweight among girls. In addition, the prevalence numbers of being overweight among girls are significantly higher than those seen in boys.
- In 2018, teenage pregnancies were at an all-time high with an estimated 427,297 adolescents presenting with pregnancy at the first antenatal visit.
- Teenagers in the lowest wealth quintile are more likely to be pregnant than teenagers in the highest wealth quintile.
- There is evidence of overweight and obesity among school-going children and factors such as parental education level and socio-economic status are associated with an increased likelihood of both overweight/obesity and less engagement in physical activity.
- Kenya is also experiencing a nutrition transition marked by changes, especially in the urban food environment and characterized by a high intake of energy-dense foods, low intake of fiber, and limited physical activity.

Undernutrition has remained persistent in African countries and Kenya is no exception. Over the years, stunting, wasting, and being underweight have been targeted by interventions and policies, however, the burden of overnutrition has gradually grown in sub-Saharan Africa, Kenya included. More data and research studies on overnutrition, particularly overweight and obesity in Kenya are needed especially due to the shift in dietary patterns and urbanization.

The current prevalence of underweight children under 5 years has markedly decreased in Kenya especially between 1998 and 2022, from 18% to the current 10%

427,297

In 2018, teenage pregnancies were at an all-time high with an estimated 427,297 adolescents presenting with pregnancy at the first antenatal visit.

2.0 KEY FACTS AND TRENDS: BIRTH TO AGE TWO

Optimal nutrition is critical for children from the moment they are conceived until they reach the age of two years. This is known as the first 1000 days. This is a period of rapid growth and development and deficiencies in nutrition at this age can cause long-term adverse health effects. Feeding practices at this stage are critical to growth and development, health and survival(1). Ideal infant and young child feeding practices are one of the most effective interventions for improving child health (3). Reversing sub-optimal growth after the age of two is hard and for this reason, it is essential to maximize this critical window of opportunity to ensure optimal growth and development are achieved(1).

The World Health Organization(WHO) together with the United Nations Children's Fund(UNICEF) recommendations for optimum nutrition from birth to age two include; early initiation of breastfeeding within 1 hour of birth, exclusive breastfeeding for six months (180 days), and nutritionally adequate and safe complementary feeding (solid foods) with continued breastfeeding up to two years of age and beyond(2). Locally, the national guidelines for healthy diets and physical activity, in addition to early initiation and exclusive breastfeeding recommends supporting breastfeeding through providing orientation to spouses, family members, and friends of lactating mothers for infants between 0 to 6 months(3).

WHO and UNICEF developed indicators for assessing dietary practices for children under the age of 2 years which act as guiding principles for breastfed and non-breastfed children and are used to evaluate progress across different countries through household surveys(4). The indicators relate to dietary diversity, food groups, breastfeeding indicators, and indicators of unhealthy food and beverage consumption(4).

These indicators are utilized to make national and sub-national comparisons, identify populations at risk to develop targeted interventions and policies, and monitor progress in goals set even at the global level(4). Based on the UNICEF global databases, the prevalence of infant and young child feeding indicators available in Kenya include early initiation of breastfeeding, exclusive breastfeeding, the introduction of solid, semi-solid, or soft foods, continued breastfeeding at one year, and continued breastfeeding at two years(5). **Table 1** below represents the trends in the above indicators between the years 2000 and 2022.

First 1000 days

Optimal nutrition is critical for children from the moment they are conceived until they reach the age of two years. This is known as the first 1000 days.

Table 1: Infant and Young Child Feeding Indicators Birth to 2 Years

YEAR	2000	2003	2008	2014	2022
Early Initiation of Breastfeeding		49.6%	55.8%	62.2%	60%
Exclusive Breastfeeding	13.8%	12.2%	31.9%	61.4%	60%
Introduction of solid, semi-solid, or soft foods at 6 months		84.7%	85.1%	79.7%	
Continued Breastfeeding at 1 year	83.1%	92.1%	86.0%	90.4%	
Continued Breastfeeding at 2 years	36.8%	57.5%	53.6%	53.1%	

2.1 Early Initiation of breastfeeding

Early initiation of breastfeeding represents the practice of putting an infant to the breast within the first hour of birth and does not require milk to be transferred or the infant to suckle(4). Early initiation of breastfeeding is paramount for both the mother and the child. Globally, less than half of all newborns are breastfed within the first hour of life(1). Among the benefits of early suckling is the stimulation of prolactin hormone which stimulates milk production, it also ensures that the baby benefits from colostrum which is a rich source of antibodies produced during the first few days after delivery(6).

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In Kenya, the rates of early initiation of breastfeeding are generally low, however, since 2003 the trend has been increasing steadily as seen in **Table 1** and **figure 1**(7). The current prevalence is 60% as seen in the 2022 KDHS(8). There has been a slight decline in early initiation of breastfeeding between 2014 and 2022, and factors that influenced variation in 2014 may still be at play.

According to the 2014 Kenya Demographic Health Survey (KDHS), initiation of breastfeeding within the first hour of birth varied modestly based on the background(6). Mothers with no education (76%) were more likely to initiate early breastfeeding than those with some education (65%), and mothers in the lowest wealth quintile (67%) were more likely to initiate early breastfeeding than those in higher wealth quintiles (64% or less)(6). This is contrary to what is seen in higher-income countries where higher breastfeeding rates are seen in wealthier and more educated women(1).

2.2 Importance of Breastfeeding

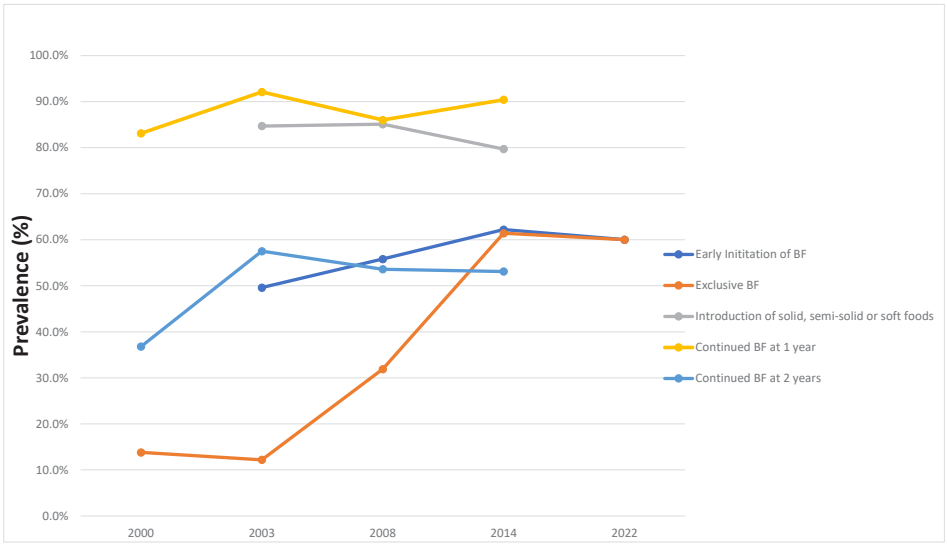
Breastfeeding confers benefits to both the child and mother in the short and long term (2). Breastmilk is referred to as the golden standard and exclusive breastfeeding ensures that an infant receives all the benefits of breastmilk. The benefits of exclusive breastfeeding (EBF) were recognized as early as 1984 when a review of multiple studies found that the risk of death from diarrheal diseases was 8.6 times higher among partially breastfed infants than in exclusively breastfed infants(2). Further, those who did not receive breastmilk had a higher risk of death from diarrheal disease- up to 25 times more (9). Infants who are not breastfed are 6 to 20 times more likely to die in the first month of life(2).

Breastmilk protects the baby from illnesses such as diarrhea, pneumonia, and otitis media as the first milk known as colostrum is full of antibodies(2). It also promotes adequate growth and development as breastfed babies have been shown to have a higher IQ than non-breastfed babies(3)Breastfeeding has also notably been associated with reduced incidence of overweight, obesity, and chronic ailments like diabetes later in life(1).

2.3 Exclusive Breast Feeding (EBF)

Globally, the rates of EBF increased by 7% from 2005 to 2018; however, the rates are below 50% in most countries(10). The Eastern and Southern Africa regions of UNICEF and South Asia had attained an EBF rate of more than 50% by 2018 (10). Kenya has made great and highly impressive gains in this area of EBF and it is one of the countries that are 'on course' to meet the global nutrition target *(increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%)* on EBF with 60% of children between 0 to 5 months being exclusively breastfed as of 2022 **(see Figure 1).** The most substantial increase in exclusive breastfeeding is seen between 2003 to 2022 (from 13% to 60%) (8)**.**

Figure 1: Trends in prevalence of Infant and Young Child Feeding (IYCF) Indicators in Kenya



Source; UNICEF Global database. Infant and Young Child feeding, 2022 KDHS

Barriers to early initiation, exclusive breastfeeding, and continued breastfeeding are related to various factors. Some of these include cultural factors such as giving special foods or drinks rather than early initiation of breastfeeding as a birth ceremony; and environmental factors such as delivery in health institutions with skilled health workers versus home deliveries under traditional birth attendants(1).

External influence from the breastmilk substitute industry and variation across different countries in the implementation and extensiveness of the International Code of Breastmilk Substitutes, which influences health workers also act as barriers(11). Additionally, livelihood and employment barriers where professional women go back to work and are unable to exclusively breastfeed for six months are well-known barriers to breastfeeding(11).

The most substantial increase in exclusive breastfeeding is seen between 2003 to 2022 (from 13% to 60%)

2.4 Complementary Feeding and Continued Breastfeeding

Following 180 days of exclusive breastfeeding, the nutrient and energy needs of infants can no longer be met by breast milk alone and therefore complementary feeding becomes necessary. The inappropriate introduction of complementary foods may result in growth faltering(2). Despite the introduction of complementary feeds, breastmilk remains a critical source of nutrients providing nearly one-half of an infant's energy needs up to age one and one-third during the second year of life(2). In many countries, the period between 6 and 23 months is when there tends to be a peak in the incidence of growth faltering, infectious illnesses, and micronutrient deficiencies(12).

180 days

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2.5 Nutritional Recommendations 6 to 23 months

Based on WHO recommendations, complementary foods should include a variety of energy and nutrient-dense foods, animal-source foods, sources of vitamin A, and foods prepared with healthy oils(2). The foods should also contain at least four of the seven food groups which are:

1) Cereals, roots, tubers, and plantains

2) Legumes, nuts, and seeds

3) Dairy products (milk, cheese, yogurt)

4) Flesh foods (meat, fish, poultry, liver/organ meats

5) Eggs

6) Vegetables and fruits rich in vitamin A (yellow, orange, or green)

7) Other vegetables and fruits.

Locally, the national guidelines recommend feeding a variety of meals from at least five food groups (**see table 2**), continuation of breastfeeding; breastfeeding more during illness in addition to meals and the provision of extra food after illness; taking of children to the clinic for growth monitoring and for them to receive supplements (Vitamin A supplementation at six months and every six months thereafter until age five) and vaccinations(3).

The KDHS assesses infant and young child nutrition for children between 0 to 23 months using minimum milk feeding frequency, minimum dietary diversity, minimum meal frequency, and minimum acceptable diet; notably, minimum acceptable diet is a consolidation of the latter two in addition to milk feeding frequency for non-breastfed children(8). Further, each of these indicators is a proxy as seen below.

- Minimum dietary diversity- adequate micronutrient density of food
- Minimum meal frequency- adequate energy intake (see table 3 and Table 4.1)
- Minimum milk feeding – adequate nutrient needs for non-breastfed children (minimum of two milk and/or milk products)

In the 2014 KDHS, indicators of appropriate IYCF practices used among children aged 6 to 23 months were; **intake of breastmilk or milk products, adequately diverse diet, and frequency of food given with age**. For the amounts, frequency of feeding, types of foods, and texture recommended for children between 6 to 23 months in Kenya see **table 3.** In terms of specific nutrient requirements for energy and recommended dietary allowance (RDA) for other nutrients, see Tables **4.1 and 4.2.**

Table 4.1 Recommended energy and protein intakes for infants and young children 0 to 3 years.

AGE	RDA CALORIES	RDA PROTEIN
0 – 3 months	100 – 120kcals/ kg	2.2g/kg
3 – 6 months	110 – 115kcals/kg	2.2g/kg
6 to 12 months	90 – 110 kcals/kg	2.0g/kg
1 – 3 years	100- 105kcals/kg	1.8g/kg

Source: FAO/WHO 1998

Table 2: Locally available foods under different food groups

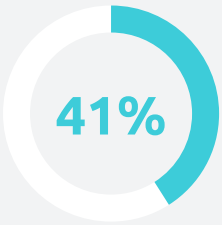
FOOD GROUP	FOOD EXAMPLES
Starches	
Cereals and cereal products	Maize, sorghum, rice, ugali, oats, bread
White roots and tubers, plantains	White potato, sweet potato, cassava, yams, arrowroots, green banana, plantain
Fruits and vegetables	
Vitamin A-rich vegetables and tubers	Carrots, pumpkin, butternuts, red sweet bell peppers, orange-fleshed sweet potato
Dark Green leafy vegetables	Kales (Sukuma wiki), spinach, cowpeas leaves (Kunde), black African nightshade (manage). Amaranthus (terere), stinging nettle (thabai), sweet potato leaves, spider weed(saget/saga), pumpkin leaves, arrow-root leaves
Other vegetables	Green peppers, cauliflower, broccoli, cucumbers, cabbage, eggplant, courgette, French beans, okra
Vitamin A-rich fruits	Mango, papaya
Other fruits	Avocado, pineapples, guava, apples, oranges, ripe bananas, melon
Legumes and pulses, Nuts, and seeds	
Legumes and pulses	Beans, cowpeas, green peas, pigeon peas(mbaazi), black beans, soya beans, green grams, lentils
Nuts and seeds	Simsim seeds, pumpkin seeds, sunflower seeds, macadamia nuts, cashews, groundnuts,
Meat, Fish, and animal protein products	
Organ meats	Liver, kidney
Flesh meats	Goat meat, beef, mutton, pork, chicken, turkey, quail
Eggs	Eggs from chicken, quail, ducks, guinea fowl
Fish and seafood	Fresh, frozen, or dried fish
Milk and Milk Products	Milk from goats, cows, fermented milk, yoghurt, cheese, and other products
Fats and Oils	Vegetable oil, cooking oil, ghee, cod liver oil, fish oils, butter

6 to 23 months

In the 2014 KDHS, indicators of appropriate IYCF practices used among children aged 6 to 23 months were; intake of breastmilk or milk products, adequately diverse diet, and frequency of food given with age.

Table 3: Recommendations on the texture, frequency, and amount of food to offer children 6–23 months of age who are breastfed on demand

Age	Frequency	Amount an average child will usually eat at each meal	Type of food and texture
6 months	2 times a day	Start with 2 tablespoons at each feed. Increase to 3 tablespoons in the 3rd and 4th weeks.	Begin with staples (corn, rice, millet, wheat) pureed banana, or potato. Mix no more than 2 cereals for porridge. Food should be thick enough not to run off the spoon. Give small sips of clean drinking water.
7-8 months	3 times a day	½ of a 250ml cup/bowl	Include at least one food from an animal source, staple, legumes and seeds, vitamin A-rich fruits, and vegetables. Add a small amount of oil. Enrich food by adding milk and locally available foods like peanut paste and avocado. Mashed/Pureed family foods, begin eating finger foods.
9-11 months	4 times a day (3 meals and 1 snack)	½ to full 250 ml cup/bowl	Give a variety of foods, including milk, sorghum, millet, groundnuts, cowpeas, green grams, and orange-fleshed sweet potatoes. Add a small amount of oil. Enrich food by adding milk and locally available foods like peanut paste and avocado. Give finely chopped family foods, finger foods, and sliced foods
12 -23 months	5 times a day (3 meals and 2 snacks)	¾ to 1 cup of 250ml	Include at least one food from an animal source, staple, legumes and seeds, vitamin A-rich fruits, and vegetables. Add small amounts of iodized salt. Give 2 – 3 cups (250ml) of milk. Add small amounts of oil and enrich food by adding milk and locally available foods like peanut paste and avocado. Cut food into small, soft pieces that can be picked, chewed, and swallowed comfortably.
For non-breastfed children (6-23 months), give 3-4 cups of milk in addition to complementary meals at 6 months. At 6-8 months, feed 1 extra meal and 1-2 cups of milk, and add one snack depending on appetite. From 9 months, provide 1-2 extra meals and 1-2 cups of milk, and 2 snacks depending on the appetite.			



The 2014 KDHS survey showed that 91% were fed milk or milk products, 41% received an adequately diverse diet and 51% of the children had been fed the minimum number of times appropriate for their age.

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Cumulatively, only 22% of Kenyan children met the minimum criteria acceptable for the three IYCF practices used (6). In the most recent demographic health survey released in 2023, 37 % percent of children had an adequately diverse diet, 71% were fed the minimum number of times appropriate for their age, 52% of non-breastfed children were fed at least 2 milk feeds and cumulatively 31% were fed the minimum acceptable diet (8). Notably, there was an improvement in the minimum acceptable diet from 22% to 31% between 2014 and 2022.

In terms of dietary diversity, three food groups were considered appropriate for breastfed children while four food groups were considered appropriate for non-breastfed children in 2014 whereas, in the 2022 survey, a minimum of 5 food out of eight groups including breastmilk were appropriate. Notably, diversity dropped from 41% to 37%. This may be attributed to the modification of the assessment criteria.

In the 2014 survey, gaps were seen in the intake of protein and calcium intake as only 20 to 25% of children were fed with meat, poultry, eggs, legumes, nuts, and fish (6). This outcome in gaps can be associated with the cultural belief that young children are not developmentally able to consume animal proteins(13).

A trial program by the USAID and Kenya Ministry of Health while developing complementary feeding recipes also revealed that preparation and modification of foods for 6 to 23-month-old children was a challenge for the mothers(13).

The 2014 survey also recorded that, as age increased so did the likelihood of children between 6 to 23 months to be fed according to the IYCF recommended practices; children in urban areas (31%) were more likely to be fed according to the recommended guidelines compared to children in rural areas(17%); adherence to feeding guidelines was highest in Nairobi (39%) and lowest in North Eastern (3%) and appropriate feeding increased with increasing mother's education level and socio-economic status(6).

The appropriate introduction of complementary foods in terms of dietary diversity, frequency, amount, and safety has been demonstrated to prevent malnutrition in form of stunting, overweight and obesity, and micronutrient deficiencies (10). While Kenya has made great progress in exclusive breastfeeding, only 31% of children between 6 to 23 months meeting the criteria for minimum acceptable diet is an area in need of improvement.

2.6 Consumption of unhealthy foods and sweet beverages

The World Health Organization, (WHO) principle for complementary feeding recommends against the consumption of sweetened drinks such as soft drinks since they offer no other nutrient apart from energy and may often displace nutritious food for children.

Excessive intake of such beverages is associated with a higher risk of obesity among children of all ages. The 2022 KDHS showed that approximately 49% of children between 6 to 23 months are fed a sweet beverage and 26% are given unhealthy foods.

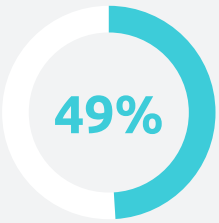
2.7 Prevalence of infants with low birth weight

One of the global targets for maternal infant and young child nutrition is to achieve a 30% reduction in low birth weight (LBW). A child whose birth weight is less than 2500 grams is considered to be of low birth weight, while a baby less than 1500 grams is considered very low birth weight(VLBW)(2).

Preterm birth (before 37 weeks of complete gestation), intrauterine growth retardation leading to a child being small for their gestation age at birth or both can be the causes of LBW(10).

Weight is a significant indicator of the child's vulnerability to childhood ailments and survival chances(6). In addition, infants of LBW are also at a higher risk of delayed cognitive development, infant death, childhood stunting, and non-communicable diseases later in life(2).

Based on the UNICEF/WHO birth weight estimates, Kenya has been making progress in reducing the prevalence of infants with low birth weight since the year 2000 as seen in **Figure 2** (14).

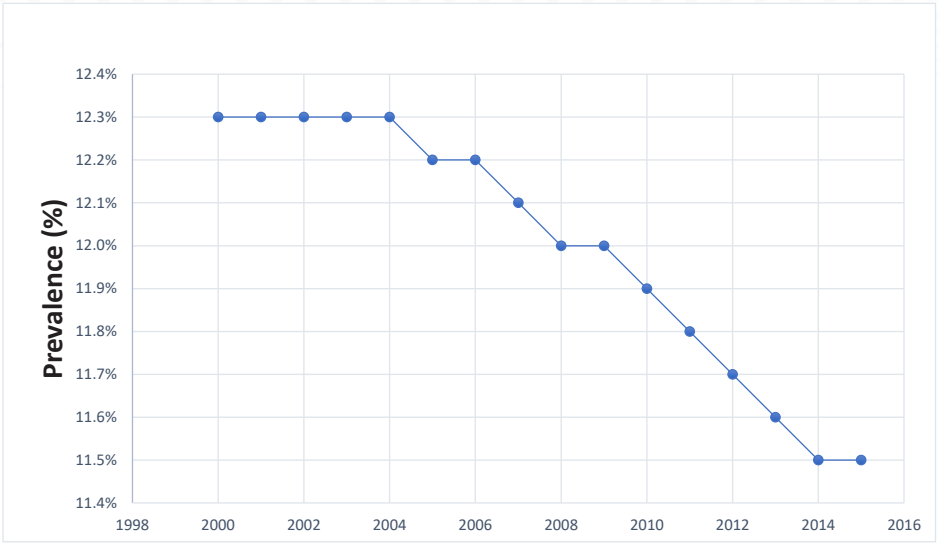


The 2022 KDHS showed that approximately 49% of children between 6 to 23 months are fed a sweet beverage and 26% are given unhealthy foods.

Despite the progress made in reducing the prevalence of LBW to the current 11.5% , Kenya is still not on course to achieve a 30% reduction in low birth weight.

LBW is considered a complication of pregnancy and maternal age is a factor that greatly contributes to this complication.

Figure 2: Trend in prevalence of Infants with Low Birthweight in Kenya



Notes: Prevalence (%) is based on modelled estimates. Low birth weight is defined as less than 2,500g.

Source: UNICEF/WHO. Available at https://data.unicef.org/topic/nutrition/low-birthweight. Accessed 29 December 2022.

Despite the progress made in reducing the prevalence of LBW to the current 11.5%, Kenya is still not on course to achieve a 30% reduction in low birth weight. In the year 2019 according to the 2021 Economic Survey, LBW was the second leading cause of infant admissions accounting for 14% in the country while in 2020 it was the leading cause accounting for 10.3%(15).

LBW is considered a complication of pregnancy and maternal age is a factor that greatly contributes to this complication. Low maternal age may predispose a pregnancy to preterm delivery and also retarded utero growth due to competing needs between the fetus and the teen mother(16). In Kenya, teenage pregnancies were at an all-time high in 2018, with an estimated 427,297 adolescents presenting with pregnancy at the first antenatal visit(15).

In 2019, 396,929 adolescent girls presented with pregnancy(15). It is essential to note the connection between teen pregnancies and LBW as the former is a risk factor for the latter. Being born with low birth weight is a disadvantage for the infant non the less, experience from both developed and developing countries has shown that adequate care through feeding, temperature regulation, hygienic skin and cord care, and the prevention and treatment of infections increases chances of survival(10).

3.0 KEY FACTS AND TRENDS: 2-5 YEARS OF AGE (24 to 59 months)

The nutritional needs of children at this age are relatively high and this makes them more vulnerable to malnutrition and the consequences that precede. Children start going to preschool at this age meaning they end up eating some of their meals away from home(3). In addition, they are also likely to snack on unhealthy snacks, become picky eaters, and are easily influenced by media, changing trends, and their peers.

3.1 Nutrition Recommendations for children aged 24 to 59 months

According to the national guidelines, children in this age group should be fed 2 to 4 meals and 1 to 2 snacks in between meals per day. The guidelines recommend:

- At least one food from each food group i.e., animal source, staple, legumes and seeds, dairy, vitamin A-rich fruits and vegetables (see Table 2).
- Adding a little oil to facilitate absorption of vitamin A if no fatty foods are included in the meal
- Providing nutritious snacks such as a ripe banana, boiled egg, mango, or milk between meals.
- Increase of nutrient-dense foods by addition of oilseeds such as groundnuts.
- Giving plenty of clean water to drink.
- Giving 2 to 3 cups of milk per day.
- Give at least 1½ to 2 bowls of 250 ml of food per meal daily.

4 to 6 years

For children between 4 to 6 years, the intake of free sugars should be no more than 19 grams per day.

Table 4.2 Recommended Nutrient Intakes for children 2 to 4 years

Nutrient /Day	1 – 3 years	4 years
Energy (kcals)	1300	1800
Protein (g)	16	24
Vitamin A(ug)	400	500
Vitamin D(ug)	5	5
Vitamin E (mg- TE)	6	7
Vitamin K (ug)	15	20
Vitamin C (mg)	30	30
Vitamin B1 (mg)	0.5	0.6
Vitamin B2 (mg)	0.5	0.6
Niacin (mg)	6	8
Vitamin B6 (mg)	0.5	0.6
Folate (ug)	160	200
Vitamin B12 (mg)	0.9	1.2
Calcium(mg)	500	600
Phosphorus (mg)	800	800
Magnesium (mg)	60	70
Iron (mg)	10	10
Zinc(mg)	10	10
Iodine (ug)	75	110
Selenium (ug)	17	21
ug- micrograms **ug RE** – micrograms Retinal Equivalent **mg** – milligrams **Kcals** - Kilocalories		

Source: Essential nutrition and diet therapy 9th Edition by Eleanor D. Schlenker, WHO/FAO 2001

There are no guidelines on the limit for the intake of sugars for children under age 4, however, it is recommended that they avoid sugar-sweetened drinks and foods with sugar added to them. For children between 4 to 6 years, the intake of free sugars should be no more than 19 grams per day.

Between 1988 to 2022

Kenya has made recognizable progress in reducing the rates of stunting, wasting, and underweight and maintaining low levels of overweight and obesity (children below 5 years) since the year 1998

3.2 Trends in nutritional status

Malnourished children are at a higher risk of illness and death(4). Additionally, nutrition deficits during this age have lifelong consequences on cognitive development and ultimately impact productivity at the economic level(4).

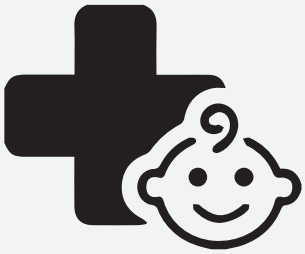
Undernutrition remains a persistent burden in developing countries and at the same time overweight and obesity are a growing burden (4). Monitoring the nutritional status of children under 5 years is essential for evaluating trends and assessing the impact of interventions. Indicators for the classification and determination of the nutritional status of children below 5 years were developed by the World health organization in 2006(4).

Common nutrition-related conditions that affect children from birth to 5 years include; low birth weight, stunting, wasting, overweight, and obesity(4).

Kenya has made recognizable progress in reducing the rates of stunting, wasting, and underweight and maintaining low levels of overweight and obesity (children below 5 years) since the year 1998 as recorded in the demographic health surveys since then, see **figure 3.**

According to the recent 2022 Global nutrition report(7), Kenya is among the countries on course for the 2025 global maternal infant and young child nutrition targets for;

- Achieving a 40% reduction in the number of children under-5 who are stunted
- Ensuring there is no increase in childhood overweight
- Reducing and maintaining childhood wasting to less than 5%

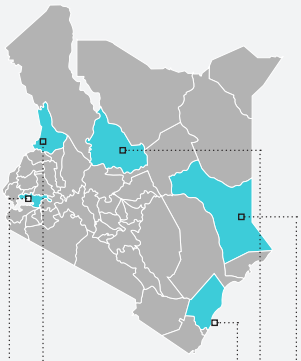


Common nutrition-related conditions that affect children from birth to 5 years include; low birth weight, stunting, wasting, overweight, and obesity

Kenya is among the countries on course for the 2025 global maternal infant and young child nutrition targets for achieving a 40% reduction in the number of children under-5 who are stunted

In terms of counties, the highest percentages of stunting were in

Kilifi (37%), West Pokot (34%), and Samburu (31%) while the lowest levels were in Kisumu (9%) and Garissa (9%).



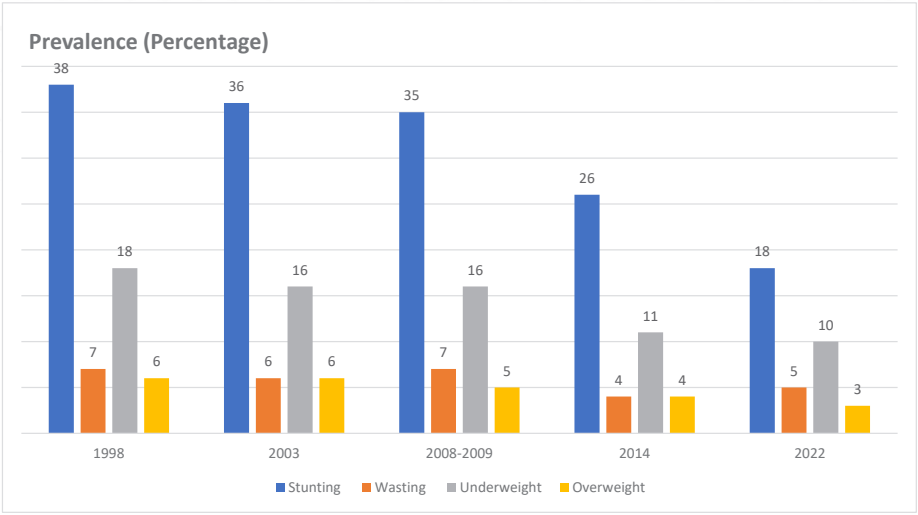
Kilifi

West Pokot

Samburu

Kisumu and Garissa

Figure 3: Trends in nutritional status of children under 5 years



Source: Kenya Demographic Health Survey 2014, KDHS 2022

3.2.1 Stunting

Stunting which usually begins with poor utero growth occurs when a child does not grow to his or her full potential and is shorter than would be expected. Length-for-age and height-for-age provide indicators for linear growth(17). It is known to be a result of prolonged effects of inadequate dietary intake, frequent infections, or both(17). When it comes to this chronic form of malnutrition, recovery after age 2 is difficult and even what some might consider irreversible(17). In Kenya, the prevalence of stunting has reduced markedly as seen in **Figure 3.** Currently, 18% of children below the age of 5 are stunted(8).

This is a tremendous improvement. Analysis by wealth quintile showed that stunting decreased from 28% in the lowest quintile to 9% in the highest quintile(8). Additionally, stunting was higher in rural areas (20%) and among children born to mothers with no education (22%) compared to urban areas (12%) and children born to mothers with more than a secondary education (9%) (8).

Similarly, the 2014 health survey showed rural children had higher stunting rates than urban children, rates were higher in less educated women, and rates were reduced with an increase in wealth quintile(6). In terms of counties, the highest percentages of stunting were in Kilifi (37%), West Pokot (34%), and Samburu (31%) while the lowest levels were in Kisumu (9%) and Garissa (9%)(8).

3.2.2 Wasting

The rates of wasting in Kenya have been ranging between 7% and 4% since 1993. In 2014 the prevalence had decreased to 4% and according to the most recent survey, the prevalence went up to 5%. Overall changes in the prevalence of wasting in Kenya have been modest, however, the goal remains to reduce and maintain childhood wasting to less than 5%.

Depending on the severity, a child may be moderately or severely wasted. Wasting occurs when a child is too thin for their height or length and is a measure of acute inadequate nutritional intake (16). In the 2014 KDHS, wasting levels were highest among 6- to 11-month-old children. This is worth noting, as this is the age when complementary feeding is being introduced.

3.2.3 Underweight

Being Underweight may indicate that a child is either wasted and stunted or both. It however does not differentiate between the two. It is identified using weight-for-age and occurs when a child weighs less than expected for a well-nourished child of the same age and gender (17). It may be caused by a child losing weight due to illness or not gaining weight as anticipated due to inadequate dietary intake (17).

The prevalence in Kenya as of 2014 was at 11% and children older than 12 months recorded the highest levels of underweight with the percentage being higher in boys (12%) than girls (10%)(17). Underweight children were also more found in rural (13%) than urban areas (7%) with North Eastern Kenya recording the highest rates and Nairobi the lowest. In terms of the level of education and wealth, the prevalence of underweight decreased as both educational level and household wealth increased(6). The current prevalence of underweight is 10%, and the most marked decrease has been between 1998 and 2022 **(see figure 3).**

3.2.4 Overweight and Obesity

Overweight and obesity occur when a child has excessive fat and as a result weighs more than would be expected for a healthy child of the same gender and age (17). Kenya is considered to be 'on course "for the goal of overweight among children below the age of 5 years as there has been no increase in childhood overweight in this age group(7).

An analysis of the 2009 KDHS examining factors associated with childhood overweight and obesity in children (3 to 5 years) maternal overweight, higher education attainment, stunting, and large or very large at birth were individually associated with increased odds of overweight and obesity(18). The current prevalence of overweight for children below 5 years in Kenya is 3% which is the lowest since 1993 (7%).

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The current prevalence of overweight for children below 5 years in Kenya is 3% which is the lowest since 1993 (7%).

4.0 KEY FACTS AND TRENDS: CHILDREN AND ADOLESCENTS AGED 5-19YEARS

The age group between 5 to 19 is divided into middle childhood (5 to 9 years), early adolescence (10 to 14 years), and late adolescence (15 to 19 years). Adolescent girls and boys have higher nutritional needs than any other age group because this period is marked by rapid physical growth and therefore requires high amounts of energy, micronutrients, and proteins(19).

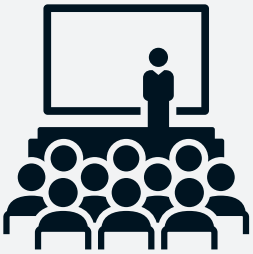
While undernutrition has the potential to delay sexual maturation, impact the ability to learn negatively, and slow growth overall; overnutrition at this age group is likely to persist into adulthood, increasing the risk of associated non-communicable diseases such as diabetes(17). Furthermore, obesity may consequently result in early puberty in girls yet delayed puberty in boys(20).

What's more, at this age group, adolescent pregnancy, and lactation can negatively impact the nutritional status of a girl by lowering nutrition stores and even stunting growth ultimately increasing the risk of complications during pregnancy(17). As previously highlighted, low maternal age increases the risk of preterm birth and delivering low birthweight children, therefore adolescent pregnancy can have negative consequences on the nutritional status of girls who are still growing with high nutritional requirements.

4.1. Dietary recommendations Children between 5 to 9 years

5 to 9 years

According to the national guidelines, children between 5 to 9 years should be provided with basic information to make appropriate food choices and to encourage healthy eating habits.



According to the national guidelines, children between 5 to 9 years should be provided with basic information to make appropriate food choices and to encourage healthy eating habits. Specifically recommended nutrient intakes are illustrated in **table 6.**

- Children between 5 to 9 years should be given nutrient-dense foods from a variety of at least four food groups every day **(Table 2).**

- They should be given a healthy breakfast to prevent snacking on unhealthy snacks high in sugar and fat.

- The intake of sugary and salty snacks and drinks like cakes, biscuits, and colored water juices should be limited. For children between 7 to 10 years, their intake of free sugars should be no more than 24 g a day. It is essential to note that sugar is mostly added to foods even those considered healthy.

- They should be provided with nutritious snacks and meals to carry to school like sandwiches, fruits, vegetables, nuts, and water.

- Regular deworming should also be promoted every six months.

- Additionally, regular engagement in physical activity should be encouraged. The recommended is an average of 60 minutes per day of moderate to vigorous intensity mostly aerobic activities.

4.1.1 Dietary recommendations Children between 10 to 19 years

There are some key nutrients during this age group that increase as a result of rapid growth and development. Iron requirements for one increase and are at their highest during this period due to an increase in blood volume, lean body, and red cell mass(3). Calcium requirements also increase due to skeletal, muscular, and endocrine development (3). Key recommendations based on national guidelines in Kenya include:

• Eating a variety of foods from at least four food groups. These should include several servings per day of dairy products, and green leafy vegetables in addition to other proteins and starches.

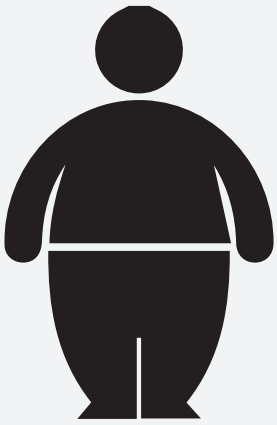
• Eating at least 3 nutritious meals per day and two snacks.

• Intake of iron-rich foods should be encouraged especially for girls due to menstruation, and an increase in blood volume. Sources include beef (lean cuts), and pork, iron-fortified cereals, legumes, dark green vegetables.

• The intake of unhealthy snacks rich in sugar, salt, and fats should be reduced.

• Calcium-rich foods and beverages should be readily available.

During middle childhood and adolescence, diets that are safe and nutritious as well as nutrition practices and physical activities that help this age group grow and stay active are essential and are carried into adulthood. In addition, eating disorders in early and late adolescents are a concern due to fears about body weight and shape(3). Anthropometric indices used to identify conditions such as thinness, overweight and obesity, stunting, and even acute malnutrition are used to assess nutritional status(17). Indices used include BMI-for-age, height-for-age, weight-for-age, and mid-upper-arm-circumference.



Anthropometric indices used to identify conditions such as thinness, overweight and obesity, stunting, and even acute malnutrition are used to assess nutritional status

Table 6: Recommended nutrient intake for children and adolescents 5 to 19 years

Nutrient /Day	5 to 6 years	7 – 9 years	Adolescents 10-18 years (Male)	Adolescents 10-18 years (Female)
Energy (kcals)	1800	2400	2500	2150
Protein (g)	24	28	0.9	0.9
Vitamin A(ug)	500	700	600	600
Vitamin D(ug)	5	5	5	5
Vitamin E (mg -TE)	6	7	10	7.5
Vitamin K (ug)	20	25	35-65	35-65
Vitamin C (mg)	30	35	40	40
Vitamin B1 (mg)	0.6	0.9	1.2	1.1
Vitamin B2 (mg)	0.6	0.9	1.3	1.0
Niacin (mg)	8	12	16	16
Vitamin B6 (mg)	0.6	1.0	1.3	1.2
Folate (ug)	200	300	400	400
Vitamin B12 (mg)	1.2	1.8	2.4	2.4
Calcium(mg)	600	700	1300	1300
Phosphorus (mg)	800	800	1200	1200
Magnesium (mg)	70	100	250	250
Iron (mg)	10	10	12	15
Zinc(mg)	10	10	15	12
Iodine (ug)	110	110	110	100
Selenium (ug)	21	21	34	26
ug- micrograms **ug RE** – micrograms Retinal Equivalent **mg** – milligrams **Kcals** - Kilocalories				

Source: WHO/FAO (2001)

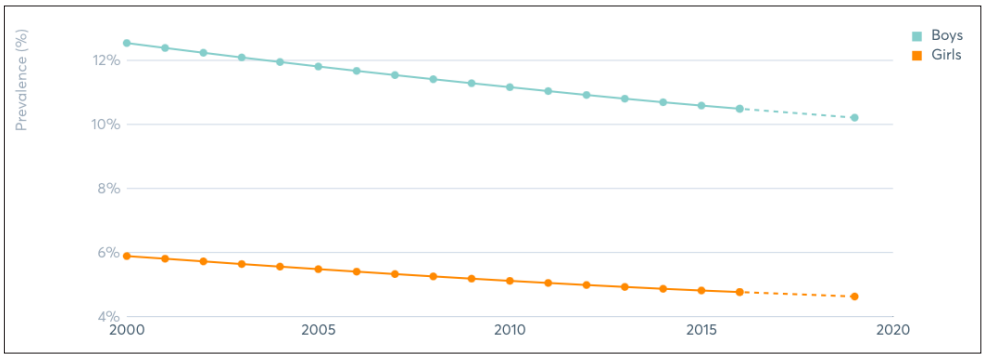
4.2 Thinness

Thinness describes a child or adolescent whose weight is too low for their height. It can either be severe thinness or moderate thinness depending on the BMI-for-age index. The prevalence of thinness in Kenya has gradually continued to reduce over time as illustrated in **Table 8.1 and figure 4.**

Table 8.1: Trends in the prevalence of thinness in children and adolescents 5 to 19 years

YEARS	2000	2005	2010	2015	2019
BOYS	12.5%	11.8%	11.1%	10.6%	10.2%
GIRLS	5.9%	5.5%	5.1%	4.8%	4.6%

Figure 4: Prevalence of thinness in children and adolescents aged 5 to 19 years



Note: Thinness is defined as below minus two standard deviation (<-2 SD) from the median BMI-for-age of the WHO growth reference

Source: 2022 global nutrition report accessed from https://globalnutritionreport.org/resources/nutrition-profiles/africa/eastern-africa/kenya/

4.2.1 Overweight and Obesity

Obese children and adolescents suffer from both the short and long-term health consequences of obesity. Furthermore, childhood obesity is associated with an increased risk of premature death and disability in adulthood(21). Globally, the rise in overweight and obesity has been spurred by the increase in consumption of energy-dense foods, highly processed foods that are low in nutrients, sugar-sweetened beverages, eating away from home, and reduced physical activity(16). In Sub-Sahara Africa, rapid urbanization has resulted in a dietary transition to energy-dense foods which are associated with overweight and obesity(22).

In Kenya, the prevalence of overweight (figure 5) and obesity (figure 6) are seen to be steadily increasing for children and adolescents between the ages of 5 and 19 years(7). Particularly the prevalence of being overweight among girls is significantly higher than those seen in boys.

Obese children and adolescents suffer from both the short and long-term health consequences of obesity. Furthermore, childhood obesity is associated with an increased risk of premature death and disability in adulthood.

Overweight and Obesity

Table 8.2: Trends prevalence of overweight in children and adolescents aged 5 to 19 years

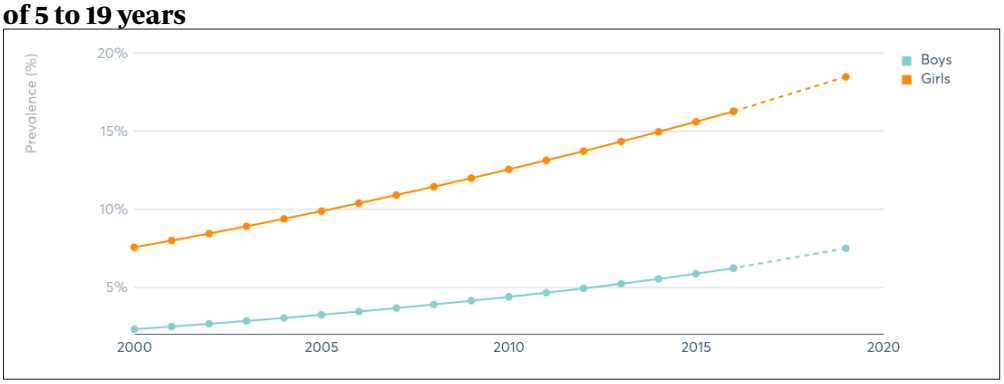
YEARS	2000	2005	2010	2015	2016	2019
BOYS	2.3%	3.2%	4.4%	5.8%	6.2%	7.5%
GIRLS	7.5%	9.9%	12.5%	15.6%	16.2%	18.4%

Table 8.3: Trends prevalence of obesity in children and adolescents aged 5 to 19 years

YEARS	2000	2005	2010	2015	2016	2019
BOYS	0.2%	0.4%	0.7%	1.1%	1.2%	1.7%
GIRLS	0.8%	1.3%	2.0%	2.9%	3.2%	4.0%

Globally, the rise in overweight and obesity has been spurred by the increase in consumption of energy-dense foods, highly processed foods that are low in nutrients, sugar-sweetened beverages, eating away from home, and reduced physical activity

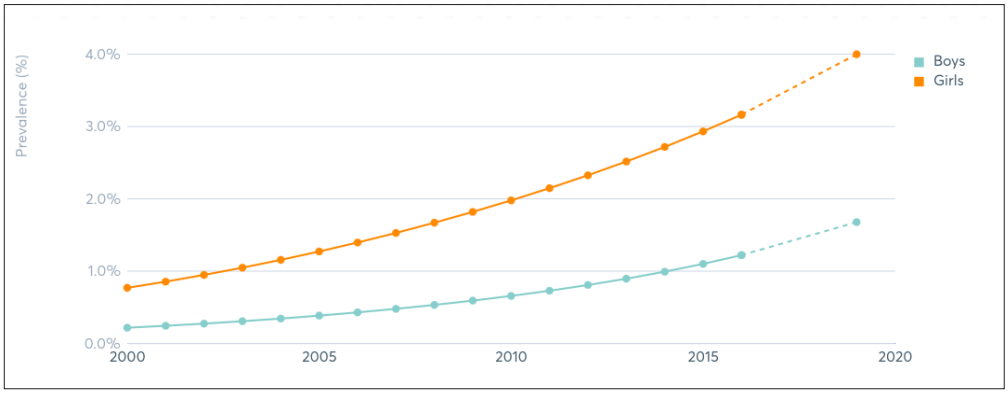
Figure 5: Prevalence of overweight in children and adolescents between the ages of 5 to 19 years



Note: Prevalence (%) estimates are based on modelled age-standardized estimates for children and adolescents aged 5–19 years up to 2016 using the WHO standard population. Projected values for 2019 are visualized using a dashed line. Overweight (including obesity) is defined as above one standard deviation (>+1 SD) from the median BMI-for-age of the WHO growth reference.

Source: 2022 global nutrition report accessed from https://globalnutritionreport.org/resources/nutrition-profiles/africa/eastern-africa/kenya/

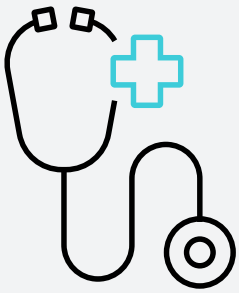
Figure 6: Prevalence of obesity in children and adolescents between the ages of 5 to 19 years



Note: Prevalence (%) estimates are based on modelled age-standardized estimates for children and adolescents aged 5–19 years up to 2016 using the WHO standard population. Projected values for 2019 are visualized using a dashed line. Obesity is defined as above two standard deviations from the median BMI-for-age of the WHO growth reference.

Source: 2022 global nutrition report accessed from https://globalnutritionreport.org/resources/nutrition-profiles/africa/eastern-africa/kenya

The growing prevalence of NCDs is a major public health concern accounting for 39% of all deaths and 55 % of all hospital admissions in the country (34).



5.0 THE BURDEN OF CHILDHOOD OVERWEIGHT AND OBESITY IN KENYA

Despite the lack of nationally representative data on the prevalence of childhood overweight and obesity in Kenya as well as the engagement of children in physical activity, some studies continue to show evidence of overweight and obesity as an emerging problem in school-aged children and their inadequate engagement in physical activity, especially in urban areas(22)(29). The International Study of Childhood Obesity, Lifestyle, and Environment (ISCOLE) done among children between the ages of 9 and 11 revealed that there is evidence of overweight and obesity in Kenyan children. Out of the 563 students recruited for the study, 20.8% of them were classified as overweight/obese(30).

The study noted that the majority of overweight children were female (56.6%) and they attended private schools (73.6%), and 80.3% of the obese children were also from private schools(30). In terms of associated factors, parental education level and higher socio-economic status were associated with an increased likelihood of childhood overweight and obesity and a lower likelihood of meeting the recommended physical activity levels(22).

Further, a higher proportion of children using motorized transport (25.8%) and attending private schools (33.6%) were overweight/obese, in comparison to those using active transport (14.7%) and attending public schools (9.2%)(30).

Although we lack data on the difference between rates of obesity in rural and urban areas in Kenya, the role of the urban food environment and its contribution to the rise in obesity in low- and middle-income countries is well known. While obesity is indeed a multifaceted disease, the role of the environmental factors which undermine the ability to self-regulate and engage in physical activity cannot be undermined.

The ready supply of processed foods, passive transportation, and mass media marketing of foods and beverages of low nutritional value are associated with rapid urbanization and similarly in part explain the increase in overweight and obesity(31). Although undernutrition and micronutrient deficiencies have remained persistent in African countries, the burden of overnutrition is growing and the continent now faces a triple burden of malnutrition.

Sweet beverages include 100% fruit juice as well as fruit-flavored drinks, whether made at home, by informal vendors, or packaged in cans, bottles, or sachets, home-made drinks of any kind to which sweeteners like honey, sugar, syrup, or flavored powder have been added.

Currently, we are said to be living through a "global nutrition crisis" according to the Global nutrition report of 2022(7). Malnutrition in all its forms is a threat to both grown and growing economies. Children are especially vulnerable to different forms of malnutrition due to the rapid growth they experience through different critical stages of life which is accompanied by particular nutrition demands.

It is essential to ensure all possible nutrition conditions that may arise are prevented and treated promptly to prevent irreversible consequences that persist into adulthood and eventually negatively impact economies. Of great concern is the growing prevalence of overweight and obesity which is a key risk factor for many non-communicable diseases (NCDs.

The growing prevalence of NCDs is a major public health concern accounting for 39% of all deaths and 55 % of all hospital admissions in the country (34). An unhealthy diet is a risk factor for non-communicable diseases. The risk can be mitigated throughout life by maintaining healthy weights from childhood and consuming foods that are low in saturated fat, trans-fatty acids, free sugars, and salt.

5.1 Nutrition Transition; Underlying drivers of nutrition transition and childhood overweight and obesity

A transition in dietary patterns has similarly been observed in Kenya as in other Sub-Saharan African countries marked by changes in the urban food environment(22). These changes in the food environment are in turn marked by social factors, individual food choices, economic factors of affordability, and changes in the physical environment(22). Similarly, children and adolescents are also influenced by dietary transitions making them vulnerable to poor dietary choices.

Dietary patterns are shifting towards higher intakes of added sugars, unhealthy fats, salt, and refined carbohydrates. More and more children are consuming commercially prepared foods and beverages that are often nutrient-poor, energy-dense, and high in salt, sugar, saturated and trans fats.

Intake of these foods displaces the more needed nutritious foods and leads to a deficit in the intake of essential vitamins and minerals leading to micronutrient deficiencies in children which can harm both physical and cognitive health and development in children. Food habits and preferences that start early in life track into later childhood and adolescence.

1996

Kenya became a member of CAC in 1996. Kenya refers to the International Codex Standards when harmonizing national food standards.

5.1.1 Effects of food marketing /advertisement on children

Repeated exposure to sweet beverages and unhealthy foods in childhood may enhance the innate preference for the sweet taste and thus increase the consumption of sweet-tasting beverages and foods as a future learned preference(23)(24). WHO implemented a restriction on the marketing of foods high in fat, sugar, and salt (HFSS) in 2012. The promotion of potentially unhealthy foods and drinks is recognized as a substantial risk factor for childhood obesity and micro-nutrient deficiency and for the development of dietary-related non-communicable diseases.

It is hypothesized that advertisements make children less able to control eating impulses and more susceptible to unhealthy food(25). In addition, it is associated with increased short-term food consumption of HFSS foods following screen advertisements(25)(26). Advertisement of foods and drinks has been shown to influence nutrition knowledge, preference, consumption and even purchasing in children.

Evidence on the extent, nature, and effects of food marketing to children shows that advertising is extensive and other forms of food marketing to children are widespread. Most marketed foods are high in fat, free sugars, or salt. A set of recommendations on the marketing of foods and nonalcoholic beverages to children was endorsed by the Sixty-third World Health Assembly in May 2010 and Member States were urged to take the necessary measures to reduce the impact of marketing of unhealthy foods. (35).

Brand recognition has also been seen to increase in early and late adolescence in response to food marketing which eventually influences dietary decisions(27). Notably, advergames have equally been seen to increase short-term consumption of HFSS foods (26), it, therefore, follows that both online and TV advertisements influence the intake of unhealthy foods by children and adolescents.

Such practices, if continued throughout adolescence and adulthood, can increase the risk of becoming overweight or obese, and of related chronic diseases later in life. Selected unhealthy foods to watch for include: Candies**, chocolate, and other sugar confections**, including those made with real fruit or vegetables like candied fruit or fruit roll-ups.

5%DV or less of a nutrient per serving is considered low

20% DV or more of a nutrient per serving is considered high

Frozen treats like ice cream, gelato, sherbet, sorbet, popsicles, or similar confections. **Cakes, pastries, sweet biscuits, and other baked or fried confections** which have at least a partial base of refined grain, including those made with real fruit or vegetables or nuts, like apple cake or cherry pie. **Chips, crisps, cheese puffs, French fries, fried dough, instant noodles**, and similar items contain mainly fat and carbohydrate and have at least a partial base of refined grain or tuber. The above four categories of unhealthy foods include those that are produced commercially, made by small-scale producers, or homemade.

Consumption of sugar-sweetened beverages (SSBs) has increased over the years in many countries irrespective of their income level and Kenya has not been left behind. Consumption of free sugars including those from 100% fruit juice and SSBs is associated with an increased risk of dental caries.

Sugars sweetened beverages include commercially produced sweetened and packaged beverages such as soda, fruit-flavored drinks, sports drinks, chocolate, and other flavored milk drinks, etc. Sweet beverages include 100% fruit juice as well as fruit-flavored drinks, whether made at home, by informal vendors, or packaged in cans, bottles, or sachets, home-made drinks of any kind to which sweeteners like honey, sugar, syrup, or flavored powder have been added.

The responsibility for a child's health and well-being largely depends on their parent's actions, decisions, and how they apply control over their children's behavior and choices.

5.2 Parental Role

The responsibility for a child's health and well-being largely depends on their parent's actions, decisions, and how they apply control over their children's behavior and choices. These dietary-related parental controls may be expressed through the parent's willingness to grant their children's requests and their everyday actions such as adding some sweet treats to a school lunch or snack box or by offering a fast food meal as a reward for an achievement, a practice that has become very common.

Parents can play a big role in educating their children on the nature and the meaning of advertisements so that children cannot be too enticed by what they watch on television. This kind of dialogue between parents and children, especially regarding unhealthy food advertisements can be easily undermined by the way advertisements portray parents- child relationships. The advertisements will show parents serving unhealthy foods and beverages to children in a very happy family set-up while implying care and love for the child (32)(33).

6.0 NUTRITION LABELING OF PRE-PACKAGED FOODS

Labelling of Pre-packaged foods and drinks is important because it provides essential information to support consumers make educated and independent choices on such products. Labeling acts as the primary means of communication between the manufacturer, the seller, and the consumer of the product.

Nutrition labeling can conceivably help rebalance the food retail environment which is skewed more towards food that undermines healthy diets by providing information on the nutritional value of food products to aid purchase and consumption decisions.

Nutrition labeling in particular is a tool in public health policy used to inform consumers about the nutritional quality of packaged foods. The Kenyan constitution under Article 46 (b) and Article 431) (a) states that "consumers have the right to the information necessary for them to gain full benefits from goods and services' and "Every person has a right to the highest attainable standard of health. Every country in the world has its own rules and regulations regarding food labeling and even the basic global requirements can still vary slightly.

Labeling acts as the primary means of communication between the manufacturer, the seller, and the consumer of the product.

The Codex Alimentarius Commission (CAC) is the joint Food Standard Program of the World Health Organization (WHO) and Food and Agriculture (FAO) charged with the responsibility of developing food and feed International Codex Standard for protecting the health of consumers.

Different countries apply the regulations at their discretion based on national requirements and interpretations. Kenya became a member of CAC in 1996. Kenya refers to the International Codex Standards when harmonizing national food standards.

6.1 The Nutrition Fact Panel: Understanding Food Label

The inadequate capacity of consumers to read and interpret nutrition labels plays a big role in the rise of consumption of unhealthy food products in Kenya and globally. A simple clear nutrition label would enable consumers to make healthy food choices at first sight. The nutrition fact panel is the section of food that declares the nutrition content. It gives information on the nutritional value of food.

Most food panels have a list of seven food components including energy, proteins, total fats, saturated fats, total carbohydrates, sugar, and sodium or salt. The label can also include other nutrients like fiber and different vitamins and minerals. The nutrition fact panel helps in comparing the nutrition content of different products to help the consumer decide on the healthiest choice. The healthiest choices have lower fats, lower sugar, salt, and higher fiber.

What's on the Nutrition Facts Label

The **Nutrition Facts** label found on packaged foods and beverages is **a tool** for making informed food choices that contribute to healthy lifelong eating habits.

Nutrition Facts

4 servings per container
Serving size 1 1/2 cup (208g)

Amount per serving
Calories **240**

	% Daily Value*
Total Fat 4g	**5%**
Saturated Fat 1.5g	**8%**
Trans Fat 0g	
Cholesterol 5mg	**2%**
Sodium 430mg	**19%**
Total Carbohydrate 46g	**17%**
Dietary Fiber 7g	**25%**
Total Sugars 4g	
Includes 2g Added Sugars	**4%**
Protein 11g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 6mg	35%
Potassium 240mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Servings Per Container shows the **total number of servings** in the entire food package or container.

- It is common for one package of food to contain more than one serving.
- Some containers may also have a label with two columns—one column listing the amount of calories and nutrients in one serving and the other column listing this information for the entire package.

Serving Size is based on the **amount of food that is customarily eaten at one time** and is not a recommendation of how much to eat or drink. The nutrition information listed on the Nutrition Facts label is usually based on one serving of the food; however, some containers may also have information displayed per package.

- Serving size is shown as a common household measure that is appropriate to the food (such as cup, tablespoon, piece, slice, or jar), followed by the metric amount in grams (g).
- When comparing calories and nutrients in different foods, check the serving size to make an accurate comparison.

Calories refers to the **total number of calories**, or "energy," supplied from all sources (carbohydrate, fat, protein, and alcohol) in a serving of the food.

- To achieve or maintain a healthy body weight, balance the number of calories you eat and drink with the number of calories your body uses.
- 2,000 calories a day is used as a general guide for nutrition advice. Your calorie needs may be higher or lower and vary depending on your age, sex, height, weight, and physical activity level. Learn your number at

As a general guide:

- **100 calories** per serving of an individual packaged food is considered **moderate**
- **400 calories** or more per serving of an individual packaged food is considered **high**

Tip: The terms "fat-free" and "no added sugars" do not mean "calorie-free." These food items may have as many calories as the regular versions. Always check the Nutrition Facts label and compare the calories and nutrients in the modified version to the regular version.

(Source: FDA, accessed from https://www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/assets/InteractiveNFL_WhatsOnTheNFL_October2021.pdf

Nutrition Facts

4 servings per container

Serving size 1 1/2 cup (208g)

Amount per serving	
Calories	**240**
	% Daily Value*
Total Fat 4g	**5%**
Saturated Fat 1.5g	**8%**
Trans Fat 0g	
Cholesterol 5mg	**2%**
Sodium 430mg	**19%**
Total Carbohydrate 46g	**17%**
Dietary Fiber 7g	**25%**
Total Sugars 4g	
Includes 2g Added Sugars	**4%**
Protein 11g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 6mg	35%
Potassium 240mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

% Daily Value (%DV) shows **how much a nutrient in a serving of the food contributes to a total daily diet.**

- The %DV column doesn't add up vertically to 100%. Instead, the %DV is the **percentage of the Daily Value** for each nutrient in a serving of the food. The Daily Values are reference amounts (in grams, milligrams, or micrograms) of nutrients to consume or not to exceed each day.

  For example, the Daily Value for saturated fat is less than 20 grams (g) per day (based on a 2,000 calorie daily diet), which equals 100% DV. If the Nutrition Facts label says one serving of a food contains 1.5 g of saturated fat, then the %DV for saturated fat for this specific food is 8%. That means the food contains 8% of the maximum amount of saturated fat that an average person should eat in an entire day.
- Some nutrients on the Nutrition Facts label do not have a %DV, so use the number of grams to compare and choose products.

Using %DV

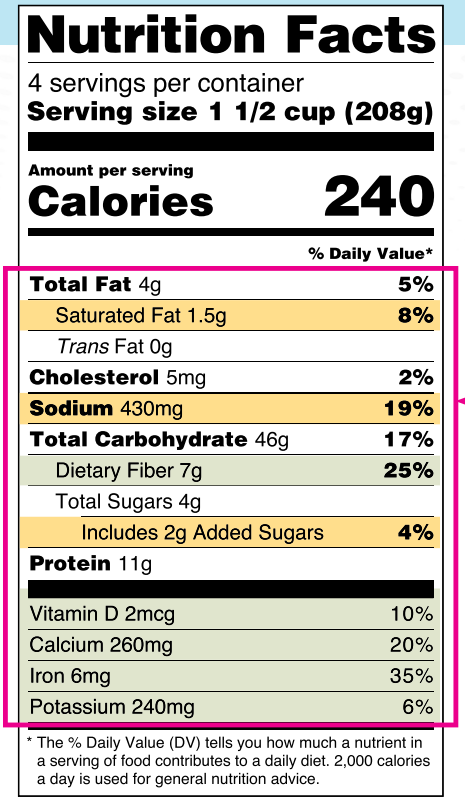
- **Compare Foods:** Use %DV to compare food products (remember to make sure the serving size is the same) and to choose products that are higher in nutrients you want to get more of and lower in nutrients you want to get less of.

As a general guide:

- **5% DV** or less of a nutrient per serving is considered **low**
- **20% DV** or more of a nutrient per serving is considered **high**

- **Understand Nutrient Content Claims:** Use %DV to help distinguish one claim from another, such as "light," "low," and "reduced." Simply compare %DVs in each food product to see which one is higher or lower in a particular nutrient. There is no need to memorize definitions.
- **Manage Dietary Trade-Offs:** Use %DV to make dietary trade-offs with other foods throughout the day. You don't have to give up a favorite food to have a healthy diet. When a food you like is high in a nutrient you want to get less of—or low in a nutrient you want to get more of—you can balance it with foods that are low (or high) in that nutrient at other times of the day.

(Source: FDA, accessed from https://www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/assets/InteractiveNFL_WhatsOnTheNFL_October2021.pdf



Nutrition Facts

4 servings per container

Serving size 1 1/2 cup (208g)

Amount per serving

Calories **240**

	% Daily Value*
Total Fat 4g	**5%**
Saturated Fat 1.5g	**8%**
Trans Fat 0g	
Cholesterol 5mg	**2%**
Sodium 430mg	**19%**
Total Carbohydrate 46g	**17%**
Dietary Fiber 7g	**25%**
Total Sugars 4g	
Includes 2g Added Sugars	**4%**
Protein 11g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 6mg	35%
Potassium 240mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

INGREDIENTS: BULGUR WHEAT, SAUCE (WATER, HALF AND HALF [MILK, CREAM], PARMESAN CHEESE [PASTEURIZED SKIM MILK, CULTURES, SALT, ENZYMES], CHEDDAR CHEESE [PASTEURIZED MILK, CULTURES, SALT, ENZYMES], OLIVE OIL, BUTTER, SUGAR, XANTHAN GUM, SPICE), LENTILS, CORN, GREEN BEANS, RED BEANS, POTATOES.

CONTAINS: WHEAT, MILK.

(Source: FDA, accessed from https://www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/assets/InteractiveNFL_WhatsOnTheNFL_October2021.pdf

Nutrients

The Nutrition Facts label can help you **learn about the nutrient content** of many foods in your diet.

- **The Nutrition Facts label must list:** total fat, saturated fat, *trans* fat, cholesterol, sodium, total carbohydrate, dietary fiber, total sugars, added sugars, protein, vitamin D, calcium, iron, and potassium.
- **The Nutrition Facts label may also list:** monounsaturated fat, polyunsaturated fat, soluble fiber, insoluble fiber, sugar alcohols, vitamins (biotin, choline, folate, niacin, pantothenic acid, riboflavin, thiamin, and vitamins A, B_6, B_{12}, C, E, and K) and minerals (chloride, chromium, copper, iodine, magnesium, manganese, molybdenum, phosphorus, selenium, and zinc).

The Nutrition Facts Label can also help you **monitor nutrients** you want to get less of and those you want to get more of.

Nutrients to get less of:
Saturated fat, sodium, and added sugars.
Many people exceed the recommended limits for these nutrients—and diets higher in these nutrients are associated with an increased risk of developing some health conditions (such as cardiovascular disease and high blood pressure).

Compare and choose foods to **get less than 100% DV of these nutrients each day.**

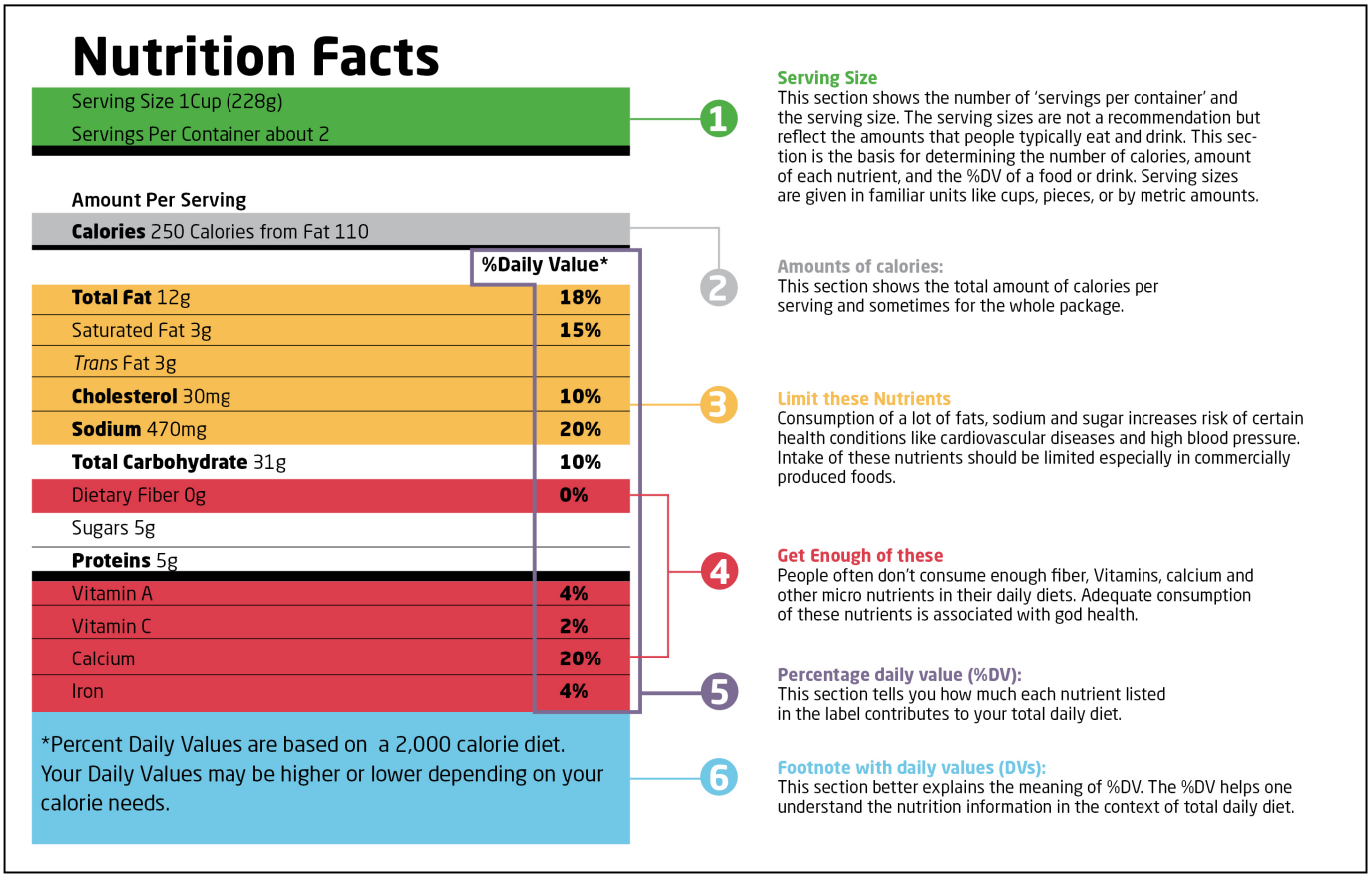
Nutrients to get more of:
Dietary fiber, vitamin D, calcium, iron, and potassium.
Many people do not get the recommended amount of these nutrients—and diets higher in these nutrients can reduce the risk of developing some health conditions (such as cardiovascular disease, osteoporosis, anemia, and high blood pressure).

Compare and choose foods to **get 100% DV of these nutrients on most days.**

Ingredient List

In addition to the Nutrition Facts label, the ingredient list is also a helpful tool. The ingredient list shows each ingredient in a food by its **common or usual name**. Ingredients are listed in **descending order by weight**, so the ingredient that weighs the most in the product is listed first, and the ingredient that weighs the least is listed last.

Summarized read before you eat label



FOOD LABELING
FOR AMOUNT OF EACH NUTRIENT IN 100G OF FOOD

	LOW	MEDIUM	HIGH	
	Per 100g	Per 100g	Per 100g	Per Portion larger than 100g
Fat	3.0g or less	3.0g-17.5g	More than 17.5g	More than 21g
Saturates	1.5g or less	1.5g-5.0g	More than 5.0g	More than 6.0g
(Total) Sugars	5.0g or less	5.0g-22.5g	More than 22.5g	More than 27g
Salt	0.3g or less	0.3g-1.5g	More than 1.5g	More than 1.8g

Low or green color-coded foods

Foods with nutrients within the low range (or green color) indicates that the food is low in fat, sugar or salt. The more 'green' or 'lows' a food has, the healthier the choice and the more likely it is to be a good option for everyday eating. To make healthier choices when shopping, one should go for more greens (low) and ambers (medium), and fewer reds(highs)

Medium or amber color-coded foods

Foods with nutrients within the medium range (or amber color) indicate that the food isn't high or low in the nutrient. Such food can be eaten regularly but not on a daily basis as there may be an even healthier option available.

High or red color-coded foods

Foods with nutrients within the high range (or red color) indicates that the food is high in fat, sugar or salt. This does not mean that the food can't be consumed. However, such foods should be consumed only occasionally and not on a regular basis.

GUIDE TO FOOD LABELING FOR SALT

	LOW	MEDIUM	HIGH	
	Per 100g	Per 100g	Per 100g	Per Portion larger than 100g
Salt	0.3g or less	0.3g-1.5g	More than 1.5g	More than 1.8g

Low or green color-coded salt content

This indicates that the food is low in salt and hence a healthier choice. To make healthier choices when shopping, one should go for foods with low salt/sodium content, fewer medium salt content and avoid those with high sodium content.

Medium or amber color-coded salt content

Medium salt content indicates the food is neither high nor low in salt/ sodium content. Such food can be eaten moderately but not on a daily basis.

High or red color-coded foods

This shows that the food is high in salt/sodium. This does not mean that the food can't be consumed but it means that such foods should only be consumed occasionally.

GUIDE TO FOOD LABELING FOR FATS & SATURATES

	LOW	MEDIUM	HIGH	
	Per 100g	Per 100g	Per 100g	Per Portion larger than 100g
Fat	3.0g or less	3.0g-17.5g	More than 17.5g	More than 21g
Saturates	1.5g or less	1.5g-5.0g	More than 5.0g	More than 6.0g

Low or green color-coded fat content

This indicates that the food is low in fat and hence a healthier option.

Medium or amber color-coded fat content

This shows that the food isn't high or low in fats and can be consumed in moderation, but not on a daily basis as there may be an even healthier option available.

High or red color-coded foods

Foods with fats content in this range indicates that the food is high in fat and should be avoided or consumed occasionally. It is important to note that certain foods might be high in fat but it might be a good type of fat especially plant-based foods like avocado, nuts, seeds, salmon, mackerel and sardines.

GUIDE TO FOOD LABELING FOR SUGARS

	LOW	MEDIUM	HIGH	
	Per 100g	Per 100g	Per 100g	Per Portion larger than 100g
Sugars	5.0g or less	5.0g-22.5g	More than 22.5g	More than 27g

Low or green color-coded sugar content

Foods with sugar content within this range show that the food is low in sugar and hence a healthier option.

Medium or amber color-coded sugar content

If a food has sugar content within this range, it means that the food isn't high or low in sugar and hence can be consumed in moderation.

High or red color-coded foods

Foods with sugar content in this range means they are high in sugar and hence should be consumed sparingly.

PANEL FOR COMPARISON OF SIMILAR PACKAGED FOODS

	BEST CHOICE	OKAY SOMETIMES	POOR CHOICE	
	Per 100g	Per 100g	Per 100g	Per Portion larger than 100g
Fat	3.0g or less	3.0g-17.5g	More than 17.5g	More than 21g
Saturates	1.5g or less	1.5g-5.0g	More than 5.0g	More than 6.0g
(Total) Sugars	5.0g or less	5.0g-22.5g	More than 22.5g	More than 27g
Salt	0.3g or less	0.3g-1.5g	More than 1.5g	More than 1.8g

Using %DV

- **Compare Foods:** Use %DV to compare food products (remember to make sure the serving size is the same) and to choose products that are higher in nutrients you want to get more of and lower in nutrients you want to get less of.

As a general guide:

- **5% DV** or less of a nutrient per serving is considered **low**
- **20% DV** or more of a nutrient per serving is considered **high**

- **Understand Nutrient Content Claims:** Use %DV to help distinguish one claim from another, such as "light," "low," and "reduced." Simply compare %DVs in each food product to see which one is higher or lower in a particular nutrient. There is no need to memorize definitions.
- **Manage Dietary Trade-Offs:** Use %DV to make dietary trade-offs with other foods throughout the day. You don't have to give up a favorite food to have a healthy diet. When a food you like is high in a nutrient you want to get less of—or low in a nutrient you want to get more of—you can balance it with foods that are low (or high) in that nutrient at other times of the day.

6.2 Dual column labels

More often than not, products will come packaged in larger than a single serving that can be consumed severally. In such cases, the packaging usually has dual column label to indicate the amounts of nutrients per serving and package. This helps consumers to easily identify the amount of nutrients and calories they will get if they consume the entire package at a sitting versus one serving. For example, a bag of breakfast cereal with two servings per packet might have a label that looks like the one in figure y to show how many calories and nutrients are in one serving and one packet (two servings)

Nutrition Facts

3 Servings per container

Serving size **3 pretzels (28g)**

Calories	per serving **110**		per container **330**	
		%DV*		%DV*
Total Fat	0.5g	**1%**	1.5g	**3%**
Saturated Fat	0g	**0%**	0g	**0%**
Trans Fat	0g		0g	
Cholesterol	0mg	**0%**	0mg	**0%**
Sodium	400mg	**17%**	1200mg	**52%**
Total Carb.	23g	**8%**	69g	**24%**
Dietary Fiber	2g	**7%**	6g	**21%**
Total Sugars	<1g		3g	
Incl. Added Sugars	0g	**0%**	0g	**0%**
Protein	3g		9g	
Vitamin D	0mcg	**0%**	0mcg	**0%**
Calcium	10mg	**0%**	30mg	**2%**
Iron	1.2mg	**6%**	3.6mg	**18%**
Potassium	90mg	**0%**	270mg	**5%**

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Nutrient content claims and their meaning

1. Calories	
If a food claim to be	**It means that one serving* contains**
Calorie free	Less than 5 calories
Low calorie	40 calories or less
Reduced calorie	At least 25% less calories than the regular product
2. Sugar	
If a food claim to be	**It means that one serving* contains**
Sugar free	Less than 0.5 grams sugars and no ingredient that is a sugar
Reduced sugar or less sugar	At least 25% less sugars than the regular product
No added sugar	No sugar or sugar-containing ingredient added during processing or packaging
3. Fat	
If a food claim to be	**It means that one serving* contains**
Fat free	Less than 0.5 g fat and no ingredient that is fat
Low fat	3 g of fat or less (and not more than 30% of calories from fat for meals and main dishes)
Reduced fat or less fat	At least 25% less fat than the regular product
Low in saturated fat	1 g or less of saturated fat, and 15% or less of the calories coming from saturated fat (10% or less for meals and main dishes)
Lean	Less than 10 g of fat, 4.5 g of saturated fat and 95 mg of cholesterol
Extra lean	Less than 5 g of fat, 2 g of saturated fat and 95 mg of cholesterol
Light (lite)	At least 50% less fat than the regular product (or 1/3 fewer calories if less than 50% of calories are from fat)
4. Cholesterol	
If a food claim to be	**It means that one serving* contains**
Cholesterol free	Less than 2 mg of cholesterol and no ingredient that contains cholesterol
Low cholesterol	20 mg of less of cholesterol
Reduced cholesterol	At least 25% less cholesterol than the regular product

5. Sodium	
If a food claim to be	**It means that one serving* contains**
Sodium free, salt free or no sodium	Less than 5 mg of sodium and no ingredient that is sodium chloride or contains sodium
Very low sodium	35 mg or less of sodium
Low sodium	140 mg or less of sodium
Reduced or less sodium	At least 25% less sodium than the regular product
Light or lite in sodium	At least 50% less sodium than the regular product
Lightly salted	50% less sodium than normally added
No salt added or unsalted	No salt added during processing. If the food is not sodium free, the statement "not a sodium free food" or "not for control of sodium in the diet" must also appear on the label.
6. Fiber	
If a food claim to be	**It means that one serving* contains**
High fiber or excellent source of fiber	20% or more of the Daily Value (DV) for fiber
Good source of fiber	10-19% of the Daily Value (DV) for fiber

**Based on the labeled serving size and/or the reference amount customarily consumed*

- **"Free"** means a food has the least possible amount of the specified nutrient.
- **"Very Low" and "Low"** means the food has a little more than foods labeled "Free."
- **"Reduced" or "Less"** mean the food has 25% less of a specific nutrient than the regular product.
- **"More," "Fortified," "Enriched," "Added," "Extra," or "Plus"** means the food has 10% or more of the Daily Value (DV) than the regular product. May only be used for vitamins, minerals, protein, dietary fiber, and potassium.

6.3 Nutrient Profile Model for the World Health Organization (WHO) African Region

An unhealthy diet is a risk factor for many noncommunicable diseases. This risk can be alleviated by keeping healthy weights from childhood up to adulthood and by consuming foods that are low in saturated fat, trans-fatty acids, free sugars and salt. In today's world, food advertising and marketing to children is extensive, and most of the marketed foods are high in sugars, fat and salt.

Advertising influence's children's food preferences, purchase requests and consumption patterns. A set of recommendations on the marketing of foods and non- alcoholic beverages to children was endorsed by the Sixty-third World Health Assembly in May 2010 and Member States were urged to take the necessary measures to reduce the impact of marketing of unhealthy foods. Kenya is a member.

Calls for action to promote healthy diets and limit excessive intake of sodium, unhealthy fats, free sugars and energy have been issued through various platforms. WHO has been working to support countries to implement evidence-based interventions to reduce the double burden of malnutrition. One key aspect of WHO's technical support in this regard is the development and adaptation of tools and policy instruments to help improve food environments and promote healthy diets.

The global body's concern is around the slow implementation of recommendations on marketing of foods and non-alcoholic beverages to children adopted during the 2010 Assembly in 2010 by African countries. Results from the second Global Nutrition Policy Review (GNPR2, 2017) indicated that only three countries in the Region (The Gambia, Liberia, and Mali) have implemented measures to regulate the marketing of foods and non-alcoholic beverages to children.

One of the reasons for the slow progress may be linked to difficulties in identifying and classifying foods for which marketing should be restricted, because of the lack of appropriate food classification tools (35).

In this regard, WHO has adopted nutrient profiling as a useful approach to identifying foods whose marketing should be restricted as part of the implementation of the recommendations endorsed by the World Health Assembly (WHA) to control the marketing of foods and nonalcoholic beverages to children (35).

The nutrient profile model for the African Region builds on the models developed in the other WHO Regions. It adopts the threshold approach, adapting food categories from other Regions and incorporating foods that are commonly consumed in Africa.

The WHO Regional Office for Africa in collaboration with Member States, including Kenya, and the Department of Nutrition for Health and Development at WHO headquarters developed a nutrient profile model that seeks to support countries in their efforts to control obesogenic food environments and promote healthy diets. (36) The nutrient profile model for the African Region builds on the models developed in the other WHO Regions. It adopts the threshold approach, adapting food categories from other Regions and incorporating foods that are commonly consumed in Africa.

Nutrient profile models vary in complexity and detail. The nutrients (or food components) profiled are selected based on the health-related outcomes associated with their consumption. Sodium, sugar, saturated fat, and trans-fat have been the focus of WHO nutrient profiling because of their association with hypertension, diabetes and cardiovascular diseases, and other non-communicable diseases.

Nutrient profiling methods fall into two main types: (i) a threshold approach, which uses thresholds of specified nutrients (components targeted for restriction); and (ii) a scoring system, which consists in creating a score from a combination of thresholds for different nutrients.

In the first case, each nutrient is analyzed individually concerning its threshold, and the decision on restriction is based on each nutrient taken individually. If one or more of the target nutrients is above the defined threshold, marketing may be restricted. In the scoring system, points based on the content of each of the target nutrients are assigned and summed to obtain the total score. The marketing decision will depend on the value or cutoffs of the score and may vary from one model to another.

The approach using individual nutrient thresholds is easier to adapt and apply. And this is what most countries use including Kenya. (35) Kenya is in the process of developing a national Front of Pack Nutrition Labelling (FOPNL) an important tool to enhance consumer's ability to make informed healthy choices as one of the key strategies for controlling and reducing the burden of NCDS.

2010

A set of recommendations on the marketing of foods and non- alcoholic beverages to children was endorsed by the Sixty-third World Health Assembly in May 2010 and Member States were urged to take the necessary measures to reduce the impact of marketing of unhealthy foods. Kenya is a member.

4. THE NUTRIENT PROFILE MODEL FOR THE WHO AFRICAN REGION

Food Category		Examples of food items	Codex Food Category code	Marketing prohibited if thresholds exceed values per 100 g[9][10]					
				Total fat (g)	Saturated fat (g)	Total sugars (g)	Added sugars (g)[11]	Sodium (g)	Energy (kcal)[12]
1	**Chocolate and sugar confectionery, energy bars, sweet topping and desserts**	Cocoa/Chocolate bars (including milk, dark and white chocolate) chocolate spread, imitations and chocolate substitutes, cereal, granola and muesli bars, table sugars, flour-based confectionaries, hard soft and chewy candy, chewing gum, caramels, soft jellied candies, marshmallow, sweet sauces, sweet desserts, creamy desserts, hard boiled sweets (such as lollipop)	5.1.1, 5.1.2 (except for products used to prepare chocolate milk or hot chocolate), 5.1.3, 5.1.4, 5.1.5, 5.2, 5.3, 5.4	8.0	No threshold provided	6.0	No threshold provided	No threshold provided	230
2	**Cakes, sweet biscuits and pastries, other sweet bakery products, dry mixes for making such[13]**	Pastries; croissants, Cakes, cookies, pies, doughnuts, sweet rolls, muffins, macaroons, breakfast biscuits (such as chocolate-covered biscuits), sweet pancake (ready–to-eat form), Buns with sweet fillings, Maandazi, chocolate pudding, plum pudding, bread pudding	7.2	8.0	No threshold provided	6.0	No threshold provided	0.25	230
3	**Bread, bread products and crisp bread**	Bread and rolls, crackers, mixes for making bread and ordinary bakery wares, mixes for making pizza, savoury pancake, wraps/tortillas, bread with raisins, buns, bread with cereal, rusks	7.1	8.0	No threshold provided	6.0	No threshold provided	0.25	No threshold provided
4	**Breakfast cereals**	Whole, broken or flaked grains of rice and other cereals, rice-based, wheat-based or maize-based breakfast cereals of all flavours, oat meal, mueslis, rice cakes, porridge (dried, as	6.1, 6.3, 6.7	12.0	No threshold provided	9.0	No threshold provided	0.35	No threshold provided
5	**Ready-to-eat savouries (savoury snack foods)[14]**								
	(a) ready to eat savoury snacks Potato, cereal or starch-based (from roots, tuber, or legumes)	Popcorn, other snacks made from rice, maize, wheat, potato, cassava, plantain (i.e. chips, crisps)	15.1	8.0	No threshold provided	No threshold provided	0.0	0.25	230
	(b) Processed nuts and edible seeds	Nuts, and mixed nuts (including with fruit content), edible seeds	15.2	No threshold provided	No threshold provided	No threshold provided	0.0	0.05	No threshold provided
	(c) Fish-based	Fish-based snacks	15.3	No threshold provided	No threshold provided	6.0	No threshold provided	0.25[15]	230
6	**Beverages**								
	(a) Juices	100% fruit and vegetable juices prepared from fresh or reconstituted from concentrate, smoothies	14.1.2, 14.1.3	No threshold provided	No threshold provided	6.0	0	0.30[16]	No threshold provided
	(b) Milk and dairy based drinks[17]	Milks and sweetened milks, reconstituted powdered milk, flavoured dairy products a, sour milk, fermented dairy-based products (chocolate milk, strawberry milk, cocoa, drinking yoghurt), condensed milk, milk shakes, sweetened creamer. *Milk means milk from animals such as cows, goats, camels etc.*	1.1	4.0[18]	No threshold provided	No threshold provided	0.0	No threshold provided	No threshold provided
	(c) Water- based flavoured and unflavoured drink	Sport, energy drinks[19], electrolyte drinks, carbonated and non-carbonated water-based flavoured drinks (i.e. soft drinks), powdered juices, concentrates (liquid or solid) calculated as or in ready-to-drink form, flavoured waters (sparkling), reconstituted chocolate or malted powdered drinks, syrups, sugar cane juices	14.1.4	No threshold provided	No threshold provided	0.0	No threshold provided	0.1	No threshold provided
	(d) Coffee, coffee substitutes, tea, herbal infusions	Coffee, including instant and premixed coffee, coffee substitute, tea including instant and premixed tea, herbal infusion to be prepared or in ready-to-drink form	14.1.5	No threshold provided	No threshold provided	0.0	No threshold provided	No threshold provided	No threshold provided

	Food Category	Examples of food items	Codex Food Category code	Marketing prohibited if thresholds exceed values per 100 g[9][10]					
				Total fat (g)	Saturated fat (g)	Total sugars (g)	Added sugars (g)[11]	Sodium (g)	Energy (kcal)[12]
	(e) Cereal, legumes, grain, tree nut-based beverages	Cereal, grain and tree nut-based beverages produced from the extracts of cereals, pulses and tree nuts (e.g. rice-, almond-, soya, oat-based beverages).	14.1.5, 6.8.1	No threshold provided	No threshold provided	6.0	0.0[20]	0.1	No threshold provided
7	**Frozen dairy-based desserts and edible ices**	Ice cream, ice milk, frozen yoghurt, ice lollies and sorbets	1.7, 3	6.0	No threshold provided	12.0	No threshold	0.10	230
8	**Other dairy based desserts**	Dairy based products that have been curdled by fermentation, acid, enzyme, heat, etc. and flavoured with sugar and other ingredients. Examples are flavoured cream-type yoghurt, jellied milk, butterscotch, chocolate mousse, puddings (including rice pudding, milk pudding), flan, custard	1.7	4.0	No threshold provided	6.0	No threshold provided	0.10	230
9	**Cheese and analogues**	Unripe or ripened cheese, processed cheese, cheese analogues, that can be classified based on physical characteristics as hard (e.g. Parmesan), semi-hard (e.g. cheddar, edam), semi-soft and soft (e.g. mozzarella, ricotta) as well as serving style as sliced cheese, cream cheeses, grated or powdered cheeses, spreadable cheeses, cottage cheese, processed cheese	1.6	20.0	No threshold provided	No threshold provided	0.0	0.60	No threshold provided
10	**Composite foods (Prepared foods, ready-made and convenience foods and composite dishes)**	Mixtures of multiple components (e.g. meat, sauce, grain, cheese, vegetables). These include foods that require minimal preparation (heating, thawing, rehydrating) or the ready-to-serve meal from restaurants. Examples: frozen and chilled ready meals, pizzas, lasagna, ready-made sandwiches, soups, burgers in buns, ready meals, soups, tinned spaghetti, baked bean, filled pastas, French fries	16, 12.5.1, 12.5.2	12.0	3.5	9.0	No threshold provided	0.35	No threshold provided
11	**Butter and other fats and oils, and fat emulsions**	Vegetable oils and fats, lard, ghee, fish oils and other animal fats, butter, margarine and similar products. Examples: cooking oils from plant and animal sources, fat blends, nuts spread (e.g. peanut butter)	2.1, 2.2	No threshold provided	35.0	No threshold provided	0.0	0.10	No threshold provided
12	**Pasta and noodles and like products, rice and grains**	Fresh, precooked, or dried noodles and pastas and like products, rice paper, rice noodles, vermicelli made from wheat, tapioca, sago, brick paper etc. (sold as ready-to-eat)	6.4	3.0	No threshold provided	No threshold provided	0.0	0.25	No threshold provided
13	**Fresh and frozen meat, poultry, game, fish and seafood**	Fresh and frozen meat, poultry, game, molluscs, crustaceans, echinoderms in the forms of whole pieces, cuts/fillet, comminuted/ minced/creamed. Examples: beef, pork, chicken, lamb, goat, tuna, mackerel, catfish, shrimp, ox tails, Turkey tails, mutton flap, organ meats, eggs, oily fish (e.g. herring) etc.	8.1, 8.2.3, 9.1, 9.2.1, 9.2.3	15.0	No threshold provided	No threshold provided	No threshold provided	No threshold provided	No threshold provided
14	Processed meat, poultry, game, fish and fish products								
	(a) Processed meat, poultry and game products	Non-heat and heat treated whole pieces or cuts or commuted meat, poultry and game that have been cured and dried or fermented. Examples: smoked ham, salted dried meat, salami, sausage, bacon, corned beef, smoked duck, canned meats, chicken nuggets, beef or chicken patty, pork rind, liver pate	8.2.1, 8.2.2, 8.3.1, 8.3.2	8.0	3.0	No threshold provided	No threshold provided	0.40	No threshold provided
	(b) Processed fish and seafood products	Frozen battered, cooked and/or fried, smoked, dried, fermented, and/or salted, semi-preserved by pickling or brining, fully-preserved by canning or fermentation of fish and sea foods. Examples: salted fish and seafood, brined fish, salted fish in oil, fermented fish and seafood, anchovies, shrimp paste, canned tuna, sardine, or mackerel, smoked fishes, dried shrimp, fish balls, fish finger, fish burger	9.2.2, 9.2.4, 9.3, 9.4	8.0	3.0	No threshold provided	No threshold provided	0.40	No threshold provided
15	**Fresh and frozen fruits and vegetables, legumes, roots and tubers[21]**	Fruits, vegetables, mushrooms, roots and tubers, pulses and legumes, seaweed, fresh coconut	4.1.1, 4.1.2.1, 4.2.1, 4.2.2.1	Permitted					
16	**Processed fruits, vegetables, and legumes**	Dried fruits[22], canned or bottled, jam, jellies, marmalades, packed in vinegar, oil or brine; pickled, candied, pulp, purees, topping, fermented, fillings, cooked forms of fruits and vegetables. Examples: fruits and vegetables in vinegar, oil or brine, dried coconut, coconut cream, marmalade, jams, canned fruits, vegetables and legumes, dried mushrooms, preserved or pickled fruits and vegetables, fermented vegetables	4.1.2, 4.2.2	5.0	No threshold provided	No threshold provided	0.0	0.40	No threshold provided
17	**Solid-form soybean products**	Soybean-based products, soybean curd (tofu), semi-dehydrated tofu, dehydrated tofu (kori tofu), fermented soybeans (natto), other soybean protein products (soya nuggets and textured vegetable protein)	6.8.2, 6.8.3, 6.8.4, 6.8.5, 6.8.6, 6.8.7, 6.8.8, 12.9.1	8.0	No threshold provided	No threshold provided	0.0	0.10	No threshold provided
18	**Sauces, dips, other seasonings and dressings**	Emulsified, non-emulsified mixes as concentrated, clear sauces and like products, soybean-based seasoning and condiments. Examples: mayonnaise, salad dressing, onion dips, tomato ketchup, gravy, cheese sauce, cream sauce, bouillon cubes, seasoning powder, fermented and unfermented soy sauces, fish sauce, sweet chili sauce, spaghetti sauce, BBQ sauces,	12.6, 12.9.2	8.0	No threshold provided	No threshold provided	0.0	0.30	No threshold provided

REFERENCES

1. UNICEF. From the first hour of life: : making the case for improved infant and young child feeding everywhere. [Internet]. [cited 2021 Feb 25]. 103 p. Available from: https://data.unicef.org/resources/first-hour-life-new-report-breastfeeding-practices/

2. World Health Organization (WHO). Infant and young child feeding : model chapter for textbooks for medical students and allied health professionals. In: Infant and young child feeding. Geneva: WHO Press; 20091. p. 1–6.

3. Government of Kenya. National Guidelines for Healthy Diets and Physical Activity. 2017;21–30.

4. UNICEF, WHO. Indicators for assessing infant and young child feeding practices : Definitions and measurement methods. 2021 Dec.

5. UNICEF. Global databases: Infant and young child feeding [Internet]. [cited 2022 Dec 28]. Available from: http://data.unicef.org/nutrition/iycf.

6. National Bureau of Statistics Nairobi K. Republic of Kenya Kenya Demographic and Health Survey 2014 [Internet]. 2015. Available from: www.DHSprogram.com.

7. 2022 Global Nutrition Report [Internet]. 2021 [cited 2023 Jan 3]. Available from: https://globalnutritionreport.org/resources/nutrition-profiles/africa/eastern-africa/kenya/

8. Kenya National Bureau of Statistics and ICF. Kenya Demographic Health Survey 2022, Key Indicators Report. Nairobi, Kenya and Rockville, Maryland, USA; 2023 Jan.

9. Bachrach VRG, Schwarz E, Bachrach LR. Breastfeeding and the Risk of Hospitalization for Respiratory Disease in Infancy. Arch Pediatr Adolesc Med. 2003 Mar 1;157(3):237.

10. United Nations Children's Fund (UNICEF). Infant and Young Child Feeding [Internet]. 2019 [cited 2021 Feb 21]. Available from: https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding/

11. Kavle JA, LaCroix E, Dau H, Engmann C. Addressing barriers to exclusive breast-feeding in low- and middle-income countries: a systematic review and programmatic implications. Public Health Nutr. 2017 Dec 2;20(17).

12. Dewey KG, Adu-Afarwuah S. Systematic review of the efficacy and effectiveness of complementary feeding interventions in developing countries. Matern Child Nutr. 2008 Apr;4(s1):24–85.

13. Ahoya B, Kavle JA, Straubinger S, Gathi CM. Accelerating progress for complementary feeding in Kenya: Key government actions and the way forward. Matern Child Nutr. 2019 Jan 12;15(S1).

14. UNICEF, WHO. Low Birthweight [Internet]. 2022 [cited 2022 Dec 29]. Available from: https://data.unicef.org/topic/nutrition/low-birthweight/

15. Kenya National Bureau of Statistics. Economic Survey 2021. 2021 [cited 2022 Dec 30];301–19. Available from: https://www.knbs.or.ke/wp-content/uploads/2021/09/Economic-Survey-2021.pdf

16. Deepika Mehrish Sharma, Roland Kupka, Vilma Tyler, Victor Aguayo. Programming Guidance : Nutrition In Middle Childhood and Adolescents. UNICEF Programme Division. New York: UNICEF; 2021. p. 9–20.

17. Kristen Cashin, Lesley Oot. Anthropometry: A Practical Tool for Program Planners, Managers, and Implementers. Washington, DC: Food and Nutrition Technical Assistance III Project (FANTA)/ FHI 360.; 2018. p. 28–60.

18. Gewa CA. Childhood overweight and obesity among Kenyan pre-school children: association with maternal and early child nutritional factors. Public Health Nutr. 2010 Apr 5;13(4):496–503.

19. Rehana A Salam, Zulfiqar A Bhutta. Adolescent Nutrition" in World Review of Nutrition and Dietetics. 2015;113:122–6.

20. Burt Solorzano CM, McCartney CR. Obesity and the pubertal transition in girls and boys. REPRODUCTION. 2010 Sep;140(3):399–410.

21. WHO. World Health Organisation. Noncommunicable diseases: Childhood overweight and obesity. [Internet]. 2020 [cited 2023 Jan 3]. Available from: https://www.who.int/news-room/questions-and-answers/item/noncommunicable-diseases-childhood-overweight-and-obesity

22. Muthuri SK, Wachira L-JM, Onywera VO, Tremblay MS. Correlates of objectively measured overweight/obesity and physical activity in Kenyan school children: results from ISCOLE-Kenya. BMC Public Health. 2014 Dec 9;14(1):436.

23. Ventura AK, Mennella JA. Innate and learned preferences for sweet tastes during childhood. Curr Opin Clin Nutr Metab Care. 2011 Jul;14(4):379–84.

24. Nicklaus S, Boggio V, Chabanet C, Issanchou S. A prospective study of food preferences in childhood. Food Qual Prefer. 2004 Oct;15(7–8):805–18.

25. Norman J, Kelly B, McMahon A-T, Boyland E, Baur LA, Chapman K, et al. Sustained impact of energy-dense TV and online food advertising on children's dietary intake: a within-subject, randomised, crossover, counter-balanced trial. Int J Behav Nutr Phys Act. 2018 Dec 12;15(1):37.

26. Russell SJ, Croker H, Viner RM. The effect of screen advertising on children's dietary intake: A systematic review and meta-analysis. Obes Rev. 2019 Apr;20(4):554–68.

27. Qutteina Y, De Backer C, Smits T. Media food marketing and eating outcomes among pre‐adolescents and adolescents: A systematic review and meta‐analysis. Obes Rev. 2019 Dec 29;20(12):1708–19.

28. Fedewa AL, Davis MC. How Food as a Reward Is Detrimental to Children's Health, Learning, and Behavior. J Sch Health. 2015 Sep;85(9):648–58.

29. Ojiambo RM, Easton C, Casajús JA, Konstabel K, Reilly JJ, Pitsiladis Y. Effect of Urbanization on Objectively Measured Physical Activity Levels, Sedentary Time, and Indices of Adiposity in Kenyan Adolescents. J Phys Act Heal. 2012 Jan;9(1):115–23.

30. Wachira L-J, Muthuri S, Ochola S, Onywera V, Tremblay M. Association between dietary behaviours and weight status of school children: results from the International Study of Childhood Obesity, Lifestyle and the Environment (ISCOLE) -Kenya. Child Adolesc Obes. 2021 Jan 1;4(1):1–22.

31. Sobal J. Commentary: Globalization and the epidemiology of obesity. Int J Epidemiol. 2001 Oct;30(5):1136–7.

32. How parents are being misled: a campaign report on children's food marketing. London, British Heart Foundation, 2010 (http://www.bhf.org.uk/idoc.ashx?docid=eb1dee57-ec86-4da7-bc73-28b3a276074e&version=-1, ccessed1November2012)

33. Prell H et al. Health discourse in Swedish television food advertising during children's peak viewing times. Appetite, 2011, 56:607–616

34. The Kenyan National Strategic Plan for Prevention and Control of NCDs 2020/21-2025/26 (https://www.health.go.ke/wp-content/uploads/2021/07/Kenya-Non-Communicable-Disease-NCD-Strategic-Plan-2021-2025.pdf)

35. World Health Organization. Set of recommendations on the marketing of foods and non-alcoholic beverages to children. Geneva: WHO, 2010. http://www.who. int/dietphysicalactivity/marketing-food-tochildren/en/

36. Nutrient Profile Model for the WHO African Region: a tool for implementing WHO recommendations on the marketing of foods and non-alcoholic beverages to children ISBN: 978-929023440-1(https://apps.who.int/iris/bitstream/handle/10665/329956/9789290234401-eng.pdf)

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