

Stunting, Wasting, and Education in Nigeria

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Question

- *What does the existing evidence tell us about the experiences of girls and boys who are affected by nutritional deficiencies in their early years (are stunted and/or wasted) in the education system?*
- *In what ways and for what reasons do the learning needs and outcomes for such children differ from their peers?*
- *What approaches have been used in Nigeria and other developing countries to respond to these differences, and to what effect?*

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The K4D helpdesk service provides brief summaries of current research, evidence, and lessons learned. Helpdesk reports are not rigorous or systematic reviews; they are intended to provide an introduction to the most important evidence related to a research question. They draw on a rapid desk-based review of published literature and consultation with subject specialists.

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1. Summary

Globally, the number of primary school children with nutritional deficiencies is high. This rapid review focuses on children with such deficiencies (namely stunting and wasting), and how it affects them throughout their primary education. Although the focus is on Nigeria, other country examples and their approaches to address this issue are also included, where available.

Key points are:

- As hungry children find it difficult to concentrate (Muiru et al., 2014; Foodbank, 2015; Businge, 2016), their learning needs and outcomes are different to well-nourished children.
- Countries respond to these children in different ways: the most popular being school feeding programmes, e.g. in India, which has a high prevalence of stunting and wasting, there is the free Midday Meal Scheme, which is the largest such scheme in the world (Singh et al., 2012).
- However, such approaches have varying impacts: positive effects on measured learning were found in Burkina Faso and Peru (World Bank Group, 2018). However, in Kenya, providing school meals took significant time away from the classroom, and so they had an ambiguous net effect (World Bank Group, 2018). *Therefore, it is worth noting that although school feeding gets children to school, it does not always improve learning (FAO et al., 2018).*
- Differences were found between urban and rural areas: in Nigeria, children from rural areas are almost twice as likely to be stunted as children from urban areas.
- In Nigeria, as part of a public private partnership, Bridge school teachers use an innovative programme designed to scale up effective new approaches to education. *However, no evidence is available on successful approaches to teaching malnourished children, e.g. how the timetable is organised, what practices are used in the classroom, what resources are used, etc.*
- Read-Aloud (RA) story lessons in reading and maths learning outcomes in northern Nigeria were evaluated by Moussa et al. (2018). The Reading and Numeracy Activity (RANA) Programme provides training, monitoring, and support to help teachers properly use these materials in class. Maths RA lessons were relatively more effective than the language RAs in improving listening comprehension, missing number identification, and maths word problem scores- *however these results are for low socio-economic status pupils, not necessarily malnourished ones.*
- Preliminary findings of the school-based component of Young Lives research found a relationship between teacher qualifications and experience, and pupil's maths scores (Woldehanna et al., 2017).
- In the classroom, large numbers of over-age malnourished pupils present a challenge for teachers, who must teach a more diverse group with lower levels of maturity and school preparedness.
- Teaching malnourished children does not seem to feature in the curricula of teacher training programmes (Drury, 2012; Rampal & Mander, 2013). In 2018, the Nigerian Federal Government revealed plans to revamp the country's basic education sector – *however there is no detail regarding specific approaches to teaching malnourished children.*

- The available evidence suggests the need for teacher training to be relevant to classroom reality, to maximise the chance of teachers adopting new techniques in the classroom, and to be linked to better management of teachers at the school level to maximise time on task (Vogel and Stephenson, 2012).
- Chinyoka (2014) recommends that teachers adapt their behaviour to motivate the learners to work and co-operate with peers. This teaching methodology is supported by Snowman and Biehler (2011).
- In South Africa, the First National Bank Fund Primary Education Programme (PEP) aims to train teachers to identify pupils affected by malnutrition, as well as assisting them in what they can do to help these learners. The end-term evaluation recommends that the programme clearly had a positive impact in most objective areas (Khulisa Management Services & Bisgard, 2017).

The main sources of evidence used for the rapid review were taken from peer reviewed journals, as well as grey literature and investigative projects. In general, nutrition status of primary schoolchildren in Africa has received relatively little attention in comparison to that of younger children (Saltzman et al., 2016). Most of the data available focuses on the causes of malnutrition, and the effect of adapting diet to improve education. There is little empirical evidence on the effect of childhood malnutrition on children's cognitive achievements in low-income countries (Woldehanna et al., 2017). There are limited teaching approaches specifically used in Nigeria.

The evidence found was 'gender-blind,' as there is very little information available exploring the experiences of girls and boys who are affected by nutritional deficiencies in the early education system. Children with physical disabilities were not a focus of this rapid review.

2. Malnutrition and reasons for differing learning needs and outcomes

Definitions and rates of malnutrition

Although there are several types of malnutrition, this rapid review focuses on wasting and stunting:

Wasting (acute malnourishment)

In 2017, more than half of all wasted or acutely malnourished children lived in South Asia, and about one quarter in sub-Saharan Africa (SSA).² There are similar proportions for severely wasted children. More than a quarter of children under the age of 15 years living in SSA are underweight according to the Education for All (EFA) Global Monitoring Report (UNESCO, 2011), now replaced by the Global Education Monitoring Report.

Although it can be reversed, given favourable conditions, wasting is still a major issue in Nigeria: the 2016-2017 Multiple Indicator Cluster Survey (MICS) report, released by the United Nations Children's Fund (UNICEF), showed that despite millions of funds invested in nutrition, marginally more Nigerian children under the ages of five are suffering from acute malnutrition (increasing from 10.2% to 10.8% from 2016 to 2017, respectively).

Stunting (chronic malnourishment)

According to the World Development Report on Education (World Bank Group, 2018), 30% of children under 5 years in low- and middle-income countries (LMICs) are physically stunted. This means that they have low height for their age, typically due to long-term or repeated (chronic) malnutrition.¹ In 2017, nearly two out of five stunted children lived in South Asia, while more than one in three lived in SSA.²

2017 data for Nigerian under 5s estimates the stunting figure as 33.7%.³ Country profile data suggests a moderate decrease in stunting from 2012 to 2017.⁴ Children from rural areas are almost twice as likely to be stunted as children from urban areas. Prevalence of stunting among primary school children ranges from 11.5% in Anambra (south-east Nigeria), 11.8 % in Onitsha (south) to as high as 60% in Kebbi State (north-west) (Ndukwu et al., 2013; Adekanmbi et al., 2013). Recent cross-sectional data from Adenuga et al. (2017) shows that 467 (40.3%) pupils in Abeokuta (south-west) were stunted (although the authors admit that there is a strong possibility that these estimates could be underestimated). Results showed that for both the rural and urban pupils, those aged 11-12 years were more likely to be stunted, compared to other age groups ($p < 0.001$).

Reasons for differing learning needs and outcomes

Inadequate nutrition is a cause for several outcomes, as highlighted below:

Later school enrolment

Stunting between gestation and a child's second birthday is associated with late school enrolment (World Bank Group, 2018: 88). Although some "catch-up" is possible after a child's second birthday, previously stunted bodies remain highly sensitive to disease and infection. Malnourished primary schoolchildren have been found to be more prone to infections and illnesses, causing them to miss school and fall behind in their education (Muiru et al., 2014: 79).

Lower academic performance

Stunting between gestation and a child's second birthday is associated with lower cognition, poorer executive function, and less school attainment (World Bank Group, 2018: 88).

The Young Lives study contains data on stunting and wasting in the early years, together with longitudinal data throughout childhood on cognitive and education-related outcomes from Ethiopia, India, Peru, and Vietnam. Results suggest that children who are malnourished at the start of life are severely disadvantaged in their ability to learn. As well as the lower basic literacy abilities, stunted children score 7% lower on maths tests, and are 12% less likely to be able to

¹ Stunting is defined as height-for-age less than two standard deviations from the median height-for-age of the standard World Health Organisation reference population.

² <https://data.unicef.org/topic/nutrition/malnutrition/>

³ <https://ec.europa.eu/europeaid/sites/devco/files/nigeria.pdf>

⁴ https://ec.europa.eu/europeaid/nigeria-nutrition-country-fiche-and-child-stunting-trends_en

write a simple sentence at the age of eight, compared with non-stunted children. They are also 13% less likely to be in the appropriate grade for their age at school. However, evidence from the study shows that recovery from stunting after the first 1000 days is possible, and this leads to improvements in learning and education outcomes.⁵

Lack of energy

Food is the fuel necessary to get through a normal day. Calories in food provide energy to carry out regular day-to-day activities. Without an adequate amount of this energy, pupils may fall asleep in school or lack the energy to pay attention to an entire day of classes (Walthouse, 2014).

Children experiencing hunger are more likely to have problems with memory and concentration because they do not have the energy to carry out these functions. Malnutrition can tamper with sleeping patterns as well, making a child too tired to get anything out of a full day of school (Walthouse, 2014).

Behavioural issues

As well as overall cognitive development, research by the World Food Programme demonstrates that under-nutrition can affect a primary schoolchild's behaviour: "Even when a child misses one meal, behaviour and academic performances are affected. A hungry child has difficulty in learning" (Businge, 2016). In a classroom setting, a single child's behaviour can affect the rest of the pupils, the teacher's attention, and the overall learning atmosphere. In this case, hunger not only disturbs the affected child's learning, but the learning of others as well (Walthouse, 2014).

Post-school issues

Analysis in 'The Cost of Hunger in Africa (COHA)' report (African Union et al., 2016: 15) demonstrates that for children, especially those from poor households, undernourishment has adverse implications not only for school performance: for workers it reduces productivity, and ultimately earnings and household welfare.

3. Evidence of wasted and stunted children in the education system

Although nutritional deficiency in children can affect their mental development, there is a scarcity of research findings that clearly indicate determinants of academic performance in primary school children in LMICs (Businge, 2016; Abebe et al., 2017):

⁵ <https://www.younglives.org.uk/content/malnutrition-and-cognitive-development>

Inequalities in school participation

Nigeria has 10.5 million out-of-school children – the world's highest number.⁶ 60% of those children are in northern Nigeria. Fees and opportunity costs are still major financial barriers to schooling, and social dimensions of exclusion - for example, those associated with gender or disability- exacerbate the problem. About 60% of out-of-school children are girls. These inequalities in school participation further widen gaps in learning outcomes (World Bank Group, 2018: 10).

Increased classroom sizes

In the classroom, large numbers of over-age pupils present a challenge for teachers, who must teach a more diverse group with differing levels of maturity and school preparedness. High repetition rates also indicate inefficiency in the education system. This can have tremendous impact on the educational infrastructure, the experience in the classroom, and educational planning.

In Nigeria, many children attending primary school are outside of the official age range. Worryingly, research shows that pupils over the age of 13 years can still be found in fourth grade of selected primary schools (Adenuga et al., 2017).

Increased teaching workload

In Australia, primary and secondary school teachers estimate that the average pupil loses more than two hours a day of learning time when they come to school hungry (Foodbank, 2015). Approximately 4 out of 5 teachers (82%) reported an increased workload throughout the teaching day due to hungry pupils, as the children find it harder to concentrate (73%), are lethargic (66%) or demonstrate behavioural problems (52%): "I find I spend more one-on-one time with the hungry kids, just so they have assistance to stay focused. It's not fair on that child, nor on his/her classmates who also deserve attention and full learning opportunities" (Foodbank, 2015). *However, there are no similar research available from LMICs.*

Gaps in teacher training

Teacher training helps to prepare teachers for dealing with autistic children, those with ADHD, epilepsy, Down's syndrome, and severe behavioural issues (Drury, 2012). *However, there is no evidence to support that teaching malnourished children is also discussed.*

4. Responses and impacts in Nigeria

Government responses

The nutrition status of primary schoolchildren in Africa has received relatively little attention in comparison to that of younger children (Saltzman et al., 2016). As stunting and wasting are not only health issues, they need to be addressed through a multi-sectoral approach, as well as

⁶ <https://safsms.com/blog/school-children-nigeria-infograph/>

prioritised in all development programmes from community to national level. However, in Nigeria it is reported that the government has a low commitment towards improving nutrition in the country,⁷ with most nutritional programmes driven by international donors such as UNICEF, World Health Organization (WHO), etc.

Pre-school approaches

Early Childhood Development or pre-primary approaches that work for children in LMICs, have been noted (Save the Children, 2017: 3). High quality pre-school programmes and learning opportunities that go beyond pre-schools improve outcomes for children. Innovative programmes, such as the Literacy Boost,⁸ have demonstrated models to support parents and communities in improving children's development. *However, such programmes do not focus on teaching malnourished children.*

In Nigeria, there is one year of pre-primary school, which has an official entry age of five years. Organised education of the child below primary school age did not receive official recognition until very recently (Sooter, 2013: 174). The Early Childhood Care Development Education (ECCDE) programme, launched by the Government as an aspect of the Universal Basic Education, has a theoretical entry age of 6 months and can last up to four years. *However, there are no evaluations of the effect of such programmes on malnourished children.*

School approaches

Sawaya (2006) states that “ideas that still guide many actions go in the direction of blaming and of taking for granted the ignorance of the mother and the lack of family structure, transforming the assumptions in facts and identifying them as sources of the children's problems”. Asked about the complaints that lead the schools to direct many children to the psychological attendance services every year, they invariably assert problems of the child and his/her health conditions to feeding and family structure problems: *school is secondary in the evaluation*. When they do refer to school, they seldom even mention the intra-school causes that produce the difficulties presented, and that have direct repercussion on the behaviour of the children, such as constant teacher changing in a same class during the school year.

Therefore, the following examples explain the various school approaches to malnutrition of schoolchildren, and their impacts:

Primary school

In Nigeria, primary school education has an official entry age of six years, and a duration of six grades. Then children sit for the Primary School Leaving Examination.⁹ Almost two thirds of school age children attend primary school (62% aged 6-11 years).¹⁰ Primary net attendance is highest in the South East region (81%), and lowest in the North West region (43%). Gender

⁷ <https://www.vanguardngr.com/2018/02/sad-story-nigerias-stunted-wasting-children/>

⁸ <https://resourcecentre.savethechildren.net/sites/default/files/documents/6869.pdf>

⁹ <https://www.epdc.org/country/nigeria>

¹⁰ https://www.epdc.org/sites/default/files/documents/Nigeria_coreusaid.pdf

disparity is lowest in the South region and highest in the North West region. Boys are slightly more likely to attend primary school than girls (65% compared to 59%, respectively).

Primary school attendance is important. *However, learning from the lessons of pre-primary education show that children attending schools does not necessarily mean that they are learning (Save the Children, 2017: 20).*

Updating the education system and curricula

The poor developmental foundations and lower levels of pre-school skills resulting from deprivation mean that many children arrive at school unprepared to benefit fully from it. So even in a good school, deprived children learn less (World Bank Group, 2018: 10). Moreover, breaking out of lower learning trajectories becomes harder as these children age, because the brain becomes less malleable. Thus, current education systems tend to amplify initial differences (World Bank Group, 2018: 10).

According to Eriba (2011) the educational system in Nigeria has been in a state of permanent crisis that it has lost quality, efficacy and functionality over the years. In 2018, the Federal Government revealed plans to revamp the country's basic education sector by introducing a new skills-based curriculum.¹¹ The National Economic Council and the Federal Ministry of Education are working on a new curriculum, which would change the way pupils are educated on science, technology, education, arts, and maths. The core skills in the new curriculum will be coding, programming, design thinking, animation, graphic design, robotics, networking, and basic engineering applications. They are working in collaboration with the Massachusetts Institute of Technology, the ORACLE academy, the Microsoft CISCO academy, and IBM to develop the curriculum.

The policy ensures that all children (including those that are out of school now, and in those areas where children tend to drop-out of school much faster) get a decent education. Changing the story of educational failure in Nigeria is not just the work of government alone: it involves the full cooperation of state governments, religious authorities, as well as public-spirited persons and groups. The whole idea is to properly equip and train teachers and educators across the country. *Currently, the issue of hunger in schools is focussed on feeding children, rather than adapting curricula for malnourished children.*

Improving school management

Private schools are the main education providers in Lagos, where only 4% of primary school aged children are out of school.¹² Of more than 12,000 private schools in Lagos, many are low-cost and affordable even to those on the poverty line. Other schooling options in Lagos are public

¹¹ <https://punchng.com/fg-to-revamp-basic-education-with-skills-based-curriculum-osinbajo/>

¹² <https://www.opml.co.uk/blog/new-report-compares-learning-outcomes-public-private-bridge-schools-lagos>

schools (of which there are the lowest per capita in Nigeria), and Bridge schools (low-fee private schools aiming to offer affordable education in lower-income countries).¹³

Results from the EDOREN (Education Data, Research, and Evaluation in Nigeria) project show that there is a very strong correlation between the strength of school management (target setting, planning and leading teaching, teacher management, and leadership) and pupils' literacy and numeracy scores.¹³ Bridge schools in Nigeria have particularly high management scores. Teachers are trained and receive their lesson notes electronically from master teachers who are based at their headquarters. *However, there is no information available on whether the master curriculum includes responsive teaching plans specifically for malnourished children.* Data from Bridge also does not mention feeding programmes (expert comment).

Using Read-Aloud (RA) story lessons

Moussa et al. (2018) evaluated the net causal effects of Read-Aloud (RA) story lessons on reading and maths learning outcomes in 199 second grade classrooms in northern Nigeria. The Reading and Numeracy Activity (RANA) Programme provides teacher training, monitoring, and support to help teachers properly use these materials in class (Moussa et al., 2018: 5). All materials and training activities are conducted in the local language, Hausa. For lessons, RANA RA stories are developed with special attention to the local and cultural contexts of the teaching curriculum among RANA schools. In a series of writing workshops with local authors, trainers, educators, maths specialists, and RANA project staff, the project developed 55 different maths RA stories for Primary levels 1, 2, and 3. Each grade features 24 stories (with some overlap in stories across grades), or 8 stories per term. Each RANA-developed RA is accompanied by a picture, two highlighted vocabulary words, three listening comprehension questions, and a set of maths exercises that correspond to the story theme. The evaluation showed that the maths RA lessons were relatively more effective than the language RAs in improving listening comprehension, missing number identification, and maths word problem scores- *however these results are for low socio-economic status pupils, not necessarily malnourished ones.*

Reducing hours of schooling for internally displaced persons (IDPs)

The International Organization for Migration estimates that a total of 1.57 million people are still internally displaced across the three northeast states of Adamawa, Borno and Yobe; 85% are in Borno.¹⁴ According to UNICEF Nigeria, hunger and the absence of school feeding are negatively impacting pupil attendance in camps throughout Maiduguri Metropolitan Council and Jere. As a result, many schools have reduced teaching time from 5 hours to only 2 hours per day as children are too hungry, according to an investigative project by Cable Newspaper Journalism Foundation and the MacArthur Foundation.

¹³ In 2016, a low-cost private school, the Bridge International Academy, which charges N6,000 (USD 16) per term was opened.

¹⁴ <https://www.thecable.ng/investigation-like-school-mother-says-look-food-first-hunger-pushes-idp-children-menial-jobs>

Using responsive teaching methods

Chinyoka (2014) examined the impact of poor nutrition on the academic performance of grade seven learners at two primary schools in Chivi, a district in Masvingo Province. The author recommends that “teachers need to be warm, supportive and nurturing towards learners who are psychologically unstable due to poor nutrition, to raise their self-confidence, self-direction, self-esteem and self-image. The sense of belonging motivates the learners to work and co-operate with peers as they engage in co-operative learning mastery of concepts is enhanced.” In support, Snowman and Biehler (2011) assert that teachers should approach their pupils with “love, acceptance and respect and empathise with their fears, expectations and disappointments as this boosts a positive self-concept” (Chinyoka, 2014: 82).

School feeding programmes

School feeding programmes have been shown to help prevent hunger, increase school enrolment, reduce absenteeism, and improve learning outcomes. Interventions such as deworming and micronutrient supplementation are also linked to better nutrition and learning (FAO et al., 2018: 25). *It is worth noting, however, that although school feeding gets children to school, it does not always improve learning.*

There is little empirical evidence on the effect of childhood malnutrition on children’s cognitive achievements in low-income countries (Woldehanna et al., 2017). Below are some international examples:

Multiple country evidence

The most consistent impact of school-based meal programmes has been more children in school, such as in Burkina Faso, Kenya, and Peru (World Bank Group, 2018: 148). At school age, providing meals contributes less to brain development than earlier in the child’s life, but it could still increase learning through improved attention and energy. Also, if meals are offered during normal school hours, they reduce time on task. In Kenya, as well as Peru (which had a school breakfast scheme),¹⁵ meals took significant time away from the classroom, and so they had an ambiguous net effect. Impacts on measured learning are also mixed, with positive effects in Burkina Faso and Peru (World Bank Group, 2018: 148).

Country evidence: SSA

Ethiopia

Cross-sectional data is available from northwest (Asmare et al., 2018) and southwest (Abebe et al., 2017) Ethiopia:

¹⁵ An evaluation by Cuerto & Chinen (2008) of the educational impact of a school breakfast programme implemented in rural schools in Peru. The results showed positive effects on school attendance and dropout rates, and a differential effect of the breakfast programme on multiple-grade and full-grade schools. Particularly in multiple-grade schools the programme shows a significant and positive effect on short-term memory, arithmetic and reading comprehension. The evaluation also showed an unexpected negative consequence: students in the breakfast group reduced their time in the classroom with their teachers and increased the time in recess (when they consumed the breakfast). *International Journal of Educational Development* 28(2):132-148.

Asmare et al. (2018) aimed to determine the association between nutritional status and academic performance among primary school children in Debre Markos in 2017. The prevalence of stunting, underweight, and wasting were 27.5% (95% CI 23.2–31.9%), 20.4% (95% CI 16.5–24.3%) and 8.7% (95% CI 6.2–11.5%), respectively. The low level of educational performance was significantly higher ($p < 0.05$) among the stunted, underweight and wasted children than that of the nourished children. However, the study was conducted in urban areas, which may not be representative for rural areas (Asmare et al., 2018).

Abebe et al. (2017) found that stunting and underweight were found to be correlated with academic performance of pupils attending primary schools in Hawa Gelan district.

Even though there is high prevalence of malnutrition in Ethiopia, its association with educational performance among pupils attending primary schools has rarely been assessed. Longitudinal data is therefore vital to understand the factors that influence cognitive development of children over time. The Young Lives longitudinal study explores how early childhood stunting affects cognitive achievement of children up to the age of 8 years (Woldehanna et al., 2017). Preliminary findings of the school-based component of Young Lives research found a relationship between teacher qualifications and experience and pupil maths scores, although this may be confounded by student age. However, the impact of teacher training is not always clear-cut. For example, qualitative studies of the Teacher Development Programme (TDP) 1 teacher training interventions found that the training was not always reflected in observed classroom practices. The available evidence suggests the need for training to be relevant to classroom reality in order to maximise the chance of teachers adopting new techniques in the classroom, and to be linked to better management of teachers at school level to maximise time on task (Vogel and Stephenson, 2012: 7).

Kenya

Primary school research from Muiru et al. (2014) in Embu County, showed that poor malnutrition¹⁶ influenced learning of the pupils. This was due to increased infections, diminished cognitive ability, and low school attendance rate. By improving the feeding programme, the pupils can continue to attend school. The 50 teachers interviewed reported that absenteeism, lack of concentration in class, failure to finish classwork, truancy, and sleeping in class as the major effects of malnutrition among the learners in school (Muiru et al., 2014: 85).

South Africa

Poor nutrition is one of the problems in the country's education system that First Rand addresses through the FNB (First National Bank) Fund Primary Education Programme (PEP). This programme aims to train teachers to identify pupils affected by malnutrition, as well as assisting them in what they can do to help these learners.¹⁷ The programme notes that the key to helping learners in these situations is to engage the parents and caregivers in the process, who have a joint responsibility in supporting children to learn.

The FNB Fund PEP worked in partnership with 20 schools in the Free State, and another 20 in KwaZulu-Natal over the 2012/13 to 2015/16 period. Khulisa Management Services (Pty) Ltd was

¹⁶ From scurvy (caused by lack of vitamin C, kwashiorkor (lack of protein), or anaemia (iron deficiency)).

¹⁷ <http://luckysters.com/stub/fnb-fund-primary-education-programme/>

commissioned to conduct the end-term evaluation. Though the government already provides nutritional support to all learners of no-fee-paying schools through the National School Nutrition Programme (NSNP), extensive as it is, the NSNP was only able to ensure one nutritious meal per learner per school day (valued at approximately R3 or USD 0.22 per meal).¹⁸ Therefore, schools continue to have a need for supplementary feeding schemes, as the NSNP is insufficient to cater to learners needs. Many learners go to school without having anything to eat, and schools reported that in many instances the meals received at the school are all the learners will have to eat at the school (Khulisa Management Services & Bisgard, 2017: 14). One such school, Nichols Junior Primary, has an effective feeding scheme. The school garden is functional, and learners are provided with both breakfast and lunch. Pioneer Food Company donates food for the school's morning porridge programme (Khulisa Management Services & Bisgard, 2017: 36).

Overall, the data showed that the PEP clearly had a positive impact in most programme objective areas. In conclusion, they recommend that nutrition be included as a key element of the FNB PEP to maximise impact, as learners cannot learn if they are hungry (Khulisa Management Services & Bisgard, 2017: 38, 44). *However, the absence of credible learner assessment data reduces the ability to be definitive about impact of the programme on learner performance.*

Uganda

Most teachers can quickly identify those children who come to school without breakfast. Their heads are on their desks at 10am – the peak learning hour. Chronic poor nutrition may cause more serious learning deficits, for children. The education and sports guidelines on policy, on stakeholders' responsibilities in the Universal Primary Education, state: "Parents need to make a crucial contribution to the basic child nurturing and support through the provision of mid-day meals, for pupils at school."¹⁹ The government has taken a bold stance: parents must pack lunch for their children. However, since the series of civil wars, some families have limited access to enough food.

Country evidence: India

The National Family Health Survey (Arnold et al., 2009) showed that young children in India suffer from the highest levels of stunting, underweight and wasting observed in any country of the world; while seven out of every 10 are anaemic, almost every second child under-five is malnourished and stunted, and a quarter suffer from extreme nutritional deprivation. Nutritional deficiencies are widespread even in households that are economically comfortable; for the poorest, stunting rates are over 70% (Rampal & Mander, 2013: 51).

Rampal and Mander (2013) produced a critical policy analysis and reflection on curricular documents, including syllabi and textbooks, and the Midday Meal Scheme, which is the largest such scheme in the world (Singh et al., 2012). Rampal and Mander (2013) state that *"conventional syllabi view food through a clinical 'scientific' lens. It is devoid of the sensory subjectivities of lived experiences – the smells, taste or growls, most certainly the growls – thus sanitised from any uncomfortable associations of deprivation... The teacher unquestioningly*

¹⁸ <http://transformsa.co.za/2016/01/poor-nutrition-is-a-learning-barrier/>

¹⁹ https://www.newvision.co.ug/new_vision/news/1418562/hunger-pangs-primary-schools-track-save-pupils

transmits such information, with no attempt to contextualise so that the learner, well-fed or hungry, can make some sense of it” (Rampal & Mander, 2013: 52).

Approaching school drop-outs

Many disadvantaged children are not in school, therefore there is no data available to explain what resources are used to teach these malnourished children.

Oxfam India provides (mainly low-income) children who have dropped-out and missed some years of schooling with gap classes. These classes help them get enrolled in their age-appropriate grade.²⁰ *However, malnourished children are not specifically catered for.*

External involvement

Evidence from the Akanksha Foundation (2018), a non-government organisation based in India, shows that empowering parents helps with malnourished pupils. There is no “one-size-fits-all model.” When an issue is identified, whether academic or social, it is tackled head on, with the involvement of every pupil, parent, community leader, and school leadership representative. No problem is left unanswered because it’s too complicated or too sensitive. For Akanksha, the school is an extension of the community, and a solution cannot be found without its involvement. Another key to success is flexibility.²¹ *However they do not mention adapting any teaching programmes for malnourished children.*

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²⁰ <https://www.oxfamindia.org/blog/ngos-strengthening-education-system-india>

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Key websites

- Young Lives: <https://www.younglives.org.uk/content/malnutrition-and-cognitive-development>

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