

Mortality trends and differentials in South Africa from 1997 to 2012: second National Burden of Disease Study



Victoria Pillay-van Wyk, William Msemburi, Ria Laubscher, Rob E Dorrington, Pam Groenewald, Tracy Glass, Beatrice Nojilana, Jané D Joubert, Richard Matzopoulos, Megan Prinsloo, Nadine Nannan, Nomonde Gwebushe, Theo Vos, Nontuthuzelo Somdya, Nomfuneko Sithole, Ian Neethling, Edward Nicol, Anastasia Rossouw, Debbie Bradshaw



Summary

Background The poor health of South Africans is known to be associated with a quadruple disease burden. In the second National Burden of Disease (NBD) study, we aimed to analyse cause of death data for 1997–2012 and develop national, population group, and provincial estimates of the levels and causes of mortality.

Method We used underlying cause of death data from death notifications for 1997–2012 obtained from Statistics South Africa. These data were adjusted for completeness using indirect demographic techniques for adults and comparison with survey and census estimates for child mortality. A regression approach was used to estimate misclassified HIV/AIDS deaths and so-called garbage codes were proportionally redistributed by age, sex, and population group (black African, Indian or Asian descent, white [European descent], and coloured [of mixed ancestry according to the preceding categories]). Injury deaths were estimated from additional data sources. Age-standardised death rates were calculated with mid-year population estimates and the WHO age standard. Institute of Health Metrics and Evaluation Global Burden of Disease (IHME GBD) estimates for South Africa were obtained from the IHME GHDx website for comparison.

Findings All-cause age-standardised death rates increased rapidly since 1997, peaked in 2006 and then declined, driven by changes in HIV/AIDS. Mortality from tuberculosis, non-communicable diseases, and injuries decreased slightly. In 2012, HIV/AIDS caused the most deaths (29·1%) followed by cerebrovascular disease (7·5%) and lower respiratory infections (4·9%). All-cause age-standardised death rates were 1·7 times higher in the province with the highest death rate compared to the province with the lowest death rate, 2·2 times higher in black Africans compared to whites, and 1·4 times higher in males compared with females. Comparison with the IHME GBD estimates for South Africa revealed substantial differences for estimated deaths from all causes, particularly HIV/AIDS and interpersonal violence.

Interpretation This study shows the reversal of HIV/AIDS, non-communicable disease, and injury mortality trends in South Africa during the study period. Mortality differentials show the importance of social determinants, raise concerns about the quality of health services, and provide relevant information to policy makers for addressing inequalities. Differences between GBD estimates for South Africa and this study emphasise the need for more careful calibration of global models with local data.

Funding South African Medical Research Council's Flagships Awards Project.

Copyright © The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY license.

Introduction

South Africa has poor health outcomes given its level of economic development.^{1,2} Despite being an upper-middle-income country,³ South Africa has high mortality levels resulting from a unique quadruple disease burden, described in the first National Burden of Disease study in 2000.⁴ The 2009 *Lancet* Series on Health in South Africa^{2,5} ascribed the poor health status to the country's history of colonialism and apartheid, which resulted in every aspect of life being racially segregated, exploitation of the working class, high poverty and unemployment, and extreme wealth inequalities.⁶

Although the beginning of democracy in 1994 led to efforts to build a society with racial equality, post-apartheid macroeconomic policies have focused more on economic growth than on wealth inequality.^{2,6} The 2012

update of the *Lancet* Series⁷ acknowledged improved access to water, sanitation, and electricity, and increased provision of social grants⁶ but noted the large racial differentials in social determinants of health. The health service faces considerable challenges, including inefficiencies and inequities.^{5,6} More than half of the country's health-care financing, and more than 70% of the country's doctors are employed in the private sector, serving about 20% of the population.⁸

The South African Government is moving towards national health insurance to provide accessible, quality health care to all.^{8,9} Understanding the disease burden nationally and subnationally is crucial to identify priorities and monitor changes and differentials in health status. Although improvements in the quality of vital registration data have occurred, these data are not complete and cause

Lancet Glob Health 2016;

4: e642–53

See [Comment](#) page e588

Burden of Disease Research

Unit (V Pillay-van Wyk PhD,

W Msemburi MPhil,

P Groenewald MBChB,

T Glass BCom Hons,

B Nojilana MPH, J D Joubert PhD,

R Matzopoulos PhD,

M Prinsloo MPH, N Nannan MSc,

N Somdya MDS,

N Sithole MPH, I Neethling MSc,

E Nicol PhD,

A Rossouw FC (Neuro) SA,

D Bradshaw DPhil) and

Biostatistics Unit

(R Laubscher BCom,

Nomonde Gwebushe BSc Hons),

South African Medical Research

Council, Cape Town, South

Africa; Centre for Actuarial

Research

(Prof Rob E Dorrington MPhil)

and School of Public Health and

Family Medicine

(R Matzopoulos, D Bradshaw),

University of Cape Town, South

Africa; and Institute of Health

Metrics and Evaluation,

University of Washington,

Seattle, WA, USA (T Vos PhD)

Correspondence to:

Dr Victoria Pillay-van Wyk

Burden of Disease Research Unit,

South African Medical Research

Council, PO Box 19070,

Tygerberg 7505, South Africa

victoria.pillayvanwyk@

mrc.ac.za

Research in context**Evidence before this study**

The first National Burden of Disease Study for South Africa, conducted for the year 2000 and undertaken by researchers from the South African Medical Research Council, showed a unique quadruple burden of disease for the country. Before using national burden of disease methods in South Africa, policy makers in the country had access to cause of death statistics that could not be used at face value because of data deficiencies or country estimates on the basis of global models produced by WHO and IHME. To our knowledge, no other National Burden of Disease Studies have been undertaken for South Africa.

Added value of this study

Our study has used local data to develop estimates that confront the data deficiencies in the vital registration data from Statistics South Africa and has highlighted the start of

the reversal of several epidemics. Nonetheless, HIV/AIDS continues to be the main cause of mortality, and we report substantial mortality burden from non-communicable diseases, including increases in diabetes and renal disease. Although the burden from some forms of injuries has reduced, we report no change in mortality from infectious diseases, such as respiratory diseases, septicaemia, or neonatal causes.

Implications of all the available evidence

Countries should continue to improve cause of death data and make use of burden of disease approaches to track population health. Variations in mortality levels and profiles reflect health inequalities and emphasise the need for health planning and resource allocation to be at subnational level. Future research should focus on methods that can provide subnational estimates including uncertainty levels.

of death information is problematic¹⁰ with a high proportion of so-called garbage¹¹ causes (causes considered not to be an acceptable underlying cause of death—eg, headache, coughing), misclassification of HIV/AIDS deaths, little information about external causes of non-natural deaths, non-medical certification of deaths by rural headmen, and poor content validity.^{12–16} In this, the second National Burden of Disease (NBD) study, we describe the trends in mortality during a 16-year period and estimate deaths by specific causes and years of life lost to premature mortality nationally and provincially, after adjusting for these data inadequacies. Additionally, we analyse trends by apartheid-defined population groups to describe differentials in health status.

Methods**National Burden of Disease (NBD) list**

The South African NBD team with local and international experts revised the 2000 NBD list to reflect local cause-of-death patterns. This list differs from the Global Burden of Disease (GBD) list.¹⁷ The main difference is the level of aggregation of ICD-10 codes,¹⁸ resulting in 140 causes (appendix) compared with 107 causes in the GBD 1992 study¹⁷ and 235 in the Institute of Health Metrics and Evaluation (IHME) GBD 2010 study.¹⁹ Another difference is the inclusion of septicaemia (because of the large number of deaths attributed to this cause), even though it is not a valid underlying cause of death as defined by Lozano and colleagues.¹⁹ Causes are grouped into 24 categories. Although the GBD group reports three broad cause groups—namely, communicable diseases, maternal causes, perinatal conditions, and nutritional deficiencies; non-communicable diseases, including cardiovascular diseases and cancers; and injuries, this study reports four broad causes—namely, HIV/AIDS and tuberculosis;

other communicable diseases with perinatal conditions, maternal causes, and nutritional deficiencies; non-communicable diseases; and injuries. HIV/AIDS and tuberculosis is introduced as a fourth group because of the size of the burden and the need to integrate HIV/AIDS and tuberculosis programmes.

Data sources

The base information was the Statistics South Africa underlying cause of death data²⁰ from death notifications for 1997–2012 including the late registrations (ie, deaths from earlier years that were processed in a particular year). Statistics South Africa manually codes the causes to the 10th version of the International Classification of Diseases (ICD-10) and undertakes automated selection of underlying cause of death according to ICD rules.¹⁸

The data were categorised according to apartheid defined (racial) population groups (black African, Indian or Asian descent, white [European descent], and coloured [of mixed ancestry according to the preceding categories]). After excluding stillbirths (n=211 111), deaths that occurred outside the country (n=7745), individuals with unknown (n=3484) or unspecified (n=6447) province information, and population groups other than those listed above (n=11 551), the remaining data (n=8 099 883) were cleaned and adjusted for missing information, under-registration, misclassification of HIV/AIDS deaths, insufficiently reported injury deaths, and deaths attributed to ill-defined causes. The data were first assessed for completeness of registration and quality.²¹ Figure 1 summarises the data sources used and the data adjustments done to generate the number of deaths.

Completeness of reporting

Completeness of reporting of deaths in children younger than 5 years was estimated by comparing

See Online for appendix

Download English Version:

<https://daneshyari.com/en/article/3408737>

Download Persian Version:

<https://daneshyari.com/article/3408737>

[Daneshyari.com](https://daneshyari.com)