

# Thrive by Five Index updated stunting rates

## Frequently Asked Questions

Junita Henry and Sonja Giese, September 2022

Based on data collected in 2021, on over 5000 children aged 50 to 59 months enrolled in Early Learning Programmes in South Africa, the [Thrive by Five Index](#) (2022) originally reported very high stunting rates in this population of children. Following the launch of the Index in April 2022, further cleaning and analyses were done in order to prepare the data for open access. Through this process, it became evident that there were significant errors in the reported stunting rates.

This paper provides quick answers to a basic set of questions about the updated data. A [research brief](#) is also available for more detailed information.

### 1. What were the original Index findings?

The Index originally reported stunting rates of 25% in children aged 50-59 months who were enrolled in early learning programmes in 2021.

### 2. Why were these wrong?

The stunting rate of 25% included children who are classified as 'mildly stunted'. This significantly inflated the stunting figures.

To understand the different categories of stunting, it's useful to look at the World Health Organisation definition of stunting. The WHO<sup>1</sup> defines three categories - mild stunting, moderate stunting and severe stunting. In most reports on stunting rates, only the moderate and severe categories are included. Due to incorrect coding in the original Index analyses, the Thrive by Five report erroneously included all three stunting categories.

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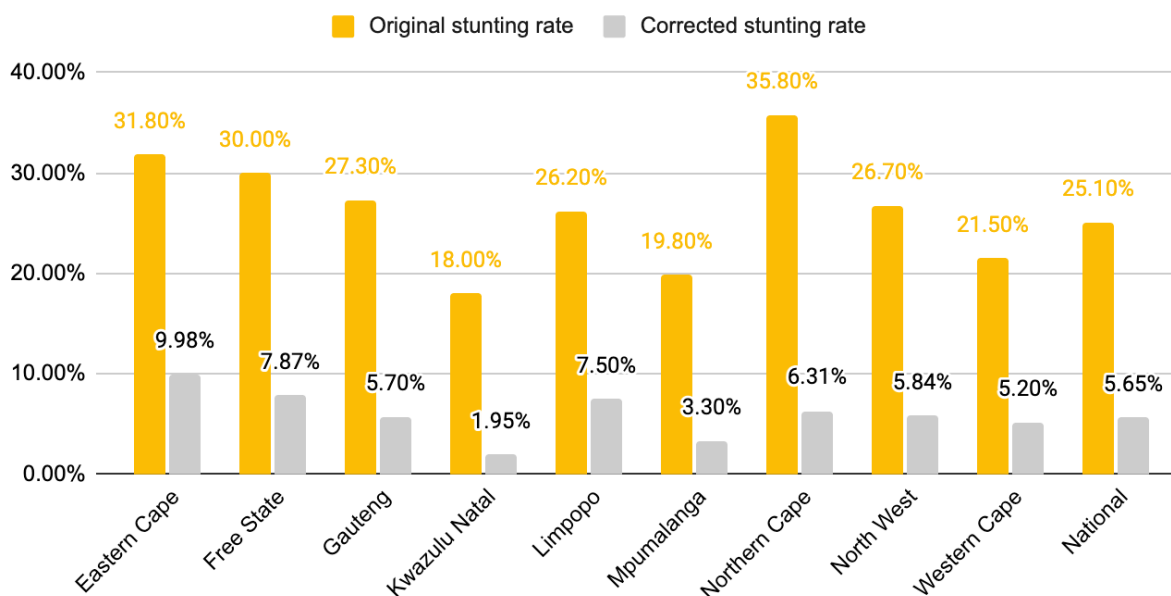
<sup>1</sup> World Health Organisation. (2006). *WHO Child Growth Standards: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age. Methods and development*. Department of Nutrition for Health and Development. <https://www.who.int/publications/i/item/924154693X>

### 3. What are the correct stunting figures?

When mildly stunted children are removed from the total, the percentage of children aged 50 to 59 months enrolled in ELPs who are classified as stunted drops from 25 percent to 5.65 percent nationally (weighted data<sup>2</sup>).

Figure 1 below compares the original published results with the updated results, both per province and nationally. For the most part, the difference between the original and revised stunting figures reflects the proportion of children in each province and nationally who are (only) mildly stunted.

**Figure 1: Provincial comparison of stunting rates by reported and updated results, for children aged 50-59 months attending an ELP in 2021**



Importantly, these findings do not take into account stunting rates in the approximately 45%-55% of children aged 50-59 months who are *not enrolled* in an ELP, and who are likely to be at greatest risk of malnutrition. Additionally, as discussed in the [research brief](#), there is evidence of a 'catch-up' effect between ages 2 and 5 years. Stunting rates at age 4 to 5 years therefore tend to be lower than stunting rates in younger children.

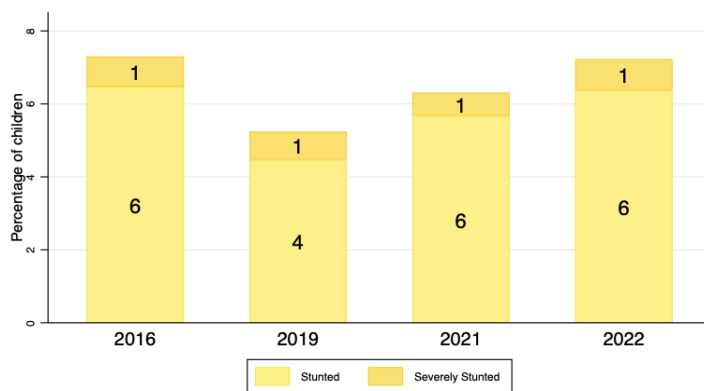
<sup>2</sup> Adjustments are made to survey data after they have been collected in order to improve the accuracy of the survey estimates for the population of children from which the sample was drawn.



#### 4. How do the Index stunting results compare with other ELOM data sets?

Several large [ELOM](#) studies over the past six years have collected height for age measurements of participating children. Combined, these studies include 9 398 child records (aged 50 to 69 months), over the years 2016-2022. The graph below shows that the updated stunting figures from the Thrive by Five index are in line with stunting rates reported in other studies of preschool age children undertaken over the past six years.

**Figure 2: Stunting estimates by year for children aged 50-69 months, using data from large ELOM studies conducted between 2016 and 2022**



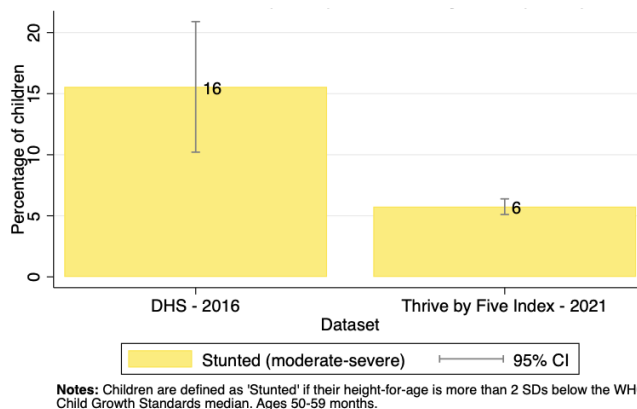
**Notes:** Children are defined as 'Stunted' if their height-for-age is more than 2 SDs below the WHO Child Growth Standards median and 'Severely stunted' if below 3 SDs. N<sub>2016</sub>=1329; N<sub>2019</sub>=1678; N<sub>2021</sub>=5215; N<sub>2022</sub>=1176. Unweighted.

#### 5. How do the Index stunting results compare with Demographic and Health Survey data?

The Thrive by Five stunting rate is considerably lower than the 27 percent reported for the under-five population in the 2016 South African Demographic and Health Survey<sup>3</sup>, and the 16 percent estimate for children aged 50-59 months.

<sup>3</sup> Hall, K., Sambu, W., Almeleh, C., Mabaso, K., Giese, S., & Proudlock, P. (2019). *South African Early Childhood Review 2019*. Cape Town: Children's Institute, University of Cape Town and Ilifa Labantwana. Children's Institute, University of Cape Town and Ilifa Labantwana. <https://ilifalabantwana.co.za/sa-early-childhood-review-2019/>

**Figure 3: Comparison of stunting prevalence between DHS (2016) and the Thrive by Five Index (2021) for children aged 50-59 months**



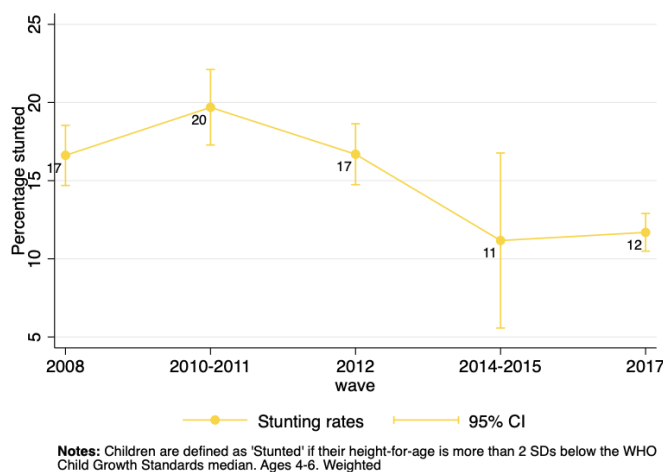
The differences in reported stunting rates between the Index and the DHS may be due to several factors, including the following:

- The DHS dataset for this age group included only 180 children, compared to the 5000+ children included in the Index sample.
- The two studies used very different sampling strategies. The children included in the DHS sample were most likely *not enrolled* in an early learning programme (due to the fact that children were visited at home during the school day), whereas all of the children included in the Index were enrolled in ELPs.

### 6. How do the Index stunting results compare with the National Income Dynamics Survey data?

The South African National Income Dynamics Study panel survey (NIDS) provides another comparative dataset. Over five waves of the study (2008-2017), the stunting rate for children aged 4-6 years ranges from 11 to 20 percent, with the most recent (2017) estimate at 12 percent. This includes children enrolled in ELPs and non-enrolled children.

**Figure 4: NIDS Stunting estimates for 4-6 year olds across waves 1-5 (weighted data)**



## 7. What about children who *do not* attend an Early Learning Programme?

The Thrive by Five Index only assessed children who were enrolled in an ELP in 2021. According to the GHS (2021), an estimated 45-55 percent of children aged 50-59 months were not enrolled in ELPs at the time that data collection took place for the Index<sup>4</sup>.

Some information is available from other studies on the difference in stunting rates between non-enrolled and enrolled children -

- In the NIDS data, we found small differences in average stunting rates by child access to preschool. From the NIDS unweighted data, we estimate that children who attend(ed) pre-primary have a lower prevalence of stunting than those who do not have access, by 3 percentage points on average<sup>5</sup>. This difference is statistically significant for NIDS waves 3, 4 and 5 (i.e. from 2012 onwards).
- Preliminary analysis of data collected in 2022 by Grow Great found similarly, that stunting rates in children aged 48-60 months who are enrolled in an ELP are lower than those in children of the same age who do not attend an ELP (report pending). It is important to note that this sample was relatively small (509 children) and did not include children from the Western Cape or Eastern Cape. It is therefore not nationally representative.

There are several reasons why we might expect *higher* rates of stunting in children *who are not* attending an ELP -

- Most ELPs charge fees and the poorest households who cannot afford to pay these fees will be unable to send their children to preschool. These same poor households will be less likely to have adequate nutrition, good health care, water and sanitation services.
- Most ELPs provide children with at least one meal a day. Children who attend ELPs therefore receive nutritional support that non-enrolled children do not have access to

For these and other reasons, it is important to note that stunting rates in children enrolled in ELPs cannot be seen as representative of all 4 year olds in South Africa. Further research is needed to explore potential differences in stunting rates between enrolled and non-enrolled children.

## 8. Why do we see higher rates of stunting in younger children?

An obvious limitation of the Index data is the fact that it is cross-sectional. We do not have growth data of children at earlier points in development. However, it is very probable that our findings of much lower stunting rates than national surveys of children under five may reflect “catch-up growth”. Both

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<sup>4</sup> GHS 2021 data, analysis by Kath Hall, Children's Institute, UCT

<sup>5</sup> Unweighted. The sample has a larger number of children who have had access to pre-primary school education in comparison to children who do not. The NIDS data is therefore more representative of children who have access to pre-primary education.

local and international studies<sup>6 7 8 9</sup> show degrees of growth recovery ('catch-up') between infancy and toddlerhood and age five. Given the evidence of the ageing effect on stunting, we recommend age-disaggregation in reporting on stunting rates in South Africa.

### 9. Does moderate and severe stunting impact cognitive development?

Growth stunting has a strong impact on cognitive development. In the Index data, the greatest difference in ELOM 4&5 Scores were found between children who are moderately/severely stunted and those with no stunting. Between the ages of 4 and 5 years, being moderately/severely stunted is roughly equivalent to being 5 to 6 months behind children with normal height-for age, all other things being equal.

### 10. Does mild stunting impact cognitive development?

*Almost one in five children* in the Thrive by Five sample showed signs of mild stunting. Important to note is that while many children might catch up physically by age 4 to 5 years, they may still suffer the neurological effects of having been stunted at an earlier age.

In the Index data, the difference in ELOM scores between mildly stunted children and those with no stunting is significant. When it comes to cognitive development, mildly stunted children were approximately 2.4 months behind children with normal growth, all other things being equal. This finding underscores the importance of considering this group, who might in some classification systems not be considered stunted<sup>10</sup>.

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<sup>6</sup> Benny, L., Boyden, J., & Penny, M. (n.d.). *Early is best but it's not always too late: Evidence on nutrition and growth from the Young Lives study in Ethiopia, India, Peru and Vietnam, Summative Report*. Young Lives. [https://assets.publishing.service.gov.uk/media/5b9a8b6040f0b6788dda2bc5/Nutrition\\_and\\_Growth\\_Summative\\_Report\\_June\\_2018\\_0.pdf](https://assets.publishing.service.gov.uk/media/5b9a8b6040f0b6788dda2bc5/Nutrition_and_Growth_Summative_Report_June_2018_0.pdf)

<sup>7</sup> Casale, D. (2020). Recovery from stunting in early childhood and subsequent schooling outcomes: Evidence from NIDS Waves 1–5. *Development Southern Africa*, 37(3), 483–500. <https://doi.org/10.1080/0376835X.2020.1715790>

<sup>8</sup> Casale, D., & Desmond, C. (2016). Recovery from stunting and cognitive outcomes in young children: Evidence from the South African Birth to Twenty Cohort Study. *Journal of Developmental Origins of Health and Disease*, 7(2), 163–171. <https://doi.org/10.1017/S2040174415007175>

<sup>9</sup> Desmond, C., & Casale, D. (2017). Catch-up growth in stunted children: Definitions and predictors. *PLOS ONE*, 12(12), e0189135. <https://doi.org/10.1371/journal.pone.0189135>

<sup>10</sup> Tredoux, C., Dawes A., Mattes, M. (2022) Thrive by Five Index 2021 Technical Report (Revised July 2022). University of Cape Town and Innovation Edge, Cape Town.



**11. What other research is needed to better understand stunting rates in South Africa?**

- a. It remains to be determined whether stunting rates for children who are *not* enrolled in ELPs are significantly different and, if so, to what extent ELP participation offers some protective elements.
- b. There is some evidence of a decrease in stunting rates from 2012. It would be useful to explore this further, to understand possible contributing factors, and to investigate whether this downward trend has continued.
- c. Longitudinal data of child physical growth and cognitive and socio-emotional development is important in understanding how stunting changes over time, and to what extent growth faltering in the earliest years impacts long term cognitive development.
- d. And finally, when we looked at stunting data from several other smaller, more targeted studies, we found much more variability in stunting rates. Further research is needed to understand what can be learnt from these data about particular subsets of children in this age group.

