



FUTURESCAPE POLICY BRIEF: DOUBLE BURDEN OF MALNUTRITION

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Historically, as countries become more developed, undernutrition (underweight, stunting, wasting) declines and over-consumption (overweight, obesity) replaces it as the primary form of malnutrition.^{1,2} However, growth in over-consumption is occurring earlier across low- and middle-income countries today than historically, even where undernutrition remains a significant issue. The result is a "double burden" of malnutrition. Of the forms malnutrition takes, stunting and obesity have the most profound long-term impacts, and their economic effect will be the focus of this analysis. **The Western Cape stands to lose R357 billion in household spending from stunting and up to R590 billion from obesity to 2040; this translates to a 5% loss to GDP from foregone spending alone.**

The Western Cape's Double Burden

The prevalence of undernutrition in the Western Cape is strikingly high given the province's level of economic development. Its gross domestic product (GDP) per capita classifies it as an upper-middle income economy. However, among children under five, more than one in ten are reported to be **underweight**.³ This rate is the second-highest of the provinces in South Africa, despite the Western Cape being the wealthiest in terms of household income and consumption expenditure (Table 1).⁴ The prevalence of underweight children in the Western Cape is over five times that of upper middle-income countries (2.3% versus 11.9%).⁵ In addition, more than

Table 1, Malnutrition statistics for the South African provinces, heat map by column (South Africa Demographic and Health Survey 2016)

Province	Child Undernutrition		Adult Obesity	
	Stunting (<5 yrs)	Underweight (<5 yrs)	Men (14< yrs)	Women (14< yrs)
Western Cape	22.9%	11.9%	13.9%	47.5%
Eastern Cape	24.8%	3.4%	9.9%	40.4%
Northern Cape	21.4%	8.4%	14.8%	34.8%
Free State	33.5%	8%	9%	44.5%
KwaZulu-Natal	28.5%	3.8%	12.6%	45.8%
North West	27.4%	12.6%	7.8%	42.9%
Gauteng	34.2%	5.8%	12.8%	39%
Mpumalanga	21.5%	4.7%	9.5%	33.5%
Limpopo	21.9%	4.9%	6.5%	36%

one in five children under five years old are reported to be **stunted**,⁶ which is over three times the rate for upper middle-income countries (6.9% versus 22.9%).^{7,8} A 2015 review of studies on stunting in South Africa revealed that, despite fluctuations, the level of stunting has remained stubbornly high since the 1970s despite the country's economic and political transition. In the Western Cape, the stunting level in fact increased significantly between the 1990s and early 2000s (from 12% in 1994 to 35% in 2003).⁹

Malnutrition in the Western Cape also takes the form of **over-consumption**. Of children aged 2 to 14, 26% of females and 22% of males are either overweight or obese.¹⁰ Over-consumption refers to caloric intake, but does not preclude stunting, as children may be lacking in key nutrients despite consuming an excess of calories. Among adults, the percentage of people who are **overweight¹¹ or obese¹²** is the highest of all South African provinces at 44% for men and 73% for women. The **female obesity rate** is particularly severe, at 48%, or over three times the global rate (15%).^{13,14}

Table 2, Forecasted malnutrition rates in the Western Cape ranked highest to lowest and compared to relative country rankings today

	2018	2025	2030	2040
Percent of children underweight				
Western Cape (equiv. 2018 rank)	11.3% (57 th)	9.8% (73 rd)	8.3% (80 th)	7.1% (88 th)
Reference Country in 2018	Namibia	Tanzania	Iraq	Honduras
Percent of adults obese				
Western Cape (equiv. 2018 rank)	44% (17 th)	45.2% (11 th)	46.1% (10 th)	48% (9 th)
Reference Country in 2018	Egypt	Malta	Trinidad	New Zealand

Forecasts from the International Futures (IFs) modelling system indicate that, without intervention, the province is set to face a double burden of malnutrition for the foreseeable future (Table 2). The percent of underweight children under five is forecast to decline to 7.1% in 2040, a rate that is still over three times higher than the average for upper middle-income countries today. The obesity rate, which is on par with the 20 countries ranked highest for obesity in the world, is expected to increase to 48% (from 44% today).

The Economic Impact of Malnutrition

Stunting in childhood has lifelong consequences in the form of poorer educational attainment and impaired cognitive and physical development. Researchers estimate that stunted

children who grow up in impoverished households experience as much as a 30% reduction in earning potential as adults.¹⁵ *Using a more modest estimate of 18% for the Western Cape,¹⁶ the province stands to lose approximately R357.4 billion (2018 Rand) in household spending by the end of 2040 because of stunting alone.¹⁷* In addition, there is a link between childhood stunting and a higher risk of becoming overweight as an adult and/or developing chronic lifestyle diseases such as diabetes and heart disease, making the double burden of malnutrition a self-reinforcing phenomenon.¹⁸

Over four million people are forecast to be obese in the Western Cape by 2040. Over-consumption is associated with “substantial indirect costs” including lower productivity at work, absenteeism, disability, insurance claims, and premature mortality from non-communicable diseases (NCDs).¹⁹ Estimates vary, but the OECD reports that obese people earn about 10% less than non-obese people.²⁰ *Using this rate, the estimated loss in household spending from obesity is between R423.3 and R590.5 billion (2018 Rand).²¹ Together, the estimated cost of the double burden of malnutrition in terms of **spending loss** is between 4.18 and 5% of the province’s GDP.* This does not account for other costs such as the increased demand for public health services. For example, the death rate from NCDs such as cardiovascular disease is forecast to increase by 40% to 2040, and the need to manage these conditions promises to drive up provincial health spending.^{22,23}

¹ While often used to refer to undernourishment, the World Health Organization’s (WHO) definition of malnutrition includes all forms of improper nutritional intake: “deficiencies, excesses or imbalances in a person’s intake of energy and/or nutrients.” See: <http://www.who.int/mediacentre/factsheets/malnutrition/en/>

² A primary challenge identified in the Western Cape Government’s Household Food and Nutrition Security Strategic Framework 2016.

³ Weight-for-age two standard deviations below the mean. South Africa Demographic and Health Survey (SADHS), 2016.

⁴ Measured by mean and median annual consumption expenditure. See: Statistics South Africa (2015). Living Conditions Survey 2014/15.

⁵ The World Bank (2016). World Development Indicators (online database). See: <https://datacatalog.worldbank.org/>

⁶ Height-for-age 2 standard deviations below the mean. SADHS, 2016

⁷ The World Bank (2016). World Development Indicators (online database).

⁸ The 2016 global rates were 14% for underweight children and 22.9% for stunted children. The World Bank (2016). World Development Indicators (online database).

⁹ Said-Mohamed et al. (2015). *BMC Public Health*. 15:534; DOI 10.1186/s12889-015-1844-9.

¹⁰ Body mass index (BMI) of 25+. SANHANES, 2013.

¹¹ BMI of 25 to 29.9 among people over 15 years of age. See: SADHS, 2016.

¹² Body mass index of 30+ among people over 15 years of age. See: SADHS, 2016.

¹³ The age ranges for these estimates differ by 3 years (over 18 years old for the global average); however, we consider this difference modest enough to make the figures comparable. See: WHO (2017) <http://www.who.int/mediacentre/factsheets/fs311/en/>

¹⁴ The obesity rate for males is closer to the global level of 11%. SADHS, 2016

¹⁵ Grantham-McGregor et al. (2007), quoted in Hughes et al. (2011), *Patterns for Potential Human Progress*, vol. 3: page 121.

¹⁶ Local nutrition experts suggested a more modest rate for the Western Cape context because 30% assumes all stunted children come from poor households and an unemployment rate that is lower than that in the province.

¹⁷ To arrive at this estimate, we took the proportion of national household expenditure attributed to the Western Cape (Statistics South Africa) and derived the

Tackling the Transition

Addressing the double burden of malnutrition begins with understanding its numerous and complex risk factors, including poverty; lack of infrastructure (notably water and sanitation); inadequate diets; disease; harmful human behavior; lack of knowledge and education; unavailability and/or unaffordability of nutritious foods; inadequate health care for mothers and children; and an unhealthy environment.²⁴ For example, poverty limits a household’s ability to meet its members’ nutritional needs, and malnutrition—especially in childhood—has a role in perpetuating cycles of poverty through its toxic effects on health and income.²⁵ *Many malnutrition risk factors present long-term challenges; however, several **short- to medium-term interventions** area available, including:*

- Improving access to piped water and adequate sanitation
- Prioritizing interventions in the critical first 1 000 days of a child’s life, including antenatal interventions with expectant mothers (e.g. addressing antenatal care, nutrition, mental health, and drug and alcohol abuse)
- Providing additional resources for programs encouraging and facilitating exclusive breastfeeding
- Taking an integrated approach to early childhood and school feeding programs to simultaneously address undernutrition and over-consumption in children
- Evaluating the factors contributing to communities in the Western Cape being obesogenic environments
- Utilising behavioral insights research to determine strategies to “nudge” people towards healthier lifestyles

proportion of spending by the stunted population (assuming a constant stunting rate of 14%). We considered this value to be 82% of this group’s potential spending (assuming stunted people would have otherwise earned the median income); we then calculated the difference between actual spending and potential spending to estimate the loss for one year. Household expenditure was inflated annually based on the Western Cape’s forecasted GDP growth rate to 2040.

¹⁸ Vorster et al. (2011), *The Nutrition Transition in Africa: Can It Be Steered into a More Positive Direction?*. *Nutrition*, 3, 429-441; DOI: 10.3390/nu3040429.

¹⁹ Goettler, Grosse, and Sonntag. Productivity Loss due to Overweight and Obesity: A Systematic Review of Indirect Costs. *BMJ Open*, 7(10): e014632; DOI:10.1136/bmjopen-2016-014632.

²⁰ OECD (2017). Obesity Update 2017 (report). <https://www.oecd.org/els/health-systems/Obesity-Update-2017.pdf>. obesity.

²¹ This estimate process was identical to that for stunting. In both cases we assume that people would spend all of their income. The range represents the difference between the total obese population and the obese population excluding the stunted population since there is an unknown degree of overlap between these populations.

²² NCD death rate increases from 5 to 7 people per thousand; cardiovascular death rate from 7.3 to 10.1% of total deaths. *International Futures v. 7.31*.

²³ Between 2006 and 2015, the loss to South Africa’s GDP from diabetes, stroke, and coronary disease was around R2.4 trillion (US\$188 million converted to 2015 Rand). See: Hofman, Karen (2014). Non-communicable diseases in South Africa: a challenge to economic development. *South African Medical Journal*. Vol104(10): page 647.

²⁴ United Nations International Children’s Fund (1990). Conceptual Framework for Malnutrition. <https://www.unicef.org/sowc98/fig5.htm>.

²⁵ The DG Murray Trust Foundation (DGMT) posits that, “childhood undernutrition... is in many ways at the heart of the gross inequality in our country i.e. that even before babies are born they are already on a trajectory that leads to poor educational attainment, chronic ill health and poverty.” DGMT (2017). *Zero Stunting Initiative-Summary Strategy* (report): page 5.

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