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Chapter Title: Health Challenges Past and Future

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Introduction

At the change of government, South Africa faced important health challenges. The country was bearing a double disease burden – struggling with both the infectious diseases of the developing world and the chronic diseases of the developed world (Kahn et al. 1999). Estimated TB incidence rates for the early 1990s stood at 400 per 100,000 (WHO Global Tuberculosis Report 2012). The HIV crisis was expanding, with more South Africans entering Stage IV (AIDS) every year. Child malnutrition had led to a high rate of stunting in children, with 30 percent of all South African children aged 6 months to 5 years stunted when measured in the second half of 1993 (PSLSD).¹ At the same time, high obesity rates among African women led to morbidity and mortality from hypertension, diabetes, stroke, and cardiovascular disease.

In this chapter, we discuss what has happened to the health of the nation in the past 20 years. We examine evidence available on four major health issues: TB, AIDS, child malnutrition and, among women, obesity. Our findings are mixed. TB incidence rates have soared, and the country increasingly faces the challenges of treating multidrug-resistant TB. After a rocky decade in which AIDS took the lives of 2.6 million,² there are signs that the arrival of anti-retroviral therapy (ART) has begun to slow the prevalence of AIDS. There has been a significant improvement in children’s anthropometrics – especially among children in the bottom quartile of the income distribution. The gains observed in rural areas were the most dramatic, closing the urban-rural gap in the rates of childhood stunting and wasting (Gummerson 2011). Stunting has fallen from a third to a quarter of young African children (PSLSD,

¹ The 1993 Project for Statistics on Living Standards and Development (PSLSD) is a nationally representative study that contains anthropometric data for children under the age of 5. Children are stunted (wasted) if their standardized height-for-age z-score (weight-for age z-score) is two or more standard deviations below the median for their age.

² Harrison 2009.

NIDS).³ In contrast, we find no change in women’s obesity rates, which continue to put women at risk for chronic disease and early death.

TB, HIV and AIDS

Estimated TB incidence in South Africa has more than doubled since the early 1990s. WHO estimates a rate of 993 per 100,000 people in 2011—an increase largely attributable to the risk of TB that accompanies HIV infection. TB, long the leading cause of death in South Africa, is responsible for a quarter of all deaths of people living with HIV and, as WHO notes, “HIV and TB form a lethal combination, each speeding the other’s progress” (WHO Fact Sheet 104).

HIV prevalence in South Africa increased dramatically between 1990 and 2010, with rates among the African population markedly higher than those found in other racial groups.⁴ The excess deaths caused by AIDS in middle age in South Africa can be seen in Figure 1, which presents for the years 2001 and 2009 the log-odds of dying from all causes and, for 2001, the log-odds of dying from non-AIDS related causes at each age. Data underlying the figure were collected by the Africa Centre for Health and Population Studies, an arm of the University of KwaZulu-Natal that maintains a demographic surveillance site that has been following approximately 100,000 individuals through time since 2000.

Worldwide, the log-odds of death after adolescence are approximately linear in age (Elo and Preston 1996)—the pattern observed for 2001 non-AIDS mortality in Figure 1.⁵ That AIDS changed this pattern in South Africa can be seen in the deviation of 2001 all-cause mortality from non-AIDS related mortality, observed between the ages of 20 and 60. Recent work has shown that it was less well

³ The 2008 National Income Dynamics Study (NIDS) is the first wave of a new nationally representative longitudinal survey.

⁴ There are several non-competing hypotheses about why South Africa was hit so hard by HIV. See Case and Paxson 2013 for references and discussion.

⁵ For clarity, the non-AIDS related mortality for 2009 is not shown. It is not distinguishable from that presented for non-AIDS mortality in 2001.

educated people, in poorer households, who were at highest risk of dying of AIDS in this field site in the decade between 2000 and 2010 (Ardington et al. 2012).

A death in the household at any age has persistent economic consequences for the household – largely because of the high cost of funerals in South Africa (Ardington et al 2012). However, a death in the household in middle age carries additional economic hardship. Almost 50 percent of women in the demographic surveillance site have had at least one child before the age of 20, and the AIDS epidemic has put a generation of children at risk of becoming an orphan at a young age. Longitudinal analysis, following children through time in this site, has shown that children are at risk for poorer educational outcomes after having lost their mothers (Case and Ardington 2006).

That ART is changing the pattern of mortality since its arrival in this part of South Africa in the late 2000s can be seen in the decline in the AIDS “bulge” observed in Figure 1 between 2001 and 2009. This pattern holds for the country as a whole (Statistics South Africa 2011). While the crisis is ongoing, and millions continue to suffer, the decline in excess mortality attributable to AIDS is a sign of hope.

Child malnutrition

Nutrition and health in early childhood affect both physical and cognitive development, with consequences for health and economic wellbeing that play out over a lifetime. The impact of poor nutrition and health in early life on South African children’s growth patterns can be seen in Figure 2, where we graph African children’s standardized height-for-age (z-score) from the 1993 PSLSD survey and the 2008 round of NIDS. We focus on children in households in the lowest and highest quintiles of the per capita income distribution for these years. At 12 months old, in 1993, on average African children in both the highest and lowest quintile were 1 standard deviation below the current WHO median standardized height-for age. Children in the highest quintile lost no further ground with age, while those in the lowest quintile were more than 2 standard deviations below the world standard by age 3 – a

critical period for physical and cognitive development. Fast forwarding to 2008, we find that children in the lowest quintile are significantly and substantially taller than those in the lowest quintile in 1993. The gap between the poorest and wealthiest children has closed markedly. These gains should lead to additional gains to the health and productivity of these children as they become adults.

Obesity

In South Africa, there has long been a large difference in obesity rates by sex. Sixty percent of African women measured in 1998 were reported to be either overweight or obese, with the rate of obesity five times higher for women than for men (Puoane et al. 2002).⁶ Case and Menendez (2009) examined several explanations for this difference, using data collected for this purpose in an urban township, and found that African women who were raised in extreme poverty were significantly more likely to be obese in adulthood—a finding that did not hold true for men. More specifically, nutritional deprivation in childhood was significantly associated with obesity in adulthood, but for women only. Additional research that combines biology and social science will be needed if the differential obesity rates between men and women, and the role played by early life nutrition, are to be understood.

One might have anticipated obesity rates to change between birth cohorts, given the changes observed in educational attainment, access to health care, and the availability of healthy foods. Figure 3 presents the BMI-age profiles of African women and men measured in nationally representative surveys conducted in 1998 (DHS) and 2008 (NIDS). In neither sex did the BMI-age profile change over the decade. These patterns are consistent with women's BMIs increasing sharply between ages 18 and 30, and then holding steady through the rest of adulthood.

⁶Calculations were made using data collected in the 1998 Demographic and Health Survey for South Africa. We follow World Health Organization classifications that a person is overweight if his or her body mass index (BMI) – a measure of weight for height (kilograms per meter squared) – lies between 25 and 30, and is obese if his or her BMI is greater than 30.

That this puts women at cardiovascular risk can be seen in Figure 4, which plots for women and men the probability of hypertension at each BMI, as measured in NIDS 2008.⁷ At each BMI, men and women face the same risk of hypertension. However, women's BMI distribution has a much higher mean and a long upper tail, leading to higher risk among women.

Looking forward twenty years, it is clear the state of health in South Africa will depend crucially on the prevention and treatment of HIV and TB, and the management of the obesity epidemic that threatens morbidity and mortality among prime aged women.

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⁷ We define 'any hypertension' to be a report of taking antihypertensive medication or a systolic reading greater than 140 or a diastolic reading greater than 90.

WHO Fact Sheet 104, accessed online 27 Jan 2013 at www.who.int/mediacentre/factsheets/fs104/en .

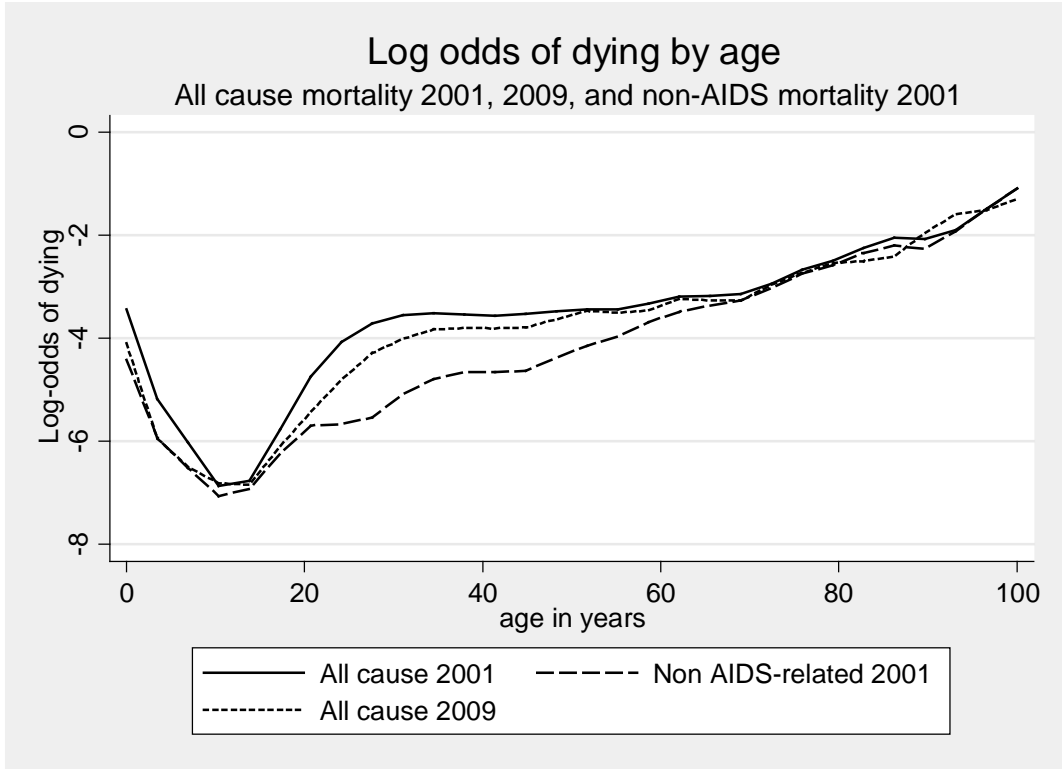


Figure 1.

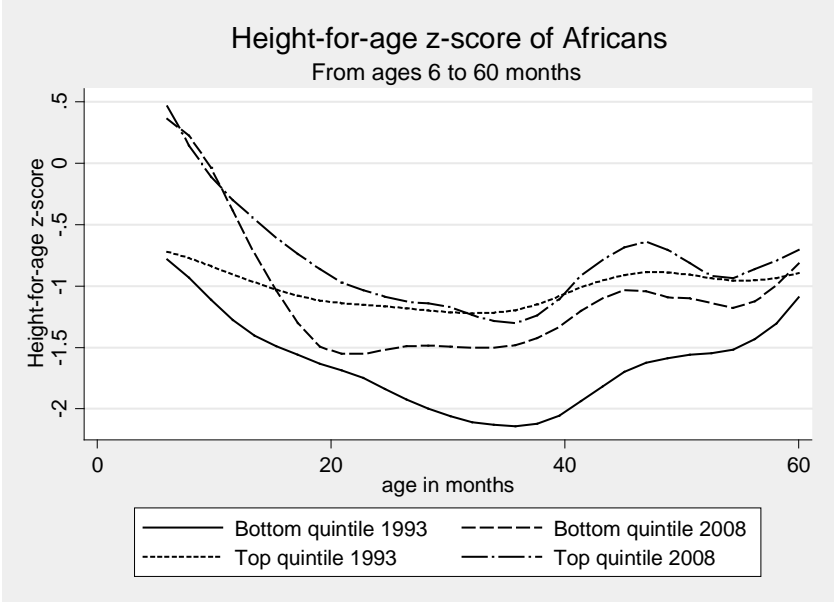


Figure 2.

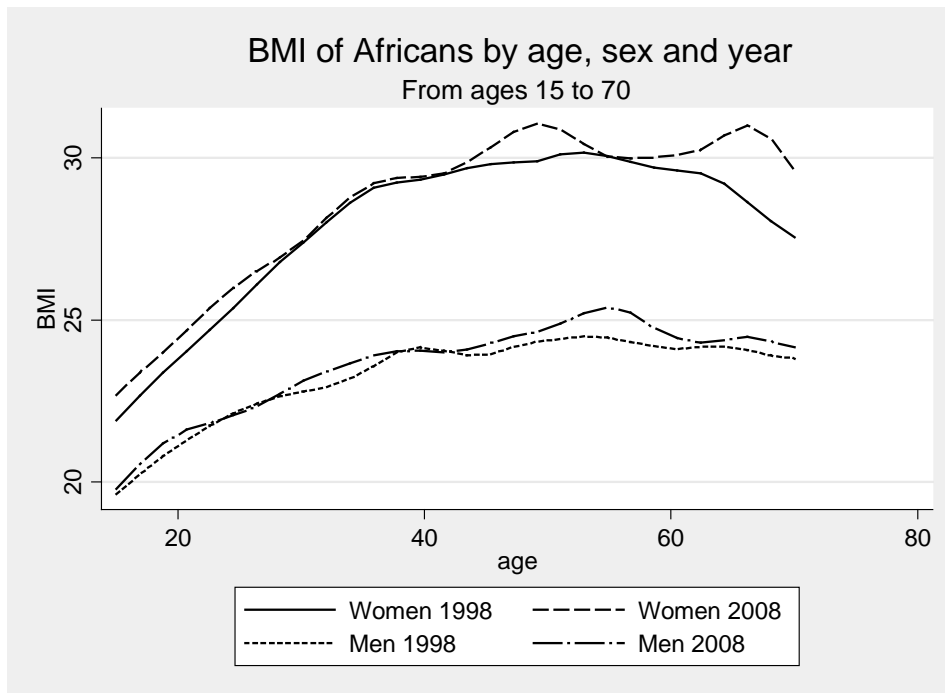


Figure 3.

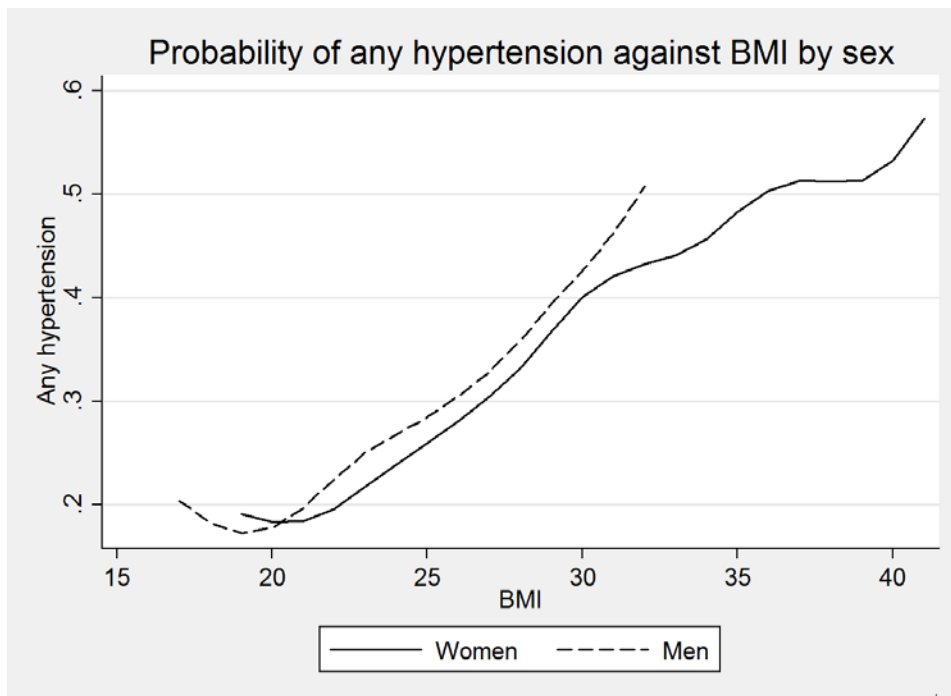


Figure 4.