Food and nutrition security in schools: Threats and opportunities for intervention

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The school years represent a period of rapid growth and development. They provide an opportunity to address shortfalls and consolidate gains made during early childhood and to support a healthy transition to adulthood. Children are also future parents, and their health and nutritional status will impact the future generation of children (see chapter 4 and the importance of nutrition in the antenatal period and even preconception). The adolescent growth spurt is associated with an increase in appetite. School-aged children and adolescents need more nutrients than adults because they gain at least 40% of their adult weight and 15% of their adult height during this period. Inadequate dietary intake during this period can compromise cognitive development, delay sexual development and slow linear growth.[1]

Emerging evidence from a global Lancet review[1] indicates that a high proportion of South African school-age children are stunted (short for age) and/or overweight and obese, and that children's nutritional status appears to be deteriorating during their school years.[2] This suggests that school-aged children and adolescents are unable to access sufficient nutritious food to support their linear growth and physical development, and that their consumption of cheap snacks and sugar-sweetened beverages is helping to fuel excessive weight-gain, especially amongst adolescent girls.

Adolescent obesity is a public health concern due to its association with adult non-communicable diseases.[3] It is therefore imperative to invest in nutrition-related interventions for school-age children and adolescents to optimise the health, development and education outcomes of this important target group and prepare for a healthy and productive next generation of children.[4] The transition to school also marks a period of increasing autonomy where school-children and adolescents start to make independent choices about food and exercise, and where adult patterns of behaviour become established.[5] Schools, therefore, provide an ideal platform for health-promoting activities to improve the nutritional status of youth, with 98% of South Africa's school-aged children attending school.[6]

This chapter examines the following questions:

- What is the nutritional status of South Africa's children and adolescents?
- What are the socio-economic, biological and cultural drivers of under- and overnutrition?
- Which interventions have the potential to improve the nutritional status of school-age children?

What is the nutritional status of South Africa's children and adolescents?

School-age children account for more than a quarter of the South African population, with approximately 15.8 million children aged 5 – 19-years-old.[7] The results of recent national South African studies reflect a persistent double burden of malnutrition,[8-13] with an unacceptably high prevalence of underweight, stunting and overweight among school-age children (Figure 22). Most indicators of undernutrition remained relatively stable or decreased, yet overweight and obesity increased between 1999 and 2016, especially amongst adolescent girls. [8, 10, 11] From 1975 to 2016, the global age-standardised prevalence of obesity in children aged 5 – 19 years old increased from 0.7% to 5.6% in girls, and from 0.9% to 7.8% in boys, and the proportional increase was greatest in southern Africa. [14] The Global Burden of Disease Study showed that overweight and obesity among South African boys aged 2 – 19 -years-old remained fairly stable between 1980 and 2015. Yet rates were higher and increased dramatically among girls of the same age.[15]

Dietary practices of school-age children

Inadequate intake of vegetables and fruit and the frequent consumption of unhealthy snacks, high in sugar, fats or salt, and sugary drinks increase the risk for micronutrient deficiencies. In general, iron and vitamin A status appear to

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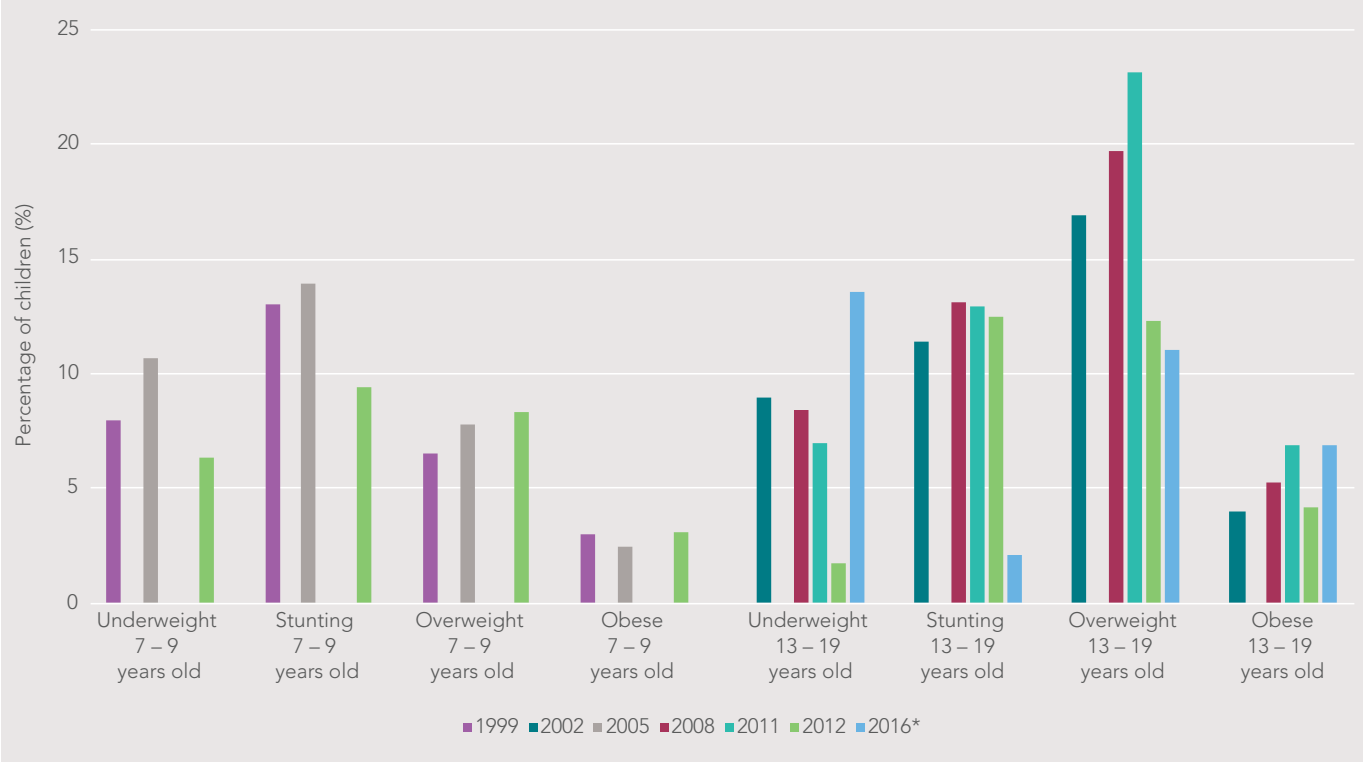
have improved over recent years, but limited data indicate that the prevalence of zinc deficiency is still high in South African children from low-income communities.[5, 11, 12, 16, 17] According to a national study, one-third of the adolescents ate micronutrient-poor, salty snacks daily, while vegetable and fruit intakes were generally low and lowest in poor households. These findings are an indication of nutrition insecurity and poor micronutrient status.[18] The Birth-to-20 cohort study tracked the dietary habits of a large group of urban adolescents in Soweto-Johannesburg over four years and showed irregular breakfast consumption, infrequent family meals and frequent consumption of fast foods, sugar-sweetened beverages and energy-dense school tuckshop items.[19] These poor dietary habits were also reflected in the results of the 2011 Youth Risk Behaviour Survey.[10] Although adolescents from wealthier households were more likely to have higher vegetable and fruit intakes, they also had higher intakes of energy-dense snacks and were more likely to be obese.[19] Risk behaviour – such as excessive alcohol intake, smoking, risky sexual behaviour and adolescent pregnancy – further contribute to poor health and nutrition insecurity among South African adolescents.[20]

What are the socio-economic, biological and cultural drivers of under- and overnutrition?

Poverty and food insecurity

Individual food choices are also constrained in powerful ways by household income, rising food prices and an obesogenic food environment, with many children growing up in households and communities where healthy foods are unavailable or unaffordable. Data from four national

Figure 22: Anthropometric nutritional status of South African school-age children, 1999 – 2016



Notes: *SADHS 2016 used adult cut-points, other studies used age-specific cut-points

Sources: Reddy SP, Resnicow K, James S *et al.* (2009) Underweight, overweight and obesity among South African adolescents: results of the 2002 National Youth Risk Behaviour Survey. *Public health nutrition 12*, 203-207.
Reddy SP, James S, Sewpaul R *et al.* (2010) *Umthente Uhlaba Usamila – The 2nd South African National Youth Risk Behaviour Survey 2008.* Cape Town: South African Medical Research Council.
Reddy SP, James S, Sewpaul R *et al.* (2013) *Umthente Uhlaba Usamila – The 3rd South African National Youth Risk Behaviour Survey 2011.* Cape Town: South African Medical Research Council.
Shisana O, Labadarios D, Rehle T *et al.* (2013) *South African National Health and Nutrition Examination Survey (SANHANES-1).* Cape Town: Human Sciences Research Council.
Labadarios D, Steyn NP, Maunder EM *et al.* (2005) The National Food Consumption Survey (NFCS): South Africa, 1999. *Public Health Nutrition 8*, 533-543.
Labadarios D, Swart R, Maunder EMW *et al.* (2007) National Food Consumption SurveyFortifi cation Baseline (NFCS-FB) South Africa, 2005. Stellenbosch: Department of Health, UNICEF, GAIN.
Labadarios D (2000) *The National Food Consumption Survey (NFCS): Children aged 1–9 years, South Africa, 1999.* Pretoria: Directorate: Nutrition, Department of Health.
Department of Health, Statistics South Africa, South African Medical Research Council *et al.* (2019) *South Afrian Demographic and Health Survey 2016.* Pretoria, South Africa and Rockville, USA: National Department of Health.

surveys since 1999 indicate that household food security has improved. However, according to the 2017 South African Food Security report, 30% of households with three or more children had inadequate access to food and another 8% had severely inadequate access to food. Households with school-age children are less likely to experience hunger and inadequate access to food than households with pre-school children.[11, 21] Nutrition security is at risk even in many food secure households, due to inadequate intake of nutrient-rich foods, particularly vegetables, fruit and animal source foods.[11] The South African Demographic and Health Survey 2016 found that 35% of household members received at least one grant, with the Child Support Grant the most common type of social assistance (24%). Yet 29% of the poorest households still reported problems in satisfying children's food needs.[18]

Despite South Africa being a food secure country, household food and nutrition security have deteriorated during 2020 due to the COVID-19 pandemic. During the early phase of the pandemic in April 2020, 24% of respondents to a national survey reported that they had no money to buy food (55% of informal settlement residents and about two-thirds of residents from townships).[22] School-age children were particularly vulnerable since around nine million South African children did not have access to the daily meals from the National School Nutrition Programme (NSNP) while schools were closed. In July, Equal Education and two Limpopo schools successfully launched an urgent court application against the government to reinstate the NSNP to meet their children's basic nutritional needs (see Case 21).[23] Food relief from the government, non-governmental organisations (NGOs) and the private sector has not been sufficient to meet the demand and reported hunger levels have increased. [24]

Socio-demographic drivers of obesity

Overweight and obesity is a public health concern in South Africa, and the prevalence increased dramatically in adolescent girls over the past decades. The 2011 Youth Risk Behaviour Survey reported that 25% of girls and 22% of boys aged 13 – 19-years-old were overweight, while 8% of girls and 6% of boys were obese.[10] Overweight and obesity were higher in urban areas and are indicative of their sedentary lifestyle and exposure to high energy diets.[19] Gender differences in overweight and obesity exist, with girls being more at risk of overweight and obesity than boys. [25]

These gender differences are shaped by both biological differences and cultural norms.[26] Biological differences in obesity between males and females are evident in the patterning of body fat and total body fat levels.[27] South African girls have a higher fat mass, distinctive fat distribution and lower insulin sensitivity than boys,[28] while boys are more physically active than girls and their body composition benefits more from physical activity. [16] Boys also have lower serum leptin levels and are protected from the genetic effects of some obesity-related gene variants.[27]

Exposure to an unfavourable environment either *in utero* or in the early postnatal period can also have a profound effect on growth and development, increasing an individual's risk of developing adult diseases.[29] For example, smoking during pregnancy is associated with low birth weight, which increases the risk of obesity in adulthood.[30]

Overweight and obesity are also shaped by socio-cultural determinants such as body image.[31] A South African study aimed at assessing beliefs about body size and body image in girls aged 10 – 18-years-old reported that two-thirds of girls associated a large body size with happiness and wealth, and associated a smaller body size with ill-health and disease.[32] Similarly, a study in rural South Africa found that approximately 84% of adolescent girls (11 – 15-years-old) were not happy with their body size and that girls who desired to be fatter had a significantly higher body mass index (BMI) than the girls who wanted to be thinner.[33] These studies show how body image perception in adolescence may be distorted. Therefore, the importance of a healthy body size and the association between body size and certain diseases or conditions should be communicated to children and their parents.

Food choices are also constrained by children's socio-economic status, with studies showing that children in low-income households had limited access to nutritious foods and that high-income households could afford healthy foods and therefore their children's diets were more diverse.[19, 34]

The marketing of obesogenic food to school-age children

The marketing, sale and consumption of foods that are high in fat and sugar-sweetened beverages appear to be driving the obesity epidemic and have adverse effects on the iron and vitamin A status of children. Research shows that marketing practices focus mainly on foods high in fat, sugar and salt, and non-alcoholic beverages. Such marketing has an impact on children's food choice and purchasing behaviour, understanding of nutrition, appreciation of certain foods, and consumption.[35] The marketing efforts of big food companies and retail stores are focused on fast foods, sweetened breakfast cereals, confectionery and soft drinks,[35] and contribute to the development and maintenance of an obesogenic environment.

Children and adolescents are targeted and exposed to food advertising through various marketing platforms including television, radio, product placement in stores, viral marketing, posters, sponsorships to schools and in-school marketing, product packaging, product design, free samples, tokens, competitions, clubs and loyalty programmes, the use of licensed and cartoon characters, point of sale positioning, magazines, newspapers and the internet.[35] Such marketing results in a high level of exposure to unhealthy foods. Therefore policies to regulate the marketing of unhealthy food to children need to address a wide array of marketing strategies, including billboards advertising beverage companies inside school premises.[25]

Which interventions have the potential to improve the nutritional status of school-age children?

Addressing these complex challenges requires a "whole-school approach" of interventions both within and outside of schools to create an enabling environment.

Promising practices include:

- regulating the marketing and sale of unhealthy foods to children in and around schools,
- educating children about nutrition and healthy lifestyles,

Case 19: Addressing the threat of alcohol to child and adolescent development – a growing imperative

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South Africa has one of the highest rates of fetal alcohol spectrum disorder (FASD), and it is the leading risk factor for death and disability for youth (15 – 19 years) globally.[60, 61] This is in keeping with the most recent findings from the 2016 South African Demographic and Health Survey where one in every four youth (15 – 19) reported using alcohol.[62] Drinking often starts even earlier, and the National 2011 Youth Risk Behaviour Survey (YRBS) found that 12% of grade 8-11 learners had used alcohol before 13 years of age with high levels of binge drinking.[10] A separate multi-focused intervention study found hazardous levels of alcohol use by 27% of adolescent girls and young women (aged 10 – 24 years).[63]

Direct and indirect consequences of drinking among children and adolescents in South Africa include unintentional and intentional injury, interpersonal violence, rape, unwanted pregnancies, sexually transmitted infections, HIV, poor educational outcomes (absenteeism, school failure and dropout) and FASD.[63] Drinking during pregnancy can damage the unborn child, and rates of FASD in South Africa have been found to be among the highest in the world affecting 17% to 23% of children in certain mainly rural communities.[64]

Escalating levels of alcohol use and increases in consumption among young people are strongly linked to a host of bio-psycho-social factors, and can also be attributed to increased access to alcohol beverages, increased affordability, and aggressive marketing targeting this vulnerable group.[63] Additionally, the cost of alcohol reduces the amount of money available to buy food and in so doing reduces the availability of food for children in that household. Research in Poland has shown that children coming from families who have a parent with alcohol addiction had a lower BMI and were shorter than other children of the same age.[65] The South African government has attempted to address these problems by proposing to ban the advertising of alcohol, raise the legal drinking age, limit hours for alcohol sales, and lower the legal alcohol limit for drivers, but most of this legislation has not been enacted.

Opportunities for intervention

There is a lot more the government could and should be doing at multiple levels to reduce use of alcohol by young people. Universal interventions include:

- scaling up programmes to strengthen parenting skills, build resilience and self-efficacy from the first 1,000 days of life through to adolescence;
- banning packaging that appeals to young people;
- increasing excise taxes on products that appeal to young people such as fruit-flavoured alcoholic drinks;
- instituting minimum unit pricing;
- dealing firmly with venues that sell alcohol to underage drinkers; and
- instituting a graduated driving license policy so that novice drivers may not test positive when driving under the influence of alcohol for a number of years.[66-68]

Targeted interventions include:

- accrediting school-based prevention programmes to improve quality; and
- providing appropriate and quality treatment programmes, including screening, brief interventions and referral to treatment services for young people.

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Figure 23: Interventions with the potential to improve the nutritional status of school-age children: A whole-school approach

- improving the quality of food supplied by the National School Nutrition Programme,
- creating incentives to provide more healthy foods through school tuckshops and lunchboxes,
- using school food gardens to improve dietary diversity, provide income generation opportunities and educate learners about healthy diets and food production
- providing school health services including vitamin A supplements and deworming
- improving water, sanitation and hygiene to prevent infections
- creating a safe and supportive school environment that promotes physical activity.

Regulating the marketing of unhealthy foods to children

Marketing of unhealthy products to children continues despite policies developed to safeguard children from manipulation by big companies in the food industry. Such policies include a set of recommendations on the marketing of foods and non-alcoholic beverages to children endorsed by the World Health Assembly in 2010,[36] which aimed to limit the marketing of foods high in saturated fats, trans-fatty acids, free sugars, or salt to children. In 2014, the Department of Health tabled draft regulation R429 relating to the Labelling and Advertising of Foodstuffs, which aimed to prohibit the commercial marketing of food or non-alcoholic beverage to children unless it complies with a set of criteria (see Guideline 14).[37] This included limiting advertising in places where children are likely to gather, such as crèches, schools, and sports events. Yet, South Africa has still not legislated R429 or developed a monitoring and enforcement framework for implementation (see Case 7).

Advertising and selling of unhealthy foods in and around schools is associated with poor diet quality, overweight

and obesity among learners.[38] It is therefore essential to scrutinise the marketing and sale of unhealthy foods in and around schools. Currently, South Africa does not have a set of guidelines or policies governing the marketing and sale of unhealthy foods in and around schools. Yet school policies and national regulations can play a vital role in curbing the problem of overweight and obesity in young people.[39] Such policies could include banning vending machines that sell unhealthy food options, banning the school signage that is sponsored by big food cooperates, prohibiting unhealthy food sales in school tuck shops and areas around the school, and encouraging the selling of fruit and other healthy foods. In addition, a monitoring process would need to be put in place to strengthen adherence to these policies. It is also necessary to improve the food environment in the home, school and wider community to enable school-aged children and adolescents to make healthy food choices.

Nutrition education and health promotion

School-based health education creates an opportunity to impart knowledge and skills and develop positive attitudes and self-efficacy that will shape children's behaviours into adulthood. Adolescence is a period of exploration, dynamic and complex. Therefore, health promotion messages intended for adolescents need to cater for their needs and address misconceptions about health. The Life Orientation syllabus in South African schools covers numerous health topics, including nutrition.[40]

Health and nutrition messages delivered to children and adolescents should be appealing but clear to avoid mistrust and confusion. In other words, behaviour change communication goes beyond delivering knowledge; it is an interactive intervention that requires the strategic use of communication to promote positive health outcomes based on proven theories and models of behaviour change.[41] Yet this method of communicating health information has not been applied widely to school-based health communication and teachers' nutrition knowledge is suboptimal.[42]

The Curriculum and Assessment Policy Statement (CAPS) includes nutrition and related health information predominantly in Life Orientation. Some information is included in Natural Sciences (Grade 6) and Consumer Studies and Hospitality Studies in the Further Education and Training (FET) band (grades 10 – 12). CAPS does not specify the content of the nutrition information, merely the outline. Those who develop the Teacher and Learner Support Materials often use their own knowledge of nutrition, which may be inaccurate, irrelevant or incomplete.

School health services

The 12 to 13 years that most children spend in school provide an ideal opportunity for health interventions to address the many health and socio-economic challenges that affect children's nutritional status. The Integrated School Health Policy (ISHP) therefore focuses on learners' immediate health problems and interventions to promote their physical, mental and social well-being.[43] School health services initially focussed on services to learners in the most disadvantaged schools but will be extended to all schools over time.

Basic components of the school health programme include a healthy physical environment, safe water and sanitation, skills-based health education and school-based health and nutrition services. Topics covered in the Life Orientation curriculum should be supplemented through co-curricular activities focusing on nutrition, physical activity, hygiene, chronic diseases, physical and emotional abuse, sexual health, teenage pregnancy, HIV and mental health. School health services are currently delivered by a limited number of School Health Nurses, who aim to assess each learner once during each of the four educational phases, with an emphasis on Grade 1 and Grade 8 learners. This includes an assessment of the vision, speech and hearing, growth, gross locomotor function, oral health, chronic illness and basic mental health of all foundation phase learners. This is followed by an anthropometric assessment and vision, oral health, chronic illness and mental health screening of learners in the senior phase and FET band. On-site services at schools should include deworming, immunisation (if needed), treatment of minor ailments, reproductive health services, nutrition assessment and environmental assessments (such as water, sanitation and safe waste disposal). These services may be supplemented by NGOs or by professional societies on a voluntary basis. The Department of Social Development should assist learners and their families to access social assistance to overcome financial barriers and relieve hunger, while the Department of Basic Education (DBE) plays a key role in creating an enabling environment for the ISHP.[43]

School health services provide a safety net for children without access to preventive health services and an opportunity to identify and intervene early to address avoidable health and nutrition problems.[43] Yet coverage remains suboptimal, with only 33% of Grade 1 learners and 22% of Grade 8 learners screened in 2017/18.[44] Challenges include a shortage of staff and equipment and a lack of referral and follow-up systems.[43] A study in the City of Tshwane revealed widespread non-compliance with the ISHP and lack of stakeholder collaboration. This fragmented

and unsustainable approach to the execution of the ISHP programme could result in delayed identification of children who need health interventions.[45]

School feeding programmes

The National School Nutrition Programme (NSNP) is a poverty alleviation strategy that aims to deliver a daily nutritious meal, providing at least 30% of the recommended dietary allowance (RDA) for children over the age of 4 years to learners attending quintile 1, 2 and 3 schools. An analysis of menus from schools in the Eastern Cape showed that this target is not achieved, with typical meals only providing about 16% of the daily energy requirement. This is more a snack than a meal.[46] Secondary aims are to improve access to education and enhance learning capacity. Where it is implemented, the programme has been shown to improve punctuality, regular school attendance, concentration and the general well-being of participating learners.

School feeding is a powerful tool to alleviate short-term hunger and enhance children's learning capacities. It also provides an incentive for parents to send or keep children at school, particularly girls.[47] The 2018 General Household Survey revealed that 77% of learners who attended public schools in 2017 benefitted from school feeding schemes.[21]

The 2016 evaluation of the NSNP did not assess the programme's impact on children's school attendance, performance or nutritional status. Challenges reported by district officials included limited staff to prepare and serve the food, high staff turnover of those preparing the food, limited transport for food to the schools and an inability to serve food from three food groups every day.[48] There have been few evaluations of the NSNP's impact on micronutrient deficiencies. However, the Department of Planning, Monitoring and Evaluation has commissioned a series of evaluations to review different dimensions of the programme and its administration. The NGO Feed, Uplift, Educate, Love (FUEL) investigated the processes of food delivery in the NSNP and worked with North-West Province provincial government to improve the procurement and delivery of food in selected schools. Initially, they found that their efforts were unsuccessful because stakeholders at school-level were not involved. They then involved local fieldworkers in developing a monitoring, reporting and responding (MRR) tool, which allowed fieldworkers to monitor the quantities of food delivered and assess whether schools were serving nutritious meals on time. The MRR methodology was rolled out in other provinces between 2011 and 2017, and progress has been made in serving timely, nutritious meals in most provinces.[49]

Employment of food handlers through the NSNP

The NSNP provides an important source of income for women who have children in public schools in quintiles 1 – 3. The 2016 evaluation of the NSNP revealed that over 50,000 food handlers prepared food for the NSNP, earning a stipend of R1,400 per month. This arrangement benefits community members and stimulates economic activity. These food handlers, who are mostly women, are supposed to be provided with training in food safety and hygiene, preparation and serving. They can then potentially use these skills to access further employment or set up small businesses after completing their 24-month contract with the schools. But there is no evidence that this training has been successfully implemented in most schools, and observation in the Eastern Cape reveals that vegetables such as cabbage are cooked long before the mealtime and incidents of severe food poisoning.[46]

Water, sanitation and food safety

The provision of sanitation and clean water for drinking and handwashing is vital to prevent the spread of diseases and ensure effective hygiene practices in both the school and home environments. Hygiene behaviours are developed and reinforced during the school years and depend on the availability of clean water and sanitation facilities.[50] A child-centred analysis of the 2018 General Household Survey showed that 30% of children live in households without access to piped water on site, and 21% live in households without adequate sanitation.[51] In the 2011 Youth Behaviour Risk Survey, 62.1% of learners reported always washing their hands before eating, while 71.5% of learners reported always washing their hands after going to the toilet.[10] Yet the COVID-19 pandemic revealed significant gaps in the provision of water and sanitation at schools.

The NSNP provides guidelines on the basics of personal hygiene, food hygiene, food preparation, managing food waste and preventing food poisoning.[52] Yet the recent evaluation of the NSNP showed that almost half of the volunteers had not received training on kitchen hygiene, food safety and pest control.[48]

School food gardens

A review of school garden programmes over the past thirty years indicates that school gardens have the potential to improve dietary diversity and food security, provide income generation opportunities and educate learners about healthy diets and food production.[47] In a population where vitamin A deficiency is still reported in some vulnerable groups, school gardens play an important role in providing dark-green leafy

Case 20: The National School Nutrition Programme court case

Mbonisi Nyathi and Paula Proudlock[i]

On 17 July 2020, the North Gauteng High Court handed down judgement in *Equal Education and Others v Minister of Basic Education and Others*, in which the Department of Basic Education (DBE) was ordered to resume the National School Nutrition Programme (NSNP) for all qualifying learners, regardless of whether or not they had resumed classes.[74]

Parties in the litigation

The applicants, Equal Education (EE) and the school governing bodies (SGBs) of two public schools in Limpopo, sought an order directing the Minister of Basic Education and the MECs of Basic Education of eight provinces (the respondents) to resume the NSNP and requested the court to issue a supervisory interdict to ensure compliance. The applicants also sought an order declaring that the respondents were in breach of their constitutional and statutory duty to ensure that the NSNP provided a daily meal to all qualifying learners whether they were attending school or studying away from home as a result of the COVID-19 pandemic.[75] The Children's Institute, represented by the Centre for Child Law, was admitted as amicus curiae.[76]

The issues before the court

The first issue before the Court was whether the applicants had set up a factual foundation for the remedy they sought because the respondents contended that they never refused to implement the NSNP. The DBE argued that the supervisory interdict sought by the applicants was inappropriate in these circumstances. The DBE also argued that their constitutional duty to provide basic education did not include the duty to provide basic nutrition.[77]

The Court found that the applicants had successfully set out the factual basis of their case that respondents had failed to roll out the NSNP, and that the Minister and MECs had not complied with their constitutional and statutory duties. Therefore the Court rejected the respondents' defence as semantic, bad in law and contrived.[78]

The impact of COVID-19

The Court held that the NSNP was a lifesaving programme for the poorest children that provided at least one nutritious meal a day to learners while they are being educated.[79] The NSNP is a feeding scheme that feeds approximately 9.6 million poor learners in South African public schools. The court relied on a report by Jeremy Seekings to highlight the impact of the closure of schools and the suspension of the NSNP during the COVID-19 lockdown period.[80]

The Court noted from the Seekings report that for all the measures that were announced by the government to mitigate the loss of employment and income and the suffering due to lockdown, there was no viable substitute for the NSNP for children.[81] Furthermore, children without identity numbers were not benefiting from the increase to Child Support Grant and were excluded from the food parcels programmes.[82] The report noted that the social grant relief package had failed to alleviate the plight of all poor people. Millions of people who were in informal employment had received no income or grants and could not meet their families' basic needs and expenses. The suspension of the NSNP had a devastating effect on the distribution of food to poor children, and the Court noted that less food was being distributed during the lockdown than before the lockdown. This meant that children in poor households faced the risk of malnutrition with possible long-term damage to their health.[83]

The affidavits submitted by the applicants painted a painful scenario that many children in the country found themselves in. It supported the narrative that the NSNP ensures at least one meal a day for learners who do not get regular meals at home, enabling them to concentrate and learn and receive basic nutrition. The children were unable to concentrate on schoolwork due to low levels of energy and the general anxiety caused by food insecurity.

When some learners were allowed access to the NSNP due to the phased reopening of schools, this caused further distress as those who were able to access food felt guilty for eating while their siblings at home did not receive a meal. The learners expressed their frustration, stress and lack of concentration as a result of the food insecurity. Some said that they had just given up on studying. As noted by the Court, the affidavits showed that "hunger is not a problem, hunger is an obscenity."[84]

The evidence submitted by the amicus curiae, the Children's Institute, revealed that 30% of the South African population experiences severe levels of food insecurity

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– a far higher rate than the global average or even the average for Africa. High levels of unemployment lead to poverty and food insecurity, and even when employed, income is often inadequate. Five million people are employed in the informal sector who in turn support 16 million people. This means that caregivers are not able to provide sufficient food and basic nutrition to their children. Even prior to lockdown, about 11.6 million children already lived in households below the upper bound poverty line.[85] The amicus submitted that the NSNP was well targeted to children who are poor and food insecure. The NSNP also delivers micronutrients because it includes protein, vegetables and fruit. The NSNP is essential for school children because it is well-established that well-nourished school children learn better.[86]

The suspension of the NSNP infringed on the children's right to basic nutrition

The Court accepted that the suspension of the NSNP had a devastating effect on over nine million learners. A reliable source of food and nutrition came to an end overnight. To demonstrate that the respondent had a duty to resume the NSNP, the applicants relied on sections 29(1)(a) (the right to basic education) and section 28(1)(c) (children's right to basic nutrition), read with section 27(1)(b) (the right to have access to food) of the South African Constitution.[87]

The applicants contended that the right to basic education includes the provision of the NSNP and that its continued suspension constituted a failure on the part of the DBE to fulfil their constitutional duties. To support this argument, the applicants and the amicus directed the Court to the government's actions and policy documents which demonstrated that the provision of nutrition is integral to the right to basic education.[88]

On the other hand, the respondents argued that the NSNP was just a welcome addition to their duty in terms of the right to basic education.[89] The Court rejected this argument, referencing the Department's own documents.[90] The Court held that the Minister of Basic Education and the MECs have a constitutional and statutory duty to provide basic nutrition in terms of section 29(1)(a) of the Constitution.[91]

Furthermore, the Court held that the right to basic nutrition, like the right to basic education, is unqualified; that is, there is no internal qualifier making the right subject to available resources or progressive realisation. The right can therefore only be limited in terms of the general limitation clause in section 36 of the Constitution.[92] The Court further held that in addition to the government's positive obligations to fulfil the rights contained in the Bill of Rights, the government also has negative obligations not to impair access to rights in the Constitution.[93]

The Court held that learners are entitled to receive the basic nutrition they have always received in terms of the NSNP. When the state suspended the NSNP, it essentially infringed the learners' right to nutrition and education.[94] In passing, the Court observed that there was no compelling justification for the Minister and MECs to suspend the NSNP,[95] especially since the funds for the programme were readily available.

Conclusion

The applicants were successful in proving that the Minister and the MECs had failed to comply with their constitutional and statutory duties.[96] The court issued a declaratory order stating that all qualifying learners are entitled to the NSNP, whether or not schools have reopened. The government is constitutionally obliged to ensure learners have access to the NSNP and the DBE was placed under judicial supervision to ensure compliance.[97]

The case clarifies that the government has the constitutional duty to provide learners with the NSNP as part of the right to basic nutrition and education. The judgment affirms children's socio-economic rights and will have a tangible effect in alleviating the hunger felt by so many children in South Africa. As the Court remarked, "hunger is not an issue of charity, but one of justice". In this case, justice has prevailed.

and orange vegetables and preventing clinical symptoms that affect school performance and compromise the immune system.[53] With improved access, availability and intake of fresh produce, school children are less likely to consume high amounts of processed, energy-dense and nutrient-poor foods that increase their risk of unhealthy weight gain and the long-term risk of non-communicable diseases.[47] School gardens on their own cannot address food and nutrition security. But if planned and implemented with the support of parents and the community, they can complement school feeding programmes and enhance their long-term impact on children's nutritional status and learning achievements.[47, 54]

The NSNP, therefore, encourages schools to establish gardens[52] from which they can obtain fresh vegetables and fruit to supplement the menu provided by DBE in line with the South African Food-Based Dietary Guidelines. While the promotion of micronutrient-rich vegetables and fruits in school, home and community gardens helps diversify the local food base, it is generally not possible for a school garden to generate much of the staple food required for a school feeding programme.[47]

Learners, teachers and parents are also provided with skills to grow their own food, contributing towards long-term household food security and providing micronutrients. In a cross-sectional survey of schools across South Africa, 77% of learners indicated that their school has a food garden, while

Case 21: Malnutrition and physical activity amongst South African children and adolescents

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Physical activity has numerous proven benefits for the growth, development, and physical and mental health of children and adolescents. Research, from predominantly high-income countries, shows that it helps prevent obesity. However, in South Africa, the relationship with nutrition status is more complex due to the double burden of overnutrition (overweight/obesity) and undernutrition in South African children. It is therefore necessary to consider physical activity in relation to both over- and undernutrition. Evidence from urban and rural settings in South Africa suggests that both forms of malnutrition are associated with lower levels of physical activity in younger children, especially when they are at preschool.[69-71]

Given this complex relationship, it is important to consider the nutrition status of children when making recommendations about increasing physical activity levels. In low-income (and often food-insecure) settings where children might have little excess energy available, it may not be wise to promote physical activities that dramatically increase energy expenditure (e.g. running around for extended periods). For younger children especially, this may compromise or displace energy available for brain development; for older children and adolescents, this could compromise their ability to focus on their schoolwork. For children and adolescents in these circumstances, less energy-demanding activities (e.g. climbing, games that involve walking, or running only for short periods of time) would be more appropriate and could yield many of the psychosocial and cognitive benefits of physical activity, without overburdening their already scarce energy supply due to food insecurity and/or a poor quality diet.[72]

Another key consideration in low-income settings is the need to create enabling environments to support children and adolescents' physical activity. In South Africa, there is often space for children and adolescents to be physically active, but the environment is not necessarily safe, nor is it particularly supportive. In preschools, children may not be provided with opportunities for the kinds of physical activity that promotes cognitive and physical development (e.g. if they are just allowed to run around outside, unsupervised). While quality can be enhanced by equipment and facilities, these are not prerequisites. Engaged, motivated and resourceful preschool teachers can create these quality opportunities with simple, but fun activities.

The Healthy Active Kids South Africa (HAKSA) 2018 Report Card[73] highlighted similar problems at primary and high schools including the consistently poor implementation of physical education in the curriculum (through Life Orientation); limited implementation of the National School Sport Programme; low levels of participation in organised sport; and safety concerns that affect many children who walk to school, even though walking to school is a good way for children and adolescents to be physically active. Furthermore, only about half of school-aged children are meeting the recommended 60 minutes of moderate- to vigorous-intensity physical activity (that increases heart rate and makes you breathe harder and sweat). Those who are more active tend to be a healthier weight, have a better quality of life, and less likely to use tobacco and marijuana. Added to this, only a third of children meet screen time recommendations (< 2 hours of recreational screen time per day).

The HAKSA 2018 Report Card[73] identified two key strategies for creating a more enabling environment 1) providing safe spaces for physical activity, particularly at a community level, and for children walking or cycling to school; and 2) improving the implementation of policies to promote a healthy school culture and environment, and opportunities for physical activity, especially physical education and sport.

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68% indicated that their families also grow vegetables and/or fruit.[52]

Translating the vision of school gardens into a sustainable school garden programme can be challenging. A shortage of water is reported to be a major constraint for the development and maintenance of school gardens, particularly in semi-arid areas where the development of simple irrigation systems (water points, roof catchments) needs to be considered. Thus, container-based cultivation and hydroponics may be helpful in urban areas where available land is limited.[47]

The availability of technical skills to support school gardens also needs to be considered. The charging of (usually over-burdened) teachers with extra training and supervisory responsibilities needs to be weighed up against the possibility of involving the community and NGOs. Public-private partnerships, including sponsorship by firms, need to be explored. One option would be to engage NGOs to link school and community gardens and draw on their expertise in managing gardens efficiently, which would reduce the workload of teachers and the need to train teachers in gardening.[47]

Developing a sustainable school garden programme requires strong political commitment at a national level, a robust institutional framework and the active participation of all stakeholders - from the ministries of agriculture, education and health, through to teachers, learners, parents, school administrations with the support of funding agencies and NGOs.[47] Governments should therefore have a clear vision of how school garden initiatives fit into the country's overall educational and food and nutrition security strategy and put the necessary resources in place to ensure their financial, physical and pedagogical sustainability.[47]

Physical activity

The health benefits of regular physical activity (PA) and exercise have been widely acknowledged. Yet physical inactivity remains a concern in South Africa. According to the 2011 Youth Risk Behaviour Survey, 32% of the learners from grade 8 – 11 reported that they had no physical education classes at school and 30% watched TV or played computer games for over three hours per day.[10] South Africa's 2014 Report Card on Physical Activity for Children and Youth found that fewer than 50% of learners (6 – 18 years) engaged in 60 minutes of moderate to vigorous physical activity a day as recommended to promote health and prevent chronic diseases.[5, 17] A recent study of Senior Phase learners from three schools in Potchefstroom, North-West, found low levels of moderate to high-intensity PA combined with excessive sedentary behaviour. This finding implies that more than 70% of the participants did not meet the recommended health-based guidelines. Higher PA levels were shown during weekends (including soccer, recreational swimming, jogging and dancing), while sedentary activities included listening to music, riding a vehicle and being busy on the phone.[55] Studies of PA levels among urban-based South African primary school learners found that 31% did not meet international standards and that PA levels declined with age from 11 to 14 years. In both studies, boys reported higher PA levels than girls.[55, 56] These findings suggest that there is a need for health promotion efforts targeting particular groups including unhealthy individuals, adolescent girls and those from disadvantaged communities,[57] as low PA levels contribute to the obesity epidemic that threatens the wellness of the South African population and the economy.[17] Increased PA among children will help reduce the risk of future chronic diseases and contribute to the health of the population and the growth of the economy.[56] See case 21 which outlines key challenges and recommendations on how to increase PA amongst preschool and school-age children.

Tuck shops and lunch boxes

The DBE has provided guidelines to establish healthy school tuck shops,[58] but there is no monitoring in place to regulate implementation. Foods bought from tuck shops or vendors are mostly low in nutrients and high in energy, salt, fat and sugar, such as biscuits, crisps and sugar-sweetened beverages. This is concerning as about 50% of school-going children in South Africa regularly buy food at school and do not pack lunch boxes. [5, 19]

A South African study showed that most urban adolescents consumed fast foods, sugar-sweetened beverages and school tuck shop items on three or more occasions per week. Children in the lowest income groups had higher odds of an "unhealthy dietary pattern" than children in the highest socio-economic groups. Children who carried a lunch box to school appeared to have greater dietary diversity, consumed more regular meals, had a higher standard of living and greater nutritional self-efficacy than those who did not carry a lunchbox to school.[34] This finding illustrates how the lunch boxes of children from higher-income groups contained diverse nutrient-rich foods, while children from low-income groups bought cheap nutrient-poor snacks from vendors or tuck shops.

Shifting children's dietary preferences can be challenging. For example, in one study/case, when an urban primary school introduced a 'healthy' tuck shop, older learners responded

Table 14: Opportunities to strengthen food and nutrition interventions during the school years

Intervention	Status	Opportunities for improvements
School feeding	Aims to provide a daily nutritious meal, providing at least 30% of the recommended dietary allowance (RDA) for children over the age of 4 years to learners attending quintile 1, 2 and 3 schools.	Monitoring framework for routine audits and oversight to meet the policy provisions of 30% RDA for all nutrients and compliance with set menus. Advocacy to increase the nutrient provisions to at least 50% RDA
Food gardens	A proven intervention to improve dietary diversity and food security; provide income generation and opportunities to educate learners about healthy diets, the environment and sustainable food production	Food gardens can be used to improve vegetable and fruit intake in line with the food-based dietary guidelines, and provide opportunities for school children to engage with nature as a learning and physical activity
Water, sanitation and hygiene	The provision of sanitation and clean water for drinking and hand washing is vital to prevent the spread of diseases and to ensure effective hygiene practices in both the school and home environment	Monitoring framework for routine audits and oversight to ensure that all schools have sanitation and clean water for drinking, hand washing and food gardens
Physical activity	Physical activity levels are sub-optimal in children and the lack of organized physical activity and sport in schools is a contributing factor to childhood obesity.	Schools need to provide safe supportive environments for physical activity and sport. Health-promoting physical activities at school can be extended to families and the community to build the culture of healthy exercise
School health services	School health services include a healthy physical environment, safe water and sanitation, skills-based health education and school-based health and nutrition services	Annual anthropometric measurements offer an opportunity to identify and intervene in children's sub-optimal growth patterns. School health also offers the opportunity to provide micronutrient supplements and deworming
Healthy tuckshops and lunch boxes	Implementation and monitoring of compliance to the DBE guidelines on healthy school tuck shops	Opportunity to promote healthy food environments in and around schools by promoting and supporting healthy snacks at tuckshops and food vendors. Healthy snacking culture could be extended into families and communities.
Regulating sale and marketing of unhealthy food	Widespread marketing of unhealthy foods and beverages has an impact on children's food choices, purchasing behaviour, understanding of nutrition, appreciation of certain foods, and consumption	Implementation and routine monitoring of recommendations on the marketing of foods and non-alcoholic beverages to children as endorsed by the World Health Assembly in 2010
Nutrition education and health promotion	The curriculum only specifies the outline, not the content of nutrition education, and learner support materials are often inaccurate, irrelevant, or incomplete.	Implementation and monitoring of a target-specific interactive social behaviour change intervention to promote positive health outcomes based on proven theories and models for school-aged children
Building nutrition literacy and agency among school children	Currently no literacy or agency among school-aged children for better food and nutrition offered in schools to and for them.	Modelled on the global climate change movement among school-aged children, there is an opportunity for nutrition literacy and agency especially on the food environment

negatively towards the intervention, while younger children were more positive. Learners in both this school and a control school wanted their tuck shop to allow them to choose from healthy and unhealthy items, such as iced lollies, baked samosas, sweets and crisps.[59] These findings suggest that interventions are best implemented during the early school years before eating habits become established.

Conclusion

The economic situation in South Africa and high unemployment, as well as recent droughts and food inflation, directly undermine individual and household food security, leaving children particularly vulnerable. In addition, there are significant gaps in policy and the implementation of government strategies to promote physical activity and healthy nutrition amongst children and adolescents. Some opportunities to strengthen key interventions during the school years are outlined in Table 14.

Future studies on the analysis of the NSNP menu items and the response to specific micronutrient deficiencies such as vitamin A, iron and calcium are needed, with quantification of the programme's impact on the intended beneficiaries. This information will inform the current poverty index, which is based on the assessment of the schools (quintile 1-3) and

not the community. Most schools benefit from space that could be used to grow fruit and vegetables that are culturally acceptable and environmentally sustainable, and which could augment the NSNP. A clear regulatory framework and monitoring system to restrict marketing of unhealthy food and cold drinks to children, and the availability of snacks high in sugar, fat and salt in the school environment are also recommended. The departments of Basic Education and Health, in partnership with the private sector, should create an enabling environment to promote access to healthy food, active play and sport. It is only when we value the well-being, learning outcomes and holistic development of learners, that we will come up with sustainable approaches that benefit school-age children.

References

1. Georgiadis A, Penny ME. Child Undernutrition: Opportunities beyond the first 1000 days. *The Lancet Public Health*. 2017;2(9).
2. Rodriguez-Martinez A, Zhou B, Sophiea MK, Bentham J, Paciorek CJ, Iurilli MLC, Ezzati M. Height and body-mass index trajectories of school-aged children and adolescents from 1985 to 2019 in 200 countries and territories: A pooled analysis of 2181 population-based studies with 65 million participants. *The Lancet*. 2020;396(10261):1511-1524.
3. Caleyachetty R, Thomas GN, Kengne AP, Echouffo-Tcheugui JB, Schilsky S, Khodabocus J, Uauy R. The double burden of malnutrition among adolescents: Analysis of data from the Global School-Based Student Health and Health Behavior in School-Aged Children surveys in 57 low- and middle-income countries. *American Journal of Clinical Nutrition*. 2018;108(2):414-424.
4. Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, Uauy R. Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*. 2013;382(9890):427-451.
5. Draper CE, Tomaz SA, Bassett SH, Harbron J, Kruger HS, Micklesfield LK, Lambert EV. Results from the Healthy Active Kids South Africa 2018 Report Card. *South African Journal of Child Health*. 2019;13(3):130-136.
6. Statistics South Africa. *General Household Survey 2018*. Pretoria: Stats SA. 2019.
7. Statistics South Africa. *Mid-year population estimates 2019. Statistical release P0302*. Pretoria: Stats SA. 2019.
8. Reddy SP, Resnicow K, James S, Kambaran N, Omardien R, Mbewu AD. Underweight, overweight and obesity among South African adolescents: Results of the 2002 National Youth Risk Behaviour Survey. *Public Health Nutrition*. 2009;12(2):203-207.
9. Reddy SP, James S, Sewpaul R, Koopmen F, Funani S, Sifunda S, . Omardien RG. *Umthente Uhlaba Usamila – The 2nd South African National Youth Risk Behaviour Survey 2008*. Cape Town: South African Medical Research Council. 2010.
10. Reddy SP, James S, Sewpaul R, Sifunda S, Ellahebokus A, Kambaran NS, Omardien R. *Umthente Uhlaba Usamila – The 3rd South African National Youth Risk Behaviour Survey 2011*. Cape Town: South African Medical Research Council. 2013.
11. Shisana O, Labadarios D, Rehle T, Simbayi L, Zuma K, Dhansay A, . . . Team S-. *South African National Health and Nutrition Examination Survey (SANHANES-1)*. Cape Town: Human Sciences Research Council. 2013.
12. Labadarios D, Steyn NP, Maunder EM, Macintyre UE, Gericke GJ, Swart EC, Nel JH. The National Food Consumption Survey (NFCS): South Africa, 1999. *Public Health Nutrition*. 2005;8(5):533-543.
13. Labadarios D, Swart R, Maunder EMW, Kruger HS, Gericke GJ, Kuzwayo PMN, Dannhauser A. *National Food Consumption Survey Fortification Baseline (NFCS-FB) South Africa, 2005*. Stellenbosch: Department of Health, UNICEF, GAIN. 2007.
14. NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: A pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents and adults. *The Lancet*. 2017;390(10113):2627-2642.
15. GBD Obesity Collaborators, Afshin A, Forouzanfar MH, Reitsma MB, Sur P, Estep K, Murray CJL. Health effects of overweight and obesity in 195 countries over 25 years. *New England Journal of Medicine*. 2017;377(1):13-27.
16. Kruger R, Kruger HS, Macintyre UE. The determinants of overweight and obesity among 10- to 15-year-old schoolchildren in the North West Province, South Africa – the THUSA BANA(Transition and Health during Urbanisation of South Africans; BANA, children) study. *Public Health Nutrition*. 2006;9(3):351-358.
17. Draper C, Basset S, de Villiers A, Lambert EV, Group HW. Results from South Africa's 2014 Report Card on Physical Activity for Children and Youth. *Journal of Physical Activity and Health*. 2014;11 Suppl 1:S98-104.
18. National Department of Health, Statistics South Africa, South African Medical Research Council, ICF. *South Afrian Demographic and Health Survey 2016*. Pretoria, South Africa and Rockville, USA: NDoH, Stats SA, SAMRC, ICF. 2019.
19. Feeley AB, Musenge E, Pettifor JM, Norris SA. Investigation into longitudinal dietary behaviours and household socio-economic indicators and their association with BMI Z-score and fat mass in South African adolescents: The Birth to Twenty (Bt20) cohort. *Public Health Nutrition*. 2013;16(4):693-703.
20. Stringhini S, Carmeli C, Jokela M, Avendaño M, Muennig P, Guida F, Zins M. Socioeconomic status and the 25 × 25 risk factors as determinants of premature mortality: A multicohort study and meta-analysis of 1.7 million men and women. *The Lancet*. 2017;389(10075):1229-1237.
21. Statistics South Africa. *General Household Survey. Statistical release P0318*. Pretoria: Stats SA. 2018.
22. Human Sciences Research Council. *HSRC Study on COVID-19 indicates overwhelming compliance with the lockdown* [Internet]. Pretoria: Human Sciences Research Council; 26 April 2020. Accessed 9 November 2020: http://www.hsrc.ac.za/en/media-briefs/general/lockdown-survey-results.
23. Phakathi B. *Lobby Groups to go to Court to Reinstate School Feeding Scheme* [Internet]. Business Day; 12 June 2020. Accessed 30 September 2020: https://www.businesslive.co.za/bd/national/education/2020-06-12-lobby-groups-to-go-to-court-to-reinstate-school-feeding-scheme/.
24. Investec Focus. *Food security and Covid-19: Averting a crisis of "biblical proportions"* [Internet]. 4 May 2020. Accessed 20 June 2020: https://www.investec.com/en_za/focus/beyond-wealth/food-security-and-covid-19.html.
25. Tsolekile LP, Puoane T, Schneider H, Levitt NS, Steyn K. The roles of community health workers in management of non-communicable diseases in an urban township. *African Journal of Primary Health Care and Family Medicine*. 2014;6(1):E1-8.
26. Krieger N. Genders, sexes, and health: What are the connections -and why does it matter? *International Journal of Epidemiology*. 2003;32(4):652-657.
27. Wisniewski AB, Chernausek SD. Gender in childhood obesity: family environment, hormones, and genes. *Gender Medicine*. 2009;6 Suppl 1:76-85.
28. Kruger HS, Faber M, Schutte AE, Ellis SM. A proposed cutoff point of waist-to-height ratio for metabolic risk in African township adolescents. *Nutrition*. 2013;29(3):502-507.
29. Armitage JA, Poston L, Taylor PD. Developmental origins of obesity and the metabolic syndrome: The role of maternal obesity. *Frontiers in Hormone Research*. 2008;36:73-84.
30. Jornayvaz FR, Vollenweider P, Bochud M, Mooser V, Waeber G, Marques-Vidal P. Low birth weight leads to obesity, diabetes and increased leptin levels in adults: The CoLaus study. *Cardiovascular Diabetology*. 2016;15:73.
31. Gardner RM. Methodological issues in assessment of the perceptual component of body image disturbance. *British Journal of Psychology*. 1996;87(Pt 2):327-337.
32. Puoane T, Tsolekile LP, Steyn NP. Perceptions about body image and sizes among Black African girls living in Cape Town. *Ethnicity and Disease*. 2010;20(1):29-34.
33. Pedro TM, Micklesfield LK, Kahn K, Tollman SM, Pettifor JM, Norris SA. Body image satisfaction, eating attitudes and perceptions of female body silhouettes in rural South African adolescents. *PLoS One*. 2016;11(5):e0154784.
34. Abrahams Z, de Villiers A, Steyn NP, Fourie J, Dalais L, Hill J, . . . Lambert EV. What's in the lunchbox? Dietary behaviour of learners from disadvantaged schools in the Western Cape, South Africa. *Public Health Nutrition*. 2011;14(10):1752-1758.
35. Cairns G, Angus K, Hastings G, Caraher M. Systematic reviews of the evidence on the nature, extent and effects of food marketing to children. A retrospective summary. *Appetite*. 2013;62:209-215.
36. World Health Organization. *Marketing of Foods High in Fat, Salt and Sugar to Children: Update 2012-2013* [Internet]. Geneva: World Health Organization; 2010. Accessed: www.euro.who.int/__data/assets/pdf_file/0019/191125/e96859.pdf
37. Republic of South Africa. *Foodstuffs, Cosmetics and Disinfectants Act 54 of 1972*. Pretoria: Government Gazette.
38. Barrera LH, Rothenberg SJ, Barquera S, Cifuentes E. The toxic food environment around elementary schools and childhood obesity in Mexican

cities. *American Journal of Preventive Medicine*. 2016;51(2):264-270.
39. Cassim B. Food and beverage marketing to children in South Africa: Mapping the terrain. *South African Journal of Clinical Nutrition*. 2010;23(4):181-185.
40. Van Deventer K. Perspectives of teachers on the implementation of Life Orientation in Grades R–11 from selected Western Cape schools. *South African Journal of Education*. 2009;29(1):127-146.
41. Ngigi S, Busolo DN. Behaviour change communication in health promotion: Appropriate practices and promising approaches. *International Journal of Innovative Research and Development*. 2018;7(9).
42. Oldewage-Theron WH, Egal A. Impact of nutrition education on nutrition knowledge of public school educators in South Africa: A pilot study. *Health SA Gesondheid*. 2012;17:1-8.
43. Department of Basic Education. *Integrated School Health Policy*. Pretoria: Department of Basic Education. 2012.
44. Massyn N, Pillay Y, Padarath A. *Distric Health Barometer 2017/18*. Durban: Health Systems Trust. 2019.
45. Rasesemola RM, Matshoge GP, Ramukumba TS. Compliance to the Integrated School Health Policy: Intersectoral and multisectoral collaboration. *Curationis*. 2019;42(1):e1-e8.
46. Bulman A. *Realising Every Child's Right to Nutrition: An analysis of the National School Nutrition Programme in the Eastern Cape*. Grahamstown: Legal Resources Centre. 2017.
47. Food and Agricultural Organization. *School Gardens Concept Note: Improving child nutrition and education through the promotion of school garden programmes* [Internet]. Rome: FAO; 2004. Accessed 10 November 2020: http://www.fao.org/3/af080e/af080e04.htm.
48. Hazell E. *Report on the Implementation Evaluation of the National School Nutrition Programme*. Pretoria: JET Education Services. 2016.
49. Le Forestier E. *Evidence in practice. FUEL: Feed, Uplift, Educate, Love*. [Internet]. Yale University, USA; 2020. Accessed 27 June 2020: https://cpb-us-w2.wpmucdn.com/campuspress.yale.edu/dist/4/2450/files/2018/04/EvidenceInPractice_CaseStudy_FUEL-qphrwk.pdf.
50. Curtis V, Cairncross S. Effect of washing hands with soap on diarrhoea risk in the community: A systematic review. *Lancet Infectious Diseases*. 2003;3(5):275-281.
51. Statistics South Africa. *Community Survey 2016. Statistical release P0301*. Pretoria: Stats SA. 2016.
52. Department of Basic Education. *National School Nutrition Programme 2013/2014 Annual Report*. Pretoria: Department of Basic Education. 2013.
53. Agricultural Research Council. *Production Guidelines for Winter Vegetables*. Pretoria: ARC. 2013. [Accessed 30 September 2020: https://www.arc.agric.za/arc-vopi/Leaflets%20Library/Production%20Guideline%20for%20Winter%20Vegetables.pdf]
54. Zick CD, Smith KR, Kowaleski-Jones L, Uno C, Merrill BJ. Harvesting more than vegetables: The potential weight control benefits of community gardening. *American Journal of Public Health*. 2013;103(6):1110-1115.
55. De Vos JCW, Du Toit D, Coetzee D. The types and levels of physical activity and sedentary behaviour of Senior Phase learners in Potchefstroom. *Health SA Gesondheid*. 2016;21:372-380.
56. Van Biljon A, McKune AJ, DuBose KD, Kolanisi U, Semple SJ. Physical activity levels in urban-based South African learners: A cross-sectional study of 7,348 participants. *South African Medical Journal*. 2018;108(2):126-131.
57. Lungelo M, Lehlogonolo M, Naidoo I, Chibi B, Sokhela Z, Silimfe Z, Mabaso M. Factors associated with physical activity in South Africa: Evidence from a national population based survey. *The Open Public Health Journal*. 2018;11:516-525.
58. Department of Basic Education. *National School Nutrition Programme. Guidelines for tuck shop operators*. Pretoria: Department of Basic Education. 2014.
59. Bekker F, Marais M, Koen N. The provision of healthy food in a school tuck shop: Does it influence primary-school students' perceptions, attitudes and behaviours towards healthy eating? *Public Health Nutrition*. 2017;20(7):1257-1266.
60. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*. 2012;380(9859):2224-2260.
61. World Health Organization. *Global health risks: mortality and burden of disease attributable to selected major risks*. Geneva: World Health Organization, 2009.
62. National Department of Health,South African Medical Research Council (SAMRC) & ICF. *South African Demographic and Health Survey 2016: Key Indicators*. Pretoria, South Africa and Rockville, Maryland, USA, 2017.
63. Harker Burnhams N, Londani M, Morojele N,Williams P & Parry C. Characteristics and Predictors of Heavy Episodic Drinking (HED) among Young People Aged 16–25: The International Alcohol Control Study (IAC), Tshwane, South Africa. *International Journal of Environmental Research and Public Health*. 2020;17(10):3537.
64 May P, Marais A, De Vries M, Kalberg W, Buckley D, Hasken J, et al. The continuum of fetal alcohol spectrum disorders in a community in South Africa: prevalence and characteristics in a fifth sample. 2016;168:274-286.
65. Hanć T, Czapla Z, Szwed A, Durda M, Krotowska A & Cieślik J. Growth and nutritional status of children from dysfunctional families with alcohol addicted parents in Poland. *Economics & Human Biology*. 2015;18:101-109.
66. Morojele N, Lombard C, Burnhams NH, Williams PP, Nel E & Parry C. Alcohol marketing and adolescent alcohol consumption: Results from the International Alcohol Control study (South Africa). *South African Medical Journal*. 2018;108(9):782-788.
67. Harker Burnhams N, Myers B & Parry C. To what extent do youth-focused prevention programmes reflect evidence-based practices? Findings from an audit of alcohol and other drug prevention programmes in Cape Town, South Africa. *African Journal of Drug and Alcohol Studies*. 2009;8(1).
68. Ramsoomar L & Morojele N. Trends in alcohol prevalence, age of initiation and association with alcohol-related harm among South African youth: implications for policy. *South African Medical Journal*. 2012;102(7):609-612.
69. Draper CE, Tomaz SA, Hinkley T, Jones RA, Twine R, Kahn K, et al. Cross-sectional associations of physical activity and gross motor proficiency with adiposity in South African children of pre-school age. *Public Health Nutrition*. 2019;22(4):614-23.
70. Tomaz SA, Jones RA, Hinkley T, Twine R, Kahn K, Norris SA, et al. Physical activity in early childhood education and care settings in low-income, rural South African community: an observational study. *Rural and Remote Health*. 2019;19:5249.
71. Jones S, Hendricks S, Draper CE. Assessment of physical activity and sedentary behaviour at preschools in Cape Town, South Africa. *Childhood Obesity*. 2014;10:501-10.
72. Howard SJ, Cook CJ, Said-Mohamed R, Norris SA, Draper CE. The (possibly negative) effects of physical activity on executive functions: implictions of changing metabolic costs of brain development. *Journal of Physical Activity and Health*. 2016;13:1017-22.
73. Draper CE, Tomaz SA, Bassett SH, Harbron J, Kruger HS, Micklesfield LK, et al. Results from the Healthy Active Kids South Africa 2018 Report Card. *South African Journal of Child Health*. 2019;13(3):130-6.
74. Equal Education and Others v Minister of Basic Education and Others (Children's Institute as Amicus Curiae) [2020] JOL 47754 (GP).
75. Para 2.
76. Paras 3 – 5.
77. Paras 8 – 9.
78. Paras 10 – 16.
79. Para 19.
80. Para 22.
81. Paras 23 – 24.
82. Para 25.
83. Para 26.
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97. Para 103.