Non-infectious diseases pose an economic threat to healthcare

No country can afford the economic burden placed on its health system by the rise in non-communicable diseases – not even the rich ones – proclaimed Minister of Health Aaron Motsoaledi at the launch of the results of the South African National Health and Nutrition Survey (SANHANES-I). He was referring to the rise in the prevalence of cardiovascular diseases and diabetes among South Africans. *Demetré Labadarios*, *Olive Shisana* and *Lucinda Dalais* explain further.

In that assumption the minister is not alone. The World Economic Forum's 2009 Global Risks Landscape Assessment Report claimed that NCDs were 'the most significant threats facing global and local economies.' South Africa is no different.

In terms of the national strategic plan, NCDs include cardiovascular diseases, diabetes, chronic respiratory conditions, cancer, mental disorders, oral diseases, eye disease, kidney disease and musculoskeletal conditions.

The good news is that much can be done to prevent or improve the management of these conditions by addressing the underlying causes of NCDs through focusing efforts on reducing smoking, alcohol consumption and overweight among South Africans while increasing exercise frequency, and eating a wider variety of foods.

This is where the comprehensive SANHANES study comes in; it provides policy makers and programme managers with critical information on emerging epidemics of NCDs, and the underlying social, economic, behavioural and environmental factors that drive these diseases in the South African population.

Two non-communicable diseases

Selected findings of SANHANES-I on cardiovascular disease and diabetes in relation to some risk factors are summarised in this issue of *HSRC Review*.

In relation to these two NCDs and their risk factors, this study determined the non-modifiable risk factors, such as family history, as well as modifiable risk factors such as blood pressure, body weight, blood cholesterol and blood sugar.

In terms of family history, during the interviews, respondents were most likely to report a family history of high blood pressure (30.9%), followed by high blood sugar (20.7%), while fewer respondents reported a family history of stroke (8.9%) and heart disease (heart attack, angina, chest pain: 7.6%).

High blood pressure

High blood pressure is associated with high stress, smoking, high salt intake, diabetes, older age, cholesterol, physical unfitness and overweight.

This study found that the South African population had high rates of post-traumatic stress disorder, diabetes, overweight and obesity, cholesterol, and lack of exercise, suggesting that the population was at increased risk of non-communicable diseases. At the provincial level, the Free State, followed by North-West and Gauteng, had the highest occurrence of hypertension (Figure 2). The reasons for these findings require further investigations.

The study's clinical examination confirmed the high occurrence of pre-hypertension and hypertension as shown in Figure 1. Overall, 10.4% of participants aged 15 years and older were pre-hypertensive (blood pressure between 120-139/80-89mmHg) and a further 10.2% had hypertension (blood pressure ≥ 140/90mmHg).

Figure 1: Prevalence of pre-hypertension and hypertension by age, SA 2012

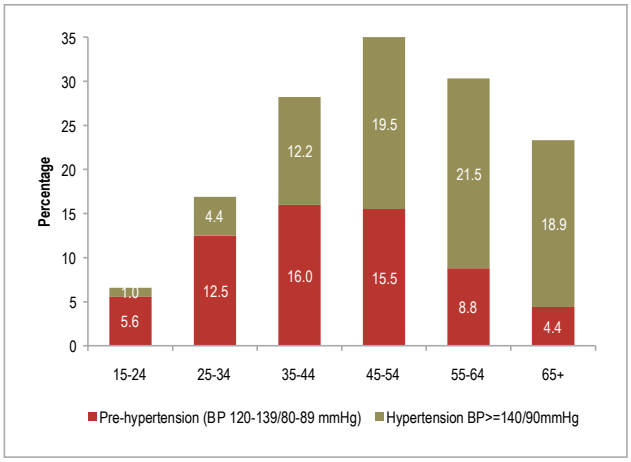


Figure 2: Hypertension by province, SA 2012

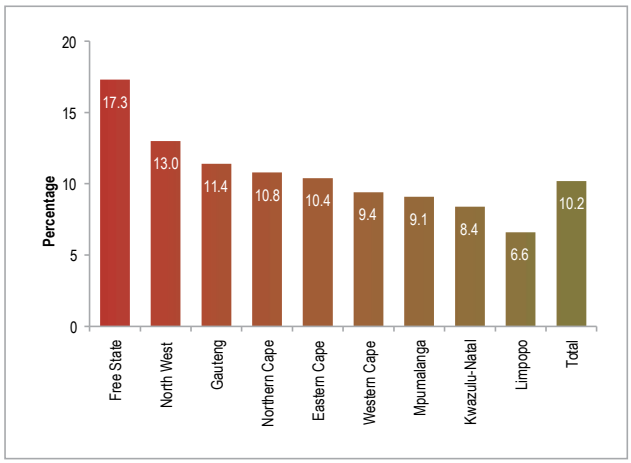
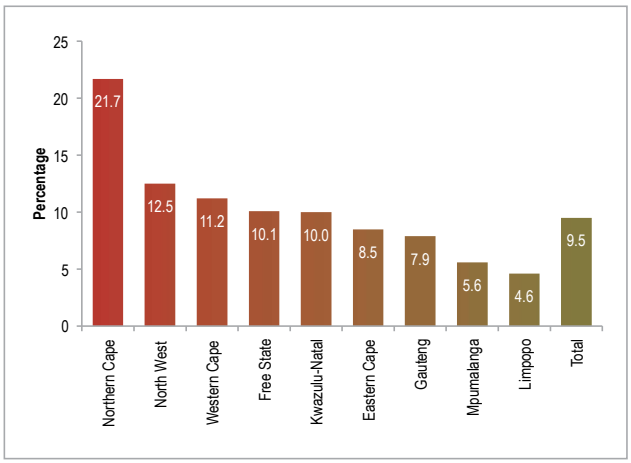


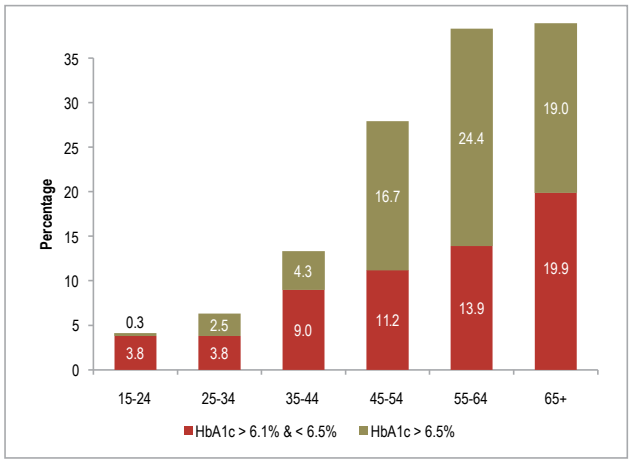
Figure 4: Diabetes by province



Diabetes

Figure 3 shows that almost one out of five participants (18.4%) had impaired glucose homeostasis, largely due to the body's ineffective use of insulin due to excessive body weight and physical inactivity. These individuals could potentially be considered as pre-diabetic and need further diagnostic follow-up. Diabetes was diagnosed in 9.5% of participants.

Figure 3: Prevalence of pre-diabetes and diabetes by age, SA 2012



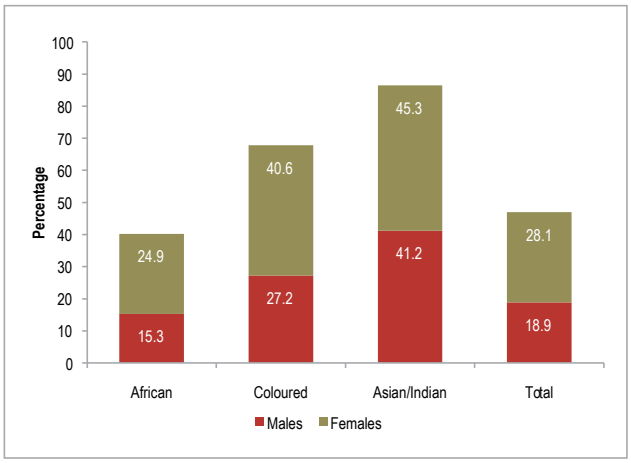
Note: Green is pre-diabetes and red is diabetic

Furthermore, diabetes and impaired glucose homeostasis appeared to have increased when compared with the findings of other, older, national surveys. In analysing the data per province, it showed that the figure for the Northern Cape was significantly higher than in the other provinces (21.7%), while Limpopo showed the lowers prevalence at 4.6%.

Cholesterol

Of equal concern was the overall finding of high blood cholesterol in almost a quarter of the population (Figure 5). There were gender differences in the prevalence of high total cholesterol, with females found to have higher prevalence when compared with males. Indians had the highest prevalence, whereas black Africans had the lowest prevalence. Although high blood cholesterol does run in families, the more common associated cause includes the excessive dietary intake of foods high in saturated fat, being overweight or obese, and inadequate physical activity.

Figure 5: Prevalence of hypercholesterolaemia (high total blood cholesterol) by race, SA 2012



A weighty matter

On the weighty matter of excessive body weight, many factors (including genetics) are known and claimed to be the cause to a greater or lesser extent. But the basic principle still remains, namely that the equation of energy ingested in the form of food should balance the energy expended through physical activity and bodily function maintenance. Disturbances in this equation lead to weight changes (weight gain or weight loss). Excessive eating, be it in the form of energy dense foods or large portion sizes in relation to energy expended (physical activity/inactivity) is generally accepted as the main cause of overweight and/or obesity.

In this study, the findings of overweight and obesity in the population, which may contribute to various NCDs such as high blood pressure, heart problems, and stroke, were of major concern.

Comparing the results of overweight and obesity in SANHANES-1 with those of the 2003 SA Demographic and Health Survey (SADHS), the results indicated an increase in the mean body mass index (BMI) across almost all age categories, provinces and race groups since 2003.

This increase was significant in the body measurements of adults, particularly females (Table 1). The BMI, waist circumference, and waist-hip ratio all showed the same trend, namely that obesity levels have increased in South Africa and with that the risk of metabolic complications associated with chronic disease.

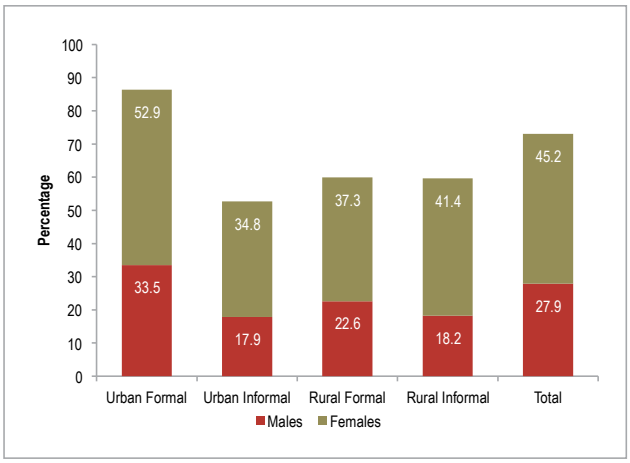
Table 1: Overall comparison between SADHS 2003 and SANHANES-1 2012, of anthropometry (study of the measurements and proportions of the human body) of adult men and women

Variable (units)	Men		Women	
	SADHS 2003	SANHANES-1	SADHS 2003	SANHANES-1
Mean BMI kg/m^2	23.3	23.5	27.0	28.9
Underweight (%)	12.5	13.1	6.2	4.0
Overweight (%)	21.0	19.6	27.5	25.0
Obese (%)	8.8	11.6	27.4	40.1
Waist Circumference ≥ 102cm (%)	5.0	9.9		
Waist Circumference ≥ 88cm (%)			33.7	50.5
Waist-hip ratio ≥ 1.0 (%)	6.4	7.0		
Waist-hip ratio ≥ 0.85 (%)			32.0	47.4

Lazy bones

In terms of physical activity, our nation is not doing much better. A significant proportion of adults in the country were found to be unfit (Figure 6). This has not improved since the 2003 international study completed in 51 countries, which included South Africa. The trends reported in the current survey were in line with those in other studies in Africa, developed countries, and at the global level.

Figure 6: Prevalence of aerobic fitness: percentage of unfit participants aged 18-40 years old by sex and locality, SA 2012



Females tend to live a sedentary lifestyle compared to males, with differences pronounced in urban formal residents and rural formal areas.

What to do?

The SANHANES team recommended several measures to the Department of Health, including:

- Strengthen the current NCD strategy while making available the necessary financial support for this purpose.
- Launching a national awareness campaign that address risk factors in this domain at the home (awareness, practices, and healthy choices), workplace (enabling environment to promote awareness and physical activity) and community level (an environment that affords safety and is conducive to recreational activities), in collaboration with all other relevant government departments and employers to formalise a road map for the immediate-, medium-, and longer-term future. ■

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The full report is available on http://tinyurl.com/klvx5ud