Health, nutrition and food security in South Africa: the role of food systems and factors shaping them.

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Peoples Health Movement

A WHO Collaborating Centre for Research and Training in
Human Resources for Health
The significance of nutritional status in South Africa’s health situation
Prevalence, trends and determinants of undernutrition and hunger
Prevalence trends and determinants of overweight/obesity
Dietary factors and the food environment in overweight/obesity and their social and structural determinants
Interventions to address the ‘double burden’ of malnutrition
Leading causes of premature mortality in 2013:

- HIV/AIDS (15.5%)
- TB (12.4%)
- Lower respiratory infections (8.3%)
- Diarrhoeal diseases (5.7%)
- Cerebrovascular disease (4.6%)
- Hypertensive heart disease (3.3%)
- Ischaemic heart disease (3.3%)
- Diabetes mellitus (2.8%)
- Road injuries (2.6%)

Child PIP found 60% of children were underweight and a third were severely malnourished.
What is the prevalence of undernutrition in South Africa amongst women and children?
Trends in the prevalence of undernutrition in children aged 1-3 years, SA 2005-2012

- Stunting: 23.4% (NFCS-2005), 26.5% (SANHANES)
- Severe Stunting: 6.4% (NFCS-2005), 9.5% (SANHANES)
- Wasting: 5.1% (NFCS-2005), 2.2% (SANHANES)
- Severe Wasting: 0.9% (NFCS-2005), 1.1% (SANHANES)
- Underweight: 11% (NFCS-2005), 6.1% (SANHANES)
- Severe Underweight: 1.2% (NFCS-2005), 1.7% (SANHANES)
## Trends in vitamin A status in children under five years of age, SA 1994-2012

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>SAVACG</th>
<th>NFCS-2005</th>
<th>SANHANES-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Vitamin A</td>
<td>0.84 μmol/L</td>
<td>0.62 μmol/L</td>
<td>0.75 μmol/L</td>
</tr>
<tr>
<td>Vitamin A deficiency (serum retinol &lt; 0.70 μmol/L)</td>
<td>33.3%</td>
<td>63.6%</td>
<td>43.6%</td>
</tr>
</tbody>
</table>
## Trends in anaemia and iron status: women of reproductive age (16-35 years), SA 2005 - 2012

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>NFCS-2005</th>
<th>SANHANES-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaemia (Hb &lt; 12 g/dL)</td>
<td>29.4%</td>
<td>23.1%</td>
</tr>
<tr>
<td>Iron depletion (Hb ≥ 12 g/dL and Ferritin &lt; 15 ng/mL)</td>
<td>7.7%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Iron deficiency anaemia (Hb &lt;12 g/dL and Ferritin &lt; 15 ng/mL)</td>
<td>10.5%</td>
<td>9.7%</td>
</tr>
</tbody>
</table>
Figure 2: Causes of Child Malnutrition

Outcomes
- Child malnutrition, death and disability

Immediate causes
- Disease
- Poor water/sanitation and inadequate health services
- Inadequate maternal and child care practices
- Inadequate dietary intake

Underlying causes at household/family level
- Insufficient access to food
- Inadequate and/or inappropriate knowledge and discriminatory attitudes limit household access to actual resources

Basic causes at societal level
- Quantity and quality of actual resources - human, economic and organizational - and the way they are controlled
- Potential resources: environment, technology, people

Food security

- Food security exists when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

- This definition has been identified with the four dimensions of food security: availability, access, stability and utilisation. It embodies the food and care-related aspects of good nutrition (Committee on World Food Security 1996, 2012)

- Food insecurity can be chronic, temporal, temporary or cyclical
Imagine a stroll by the river …

You notice a movement in the water, it is a baby, drowning!
… then another infant, half-submerged, floats down in the water struggling for life
… followed by 5, 10 more -- and more and more and more and more

You become very good at saving drowning children, develop new methods & technology, teach others, attend international conferences

but more and more and more and more and more come struggling down …

Photo: L Reynolds
Figure 1: Conceptual Model of Risk Factors for Disease

- Biological
- Behavioural
- Societal
- Structural

“Downstream”

“Upstream”
Benefits of Breast Feeding

• Exclusive breastfeeding (ie giving nothing but breastmilk to the infant) reduces under-five mortality by 13 percent (Jones et al., 2003).

• Compared with infants who are exclusively breastfed, infants aged 0-5 months who are not breastfed have six-fold and two-and-a-half-fold increased risks of death from diarrhea and pneumonia respectively (WHO Collaborative Study Team, 2000).
Breast Feeding in South Africa

Duration of Breastfeeding

• Only 8 percent of infants under 6 months are exclusively breastfed and a further 19 percent are almost exclusively breastfed with the addition of water only.

• Addition of other liquids whilst breastfeeding starts very early in South Africa.
Prevalence of food insecurity (experiencing hunger) by province, SA 2012

(n=6115)

Percentage

Eastern Cape 36.2
Limpopo 30.8
North West 29.5
Mpumalanga 29.5
Free State 28.8
KwaZulu Natal 28.3
Northern Cape 20.7
Gauteng 19.2
Western Cape 16.4
Total 26.0

Province

SANHANES

HSRC
Table XX: Dimensions of deprivation and inequality in South Africa

<table>
<thead>
<tr>
<th>Dimensions of deprivation</th>
<th>Children in poorest 20% of households</th>
<th>Children in richest 20% of households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income poverty</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Child hunger</td>
<td>28%</td>
<td>3%</td>
</tr>
<tr>
<td>Inadequate water</td>
<td>54%</td>
<td>9%</td>
</tr>
<tr>
<td>Inadequate sanitation</td>
<td>47%</td>
<td>9%</td>
</tr>
<tr>
<td>Overcrowding</td>
<td>28%</td>
<td>5%</td>
</tr>
<tr>
<td>Educational throughput†</td>
<td>46%</td>
<td>17%</td>
</tr>
<tr>
<td>Clinic far from home*</td>
<td>46%</td>
<td>25%</td>
</tr>
</tbody>
</table>


* See Part 3: Children Count – The numbers for more information on these indicators.

† Proportion of children aged 16 – 17 who have completed compulsory schooling (grade 9).
Child poverty in South Africa remains extremely high. In 2010, six out of every 10 children lived in households with an income of less than R575 per person per month. Stark racial disparities persist, with 67% of African children living in poor households compared to only 4% of White children.

I'm hungry!

Stop talking politics!
Leading causes of **premature mortality** in 2013:

- HIV/AIDS (15.5%)
- TB (12.4%)
- Lower respiratory infections (8.3%)
- Diarrhoeal diseases (5.7%)
- Cerebrovascular disease (4.6%)
- Hypertensive heart disease (3.3%)
- Ischaemic heart disease (3.3%)
- Diabetes mellitus (2.8%)
- Road injuries (2.6%)

Non-communicable Diseases, overweight and obesity in South Africa
Figure 2. Diabetes prevalence based on 1985 WHO criteria presented by age categories for men and women in 1990 and 2008/09.

http://www.plosone.org/article/info:doi/10.1371/journal.pone.0043336
Prevalence of underweight, overweight and obesity by sex and age, SA 2012

Males (n=2572)

Females (n=4695)
The shape of things to come
Determinants of ‘Overnutrition’ in South Africa
Figure 1: Conceptual Model of Risk Factors for Disease

- Biological
- Behavioural
- Societal
- Structural

“Downstream”

“Upstream”
Prevalence of dietary risk factors for NCDs (high fat and sugar intake) by locality, SA 2012

(n=15 332)

- Urban formal: High fat score (11-20) - 23.1, High sugar score (5-8) - 23.1
- Urban informal: High fat score (11-20) - 15.1, High sugar score (5-8) - 18.2
- Rural informal: High fat score (11-20) - 14.7, High sugar score (5-8) - 11.3
- Rural formal: High fat score (11-20) - 9.8, High sugar score (5-8) - 11.7
- Total: High fat score (11-20) - 18.3, High sugar score (5-8) - 19.7

SANHANES
Consumption of sweet beverages and confectionery

- Compared with a **worldwide average of 89 in 2010**, South Africans consumed **254 Coca-Cola products per person per year**, an increase from around 130 in 1992 and 175 in 1997.

- In 2010, up to half of young people were reported to consume fast foods, cakes and biscuits, cold drinks, and sweets at least four days a week.

- Carbonated drinks are now the third most commonly consumed food/drink item among very young urban South African children (aged 12–24 months)—less than maize meal and brewed tea, but more than milk.

‘I am scared of exercising because I will lose weight and people may think that I have HIV/AIDS.’

‘People who boil food are not civilised. Fried food is attractive and tasty such as “Kentucky Fried Chicken”. If your neighbour boils food people say she is still backward because the food does not taste nor look attractive’

Structural Factors in Obesity
Factors influencing grocery shopping by sex, SA 2012

- Don't do grocery shopping: Males 54.4%, Females 23.6%
- How easy the food item is to prepare: Males 4.7%, Females 7.1%
- Convenience: Males 6.4%, Females 9.6%
- Safety (hygiene) of the food item: Males 5.2%, Females 9.6%
- How well/how long the food item keeps: Males 7%, Females 14.1%
- The nutrient content of the food item: Males 7.4%, Females 14.1%
- Health considerations: Males 7.3%, Females 14.3%
- Taste of the food item: Males 10%, Females 17.5%
- The price of the food item: Males 35.9%, Females 64.5%
Inflation per food category from September 2013 to September 2014.
Packaged Food Sales in South Africa

The largest ten packaged food companies account for 51.8% of total packaged food sales. This is greater than the global average (globally in 2007, ten companies accounted for around 26% of the processed foods market).

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Location of Company Headquarters</th>
<th>Contribution to Total Packaged Food sales (%)</th>
<th>Examples of Product Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tiger Brands Ltd</td>
<td>South Africa</td>
<td>17.2</td>
<td>Milling and baking, groceries, confectionery, beverages, value added meat products, fruit and vegetables, products for the food services sector</td>
</tr>
<tr>
<td>2</td>
<td>Unilever Group</td>
<td>UK/Netherlands</td>
<td>4.9</td>
<td>Spices, sauces, dressings, margarine, teas, syrup and food solutions</td>
</tr>
<tr>
<td>3</td>
<td>Parmalat Group</td>
<td>Italy</td>
<td>4.8</td>
<td>Dairy products including milk, yoghurt, ice cream and cheese, fruit juices</td>
</tr>
<tr>
<td>4</td>
<td>Nestle SA</td>
<td>Switzerland</td>
<td>4.6</td>
<td>Baby foods, drinks, breakfast cereals, chocolate, confectionery, coffee, dairy products, ice cream</td>
</tr>
<tr>
<td>5</td>
<td>Clover Ltd</td>
<td>South Africa</td>
<td>4.6</td>
<td>Dairy products, desserts, beverages such as fruit juices, nectars and ice teas</td>
</tr>
<tr>
<td>6</td>
<td>Dairybelle (Pty) Ltd</td>
<td>South Africa</td>
<td>4</td>
<td>Dairy products, fruit juices</td>
</tr>
<tr>
<td>7</td>
<td>Pioneer Food Group Ltd</td>
<td>South Africa</td>
<td>3.7</td>
<td>Baking aids, tea/coffee, breakfast cereals, biscuits, condiments, juices and acidic drinks, dried fruits, eggs</td>
</tr>
<tr>
<td>8</td>
<td>Cadbury Plc (bought by Kraft in 2011)</td>
<td>UK/US</td>
<td>2.8</td>
<td>Chocolate, candy, gum, biscuits, coffee, other grocery</td>
</tr>
<tr>
<td>9</td>
<td>AVI Ltd</td>
<td>South Africa</td>
<td>2.8</td>
<td>Coffee, tea, biscuits, potato chips, frozen fish and seafood products</td>
</tr>
<tr>
<td>10</td>
<td>Pepsi/Co Inc</td>
<td>US</td>
<td>2.4</td>
<td>Drinks, savoury snacks</td>
</tr>
</tbody>
</table>


*Euromonitor does not collect data on the informal sector (defined as sales that are not taxed).
doi:10.1371/journal.pmed.1001253.t002

<table>
<thead>
<tr>
<th>Category of Packaged Foods</th>
<th>Subcategory</th>
<th>Sales Volume*</th>
<th>Rate of Change of Sales Volume (%), 2005–10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bakery</td>
<td></td>
<td>2009.3</td>
<td>16.2</td>
</tr>
<tr>
<td>Meal solutions</td>
<td>Canned/preserved food</td>
<td>241.8</td>
<td>16.2</td>
</tr>
<tr>
<td></td>
<td>Frozen processed food</td>
<td>102.1</td>
<td>18.2</td>
</tr>
<tr>
<td></td>
<td>Chilled processed food</td>
<td>95.9</td>
<td>−2.8</td>
</tr>
<tr>
<td></td>
<td>Sauces dressings and condiments</td>
<td>88.1</td>
<td>27.0</td>
</tr>
<tr>
<td></td>
<td>Ready meals</td>
<td>70.1</td>
<td>43.1</td>
</tr>
<tr>
<td></td>
<td>Soup</td>
<td>11.1</td>
<td>32.6</td>
</tr>
<tr>
<td>Impulse and indulgence products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confectionery</td>
<td>119.4</td>
<td>16.3</td>
</tr>
<tr>
<td></td>
<td>Sweet and savoury snacks</td>
<td>87.9</td>
<td>27.5</td>
</tr>
<tr>
<td></td>
<td>Snack bars</td>
<td>1.9</td>
<td>42.6</td>
</tr>
<tr>
<td></td>
<td>Ice cream</td>
<td>76.0</td>
<td>14.7</td>
</tr>
<tr>
<td>Dried processed food</td>
<td></td>
<td>345.4</td>
<td>−2.8</td>
</tr>
<tr>
<td>Pasta</td>
<td></td>
<td>62.9</td>
<td>35.0</td>
</tr>
<tr>
<td>Noodles</td>
<td></td>
<td>7.4</td>
<td>44.5</td>
</tr>
<tr>
<td>Oils and fats</td>
<td></td>
<td>343.6</td>
<td>14.9</td>
</tr>
<tr>
<td>Meal replacement</td>
<td></td>
<td>0.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Spreads</td>
<td></td>
<td>28.8</td>
<td>23.9</td>
</tr>
</tbody>
</table>

Source: Euromonitor 2011 [17].

*in thousand tonnes, except for ice cream, which is million litres.
doi:10.1371/journal.pmed.1001253.t001
From a Nestlé press release:
Vevey, February 21, 2008

“Popularly positioned products (PPPs). Products aimed at lower income consumers in the developing world, will continue to grow strongly in 2008 and beyond. Nestlé PPPs, which mostly consist of dairy products, Nescafé and Maggi culinary products, grew by over 25% to reach around CHF 6 billion in sales in 2007. The overall market for such products in Asia, Africa and Latin America is estimated at over CHF 80 billion.”
## Market Sizes - Historic - Retail Value

**RSP - R mn - Current Prices**

<table>
<thead>
<tr>
<th>Category</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaged food</td>
<td>69475</td>
<td>74462</td>
<td>78929</td>
<td>84062</td>
<td>92671</td>
<td>101192</td>
</tr>
</tbody>
</table>

Source: Packaged Food: Euromonitor from trade sources/national statistics
SUGAR CONFECTIONERY IMPORTS TO SA, 1992-2015

Source: DTI trade database
Rapid growth of supermarkets in South Africa

- Supermarkets now share at least **50-60% of food sales** in South Africa, with the majority of this growth occurring after 1994.

- In a recent study, nearly **two-thirds** of households in a rural area in South Africa were now buying their food at supermarkets.

### Number of households in two rural areas in Transkei, Eastern Cape going to supermarkets

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<thead>
<tr>
<th></th>
<th>Xume</th>
<th>Luzie</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of total</td>
<td>78.4%</td>
<td>50.0%</td>
<td>64.8%</td>
</tr>
</tbody>
</table>

Expansion of Supermarkets in Cape Town

Battersby, AFSUN
The consequences...

• Rural consumers pay almost R6 more than urban consumers for the same food basket. The poor households spent 33% of their income on food, compared to 11% for the non-poor.

• Healthier foods typically cost between 10% and 60% more when compared on a weight basis (R per 100g) and between 30% and 110% more when compared based on the cost of food energy (R per 100 kJ).

• Children from the most food insecure households are most at risk of under-nutrition whilst adult women in the same households are often most at risk of obesity (NFCS 1999, 2005; SANHANES 2012).
Structural Determinants of ‘Overnutrition’ Regionally and Globally
SUGARY CARBONATED BEVERAGE EXPORTS TO SADC 1992-2015

Source: DTI trade database
CEREAL-BASED PROCESSED PRODUCT EXPORTS TO SADC 1992-2015

Source: DTI trade database
PROCESSED MEAT EXPORTS TO SADC 1992-2015

Source: DTI trade database
Regional trade and investment policies in SADC since 1990

- early 1990s: ongoing liberalization associated with multilateral trade negotiations
- 1996: SADC trade agreement signed
- 1997-2003: South Africa strengthens investment policy and signs 22 Bilateral Investment Agreements
- 1999: South Africa signs bilateral agreement with European Union (EU)
- 2000: SADC trade protocol comes into effect; Government of South Africa strengthens support for regional export and investment
- 2002: new Southern Africa Customs Union Agreement completed
- 2007: Interim Economic Partnership Agreement concluded between EU and Botswana, Lesotho, Namibia, Swaziland and Mozambique
- 2008: SADC Free Trade Area completed (except for Angola, Democratic Republic of the Congo, Seychelles)
“... trade policy that actively encourages the unfettered production, trade, and consumption of foods high in fats and sugars to the detriment of fruit and vegetable production is contradictory to health policy ...” (p 10)

It is important therefore that ministers of health, supported by the ministry, are strongly equipped to play such a stewardship role within government”(p 111)
'The global food system is causing a public health disaster'

The UN rapporteur on the right to food says governments in rich and poor countries must bring in tough measures to combat the unhealthy products being marketed.

More than 1.3 billion people around the world are overweight or obese. Photograph: Finbarr O'Reilly/Reuters

Olivier de Schutter
UN Special Rapporteur on the Right to Food
March 2012

Felicity Lawrence, The Guardian, 9 March 2012
In South Africa, as in other jurisdictions, “Big Food” (large commercial entities that dominate the agricultural, food and beverage environment) is becoming more widespread and is implicated in unhealthy eating.

Big Food in South Africa involves South African companies, some of which have invested in other (mainly, but not only, African) nations, as well as companies headquartered in North America and Europe.
SUMMARY

- These companies have developed strategies to increase the availability, affordability, and acceptability of their foods in South Africa. These include price-fixing and aggressive marketing and advertising.

- The South African government should act urgently to mitigate the adverse health effects in the food environment in South Africa through education about the health risks of unhealthy diets, regulation of Big Food, and support for healthy foods.
Interventions to Combat Stunting and ‘Overnutrition’

• Promote breast feeding and regulate formula milk
• Promote cheap, nutrient-dense weaning foods
• Campaign for improved sanitation
• Raise awareness of deteriorating food environment amongst health workers and general population
• Review local government policies and regulations around vending eg in and around schools and advertising, especially to kids.
• Restructure School Nutrition Programme a la Brazil and invest in community infrastructure for sport, recreation and improved personal safety
Interventions to Combat Stunting and ‘Overnutrition’

• Analyse pricing incentives/disincentives to tax unhealthy and subsidise healthy foods
• Review trade policy, especially wrt food trade

• Civil society needs urgently to challenge inequitable macroeconomic regime and inappropriate policies through evidence-based advocacy and social mobilisation