

**THE DOUBLE  
BURDEN OF  
MALNUTRITION:  
PRIORITY  
ACTIONS ON  
ENDING  
CHILDHOOD  
OBESITY**



**World Health  
Organization**

REGIONAL OFFICE FOR

**South-East Asia**



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The double burden of malnutrition: priority actions on ending childhood obesity

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# Acknowledgements

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# Foreword



The work of WHO and its Member States in the South-East Asia Region to address the multiple forms of malnutrition affecting populations is more urgent than ever. Though Member States have in recent years made notable progress in implementing the Region's *Strategic Action Plan to reduce the double burden of malnutrition 2016-2025*, accelerated action is needed.

This technical report provides a detailed picture of the double burden of malnutrition in children across the Region with the aim of supporting countries to sustain and accelerate action to tackle the problem. The data collated in the report show that overweight, obesity and the early onset of noncommunicable diseases (NCDs) are no longer adult challenges. Rather, children at younger ages are showing increasing trends of overweight and obesity. Levels of undernutrition – which is linked to overweight and obesity later in life – have been slow to decline.

In supporting countries to address the double burden of malnutrition, this report highlights the value of applying WHO-recommended double-duty actions. Double-duty actions are actions that are often already used to address single forms of malnutrition, but which have the potential to address multiple forms of malnutrition simultaneously. The double-duty actions advocated for in this report are aligned with the Region's Strategic Action Plan and aim to harness the synergetic potential of policies, programmes and interventions to address both undernutrition and obesity, as well as dietary risk factors for NCDs.

In line with the double-duty approach, countries should develop common programme packages for obesity and overweight that can be integrated into programmes that currently focus on undernutrition and micronutrient deficiencies. Special efforts should be made to include overweight and obesity considerations in the provision of quality maternal and antenatal care and diets; support breastfeeding and ensure optimum complementary feeding for young children; and promote healthy diets in older children and adolescents, along with adequate physical activity across all age groups. Multisectoral interventions, especially those which address the food environment, will help optimize the impact of these and other measures and achieve sustainable progress.

The double burden of malnutrition has complex causes and requires careful and sustained attention and action. WHO will continue to support countries and partners in the Region to scale up evidence-based interventions that will achieve lasting gains, in line with the Region's Flagship Priority on preventing and controlling noncommunicable diseases through high-impact "best buys". Together we can achieve a Region in which every child can grow up healthy and strong, and into adults that have sufficient and appropriate nutrition to stay health and well throughout the life-course.

A handwritten signature in black ink, which reads "P. Khetrpal".

Dr Poonam Khetrpal Singh  
Regional Director  
WHO South-East Asia Region

# Abbreviations

BMI	Body mass index
DALY	Disability-adjusted life years
DHS	Demographic and health surveys
GHO	Global Health Observatory
GNI	Gross national income
GSHS	Global School-based Student Health Surveys
GBD	Global burden of disease
JME	UNICEF–WHO–The World Bank Joint Malnutrition Estimates
LMIC	Low middle-income countries
MICS	Multiple indicator cluster survey
NCD	Noncommunicable diseases
NCD-RisC	NCD Risk Factor Collaboration
SDG	Sustainable Development Goals

# Glossary

<b>Adolescents</b>	Children and young people between 10 and 19 years of age
<b>BMI-for-age</b>	BMI adjusted for age, standardized for children
<b>Children</b>	Those less than 18 years of age <sup>1</sup>
<b>Body mass index</b>	Calculation: weight (kg)/height (m <sup>2</sup> ). For adults, overweight is defined as a BMI $\geq 25$ kg/m <sup>2</sup> and obesity as a BMI $\geq 30$ kg/m <sup>2</sup> . For children, overweight ( $> +1SD$ ) is equivalent to a BMI of 25 kg/m <sup>2</sup> at 19 years of age, and obesity ( $> +2SD$ ) is equivalent to a BMI of 30 kg/m <sup>2</sup> at 19 years of age
<b>DALY</b>	DALYs for a disease or health condition are calculated as the sum of the years of life lost due to premature mortality in the population, while the years lost due to disability refer to people living with health conditions or their consequences
<b>Double-duty actions</b>	Double-duty actions include interventions, programmes and policies that have the potential to simultaneously reduce the risk or burden of both undernutrition (including wasting, stunting and micronutrient deficiency or insufficiency) and overweight, obesity or diet-related noncommunicable diseases (including type 2 diabetes, cardiovascular disease and some cancers)
<b>Infants</b>	Those less than 12 months of age
<b>Obesogenic environment</b>	An environment that promotes high energy intake and sedentary behaviour. This includes the foods that are available, affordable, accessible and promoted; opportunities for physical activity; and the social norms in relation to food and physical activity
<b>Overweight and obesity</b>	Excessive fat accumulation that presents a risk to health
<b>Young children</b>	Those less than 5 years of age

<sup>1</sup> Convention on the Rights of the Child, Treaty Series, 1577:3(1989): PART I, Article 1 defines a child as every human being below the age of 18 years unless, under the law applicable to the child, majority is attained earlier. The World Health Organization (WHO) defines adolescents as those between 10 and 19 years of age. The majority of adolescents are, therefore, included in the age-based definition of "child", adopted by the Convention on the Rights of the Child, as a person under the age of 18 years.

# Key messages

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## Children in WHO South-East Asia Region bear a disproportionate burden of the global problem of malnutrition.

- According to estimates, globally there are 144 million stunted, 47 million wasted and 38 million overweight children under 5 years of age. The WHO South-East Asia Region bears much of this burden, with 52 million children stunted (a third of the global burden), 25 million wasted (half of global wasting) and 5 million overweight (one-seventh of global overweight). Around 24.2 % children are born with a low birth weight.
- An estimated 7.4 % children (38.4 million) of 5–19 years of age in the Region are overweight in 2020, and 22.5 % are thin.
- The trend of overweight among children has been rising rapidly across all age groups since 2000, while there has been a slow decline in stunting. Trends in wasting have remained stagnant in most countries.

## A double burden of malnutrition exists in the Region at the population, household and individual levels.

- A double burden of malnutrition exists at the population, household and individual levels in all countries. This includes overweight mothers and stunted children and children who are both stunted and overweight. The current proportion of overweight children under 5 years of age who were also stunted was 15.2 % in Thailand and 73 % in Timor-Leste.

## Considerable sociodemographic variations in malnutrition status are seen across countries.

- The estimated prevalence of overweight is higher among older children than among those under 5 years of age.
- Substantial intercountry variation in the prevalence of overweight is a key feature among children under 5 years of age. The current prevalence of overweight ranges from 8.2% in Thailand and 8.1% in Indonesia to 1.6% in India, 1.4% in Myanmar and 1.2% in Nepal. (Latest National data) Stunting and wasting present a mixed picture, being lower in Thailand and Maldives than in other countries.
- Child overweight is more prevalent among higher income groups and in urban areas, while the prevalence of stunting and thinness is higher in low socioeconomic groups. However, data indicate that overweight is emerging in low-income groups as well.
- Across countries, the prevalence of child overweight and obesity is similar in males and females at any age, except in Maldives (under 5 years of age) and Bhutan (age group of 15–19 years).

## **The Global Nutrition Targets and Sustainable Development Goal targets are unlikely to be achieved by most Member States.**

- The consistently increasing trends in overweight, which have been accelerating since 2010, pose a challenge to the efforts of almost all countries to achieve the Global Nutrition Target 4: halt the increase in overweight in children (under 5 years of age).
- Most countries are also unlikely to achieve the global target or national targets set for stunting and wasting.

## **The burden of malnutrition is driven by biological, socioeconomic, cultural and environmental factors.**

- Globalization and urbanization are driving changes in the food environment and lifestyles in the Region. Unhealthy food environments, poor diets and sedentary lifestyles place many children on the pathway to obesity and enhanced risk of noncommunicable diseases (NCD).
- The high prevalence of low birth weight and stunting are also risk factors for obesity and NCDs, with their effects being compounded by unhealthy diets.
- The different forms of malnutrition share certain biological, socioeconomic and environmental determinants. This suggests that shared pathways could be identified for prevention strategies.

## **Countries should enhance policy measures to simultaneously address undernutrition, overweight and obesity.**

- Multisectoral policies and plans in countries usually focus on undernutrition. Broader policy measures to include interventions to address childhood overweight/obesity are required urgently.
- Policies and programmes that focus on improving nutrition during early life and throughout the life-course are of paramount importance. Simultaneously, there is a need to promote and support policies that facilitate the existence of an optimum food and physical environment.

## **Accurate and timely information is required to create awareness of the double burden and to inform evidence-based interventions.**

- The scarcity of regular anthropometric and implementation of dietary data on children, especially in the age group of 5–9 years, is a major barrier to the development of context-specific responses to child overweight.
- Member States must take policy decisions on collecting, analysing and interpreting national-level anthropometric and relevant dietary data on children of the age of 5–19 years, and concurrently gather information regarding the food environment.

# The burden of malnutrition at a glance

## Stunting

 52.6 million of 144.0 million

## Wasting

 24.9 million of 47.0 million

## Low birth weight

 24.2%

## Overweight

 5 million

The WHO SEA Region<sup>2</sup> are home to more than one-third (52.6 million of 144.0 million) of stunted children and more than half of wasted children under 5 years of age (24.9 million out of 47.0 million) worldwide (1). Almost a quarter of infants are born with a low birth weight (24.2%) and micronutrient deficiencies are common (2, 3).<sup>3</sup> The Region is now faced with a further complication in the form of rising levels of childhood overweight and obesity, with 5 million children (under 5 years of age) suffering from these conditions (1). This double burden of malnutrition is characterized by the coexistence of undernutrition, micronutrient deficiencies, overweight, obesity or diet-related NCDs within individuals, households and populations, and across the life-course (4).

The double burden of malnutrition poses a significant public health challenge to countries in the Region who are grappling with the unfinished agenda of undernutrition.

There is a definite relationship between undernutrition and overweight and obesity, which is beyond a mere coexistence. Epidemiological and supportive evidence demonstrate that undernutrition early in life – and even in *utero* – followed by rapid weight gain and an unhealthy lifestyle may predispose the individual to overweight and NCDs in the future. Overweight in mothers is also associated with overweight and obesity in their offspring. The complexities of malnutrition call for policies and interventions which take into account the changing nutritional landscape.

<sup>2</sup> The WHO South-East Asia Region consists of 11 countries – Bangladesh, Bhutan, Democratic People's Republic of Korea (DPR Korea), India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, and Timor-Leste. The total population of the Region is about 1.9 billion, or almost 29% of the global population.

<sup>3</sup> Micronutrient deficiencies are not covered in this publication.

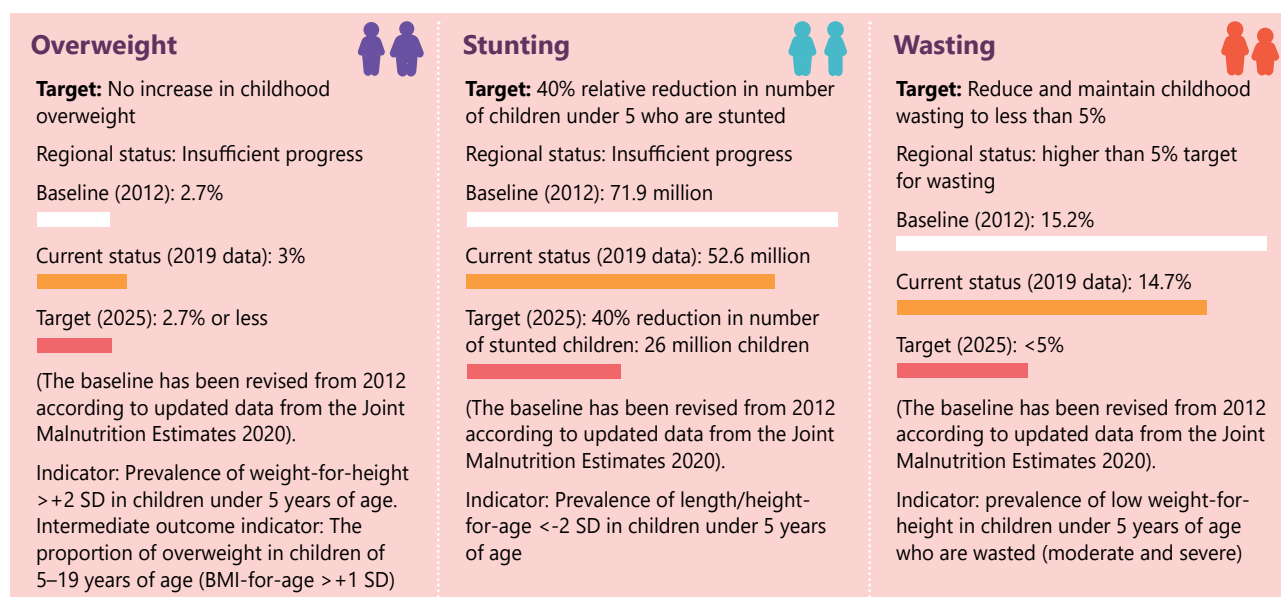
# Global, regional and national nutrition targets

Apart from the Global Nutrition Targets for stunting, wasting and low birth weight (5), a voluntary global target was set by the World Health Assembly in 2012 as a result of the growing concerns regarding the rising trends in childhood overweight and obesity. The target is no increase in childhood overweight by 2025. The global estimated prevalence of 5.3% in children under 5 years of age (baseline year, 2012) should not increase (5). A similar target, of no increase in childhood overweight, has been set by the WHO South-East Asia Region, along with targets for stunting, wasting and low birth weight (3).

## 1.1 Global and regional nutrition targets and their current status

The global nutrition targets and their current regional status (3, 6, 7) are shown in Fig. 1.1. The figure includes indicators and estimated baselines. The baseline in each case is the status in 2012.

**Fig. 1.1** Global nutrition targets and the regional status



Sustainable Development Goal (SDG) 2 and Target 3.4 of SDG 3 are relevant here and are shown in Fig. 1.2 (8)

**Fig. 1.2** Sustainable Development Goals and relevant targets



**Target 2.2:** By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.

**Indicators:**

2.2.1 Prevalence of stunting from the median of the WHO Child Growth Standards among children under 5 years of age

2.2.2 Prevalence of malnutrition (weight-for-height  $> +2$  or  $< -2$  SD from the median of the WHO Child Growth Standards) among children under 5 years of age, by type (wasting and overweight)



**Target 3.4:** By 2030, reduce by one-third premature mortality from noncommunicable diseases through prevention and treatment and promote mental health and well-being.

The national targets adopted by countries regarding child overweight/obesity, stunting, low birth weight and wasting are given in Table 1. Six countries have set national targets for child overweight.

**Table 1** Nutrition goals and targets, by country

Country	Overweight/obesity	Stunting, wasting and low birth weight (< 2500 g)
<b>Bangladesh</b>	<p><b>By 2025,</b></p> <p>No increase of childhood obesity (WHZ <math>&gt; +2</math>) in children under 5 years of age (baseline, 2016)</p>	<p><b>By 2025,</b></p> <p>Reduce stunting to 25% in children under 5 years of age</p> <p>Reduce rate of low birth weight to 16%</p> <p>Reduce wasting to less than 8% in children under 5 years of age</p>
<b>Bhutan</b>	<p><b>By 2023,</b></p> <p>Halt rise of childhood overweight and obesity</p>	<p><b>By 2023,</b></p> <p>Reduce prevalence of stunting in children under 5 years of age by 40% (to 15.1%)</p> <p>Reduce prevalence of low birth weight to <math>&lt; 8\%</math></p> <p>Reduce prevalence of childhood wasting in children under 5 years of age to <math>&lt; 3\%</math></p>



Country	Overweight/obesity	Stunting, wasting and low birth weight (< 2500 g)
<b>Democratic People's Republic of Korea</b>	<b>No target</b>	<p><b>By 2025,</b></p> <p>Decrease prevalence of stunting in children under 5 years of age from 28% to 25%</p> <p>Maintain prevalence of wasting in children under 5 years of age at &lt; 5%</p> <p>Decrease prevalence of low birth weight from 6% to 5%</p>
<b>India</b>	<b>No target</b>	<p><b>By 2025,</b></p> <p>Reduce prevalence of stunting in children under 5 years of age by 40% (baseline, NHFS 4)</p> <p>By 2022,</p> <p>Reduce prevalence of low birth weight by 1/4 (baseline, NFHS 4)</p> <p>Reduce prevalence of underweight by 3 percentage points / year in children under 3 years of age (baseline, NFHS 4)</p>
<b>Indonesia</b>	<p><b>By 2024,</b></p> <p>Reduce prevalence of overweight in women &gt; 18 years of age to 21.8 % (Global NCD target 7)</p>	<p><b>By 2024,</b></p> <p>Reduce prevalence of stunting in children under 5 years of age to 14%</p> <p>Reduce prevalence of wasting in children under 5 years of age to 7%</p>
<b>Maldives</b>	<p><b>Target for 2020–2025</b></p> <p>Reduce prevalence of overweight in children under 5 years of age by 1/3 and maintain</p>	<p><b>Targets for 2020–2025</b></p> <p>Reduce prevalence of stunting in children by 1/3 of current rate and maintain</p> <p>Reduce prevalence of low birth weight and maintain it below 10%</p> <p>Reduce prevalence of underweight in children under 5 years of age to 15% and maintain</p> <p>Reduce prevalence of wasting in children under 5 years of age by 1/3 and maintain</p>
<b>Myanmar</b>	<b>No target</b>	<p><b>By 2025,</b></p> <p>Reduce prevalence of stunting in children aged 0–59 months to 21%</p> <p>Reduce prevalence of acute malnutrition (wasting) in children aged 0–59 months to less than 5%</p> <p>Reduce prevalence of low birth weight to less than 6%</p> <p>Reduce prevalence of anaemia in children aged 6–59 months</p>

Country	Overweight/obesity	Stunting, wasting and low birth weight (< 2500 g)
<b>Nepal</b>	<p><b>By (2025 (WHA) and by 2030 (SDG),</b></p> <p>Ensure no increase in childhood overweight in children under 5 years of age to <math>\leq 1.4\%</math>; SDG target &lt; 1%.</p>	<p><b>By (2025 (WHA) and by 2030 (SDG),</b></p> <p>Reduce the number of stunted children under 5 years of age by 40%. (SDG target &lt; 10%)</p> <p>Reduce low birth weight rate by 30% to reach 8% (SDG target &lt; 5%)</p> <p>Reduce and maintain prevalence of wasting in children under 5 years of age to &lt; 5% (SDG target &lt; 5%)</p>
<b>Sri Lanka</b>	<p><b>By 2025,</b></p> <p>Ensure no increase in prevalence of overweight in children under 5 years of age (baseline, 2012; &lt; 0.6 %)</p>	<p><b>By 2025,</b></p> <p>Reduce prevalence of stunting in children under 5 years of age to 10.8%</p> <p>Reduce prevalence of wasting in children under 5 years of age to &lt; 5%</p>
<b>Thailand</b>	<p><b>By 2023,</b></p> <p>Maintain prevalence of overweight/obesity in children under 5 years of age to not &gt; 8%</p> <p>Reduce prevalence of overweight in children aged 6–14 years of age to &lt; 10%</p>	<p><b>By 2025,</b></p> <p>Reduce prevalence of low birth weight to 7%</p> <p>Reduce prevalence of stunting in children aged 0–5 years to <math>\leq 10\%</math></p> <p>Reduce prevalence of wasting in children aged 0–5 years to <math>\leq 5\%</math></p>
<b>Timor-Leste</b>	<p><b>No target</b></p>	<p><b>By 2025,</b></p> <p>Reduce prevalence of underweight in children under 5 years of age to &lt; 30%</p> <p>Reduce prevalence of stunting in children under 5 years of age to &lt; 40%</p> <p>Reduce prevalence of wasting in children under 5 years of age to &lt; 10%</p> <p>Reduce prevalence of low birth weight (&lt; 2500 g) to &lt; 10%</p>

Sources: Bangladesh (9), Bhutan (10) DPR Korea (11), India (12) Indonesia (13) Maldives (14) Myanmar (15) Nepal (16) Sri Lanka (17) Thailand (18) Timor Leste (19)

## 1.2 NCD targets and indicators relevant to childhood obesity

The Global NCD target, Halt the rise in diabetes and obesity (Target 7) and the physical activity target along with their relevant indicators are given below. (Fig1.3) (20, 21). The WHO global monitoring framework for NCDs calls for a 10% reduction in physical inactivity by 2025, and sets a minimum target of physical activity for adolescents (6). This emphasizes the fact that both healthy diets and physical activity are important components of a healthy lifestyle essential for reducing the risk of NCDs.

**Fig. 1.3** Global NCD targets on obesity and physical activity



Halt the rise in diabetes and obesity

Global voluntary NCD target 7

Regional status: Off track

Baseline (2015 at regional level): <sup>a</sup> 5.4%

Current status (2017): 8.1% (adjusted according to data for 2017)

Target (2030): 5.4%

- Indicator 13: Prevalence of overweight and obesity in adolescents
- Indicator 14: Age standardized prevalence of overweight and obesity in persons of the age of 18+ years <sup>b</sup>



A 10 % relative reduction in prevalence of insufficient physical activity

Age-standardized prevalence of insufficiently physically active persons aged 18+ years (defined as less than 150 minutes of moderate-intensity activity per week, or equivalent) <sup>c</sup>

<sup>a</sup> Baseline at regional level set in 2015.

<sup>b</sup> Indicator 13: defined according to the WHO growth reference for school-aged children and adolescents; overweight – 1 SD from median BMI for age and sex, and obese –2 SD from mean BMI for age and sex  
Indicator 14: BMI = 25 kg/m<sup>2</sup> for overweight and BMI = 30 kg/m<sup>2</sup> for obesity is also relevant because childhood obesity tracks into adult obesity and early actions are advisable.

<sup>c</sup> Prevalence of insufficiently physically active adolescents, defined as less than 60 minutes of moderate to vigorous intensity activity daily. Physical activity in 18+ years is also relevant since physical activity habits should be inculcated from an early age

# 2

## Methodology of data analysis

### 2.1 Defining childhood overweight and obesity and other anthropometric indicators

This report explores the double burden of malnutrition, presenting data on overweight and obesity among children of 0–19 years of age, as well as on stunting and wasting/thinness across the same age group. The estimates (point prevalence of different indicators) have been presented by three age groups: under 5 years (0–59 months), 5–9 years and 10–19 years. In addition, the mean BMI (kg/m<sup>2</sup>) is given for children of the age of 5–9 years and 10–19 years.

Table 2.1 presents the definitions of overweight and obesity, wasting/thinness and stunting used throughout this publication. These are based on WHO Child Growth Standards 2006 for children under the age of 5 years and WHO growth reference data 2007 for those of 5–19 years of age. Specific weight-for-length cut-offs are used to define overweight among for children under 5 years of age, while age-specific BMI cut-offs are used for children of 5–19 years of age (22, 23).

**Table 2.1** Cut-offs and definitions

Indicator	Age	
	Children < 5 years of age (22)	Children of the age of 5–19 years (23)
Overweight	Weight-for-length/height z-score > +2 SD	BMI-for-age z-score > +1 SD
Obesity	Weight-for-length/height z-score > +3 SD	BMI-for-age z-score > +2 SD
Wasting/thinness*	Weight-for-length/height z-score < -2 SD	BMI-for-age z-score < -2 SD
Stunting	Length/height-for-age z-score < -2 SD	

\*Wasting is used to characterize children under 5 years of age with low weight for length/height, while thinness is used to characterize children of 5–19 years of age with low weight for length/height.

## 2.2 Data sources and processing

Data on the prevalence of overweight or malnutrition and on BMI are generally collected as part of representative, population-based, nationwide household sample surveys. These involve the anthropometric measurement of the height and weight of the individual, using standardized methods and equipment. Given the traditional focus of nutritional indicators in children under 5 years of age and on overweight and obesity among adults in relation to NCDs, the data availability for measurement of obesity and overweight varied across age-groups.

Most countries in the Region have been carrying out population-based surveys for more than two decades and had conducted at least two rounds of such surveys by 2019. However, traditionally, most of these surveys, such as demographic and health surveys (DHS) and multiple indicator cluster surveys (MICS), primarily collect anthropometric data for children under 5 years of age and for women (of the age of 15–49 years), and in recent years, for men (of the age of 15–59 years) in some countries. Further, all countries have been conducting national integrated NCD risk factor surveys (WHO STEP surveys or similar) that collect anthropometric data for adults in the age range of 15–64 or 15–69 years.

In addition to these integrated surveys, which collect anthropometric data along with data on other key public health conditions/programmes relevant to these population groups, many countries in the Region have started carrying out stand-alone comprehensive national household surveys on food and nutrition or micronutrients, covering an extensive age range. In recent years, Bhutan, India, Myanmar, Nepal and Timor-Leste have undertaken national nutrition surveys. Table 2.2 describes the data sources used for this publication.

**Table 2.2** Description of data sources

Age group	Data source	Reference
Under 5 years of age	Joint malnutrition estimates 2020 Individual country surveys: DHS, MICS or national food and nutrition or national micronutrient surveys	Appendix 1
5–19-year-olds	NCD Risk Factor Collaboration (NCD-RisC) data – pooled analysis from 2416 studies across the world (24) Individual country surveys: DHS for disaggregation of residence, socioeconomic status of 15–19-year-old children, or national nutrition or micronutrient surveys (for India, Myanmar, Nepal, Sri Lanka) STEPs data from Bangladesh, Bhutan and Nepal for disaggregation of overweight by sex (15–19 years)	Appendix 2 Appendix 3
13–17-year-olds	Global School Health Surveys for information on risk behaviours (diet and physical activity)	Appendix 2
5–19-year-olds	Trend data for thinness at national level obtained from the WHO Global Health Observatory (25)	

Appendix 1 lists the national surveys of countries that collected anthropometric data for children under 5 years of age. Data from these surveys were used to assess the trends in malnutrition among children under 5 years of age. A relatively recent estimate was available for all countries as almost all have carried out at least one such survey in the last five years (2014–2019).

India is the only country that had population-level anthropometry data from a national survey that included the age groups of 5–9 and 10–19 years, in addition to the standard 0–4 years. (Appendix 1) Myanmar and Sri Lanka reported anthropometry data for 5–9-year-olds and Nepal for 10–19-year-olds. (Appendix 2) Data availability was least for the age group of 5–12 years, as this group was neither the focus of DHS/MICS, nor of NCD risk factor surveys that cover the age range of 15–69 years, nor of adolescent/youth surveys (Global School-based Health Surveys, or GSHS) that usually cover the age group of 13–17 years. (Appendix 3)

For 5–19-year-olds, this analysis used the data and estimates compiled as part of the NCD-RisC project in 2016 (24). The NCD-RisC project used pooled analysis from 2416 studies across the world and generated estimates from 1975 to 2016. Therefore, for most countries, a limitation was that the data for 5–9-year-olds and 10–19-year-olds was largely based on estimations. These estimates were either from some special studies or from neighbouring countries or regions. Appendix 2 lists all the studies from the Region used in this report.

As described in the NCD-RisC (24), the prevalence and mean BMI were estimated by conversion (or cross-walking regressions) with independent predictor variables, such as age, sex and the country's income, with the help of a hierarchical structure of the statistical model consisting of country, region, super-region and world. In the hierarchical structure, the estimates for each country and year were informed by its own data (which were not available for most countries in the Region), and by data from other years in the same countries, or from other countries, especially in the same Region. As shown in Appendix 2, only India, Myanmar and Sri Lanka provided representative data for the age group of 5–9 years.

Only India and Nepal reported data on the age group of 10–19 years from population-based surveys. Some additional data were available through the GSHS conducted among schoolgoing adolescents of the age of 13–17 years, as well as from DHS/MICS surveys for the age group of 15–19 years. The data from these surveys were taken into account for the computation of estimates for the age group of 10–19 years under the NCD-RisC project, as shown in Appendix 2. Data on thinness in children of the age of 5–19 years were obtained from the Global Health Observatory for all countries, except those that had conducted recent surveys, as described above (25).

## 2.3 Calculation of aggregate weighted Regional estimates

In addition to individual country-level estimates, aggregated estimates are available for the WHO SEA Region. The Joint Child Malnutrition Estimates are developed by the UNICEF/WHO/World Bank interagency team, and global and regional estimates of malnutrition (stunting, wasting and overweight) in children under 5 years of age are updated annually. The last update was provided in March 2020 for the year 2019 (1).

All publicly available MICS and DHS, along with anthropometric data for the full range of 0–59 months of age, were reanalysed to produce standardized estimates over time. Regional trends in overweight among children of 5–19 years of age from 1990 to 2016 have been presented on the basis of the NCD-RisC data.

A regional prevalence combining national surveys was generated by applying population proportions in each country on the basis of the population estimates for the year 2020 from the United Nations World Population Prospects 2019 (26).

# 3

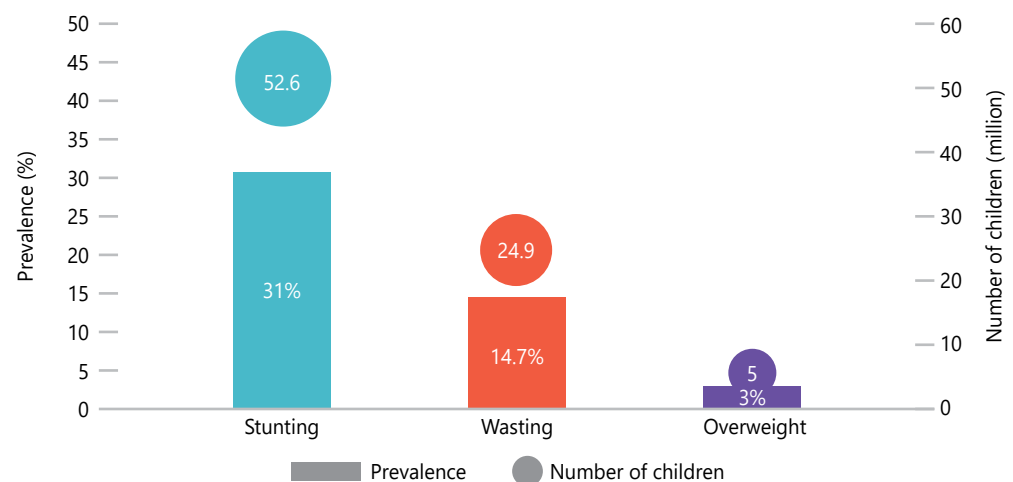
## Malnutrition: regional and country status

As of 1 July 2020, the Region is estimated to have more than 700 million children (0–19 years of age), including approximately 169 million under 5 years of age (1, 24). The following sections presents data on child malnutrition in the Region. Data on overweight and obesity is presented across three main age groups: under 5 years (0–59 months), 5–9 years and 10–19 years. Data on stunting and wasting are shown to highlight the double burden of malnutrition at the regional and national levels, and to emphasize the need for simultaneous actions to address childhood overweight within the existing programmes and beyond.

### 3.1 Regional prevalence and trends in malnutrition

The double burden of malnutrition is characterized by the coexistence of undernutrition with overweight, obesity or diet-related NCDs, in individuals, households and populations, and across the life-course (4). While childhood overweight is rising, undernutrition remains a significant public health problem in almost all countries. Almost one in three children under 5 years of age is stunted and one in seven is wasted (Fig. 3.1). However, the numbers and percentages have declined from the estimated 2012 levels. In 2019, the number of stunted children amounted to 52.6 million (31.0%), while the number wasted were 24.9 million (14.7%).

**Fig. 3.1** Prevalence of stunting and wasting and estimated numbers affected in children under 5 years of age (2019)

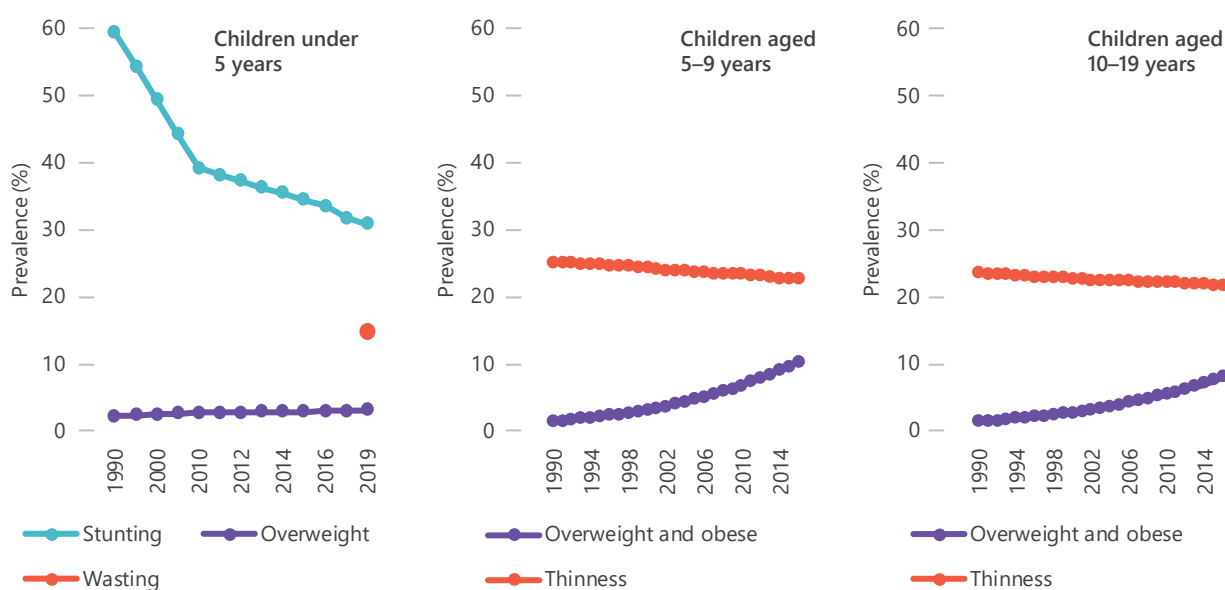


Source: Adapted from the Joint Malnutrition Estimates 2020 with additional sources (Appendix 1)



Among older children too, while the prevalence of overweight is rising, more than one in five children in the age groups of 5–9 and 10–19 years remain thin for their age (Fig. 3.2) This double burden of malnutrition in terms of increasing levels of overweight and obesity and a slow reduction in stunting and wasting has significant implications for policy choices and actions by Member States.

**Fig. 3.2** Regional trends in overweight, stunting, wasting/thinness in children, by age group (1990–2019)



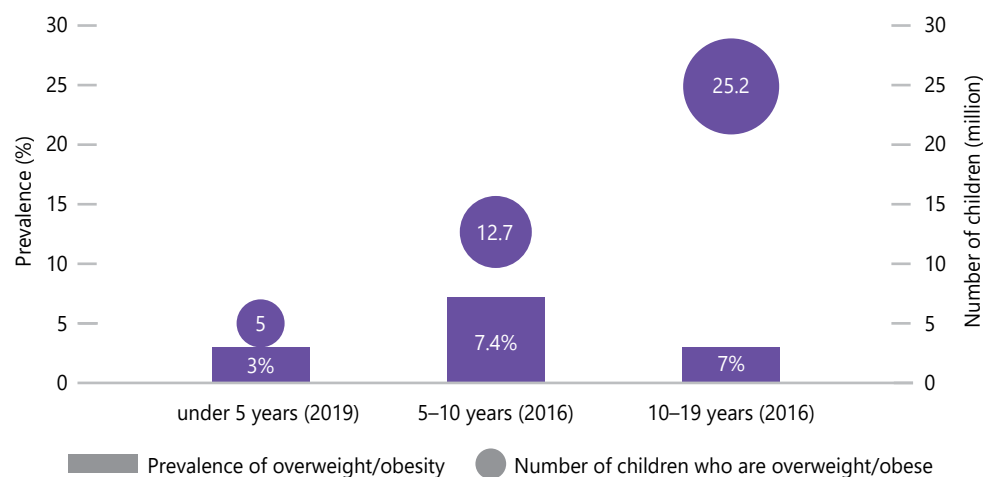
Data source: JME 2020 for children under 5; NCD-RisC for children of the age groups of 5–9 years and 10–19 years. No data available on stunting for children of 5–19 years of age.

### 3.1.1 Childhood overweight and obesity

In 2019, 3% of children under 5 years of age (~5 million) in the Region were estimated to be overweight, compared to the global average of 5.6% (~38.3 million) (1). The prevalence of overweight among older children (5–19 years of age) was nearly double of that among younger children (24). As shown in Fig. 3.3a, in 2016, almost 7.4% of children of the age of 5–9 years (global average 20.6%) and a similar proportion (7%) of 10–19-year-olds were overweight (compared to a global average 17.3%).<sup>4</sup> Assuming that there was no increase or decrease in the prevalence of overweight between 2016 and 2020, this would imply that 12.7 million 5–9 year olds and 25.6 million 10–19 year olds are overweight in 2020, based on the population projection with medium fertility variant for 1 July 2020 from the UN World Population Prospects 2019 (26).

<sup>4</sup> Population weighted regional estimates were calculated from the NCD-RisC project national estimates for all countries, with two exceptions. For India, the National Nutrition Survey 2016–2018 was used, while for Nepal, the prevalence of overweight and obesity in the age group of 10–19 years reported in the Nepal National Micronutrient Survey 2016 was used.

**Fig. 3.3a** Prevalence of overweight in children in the Region and estimated numbers affected



Source: NCD RisC data (Appendix 2)

Overall, this amounts to almost 43.4 million children of the age of 0–19 years being overweight. Thus, the Region accounts for an estimated 13% of the global burden of 38.3 million overweight children under the age of 5 years and 11.3% of the global burden of 340 million overweight 5–19-year-olds.<sup>5</sup>

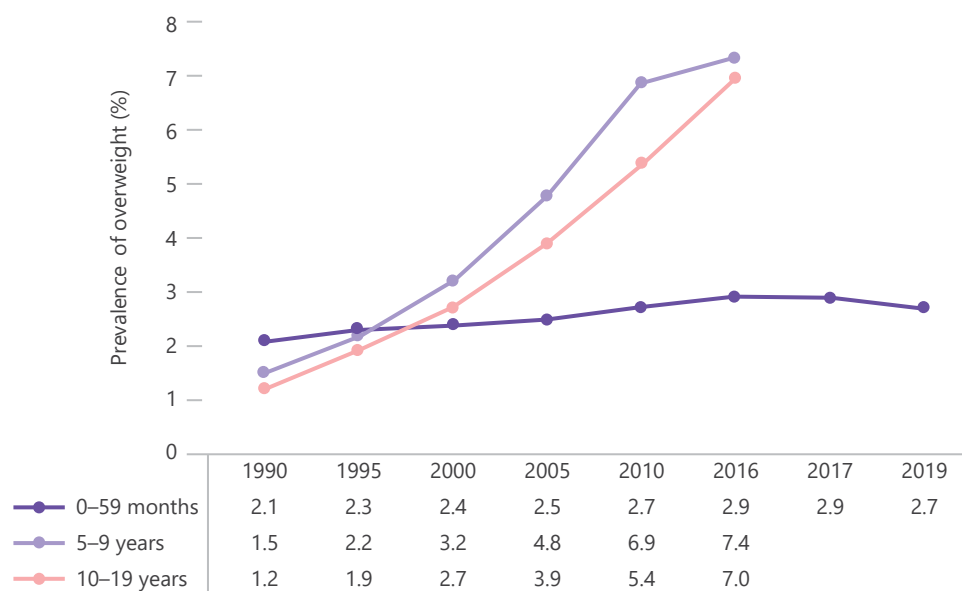
There has been a consistent increase in the trends in overweight and obesity since the 1990s with respect to children in the Region (Fig. 3.3b, 3.3c). However, the rate of increase appears to be much higher among the age groups of 5–9 years and 10–19 years. In addition, the increasing trend appears to have accelerated since 2010 among the older age groups. Achieving the Regional Nutrition Target 4 to halt the rise in obesity in children under 5 years of age by 2025 is in doubt, as also the NCD regional target of halting the increase in obesity (1, 7).

The increasing prevalence of overweight and obesity in the older age groups is reflected in the increasing trends in the mean BMIs of these groups between 1990 and 2016 shown in Fig. 3.3c. In the age group of 5–9 years, the mean BMI increased from 13.7 kg/m<sup>2</sup> in 1995 to 14.9 kg/m<sup>2</sup> in 2016, while in the age group of 10–19 years, it increased from 17.2 kg/m<sup>2</sup> to 18.3 kg/m<sup>2</sup>.

## 3.2 National prevalence and trends in malnutrition

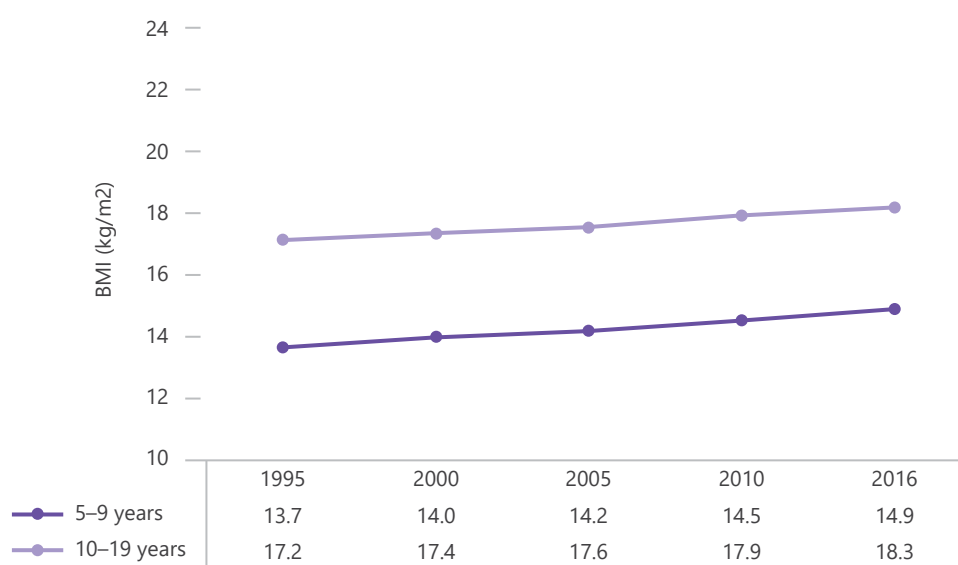
It is not only the relatively high level of overweight among children in most countries, but also the consistent increase in the trends of overweight since the 1990s that is of concern (Figs 3.4 and 3.5). The trends appear to have accelerated in many countries since

<sup>5</sup> Worldwide, 38.3 million children under the age of 5 years were estimated to be overweight in 2019 (UNICEF JME, 2020) and 340 million of the age group of 5–19 years were estimated to be overweight in 2016 as per NCD-RisC.

**Fig. 3.3b** Regional trends in overweight in children by age group (1995–2016)

Data sources:

1. For 0–59 months, the Joint Malnutrition Estimates 2020 (JME 2020); most up-to-date national surveys, if not already in the JME 2020 (Appendix 1)
2. For 5–9 and 10–19 years: NCD-RisC for 2016; (Appendix 2) regional prevalence re-estimated with most recent national survey data from India and Nepal: (Appendix 1)

**Fig. 3.3c** Regional trends in mean BMI in the age groups of 5–9 years and 10–19 years (1995–2016)

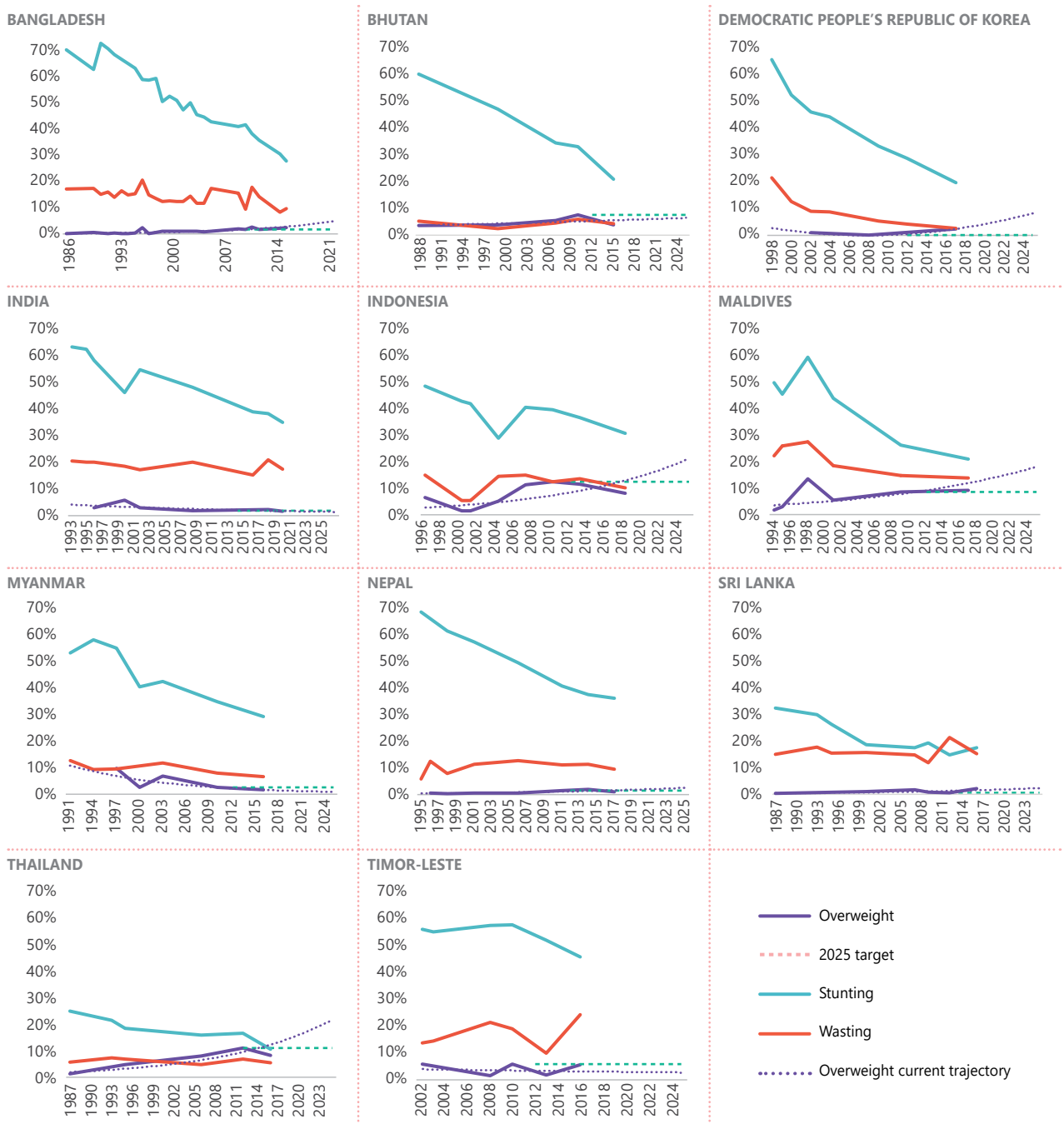
Data source: NCD-RisC project estimates

Mean BMI is not presented for under 5 children, as overweight prevalence is estimated on the basis of weight-for-length- cut-offs.

2010, specially in children aged 5–9 and 10–19 years. Many countries are not on track for achieving the Global and Regional Nutrition Target for childhood overweight.

Stunting among children under 5 years of age is declining in most countries, with some on track to achieve the global target on stunting (Fig. 3.4). Unlike stunting, the trends in wasting appear to be stagnant and have not shown significant improvement since the year 2000 or thereabouts.

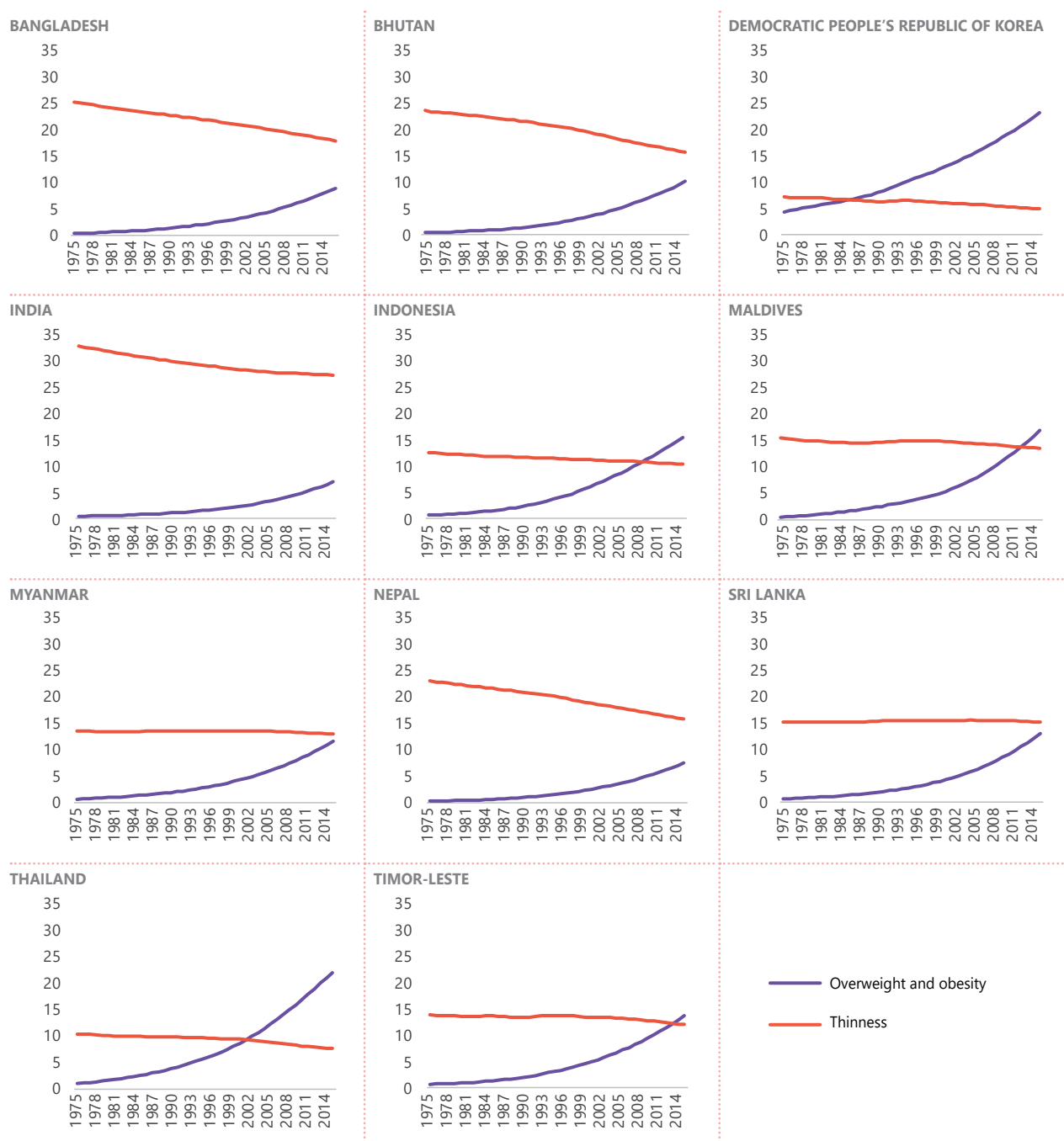
**Fig. 3.4** Trends in overweight, stunting and wasting in children under 5 years of age across countries (1986–2019)



Data sources: JME 2020, in addition to the most up-to-date national surveys not already in JME 2020 (Appendix 1)

In older children aged 5–19 years the estimated trends in thinness indicate a slow decline, while overweight is rising rapidly (Fig. 3.5). In some countries, the estimated prevalence of overweight was higher than that of thinness in 2015 (the latest year for which data were available). Stunting and wasting/thinness continue to dominate the malnutrition burden in all 11 countries, notwithstanding the increasing numbers of overweight children (Figs 3.4 and 3.5).

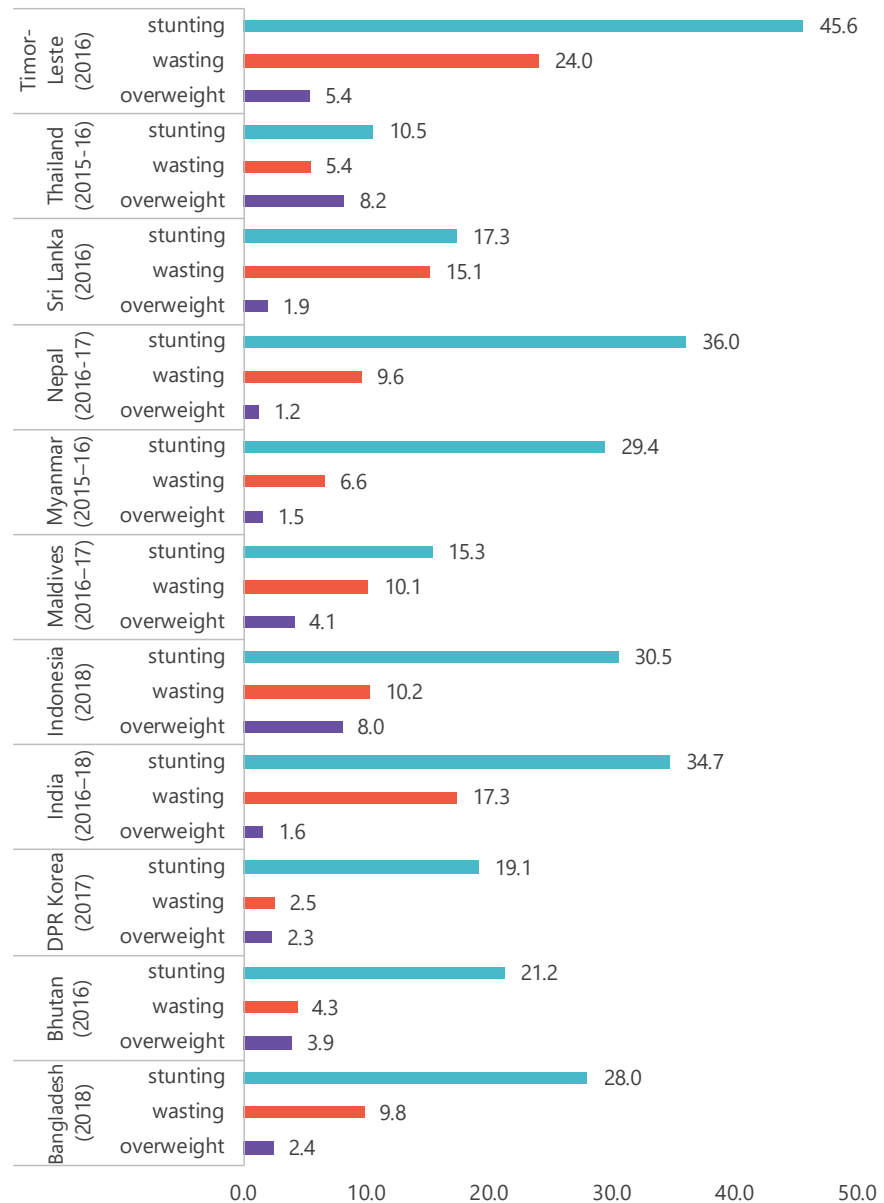
**Fig. 3.5** Trends in estimated prevalence of overweight and thinness in children of the age group 5–19 years in WHO South-East Asia Region (1975–2016)



Data source: NCD-RisC (Appendix 2)

In children under 5 years of age, Timor Leste reports the highest prevalence of stunting, with 45.6 % of children stunted. However, in numbers, the greatest burdens are in India, Bangladesh and Indonesia (1). The latest national data for children under 5 years of age (Fig. 3.6) indicate the existence of multiple forms of malnutrition among young children.

**Fig. 3.6** The double burden of malnutrition in children under 5 years of age, by country

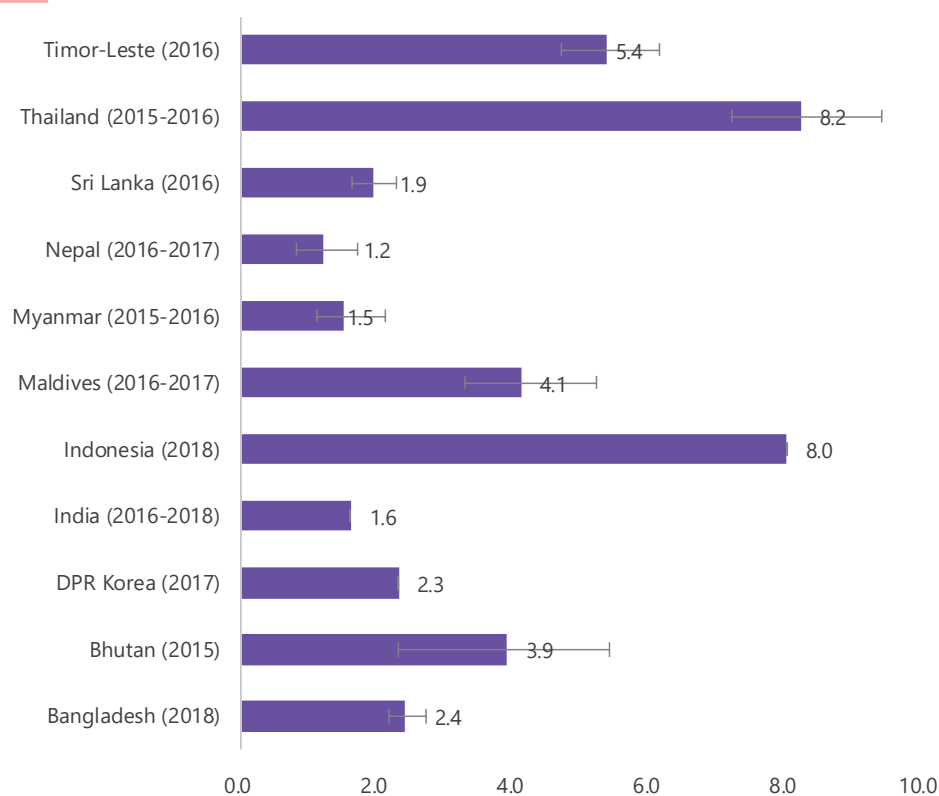


Data source: JME 2020, in addition to the most up-to-date national surveys not already in JME 2020 (Appendix 1)

### 3.2.1 Prevalence and trends in overweight

As shown in Fig 3.7, though the regional prevalence of overweight among children under 5 years of age is 3%, there are substantial intercountry variations to be considered. The data in Fig 3.7 are based on the most recent population-based surveys conducted within the last five years. While over 6% of children under 5 years of age were overweight in Thailand, Indonesia and Maldives, the prevalence of overweight was less than 2.5% in Bangladesh, Democratic People's Republic of Korea, India, Myanmar, Nepal and Sri Lanka. The remaining countries, Bhutan and Timor-Leste, reported intermediate levels of 2.5%–6%.

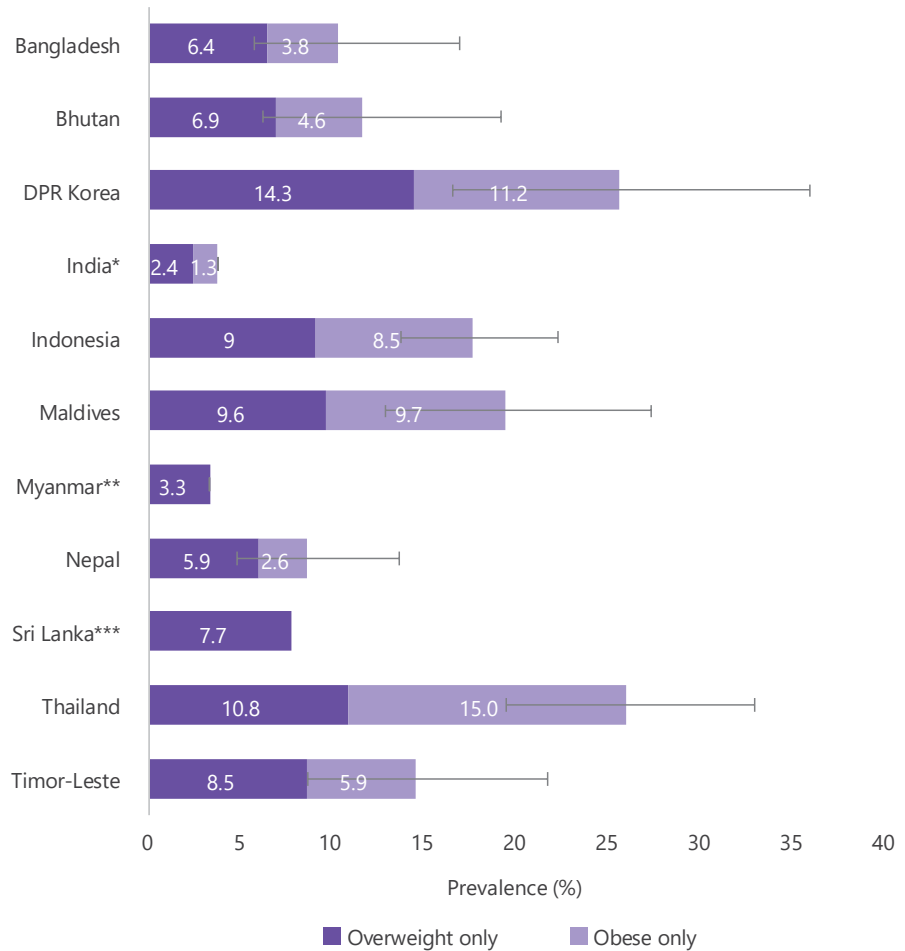
**Fig. 3.7** Prevalence of overweight in children under 5 years of age, by country



Data source: JME 2020, in addition to the most up-to-date national surveys not already in JME 2020 (Appendix 1)

The estimates produced by NCD-RisC for the year 2016 showed similar intercountry variations in children in the age groups of 5–9 and 10–19 years (Figs 3.8a and 3.8b). While the average prevalence of overweight among children aged 5–9 years at the regional level was 7.4%, it was less than 10% in three countries (India, Myanmar and Sri Lanka) where recent survey data was available. The Democratic Republic of Korea and Thailand were estimated to have a prevalence greater than 25% (Fig. 3.8a). For 10-19 year old children too, actual survey data is only available for India and Nepal (Fig 3.8b). The wide confidence intervals reflect the fact that actual survey data are scarce for the older age groups (*see methodology*).

**Fig. 3.8a** Estimated prevalence of overweight and obesity in children of the age group 5–9 years, by country (2016)



Data source: NCD Risc 2017

\*India: Comprehensive National Nutrition Survey 2016–2018

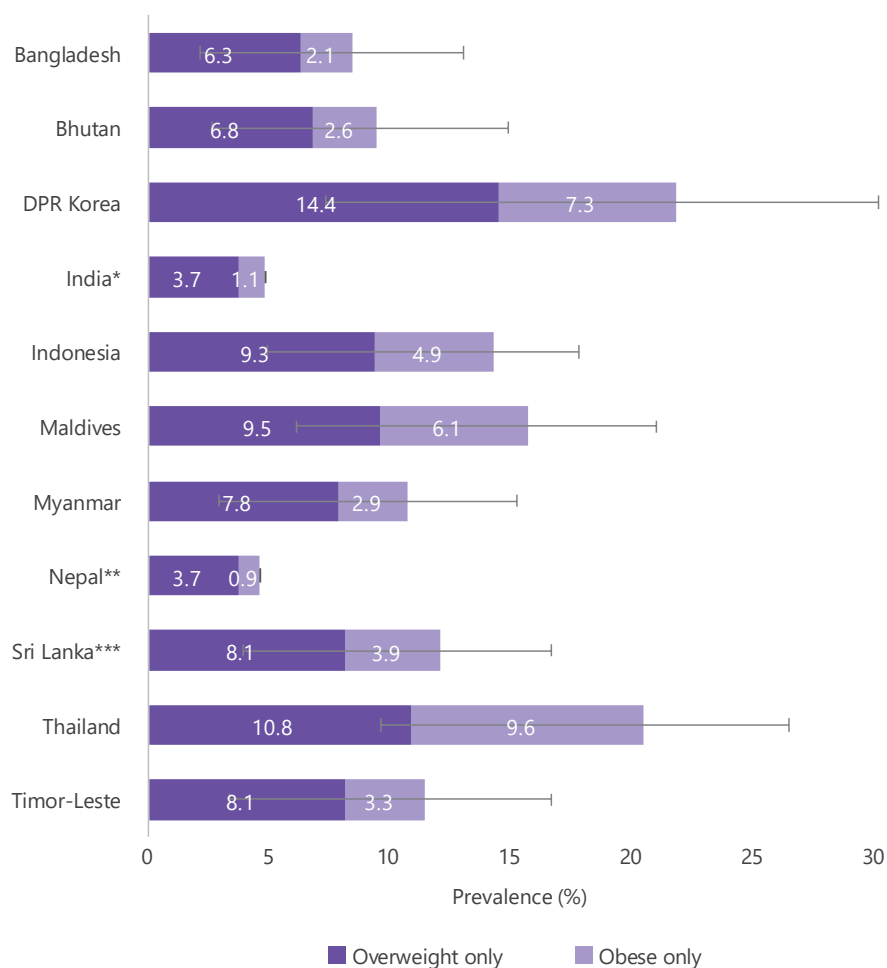
\*\* Myanmar: Myanmar Micronutrient and Food Consumption Survey 2019/2020

\*\*\* Sri Lanka: Survey on Nutritional Status, Dietary Practices and Pattern of Physical Activity among Schoolchildren Aged 6–12 years Sri Lanka, 2017

Confidence intervals are provided for overweight (+2SD) and not for obesity (+3 SD). No confidence intervals were presented in published reports for India, Myanmar, Sri Lanka and hence, they are not shown here.



**Fig. 3.8b** Estimated prevalence of overweight and obesity in children of the age group 10–19 years, by country (2016)



Data source: NCD-Risc 2017

\*India: Comprehensive National Nutrition Survey 2016–2018

\*\*Nepal: National Micronutrient Survey Report 2016

\*\*\*Confidence intervals are provided for overweight only. No confidence intervals were reported in published reports (India, Myanmar, Sri Lanka) and hence, they are not shown here.

### 3.2.2 Overweight and stunting at individual and household levels

Multiple combinations of anthropometric deficits exist in individuals and households.<sup>6</sup> These include the coexistence of overweight and stunting in children, as well as pairs of overweight mothers and stunted children. Fig. 3.9 depicts the overlapping of stunting and overweight in children under 5 years of age in select countries.

<sup>6</sup> Micronutrient deficits are not covered in this publication.

**Fig. 3.9:** Double burden of malnutrition in children under 5 years of age in select countries



Data source: JME 2020, in addition to the most up-to-date national surveys not already in JME 2020 (Appendix 1)

Table 3.1 indicates the existence of a double burden amongst individual children and mother–child pairs in countries where data were available.

**Table 3.1** Double burden of malnutrition in children under 5 years of age and mother–child pairs

	Overweight children who are stunted (%)	Stunted children with overweight mothers (%)
Bangladesh (2018)	49.7	NA
Maldives (2016–2017)	19.2	7.2
Myanmar (2015–2016)	38.5	6.0
Nepal (2016–2017)	33.9	3.8
Sri Lanka (2016–2017)	31.6	NA
Thailand (2015–2016)	15.2	NA
Timor-Leste (2016)	73.3	6.0

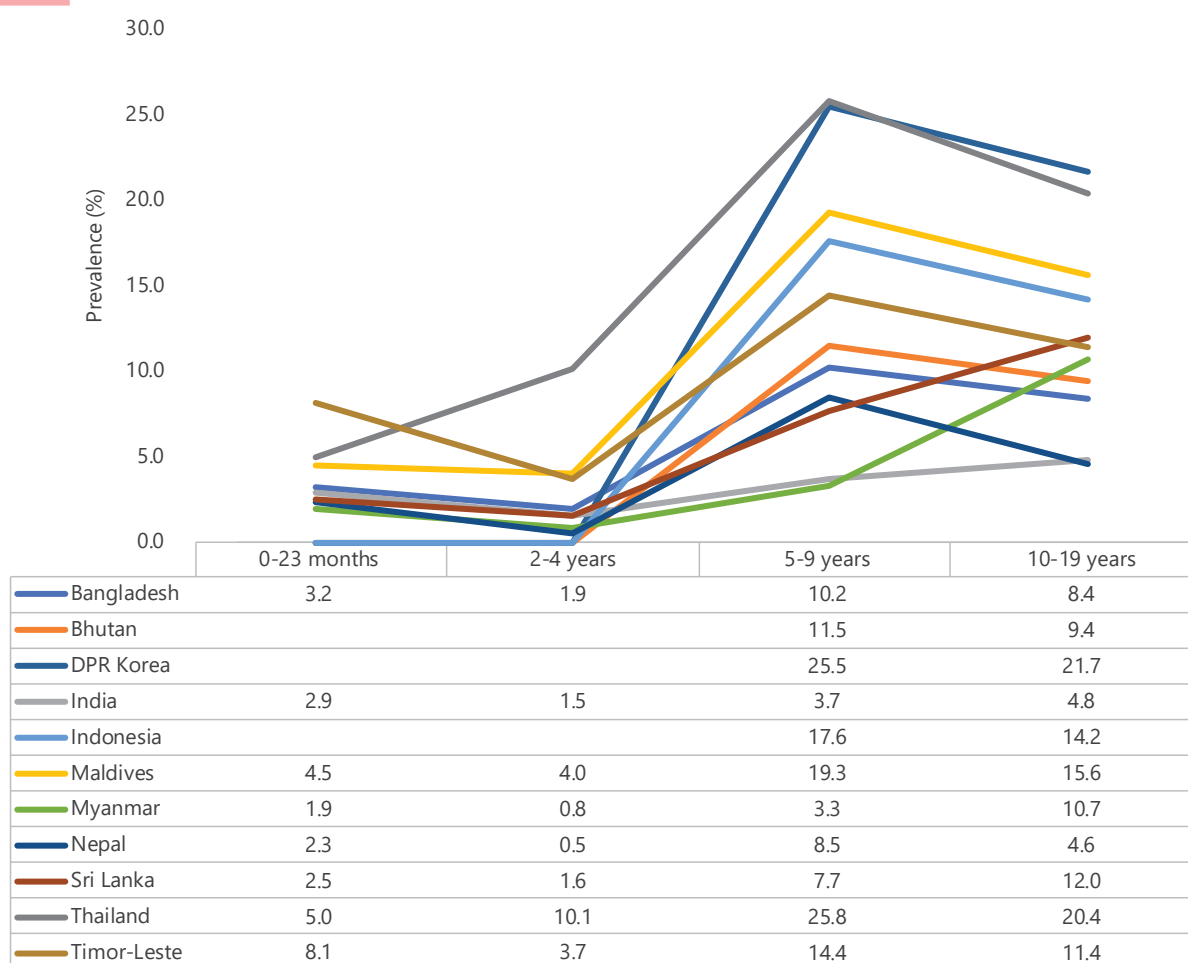
Source: JME 2020, in addition to the most up-to-date national surveys not already in JME 2020 (Appendix 1) and Appendix 3

### 3.3 Sociodemographic and economic variations in child overweight

#### 3.3.1 Age

The importance of focusing on the prevention of early-life obesity is underscored by WHO's Ending Childhood Obesity Report, since the development of obesity may well be initiated during infancy and early childhood (27). In children under 5 years of age, disaggregation of the data by age showed that during 2016–2019, the prevalence of overweight among children of 0–23 months of age was higher (almost double) than that in the 24–59 month age group in all countries, except Thailand, where the pattern was reversed (Fig. 3.10). This aspect needs further exploration.

In all countries, the estimated prevalence of overweight in the age group of 5–9 years was higher than that among children under 5 years of age. In countries where recent survey data were available, (India and Nepal) the prevalence continued to increase with age. Though the estimated prevalence of overweight was the highest among 5–9-year-olds, the data for this age group need to be validated by future surveys since national-level survey data were available only for India, Myanmar and Sri Lanka. In India, the pattern was different and the prevalence of overweight was the highest in the age group of 10–19 years. India's data is most likely a more accurate representation of the status across many countries, since the information on both age groups (5–9 and 10–19 years) is based on recent national survey data rather than estimates from the NCD-RisC project. In Myanmar and Sri Lanka too, where national survey data were available, the prevalence among the age group of 5–9 years was lower (actual data) than among the age group of 10–19 years (estimates).

**Fig. 3.10** Patterns in prevalence of overweight in children of the age group 0–19 years, by country (2016–2019)

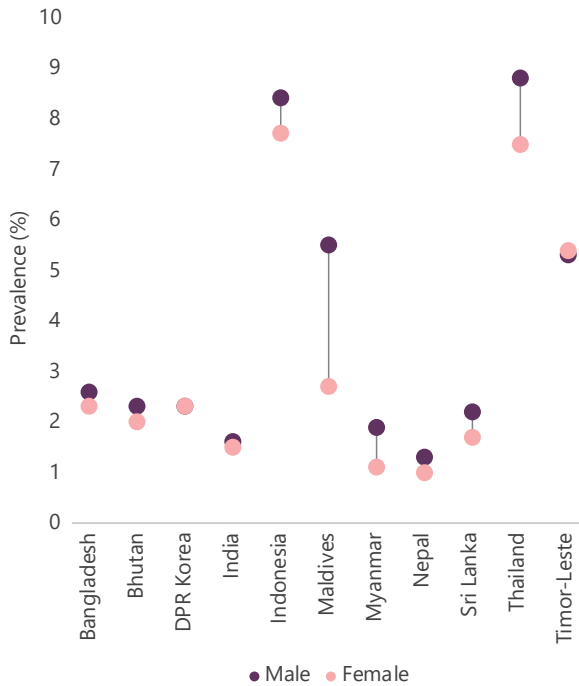
Data sources: Most recent national surveys (Appendix 3). For 0–23 months and 2–4 years, disaggregated data are not available for Bhutan. The MICS report from the Democratic People’s Republic of Korea does not provide the same disaggregates of age.

### 3.3.2 Sex

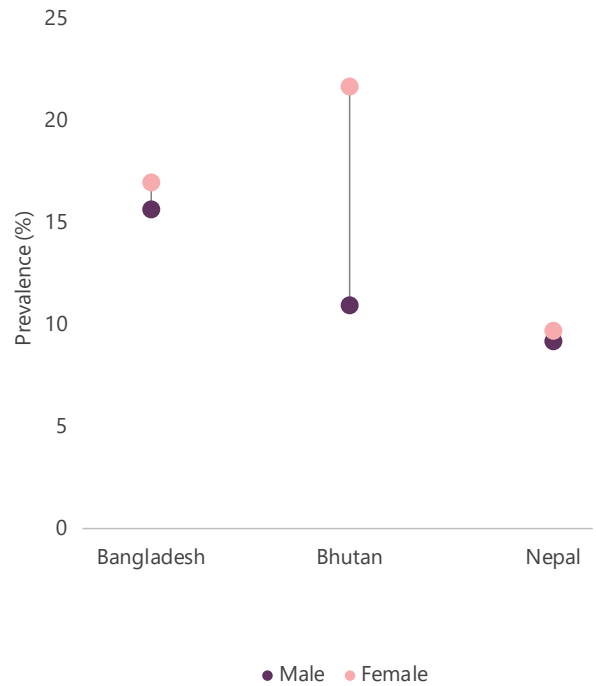
Globally, information on overweight and obesity in childhood shows sex differences to be inconsistent. As shown in Fig. 3.11a, sex differentials in overweight among children under 5 years of age were not significant, either in terms of absolute percentage or in statistical terms, except in Maldives. The data presented in Fig. 3.11 b for the age group of 15–19 years from STEP surveys in Bangladesh, Bhutan and Nepal are not adequate to draw a conclusion. The NCD-RisC estimates for the age groups of 5–9 years and 10–19 years, presented in Figs 3.12a and 3.12b, show that male children were somewhat more likely to be overweight. However, the differences between male and female were not significant.<sup>7</sup>

<sup>7</sup> Assessed by comparing a 95% CI.

**Fig. 3.11a** Sex differentials in prevalence of overweight in children under 5 years of age by country



**Fig. 3.11b** Sex differentials in prevalence of overweight in children of the age group 15–19 years, select countries



Data sources: For children < 5 years, Appendix 1; for 15–19 years, STEPs Survey data for Bangladesh (2019), Bhutan (2019) and Nepal (2019), Appendix 3

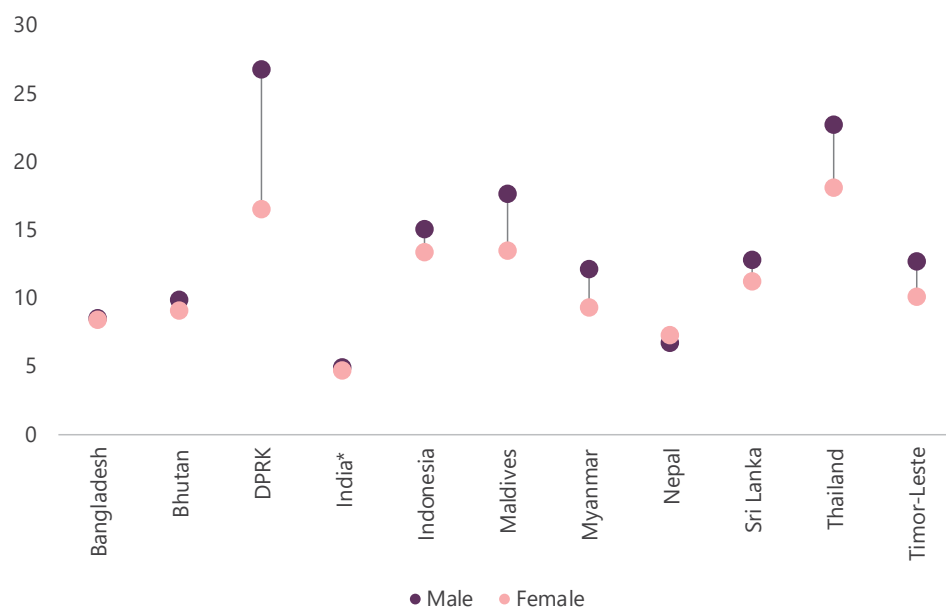
**Fig 3.12a** Sex differences in prevalence of overweight in the age group of 5–9 years, by country (2016)



Data source: NCD-RisC 2017

\*For India: Comprehensive National Nutrition Survey, 2016–2018

**Fig 3.12b** Sex differences in prevalence of overweight in children of the age group of 10–19 years, by country (2016)



Data source: NCD-RisC 2017

\*For India: Comprehensive National Nutrition Survey, 2016–2018

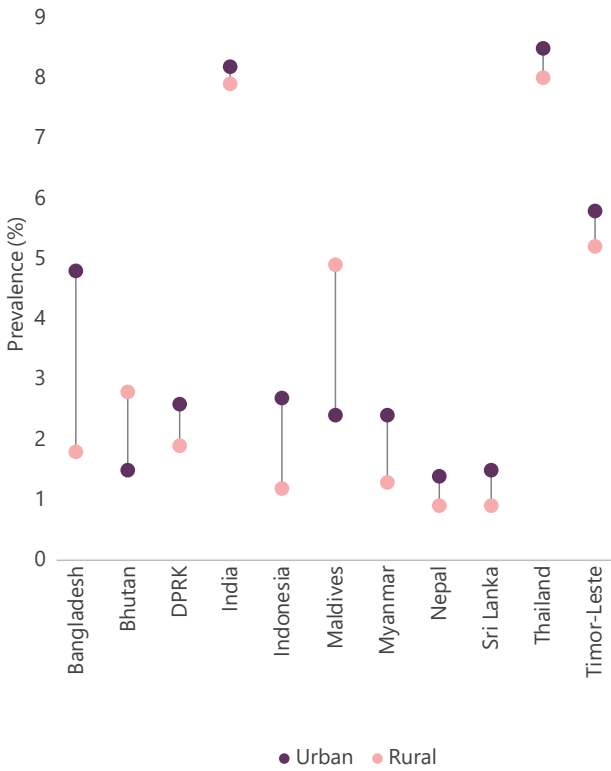
### 3.3.3 Urban/rural residence

The proportion of urban population is increasing consistently in most countries in the Region and is likely to overtake the rural population in the next two to three decades (26). The urban environment is more likely to be obesogenic because it offers greater access to and availability of energy-dense processed foods, is less enabling for physical activity, and encourages a sedentary lifestyle (27, 28).

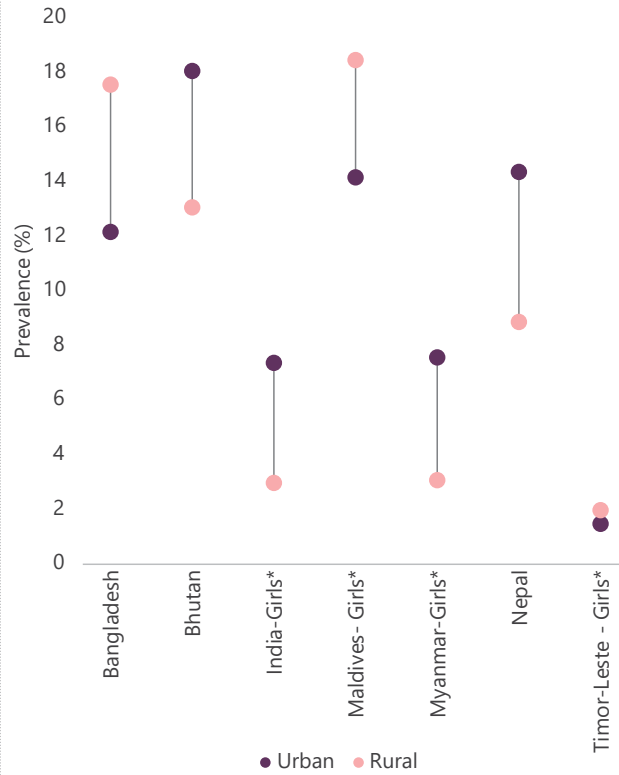
As expected, urban children under 5 years of age were significantly more likely to be overweight than rural children, except in Bhutan and Maldives, where reverse patterns were seen. (Fig. 3.13 a) In many countries, the prevalence of overweight in urban areas was almost two times or more than that in rural areas (Fig. 3.13b). This trend was also evident among children in the age group of 15–19 years.

In India, where actual survey data were available for the age groups of 5–9 and 10–19 years, similar patterns were reported. Among 5–9-year-olds, 7.5% urban children were overweight, compared to 2.6% rural children. Urban adolescents of 10–19 years of age were more than three times as likely to be overweight than rural children (9.7% vs 3.2%). The trend was reversed in the case of thinness: the prevalence of thinness was likely to be greater among rural children than urban children (Fig. 3.14).

**Fig. 3.13a** Urban rural differences in prevalence of overweight by residence (Urban vs Rural) in children under 5 years of age.



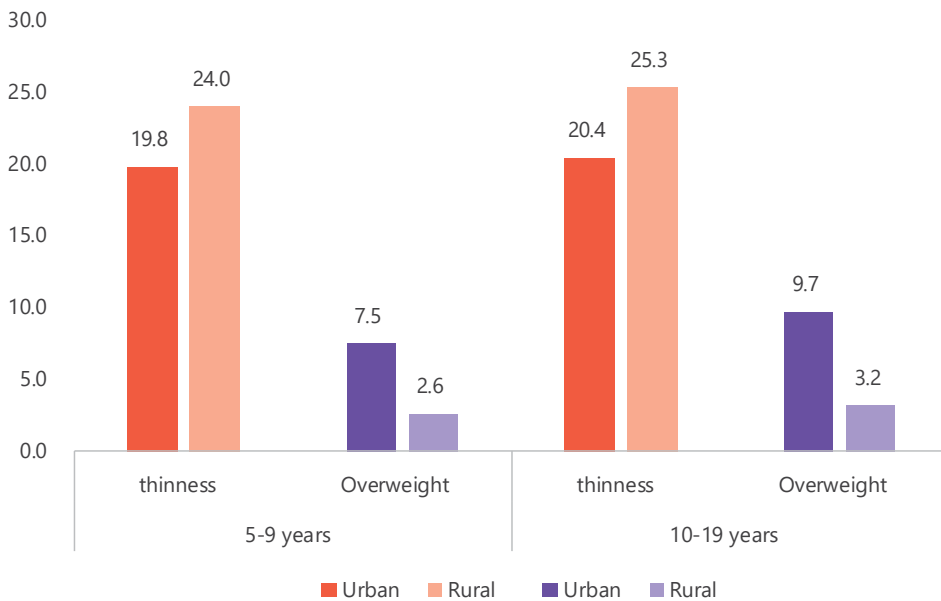
**Fig. 3.13b** Urban rural differences in prevalence of overweight by residence in girls of the age group 15–19 years.



Data source: for children < 5 years see appendix 1; for 15–19 years see Appendix 3

\*DHS data only analyzed for girls

**Fig. 3.14** Reverse patterns of urban and rural differentials for prevalence of overweight and thinness for the age groups 5–9 and 10–19 years, India (2016–2018)

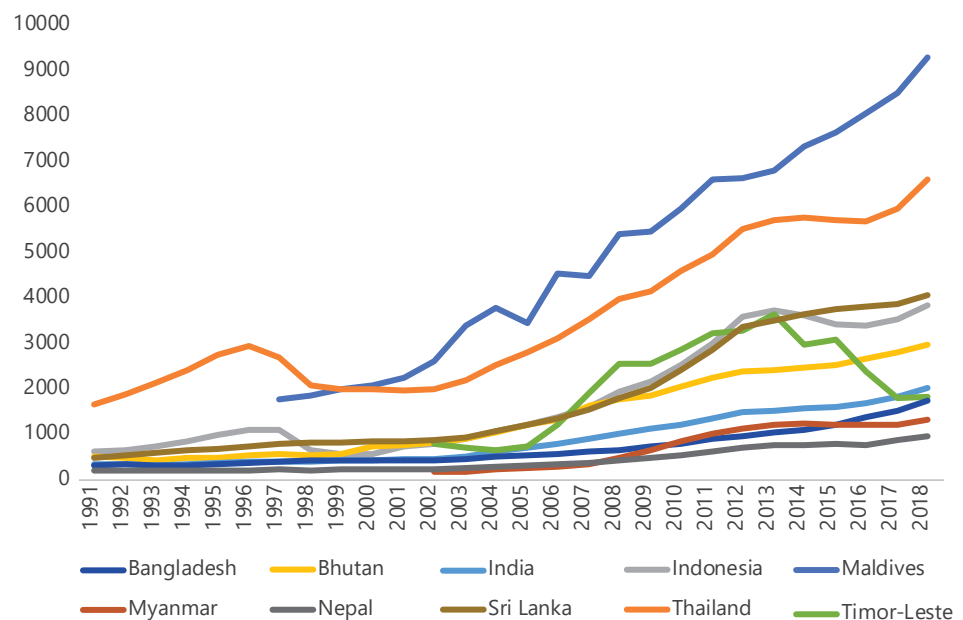


Data source: Comprehensive National Nutrition Survey 2019 (Appendix 1)

### 3.3.4 Household wealth

Lifestyles in the Region have been redefined by rapid economic development (Fig. 3.15), with the influx of wealth and resources affecting dietary patterns, transportation and social norms (28, 29). Energy-dense food such as highly processed, packaged and fast food and vehicular transport are more accessible to higher income groups, possibly contributing to child and adult obesity. The prevalence of childhood overweight at all ages appears to be the highest in Thailand, Maldives and Indonesia, which have comparatively higher levels of gross national income per capita.

**Fig. 3.15** Gross national income per capita growth in select countries

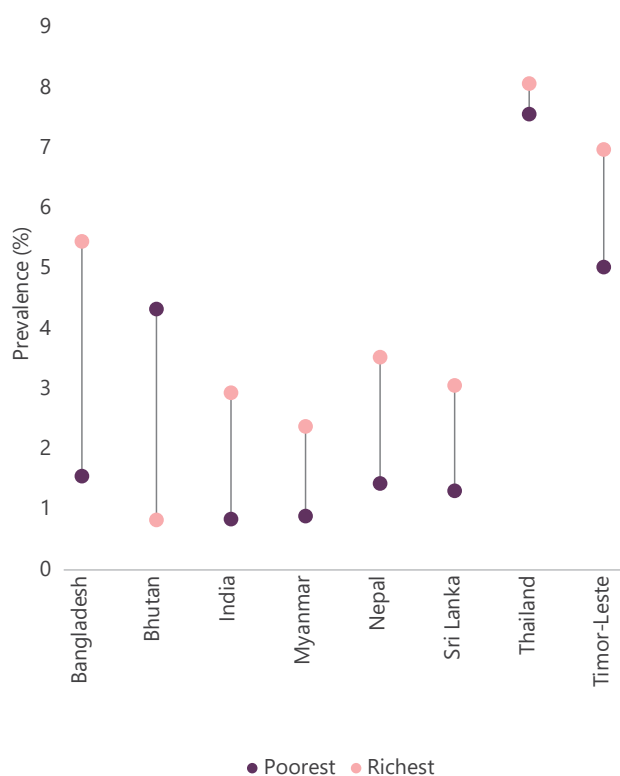


Data source: World Bank 2020 (30)

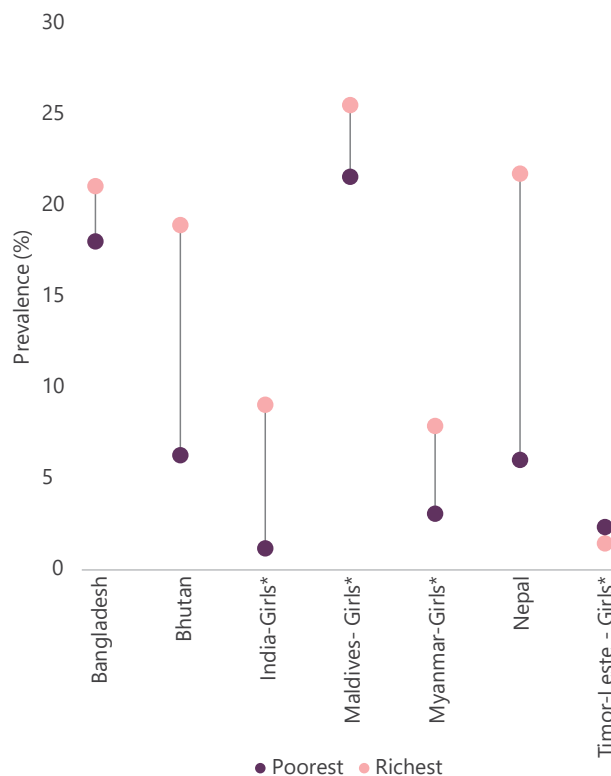
At the household level, children in the poorest households were less likely to be overweight than those in the richest households in almost all countries, except Timor-Leste, where no clear trend emerged (Figs 3.16a and 3.16b). Reverse trends were seen for stunting and wasting, which had a higher prevalence in the poorer households. However, an important point to be noted is that child overweight has started to emerge even among the poorest two quintiles.



**Fig. 3.16a** Differentials in prevalence of overweight by wealth index (poorest vs richest) in children under 5 years of age, by country



**Fig. 3.16b** Differentials in prevalence of overweight by wealth index (poorest vs richest) in the age group of 15–19 years, by country

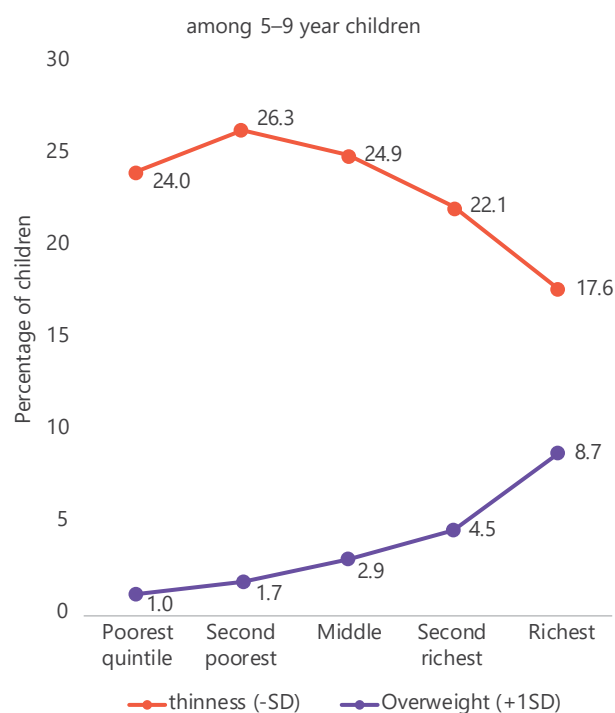


Data source: for children < 5 years see appendix 1; for 15–19 years see Appendix 3

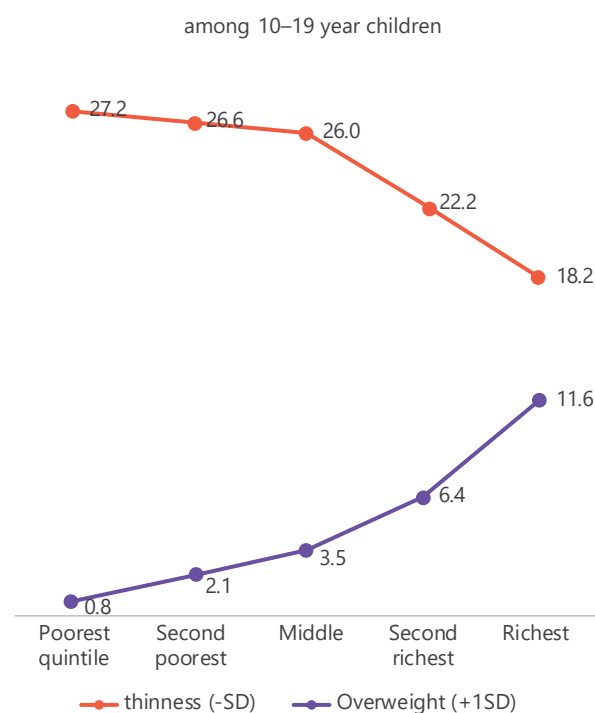
\*DHS data only analyzed for girls

In India, where recent survey data were available for older children, similar differentials by household wealth were seen. In the age group of 5–9 years, children in the richest quintile were almost eight times more likely to be overweight than those in the poorest quintile. In the age group of 10–19 years, the differentials widened further: 11.6% in the richest quintile versus 0.8% in the poorest (Figs 3.17a and 3.17b). Reverse trends were observed for thinness. Thus, overweight is dominant in the richest quintile, while undernutrition dominates in the poorest quintile.

**Fig. 3.17a** Differentials in thinness and overweight among children in the age group of 5–9 years in India (2016–2018)



**Fig. 3.17b** Differentials in thinness and overweight in children of the age group 10–19 years in India (2016–2018)

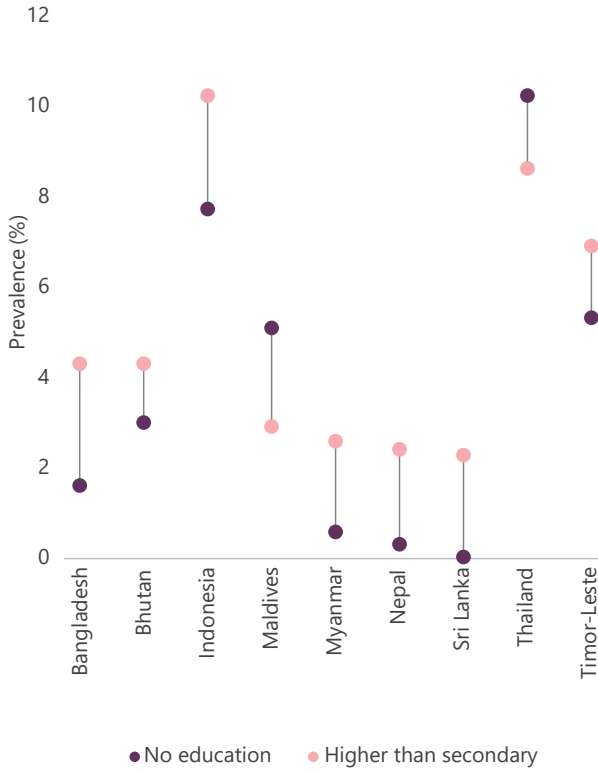


Data source: Comprehensive National Nutrition Survey 2019 (Appendix 1)

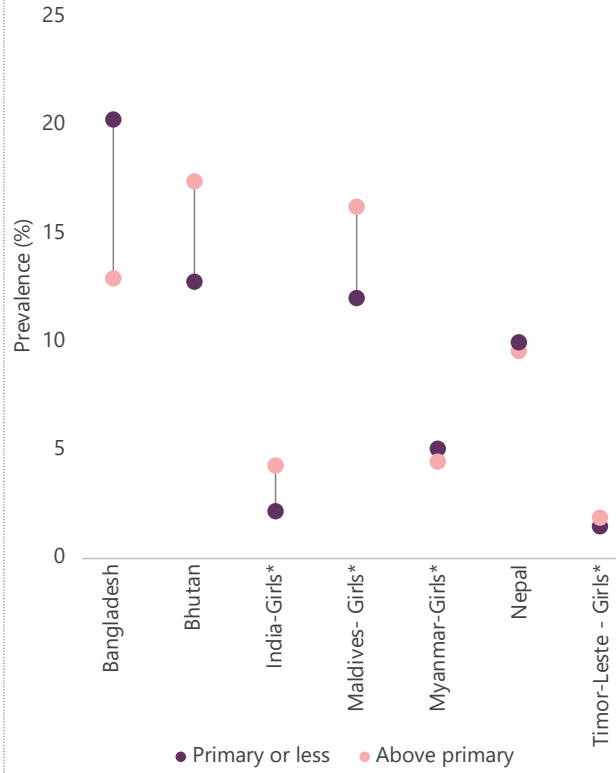
### 3.3.5 Maternal education

The level of maternal education may have a bearing on household wealth. It may also have an independent protective effect on both underweight and overweight because an educated mother is likely to have more information and knowledge regarding diets and lifestyle. However, among children under 5 years of age and girls of the age of 15–19 years, those whose mothers had higher levels of education were more likely to be overweight than children whose mothers had no education, except in Maldives and Thailand (Figs. 3.18a, 3.18b). This is possibly because education is tied with income, where more educated mothers are generally from high-income groups and are more likely to be living in urban areas.

**Fig. 3.18a** Differentials in prevalence of overweight by maternal education in children under 5 years of age



**Fig. 3.18b** Differentials in prevalence of overweight by maternal education of children in the age group 15–19 years



Data source: For 0–59 months of age, see Appendix 1; for 15–19 years of age, see Appendix 3  
 \*DHS data analyzed only for girls

# 4

## Public health significance and drivers of the double burden of malnutrition

### 4.1 Health and economic effects of malnutrition

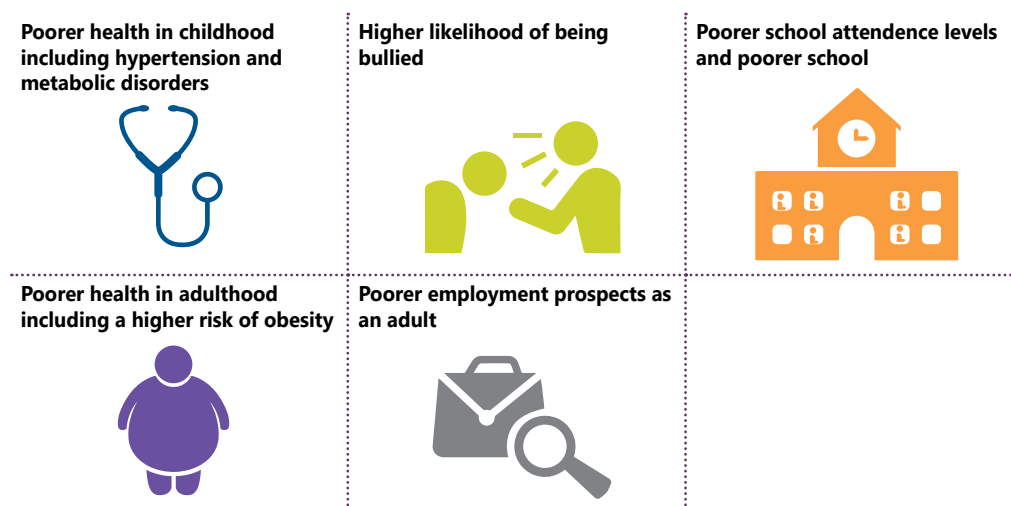
Good nutrition is critical to health and economic development. The effects of undernutrition on health and economic development consist of delayed child development, greater susceptibility to infections, poor school performance and lower earnings in adulthood (29). Children who suffer from undernutrition early in life and are then exposed to obesogenic environments are at a greater risk of overweight, obesity and diet-related NCDs, increasing the economic burden on individuals and on health systems (27, 29).

Though undernutrition remains a major concern, policy-makers and national governments should pay attention to the relatively rapid transition from underweight to overweight and obesity in low-income and middle-income countries. The double burden of malnutrition adds an additional layer of complexity and the speed of the transition to overweight/obesity can tax a nation's capacity to effect a healthier transition (29, 31).

#### 4.1.1 Health consequences of overweight and obesity in childhood

The excess body fat in an overweight or obese child is associated with an elevated risk of metabolic syndrome at a young age, and of being an overweight or obese adult, who is more susceptible to NCDs such as cardiovascular disease and diabetes (32, 33, 34). The most significant health consequences of childhood overweight and obesity that may not become apparent until adulthood include cardiovascular diseases (mainly heart disease and stroke); diabetes; musculoskeletal disorders, especially osteoarthritis; and certain types of cancer (endometrial, breast and colon). These are associated with lifelong morbidity and often, premature death. About 8.5 million people in the Region die of NCDs every year (62% of all deaths), and many of these deaths are premature (33).

It is a matter of concern that in some countries, there is evidence that points to an increased risk of metabolic derangement even among children who are not yet at the BMI-for-age threshold for the current definition of childhood overweight attributed to excess body fat (34, 35, 36).

**Fig. 4.1:** Health consequences of childhood overweight and obesity

### 4.1.2 Economic consequences

The economic and developmental costs of overweight and obesity are considerable because of the association of these conditions with a higher risk of chronic disability and premature death in adulthood (37).

Table 4.1 presents the disability-adjusted life year (DALY) estimates and the total productive years lost due to overweight and obesity for a specified time horizon (37). The number of total productive years lost due to overweight and obesity (approximately 1.77 million) was the highest in India, followed by Indonesia (756 000) and Myanmar (99 000). It is evident that preventing childhood obesity would result in significant health and economic benefits to individuals, families and countries.

**Table 4.1** DALY estimates, by country

Country	DALYs* for all diseases	Real contribution of overweight and obesity (%)	Total productive years lost due to overweight and obesity
Bangladesh	50 765 824	0.36	184 439
Bhutan	240 62 0	0.54	1 296
India	494 698 971	0.36	1 771 258
Indonesia	72 340 657	1.05	756 612
Maldives	60 800	0.57	347
Myanmar	19 078 657	0.52	99 270

\* The author's strategy for estimating the indirect cost of overweight and obesity is largely based on the years of life lost due to premature death and the years of life lost due to disability. The estimation includes eight diseases attributable to high BMI: (1) ischaemic heart disease, (2) stroke, (3) diabetes, (4) liver cancer, (5) breast cancer, (6) oesophagus cancer, (7) gall bladder and biliary tract cancer, and (8) hypertensive heart disease

Country	DALYs* for all diseases	Real contribution of overweight and obesity (%)	Total productive years lost due to overweight and obesity
Nepal	8 319 695	0.42	35 005
Sri Lanka	5 223 416	0.49	25 453
Thailand	19 075 344	0.47	89 665
Timor-Leste	326 080	0.22	718

Source: Helble (37)

## 4.2 Drivers of the double burden of malnutrition in children

The biological, environmental, social and behavioural factors driving the double burden of malnutrition in the Region are undoubtedly interlinked.

- Maternal stunting, underweight and inadequate weight gain during pregnancy may restrict intrauterine growth, which is associated with an increased risk of stunting and NCDs (38).
- The exposure of children who have inadequate biological and /or behavioural responses to an unhealthy obesogenic environment due to *in utero* insults, such as poor nutrition, increases their odds of being overweight (39).
- Severe undernutrition (stunting, wasting) in early childhood may continue to deplete the metabolic capacity of children and increase their susceptibility to overweight, obesity and NCDs (40, 41).

These responses vary among individuals and are strongly influenced by developmental factors or factors related to the life-course, as shown in Fig. 4.2.

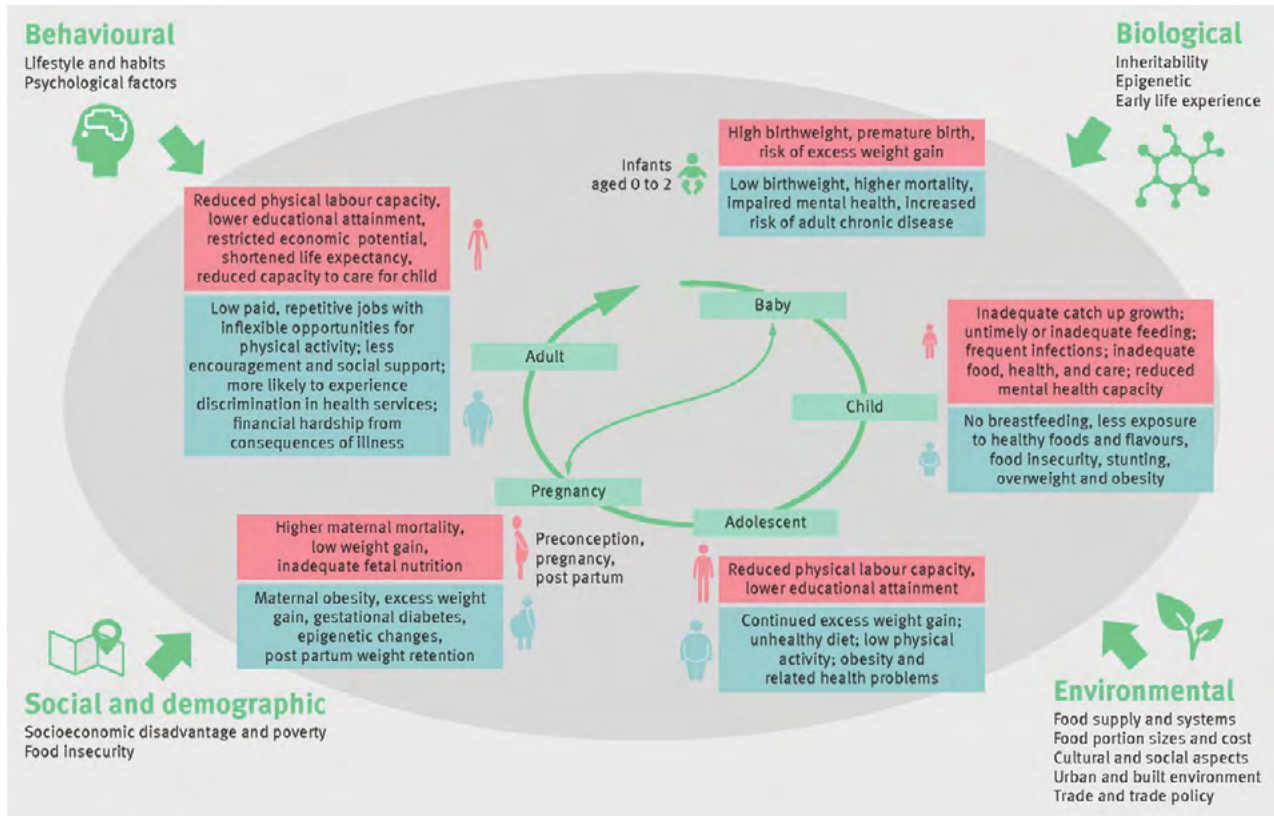
Policy-makers in countries should be aware of the complex and multifaceted nature of the challenge they are facing. A thorough knowledge of the main risk factors and determinants of overweight /obesity in the country is of key importance for the development of targeted interventions. Select drivers of child overweight and obesity in the Region are shown below.

### 4.2.1 Biological and individual factors

#### *Nutritional status of mother*

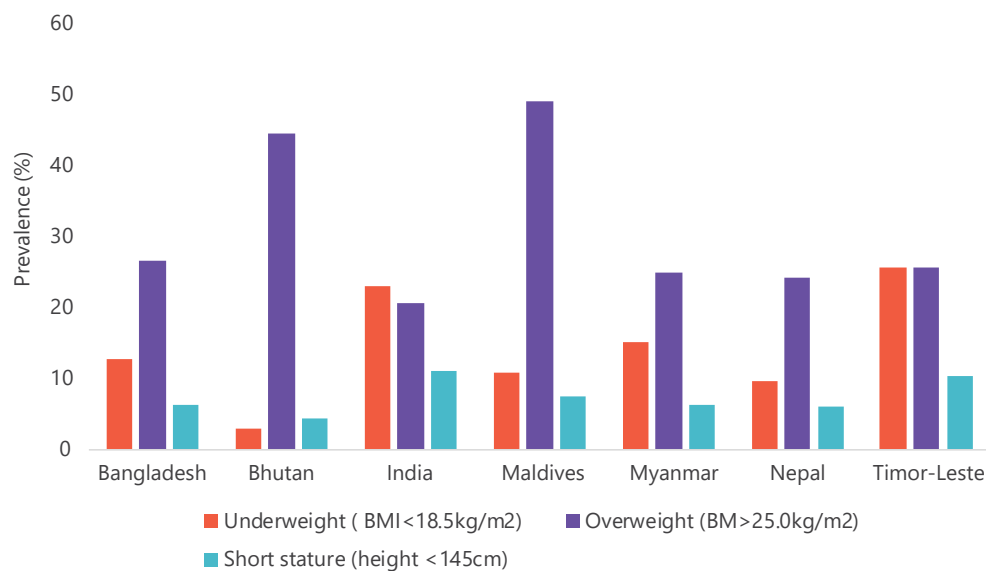
The offspring of overweight and obese women have an increased risk of being born large for gestational age and tend to become overweight or obese as children (38, 40). A woman's pre-pregnancy weight and epigenetic influences, even from the prior generation, pose a risk for the child. The chances of being overweight increase as the child grows older – a reflection of exposure *in utero* as well as during the life-course (38, 39, 41).

**Fig. 4.2** Factors that drive the burden of malnutrition across the lifecycle



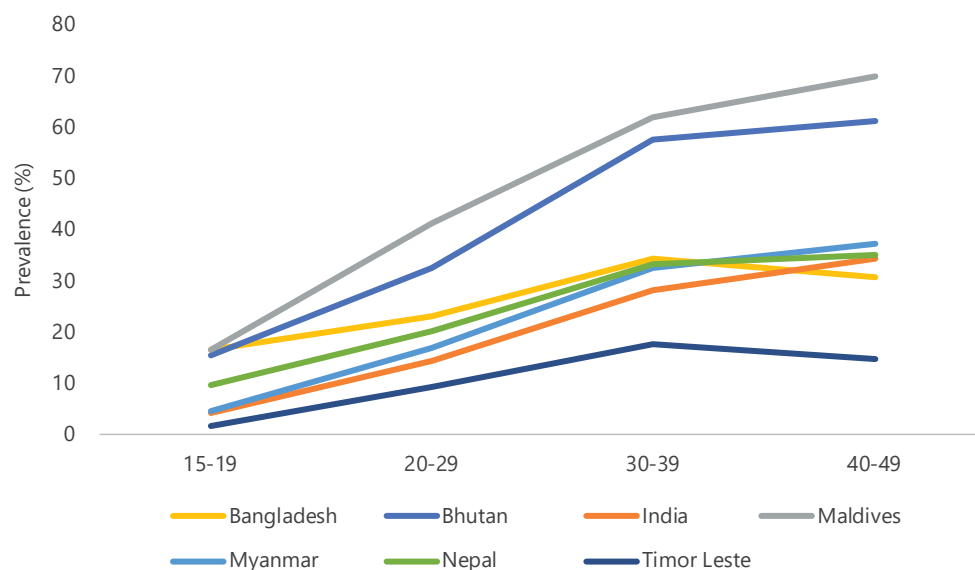
Source: Perez-Escamilla et al. (42)

It is a matter of concern that some pre-pregnant and pregnant women in the Region are likely to be overweight (Fig. 4.3), increasing the risk of obstetric complications for the mother, and later, obesity in the offspring. As shown in the figure, a substantial number of women of reproductive age are also thin, which is not only a risk factor for low birth weight and stunting, but also for NCDs and obesity.

**Fig. 4.3** Nutritional status in women of reproductive age (15–49 years)

Data source: Appendix 3

Fig. 4.4 shows the trends in overweight and obesity by age group. The prevalence of overweight tends to be higher among older women, but even among women in the age groups of 20–29 years and 30–39 years, among whom pregnancy is most likely, a significant percentage are overweight. Therefore, current policies for antenatal care, including interventions such as dietary counselling and food supplementation, need to be revisited and redesigned through the adoption of a more targeted approach.

**Fig. 4.4** Prevalence of overweight in different age groups among women of reproductive age, in select countries

Data source: Bangladesh STEPS 2018; Bhutan STEPS 2018; India NFHS 2015; Maldives DHS 2015; Myanmar DHS 2016; Nepal STEPS 2018; Timor-Leste DHS 2016 (Appendix 3)



### Low birth weight

Birth weight is an indicator of a newborn's well-being and is a proxy measure of the intrauterine environment and the nutritional status of the mother during pregnancy. Children born with low birth weight are at a greater risk of stunting. Low birth weight is also associated with an increased risk of overweight/obesity when accompanied by energy-dense diets and a sedentary lifestyle later in life (43). Of all the WHO regions, the South-East Asia Region has the highest estimated prevalence of low birth weight. Almost a quarter (24.2% [16.4–32.1]) of the children are born with low birth weight. This places these children at a higher risk of neonatal morbidity and mortality, stunting and NCDs (2). Table 4.2 shows the estimated prevalence of low birth weight by country.

**Table 4.2** Prevalence of estimated low birth weight, in selected countries

Country	Percentage of low birth weight (95% confidence intervals)
Bangladesh	27.8 [19.6–38.5]
Bhutan	11.7 [8.2–18.5]
DPR Korea *	3.1
India **	18.5
Indonesia	10.0 [7.4–12.7]
Maldives	11.7 [8.0–17.9]
Myanmar	12.3 [8.5–15.9]
Nepal	21.8 [15.2–30.3]
Sri Lanka	15.9 [15.6–16.1]
Thailand	10.5 [10.3–10.8]
Timor-Leste	No data

DPR Korea, MICS 2015; India, national rates are provided from the National Family Health Survey NFHS 4 (43)

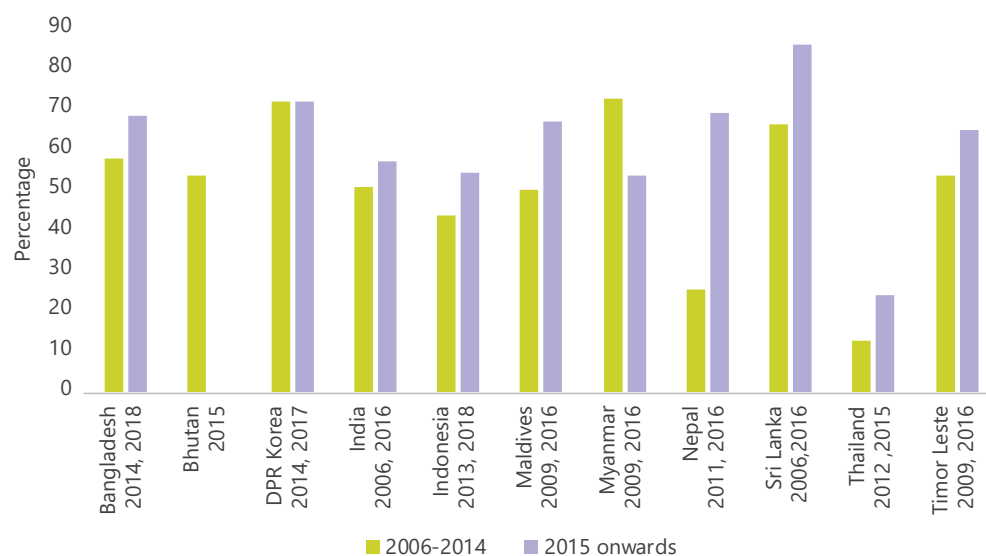
Data source: UNICEF–WHO low birthweight estimates (2)

### Young children's diet and feeding practices

The diets of infants and young children in the Region are often suboptimum, resulting in stunting, wasting or overweight. It is not only the overconsumption of food and increase in sedentary behaviour that induce overweight. Stunting too can place children at an especially high risk of developing obesity when patterns of diet and physical activity change. The fact that the prevalence of overweight was found to be higher among younger children in the age group of under 5 years indicates that more attention needs to be paid to optimizing the diets of very young children.

Breastfeeding is clearly a protective factor against both undernutrition and obesity (27). While many countries in the Region have high levels of breastfeeding, (Fig. 4.5), further improvement in breastfeeding will provide protection against stunting, wasting, micronutrient deficiencies as well as future overweight.

**Fig. 4.5** Trends in exclusive breastfeeding in infants 6 months of age, by country



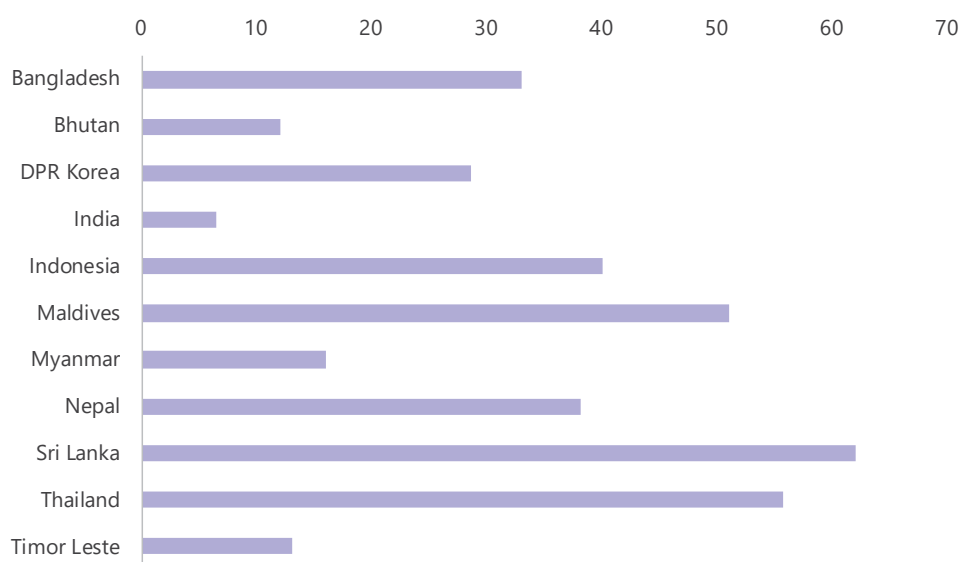
Data source: JME 2020, in addition to the most up-to-date national surveys not already in JME 2020 (Appendix 1); Indonesia: DHS 2017

Children of the age of 6–23 months and older can suffer lifelong consequences if they have diets that lack diversity and are inadequate in quantity (44). More and more young children are being fed foods that are high in sugar and fat and low in essential nutrients. Poor diets are a problem, as shown by the proportion of children receiving appropriate diets (Fig. 4.6).<sup>8</sup>

Recent data from Nepal's National Micronutrient Survey (Appendix 1) provide an example of energy-dense, nutrient-poor foods often provided to young children of the age of 6–59 months (Table 4.3).

<sup>8</sup> Appropriate feeding, defined as the percentage of children receiving appropriate nutrition, is calculated by taking into account the current guidelines on the number of food groups and the number of times a child should eat during the day or night preceding the survey (46).

**Fig. 4.6** Percentage of children in the age group 6–23 months receiving appropriate feeding, by country



Data source: Appendix 1, Indonesia DHS 2017

**Table 4.3** Foods provided to children of the age of 6–59 months in Nepal

Sweet foods (candy, chocolate, cake, sweet biscuits/cookies, pastries and ice cream)	75.1%
Sugar-sweetened beverages (soft drinks, juice drinks and other drinks with added sugar purchased or made at home)	21.8%
Tea	44%
Legumes and nuts	73 %
Meat/fish	23.7%
Eggs	11.7%

Data source: Nepal's National Micronutrient Survey (Appendix 1)

### *Diet, physical activity and sedentary behaviour patterns of older children*

Data on older children, obtained from the GSHS, provide evidence of unhealthy lifestyles, poor diets, low levels of physical activity and sedentary behaviour (Table 4.4). Far too many schoolgoing children are eating too few fruits and vegetables, and consuming unhealthy snacks that are high in sugar, saturated fat and sodium. These are often marketed to and popular among schoolgoing children. The levels of physical activity among children have not been reported at the national level. However, a review of studies on the prevalence of physical activity has found that the rates of physical activity among Asian schoolgoing children and adolescents of the age group 7–19 years are low (45). This is affirmed by Table 4.5.

**Table 4.3** Dietary behaviour of school going adolescents (13–17 years of age)

Diet and physical activity	BAN (%)	IND (%)	INO (%)	MAV (%)	MMR (%)	SRL (%)	THA (%)	TLS (%)
Drink carbonated soft drinks one or more times a day	48.0 (43.9–52.1)	7.8 * (15-19 years)	28.8 (26.5–31.3)	33.1 (30.1–36.1)	46.4	17.8 (15.9–19.8)	57.7 (52.0–63.3)	44.3 (39.7–49.0)
Eat food from a fast food restaurant 3 or more days/week	26.0 (21.1–31.5)	21.5 (19.4–23.5)	12.7 (11.5–14.0)	10.6 (9.1–12.4)	–	11% **	53.2 (50.4–56.1)	18.4 (14.7–22.8)
Eat fruit 3 or more times a day	11.9 (8.7–16.0)	14.9 (13.0–16.8)***	16.3 (14.7–18.1)	10.0 (8.2–12.2)	17.9	22.9 (20.2–25.6)*	19.5 (17.1–22.1)	17.9 (14.3–22.2)

Data sources: GSHS (Appendix 2); for all countries; For India data on carbonated beverages/junk food is for 15-19 year olds, CNNS National Report, 2019 (Appendix 1)

\* India and Sri Lanka: fruit and vegetables collectively

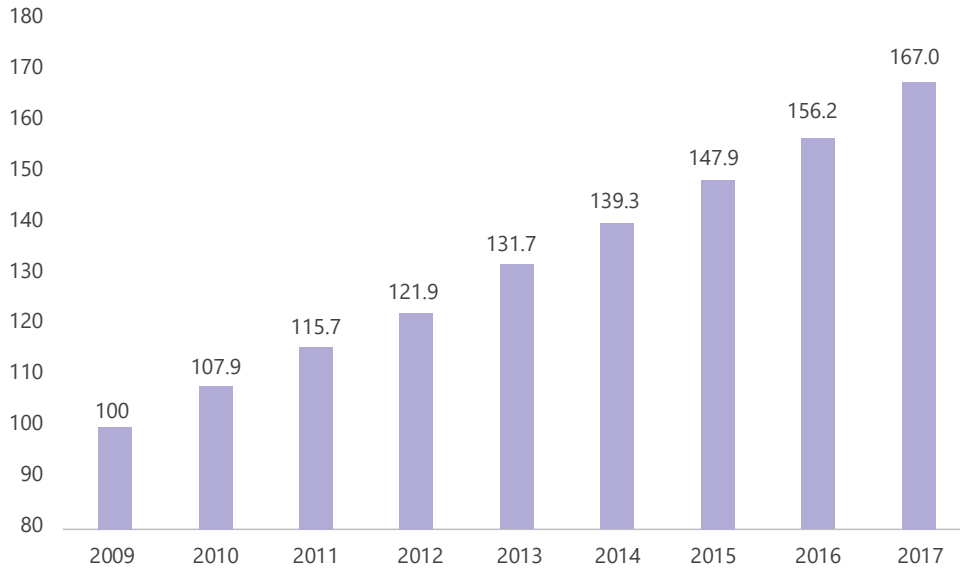
\*\* Sri Lanka: processed foods, such as pastries, rolls, cutlets and potato chips two or more times a day

## 4.2.2 Factors at household, community and environmental levels

### Food environment

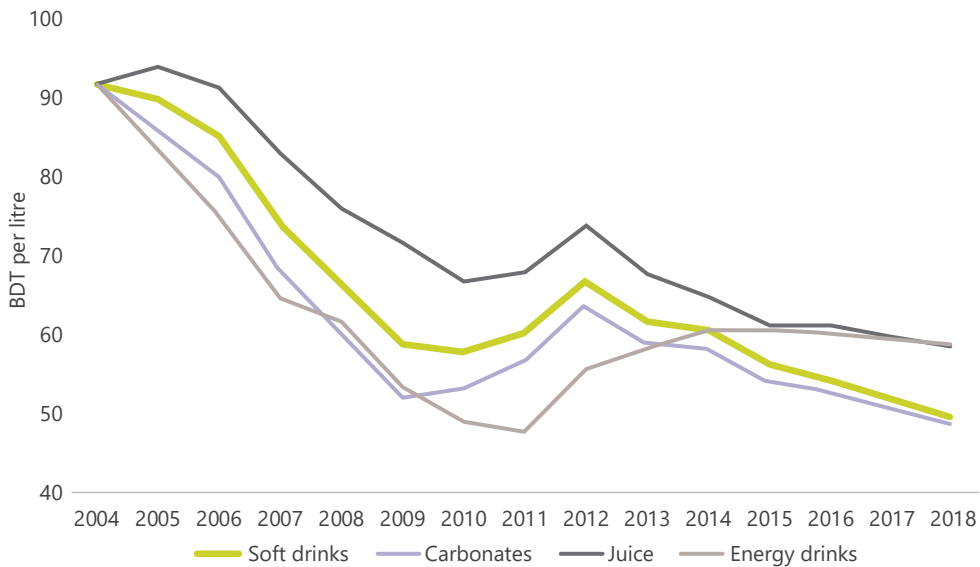
An increase in the availability and accessibility of high-energy foods and beverages, together with aggressive marketing of such products, has contributed to the creation of an obesogenic food environment. Select examples of the changing food environment in terms of the affordability of sugar-sweetened beverages and the increasing sales of these beverages in the Region are provided in Figs 4.7a, 4.7b and 4.7c (46, 47,48).

**Fig. 4.7a** Trends in consumption of sugar-sweetened beverages in Sri Lanka (base 2009=100)



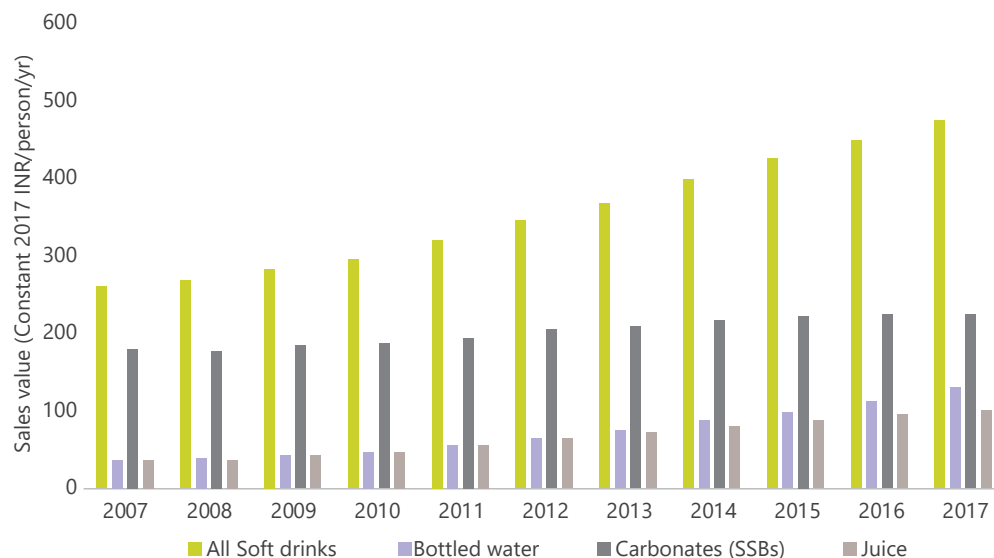
Data source: Technical report on: taxation for sugar- sweetened beverages in Sri Lanka, 2017 with data from Euromonitor International. Markets of the future in Sri Lanka.

**Fig. 4.7b** Real price of sugar sweetened beverages (off trade channel) in Bangladesh (Base 2004=100)



Data source: Based on Euromonitor International and Bangladesh Bureau of Statistics

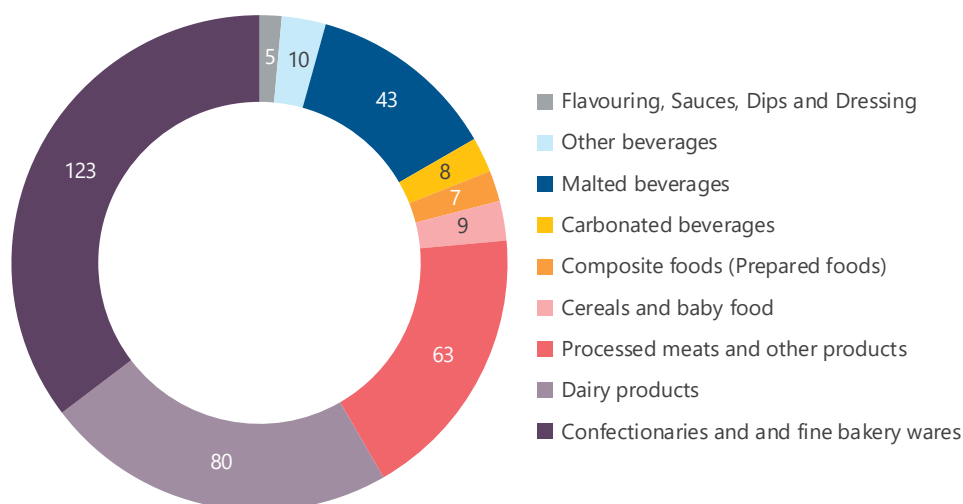
**Fig. 4.7c** Trends in annual per capita sales of soft drinks in India



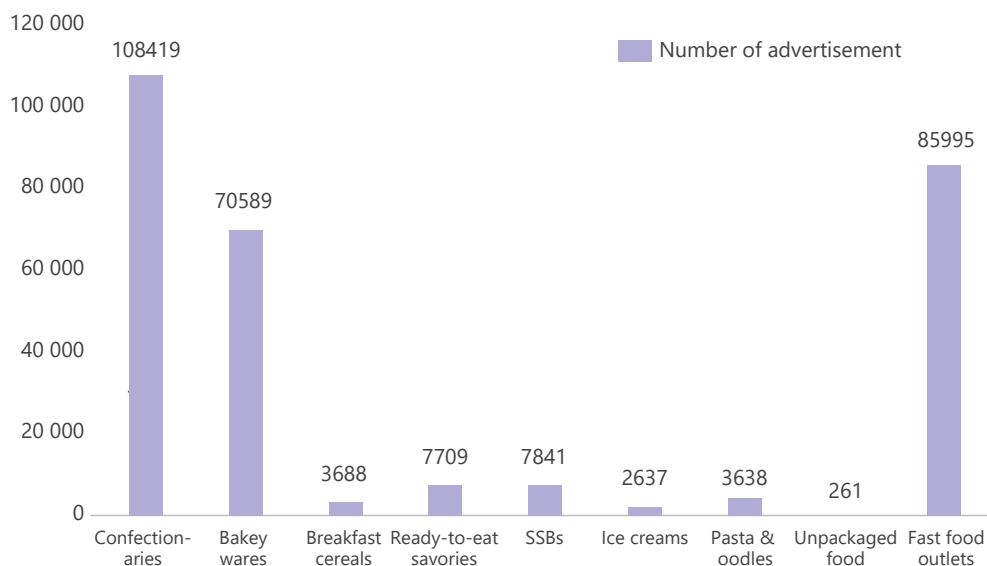
Data source: Based on Euromonitor data

Marketing of foods that are high in sugar and fat and of nonalcoholic beverages to children has been recognized as a factor that contributes to obesogenic food environments and the consumption of unhealthy diets. In 2010, the Sixty-third World Health Assembly endorsed a set of recommendations on the marketing of foods and non alcoholic beverages to children (WHA63. 14) and urged countries to reduce the impact of marketing on children (49). Figs 4.8 a and 4.8 b provide information on the marketing of foods and beverages to children in India and Sri Lanka. The category of food for children that was the most advertised on television consisted of confectionary items and bakery wares, such as biscuits (50, 51).

**Fig. 4.8a** Marketing of foods to children on the basis of the number of advertisements in one-month of monitoring of 12 television channels during children’s programmes, adult prime time and other off-peak times in Sri Lanka (50)



**Fig. 4.8b** Volume of advertisements on high-fat, sugar and salt products on media during a one-month period in India



Data source: WHO technical report (51)

### 4.2.3 The built environment and opportunities for physical activity

The Lancet Commission on Obesity draws attention to the important contribution of the built environment to the obesogenic environment (52). Giving priority to pedestrians and access to pavements and green spaces is important. It is also necessary to ensure that schools have playgrounds, and the school curriculum supports physical activity. In the crowded, population-dense cities in the Region, innovative thinking is required to make provisions for these requirements. Improving physical activity, reducing sedentary time and ensuring quality sleep in young children will improve their physical, mental health and wellbeing, and help prevent childhood obesity and associated diseases (27). For children, physical activity includes play, games, sports, transportation, chores, recreation, physical education, or planned exercise, in the context of family, school, and community activities (53). Physical activity improves cardiorespiratory and muscular fitness, bone health, and cardiovascular and metabolic health biomarkers. Table 4.4 shows the inadequate levels of physical activity and concerning levels of sedentary behaviours in children.

**Table 4.4** Physical activity and sedentary behaviour of school going adolescents (13–17 years of age)

Physical activity	BAN (%)	IND (%)	INO (%)	MMR (%)	SRL (%)	THA (%)	TLSe (%)
Physically NOT active (for at least 60 minutes a day on any day)	25.2 (21.4–29.5)	30.3 *	31.3 (28.6–34.0)	84.1 (81.7–86.5)	–	23.1 (20.7–25.7)	30 (26.9–33.4)
Spend 3 or more hours a day watching television, playing computer games or talking to friends, when not in school or doing homework on a typical day	15.0 (11.3–19.5)	23.2 (20.9–25.5)	26.5 (24.6–28.5)	10.5 (8.4–12.5)	34.0 (31.8–36.3)	52.2 (49.1–55.4)	17.5 (15.3–20.1)
Do not attend physical education classes (every week during the school year)	10.9 (8.0–14.5)		12.6 (11.0–14.4)	19.9 (16.1–23.8)		14.4 (11.9–17.4)	

Data sources: GSHS (Appendix 2); for all countries; For India data on physical inactivity data is for 15–19 year olds, CNNS National Report, 2019 (Appendix 1)

\*India % physically inactive (<7 hours of moderate to vigorous intensity activity in last 7 days)

### 4.3 Country policy measures that address aspects of the double burden

The current status of some of the policies implemented by countries to reduce the double burden of malnutrition are provided in the section on each country's nutrition profile (Annex 4). Policies that address undernutrition are generally robust. Most countries have identified and are implementing recommended evidence based interventions to tackle undernutrition, but those that address overweight, obesity and NCD risk are few.



# The way forward: actions to address overweight and obesity

# 5

As countries in the Region progress through the stages of demographic, lifestyle and nutrition transition associated with economic development, globalization and urbanization, the changing malnutrition profiles are clearly evident. The high middle-income countries and/or those which are relatively more urbanized tend to have a higher burden of child overweight and a lower burden of stunting and wasting. The prevalence of stunting and wasting/thinness is high in the low-income and low-middle-income countries (Bangladesh, India, Nepal). However, these countries are also showing rising trends in child overweight.

The data presented in the preceding chapters show the extent of the double burden of malnutrition in children and evidence for some of its drivers. Considering the lifecycle, maternal nutrition is of concern with a significant level of thinness and overweight in women of reproductive age. Low birth weight, a key risk factor for later NCDs is higher compared to other Regions, with almost a quarter of children being born weighing < 2500 g. Across countries, almost half the infants and young children are not exclusively breastfed and complementary feeding practices are poor. The selected data on dietary intake of school children, the sedentary behaviours and information on marketing and sales of sugar sweetened beverages are indicators of poor quality dietary intake and sub optimal dietary environment that drives the multiple forms of malnutrition.

Children are affected by their early developmental conditions, with long -term consequences. Children's food habits, tastes and preferences are formed in early childhood and continue into adulthood, supporting the argument that early interventions are vital for healthy growth. Along with healthy dietary habits, the importance of physical activity from the earliest age is well known and has been emphasized by the Commission on Ending Childhood Obesity (27). WHO recommends that to grow up healthy, young children need to sit less and play more (54). For older children, WHO recommends that adequate facilities should be available on school premises and in public spaces for physical activity during recreational time for all children (including those with disabilities), with the provision of gender-friendly spaces where appropriate (53).

The need to intervene early is obvious. Given the exponential rise in the risk of NCDs through the life course, the most effective means of reducing the risk of NCDs is to undertake timely preventive measures and intervene as early as possible to reduce the double burden of malnutrition (55).

## 5.1 Shared drivers and use of common platforms

Overweight and undernutrition share common drivers, such as intergenerational linkages, environmental and socioeconomic influences as shown in the preceding chapters. Therefore, countries in the Region could utilize existing platforms to scale up current interventions to address undernutrition and food insecurity, and, concurrently, implement actions to address overweight and obesity (56).

### COMMON PLATFORMS

- National policies for nutrition, NCDs
- National dietary guidelines
- Primary health-care programmes
- Regulatory, legislative and fiscal policies to promote a healthy food environment
- Social protection policies

The food culture and behaviours in the context of South-East Asia must also be taken into account when seeking solutions to the malnutrition crisis. Dietary patterns and habits in the Region differ from those in high-income countries. A large proportion of foods consumed in the former are home-cooked and from informal food vendors/stalls, especially in urban areas. The consumption of ultra-processed, packaged foods provided by the formal sector is lower, though increasing trends in sales of such foods are a sign that dietary patterns are changing. Therefore, action to promote healthy diets should address both formal and informal food sectors.

## 5.2 Potential regional strategies and way forward

The Strategic Action Plan to reduce the double burden of malnutrition 2016–2025, was endorsed by the Sixty-ninth session of the Regional Committee, in view of the increasing double burden of malnutrition and the urgent need to address the problem (3). The plan lays out a range of policy actions that countries could implement, under four strategic directions on governance, developing relevant guidance and legislations, strengthening health systems and community empowerment. Further directions have been provided by WHO through the policy brief for double duty actions and the ECHO implementation plan (56, 57). As described in the following pages, selected priority interventions are identified under each strategic direction.

### **Strategic direction 1: Improve nutrition governance through enhanced political commitment and evidence-informed context-specific sectoral policies and actions.**

Undertaking advocacy with political and opinion leaders to enhance their understanding of the current trends in nutrition status and to consolidate investments for reducing obesity as well as undernutrition is vital. Advocacy with and messages for policy-makers need to be crafted carefully since substantially more children are stunted or wasted than overweight, and historically, the focus of the Region has been on undernutrition. It is of crucial importance to review, update and strengthen the national platforms through the identification of common policy and programmatic opportunities to address the double burden. The undernutrition agenda must continue to be scaled up, while adding on actions to prevent overweight, where applicable. Creating an enabling environment includes understanding the commercial determinants of child obesity, and implementing actions to counter conflict of interest in food and nutrition for public good. The emphasis on physical activity has to be enhanced. Strengthening the availability of data to underpin all processes is vital. The dearth of nutrition status data for older children, the inadequacy of dietary and physical activity data for children of all age groups, and on the food environment should be addressed.

#### **Actions**

- Ensure that overweight and obesity are addressed in nutrition policies, strategies and action plans. The links to NCD policies have to be made explicit, and action plans should be costed to ensure budgetary allocations.
- Set national, time-bound targets on reducing child overweight to the levels set out in the existing nutrition goals and targets.
- Gather quality data for evidence-informed policy-making and monitoring of policy progress. National surveys should be expanded to cover at least the age group of 5–9 years and must be conducted at regular intervals to study the trends and outcomes of interventions. To formulate appropriate policies, it would be useful to go beyond nationally representative anthropometric data disaggregated by sex, age, demographic details and socioeconomic status, and gather other information such as on micronutrient deficiencies, dietary intake and physical activity in children aged 5–19 years.
- Broaden the focus of multisectoral plans of action and multisectoral platforms on nutrition to include child overweight. An example is the broadening of social protection programmes to ensure that populations facing food insecurity are provided access to healthy diets.
- Review policies on food assistance and related programmes for maternal and child nutrition to ensure their sensitivity to child overweight. Preventing the risk of excessive energy intake and unhealthy weight gain is important, especially among populations undergoing a rapid nutrition transition. Programmes must provide foods that contribute to overall healthy diets, and not to increase obesity. Further, they should be revised to ensure delivery to only those who are in need.

### **Strategic direction 2: Develop or adopt relevant guidelines, legislation and regulatory frameworks needed to implement evidence-based interventions.**

In trying to create an enabling environment to reduce the double burden of malnutrition, greater attention must be paid to country guidelines, and legislative and regulatory policies which address population-level risk factors (57). These policies must be sustainable and enforceable, and that their implementation should be monitored.

#### **Actions**

- Develop appropriate and context-specific nutrition information and develop and implement food based dietary guidelines for children.
- Enforce the International Code of Marketing of Breast-milk Substitutes and the guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children (58, 59). Establish mechanisms to effectively monitor and track their implementation.
- Develop and implement legislation or regulations on the marketing of foods and nonalcoholic beverages to children (49).
- Pass legislation and formulate policies on maternity leave and protection (including maternity benefits, leave and breaks for breastfeeding for women working outside the home).
- Implement fiscal policies that subsidize healthy diets and reduce the accessibility of unhealthy diets through measures such as imposing taxes on sugar-sweetened beverages (57).
- Introduce regulations on food labelling to enhance nutrition literacy and empower children to make healthy choices (57).
- Set dietary standards to create a healthy food environment in preschools and schools, keeping in mind the double burden of malnutrition (57).
- Establish regulations and standards for social support programmes that are based on national dietary guidelines.
- Set standards for food reformulation in partnership with industry to promote healthier nutrient profiles for commercially prepared foods (57).
- Identify and implement actions to encourage the informal food sector to promote healthy food. An example would be zoning regulations around schools which could restrict sales of specific foods.

***Strategic direction 3: Strengthen health systems to address the double burden of malnutrition with adequate resources, capacity-strengthening and comprehensive monitoring and evaluation.***

With countries undergoing a nutrition transition, planning a shared pathway for preventing malnutrition is important. The policies and programmes of health systems that focus on nutrition during critical periods in the life-course (preconception and pregnancy, infancy and early childhood, and older childhood and adolescence) can be expanded by introducing or scaling up double-duty actions (56). Relevant evidence-based recommendations are provided in WHO's Essential nutrition actions: mainstreaming nutrition through the life-course (60). Gaps in the health system must be identified and remedial measures taken to enhance its capacity to effectively address undernutrition and overweight, obesity and NCDs concurrently.

***Actions***

- Allocate adequate resources, build the capacity of the staff and reorient to integrate actions to address overweight and obesity along with the ongoing actions to reduce undernutrition.
- Ensure that the relevant essential actions on nutrition, as recommended by WHO (58), are prioritized and included in universal health-care packages.
- Implement the WHO recommendations on preconceptional and maternal nutrition, including those on counselling on diet and nutrition, and the diagnosis and management of hyperglycaemia and gestational hypertension (61). Undernourished populations should be educated regarding dietary intake and assisted with balanced energy and protein food supplementation as appropriate.
- To optimize the development and growth of infants, promote, support and protect breastfeeding. Infants should be exclusively breastfed for the first six months of life, after which breastfeeding should be continued together with the introduction of appropriate complementary foods (62).
- Expand the existing programmes on the monitoring and promotion of growth to include overweight. This includes counselling of caregivers in responsive feeding and encouraging infants and young children to eat a wide variety of healthy foods (62).
- Implement the guidance on assessing and managing children at primary health-care facilities to prevent overweight and obesity in the context of the double burden of malnutrition faced by countries (63).
- Implement the recommendations on nutrition and related health measures for older children and adolescents, in accordance with the country's context (57, 64). These include promoting healthy diets, iron folic acid supplementation of school children, managing acute malnutrition, preventing adolescent pregnancy and poor reproductive outcomes.

- ◉ Coordinate with NCD services to implement actions to reduce diet-related factors that increase the risk of NCDs (65)
- ◉ Implement the WHO guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age (54).
- ◉ Promote the implementation of the recommendations on appropriate physical activity for the age group of 5–17 years (66).
- ◉ Introduce referral services for monitoring growth for the management of overweight and obesity, in schools and through other appropriate delivery platforms (57).
- ◉ Introduce and support appropriate weight management services for children and adolescents who are overweight or obese. The services should be family-based and consist of various components, including nutrition, physical activity and psychosocial support (57).

***Strategic direction 4: Empower communities, support and strengthen academia and civil society to promote healthy diets, and form strategic alliances with stakeholders (56).***

#### ***Actions***

- ◉ Create awareness among communities regarding the problem of overweight and obesity, i.e. the double burden. This will be a complex task, given that the information to date have focused solely on stunting and wasting.
- ◉ Obtain the entire community's support for improving nutrition literacy and promoting healthy lifestyles among children and their families.
- ◉ Advocate for the establishment of a suitable built environment to promote physical activity.
- ◉ Strengthen community structures to empower women, families and communities to appreciate the importance of optimal care during pregnancy.
- ◉ Promote implementation research in the Region to create an understanding of how to scale up cost-effective multisectoral interventions that can tackle stunting, overweight and micronutrient deficiencies.
- ◉ Emphasize the importance of the shared family environment as a multifactorial contributor to childhood obesity problems and the necessity of implementing family-centred preventive programmes.
- ◉ Explore partnerships with the private sector to improve diets and to promote and support physical activity.

### Considerations when implementing policy measures to improve nutrition status of children

- Do no harm through existing actions on undernutrition: Assess and ensure that current initiatives (for example, feeding programmes, financial policies that subsidize production of unhealthy food) are not inadvertently increasing the risk overweight obesity or NCDs.
- Retrofit existing nutrition actions: Examine actions that are already being implemented for their potential to positively and simultaneously influence overweight and obesity (for example, feeding in schools).
- Develop new actions: Assess evidence-based actions that are potentially the most context-specific for implementation in a particular setting. These should reflect the local epidemiology, policy, and cultural, environmental and food contexts. Some examples are regulations for the marketing of foods and beverages to children, and physical activity programmes.

## 5.3 Conclusion

Halting the increase in overweight in WHO SEA Region countries is a possible but complex process, considering the Region's burden of undernutrition. All aspects of malnutrition require consideration in both existing and future policies and programmes. Focusing on overweight and obesity in the context of South-East Asia requires careful planning and crafting of policies, following a comprehensive review of the situation within each country.

Carrying out a detailed mapping of current status of policies, which will provide information on strategic entry points to prioritize and implement childhood obesity actions, availability of double duty platforms to include interventions on overweight and obesity and identify needs to scale up actions to reduce undernutrition is vital.

This information will help address and identify the dearth of supportive policies across all sectors, including health, agriculture, transport, urban planning, environment, food access, distribution and marketing, and education sector. A dynamic, whole of government approach with well thought out policies, long term sustainable plans and investments are needed. Countries should shift towards an integrated strategy and broaden the focus of nutrition and health programmes to tackle the double burden of malnutrition and its drivers.

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## Annex 1: Data sources on anthropometry for children under 5 (Adapted from JME 2020 with additional sources)

Countries and areas	Survey years	Year*	Short source	Full source title	Latest estimate	Estimate type	Included in JME 2020 estimates
<b>Bangladesh</b>	1985-86	1986	Other	Bangladesh household expenditure survey 1985-86. Bangladesh bureau of statistics. Dhaka, Bangladesh, 1987	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	1989-90	1990	Other	Report of the child nutrition status survey 1989-90. Bangladesh bureau of statistics. Dhaka, Bangladesh, 1991	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	1991	1991	Surveillance	Nutritional Surveillance Project 1991: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	1992	1992	Surveillance	Nutritional Surveillance Project 1992: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008.	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	1993	1993	Surveillance	Nutritional Surveillance Project 1993: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008.	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	1994	1994	Surveillance	Nutritional Surveillance Project 1994: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008.	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	1995	1995	Surveillance	Nutritional Surveillance Project 1995: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008.	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	1996	1996	Surveillance	Nutritional Surveillance Project 1996: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008.	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	1996-97	1997	DHS	Bangladesh demographic and health survey 1996-97. Demographic and Health Surveys. National Institute for Population Research and Training. Dhaka, Bangladesh, 1997	Historical trend	Reanalyzed	Yes
<b>Bangladesh</b>	1998	1998	Surveillance	Nutritional Surveillance Project 1998: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008.	Historical trend	Adjusted	Yes

Countries and areas	Survey years	Year*	Short source	Full source title	Latest estimate	Estimate type	Included in JME 2020 estimates
<b>Bangladesh</b>	1999	1999	Surveillance	Nutritional Surveillance Project 1999: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008.	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	1999-00	2000	DHS	Bangladesh demographic and health survey 1999-2000 (DHS). Dhaka, Bangladesh and Calverton, Maryland: National Institute of Population Research and Training, Mitra and Associates, and ORC Macro, 2001	Historical trend	Reanalyzed	Yes
<b>Bangladesh</b>	2001	2001	Surveillance	Nutritional Surveillance Project 2001: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008.	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	2002	2002	Surveillance	Nutritional Surveillance Project 2002: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008.	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	2003	2003	Surveillance	Nutritional Surveillance Project 2003: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008.	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	2004	2004	DHS	Bangladesh demographic and health survey 2004. Demographic and Health Surveys. Dhaka, Bangladesh and Calverton, Maryland [USA]: NIPORT, Mitra and Associates, and ORC Macro, 2005	Historical trend	Reanalyzed	Yes
<b>Bangladesh</b>	2005	2005	Surveillance	Nutritional Surveillance Project 2005: Rural data (using the WHO Child Growth Standards). Unpublished estimates. Dhakar, Bangladesh: HKI and Institute of Public Health Nutrition, 2007.	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	2006	2006	Surveillance	Nutritional Surveillance Project 2006: data on rural national (using the WHO Child Growth Standards). Unpublished estimates. Dhaka, Bangladesh: HKI and Institute of Public Health Nutrition, 2008	Historical trend	Adjusted	Yes
<b>Bangladesh</b>	2007	2007	DHS	Bangladesh demographic and health survey 2007. DHS. Dhaka, Bangladesh and Calverton, Maryland, USA: National Institute of Population Research and Training, Mitra and Associates, and Macro International, 2009	Historical trend	Reanalyzed	Yes
<b>Bangladesh</b>	2011	2011	DHS	Bangladesh demographic and health survey 2011. Demographic and Health Surveys. Dhaka, Bangladesh and Calverton, Maryland, USA: NIPORT, Mitra and Associates, and ICF International, 2013	Historical trend	Reanalyzed	Yes

Countries and areas	Survey years	Year*	Short source	Full source title	Latest estimate	Estimate type	Included in JME 2020 estimates
<b>Bangladesh</b>	2012-13	2013	MICS	Bangladesh 2012-13 multiple indicator cluster survey. Final Report. Dhaka, Bangladesh: Bangladesh Bureau of Statistics and UNICEF Bangladesh, 2014.	Historical trend	Reanalyzed	Yes
<b>Bangladesh</b>	2013	2013	Other	Utilization of Essential Service Delivery (UESD) Survey 2013. Dhaka: National Institute of Population Research and Training (NIPORT), 2014.	Historical trend	Reported	Yes
<b>Bangladesh</b>	2014	2014	DHS	Bangladesh Demographic and Health Survey 2014: Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPORT, Mitra and Associates, and ICF International. 2016	Historical trend	Reanalyzed	Yes
<b>Bangladesh</b>	2017-18	2018	DHS	Bangladesh Demographic and Health Survey 2017-18: Key Indicators. Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPORT, and ICF.	Historical trend	Reported	Yes
<b>Bangladesh</b>	2018	2018	MICS	Bangladesh Multiple Indicator Cluster Survey 2019, Survey Findings Report. Dhaka, Bangladesh: Bureau of Statistics (BBS) and UNICEF Bangladesh. 2019	Latest Source	Reported	<b>No</b>
<b>Bhutan</b>	1986-88	1987	NNS	Report on the national nutrition survey. Bhutan; December 1989.	Historical trend	Adjusted	Yes
<b>Bhutan</b>	1999	1999	NNS	National anthropometric survey of under five children in Bhutan. Division of Health Services. Thimpu, Bhutan, 1999	Historical trend	Reanalyzed	Yes
<b>Bhutan</b>	2008	2008	NNS	National Nutrition, Infant & Young Child Feeding Survey 2008. Thimphu, Bhutan: Ministry of Health and UN.	Historical trend	Reanalyzed	Yes
<b>Bhutan</b>	2010	2010	MICS	Bhutan multiple indicator cluster survey (BMIS) 2010. Thimphu, Bhutan: NSB, May 2011	Historical trend	Reanalyzed	Yes
<b>Bhutan</b>	2015	2015	NNS	National Nutrition Survey (NNS), Nutrition Program, Department of Public Health, Ministry of Health, Thimphu, Bhutan. 2015	Latest Source	Reported	<b>No</b>
<b>Democratic People's Republic of Korea</b>	2002	2002	NNS	Nutrition assessment 2002 D.P.R. Korea. Pyongyang: Government of D.P.R. Korea, United Nations Children's Fund and World Food Programme, 2003	Historical trend	External Reanalysis	Yes
<b>Democratic People's Republic of Korea</b>	2009	2009	MICS	The Democratic People's Republic of Korea (DPR Korea) multiple indicator cluster survey 2009 (MICS4). Final Report. Pyongyang, DPR Korea: CBS and UNICEF, 2010.	Historical trend	Reported	Yes

Countries and areas	Survey years	Year*	Short source	Full source title	Latest estimate	Estimate type	Included in JME 2020 estimates
<b>Democratic People's Republic of Korea</b>	2017	2017	MICS	DPR Korea Multiple Indicator Cluster Survey 2017, Survey Findings Report. Pyongyang, DPR Korea: Central Bureau of Statistics and UNICEF	Latest Source	Reported	Yes
<b>India</b>	1992-93	1992	DHS	National family health survey, India 1992-93. Demographic and Health Surveys. Bombay, India, 1995	Historical trend	Adjusted	Yes
<b>India</b>	1996-97	1997	Other	Diet and nutrition situation in rural India. Indian Journal of Medical Research 1998;108:243-253	Historical trend	Adjusted	Yes
<b>India</b>	1998-00	1999	DHS	National family health survey (NFHS-2) 1998-99. Demographic and Health Surveys. Mumbai, India, 2000	Historical trend	Adjusted	Yes
<b>India</b>	2005-06	2006	DHS	National family health survey (NFHS-3), 2005-06: India: Demographic and Health Surveys. Mumbai, India: IIPS, 2007	Historical trend	Reanalyzed	Yes
<b>India</b>	2015-16	2015	DHS	National Family Health Survey (NFHS-4), 2015-16: India. Mumbai: IIPS. 2017	Historical trend	Reanalyzed	Yes
<b>India</b>	2016-18	2017	NNS	Comprehensive National Nutrition Survey (CNNS) National Report. New Delhi	Latest Source	Reported	Yes
<b>Indonesia</b>	1996	1996	MICS	Indonesia multiple indicator cluster survey (MICS) 1995. Jakarta: UNICEF, 1997	Historical trend	Adjusted	Yes
<b>Indonesia</b>	2000	2000	Surveillance	Summary: Second Annual Report of the Nutrition and Health Surveillance System in Indonesia with data from the period 2000-2001 [2000 Extract]	Historical trend	External Reanalysis	Yes
<b>Indonesia</b>	2001	2001	Surveillance	Summary: Second Annual Report of the Nutrition and Health Surveillance System in Indonesia with data from the period 2000-2001 [2001 Extract]	Historical trend	External Reanalysis	Yes
<b>Indonesia</b>	2004	2004	Other	National Household Health Survey (SKRT) 2004, Jakarta, Indonesia, 2007	Historical trend	External Reanalysis	Yes
<b>Indonesia</b>	2007	2007	Other	Indonesia Basic Health Survey, Riskesdas, 2007, Ministry of Health.	Historical trend	Reported	Yes
<b>Indonesia</b>	2010	2010	Other	National report on basic health research, Riskesdas, 2010. Jakarta, Indonesia, 2012	Historical trend	External Reanalysis	Yes
<b>Indonesia</b>	2013	2013	Other	National report on basic health research, RISKESDAS, 2013. Jakarta, Indonesia, 2014	Historical trend	External Reanalysis	Yes
<b>Indonesia</b>	2018	2018	Other	National report on basic health research, RISKESDAS, 2018. Jakarta, Indonesia.	Latest Source	Reported	Yes



Countries and areas	Survey years	Year*	Short source	Full source title	Latest estimate	Estimate type	Included in JME 2020 estimates
<b>Maldives</b>	1994	1994	Other	Nutritional status and child feeding practices of Maldivian children. Department of Public Health. Male, Maldives, 1994.	Historical trend	Reported	Yes
<b>Maldives</b>	1995	1995	MICS	Maldives multiple indicator survey report (MICS). United Nations Children's Fund. Malé, Maldives, June 1996	Historical trend	Adjusted	Yes
<b>Maldives</b>	1997-98	1997	Other	Vulnerability and poverty assessment 1998. Malé, Republic of Maldives, 1999	Historical trend	Adjusted	Yes
<b>Maldives</b>	2001	2001	MICS	Multiple indicator cluster survey (MICS 2) Maldives (draft). Ministry of Health. Male, Republic of Maldives, 2001	Historical trend	External Reanalysis	Yes
<b>Maldives</b>	2009	2009	DHS	Maldives demographic and health survey 2009. Demographic and Health Surveys. Calverton, Maryland: MOHF and ICF Macro, 2010	Historical trend	Historical Trend	Yes
<b>Maldives</b>	2016-2017	2017	DHS	Maldives Demographic and Health Survey 2016-17. Malé, Maldives, and Rockville, Maryland, USA: MOH and ICF. 2018	Latest Source	Reanalyzed	<b>No</b>
<b>Myanmar</b>	1997	1997	NINS	National nutrition survey 1997. National Nutrition Centre. Yangon, Myanmar, 2000	Historical trend	Adjusted	Yes
<b>Myanmar</b>	2000	2000	MICS	Union of Myanmar monitoring national programme of action goals through multiple indicator cluster survey 2000. Yangon, Myanmar, 2001	Historical trend	Reanalyzed	Yes
<b>Myanmar</b>	2003	2003	MICS-Style	Multiple indicator cluster survey 2003 (MICS). Yangon, Myanmar, 2004	Historical trend	Reanalyzed	Yes
<b>Myanmar</b>	2009-10	2009	MICS	Myanmar multiple indicator cluster survey 2009 - 2010: Final Report (MICS3). Nay Pyi Taw, Myanmar: Ministry of National Planning and Economic Development and Ministry of Health, 2011.	Historical trend	Reported	Yes
<b>Myanmar</b>	2015-16	2016	DHS	Myanmar Demographic and Health Survey 2015-16: Final Report. 2016	Latest Source	Reanalyzed	Yes
<b>Myanmar</b>	2017-2018	2019	Other	Interim Report: Myanmar Micronutrient and Food Consumption Survey. Myanmar: National Nutrition Centre, DoPH, MoHS, 2019.	Reported	Reported	<b>No</b>
<b>Nepal</b>	1996	1996	DHS	Nepal family health survey, 1996. Demographic and Health Surveys. Ministry of Health. Kathmandu, Nepal, 1997	Historical trend	Adjusted	Yes
<b>Nepal</b>	1997-98	1998	Other	Nepal micronutrient status survey 1998. Kathmandu, Nepal: Ministry of Health, Child Health Division, HMG/N, New ERA, Micronutrient Initiative. UNICEF Nepal and WHO, 2000	Historical trend	External Reanalysis	Yes

Countries and areas	Survey years	Year*	Short source	Full source title	Latest estimate	Estimate type	Included in JME 2020 estimates
<b>Nepal</b>	2001	2001	DHS	Nepal demographic and health survey 2001. Demographic and Health Surveys. Calverton, Maryland, USA: Family Health Division, Ministry of Health; New ERA; and ORC Macro, 2002	Historical trend	Reanalyzed	Yes
<b>Nepal</b>	2006	2006	DHS	Nepal demographic and health survey 2006. Demographic and Health Surveys. Kathmandu, Nepal: Ministry of Health and Population, New ERA, and Macro International Inc., 2007	Historical trend	Reanalyzed	Yes
<b>Nepal</b>	2011	2011	DHS	Nepal demographic and health survey 2011. Demographic and Health Surveys. Kathmandu, Nepal: Ministry of Health and Population, New ERA, and ICF International, Calverton, Maryland 2012	Historical trend	Reanalyzed	Yes
<b>Nepal</b>	2014	2014	MICS	Nepal Multiple Indicator Cluster Survey 2014: Final Report	Historical trend	Reanalyzed	Yes
<b>Nepal</b>	2016-17	2016	DHS	Nepal Demographic and Health Survey 2016. Kathmandu, Nepal: Ministry of Health, Nepal. 2017	Latest Source	Reanalyzed	Yes
<b>Sri Lanka</b>	1987	1987	DHS	Sri Lanka demographic and health survey 1987. Demographic and Health Surveys. Colombo, Sri Lanka, 1987	Historical trend	Adjusted	Yes
<b>Sri Lanka</b>	2000	2000	DHS-Style	Sri Lanka demographic and health survey 2000. Colombo, Sri Lanka, 2001	Historical trend	External Reanalysis	Yes
<b>Sri Lanka</b>	2006-07	2007	DHS-Style	Sri Lanka demographic and health survey 2006/07: Final report	Historical trend	Reported	Yes
<b>Sri Lanka</b>	2009	2009	Other	Nutrition and food security survey 2009. Colombo, Sri Lanka: Medical Research Institute, 2010.	Historical trend	Reported	Yes
<b>Sri Lanka</b>	2012	2012	Other	Sri Lanka National Nutrition and Micronutrient Survey 2012	Historical trend	Reanalyzed	Yes
<b>Sri Lanka</b>	2016	2016	DHS-Style	Sri Lanka 2016 Demographic and Health Survey 2016 Final Report	Latest Source	External Reanalysis	Yes
<b>Thailand</b>	1987	1987	DHS	Thailand demographic and health survey 1987. Demographic and Health Surveys. Institute of Population Studies, Chulalongkorn University. Bangkok, Thailand, 1988	Historical trend	Adjusted	Yes
<b>Thailand</b>	1995	1995	NNS	The fourth national nutrition survey of Thailand 1995. Department of Health. Bangkok, Thailand 1998	Historical trend	Adjusted	Yes
<b>Thailand</b>	2005-06	2006	MICS	Thailand multiple indicator cluster survey December 2005 - February 2006, Final report. Bangkok, Thailand: National Statistical Office, 2006	Historical trend	Reanalyzed	Yes

Countries and areas	Survey years	Year*	Short source	Full source title	Latest estimate	Estimate type	Included in JME 2020 estimates
<b>Thailand</b>	2012-13	2012	MICS	Thailand multiple indicator cluster survey 2012. MICS. Bangkok, Thailand: NSO, UNICEF, MOPH, NHSO, THPF, IHPF, 2013.	Historical trend	Reanalyzed	Yes
<b>Thailand</b>	2015-16	2016	MICS	Thailand Multiple Indicator Cluster Survey 2015- 2016, Final Report, NSO and UNICEF, Bangkok, 2016	Latest Source	Reanalyzed	Yes
<b>Timor-Leste</b>	2002	2002	MICS	Multiple indicator cluster survey (MICS - 2002). UNICEF, Dili, Timor-Leste, 2003	Historical trend	External Reanalysis	Yes
<b>Timor-Leste</b>	2007-08	2007	LSMS	Timor-Leste Survey of Living Standards 2007 and Extension 2008	Historical trend	Reanalyzed	Yes
<b>Timor-Leste</b>	2009-10	2009	DHS	Timor-Leste demographic and health survey 2009-10. Demographic and Health Surveys. Dili, Timor-Leste: NSD [Timor-Leste] and ICF Macro, 2010	Historical trend	Reanalyzed	Yes
<b>Timor-Leste</b>	2013	2013	Other	Timor-Leste food and nutrition survey, Final report 2015. Dili, Timor Leste: Ministry of Health, 2015.	Historical trend	Reanalyzed	Yes
<b>Timor-Leste</b>	2016	2018	DHS	Timor-Leste Demographic and Health Survey 2016. Dili, Timor-Leste and Rockville, Maryland, USA: GDS and ICF. 2018	Latest Source	Reanalyzed	<b>No</b>

## Annex 2: Data sources for SEAR countries used by NCD Risk Factor Collaboration (NCD-RisC) and recent national surveys

Country	Data years	Survey/study name/citation	Level of representativeness	Age range as used for global analysis		Sample size		Note
				Female	Male	Female	Male	
<b>Bangladesh</b>	2011	DHS	National	20+	15+	16679	5254	
<b>Bangladesh</b>	2015	An assessment of BRAC Health Nutrition and Population Programme and benchmark survey of Sustainable Development Goal – 2015	National	11+	35+	18227	5432	
<b>Bhutan</b>								No country data in NCD-Risk Factor Collaboration study
<b>India</b>	1975-1979	Diet and Nutritional status of Rural population and Prevalence of Hypertension	National	5+	5+	30586	43230	
<b>India</b>	1996	Diet and Nutritional status of Rural population and Prevalence of Hypertension	National	5+	5+	27647	22094	
<b>India</b>	2001	Diet and Nutritional status of Rural population and Prevalence of Hypertension	National	5+	5+	24845	18048	
<b>India</b>	2002-2003	Blood Pressure epidemiology in tribal, rural and urban communities of Orissa with special reference to physical and social parameters	Community	18-80	18-80	186	200	
<b>India</b>	2003-2004	ICMR RF/RHD Registry Jai Vigyan Mission Mode Project, Kochi	Subnational	5-16	5-16	13515	11327	
<b>India</b>	2003-2005	India STEPS	Subnational	15-69	15-69	1468	1360	
<b>India</b>	2003-2005	India STEPS	Subnational	15-69	15-69	1294	1263	
<b>India</b>	2003-2005	India STEPS	Subnational	15-69	15-69	1338	1372	
<b>India</b>	2003-2005	India STEPS	Subnational	15-69	15-69	1282	1282	
<b>India</b>	2003-2005	India STEPS	Subnational	15-69	15-69	1265	1250	
<b>India</b>	2003-2005	India STEPS	Subnational	15-69	15-69	1410	1460	
<b>India</b>	2003-2005	India STEPS	Subnational	15-69	15-69	1254	1243	
<b>India</b>	2003-2005	India STEPS	Subnational	15-69	15-69	1256	1252	

Country	Data years	Survey/study name/citation	Level of representativeness	Age range as used for global analysis		Sample size		Note
				Female	Male	Female	Male	
India	2003-2005	India STEPS	Subnational	15-69	15-69	1261	1252	
India	2003-2005	India STEPS	Subnational	15-69	15-69	1324	1199	
India	2003-2005	India STEPS	Subnational	15-69	15-69	1252	1250	
India	2004-2005	JHW-4	Community	20-59	20-59	473	413	
India	2005-2006	DHS	National	15-49	15-54	115828	71464	
India	2005-2006	ICMR RF/RHD Registry Jai Vigyan Mission Mode Project, Kochi	Subnational	5-16	5-16	10509	9754	
India	2005-2006	Diet and Nutritional status of Rural population and Prevalence of Hypertension	National	5+	5+	25327	20495	
India	2007-2008	Integrated Disease Surveillance Project Non-communicable Disease Risk Factors Survey	Subnational	15-64	15-64	3390	2674	
India	2007-2008	Integrated Disease Surveillance Project Non-communicable Disease Risk Factors Survey	Subnational	15-64	15-64	2403	1672	
India	2007-2008	Integrated Disease Surveillance Project Non-communicable Disease Risk Factors Survey	Subnational	15-64	15-64	2862	2797	
India	2007-2008	Integrated Disease Surveillance Project Non-communicable Disease Risk Factors Survey	Subnational	15-64	15-64	2921	3025	
India	2007-2008	Integrated Disease Surveillance Project Non-communicable Disease Risk Factors Survey	Subnational	15-64	15-64	2108	2232	
India	2007-2008	Integrated Disease Surveillance Project Non-communicable Disease Risk Factors Survey	Subnational	15-64	15-64	2928	2039	
India	2007-2008	Integrated Disease Surveillance Project Non-communicable Disease Risk Factors Survey	Subnational	15-64	15-64	3110	2094	
India	2007-2009	Prevalence of NCD risk factor in people above 15 year in Rural area Nagpur using WHO STEP approach	Community	15+	15+	1828	1984	

Country	Data years	Survey/study name/citation	Level of representativeness	Age range as used for global analysis			Sample size		Note
				Female	Male	Female	Male		
<b>India</b>	2009-2010	Baseline Survey for the assessment of prevalence of risk factors of NCDs in Gandhinagar Distric	Community	15-64	15-64	711	779		
<b>India</b>	2009-2010	Baseline Survey for the assessment of prevalence of risk factors of NCDs in Gandhinagar Distric	Community	15-64	15-64	791	785		
<b>India</b>	2011-2012	Diet and Nutritional status of Rural population and Prevalence of Hypertension	National	5+	5+	43020	34410		
<b>India</b>	2012-2013	Health Survey in Anand School Children	Community	5-13	5-13	960	1629		
<b>India</b>	2012-2014	District Level Household and Facility Survey (DLHS) 4	National	5+	5+	603032	538812		
<b>India</b>	2014	Annual Health Survey-Chemical, Anthropometric	Subnational	5+	5+	681425	659676		
<b>India</b>	2016-2018	Comprehensive National Nutrition Survey (CNNS) National Report. New Delhi	National	5-19	5-19	35701	38484	Not included in NCD-Risc Project as a data source, but included for regional report analysis	
<b>Indonesia</b>	1983-1987	Strickland et al., Eur J Clin Nutr 48 Suppl 3: S98-108; discussion S-9, 1994	Community	18+	18+	564	447		
<b>Indonesia</b>	1993-1994	Indonesian Family Life Surveys	National	5+	5+	10209	8891		
<b>Indonesia</b>	1997-1998	Indonesian Family Life Surveys	National	5+	5+	13896	12157		
<b>Indonesia</b>	2000-2001	Indonesian Family Life Surveys	National	5+	5+	16217	15422		
<b>Indonesia</b>	2007-2008	Indonesian Family Life Surveys	National	5+	5+	19014	17751		
<b>Indonesia</b>	2011	SEANUTS	National	5-12	5-12	1380	1363		
<b>Indonesia</b>	2013	Population Health Basic Health Research 2013 (Rikesdas 2013)	National	5+	5+	155407	145977		
<b>Indonesia</b>	2014-2015	Indonesian Family Life Surveys	National	5+	5+	21543	20330		
<b>Indonesia</b>	2015	Global School-based Student Health Survey	National	13-17	13-17	4688	3845		

Country	Data years	Survey/study name/citation	Level of representativeness	Age range as used for global analysis		Sample size		Note
				Female	Male	Female	Male	
<b>Maldives</b>	2009	Global School-based Student Health Survey	National	13-17	13-17	951	807	
<b>Maldives</b>	2011	STEPS	National	15-64	15-64	1059	660	
<b>Maldives</b>	2014	Global School-based Student Health Survey	National	13-17	13-17	1324	931	
<b>Myanmar</b>	2007	Global School-based Student Health Survey	National	13	13	294	231	
<b>Myanmar</b>	2009	STEPS	National	15-64	15-64	4419	2826	
<b>Myanmar</b>	2011	Underweight prevalence among young adults from rural areas, Salin Township, Magwe Region	Community	15-35	15-35	233	156	
<b>Myanmar</b>	2015-2016	DHS	National	15-49		12163		
<b>Myanmar</b>	2016	Global School-based Student Health Survey	National	13	13	283	234	
<b>Myanmar</b>	2017/18	Myanmar National Micronutrient and Food Consumption Survey	National	0-14 years	0-14 years	-	-	
<b>Nepal</b>	2005	STEPS	Subnational	15-64	15-64	3994	3634	
<b>Nepal</b>	2006	DHS	National	15-49		10117		
<b>Nepal</b>	2006-2011	Early detection and management of Kidney disease, Hypertension, Diabetes and Cardiovascular disease (KHDC Nepal), Tarahar	Community	18+	18+	2350	1175	
<b>Nepal</b>	2006-2011	Early detection and management of Kidney disease, Hypertension, Diabetes and Cardiovascular disease (KHDC Nepal), Dama	Community	18+	18+	1577	1095	
<b>Nepal</b>	2006-2011	Early detection and management of Kidney disease, Hypertension, Diabetes and Cardiovascular disease (KHDC Nepal), Dhara	Community	18+	18+	6126	4130	
<b>Nepal</b>	2007-2008	STEPS	National	15-64	15-64	2347	1889	
<b>Nepal</b>	2011	DHS	National	15-49		5848		

Country	Data years	Survey/study name/citation	Level of representativeness	Age range as used for global analysis		Sample size		Note
				Female	Male	Female	Male	
<b>Nepal</b>	2013	STEPS	National	15-69	15-69	2763	1326	
<b>Nepal</b>	2015	Global School-based Student Health Survey	National	13	13	569	467	
<b>Nepal *</b>	2016	Nepal National Micronutrient Status Survey, 2016.	National	10-19	10-19	1898	1045	Not included in NCD-RisC Project as a data source, but included for regional report analysis
<b>Sri Lanka</b>	2006	STEPS	National	15-64	15-64	6211	6140	
<b>Sri Lanka</b>	2016	Global School-based Student Health Survey	National	13-17	13-17	928	671	
<b>Sri Lanka*</b>	2017	Nutritional status, Dietary practices and Pattern of Physical Activity among School Children Aged 6-12 years. 2017	National	6-12	6-12	4151	4254	Not included in NCD-RisC Project as a data source, but included for regional report analysis
<b>Thailand</b>	1991	Thailand National Health Examination Survey I	National	5+	5+	11021	8691	
<b>Thailand</b>	1997	Thailand National Health Examination Survey II	National	5-59	5-59	4877	4118	
<b>Thailand</b>	2004	Thailand National Health Examination Survey III	National	15+	15+	20137	18819	
<b>Thailand</b>	2009	Thailand National Health Examination Survey IV	National	5-98	5-98	13848	12972	
<b>Thailand</b>	2011	SEANUTS	National	5-12	5-12	939	922	
<b>Timor-Leste</b>	2009-2010	DHS	National	15-49		11984		
<b>Timor-Leste</b>	2014	STEPS	National	18-69	18-69	1437	1048	
<b>Timor-Leste</b>	2015	Global School-based Student Health Survey	National	13	13	171	97	



## Annex 3: Data sources used for the analysis for differentials in socio-economic status amongst children overweight and obese

Country	Data years	Survey name	Age range used for analysis	Type of estimate	Sample Size*		Notes
					Female	Male	
Bangladesh	2018	MICS	0-59 months	Reanalyzed by SEARO	11149	11950	
Bangladesh	2018	STEPS	15-19 years	Reanalyzed by SEARO	159	117	
Bhutan	2018	National Nutrition Survey Report	0-59 months	Reported	736	697	
Bhutan	2018	STEPS	15-19 years	Reanalyzed by SEARO	125	103	
DPRK	2017	MICS	0-59 months	Reported	1109	1161	
Maldives	2016-2017	DHS	0-59 months	Reanalyzed by SEARO	1160	1202	
			15-19 years	Reanalyzed by SEARO	-	928	Only women of reproductive age were analyzed
Myanmar	2015-2016	DHS	0-59 months	Reanalyzed by SEARO	2033	2164	
			15-19 years	Reanalyzed by SEARO	-	1768	Only women of reproductive age were analyzed
Nepal	2016-2017	DHS	0-59 months	Reanalyzed by SEARO	1131	1238	
Nepal	2018	STEPS	15-19 years	Reanalyzed by SEARO	138	203	
Sri Lanka	2016	DHS	0-59 months	Reanalyzed externally	3881	4073	
Thailand	2015-2016	MICS	0-59 months	Reanalyzed by SEARO	5438	5703	
Timor-Leste	2016	DHS	0-59 months	Reanalyzed by SEARO	2904	2814	
			15-19 years	Reanalyzed by SEARO	-	2981	Only women of reproductive age were analyzed

# Annex 4: Country nutrition profile

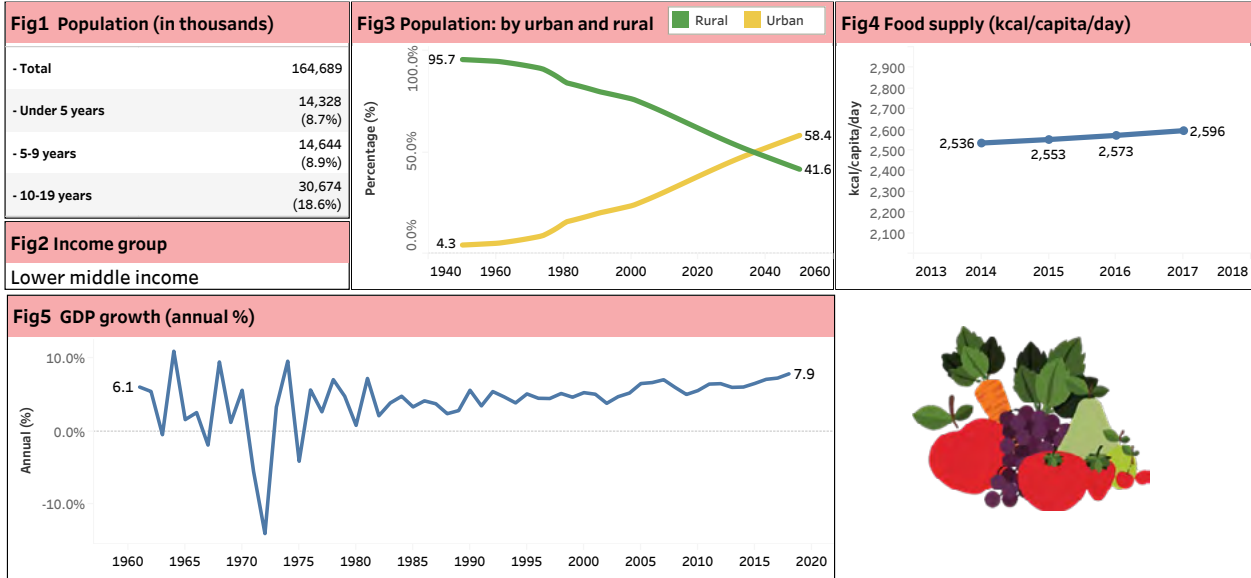
UNITED NATIONS DECADE OF  
**ACTION ON NUTRITION**  
2016-2025

## Nutrition Profile

World Health Organization  
South-East Asia

### Bangladesh

#### Demographics and background information



#### Nutrition status of children

**TARGETS 2025**

Global  
Country~

**Overweight**

No increase in childhood overweight

By 2025, No increase in childhood obesity (WHZ > +2) in children under-5 years (Baseline, 2016)

**Stunting**

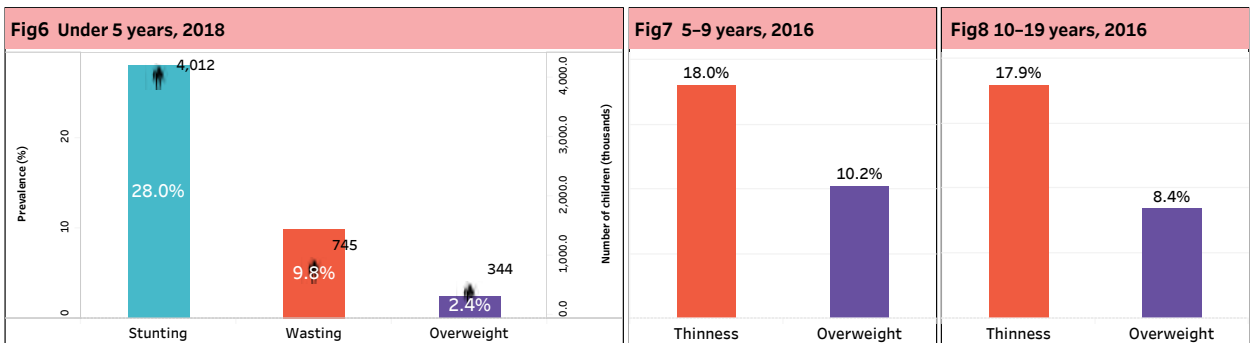
40% reduction in the number of children under-5 who are stunted

By 2025, Reduce stunting to 25% among children under-5 years of age

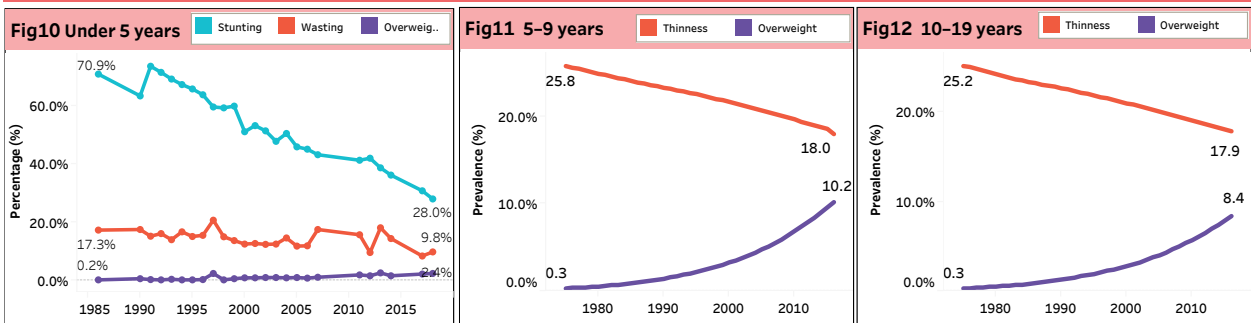
**Wasting**

Reduce and maintain childhood wasting to less than 5%

By 2025, Reduce wasting to less than 8% among children under-5 years of age

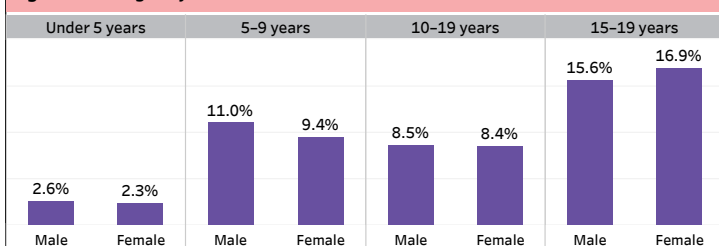


#### The nutrition transition: trends in overweight and undernutrition

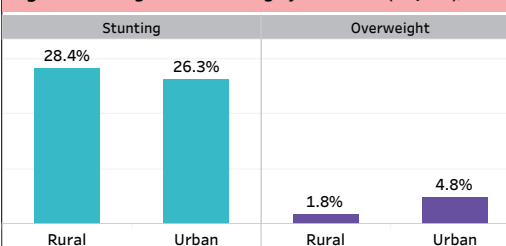


## Differentials in childhood overweight

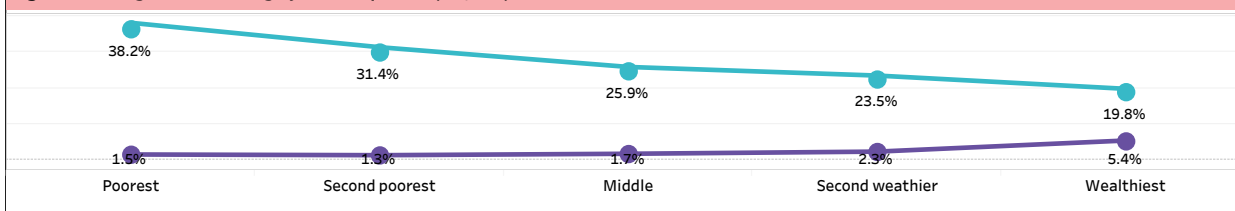
**Fig13 Overweight by sex**



**Fig14 Overweight and stunting by residence (< 5 years), 2018**

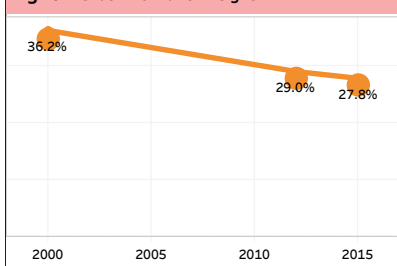


**Fig15 Overweight and stunting by wealth quintile (< 5 years), 2018**



## Drivers and associated factors for child obesity

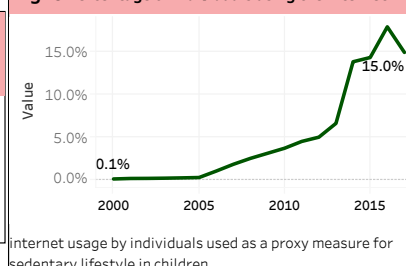
**Fig16 Trends in low birth weight**



**Fig17 Exclusively breastfed at 6 months, 2017**

64.0%

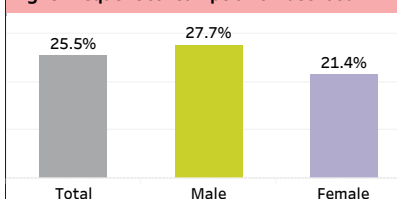
**Fig18 Percentage of Individuals using the Internet**



## Diet, physical activity and sedentary behavior



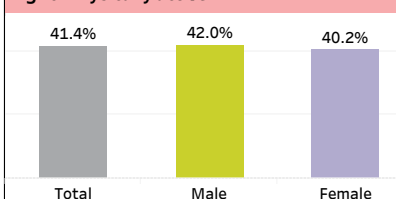
**Fig19 Frequent consumption of fast food**



Ate food from a fast food restaurant three or more days during past 7 days. (13-17 years old students)



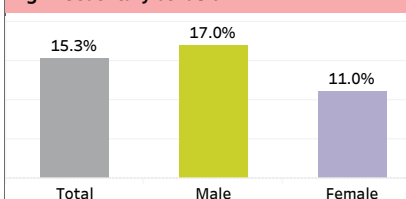
**Fig20 Physically active**



At least 60 minutes per day on all 7 days. (13-17 years old students)



**Fig21 Sedentary behavior**



Spent 3 or more hours a day sitting, in addition to school (13-17 years old students)

## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	Yes
	Availability of a national policy, strategy or action plan for physical activity promotion	No
	Availability of national food based dietary guidelines	Yes
	Country has identified time-bound a nutrition target on childhood obesity	Yes
<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	Yes
	Implemented regulations on the marketing of foods and nonalcoholic beverages to children	No
<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	No
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	No
	Overweight is tracked in school health programmes	No
	School health and nutrition programme objectives include fostering healthy diets and healthy habits	No
	School Health programme objectives include prevention of overweight	No

### Data sources

Fig1. United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition.

Fig2. World Bank Income Classification. World Bank Country and Lending Groups. Country Classification 2020.

Fig3. United Nations. World Urbanization Prospects.

Fig4. Food and Agriculture Organization of the United Nations (FAO).

Fig5. World Bank, World Development Indicators.

Fig6,14,15. Bangladesh Multiple Indicator Cluster Survey 2019, United Nations Children's Fund, Bangladesh Bureau of Statistics. 2019 (Reanalyzed).

Fig7,8,11,12. World Health Organization (WHO). Global Health Observatory.

Fig10. Adapted from the UNICEF/WHO/The World Bank Group (2020). Joint child malnutrition estimates: levels and trends, 2020 edition updated with most recent national surveys.

Fig13. under 5 (Bangladesh Multiple Indicator Cluster Survey 2019); 5-9 years (World Health Organization (WHO). Global Health Observatory); 10-19 years ( National STEPs survey for Non Communicable Diseases Risk, Bangladesh,2018).

Fig16. WHO UNICEF birthweight estimates: Nations Children's Fund (UNICEF), World Health Organization (WHO). Levels and trends 2000-2015.

Fig17. National Institute of Population Research and Training (NIPORT), and ICF. 2019. Bangladesh Demographic and Health Survey 2017-18: Key Indicators. Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPORT, and ICF.

Fig18. The Telecommunication Development Sector (ITU-D), downloaded on 13 May 2020; <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

Fig19,20,21. Global School-based Health Survey (GSHS), Bangladesh 2014.

\* a. Status report on 'Physical activity and health in the South-East Asia Region': July 2018 WHO.

b. Global nutrition policy review 2016-2017: country progress in creating enabling policy environments for promoting healthy diets and nutrition, WHO 2017.

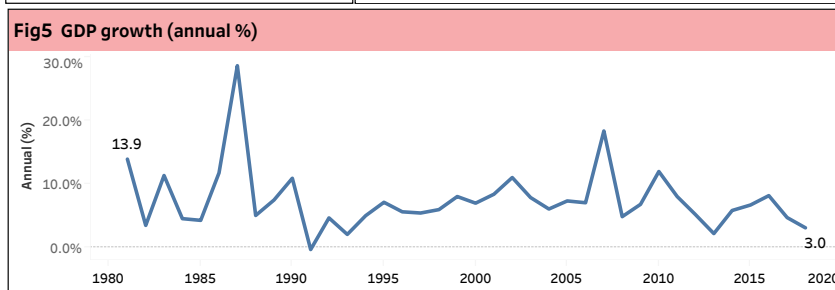
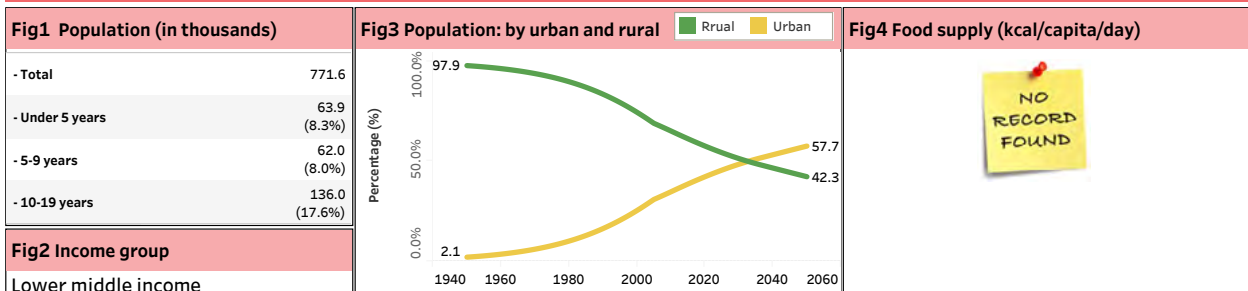
c. Marketing of breast-milk substitutes: National implementation of the international code - STATUS REPORT 2020. World Health Organization, UNICEF, IBFAN.

d. WHO SEARO and Thailand International Health Policy Programme Foundation. Summary report "School nutrition and physical activity in Bangladesh, Sri Lanka, Maldives, and Thailand: creating collective actions to achieve healthy school nutrition and physical activity" 26th - 27th March 2018, Bangkok, Thailand."

~ Government of the People's Republic of Bangladesh. Second National Plan of Action for Nutrition (2016-2025)

## Bhutan

### Demographics and background information



### Nutrition status of children

**TARGETS 2025**

**Global**

**Country~**

**Overweight**

No increase in childhood overweight

By 2023, Halt the rise of childhood overweight and obesity in children under-5 years

**Stunting**

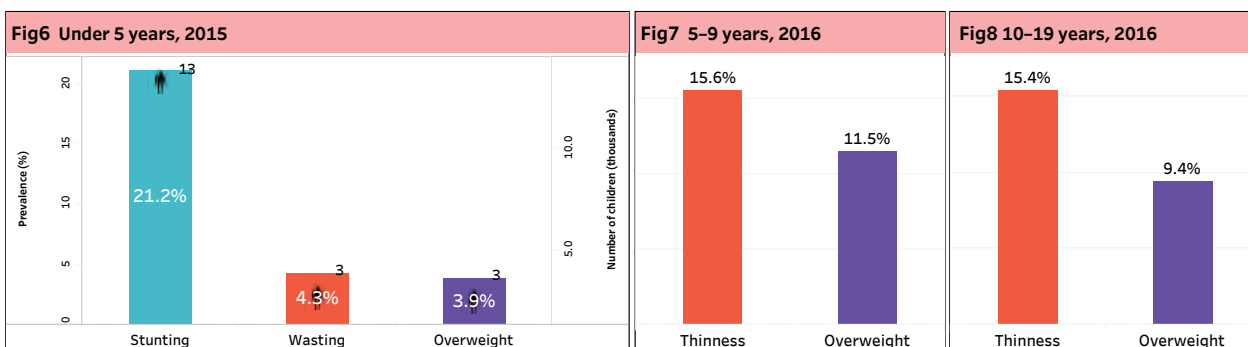
40% reduction in the number of children under-5 who are stunted

By 2023, Reduce prevalence of stunting in children under-5 years (by 40%) to 15.1%.

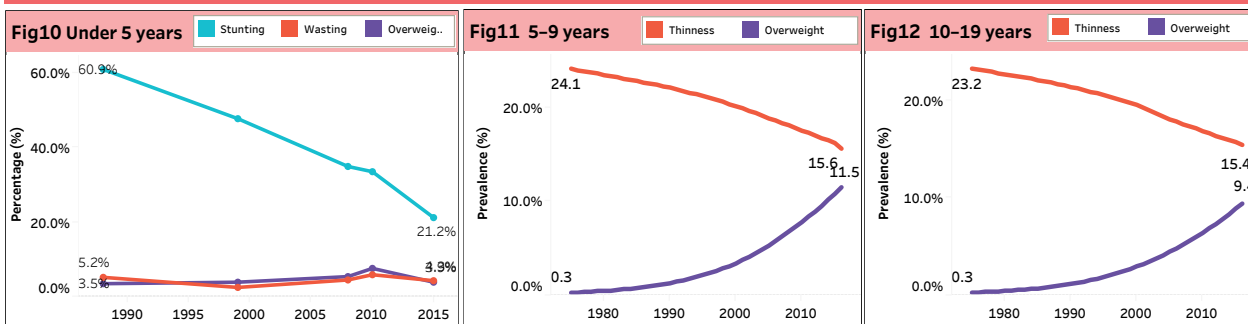
**Wasting**

Reduce and maintain childhood wasting to less than 5%

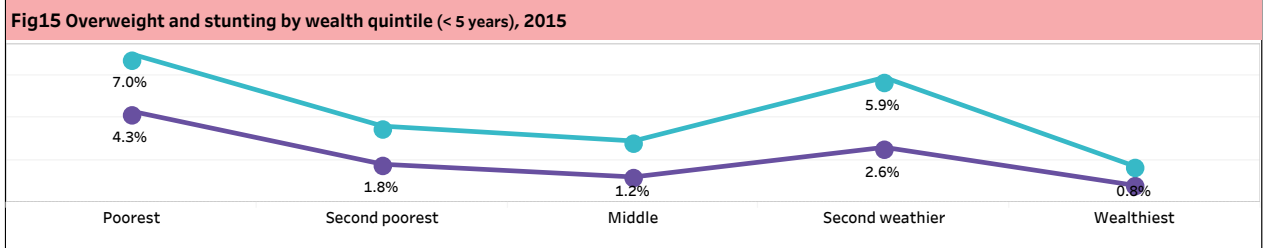
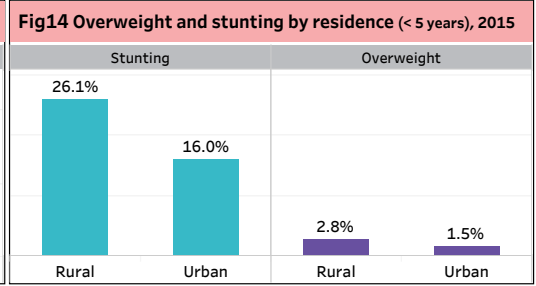
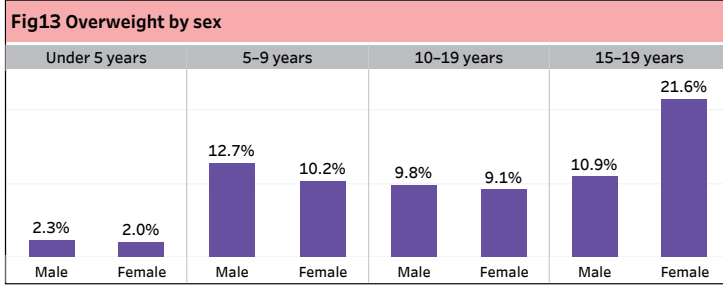
BY 2023, Reduce the prevalence of childhood wasting in children under-5 years to less than 3%.



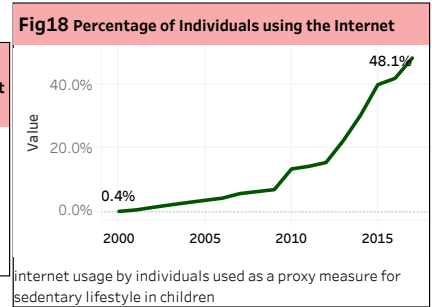
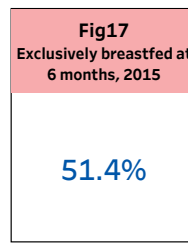
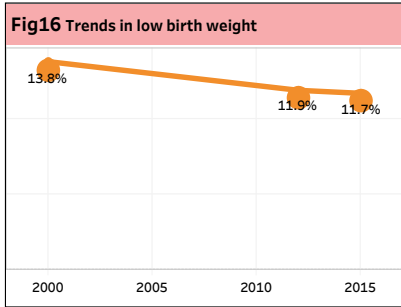
### The nutrition transition: trends in overweight and undernutrition



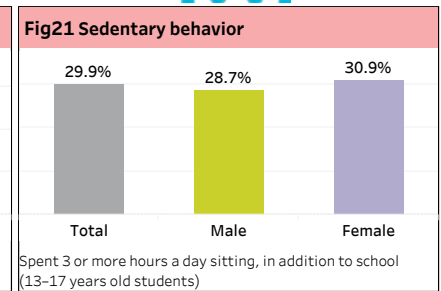
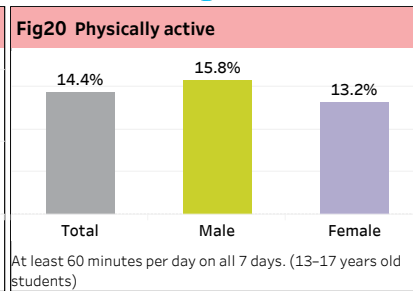
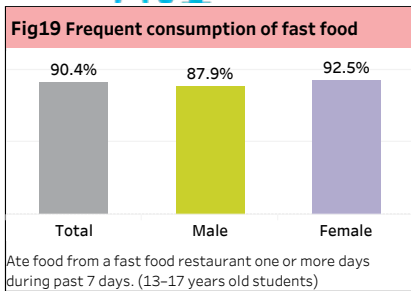
## Differentials in childhood overweight



## Drivers and associated factors for child obesity



## Diet, physical activity and sedentary behavior



## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	Yes
	Availability of a national policy, strategy or action plan for physical activity promotion	No
	Availability of national food based dietary guidelines	Yes
	Country has identified time-bound a nutrition target on childhood obesity	Yes
<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	No
	Implemented regulations on the marketing of foods and nonalcoholic beverages to children	No
<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	Yes
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	Yes
	Overweight is tracked in school health programmes	Yes
	School health and nutrition programme objectives include fostering healthy diets and healthy habits	Yes
	School Health programme objectives include prevention of overweight	Yes

### Data sources

Fig1. United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition.

Fig2. World Bank Income Classification. World Bank Country and Lending Groups. Country Classification 2020.

Fig3. United Nations. World Urbanization Prospects.

Fig5. World Bank, World Development Indicators.

Fig6,14,15,17. Bhutan National Nutrition Survey 2015. Nutrition Program, Department of Public Health, Ministry of Health.

Fig7,8,11,12. World Health Organization (WHO). Global Health Observatory.

Fig10. Adapted from the UNICEF/WHO/The World Bank Group (2020). Joint child malnutrition estimates: levels and trends, 2020 edition updated with most recent national surveys.

Fig13. under 5 and 5-9 yrs (Bhutan National Nutrition Survey 2015. Nutrition Program, Department of Public Health, Ministry of Health.); 10-19 yrs (World Health Organization (WHO) Global Health Observatory.); 15-19 yrs (National survey for noncommunicable disease risk factors and mental health using WHO STEPS approach in Bhutan - 2019).

Fig16. WHO UNICEF birthweight estimates: Nations Children's Fund (UNICEF), World Health Organization (WHO). Levels and trends 2000-2015. Geneva:2019.

Fig18. The Telecommunication Development Sector (ITU-D), downloaded on 13 May 2020; <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

Fig19,20,21. Global School-based Health Survey (GSHS), Bhutan 2016.

\*a. Status report on 'Physical activity and health in the South-East Asia Region': July 2018 WHO.

b. Global nutrition policy review 2016-2017: country progress in creating enabling policy environments for promoting healthy diets and nutrition, WHO 2017.

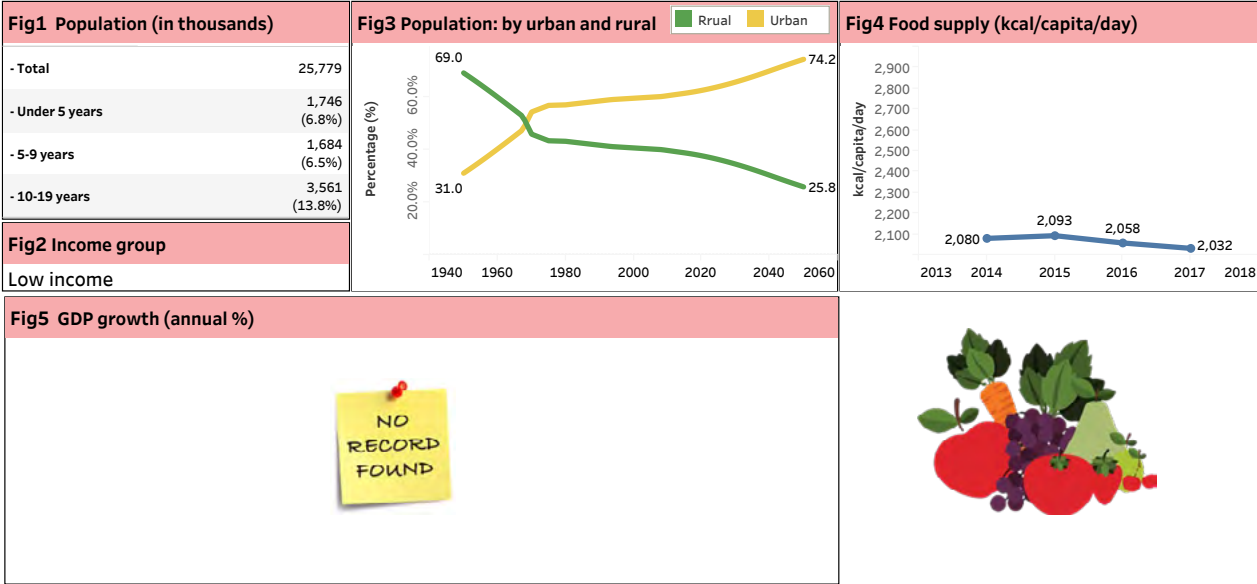
c. Marketing of breast-milk substitutes: National implementation of the international code - STATUS REPORT 2020. World Health Organization, UNICEF, IBFAN.

d. WHO SEARO and Thailand International Health Policy Programme Foundation. Summary report "School nutrition and physical activity in Bangladesh, Sri Lanka, Maldives, and Thailand: creating collective actions to achieve healthy school nutrition and physical activity" 26th - 27th March 2018, Bangkok, Thailand."

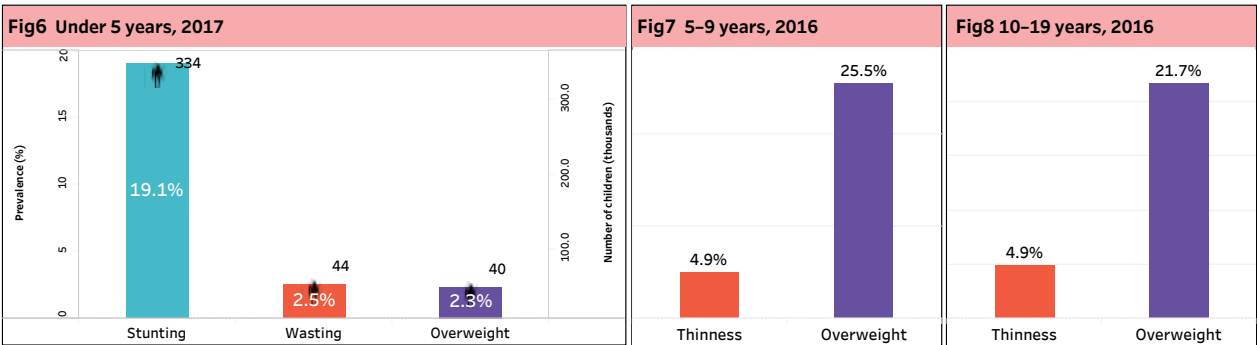
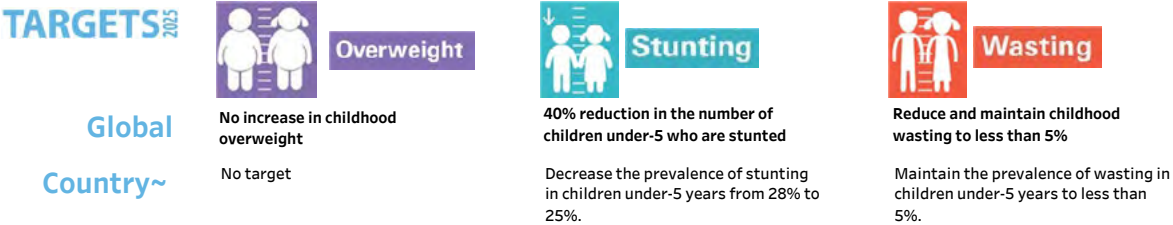
~ 12th Five Year Plan, Royal Government of Bhutan

**Democratic People's Republic of Korea**

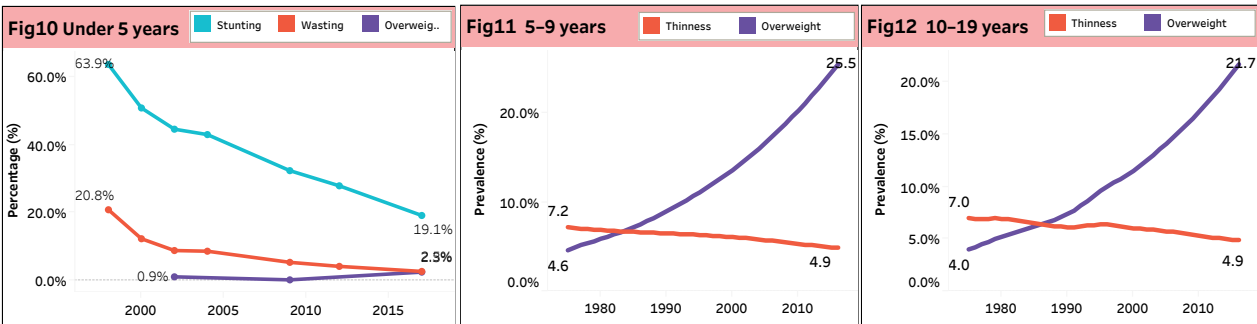
**Demographics and background information**



**Nutrition status of children**

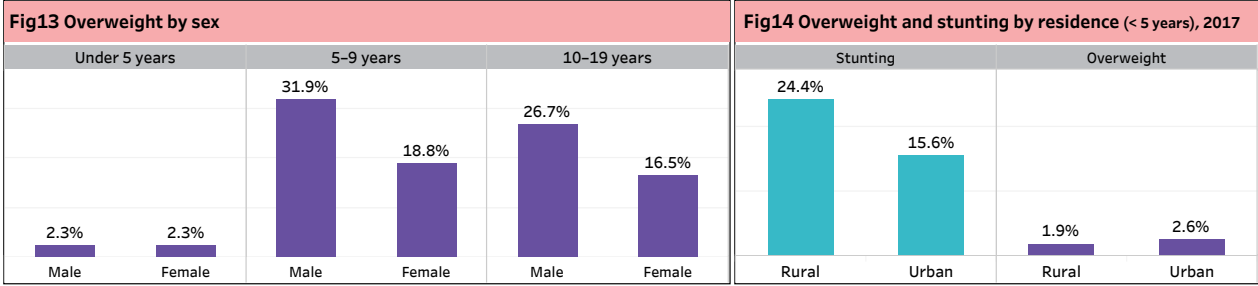


**The nutrition transition: trends in overweight and undernutrition**

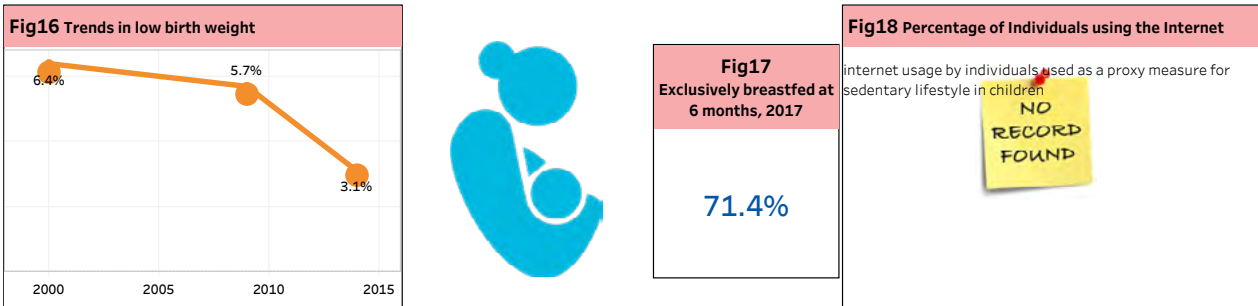




## Differentials in childhood overweight



## Drivers and associated factors for child obesity



## Diet, physical activity and sedentary behavior



## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	No
	Availability of a national policy, strategy or action plan for physical activity promotion	No
	Availability of national food based dietary guidelines	No
	Country has identified time-bound a nutrition target on childhood obesity	No
<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	No
	Implemented regulations on the marketing of foods and nonalcoholic beverages to children	No
<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	Yes
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	No
	Overweight is tracked in school health programmes	No
	School health and nutrition programme objectives include fostering healthy diets and healthy habits	Yes
	School Health programme objectives include prevention of overweight	No

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Fig2. World Bank Income Classification. World Bank Country and Lending Groups. Country Classification 2020.

Fig3. United Nations. World Urbanization Prospects.

Fig4. Food and Agriculture Organization of the United Nations (FAO).

Fig6,14,15. DPR Korea Multiple Indicator Cluster Survey (MICS) 2017.

Fig7,11,12. World Health Organization (WHO). Global Health Observatory.

Fig10. Adapted from the UNICEF/WHO/The World Bank Group (2020). Joint child malnutrition estimates: levels and trends, 2020 edition updated with most recent national surveys.

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Fig16. WHO UNICEF birthweight estimates: Nations Children's Fund (UNICEF), World Health Organization (WHO). Levels and trends 2000-2015. Geneva:2019.

Fig17. Global UNICEF Global Databases: Infant and Young Child Feeding: Exclusive breastfeeding, Predominant breastfeeding, New York, May 2019

<https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding>

\*a. Status report on 'Physical activity and health in the South-East Asia Region': July 2018 WHO.

b. Global nutrition policy review 2016-2017: country progress in creating enabling policy environments for promoting healthy diets and nutrition, WHO 2017.

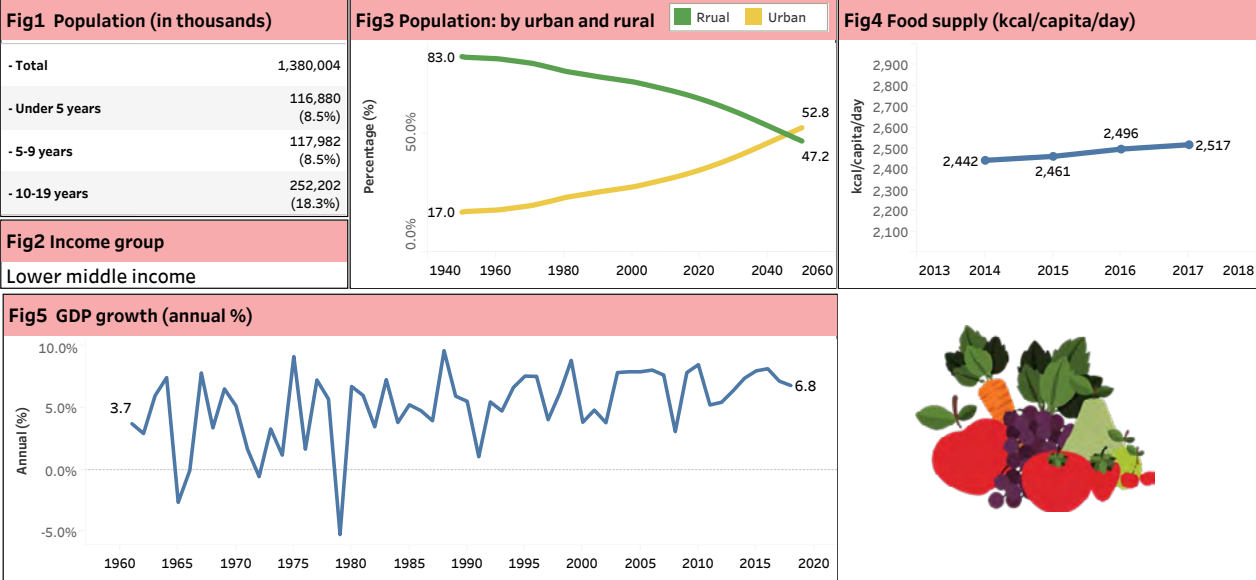
c. Marketing of breast-milk substitutes: National implementation of the international code - STATUS REPORT 2020. World Health Organization, UNICEF, IBFAN.

d. WHO SEARO and Thailand International Health Policy Programme Foundation. Summary report "School nutrition and physical activity in Bangladesh, Sri Lanka, Maldives, and Thailand: creating collective actions to achieve healthy school nutrition and physical activity" 26th - 27th March 2018, Bangkok, Thailand."

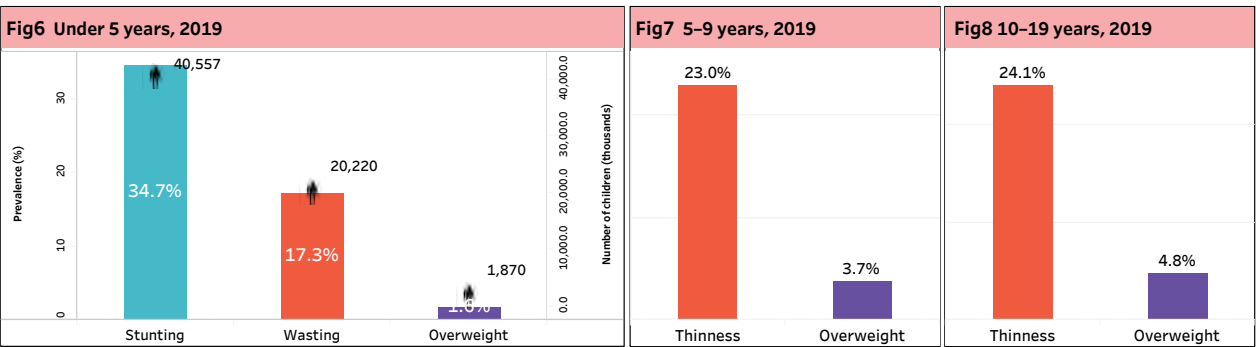
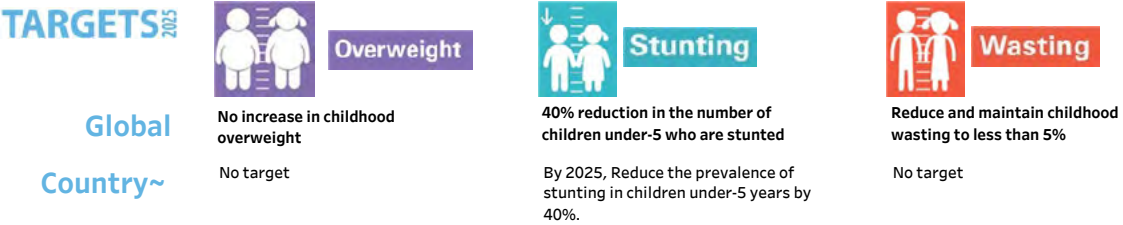
~ National Strategy and Action Plan for the Control of Undernutrition of Children and Women in the Democratic People's Republic of Korea (2014-2018). Ministry of Public Health of DPRK. Juche 103 (2014).

India

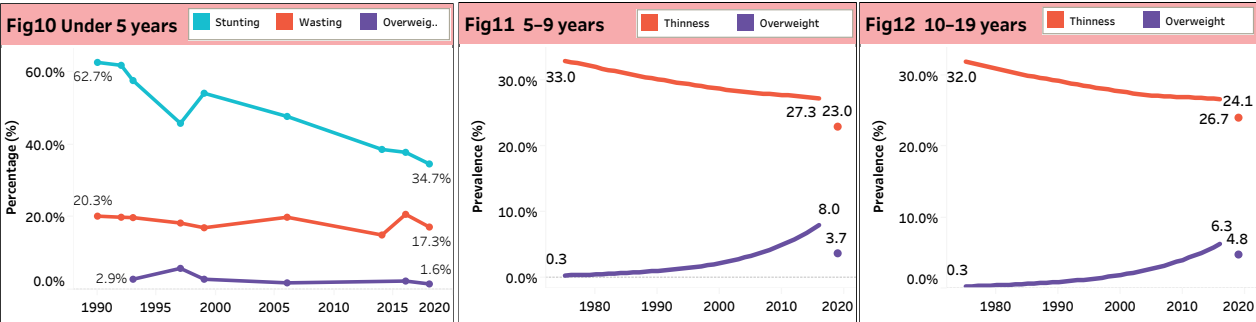
## Demographics and background information



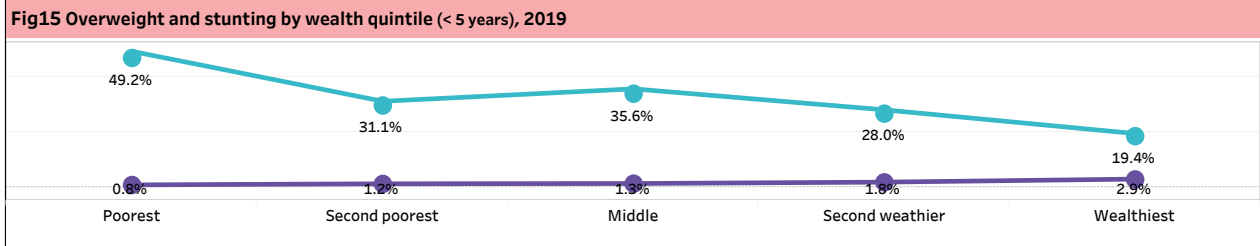
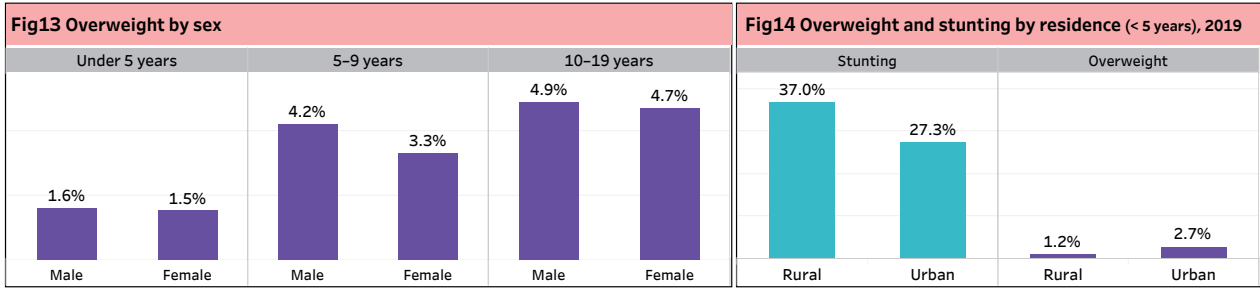
## Nutrition status of children



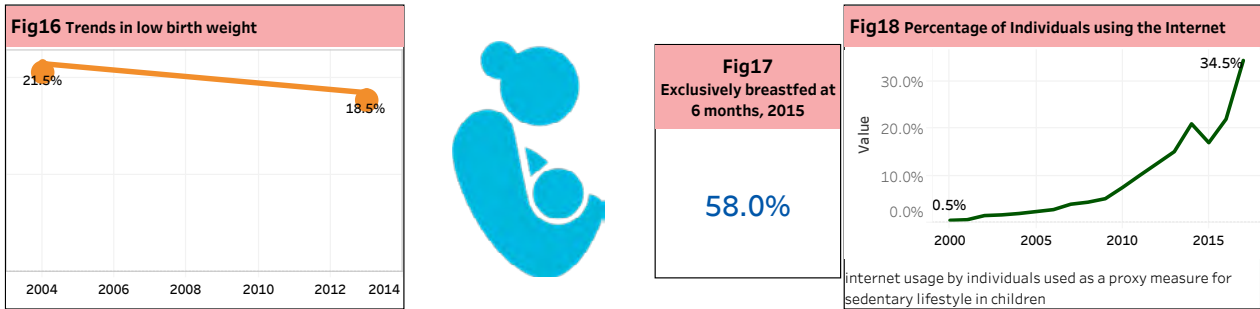
## The nutrition transition: trends in overweight and undernutrition



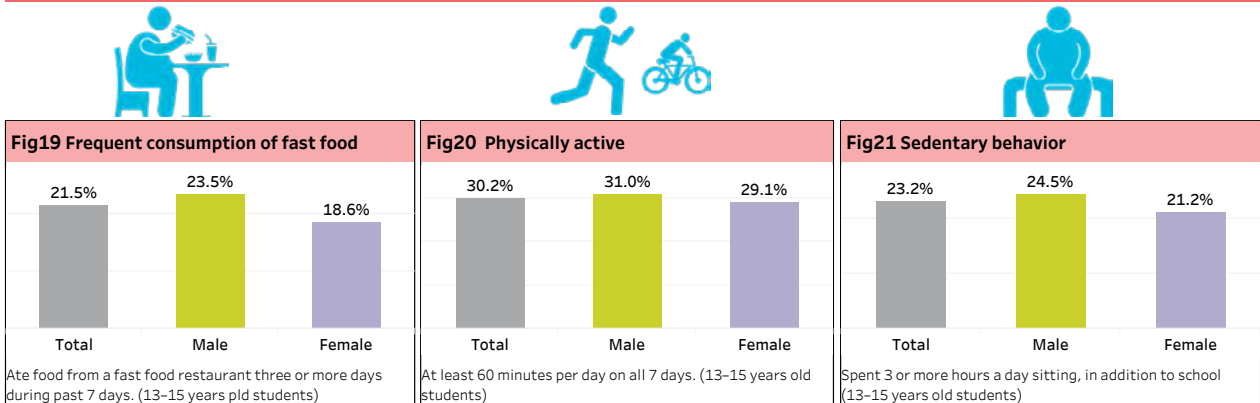
## Differentials in childhood overweight



## Drivers and associated factors for child obesity



## Diet, physical activity and sedentary behavior



## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	No
	Availability of a national policy, strategy or action plan for physical activity promotion	Yes
	Availability of national food based dietary guidelines	Yes
	Country has identified time-bound a nutrition target on childhood obesity	No
<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	Yes
	Implemented regulations on the marketing of foods and nonalcoholic beverages to children	No
<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	Yes
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	Yes
	Overweight is tracked in school health programmes	Yes
	School health and nutrition programme objectives include fostering healthy diets and healthy habits	Yes
	School Health programme objectives include prevention of overweight	No

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Fig4. Food and Agriculture Organization of the United Nations (FAO).

Fig5. World Bank, World Development Indicators.

Fig6,7,8,13,14,15,17. Ministry of Health and Family Welfare (MoHFW), Government of India, UNICEF and Population Council. 2019. Comprehensive National Nutrition Survey (CNNS) National Report. New Delhi.

Fig10. Adapted from the UNICEF/WHO/The World Bank Group (2020). Joint child malnutrition estimates: levels and trends, 2020 edition updated with most recent national surveys.

Fig11,12. World Health Organization (WHO). Global Health Observatory and CNNS for 2019 data point.

Fig16. National Family Health Survey (NFHS-4), 2015-16: India. Mumbai: IIPS, and National Family Health Survey (NFHS-3), 2005-06.

Fig18. The Telecommunication Development Sector (ITU-D), downloaded on 13 May 2020; <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

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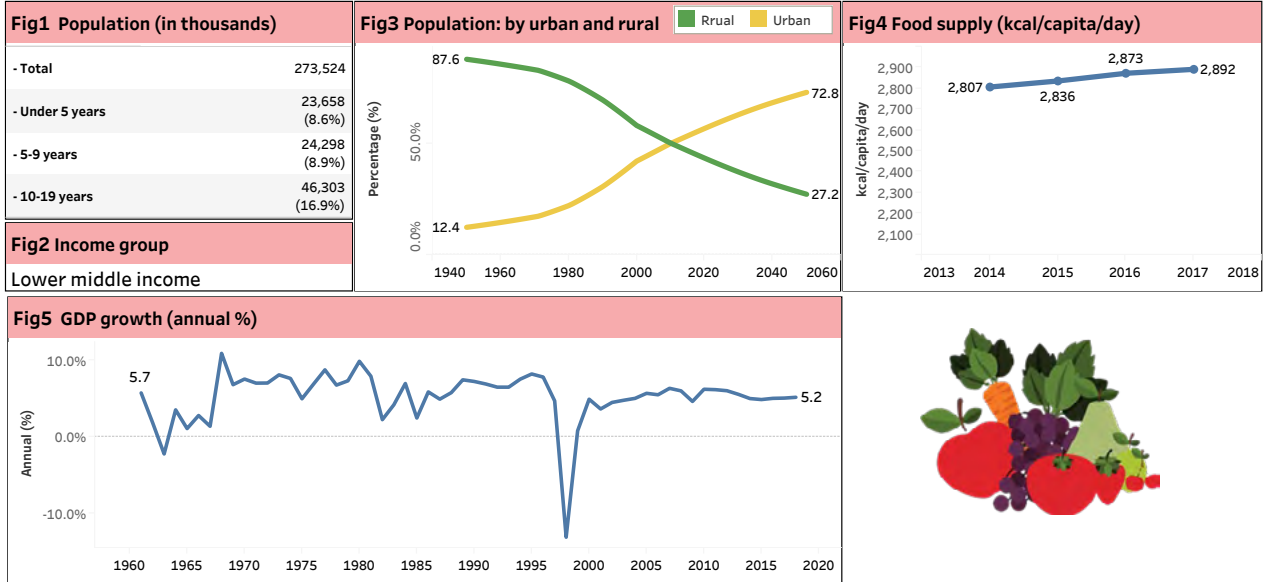
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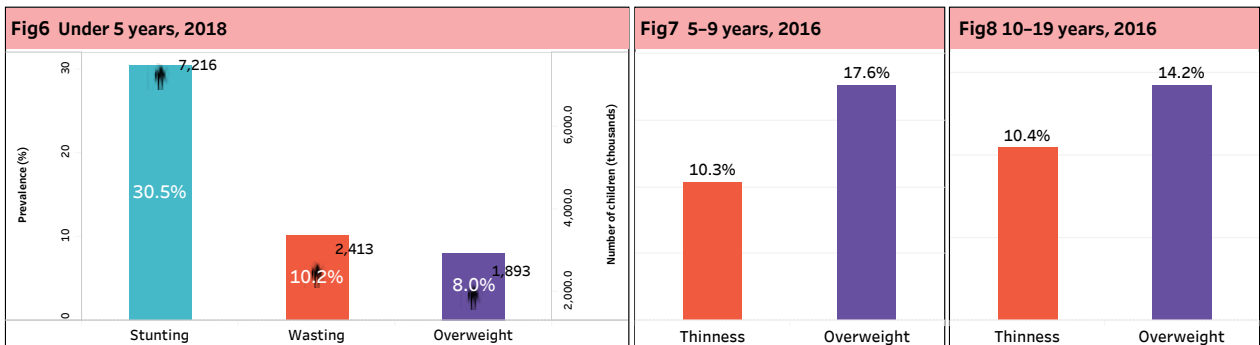
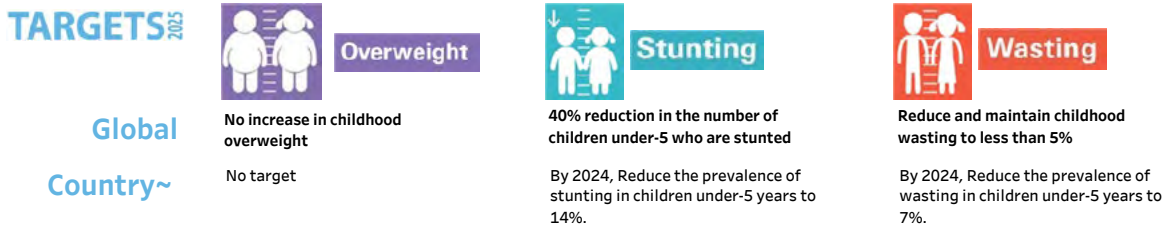
~ Niti Aayog 2017. Nourishing India. National Nutrition Strategy, Government of India. [https://niti.gov.in/writereaddata/files/document\\_publication/Nutrition\\_Strategy\\_Booklet.pdf](https://niti.gov.in/writereaddata/files/document_publication/Nutrition_Strategy_Booklet.pdf)

## Indonesia

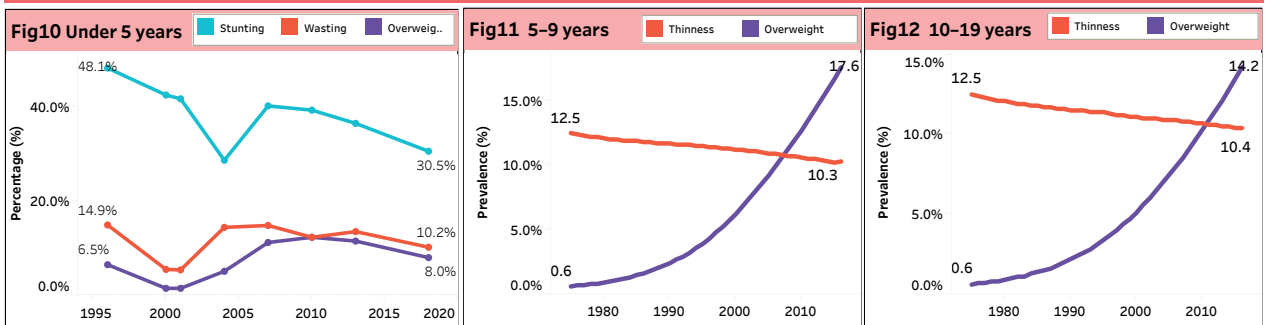
### Demographics and background information



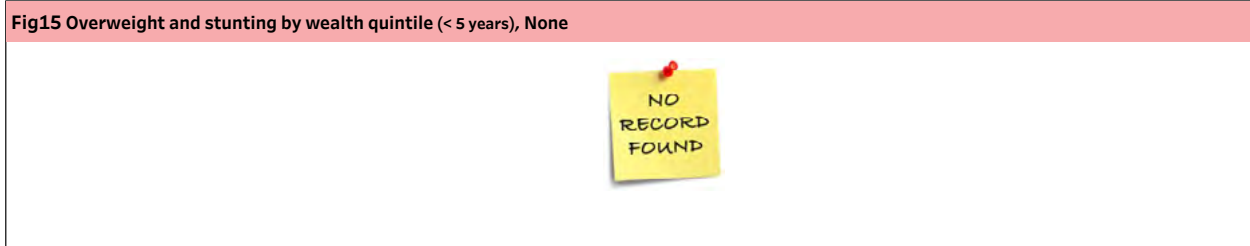
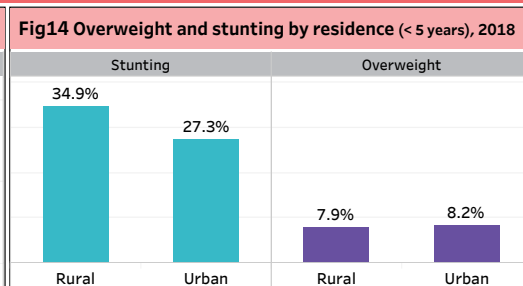
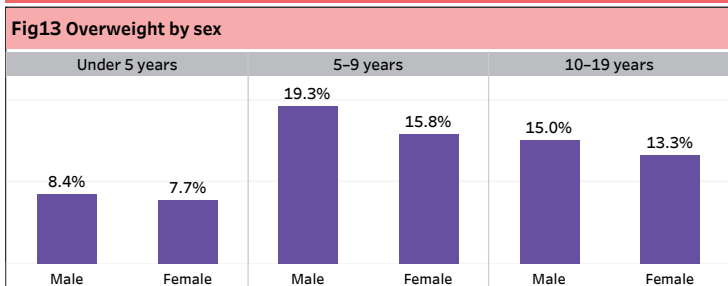
### Nutrition status of children



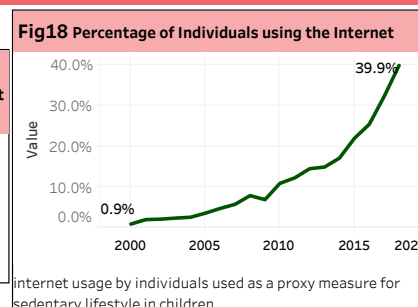
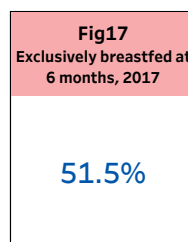
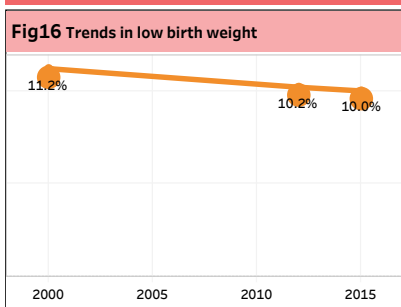
### The nutrition transition: trends in overweight and undernutrition



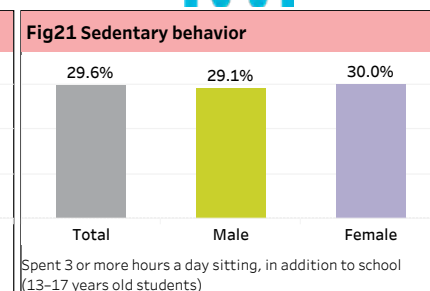
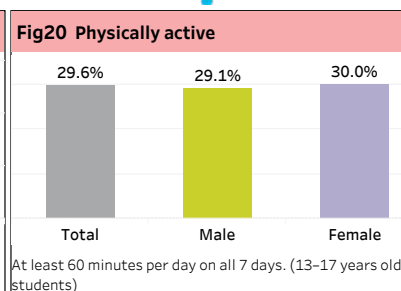
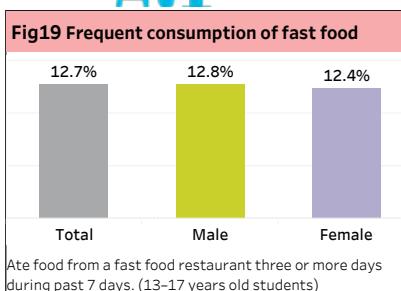
## Differentials in childhood overweight



## Drivers and associated factors for child obesity



## Diet, physical activity and sedentary behavior



## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	Yes
	Availability of a national policy, strategy or action plan for physical activity promotion	Yes
	Availability of national food based dietary guidelines	Yes
	Country has identified time-bound a nutrition target on childhood obesity	No
<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	Yes
	Implemented regulations on the marketing of foods and nonalcoholic beverages to children	No
<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	Yes
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	Yes
	Overweight is tracked in school health programmes	Yes
	School health and nutrition programme objectives include fostering healthy diets and healthy habits	Yes
	School Health programme objectives include prevention of overweight	Yes

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Fig5. World Bank, World Development Indicators.

Fig6,14. National Report on Basic Health Research, RISKESDAS, 2018. Ministry of Health Republic of Indonesia, Indonesia.

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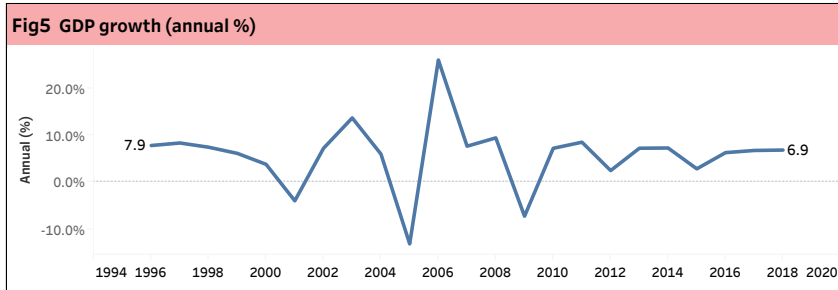
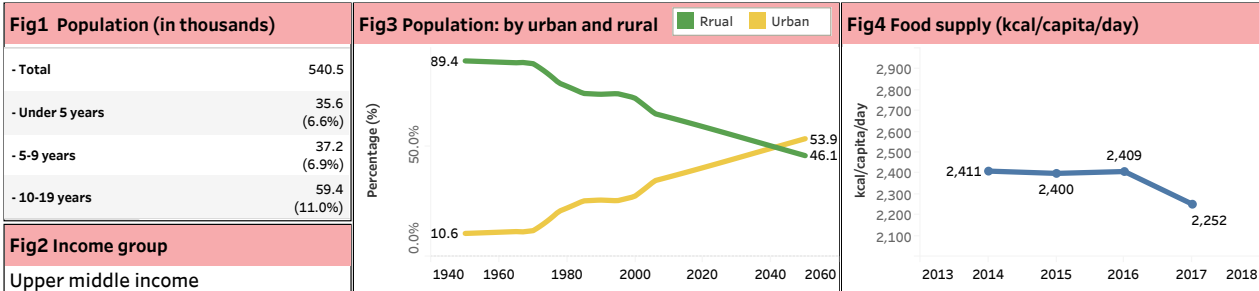
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~ Strategic Planning Ministry of Health, Decree of the Minister of Health of the Republic of Indonesia NUMBER HK.02.02/MENKES/52/2019 (2020-2024)



 **Maldives**


## Demographics and background information



## Nutrition status of children

**TARGETS 2025**


**Global Country~**



**Overweight**

No increase in childhood overweight


By 2020 (and 2025), Reduce prevalence of overweight in <5 years by 1/3 and maintain.



**Stunting**

40% reduction in the number of children under-5 who are stunted

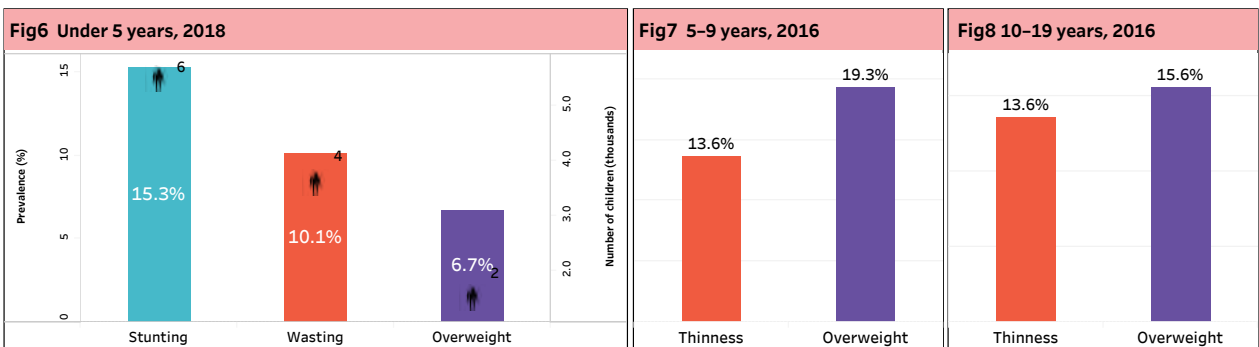
By 2020 (and 2025), Reduce prevalence of stunting in <5 years by 1/3 and maintain.



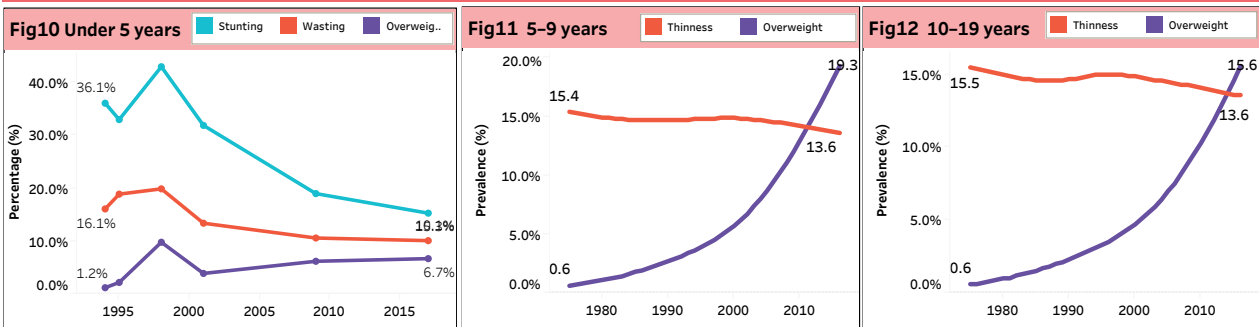
**Wasting**

Reduce and maintain childhood wasting to less than 5%

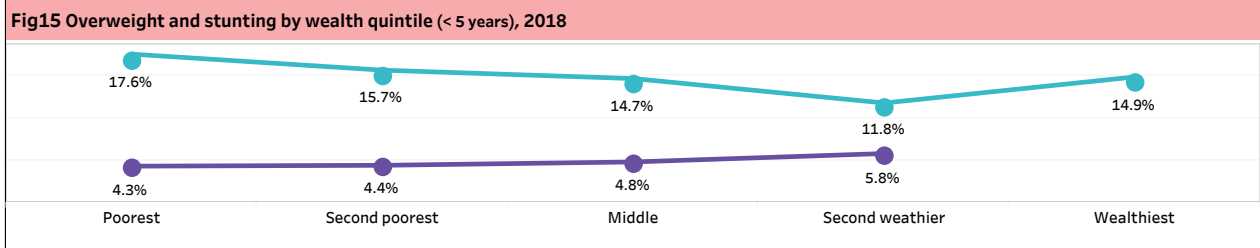
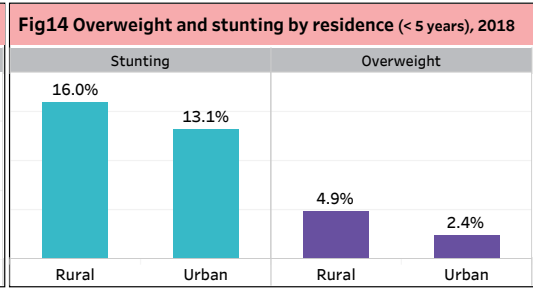
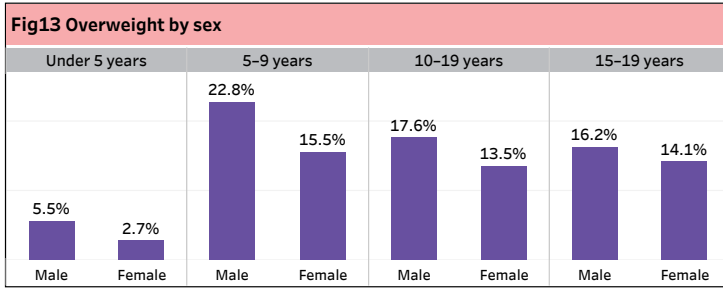
By 2020 (and 2025), Reduce prevalence of wasting in <5 years by 1/3 and maintain.



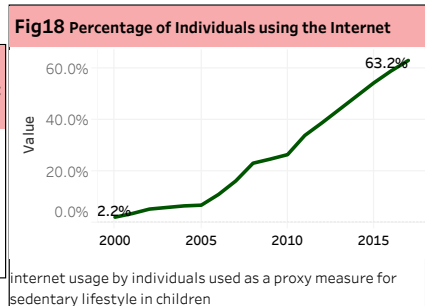
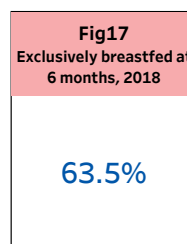
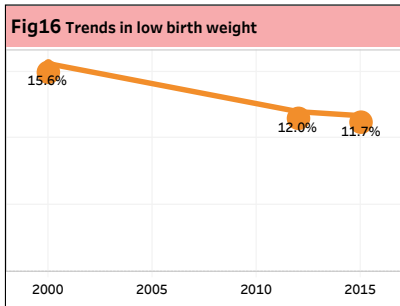
## The nutrition transition: trends in overweight and undernutrition



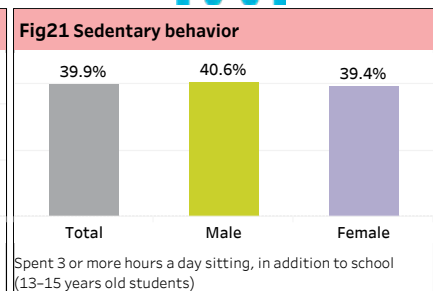
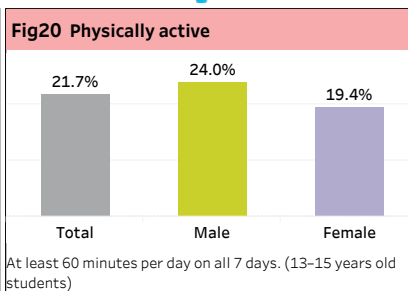
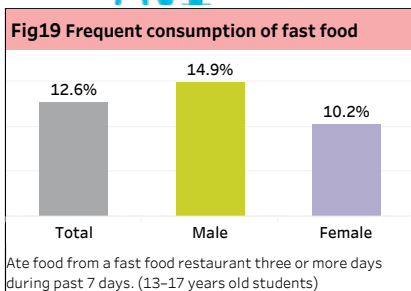
## Differentials in childhood overweight



## Drivers and associated factors for child obesity



## Diet, physical activity and sedentary behavior



## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	Yes
	Availability of a national policy, strategy or action plan for physical activity promotion	No
	Availability of national food based dietary guidelines	Yes
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<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	Yes
	Implemented regulations on the marketing of foods and nonalcoholic beverages to children	Yes
<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	Yes
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	No
	Overweight is tracked in school health programmes	Yes
	School health and nutrition programme objectives include fostering healthy diets and healthy habits	Yes
	School Health programme objectives include prevention of overweight	Yes

### Data sources

Fig1. United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition.

Fig2. World Bank Income Classification. World Bank Country and Lending Groups. Country Classification 2020.

Fig3. United Nations. World Urbanization Prospects.

Fig4. Food and Agriculture Organization of the United Nations (FAO).

Fig5. World Bank, World Development Indicators.

Fig6,14,15,17. Ministry of Health, Maldives and ICF. 2018. Maldives Demographic and Health Survey 2016-17. Malé, Maldives and Rockville, Maryland, USA.

Fig7,8,11,12. World Health Organization (WHO). Global Health Observatory.

Fig10. Adapted from the UNICEF/WHO/The World Bank Group (2020). Joint child malnutrition estimates: levels and trends, 2020 edition updated with most recent national surveys.

Fig13. Under 5 (Ministry of Health, Maldives and ICF. 2018. Maldives Demographic and Health Survey 2016-17. Malé, Maldives and Rockville, Maryland, USA.) ; 5-9 yrs and 10-19 yrs (World Health Organization (WHO) Global Health Observatory.)

Fig16. WHO UNICEF birthweight estimates: Nations Children's Fund (UNICEF), World Health Organization (WHO). Levels and trends 2000-2015. Geneva:2019.

Fig18. The Telecommunication Development Sector (ITU-D), downloaded on 13 May 2020; <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

Fig19,20,21. Global School-based Health Survey (GSHS), Maldives, 2014.

\*a. Status report on 'Physical activity and health in the South-East Asia Region': July 2018 WHO.

b. Global nutrition policy review 2016-2017: country progress in creating enabling policy environments for promoting healthy diets and nutrition, WHO 2017.

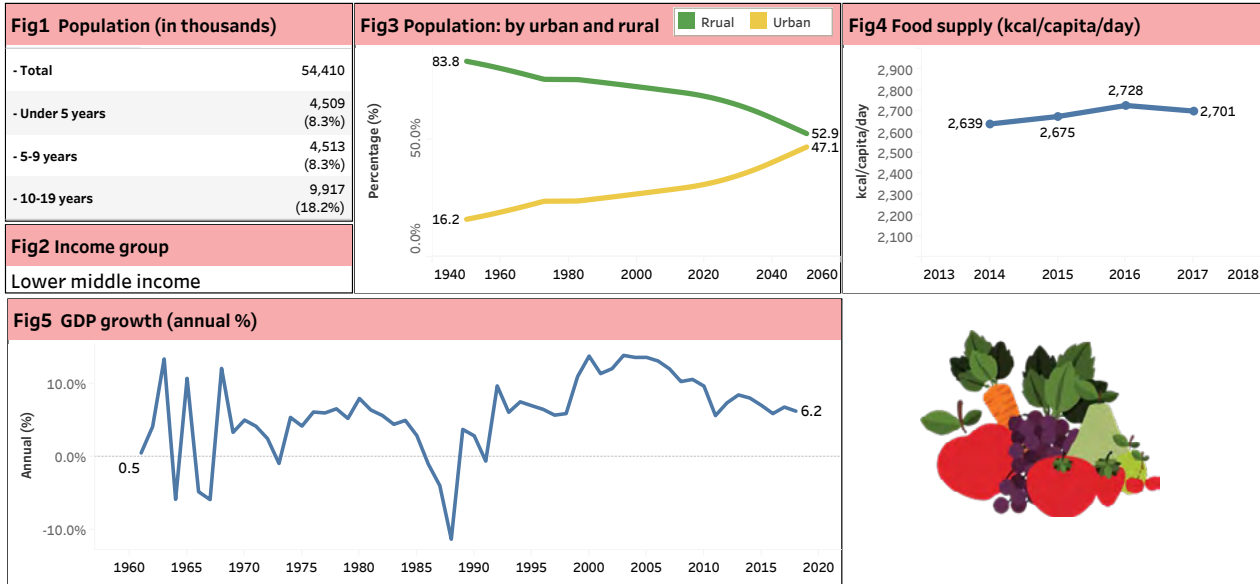
c. Marketing of breast-milk substitutes: National implementation of the international code - STATUS REPORT 2020. World Health Organization, UNICEF, IBFAN.

d. WHO SEARO and Thailand International Health Policy Programme Foundation. Summary report "School nutrition and physical activity in Bangladesh, Sri Lanka, Maldives, and Thailand: creating collective actions to achieve healthy school nutrition and physical activity" 26th - 27th March 2018, Bangkok, Thailand."

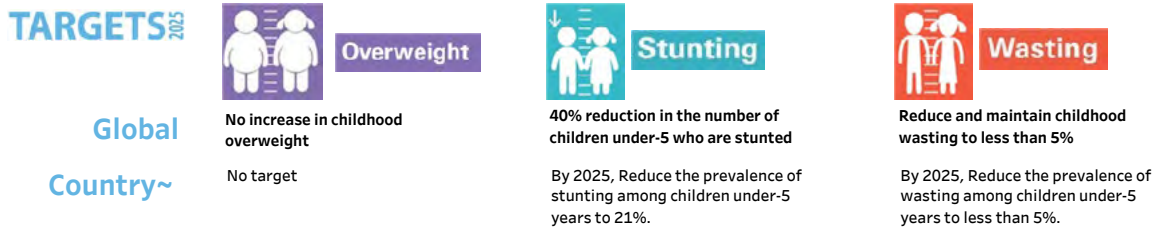
~ Ministry of Health, Male, Republic of Maldives. Health Masterplan 2016-2025. <https://www.aidsdatahub.org/health-master-plan-2016-2025-ministry-health-republic-maldives-2016-2025>

Myanmar

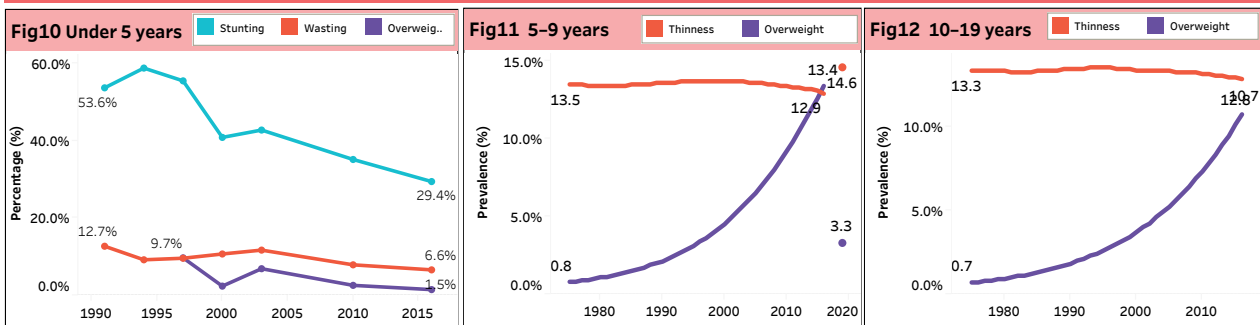
## Demographics and background information



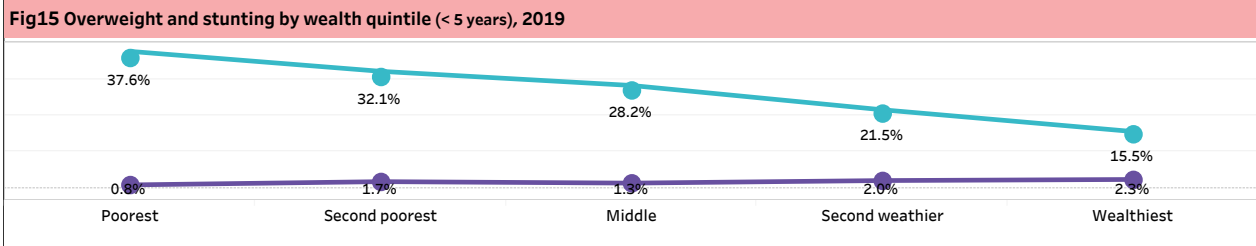
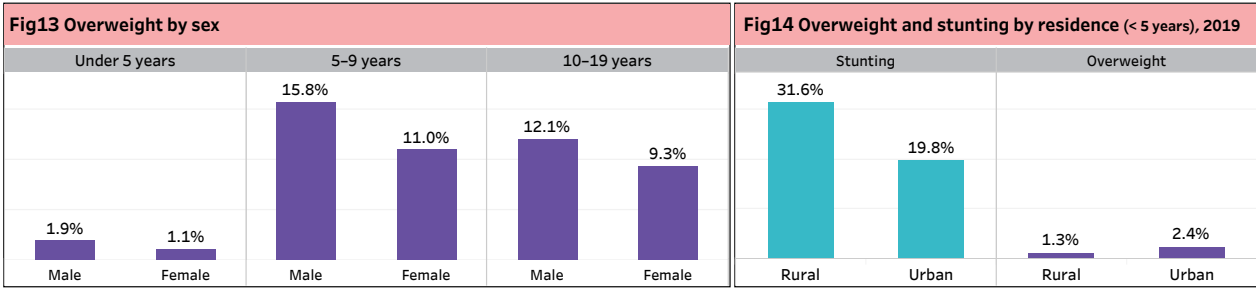
## Nutrition status of children



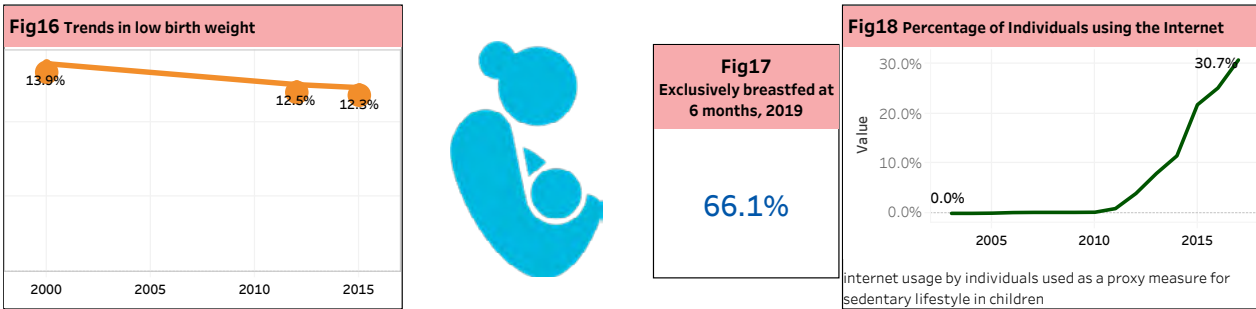
## The nutrition transition: trends in overweight and undernutrition



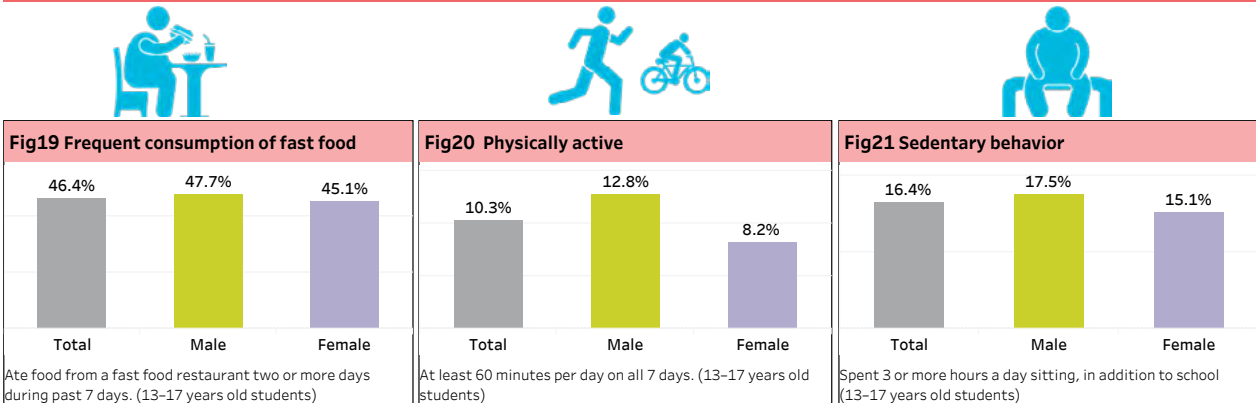
## Differentials in childhood overweight



## Drivers and associated factors for child obesity



## Diet, physical activity and sedentary behavior



## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	No
	Availability of a national policy, strategy or action plan for physical activity promotion	No
	Availability of national food based dietary guidelines	Yes
	Country has identified time-bound a nutrition target on childhood obesity	Yes
<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	Yes
	Implemented regulations on the marketing of foods and nonalcoholic beverages to children	No
<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	Yes
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	No
	Overweight is tracked in school health programmes	Yes
	School health and nutrition programme objectives include fostering healthy diets and healthy habits	Yes
	School Health programme objectives include prevention of overweight	No

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Fig8,11,12. World Health Organization (WHO). Global Health Observatory.

Fig10. Adapted from the UNICEF/WHO/The World Bank Group (2020). Joint child malnutrition estimates: levels and trends, 2020 edition updated with most recent national surveys.

Fig13. Under 5 (Ministry of Health and Sports (MoHS) and ICF. 2017. Myanmar Demographic and Health Survey 2015-16. Nay Pyi Taw, Myanmar, and Rockville, Maryland USA.); 5-9 yrs (Myanmar Micronutrient and Food Consumption Survey 2019, Ministry of Health and Sports. Preliminary Report for 2019 data point.); 10-19 yrs (World Health Organization (WHO) Global Health Observatory.)

Fig16. WHO UNICEF birthweight estimates: Nations Children's Fund (UNICEF), World Health Organization (WHO). Levels and trends 2000-2015. Geneva:2019.

Fig18. The Telecommunication Development Sector (ITU-D), downloaded on 13 May 2020; <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

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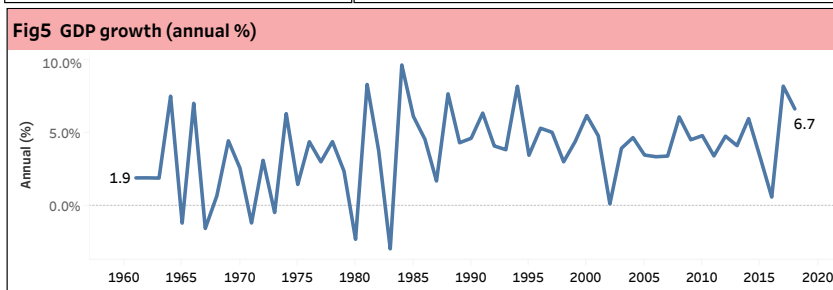
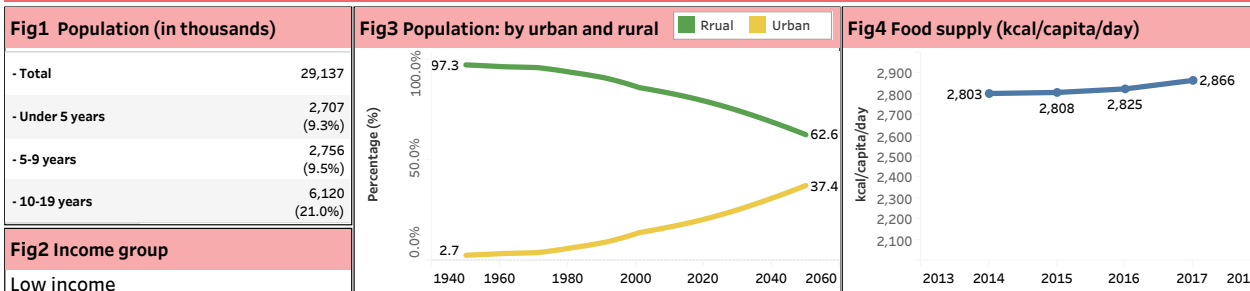
c. Marketing of breast-milk substitutes: National implementation of the international code - STATUS REPORT 2020. World Health Organization, UNICEF, IBFAN.

d. WHO SEARO and Thailand International Health Policy Programme Foundation. Summary report "School nutrition and physical activity in Bangladesh, Sri Lanka, Maldives, and Thailand: creating collective actions to achieve healthy school nutrition and physical activity" 26th - 27th March 2018, Bangkok, Thailand."

~ Republic of the Union of Myanmar. Multi-sectoral National Plan of Action on Nutrition (MS-NPAN) 2018/19 - 2022/23. COSTED ACTION PLAN July 2018.

## Nepal

### Demographics and background information



### Nutrition status of children

**TARGETS 2025**

**Global**

**Country~**

**Overweight**

No increase in childhood overweight

By 2025 and 2030 (SDG), Ensure no increase in overweight in <5 years (≤1.4%); (SDG target: <1%).

**Stunting**

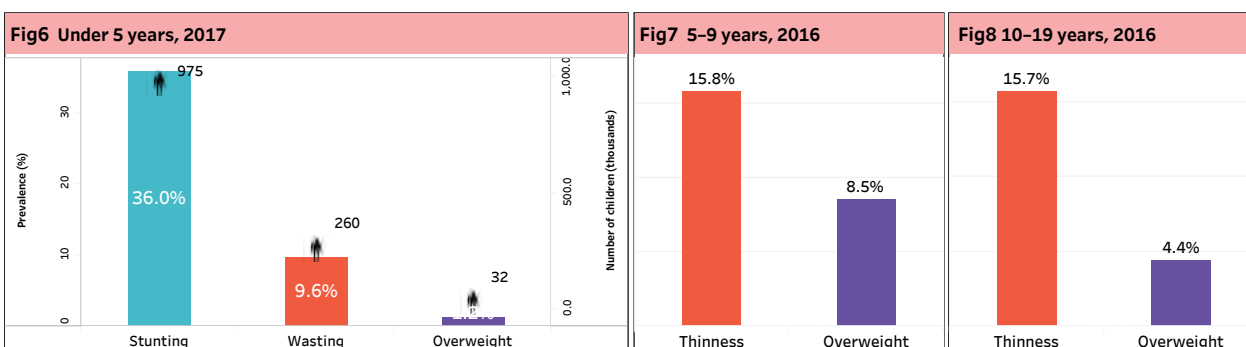
40% reduction in the number of children under-5 who are stunted

By 2025 and 2030 (SDG), Reduce by 40% the number of stunted <5 years; (SDG target: <10%).

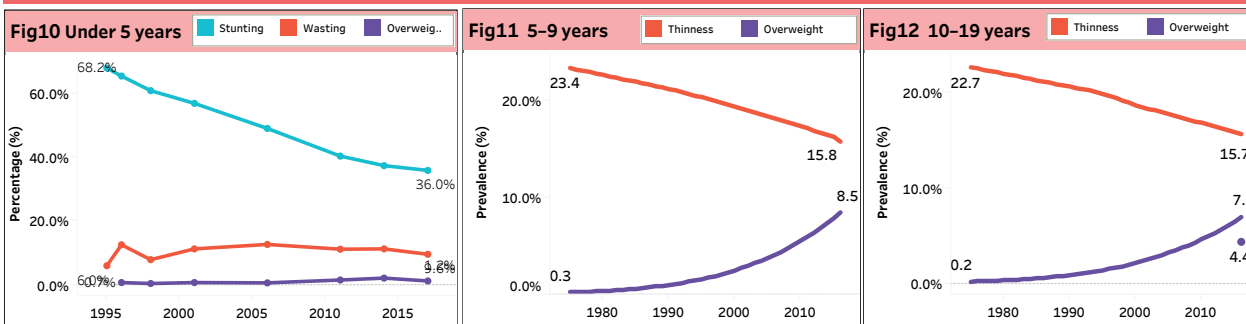
**Wasting**

Reduce and maintain childhood wasting to less than 5%

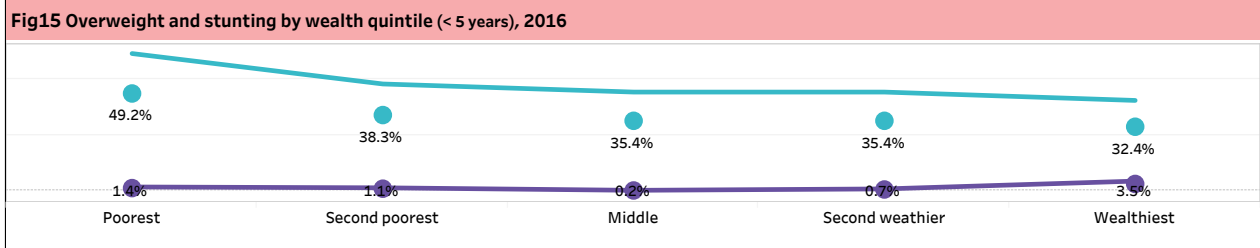
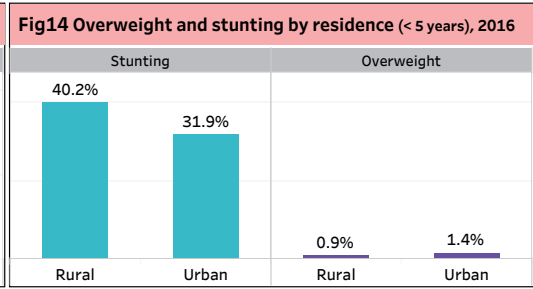
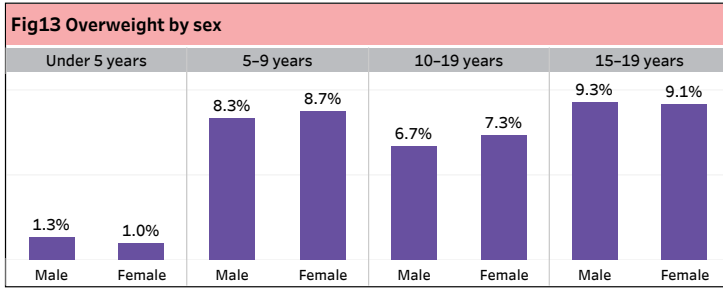
By 2025 and 2030 (SDG), Reduce and maintain prevalence of wasting in <5 years to <5%.



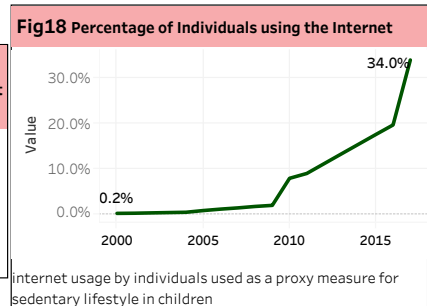
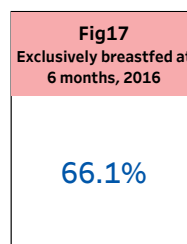
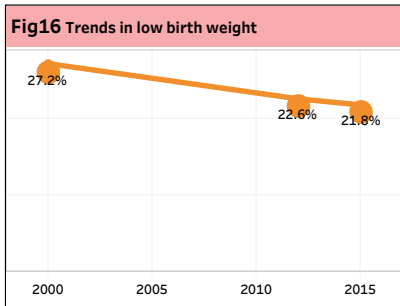
### The nutrition transition: trends in overweight and undernutrition



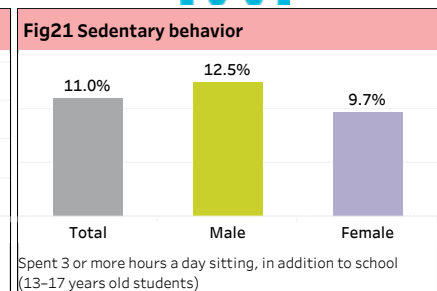
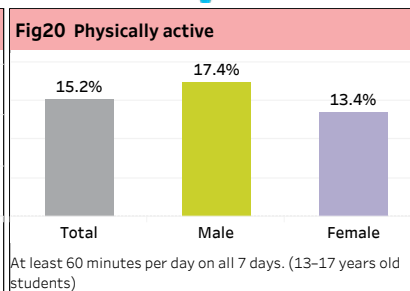
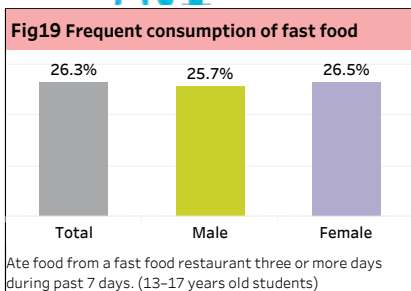
## Differentials in childhood overweight



## Drivers and associated factors for child obesity



## Diet, physical activity and sedentary behavior





## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	Yes
	Availability of a national policy, strategy or action plan for physical activity promotion	No
	Availability of national food based dietary guidelines	Yes
	Country has identified time-bound a nutrition target on childhood obesity	Yes
<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	Yes
	Implemented regulations on the marketing of foods and nonalcoholic beverages to children	No
<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	Yes
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	No
	Overweight is tracked in school health programmes	No
	School health and nutrition programme objectives include fostering healthy diets and healthy habits	Yes
	School Health programme objectives include prevention of overweight	Yes

### Data sources

Fig1. United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition.

Fig2. World Bank Income Classification. World Bank Country and Lending Groups. Country Classification 2020.

Fig3. United Nations. World Urbanization Prospects.

Fig4. Food and Agriculture Organization of the United Nations (FAO).

Fig5. World Bank, World Development Indicators.

Fig6,14,15,17. Nepal Demographic and Health Survey 2016. Kathmandu, Nepal: Ministry of Health, Nepal. 2017.

Fig7,11. World Health Organization (WHO). Global Health Observatory.

Fig8. Ministry of Health and Population, Nepal; New ERA; UNICEF; EU; USAID; and CDC. 2018. Nepal National Micronutrient Status Survey, 2016. Kathmandu, Nepal: Ministry of Health and Population, Nepal (Girls).

Fig10. Adapted from the UNICEF/WHO/The World Bank Group (2020). Joint child malnutrition estimates: levels and trends, 2020 edition updated with most recent national surveys.

Fig12. World Health Organization (WHO). Global Health Observatory and Overweight 10-19 years (girls): Ministry of Health and Population, Nepal; New ERA; UNICEF; EU; USAID; and CDC. 2018. Nepal National Micronutrient Status Survey, 2016. Kathmandu, Nepal: Ministry of Health and Population, Nepal (2019 data point, girls).

Fig13. Under 5 and 5-9 yrs (Nepal Demographic and Health Survey 2016. Kathmandu, Nepal: Ministry of Health, Nepal. 2017.) ; 10-19 yrs (World Health Organization (WHO) Global Health Observatory.)

Fig16. WHO UNICEF birthweight estimates: Nations Children's Fund (UNICEF), World Health Organization (WHO). Levels and trends 2000-2015. Geneva:2019.

Fig18. The Telecommunication Development Sector (ITU-D), downloaded on 13 May 2020; <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

Fig19,20,21. Global School-based Health Survey (GSHS), Nepal 2015.

\*a. Status report on 'Physical activity and health in the South-East Asia Region': July 2018 WHO.

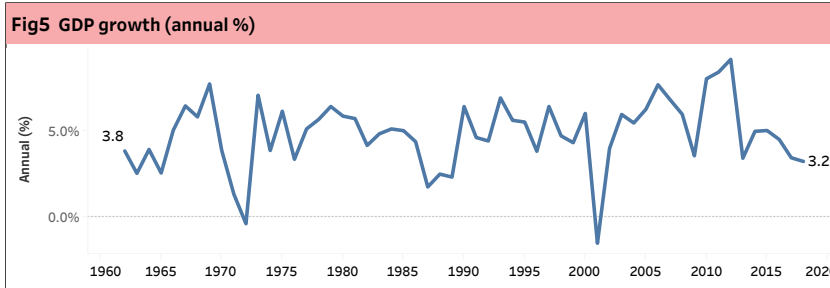
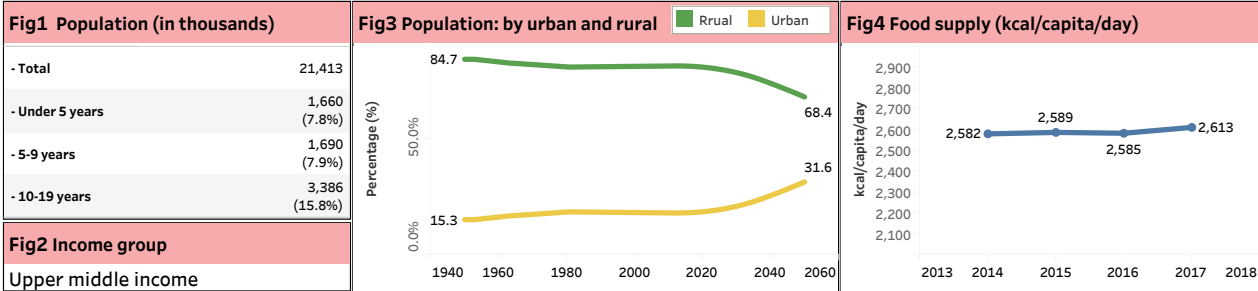
b. Global nutrition policy review 2016-2017: country progress in creating enabling policy environments for promoting healthy diets and nutrition, WHO 2017.

c. Marketing of breast-milk substitutes: National implementation of the international code - STATUS REPORT 2020. World Health Organization, UNICEF, IBFAN.

d. WHO SEARO and Thailand International Health Policy Programme Foundation. Summary report "School nutrition and physical activity in Bangladesh, Sri Lanka, Maldives, and Thailand: creating collective actions to achieve healthy school nutrition and physical activity" 26th - 27th March 2018. Bangkok, Thailand "

Sri Lanka

## Demographics and background information



## Nutrition status of children

TARGETS 2025



**Overweight**



**Stunting**



**Wasting**

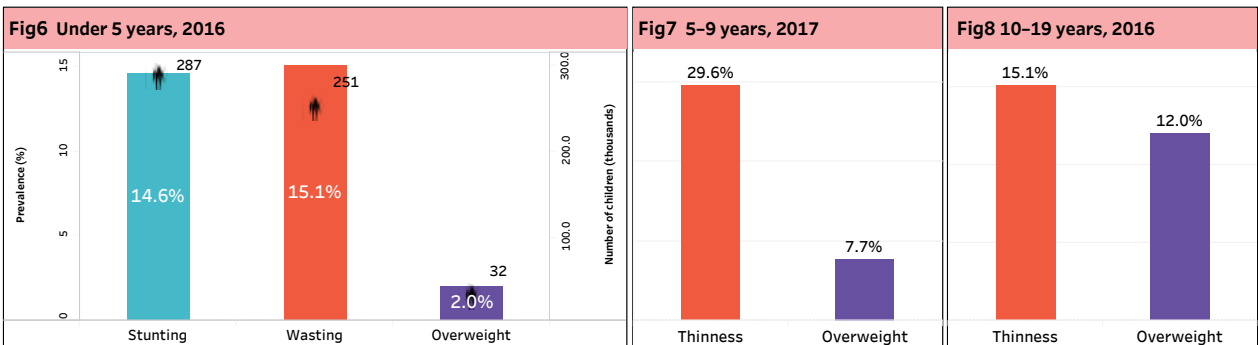
Global

Country~

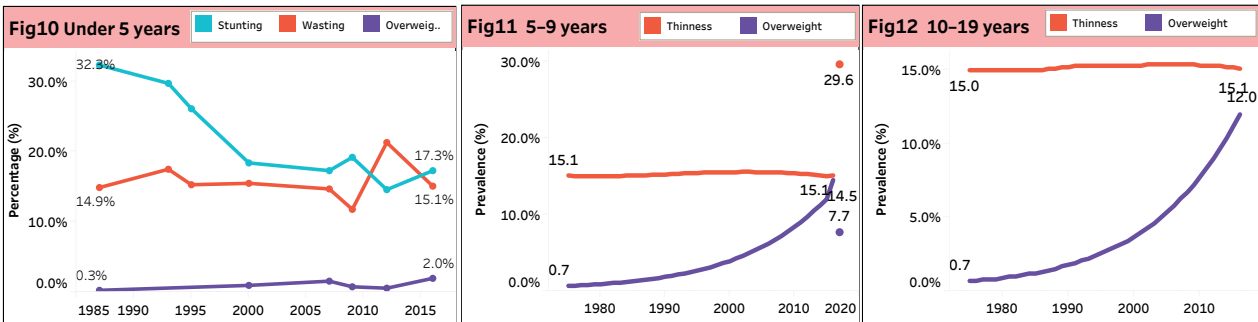
**No increase in childhood overweight**  
By 2025, No increase in prevalence of overweight in children under-5 years (2012 baseline <0.6%).

**40% reduction in the number of children under-5 who are stunted**  
By 2025, Reduce the prevalence of stunting in children under-5 years to 10.8% (2012 baseline).

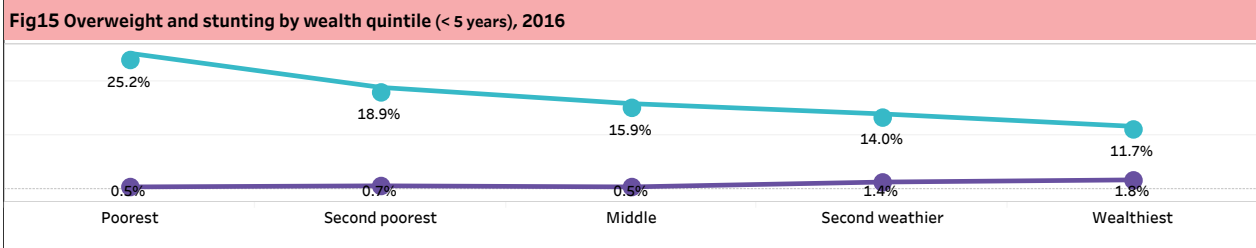
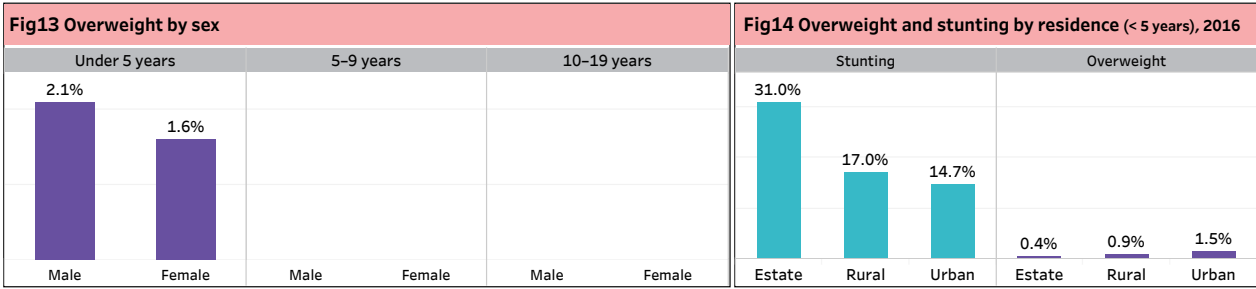
**Reduce and maintain childhood wasting to less than 5%**  
BY 2025, Reduce the prevalence of wasting in children under-5 years to <5% (2012 baseline).



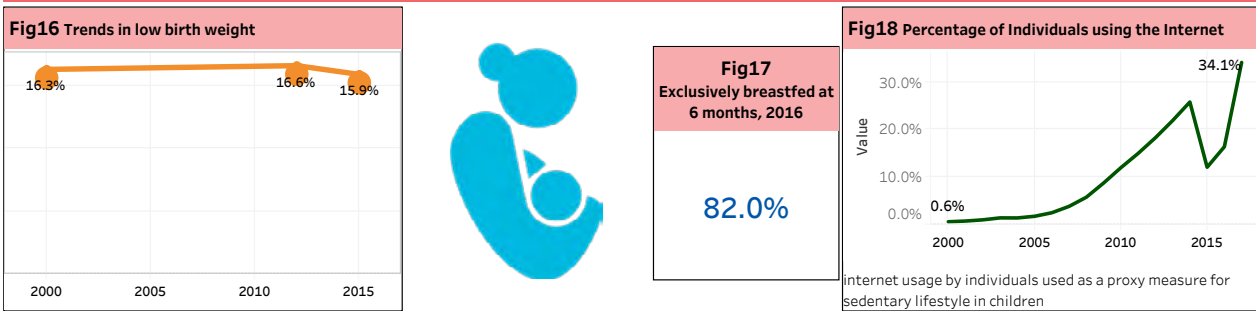
## The nutrition transition: trends in overweight and undernutrition



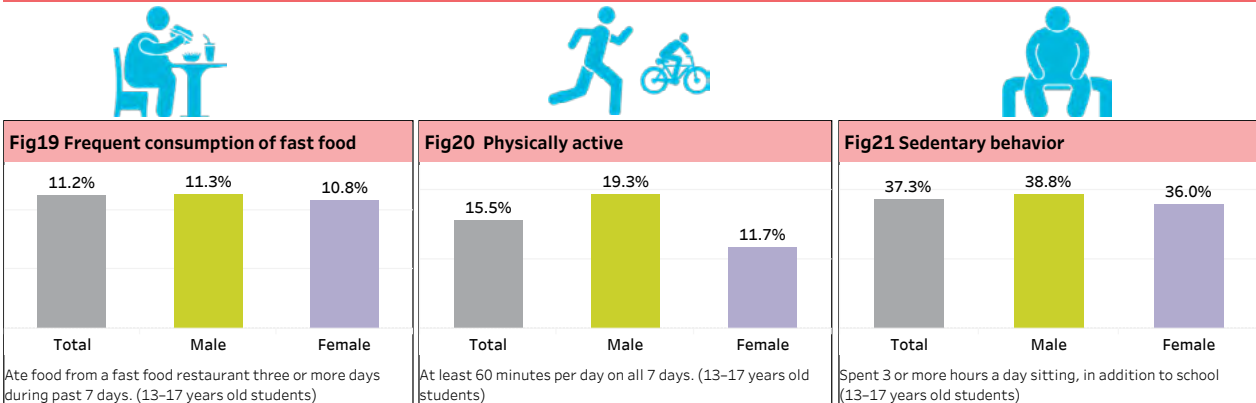
## Differentials in childhood overweight



## Drivers and associated factors for child obesity



## Diet, physical activity and sedentary behavior



## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	Yes
	Availability of a national policy, strategy or action plan for physical activity promotion	Yes
	Availability of national food based dietary guidelines	Yes
	Country has identified time-bound a nutrition target on childhood obesity	No
<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	Yes
	Implemented regulations on the marketing of foods and nonalcoholic beverages to children	Yes
<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	Yes
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	Yes
	Overweight is tracked in school health programmes	Yes
	School health and nutrition programme objectives include fostering healthy diets and healthy habits	Yes
	School Health programme objectives include prevention of overweight	Yes

### Data sources

Fig1. United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition.

Fig2. World Bank Income Classification. World Bank Country and Lending Groups. Country Classification 2020.

Fig3. United Nations. World Urbanization Prospects.

Fig4. Food and Agriculture Organization of the United Nations (FAO).

Fig5. World Bank, World Development Indicators.

Fig6,9,14,17. Department of Census and Statistics (DCS) and Ministry of Health, Nutrition and Indigenous Medicine 2017. Sri Lanka Demographic and Health Survey 2016 Sri Lanka. (Reanalyzed data).

Fig7. Nutritional status, Dietary practices and Pattern of Physical Activity among School Children Aged 6-12 years. 2017. Medical Research Institute In collaboration with UNICEF and World Food Programme Ministry of Health, Nutrition and Indigenous Medicine.

Fig8,12. World Health Organization (WHO). Global Health Observatory.

Fig10. Adapted from the UNICEF/WHO/The World Bank Group (2020). Joint child malnutrition estimates: levels and trends, 2020 edition updated with most recent national surveys.

Fig11. World Health Organization (WHO). Global Health Observatory and Nutritional status, Dietary practices and Pattern of Physical Activity among School Children Aged 6-12 years.

2017. Medical Research Institute In collaboration with UNICEF and World Food Programme Ministry of Health, Nutrition and Indigenous Medicine. (for last data point 2017).

Fig13. Under 5 and 5-9 yrs (Department of Census and Statistics (DCS) and Ministry of Health, Nutrition and Indigenous Medicine 2017. Sri Lanka Demographic and Health Survey 2016 Sri Lanka. (Reanalyzed data) ; 10-19 yrs (World Health Organization (WHO) Global Health Observatory.)

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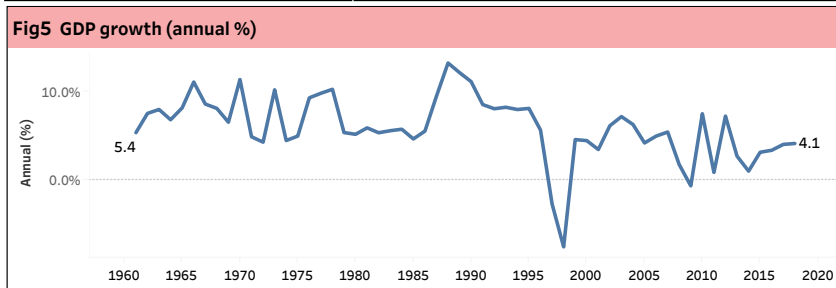
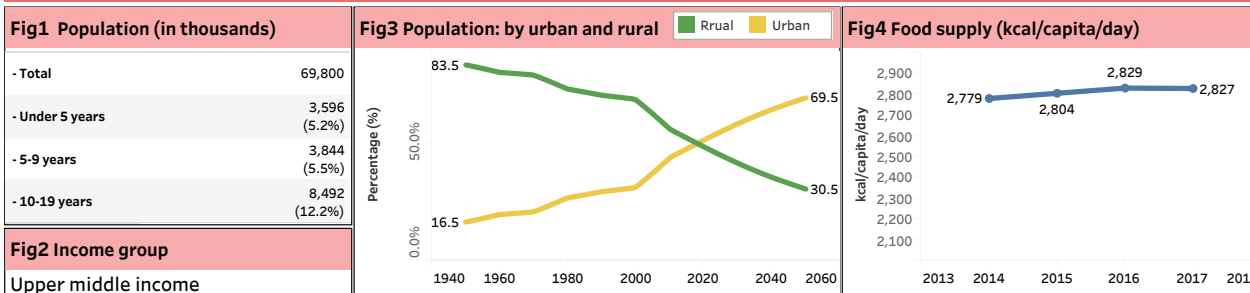
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 Thailand

## Demographics and background information



## Nutrition status of children

**TARGETS 2025**

**Global**

**Country~**

**Overweight**

No increase in childhood overweight

By 2023, Maintain the prevalence of overweight in children under-5 years to not more than 8%; Reduce the prevalence of overweight in 6-14 ye..

**Stunting**

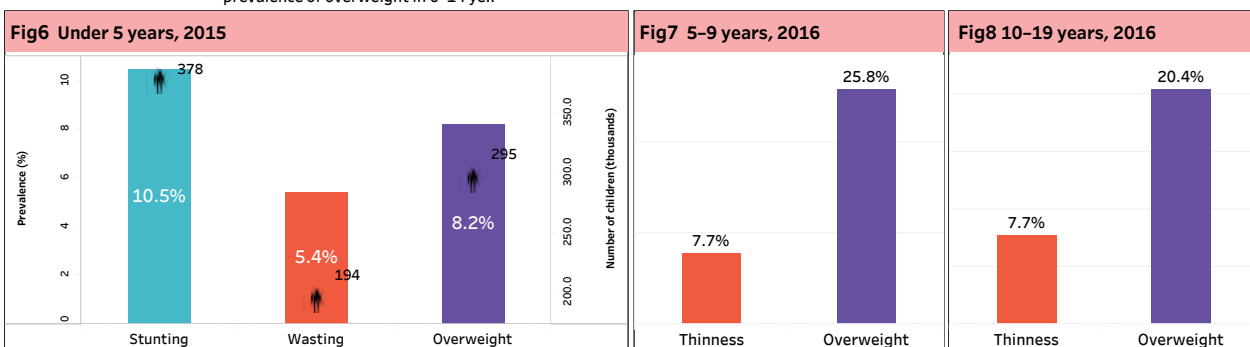
40% reduction in the number of children under-5 who are stunted

By 2025, Reduce the prevalence of stunting in children under-5 years to ≤10%.

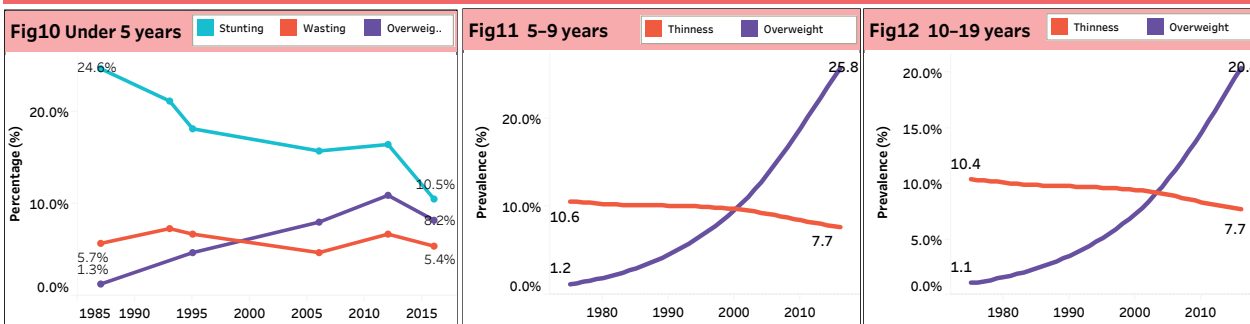
**Wasting**

Reduce and maintain childhood wasting to less than 5%

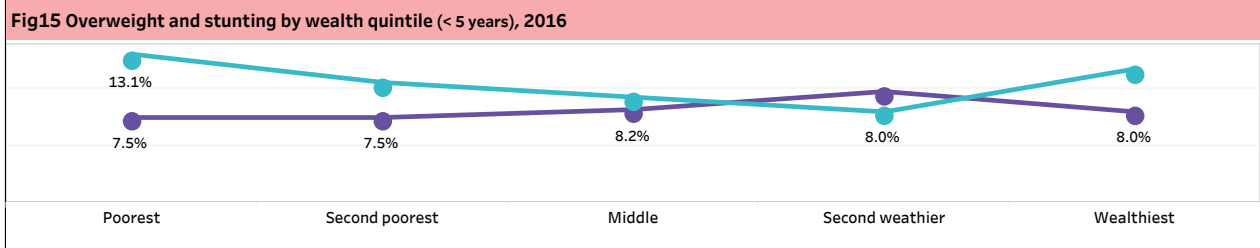
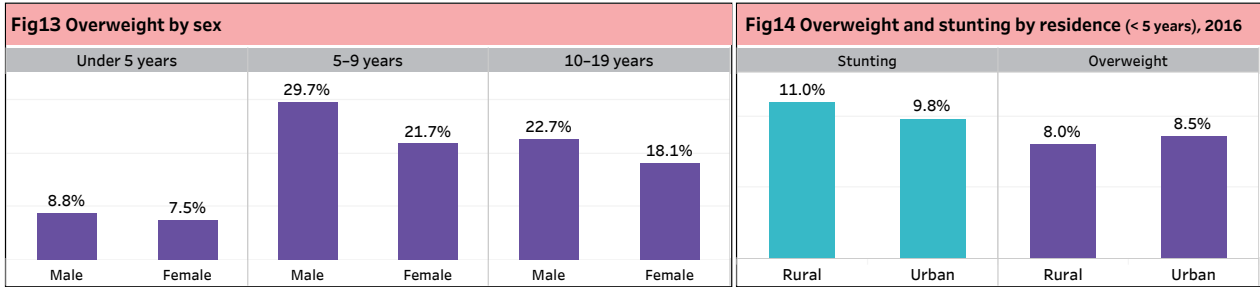
By 2025, Reduce the prevalence of wasting in children under-5 years of age to ≤5%.



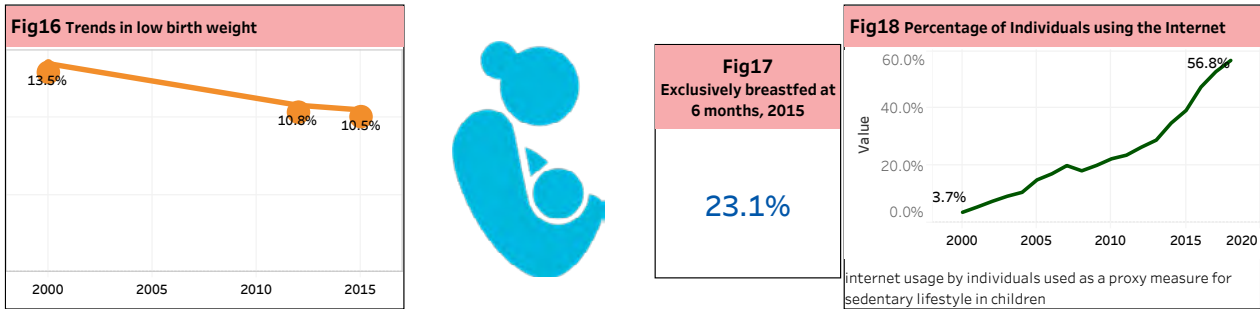
## The nutrition transition: trends in overweight and undernutrition



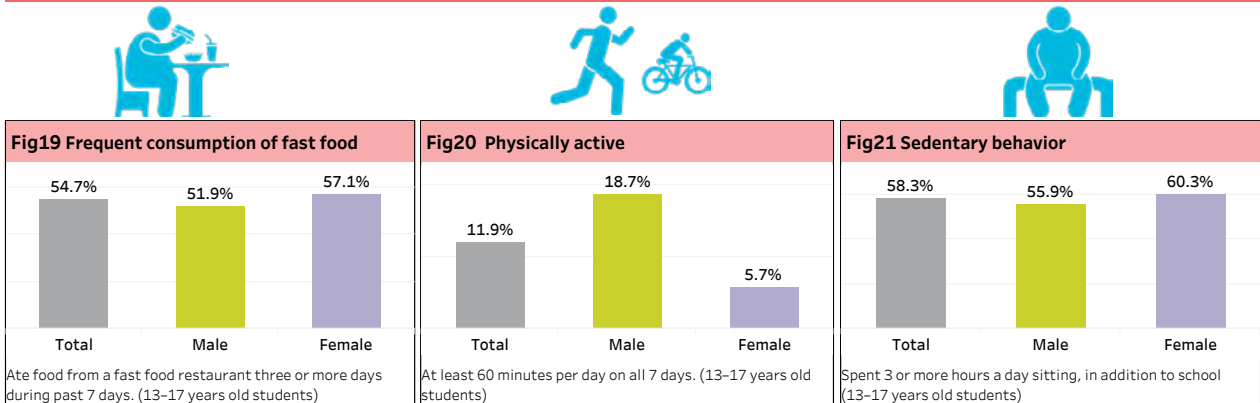
## Differentials in childhood overweight



## Drivers and associated factors for child obesity



## Diet, physical activity and sedentary behavior



## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	Yes
	Availability of a national policy, strategy or action plan for physical activity promotion	Yes
	Availability of national food based dietary guidelines	Yes
	Country has identified time-bound a nutrition target on childhood obesity	Yes
<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	Yes
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<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	Yes
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	Yes
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Fig5. World Bank, World Development Indicators.

Fig6,14,15,17. National Statistical Office and United Nations Children's Fund, Thailand Multiple Indicator Cluster Survey 2015- 2016, Final Report, NSO and UNICEF, Bangkok, 2016.

Fig7,8,11,12. World Health Organization (WHO). Global Health Observatory.

Fig10. Adapted from the UNICEF/WHO/The World Bank Group (2020). Joint child malnutrition estimates: levels and trends, 2020 edition updated with most recent national surveys.

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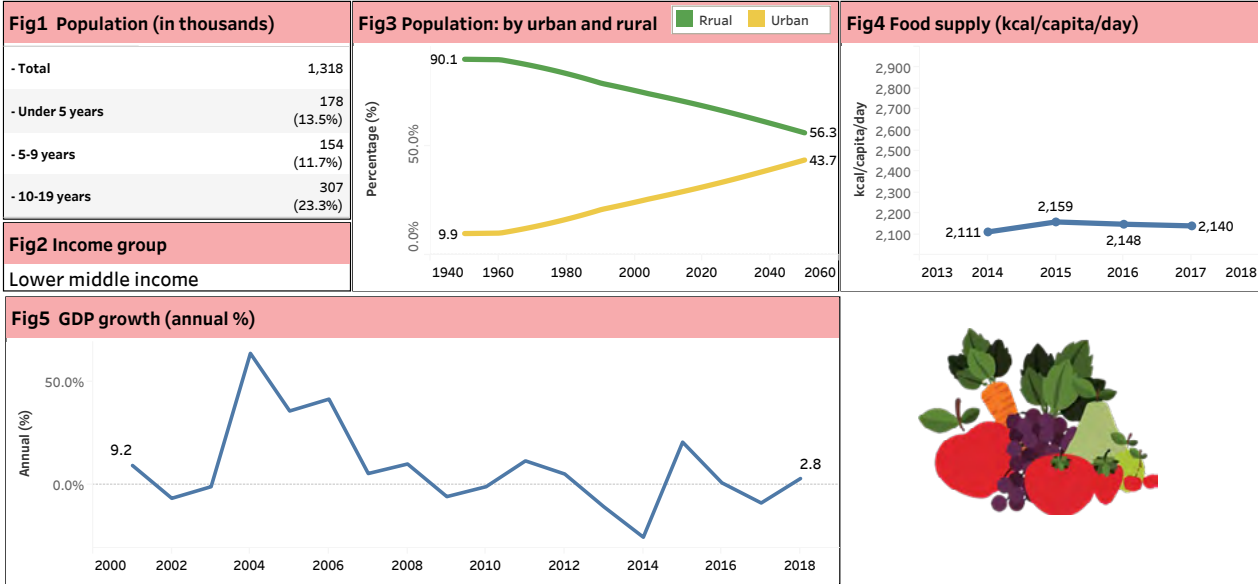
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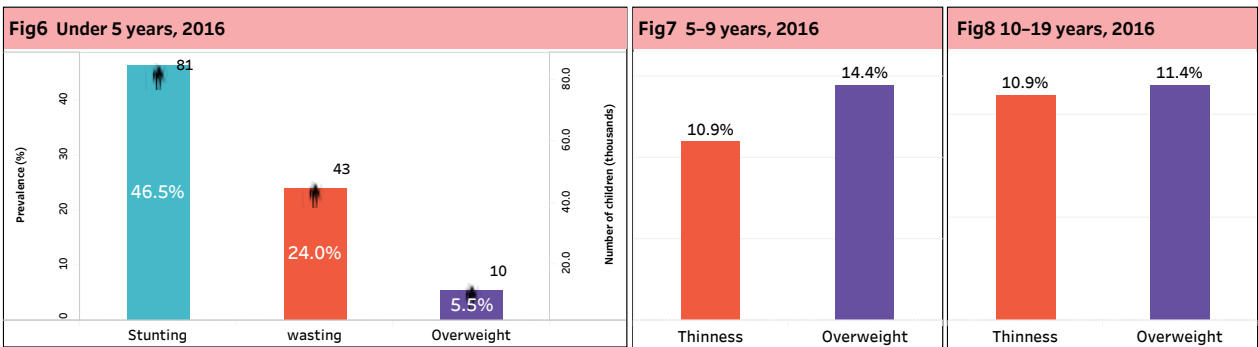
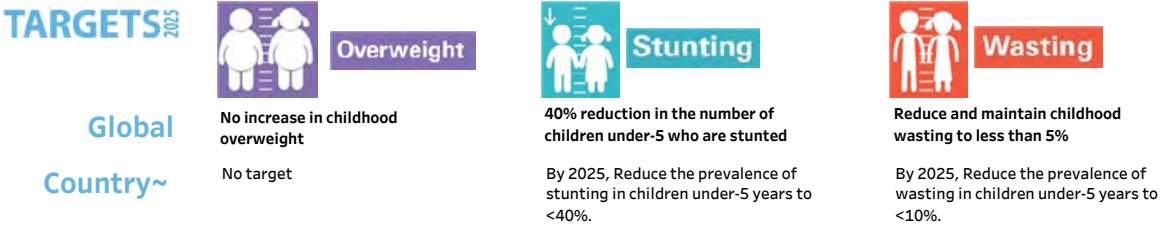
~ Thailand National Plan of Action on Nutrition (2019-2023), Ministry of Public Health, Thailand.

**Timor-Leste**

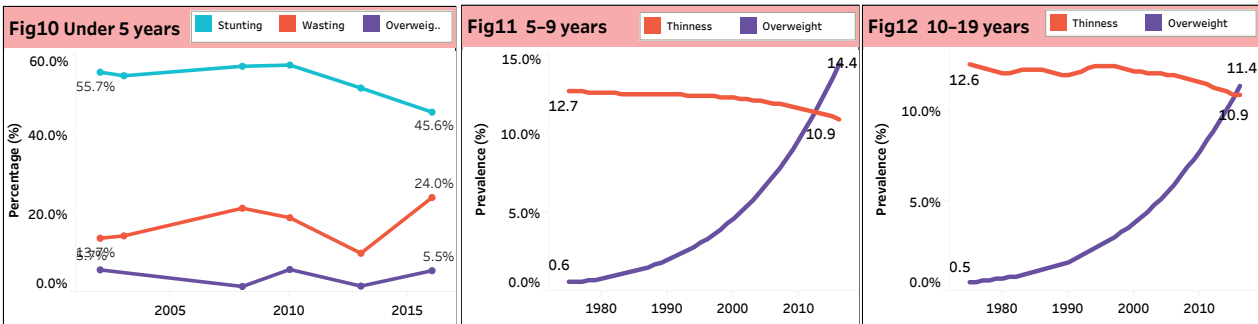
**Demographics and background information**



**Nutrition status of children**

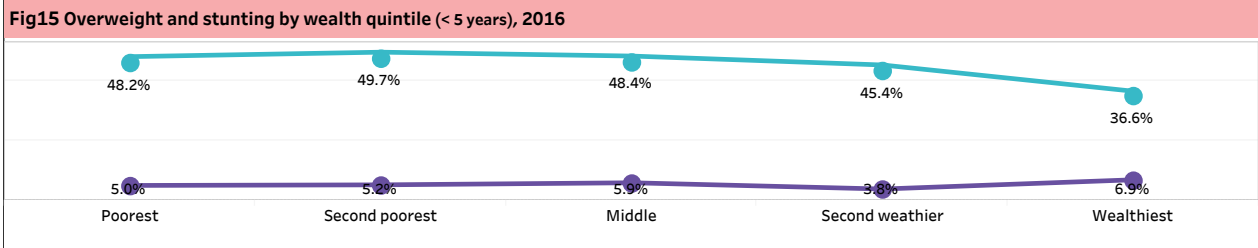
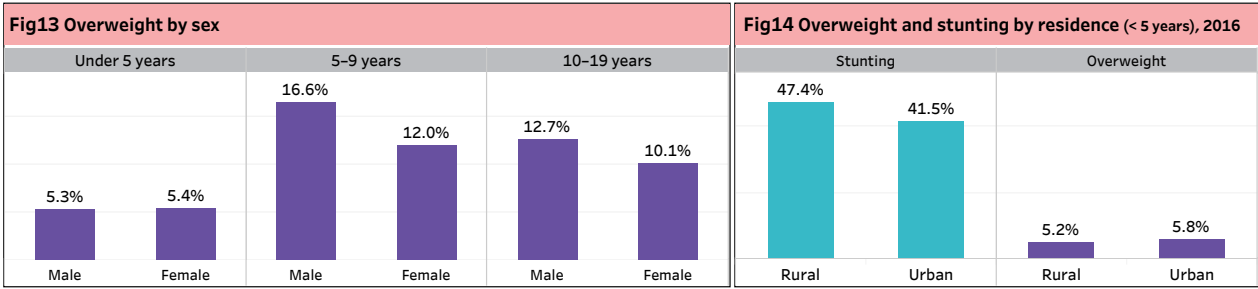


**The nutrition transition: trends in overweight and undernutrition**

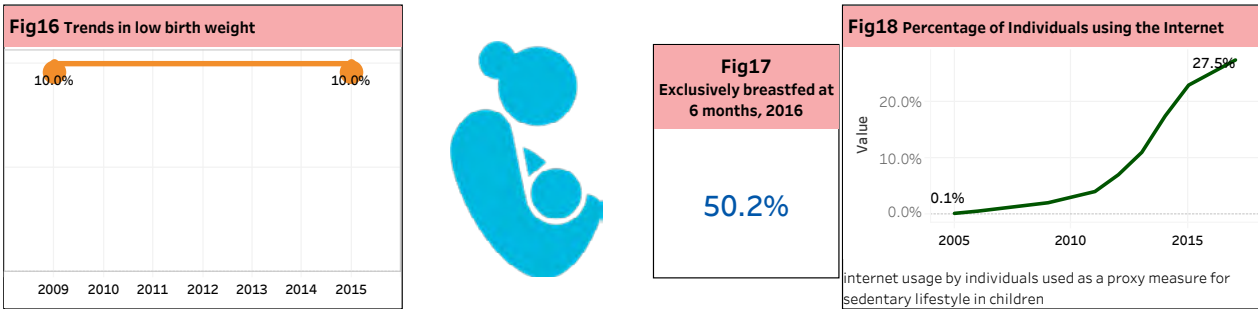




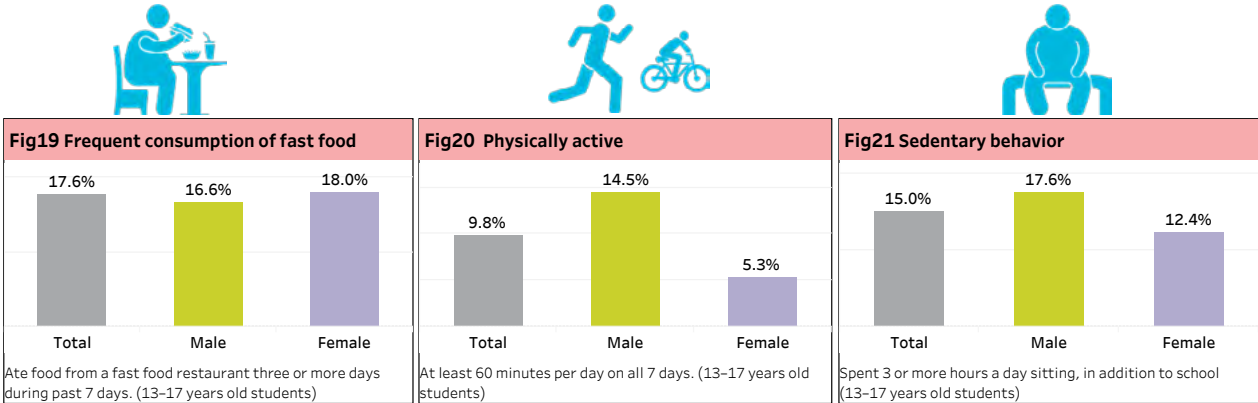
## Differentials in childhood overweight



## Drivers and associated factors for child obesity



## Diet, physical activity and sedentary behavior



## Policies, strategies and programmes to prevent overweight and obesity\*

<b>Policies and guidelines</b>	National policies/strategies specify the prevention and management of overweight and obesity in children	No
	Availability of a national policy, strategy or action plan for physical activity promotion	No
	Availability of national food based dietary guidelines	Yes
	Country has identified time-bound a nutrition target on childhood obesity	No
<b>Legislation and regulations</b>	Enacted legislation on the Code of Marketing of Breast Milk Substitutes	No
	Implemented regulations on the marketing of foods and nonalcoholic beverages to children	No
<b>Lifecycle and school based programmes</b>	Formalized physical activity sessions are included in the National school curriculum	Yes
	Overweight is tracked during growth monitoring and promotion for young children < 5 years	No
	Overweight is tracked in school health programmes	No
	School health and nutrition programme objectives include fostering healthy diets and healthy habits	No
	School Health programme objectives include prevention of overweight	No

### Data sources

Fig1. United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition.

Fig2. World Bank Income Classification. World Bank Country and Lending Groups. Country Classification 2020.

Fig3. United Nations. World Urbanization Prospects.

Fig4. Food and Agriculture Organization of the United Nations (FAO).

Fig5. World Bank, World Development Indicators.

Fig6,10,14,15,17. National Statistics Directorate, and Ministry of Finance, Timor-Leste, and ICF Macro. 2010. Timor-Leste Demographic and Health Survey 2009-10. Dili, Timor-Leste.

Fig7,8,11,12. World Health Organization (WHO). Global Health Observatory.

Fig10. Adapted from the UNICEF/WHO/The World Bank Group (2020). Joint child malnutrition estimates: levels and trends, 2020 edition updated with most recent national surveys.

Fig13. Under 5 (National Statistics Directorate, and Ministry of Finance, Timor-Leste, and ICF Macro. 2010. Timor-Leste Demographic and Health Survey 2009-10. Dili, Timor-Leste.); 5 yrs and 10-19 yrs (World Health Organization (WHO) Global Health Observatory.)

Fig16. WHO UNICEF birthweight estimates: Nations Children's Fund (UNICEF), World Health Organization (WHO). Levels and trends 2000-2015. Geneva:2019.

Fig18. The Telecommunication Development Sector (ITU-D), downloaded on 13 May 2020; <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

Fig19,20,21. Global School-based Health Survey (GSHS), Timor-Leste, 2015.

\*a. Status report on 'Physical activity and health in the South-East Asia Region': July 2018 WHO.

b. Global nutrition policy review 2016-2017: country progress in creating enabling policy environments for promoting healthy diets and nutrition, WHO 2017.

c. Marketing of breast-milk substitutes: National implementation of the international code - STATUS REPORT 2020. World Health Organization, UNICEF, IBFAN.

d. WHO SEARO and Thailand International Health Policy Programme Foundation. Summary report "School nutrition and physical activity in Bangladesh, Sri Lanka, Maldives, and Thailand: creating collective actions to achieve healthy school nutrition and physical activity" 26th - 27th March 2018, Bangkok, Thailand."

~Timor-Leste National Nutrition Strategy 2014 - 2019, Ministry of Health, Republic Democratic of Timor-Leste. 2014.



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