

# Chronic Non-Communicable Diseases

# 5

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## **Abstract**

*This chapter will examine the current actions, including lifestyle measures, for the prevention and management of non-communicable diseases within a South African context. It will also focus on the biological, behavioural and social determinants of health. Interventions and initiatives directed at primary, secondary and tertiary prevention of chronic non-communicable diseases are also discussed. This chapter ends with recommended lifestyle changes, which can be taken to influence the adoption of healthy lifestyles, and therefore reduce the risks for chronic non-communicable diseases.*

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## Introduction

Chronic non-communicable diseases are a major contributor to the burden of disease in developed countries, and are increasing rapidly in developing countries. This is mainly due to demographic transitions and changing lifestyles of populations associated with urbanisation.

Chronic non-communicable diseases are largely due to preventable and modifiable risk factors such as, high blood cholesterol, high blood pressure, obesity, physical inactivity, unhealthy diet, tobacco use and inappropriate use of alcohol. These factors result in various long-term disease processes, culminating in high mortality rates attributable to stroke, heart attack, tobacco- and nutrition-induced cancers, obstructive lung diseases and many others.<sup>1</sup>

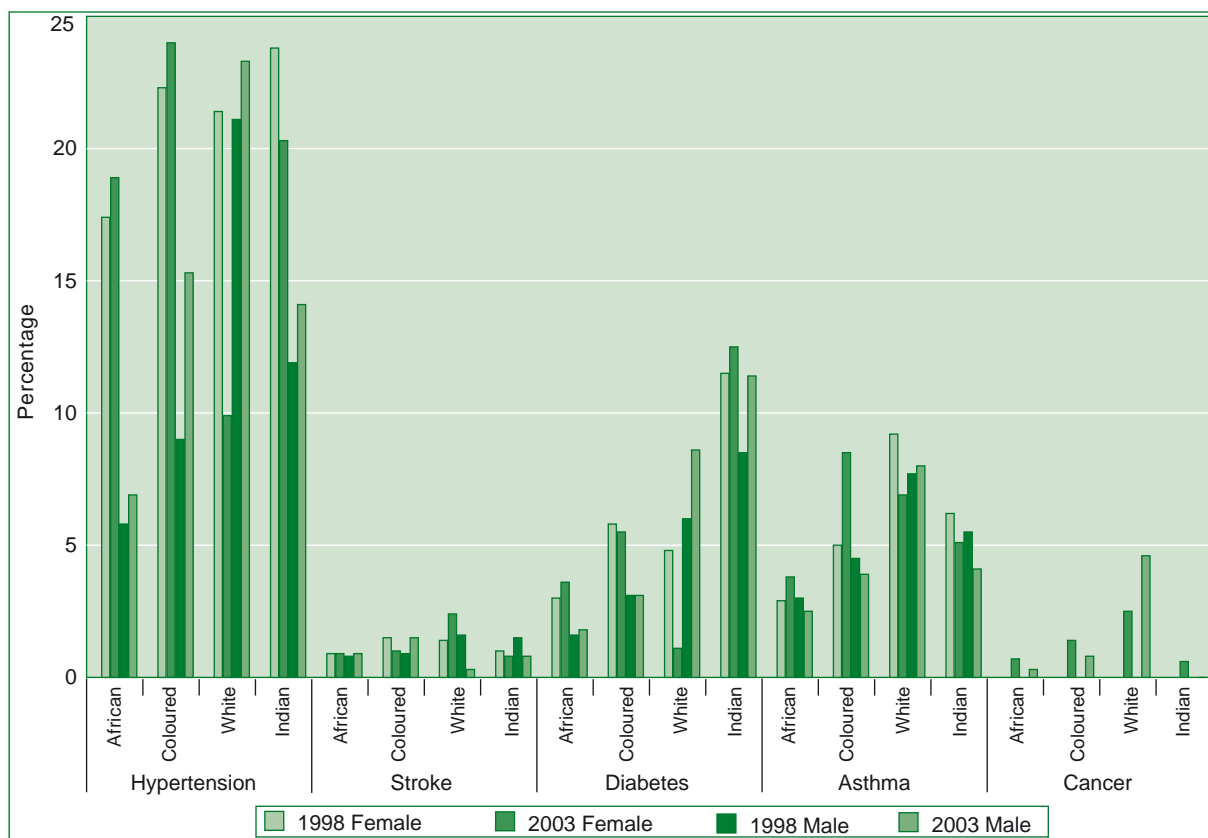
In South Africa it is estimated that 56% of the population now live in urban centres, with the urbanisation of the Black population increasing rapidly.<sup>2</sup> This rapid urbanisation, in the context of globalisation, has been accompanied by large shifts in the health patterns of South Africans, thus increasing the prevalence of non-communicable diseases. The self-reported prevalence of chronic diseases among

different ethnic groups, and between genders derived from the 1998 and 2003 South Africa Demographic and Health Surveys (SADHS) is shown in Figure 1.<sup>a</sup>

A South African comparative risk assessment study in 2000 identified the major risk factors and causes of death among South Africans (see Table 1). Among the top 10 diseases and conditions contributing to mortality were the following non-communicable diseases: ischaemic heart disease, stroke, hypertensive disease and diabetes mellitus. These diseases have resulted in the loss of 65 000 lives per year.<sup>3</sup> These data suggest that after HIV and AIDS and tuberculosis (TB), the prevention of non-communicable diseases should be a top priority in the country's health agenda.

According to the Alma Ata Declaration, effective management of diseases should include: a 'promotive' aspect, which includes policy actions and intersectoral local actions; a 'preventive' aspect, including personal and behavioural actions, or education to encourage behavioural modification; and 'curative and rehabilitative' services focusing on individuals who are already diagnosed, to prevent complications.

**Figure 1: Self-reported prevalence of chronic diseases by gender, 1998 and 2003**



Source: Department of Health, 2002;<sup>4</sup> and 2004.<sup>5</sup>

<sup>a</sup> Self-reported data should be interpreted with caution as it is based on the respondents' ability to accurately recall information, with a tendency of over- or under-reporting.

Actions to reduce the burden of chronic non-communicable diseases include: food policies; tobacco and alcohol abuse control regulations; public education, such as food-based dietary guidelines to educate the public about healthy eating; the need for regular exercise; and health service management, which includes curative management and rehabilitation of those already diagnosed with chronic diseases.

The current situation in South Africa relating to preventive measures for chronic non-communicable diseases, particularly lifestyle measures, will be examined in the following section of this chapter. The focus will be on biological, behavioural and social determinants of health. Interventions and initiatives directed at primary, secondary and tertiary prevention are also reviewed.

## Risk factors for chronic non-communicable diseases

Chronic diseases have multiple preventable risk factors, which operate at different levels, from the most proximal (i.e. biological), to the most distal (i.e. structural). These risk factors can be classified as 'modifiable' and 'non-modifiable'. Modifiable determinants include factors that can be altered, such as individual and community influences, living and working conditions and socio-cultural factors. On the other hand, non-modifiable determinants include those factors that are beyond the control of the individual, such as age, sex and hereditary factors.

**Table 1: Comparison of selected risk factors with causes of death as a proportion of the burden of mortality**

Rank	Risk factor	Total deaths (%)	Rank	Disease, injury or condition	Total deaths (%)
1	Unsafe sex / sexually transmitted infections (STIs)	26.3	1	HIV and AIDS	25.5
2	High blood pressure	9.0	2	Ischaemic heart disease	6.6
3	Tobacco smoking	8.5	3	Stroke	6.5
4	Alcohol harm	7.1	4	TB	5.5
5	High body mass index (excess body weight)	7.0	5	Interpersonal violence injury	5.3
6	Interpersonal violence (risk factor)	6.7	6	Lower respiratory infections	4.4
7	High cholesterol	4.6	7	Hypertensive disease	3.2
8	Diabetes (risk factor)	4.3	8	Diarrhoeal diseases	3.1
9	Physical inactivity	3.3	9	Road traffic injury	3.1
10	Low fruit and vegetable intake	3.2	10	Diabetes mellitus	2.6
11	Unsafe water, sanitation and hygiene	2.6	11	Chronic obstructive pulmonary disease	2.5
12	Childhood and maternal underweight	2.3	12	Low birth weight	2.2
13	Urban air pollution	0.9	13	Asthma	1.3
14	Vitamin A deficiency	0.6	14	Trachea / bronchi / lung cancer	1.3
15	Indoor air pollution	0.5	15	Nephritis / nephrosis	1.3
16	Iron deficiency anaemia	0.4	16	Septicaemia	1.2
17	Lead exposure	0.3	17	Oesophageal cancer	1.1

Source: Norman et al., 2007.<sup>6</sup>

## Biological factors

### High blood cholesterol

High blood cholesterol includes hyperlipidaemia, which refers to a high concentration of all the different blood fats (also called lipids) in the blood. Consuming large amounts of food with high levels of saturated fat and trans fatty acids, along with foods high in cholesterol, results in an increase of cholesterol in the blood, which increases the risk of a heart attack.<sup>7</sup> These saturated animal fats are contained particularly, in fatty red meats, eggs, butter and cream. Too little fibre in the diet also contributes to high blood cholesterol.

### Genetics

Some populations are susceptible to chronic disease because of inherited genes. For example, Afrikaners in South Africa have been found to have familial hypercholesterolemia, a rare genetic disorder, characterised by very high low-density lipoprotein, cholesterol and early cardiovascular disease.<sup>8</sup> Another example is the Indian population, who are more insulin resistant than other ethnic groups, and therefore at higher risk for type 2 diabetes.<sup>9</sup>

### Early life origin

Early life origin includes two factors. Firstly, 'catch-up growth', which pertains to babies with low birth weight, who tend to grow fast after birth and often become overweight as young children. They tend to develop high blood pressure and abnormal blood glucose metabolism early in life, which puts them at risk of developing chronic diseases, including heart disease (Barker hypothesis).<sup>10</sup> Secondly, 'stunted children' tend to be shorter than other children of the same age as a result of insufficient nutrients required for growth and development. Stunting is an indication of long standing under-nutrition and is often accompanied by fat deposition, especially around the abdominal region, predisposing individuals to obesity in adulthood.<sup>11</sup>

Several studies have found a relationship between birth weight, subsequent growth and development, and the emergence of risk factors for chronic diseases.<sup>12,13</sup> South Africa continues to face high levels of household food insecurity and under-nutrition in children under the age of five. Research shows that infants who survive malnutrition are at risk of stunting and subsequent chronic diseases in adulthood.<sup>14</sup>

## Excess body weight - high body mass index

Excess body weight is associated with an increased risk of diseases. Joubert et al. found that increased body mass index (BMI) was associated with type 2 diabetes mellitus, hypertensive diseases, ischaemic stroke, cancer and osteoarthritis.<sup>15</sup> These diseases had a higher prevalence in women than in men.

South Africa is characterised by a paradox, where obesity in children coexists with stunting and early nutritional deprivation. In a combined sample of adolescents, obesity and underweight were 4% and 9% respectively, while stunting was 11.4%.<sup>16</sup> Both overweight and underweight put the individual at risk for chronic non-communicable diseases in later life.

Comparison of data from the 1998 and 2003 SADHS, show a decline in obesity among men from 9.3% to 8.7%, and in women from 30% to 23.3%, but an increase in overweight rates amongst African women and men (see Figure 2).<sup>4,5</sup> However, obesity amongst women remains higher than that of men. Patterns of obesity highlight the disparities between and within ethnic groups. The distinction between men and women is even more pronounced geographically in poorer provinces. For example, prevalence rates for overweight and obesity among women and men in Limpopo were 46% and 16% respectively.<sup>5</sup>

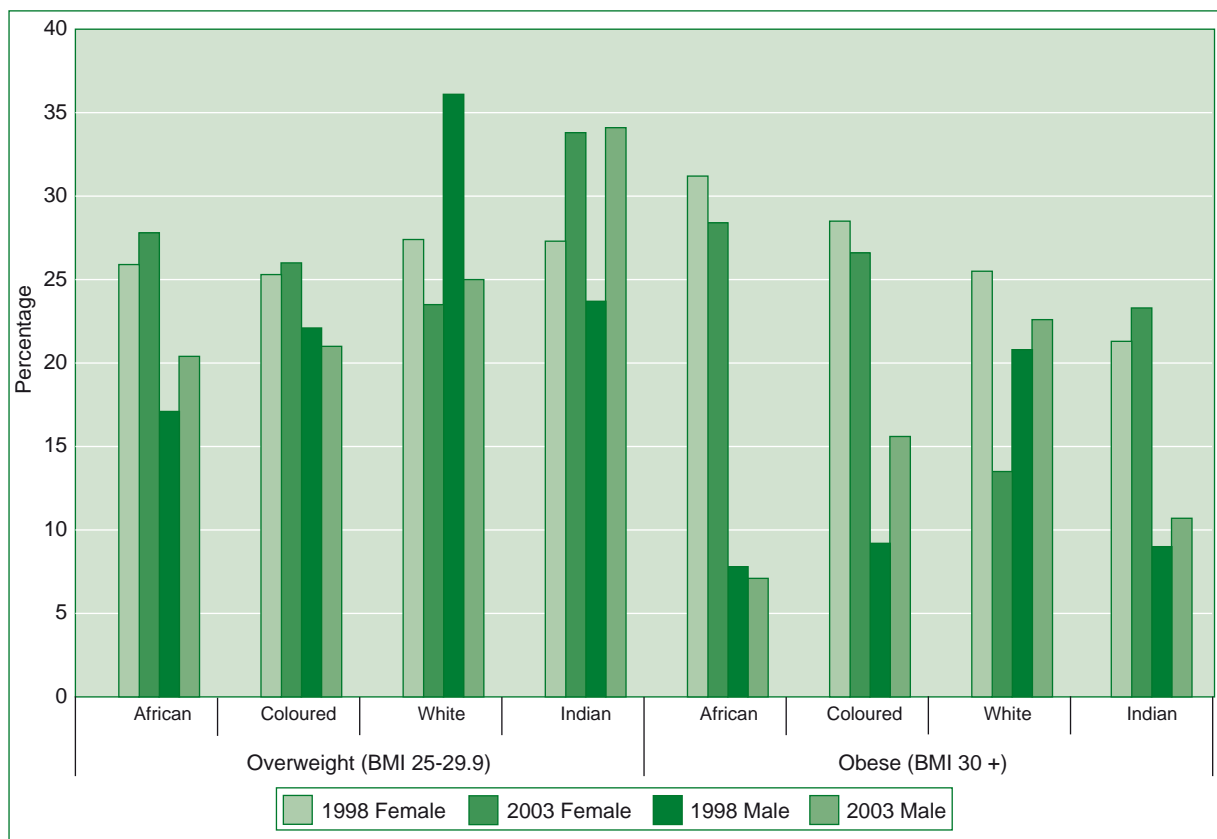
### Hypertension

In South Africa, the percentages of men and women who are measured as being hypertensive are 12.5% and 17.9% respectively.<sup>b,5</sup> However, the percentages are higher in White men (35.8%) and Indian women (29.1%).<sup>5</sup> Hypertension can be controlled with diet and physical activity and prescribed medication, which may need to be taken for life. In 2003, national data showed that only 18% of men and 22% of women had controlled hypertension.<sup>5</sup>

### Type 2 diabetes

Type 2 diabetes, also known as 'non-insulin-dependent diabetes mellitus' (NIDDM) or 'adult-onset diabetes', occurs when people produce insulin, but either do not make enough insulin, or their bodies do not use the insulin they produce.

b The recorded blood pressure levels of participants in the 2003 SADHS survey, particularly the diastolic blood pressure, were much lower than was recorded in 1998, reducing the apparent prevalence rate of hypertension. Caution should be exercised in interpretation as it is likely that the data do not reflect the true situation regarding hypertension in South Africa.

**Figure 2: Prevalence of overweight and obesity by gender, 1998 and 2003**

Source: Department of Health, 2002;<sup>4</sup> and 2004.<sup>5</sup>

Although type 2 diabetes commonly occurs in adults, an increasing number of children and adolescents who are overweight are also developing type 2 diabetes.<sup>17</sup> In South Africa, the prevalence of diabetes in 2000, among adults older than 30 years, was estimated at 5.5%.<sup>18</sup> However, it was also shown that variations in the prevalence between sexes, age groups and population groups exist. The estimated diabetes prevalence was higher in females and among the Indian population (17.1%), and it increased with age.<sup>18</sup>

## Behavioural risk factors (lifestyle factors)

### Poor diet

Nutrition is a major modifiable determinant of chronic non-communicable diseases, with scientific evidence supporting the view that alterations in diet and activity have effects on health throughout life. Non-communicable diseases are linked to high consumption of energy dense foods, made of animal origin and of foods processed or prepared with added fat, sugar and salt.<sup>19</sup>

South African diets are high in these foods, as illustrated by a national survey among youth, which reported that learners

frequently consume fast foods (38.8%), cakes and biscuits (47.4%), cool drinks and sweets (52.0%) at least four days a week.<sup>20</sup> It has also been reported that urban and rural diets are becoming similar.<sup>21</sup>

### Physical inactivity

Physical inactivity is associated with increased levels of obesity, breast cancer, colon cancer, osteoporosis, stress, anxiety and depression.<sup>22-24</sup> Physical inactivity is one of the major underlying causes of mortality in the world. It has been shown that moderate amounts of physical activity (frequency, duration and intensity) are associated with health benefits, and can help reduce various chronic diseases related to lifestyle.<sup>25-27</sup>

Data from a comparative study of 51 countries showed that women (47.6%) were more physically inactive than men (44.7%).<sup>28</sup> The 2002 South African Youth Risk Behaviour Survey revealed a similar pattern among young people. It revealed that 43% of females and 30.5% of males participated in insufficient or no physical activity, with Black and Coloured learners being the least physically active.<sup>20</sup>

## Tobacco use

Tobacco use is one of the most modifiable risk factors and preventable causes of death in the world. The World Health Organization (WHO) attributes some four million deaths a year to tobacco. It is estimated that by 2030 smoking will kill one in six people globally, if current trends continue.<sup>29</sup> This will include seven million people in developing countries.<sup>30</sup> Tobacco use has been associated with premature mortality amongst users, with cardiovascular disease (i.e. stroke and heart attack) causing most deaths. This is closely followed by chronic lung diseases, such as chronic bronchitis, emphysema and lung cancer.<sup>31,32</sup>

Figure 3 shows that in 2003/04 in South Africa, approximately 31% of men (one-third) aged 15 and older smoke daily, compared to only 8% of women.<sup>5</sup> This distinction between genders applies to all provinces, but smoking rates in women and men vary across provinces. The Northern Cape and Western Cape report having the highest smoking prevalence in both genders. The proportion of men and women aged 15 and over who reported smoking daily has declined between 1998 and 2003.<sup>5</sup>

A study on youth in South Africa showed racial differences in inclination to smoke. Results revealed that young Africans (83% - never smoked) were the least inclined, followed by Indians (70% - never smoked) and Coloureds (62% - never smoked) to report having never smoked, while Whites were the most inclined to be smokers (58% - never smoked).<sup>33</sup>

## Inappropriate use of alcohol

The 2003 SADHS revealed that 48.5% of males and 21.6% of females acknowledged ever drinking alcohol.<sup>5</sup> However, when examining patterns in drinking over the past seven days, results showed that White men and women were responsible drinkers. Responsible drinking was defined as less than four drinks in men and less than two drinks in women (over the past seven days).<sup>5</sup> With regard to youth, the 2002 South African Youth Risk Behaviour Survey revealed that there were higher percentages of White (86%) and Coloured learners (66%) who had ever drunk alcohol compared to Black learners.<sup>20</sup> Furthermore, this same survey showed that males had significantly higher rates than females in all the measures of alcohol use.

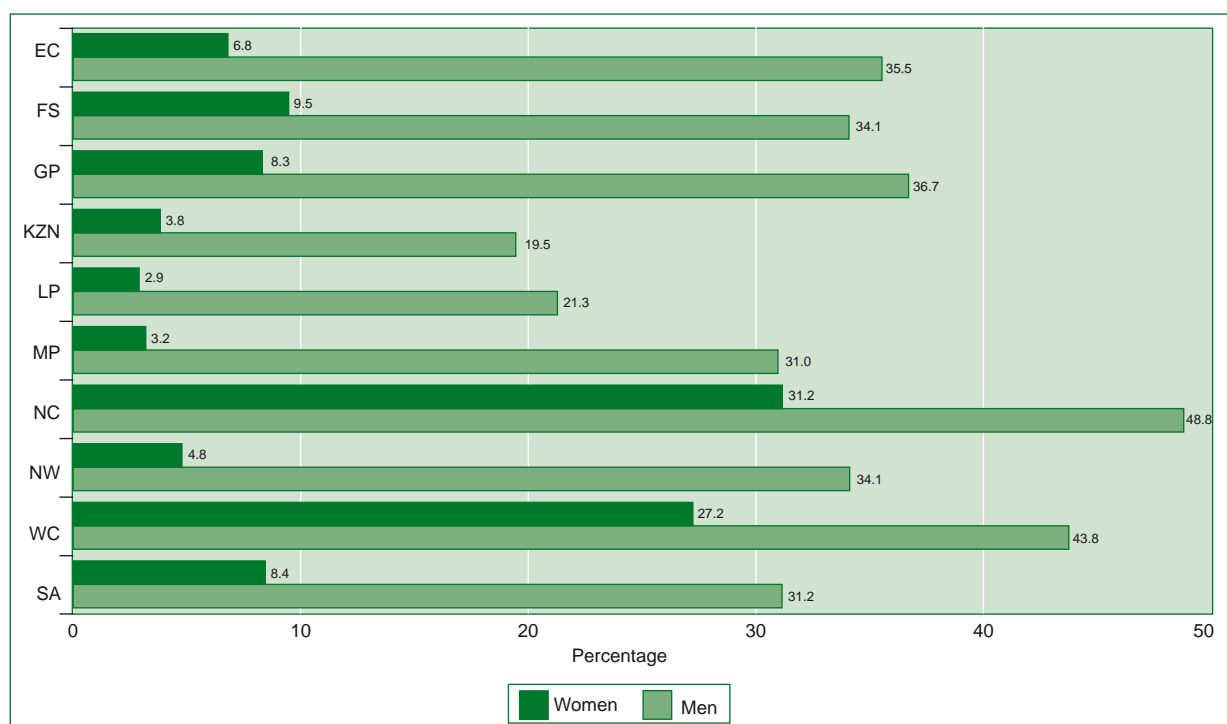
## Social determinants of health

The social determinants of health include underlying causes of health problems such as environmental factors, working and living conditions and socio-cultural factors that affect the health of the population. These also place individuals at risk for the development of non-communicable diseases.

## Urbanisation and globalisation

Urbanisation is a major risk factor in the non-communicable diseases epidemic as economies grow and become 'modernised' and populations migrate from rural to urban

**Figure 3: Prevalence of smoking by gender across provinces, 2003/04**



Source: Department of Health, 2004.<sup>5</sup>

areas. In South Africa, the percentage of Africans living in urban areas has increased from 43.3% in 1996 to 47.5% in 2001, while the percentages of other racial groups, such as Coloureds, Indians and Whites residing in urban areas for the same period have remained relatively constant.<sup>2</sup>

Studies have shown that urbanisation leads to dietary changes towards adoption of the so-called 'western diet', which is high in animal proteins, fat and sugar.<sup>20</sup> This is often accompanied by lifestyle changes including alcohol consumption, cigarette smoking and physical inactivity, increasing the population's risk for non-communicable diseases.<sup>34</sup>

### Environmental factors

Environmental factors include situations in the environment, which either influence poor food choices or prevent people from engaging in physical activity.

### Obesogenic environment

Advertising and marketing strategies used in the media to promote consumption of high energy dense foods and fast food outlets with large portion sizes, make it difficult for populations to make healthy choices about food. A study to identify major sources of nutritional information among urban Black South African women, found that television was the most highly credible source of information. This influenced food choices based on taste, family preferences and price.<sup>35</sup>

Other factors related to poor eating practices include, easy access to cheap unhealthy foods and the relatively high cost of healthy foods. Chopra and Puoane, in a study to identify environmental risk factors for non-communicable diseases in an urban township, found that there was generally a shortage of healthy, low-fat food and little fresh fruit and vegetables available in the townships. The majority of local shops sold cheap fatty foods and stalls run by street vendors often sold fatty meat and sausages.<sup>36</sup>

### Structural environmental factors

Structural environmental factors include environmental factors that may act as a barrier to engaging in physical activity, such as a lack of parks, proper sidewalks and exercise facilities, as well as the presence of crime and violence. These have been reported to be a barrier to engaging in physical activity for Black women in particular.<sup>37</sup>

### Socio-economic status, living and working conditions

Previously, non-communicable diseases were thought to be diseases of the affluent, but poor populations are now equally affected. This is largely due to the environment in which the poor reside, and socio-economic circumstances that influence their diets and physical activity patterns.<sup>38</sup>

### Socio-cultural factors

Beliefs and attitudes about body image of some individuals have been found to increase the risk for developing non-communicable diseases. For example, Mvo et al. and Puoane et al. reported that although a large percentage of African women were overweight and obese, few perceived themselves so.<sup>38,39</sup> The belief that thinness is associated with personal problems and sickness, especially HIV and AIDS, seems to be a barrier to maintaining normal body weight in some individuals.<sup>40,41</sup> Accompanying beliefs about body weight are socio-cultural factors related to food intake, which partly contributes to obesity in some individuals.<sup>42</sup>

### The economic impact of chronic diseases

Chronic diseases have a major economic impact on individuals, families, the health system and society at large. Since chronic diseases affect the young and people in their productive years, they reduce productive labour and earning capacity at a household level. Treatment of chronic diseases puts much strain on the already overburdened health system, because of the additional resources required. Investment in interventions to control the burden of chronic diseases can, therefore, bring economic benefit to the country in the long-term. Lessons should be drawn from interventions to reduce the burden of chronic disease that have been implemented in other countries.

### Interventions to reduce non-communicable diseases

There is strong evidence showing that chronic disease can be prevented and controlled through comprehensive and integrated actions. These include: policy actions; laws and regulations; tax and price interventions; improving the built environment; advocacy; and community-based, school-based, workplace screening and clinical interventions at health facility levels.<sup>43</sup>

It is important to develop comprehensive interventions, using a Primary Health Care (PHC) approach based on the Alma Ata Declaration of 1978. Effective management of diseases should include: 'promotive' aspects such as policies and intersectoral local actions; 'preventive' aspects, which include personal and behavioural modification; and 'curative and rehabilitative services' focusing on the prevention of complications in individuals who have already developed chronic diseases.

### **Experiences from other countries prevention of chronic disease**

Evidence from other countries shows that population-wide approaches to reducing the risk throughout the whole population are effective. These interventions address the causes, rather than the consequences of chronic disease, and also focus on preventing the emergence of future epidemics.

For example, a community-based intervention was developed in Finland, which had the highest death rate from cardiovascular disease due to heavy tobacco use, high fat diet and low vegetable intake. This broad community-based intervention involved consumers, schools as well as social and health services, and led to policies banning tobacco advertising, introduction of low fat and vegetable oil products, changes to farmers' payment schemes and incentives for communities achieving the greatest reduction in cholesterol. This intervention reduced cancer and heart disease mortality by at least 56% and led to an increase in life expectancy in both men and women.<sup>44</sup> There are many other successful, cost-effective interventions, such as tobacco taxation in South Africa and advocacy for physical activity in Brazil; examples from which we can learn.<sup>45,46</sup>

### **A global policy intervention to reduce the impact of chronic non-communicable diseases**

In 2004, the WHO developed a global strategy for diet, physical activity and health, to be implemented within the integrated prevention and control of non-communicable diseases. The strategy aimed at promoting healthy lifestyles (i.e. better food choices and increased physical activity) in a healthier environment, where nutritious foods, especially fruit and vegetables are available locally at reasonable prices. The strategy also seeks to promote simpler labelling of benefits and potential harmful effects of foods to enable people to make informed food choices.

## **South African actions to prevent chronic non-communicable diseases**

### **Policy actions**

#### **Food-based dietary guidelines**

The South African food-based dietary guidelines were developed in 2001 in a way that most adults will understand (see Box 1).<sup>c</sup> These guidelines have been approved by the Department of Health (DoH) and can be used as a basis for a healthy eating plan to help prevent chronic non-communicable diseases.<sup>47</sup> They have been used for educational purposes for prevention of chronic diseases, particularly the prevention of ischaemic heart disease and type 2 diabetes.<sup>48</sup> However, there are barriers to the implementation of such guidelines, including poverty, food insecurity and poor communication skills of practitioners.<sup>49</sup>

#### **Tobacco control**

South Africa has been a global leader in developing and implementing appropriate legislation for tobacco control. The Tobacco Products Control Act (Act 83 of 1993) was amended in 1999 and 2007, and created one of the most effective tobacco control policies in the world.<sup>50-52</sup> The Act protects children and adolescents, by banning advertising and also ensures the rights of non-smokers to a clean environment, unpolluted by tobacco smoke. These actions have had an impact in reducing tobacco consumption in South Africa. South Africa has also used pricing of tobacco products as a disincentive to cigarette smoking. In addition, 'sin taxes' for tobacco have increased every year as part of the policy for reducing the use of tobacco.<sup>53</sup>

#### **Alcohol control**

The Liquor Act (Act 59 of 2003) was formulated mainly to reduce the socio-economic impact of alcohol abuse in South Africa, and to promote the development of a responsible and sustainable liquor industry.<sup>54</sup> In order to protect the public, the Act prohibits advertising of alcohol in a manner that attracts minors.<sup>55</sup> Alcoholic beverages have heavily priced 'sin taxes' as a preventive measure to alcohol abuse. Other control measures include restricted trading hours and age limits of persons who can purchase alcohol beverages. The alcohol control policy seems to be ineffective in reducing the rates of alcohol intake.<sup>56</sup>

<sup>c</sup> The food-based dietary guidelines are written in bold and accompanied by the authors' interpretation of the guidelines.



**Box 1: Examples of education messages in food-based dietary guidelines for prevention and management of chronic non-communicable diseases**

<b>Enjoy a variety of foods</b> - important in ensuring that the body gets a variety of nutrients.
<b>Be active</b> - important preventative measure for diabetes, obesity and hypertension.
<b>Drink lots of clean, safe water</b> - important for dissolving certain nutrients and assists in reducing constipation.
<b>Make starchy foods the basis of most meals</b> - unrefined starch contains antioxidants such as zinc, selenium and magnesium that are important in the prevention of cancer.
<b>Eat plenty of fruit and vegetables</b> - for their fibre, micronutrients and antioxidants, which are essential in the prevention of certain types of cancers and in the reduction of the risk for overweight and coronary heart diseases.
<b>Eat dry beans, peas, lentils and soya often</b> - for increased soluble fibre, protein and flavonoids intake. Soluble fibre is important for lowering blood cholesterol therefore, preventing the risk of cardiovascular diseases.
<b>Meat, fish, chicken, milk and eggs can be eaten everyday</b> - although foods in this category can be consumed daily, over-consumption of animal-based food may increase the risk of cardiovascular diseases as these foods tend to contain cholesterol and saturated fats.
<b>Eat fats sparingly</b> - to prevent a high intake of fat and saturated fats. High consumption of fats has been linked with overweight, cardiovascular diseases, high cholesterol, diabetes and certain cancers.
<b>Use salt sparingly</b> - because of the detrimental effect of a high sodium intake. High salt intake increases the risk of coronary heart diseases and stroke, and increases blood pressure.
<b>Use foods and drinks that contain sugar sparingly and not between meals</b> - these foods have a low nutrient density, are associated with obesity and are responsible for dental caries.
<b>If you drink alcohol, drink sensibly</b> - excessive alcohol consumption may contribute to overweight as alcohol is high in energy. This will therefore increase the risk for coronary heart disease, hypertension and diabetes. Excessive alcohol consumption can increase the risk of developing certain types of cancers and high blood pressure.

Source: Adapted from Vorster et al., 2001;<sup>48</sup> Department of Health, 2004.<sup>47</sup>

## Health service management of non-communicable diseases

Successful prevention and management of chronic non-communicable diseases is dependent on an effective health service approach, as well as on the approaches of health promotion and primary prevention.<sup>35</sup> Currently, people with non-communicable diseases can access health services via the private or public health care systems.

The 2003 SADHS provided insight into the utilisation of health services and chronic medication in South Africa.<sup>5</sup> Indicators included health services attended, satisfaction with these health services, problems in accessing health care, access to a medical aid, self-reported chronic disease drugs used, chronic disease drug utilisation in private and public sectors and payment for prescribed medication for chronic diseases. The results showed that there were slightly more patients attending public health care facilities for treatment of chronic conditions than the number of those attending private health care facilities. Even though the public and private sectors in South Africa are of equivalent size in terms of overall expenditure, they cater for significantly varying population sizes.<sup>2</sup>

In most PHC services, patients with non-communicable diseases are seen on special days set aside for chronic

conditions. At each visit the patients' vital measurements such as glucose test, blood pressure, weight and height are taken. The national Department of Health (NDoH) has put the control of chronic non-communicable diseases as one of the priority areas to be strengthened in their strategic planning goals for 2004-09.<sup>57</sup> National guidelines for control and management of each condition (i.e. diabetes, hypertension and asthma) have been produced, to assist health workers in diagnosing and treating these conditions. The national cancer control programme has been strengthened with the introduction of the cervical cancer programme in 2000. A series of information booklets on breast, testicular and prostate cancer have been produced and distributed nationally. The current approach is to treat a single risk factor unless the patient has multiple conditions. As part of the management of chronic diseases, each health facility recruits patients with chronic diseases to join support groups.<sup>58</sup>

Nurses working at clinics often lack the skills to deal comprehensively with chronic diseases.<sup>58-67</sup> One cause for this is that chronic diseases are not covered comprehensively in their training. Additionally, there are no postgraduate courses that deal with this subject. Greater attention to this lack of skills is required if better prevention and control of non-communicable diseases is to be achieved in the population, particularly with respect to the premature deaths under the age 65.<sup>58</sup>

The public health care system is thus overburdened and under-resourced. As a result, numerous studies have illustrated that chronic disease conditions and risk factors are infrequently diagnosed and inadequately treated, resulting in high levels of uncontrolled hypertension, diabetes, hyperlipidaemia and chronic respiratory diseases.<sup>68-70</sup>

## Community-based interventions

Community-based interventions for chronic disease prevention focus on risk factor reduction, community mobilisation and participation. Integrated community-based

programmes aim at reaching the general population, as well as targeting high-risk and priority populations in schools, workplaces, recreation areas, and in religious and health care settings. They are characterised by active community participation in planning and implementing decisions concerning their health, resulting in empowerment and ownership of the programmes. Evidence shows that population-wide approaches are not only effective in reducing the risk among targeted population, but are also suitable for resource constrained settings.<sup>71</sup> Some examples of community-based interventions for chronic disease prevention are provided in Table 2.

**Table 2: Community-based interventions for chronic disease prevention**

Programme	Programme description	Programme outcome
Community Health Intervention Programme (CHIPs). <sup>72</sup>	<ul style="list-style-type: none"> <li>◆ This health intervention programme was developed by the Sports Science Institute of South Africa (SSISA) in 1997 in response to the growing prevalence and burden of non-communicable diseases.</li> <li>◆ The aim of the programme is to promote health through the medium of regular physical activity.</li> <li>◆ Five programmes were designed to respond to needs of individuals through all phases of the life cycle.</li> <li>◆ The programmes are 'Healthnutz' for children, 'Optifit Outreach' for adults, 'Fit for Work', a workplace-based exercise intervention, 'Live it Up' for older adults and 'Wakey Wakey', which is a group-based health awareness programme.</li> <li>◆ Each of these programmes embraces a two-fold strategy: education to increase awareness regarding the risk for developing chronic diseases of lifestyle; and regular physical activity to encourage adherence and self-efficacy in making healthier lifestyle choices.</li> </ul>	<p>The programme has achieved the following:</p> <ul style="list-style-type: none"> <li>◆ Opened over 40 branches, trained more than 300 leaders and impacted on 8 685 individuals' lives.</li> <li>◆ The next phase of growth is to expand the programme nationally and to develop a 'train the trainer' model.</li> <li>◆ They are seeking accreditation from the South African Qualifications Authority (SAQA) for resource manuals and the training offered to leaders.</li> </ul>
Woolworths Health Promotion Programme. <sup>73,74</sup>	<ul style="list-style-type: none"> <li>◆ Working closely with schools and the Department of Education, Woolworths in conjunction with SSISA, has developed the 'Making the Difference through Nutrition Programme'.</li> <li>◆ This initiative combines outcomes-based education, interactive classroom activities and informative parent workshops, which positively influence the lifestyles and well-being of young learners and their communities.</li> <li>◆ One of the primary focuses of this initiative is to teach learners not only the importance of regular physical activity, but also how to become more physically active in a fun, creative and sustainable manner.</li> </ul>	<p>Woolworths and SSISA have produced a DVD to educate children, caregivers, parents and teachers about how to make physical activity an integral part of the lives of children.</p> <p>In the DVD the presenters give valuable insights into the extensive benefits of physical activity, as well as practical advice on how to improve children's physical activity levels at home and at school.</p> <p>The 1km Health Track and the dynamic group dance (Dance for Fun), provide two inspiring examples of how exercise can be accessible and fun.</p>
Soul City Health Promotion Programme. <sup>75</sup>	<ul style="list-style-type: none"> <li>◆ Soul City has run a television soap opera series with a health promotion programme which targeted low income groups. They also ran a sister radio programme for those without access to television.</li> <li>◆ These included health messages addressing under-nutrition and overweight.</li> </ul>	<p>An extensive evaluation of the Soul City programme showed that it resulted in increased knowledge and awareness of high blood pressure, and adopting a healthy lifestyle to prevent and treat hypertension.</p> <p>The programme was also associated with positive change in intention and actual behaviour.</p>

Programme	Programme description	Programme outcome
Promoting Healthy Lifestyles: A community health workers intervention programme for primary prevention of non-communicable diseases in Khayelitsha, Cape Town. <sup>76</sup>	<ul style="list-style-type: none"> <li>◆ A community-based project to increase community awareness about primary prevention of non-communicable diseases was implemented in Khayelitsha, a poor urban township of Cape Town.</li> <li>◆ This intervention was initiated in response to a request from some community members of Khayelitsha who had noticed an increased number of people suffering from diabetes and hypertension in the township.</li> <li>◆ A training programme was developed and implemented among community health workers, who were utilised as role models and change agents in their community.</li> <li>◆ This programme included discussions on healthy eating, group walks, developing and staging dramatised plays to disseminate messages about prevention and control of non-communicable diseases and starting a health club called "<i>Masiphakame Ngempilo yethu</i>" (Let's stand up for our Health).</li> </ul>	<p>Between 2001 and 2005, about 2 000 local community members participated in community awareness events staged by community health workers.<sup>77</sup></p> <p>Three groups of health promoters and community health workers have been trained.</p> <p>Three health clubs (support groups) have been initiated in the Khayelitsha community and are run by community health workers.</p> <p>With the support from Virgin Active and the local councillor of Khayelitsha, a first gym of its kind was established and is now run by the trained community health workers.</p>
Vuka South Africa: Move for your health. <sup>78</sup>	<ul style="list-style-type: none"> <li>◆ This is a government initiative aimed at promoting healthy lifestyle through promotion of good nutrition, physical activity, sexual behaviour, tobacco control and combating the abuse of alcohol.</li> <li>◆ This initiative was launched in 2005.</li> <li>◆ A multisectoral approach was adopted for the implementation of this initiative and it consisted of the Department of Education and Sport and Recreation, stakeholders from various centres of higher learning, the private sector, non-governmental and community-based organisations.</li> </ul>	<p>Over 200 partners attended a national workshop.</p> <p>Move for your health Don Lock Memorial 8km run and 5km run / walk were held in 2007 in Cape Town.</p> <p>Four schools took part and the event attracted 1 217 competitors.<sup>79</sup></p>

Source: Derived using multiple sources.

## Conclusion

South Africans, especially urban poor populations are at increased risk for non-communicable diseases, through exposure to unhealthy diets, smoking, alcohol abuse and by leading a sedentary life. Although the smoking rate has been reduced, a large percentage of South Africans are physically inactive, consume poor and unhealthy diets, and are overweight and obese.

In addition to these risk factors, underlying factors (i.e. social determinants) such as increased urbanisation, environmental factors, socio-economic and cultural factors contribute extensively to the growing prevalence of non-communicable diseases. These are generally neglected when developing interventions for prevention and control of non-communicable diseases. There is therefore a need for a comprehensive programme of action to help reduce the increasing epidemic of non-communicable diseases among South Africans.

The current South African response to the non-communicable diseases epidemic includes: implementation of policies for reducing tobacco and alcohol use; and community-based interventions and initiatives focusing on children, adults and adolescents. The initiative to educate the public about risk factors, such as the South African food-based dietary guidelines, has also been used widely to educate the public about healthy living.

Secondary prevention approaches include identification of personal risk factors, individual management of risk, early diagnosis and appropriate management of disease. Despite these initiatives, a range of improvements is needed for the overall control and management of non-communicable diseases in South Africa, and to impact on the burden of disease.

Some of the shortcomings in the control of non-communicable diseases in South Africa include:

- Awareness campaigns for non-communicable diseases do not reach the target audiences, especially the rural population, due to poor infrastructure and inadequate communication facilities.
- Routine screening for risk factors in all individuals in the health services is poor.
- Annual physical examinations are not routine in health facilities, and the public is not well informed about the need for routine physical examination to detect disease early and initiate appropriate care.<sup>80,81</sup>
- A lack of integration within vertical programmes by the health sector, for example, personnel working on nutrition programmes do not work together with those working on the health promotion programmes, and disease specific guidelines do not take into account the overlap in pathologies.

- There is also lack of involvement of other sectors (i.e. lack of intersectoral collaboration). The problem of non-communicable diseases seems to be the responsibility of the health sector alone, yet there are multiple factors that lead to its development.
- There is limited community participation in chronic disease programmes within the health system (patients are recipients and not active participants in the management of their conditions).
- Poor management of patients with chronic disease at PHC facilities is due to various barriers in the health system.<sup>66</sup>
- There is still some lack of data especially among impoverished areas of South Africa.<sup>77</sup>
- Missing and incomplete records often prevent continuity of patient care.<sup>82</sup>
- Limited training of health personnel in a comprehensive approach to chronic diseases. Medical and nursing curricula currently emphasise curative care, rather than a comprehensive approach that encompasses prevention, promotive and rehabilitative aspects. Despite this approach, many health workers are not skilled in the diagnosis and appropriate clinical management of chronic diseases.<sup>58</sup>

## Recommendations

There is a need to develop comprehensive and integrated actions to prevent and control chronic non-communicable diseases. This should involve a multisectoral approach at all levels, including at policy and implementation levels.

Actions to prevent chronic disease should include:

- Policies to deal with trade in, and marketing of, certain products such as processed foods and foods with high fat content.
- Improving the environment, including recreational facilities.
- Advocacy interventions to change the perceptions of policy makers and the public about the risk factors and their control.
- Revision of the curricula of nurses and doctors to include a comprehensive approach to the control of chronic non-communicable diseases, and priority should be placed on human resource development for the prevention and control of chronic non-communicable diseases.

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