

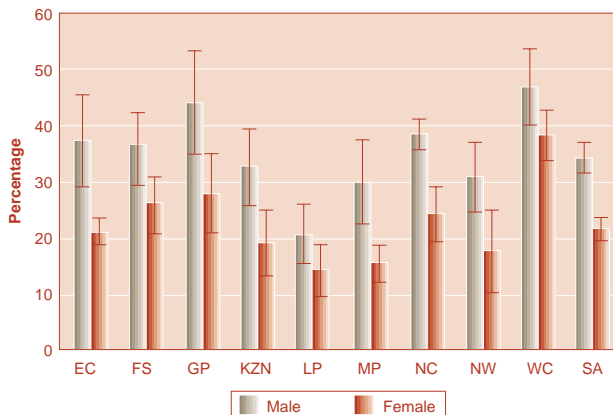
# CHRONIC DISEASES



## Priscilla Reddy

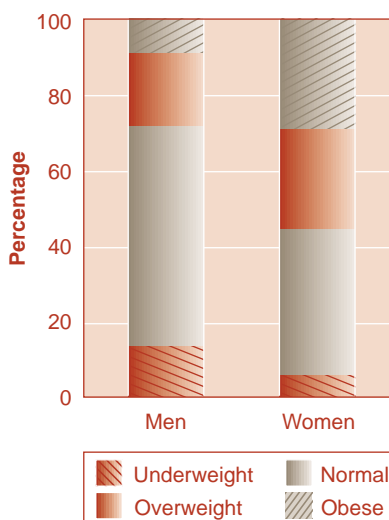
Health Promotion Research and Development Group, Medical Research Council

### Percentage of learners who report current use of any tobacco product, 2002



Source: GYTS 2002

### Percentage of people underweight, normal, overweight or obese, 1998



Source: SADHS 1998

### Key Messages

- Chronic diseases were the main cause of death of South Africans in 2000.
- Chronic diseases are largely preventable if interventions are targeted at risk factors and determinants, rather than only providing medical treatment for those already affected.
- There is a need to define a comprehensive set of chronic disease health care indicators that can realistically be collected, and updated data are also required for indicators that have been measured previously.
- Prevalence of smoking across most groups is declining, although tobacco-related cancer appears to be increasing.
- Food consumption patterns have deteriorated, and the prevalence of overweight is high in many groups, particularly for women. High levels of physical inactivity are also cause for concern.
- More than a quarter of South Africans  $\geq 15$  currently consume alcohol, a risk factor with wide-ranging health consequences.

### Framework for Monitoring and Evaluation

#### Global:

- Global Burden of Disease Project
- Innovative Care for Chronic Conditions (ICCC) Framework
- Global Youth Tobacco Survey methodology
- Global Strategy on Diet, Physical Activity and Health

#### South Africa:

- Burden of Disease Studies
- Health Goals, Objectives and Indicators 2001-2005

### Key Indicators

- Years of life lost (YLLs) by cause of death
- Current smokers (%)
- Ever smoked cigarettes (%)
- Percentage of people who ever smoked with age of initiation  $< 10$  years
- Frequent smokers (%)
- Percentage of population who are overweight (or obese)
- Percentage participating in insufficient physical activity
- Ever drank alcohol (%)
- Alcohol dependence (%)
- Risky drinking (%)

### Key References and Data Sources

- South African Demographic and Health Survey (SADHS) 1998
- South African National Burden of Disease Study (NBD) 2000
- Global Youth Tobacco Survey (GYTS) 1999 and 2002
- National Youth Risk Behaviour Survey (NYRBS) 2002

## Introduction

Until recently, risk factors such as raised blood pressure, cholesterol, tobacco use, excess alcohol consumption, obesity, and the diseases linked to them, were more commonly associated with developed countries. However, global<sup>1</sup> and national<sup>2</sup> burden of disease studies indicate that they are now becoming more prevalent in developing nations, including South Africa (SA). The country is therefore affected by the combination of HIV/AIDS, other infectious diseases, injuries and the rapidly growing epidemic of chronic or noncommunicable diseases (NCDs).

The most prominent chronic diseases in SA include **cardiovascular diseases, cancer, chronic obstructive pulmonary disease (COPD) and diabetes**. NCDs were the number one cause of death in the year 2000 in SA. They accounted for 37% of deaths and 21% of years of life lost due to premature mortality (YLLs). Cardiovascular disease as a whole is the second leading cause of death – with the sub categories of ischaemic heart disease ranking second and stroke fourth.<sup>2</sup>

## Framework for Monitoring and Evaluation

### Risk Factors and Determinants of Chronic Diseases

Risk factors<sup>a</sup> for chronic diseases and disability include tobacco use, food consumption or diet (eating and related behaviours), physical inactivity, and alcohol use. Other factors include age, sex and genetic susceptibility which are not modifiable, biological factors (e.g. dyslipidemia, hypertension, overweight and hyperinsulinaemia). The combination of these risk factors has a multiplier effect and further accelerates the pace of the chronic diseases epidemic in SA. Table 1 shows the relationship between problems, risk factors, behaviours and determinants.

Chronic diseases are largely preventable if interventions are targeted at risk factors and determinants. The approach for dealing with chronic diseases thus needs to go beyond medical treatment for those who are already affected. The health promotion approach suggests a comprehensive and intersectoral solution. It includes primary prevention within a life course perspective i.e. prevention has to start before birth, moving

**Table 1: The relationship between problems, risk factors, behaviours and determinants**

Problems	Risk Factors	Behaviours	Determinants
Cardiovascular Disease	Tobacco	Smoking tobacco	Psychosocial
Stroke		Chewing tobacco	Educational
Ischaemic Heart Disease			Environmental
Peripheral Vascular Disease	Alcohol	Alcohol misuse	Economic
Cancer	Food	Food consumption	Commercial
Diabetes		Eating	Advertising
Chronic Obstructive Airways Disease		Cooking	Marketing
		Purchasing	Food labelling
	Hypertension	Salt use	
	Obesity	Health care seeking behaviour	
		Medication compliance behaviour	
	Physical Activity	Sedentary behaviour	
		Lack of aerobic activity	

Note: Risk factors, behaviour and determinants apply to all the problems

<sup>a</sup> Factors that increase the probability of developing a disease or health problem are called risk factors.

through infancy, childhood, adolescence, adulthood to old age.<sup>3,4</sup>

Therefore, NCD risk factor data are crucial for predicting the future burden of chronic disease in populations and also for identifying potential interventions to reduce the future burden.<sup>5</sup> The Global Burden of Disease (GBD) Project<sup>6</sup> provides a framework to derive estimates of the levels and causes of mortality and morbidity. The SuRF report also provides details of specific global monitoring and evaluation frameworks, and addresses issues of indicator definitions and data collection methodologies. The need for comparable data is being addressed by WHO with four main survey instruments for NCD risk factors. These are the STEPwise approach to NCD risk factor Surveillance (STEPS),<sup>b</sup> the Global Youth Tobacco Survey (GYTS), the Global School Health Survey (GSHS), and the World Health Survey (WHS). The World Health Survey risk factor module and the STEPS survey instrument share a common set of indicators at Step 1 (health behaviours) as well as standardised measurement methods for those indicators.<sup>5</sup>

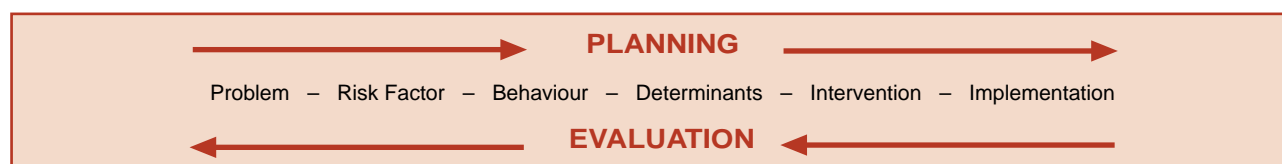
The scientific evidence is strong that a change in dietary habits and physical activity can powerfully influence several of these risk factors in populations. Recognising this, WHO has begun to formulate a Global Strategy on Diet, Physical Activity and Health, due in 2004.<sup>7</sup>

Effective development, implementation and evaluation of behaviour change interventions involves a systematic, stepwise planning and evaluation process (Box 1).<sup>8</sup>

In addition to applying the model for planning and evaluating interventions, it is necessary to identify a variety of health promotion strategies that intervene at various levels of care and prevention of chronic diseases. A Health Promotion Matrix can provide a framework for action for a sustained package of interventions that aim to promote behaviour change, including the management of research and capacity development activities. This has been demonstrated by applying the matrix to focus on one behaviour, namely tobacco use,<sup>9</sup> but the matrix may be applied to any single behaviour or cluster of behaviours that place people at risk of chronic diseases.

In general, it has been suggested that a comprehensive surveillance system must include indicators that monitor the prevention, the health service aspects of chronic disease care and the impact on the morbidity and mortality patterns in the country. In addition, the health service component of the system should contain indicators to facilitate management, including the required inputs, the processes that need to be followed, the outputs and the outcomes achieved as well as the overall impact on the nation's health.<sup>10</sup> There is a need to develop a comprehensive set of chronic disease health care indicators, based on data that can realistically be collected in SA. Existing objectives and indicators that have been developed by the national Department of Health (NDoH) for the goal of preventing and controlling NCDs are summarised in Table 2, although no targets were set in this document.<sup>11</sup>

#### Box 1: Conceptual model for planning and evaluation of behaviour change interventions targeting chronic diseases



Source: Health Promotion Planning

Table 2: National objectives and indicators for chronic diseases

Objective	Indicator
Improve quality of care to people with chronic diseases.	Proportion of emergency admissions of persons with hypertension, diabetes and asthma
Ensure prevention, early diagnosis and effective management of hypertension, diabetes, stroke and asthma.	Adult mortality rates due to hypertensive heart disease, diabetes, stroke and asthma
	Alcohol intake in adults
Decrease the percentage of overweight and obese people.	Percentage of population >15 years who are overweight or obese

Source: HGOI 2001-2005<sup>11</sup>

<sup>b</sup> STEPS Conceptual Framework and tools available from URL: [http://www.who.int/ncd\\_surveillance/steps/riskfactor/en/](http://www.who.int/ncd_surveillance/steps/riskfactor/en/)

The district health information system (DHIS) minimum data set does include indicators on the incidence of hypertension, mental illness and diabetes. Data on the prevalence of some risk factors and chronic diseases such as hypertension, diabetes and chronic obstructive airways disease are included in the SADHS. However, data on these indicators are not presented in this chapter.

## Indicator definitions

### Burden of disease

**Cause of death profile:** Percentage of deaths in the population attributable to specified diseases from the National Burden of Disease list.

**Years of life lost:** The number of years lost based on a standard life expectancy for the age of death, with future years discounted at 3% and age weighting used in the GBD study.

### Tobacco use

**Current smokers:** Percentage of people who smoked on one or more of the 30 days preceding the survey (GYTS).

This indicator may be reported for cigarettes only or for other tobacco products.

**Ever smoked cigarettes:** Percentage of people who have ever smoked a cigarette, even one or two puffs.

**Percentage of people who first smoked cigarettes before age 10 years (of those who have ever smoked)**

**Frequent smokers:** Percentage of people who smoked (cigarettes) on 20 or more days of the past 30 days.

### Food consumption and dietary patterns

**Percentage of population who are overweight:** Percentage of people with body mass index (BMI) of 25-29.9 kg/m<sup>2</sup>. BMI is weight (kg) divided by the square of height (m).

**Percentage of population who are obese:** Percentage of people with body mass index (BMI)  $\geq 30$  kg/m<sup>2</sup>.

**Perceived overweight (%):** Percentage of people who perceived themselves to be overweight.

**Waist-hip ratio (WHR) above cut-off (%):** Percentage of people with the ratio of waist / hip circumference  $\geq 1.0$  (for men) or  $\geq 0.85$  (for women).

### Physical inactivity

**Percentage participating in insufficient physical activity:**

Percentage of those surveyed who did not participate in either vigorous or moderate physical activity that would have been sufficient to gain any health benefit, in the 7 days preceding the survey. Vigorous activity is defined as activities for 20 or more minutes on 3 or more of the 7 days preceding the survey such as soccer, netball, rugby or basketball. Moderate activity is defined as 30 or more minutes on 5 or more of the 7 days preceding the survey such as fast walking, slow bicycling, skating, mopping or sweeping floors.

**Percentage watching TV  $\geq 3$  hours per day:** Percentage of those surveyed (who have access to a TV, video or computer games) who spent 3 hours or more watching TV or playing video / computer games during an average school day.

### Alcohol use

**Ever drank alcohol (%):** Percentage of people who ever drank alcohol.

**Alcohol dependence (%):** Percentage of people who show signs of alcohol dependence. Alcohol dependence is identified using four screening questions that indirectly inquire about alcohol use (CAGE questionnaire). An affirmative answer to two or more questions is classified as alcohol dependence.

**Currently drink alcohol (%):** Percentage of people who currently drink alcohol.

**Risky drinking (%):** Percentage of current drinkers of alcohol who engage in risky drinking, defined as  $\geq 5$  drinks per day (males) or  $\geq 3$  drinks per day (females).

## Data and Analysis

### Burden of disease

Among women, noncommunicable diseases account for 40% of deaths and 21% of YLLs; and among men they account for 36% of deaths and 20% of YLLs (Table 3).

Hypertensive heart disease, diabetes mellitus, chronic obstructive airways disease, asthma, oesophageal cancer, and cirrhosis of the liver all rank among the top twenty single causes of deaths in South Africa. Furthermore, these diseases contribute considerably to the years of life lost due to premature mortality (Table 4).

**Table 3: Comparison of percentage of deaths and YLLs due to noncommunicable diseases and HIV/AIDS, SA, 2000**

Group	Deaths	Percentage	YLLs	Percentage
Persons	Noncommunicable diseases	37	Noncommunicable diseases	21
	HIV/AIDS	30	HIV/AIDS	38
Males	Noncommunicable diseases	36	Noncommunicable diseases	20
	HIV/AIDS	26	HIV/AIDS	33
Females	Noncommunicable diseases	40	Noncommunicable diseases	21
	HIV/AIDS	34	HIV/AIDS	47

Source: *Initial Burden of Disease Estimates for South Africa, 2000*<sup>2</sup>

**Table 4: Top 20 single causes of deaths and YLLs, South Africa, 2000**

Single causes	Number of deaths	Rank	Rank	Single causes	YLLs
HIV/AIDS	165 859	1	1	HIV/AIDS	4 665 410
Ischaemic heart disease	32 919	2	2	Homicide / violence	902 592
Homicide / violence	32 485	3	3	Tuberculosis	595 277
Stroke	32 114	4	4	Road traffic accidents	489 979
Tuberculosis	29 553	5	5	Diarrhoeal diseases	452 827
Lower respiratory infections	22 097	6	6	Lower respiratory infections	449 010
Road traffic accidents	18 446	7	7	Low birth weight	393 763
Diarrhoeal diseases	15 910	8	8	Stroke	318 083
Hypertensive heart disease	14 233	9	9	Ischaemic heart disease	284 438
Diabetes mellitus	13 157	10	10	Protein-energy malnutrition	171 433
COPD	12 473	11	11	Suicide	163 544
Low birth weight	11 876	12	12	Diabetes mellitus	145 421
Nephritis / nephrosis	7 225	13	13	Hypertensive heart disease	127 066
Trachea / bronchi / lung cancer	7 173	14	14	Fires	123 400
Asthma	6 987	15	15	Septicaemia	115 247
Suicide	6 370	16	16	COPD	113 499
Septicaemia	6 047	17	17	Neonatal infections	96 819
Oesophageal cancer	5 803	18	18	Asthma	94 069
Cirrhosis of liver	5 672	19	19	Nephritis / nephrosis	93 973
Protein-energy malnutrition	5 511	20	20	Bacterial meningitis	90 964

 Downward shifts in the above ranking
  Upward shifts in the above ranking

Source: *Initial Burden of Disease Estimates for South Africa, 2000*<sup>2</sup>

## Tobacco Use

Tobacco is the single most important risk factor in the impending chronic diseases epidemic worldwide. When examining cancer mortality and morbidity rates in SA between 1993-1995, lung cancer, whose principal cause is tobacco smoking, was the second most common cancer among Coloured males, the third most common cancer among African and Indian males and fourth most common among White males. Tobacco-related disease appears to be increasing, since lung cancer among White, African and Indian South African women has only been listed among the top five cancers since 1995.<sup>12</sup> Furthermore, a sample taken from the recently implemented death notification system, which records smoking history of the deceased, shows significantly increased relative risk (RR)<sup>c</sup> of deaths, for those who had smoked in the 5 years prior to their death, due to oesophageal cancer (RR=4.1), lung cancer (RR=3.3),

tuberculosis (RR=2.5), stomach cancer (RR=2.2), digestive diseases (RR=1.6), and other lung diseases (RR=1.6).<sup>13</sup>

There have been several studies collecting data on adult tobacco use. In 1993 it was reported that 31.5% of adults were 'current' smokers.<sup>14</sup> Three surveys conducted in February 1995, February 1996 and October 1996 reported a current smoking rate of 34%, 31% and 34% respectively.<sup>15, 16</sup> However, by 1998, following implementation of the Tobacco Products Control Act, No. 83 of 1993, only 24% of adults reported being current smokers.<sup>17</sup>

The smoking prevalence among a nationally representative sample of school-going youth has been tracked over the last 4 years by the Global Youth Tobacco Surveys in 1999 and 2002.<sup>18,19</sup> Selected data are presented in Table 5 and Table 6.

**Table 5: Prevalence of tobacco use behaviour: Percentage of learners who reported current use of any tobacco product [95% CI], 1999 and 2002**

Year	Male		Female		Total	
	1999	2002	1999	2002	1999	2002
Eastern Cape	33.0 [27.2-38.8]	37.3 [29.1-45.4]	21.3 [13.8-28.88]	21.1 [18.6-23.6]	27.8 [22.8-32.8]	28.4 [24.7-32.1]
Free State	37.1 [31.2-43.0]	36.5 [29.6-43.4]	28.9 [20.4-37.4]	26.0 [21.1-30.9]	32.9 [27.1-38.7]	31.2 [26.9-35.3]
Gauteng	38.0 [29.5-46.5]	44.1 [35-53.2]	33.0 [29.7-36.3]	28.0 [21.0-35.0]	35.6 [31.4-39.8]	35.8 [29.5-42.1]
KwaZulu-Natal	37.2 [23.7-50.7]	32.6 [25.9-39.3]	22.1 [4.5-39.7]	19.2 [13.4-25.0]	30.0 [15.5-44.5]	25.3 [21.6-29.0]
Limpopo	30.0 [26.5-33.5]	20.7 [15.3-26.1]	23.9 [12.8-35.0]	14.3 [9.7-18.9]	28.5 [22.2-34.8]	17.4 [13.1-21.7]
Mpumalanga	33.8 [24.8-42.8]	29.9 [22.3-37.5]	19.3 [13.1-25.5]	15.3 [12.0-18.6]	26.9 [20.1-33.7]	22.7 [18.0-27.4]
Northern Cape	39.2 [33.7-44.7]	38.5 [35.7-41.3]	30.4 [20.8-40.0]	24.2 [19.4-29.0]	35.1 [30.0-40.2]	31.4 [27.8-35.0]
North West	44.5 [35.4-53.6]	30.8 [24.5-37.1]	29.1 [16.1-42.1]	17.6 [10.3-24.9]	36.7 [27.9-45.5]	24.1 [17.3-30.9]
Western Cape	48.2 [40.8-55.6]	46.9 [40.2-53.6]	40.0 [30.4-49.6]	38.4 [34.0-42.8]	44.8 [40.5-49.1]	42.4 [38.7-46.1]
South Africa	38.0 [33.6-42.4]	34.3 [31.6-37.0]	26.5 [21.5-31.5]	21.6 [19.6-23.6]	32.5 [28.4-36.6]	27.6 [25.9-29.3]

Source: Global Youth Tobacco Surveys, 1999 and 2002

c Relative risk is a measure of how much a particular risk factor (say cigarette smoking) influences the risk of a specified outcome (say, death by age 70). It is defined as the ratio of the risk of disease or death among the exposed to the risk among the unexposed. For example, a relative risk of 2 associated with a risk factor means that persons with that risk factor have a 2 fold increased risk of having a specified outcome compared to persons without that risk factor. A relative risk of 0.5 means that persons with that risk factor have half the risk of the specified outcome (a protective effect) compared to persons without the risk (protective) factor.

**Table 6: Prevalence of tobacco use behaviour – age at initiation: Percentage of learners who reported smoking first cigarette before age 10 [95% CI], 1999 and 2002**

Year	Male		Female		Total	
	1999	2002	1999	2002	1999	2002
Eastern Cape	17.1 [8.8-25.4]	16.1 [5.7-26.5]	16.4 [2.9-29.9]	14.6 [9.7-19.5]	17.5 [9.1-25.9]	15.5 [7.9-23.1]
Free State	20.6 [15.7-25.5]	11.7 [5.8-17.6]	23.6 [9.1-38.1]	9.9 [3.0-16.8]	21.9 [13.4-30.4]	11.1 [5.7-16.5]
Gauteng	15.9 [11.2-20.6]	14.8 [11.2-18.4]	10.1 [4.5-15.7]	13.7 [7.5-19.9]	12.7 [9.6-15.8]	14.4 [11.2-17.6]
KwaZulu-Natal	25.3 [21.3-29.3]	24.1 [6.7-41.5]	-	23.2 [13.7-32.7]	28.9 [19-38.8]	23.8 [14.4-33.2]
Limpopo	20.1 [14.5-25.7]	14.4 [2.2-26.6]	-	-	21.6 [16.2-27.0]	14.0 [3.7-24.3]
Mpumalanga	17.8 [12.1-23.5]	16.9 [9.3-24.5]	17.1 [8.3-25.9]	17.7 [6.0-29.4]	18.3 [11.9-24.7]	16.8 [10.8-22.8]
Northern Cape	20.6 [14.8-26.4]	11.2 [4.7-17.7]	15.9 [8.3-23.5]	9.7 [3.8-15.6]	18.2 [15.1-21.3]	10.6 [5.0-16.2]
North West	15.0 [7.6-22.4]	11.6 [3.4-19.8]	4.8 [1.8-7.8]	19.1 [10.5-27.7]	11.4 [6.5-16.3]	14.5 [9.3-19.7]
Western Cape	14.8 [8.8-20.8]	22.5 [15.0-30.0]	15.3 [9.6-21]	11.1 [7.6-14.6]	14.7 [9.8-19.6]	16.7 [13.0-20.4]
South Africa	18.9 [16.6-21.2]	16.9 [12.9-20.9]	17.7 [13.0-22.4]	15.3 [12.3-18.3]	18.5 [16.6-20.4]	16.2 [13.6-18.8]

Source: *Global Youth Tobacco Surveys, 1999 and 2002*

There was a significant decrease in the prevalence of ever smoking (smoked a cigarette, even a puff or two) from 46.7% in 1999 to 37.6% in 2002. The prevalence of current use of any tobacco product decreased from 32.5% in 1999 to 27.6% in 2002 (Table 5). The prevalence of current smoking (smoked cigarettes on one or more days in 30 days preceding the survey) decreased from 23% in 1999 to 18.5% in 2002. In terms of primary prevention of chronic diseases, the age of onset of tobacco use is of vital importance in terms of dose response, level of addiction and cost of care. In 1999, 18.5% of learners reported first smoking cigarettes before the age of 10 but this figure dropped to 16.2% in 2002 (Table 6). Almost a fifth of the sample (18.2%) had used tobacco products other than cigarettes such as chewing tobacco and snuff in 1999 but only 14.5% in 2002. This information is important for the prevention of oral cancer and dental disease. A significant decrease in the number

of current frequent cigarette smokers was noted from 1999 (10.1%) to 2002 (5.8%). The percentage of learners under 16 years who bought cigarettes in a store decreased from 69.4% in 1999 to 66.1% in 2002. There was a significant decrease in the number of learners who were offered free cigarettes by a tobacco representative across the two surveys (29.7% to 22.0%). The percentage of current smokers who expressed a desire to stop smoking, and those who had made an attempt to stop smoking in the past year, remained almost constant (ranging from 73% to 77%). A significant decrease in the number of current smokers who said that they wanted to smoke first thing in the morning was noted from 1999 (20.6%) to 2002 (13.8%).

These two studies indicate that the responsible public health action on tobacco control by the South African government is beginning to show success.

## Food Consumption and Dietary Patterns

Diet has been known to play a key role as a risk factor for chronic diseases for many years. Globally and in SA there have been major changes in food consumption qualitatively and quantitatively, with traditional plant based foods being replaced by high fat, high sugar, energy dense, low fibre foods. This diet, that promotes the development of chronic diseases, is actively marketed by the food industry, as we have seen the growth of several fast food outlets in SA in the last decade. These fast food chains are not limited to large cities, but have successfully located themselves in the peri-urban areas, thus affecting the eating patterns of urban and rural communities.

The SADHS 1998<sup>17</sup> provides the most recent data on overweight and obesity for South Africans over the age of 15 years (Table 7). This information is useful for planning health promotion strategies both at a prevention and care level, but more recent data are needed to monitor trends.

### Overweight and Obesity

According to WHO standards, 29% of men and 56% of women in SA are overweight. Almost one in ten men, and three in ten women, are severely obese with the general tendency towards being overweight increasing with age. It must be noted however, that obesity sharply decreases in women over the age of 65. Furthermore, urban men and women are more likely to be obese than rural men and women. Levels of overweight and obesity are highest in the Western Cape, KwaZulu-Natal and Gauteng.<sup>17</sup>

### Prevalence of Measured Overweight and Perceived Overweight

A comparison between people's actual weight categories as measured by body mass index (BMI) and their perceived weight demonstrates a difference; for example, 9% of men perceive themselves as being overweight when in fact 29% are overweight (BMI categories overweight and obese). Women's perceptions demonstrate an even bigger difference with 21% perceiving that they are overweight while in fact 56% are actually overweight as measured by their BMI. Those people with the least education have the largest discrepancies between perceived and actual overweight.<sup>17</sup>

## Waist and Hip Circumference and Waist / Hip Ratio

The waist-hip ratio has been shown to be a useful assessment tool in the management of chronic diseases. A waist-hip ratio above the cut-off point ( $\geq 1.0$  for men and  $\geq 0.85$  for women) is associated with shortness of breath on walking upstairs; type-two diabetes; having other cardiovascular disease risk factors; having difficulties with activities of daily living and having back pain or symptoms of intervertebral disc herniation.<sup>20</sup> This condition was predominantly found in older female South Africans (Table 7).<sup>17</sup>

## Physical Inactivity

Physical inactivity is now recognised as an important risk factor for poor health as people move from the traditional pastoral ways of life to the more sedentary lifestyle promoted by industrialisation and globalisation. Physical activity has been defined as all movements in everyday life, including work, recreation, exercise and sporting activities. This encompasses activities that range in intensity from taking the stairs regularly, dancing and walking briskly, to jogging, biking and practising sports. The level of physical activity needed to obtain a health benefit does not have to be strenuous. It has been recommended that regular physical activity of moderate intensity practised at least five days a week has the equivalent positive effect on health as vigorous exercise performed three times a week.

Measuring the levels of activity or inactivity in a population has proved difficult. There is no internationally agreed definition or measure of physical activity. To add to the problem, physical activity exists in multiple domains of a person's life, from main occupation (especially if the job involves physical labour), to means of transport, domestic duties and leisure time.<sup>5</sup>

At least 60% of the global population fails to achieve the minimum recommendation of 30 minutes moderate intensity physical activity daily.<sup>21</sup> There are no recent data available for South African adults.<sup>d</sup>

The National Youth Risk Behaviour Survey<sup>22</sup> found that more than a third (37.5%) of learners performed too little physical activity to gain any health benefit. In terms of sedentary behaviour, 1 in 4 learners (25.2%) watched television or played video / computer games for 3 or more hours per day (Table 8).

d The WHO Global NCD InfoBase includes a small amount of data from 1982 and 1990, available from URL: [http://www.who.int/ncd\\_surveillance/infobase/web/Tier1/InfoBaseOnline/en/index.aspx](http://www.who.int/ncd_surveillance/infobase/web/Tier1/InfoBaseOnline/en/index.aspx)



Table 7: Percentage of men and women  $\geq 15$  years overweight or obese and waist-hip ratio (WHR) above cut-off, 1998

	BMI category (kg/m <sup>2</sup> )				WHR above cut-off	
	Overweight (25-29.9)		Obese (30+)		Men ( $\geq 1.0$ )	Women ( $\geq 0.85$ )
	Men	Women	Men	Women		
<b>Age</b>						
15-24	8.4	20.0	2.7	9.6	2.9	13.1
25-34	20.7	29.2	7.8	27.0	4.2	22.4
35-44	24.9	30.7	12.8	39.3	7.0	33.4
45-54	28.1	26.5	17.3	45.5	12.2	45.6
55-64	28.3	25.6	14.4	46.1	14.9	49.8
65+	28.5	26.5	13.9	33.3	16.8	58.1
<b>Residence</b>						
Urban	22.2	26.0	11.1	33.2	8.1	29.1
Rural	15.6	26.2	6.3	25.1	6.2	63.6
<b>Province</b>						
Eastern Cape	20.5	25.7	10.1	29.7	5.3	32.8
Free State	16.3	26.0	8.1	29.2	6.5	28.5
Gauteng	21.1	26.6	10.2	35.6	6.5	22.2
KwaZulu-Natal	21.4	27.4	10.4	35.4	10.2	36.7
Limpopo	16.0	24.0	6.2	20.1	6.8	34.2
Mpumalanga	16.6	24.9	7.5	25.8	3.9	26.8
Northern Cape	14.4	24.9	7.6	24.8	5.8	34.2
North West	15.4	25.8	5.5	18.9	8.9	41.3
Western Cape	25.3	25.9	13.1	31.2	8.7	39.6
<b>Education</b>						
No education	21.3	27.2	8.2	32.6	7.3	51.8
Grade 0 - 5	18.4	25.2	8.2	36.0	9.1	42.4
Grade 6 - 7	17.6	28.1	7.4	33.2	6.1	34.4
Grade 8 - 11	17.2	24.3	7.6	28.7	6.9	27.9
Grade 12	22.2	30.0	13.4	24.8	7.5	17.3
Higher	33.5	23.3	17.8	23.3	8.8	15.3
<b>Population group</b>						
African	17.1	25.9	7.8	31.2	6.5	33.3
African, urban	18.8	25.5	9.6	36.3	7.1	30.2
African, rural	15.0	26.5	5.5	25.3	5.8	37.0
Coloured	22.1	25.3	9.2	28.5	5.2	36.2
Indian/Asian	23.7	27.3	9.0	21.3	11.2	23.2
White	36.1	27.4	20.1	25.5	14.7	20.4
<b>South Africa</b>	19.8	26.1	9.3	30.1	7.4	32.0

Source: SADHS 1998

**Table 8: Percentage of high school learners who participated in insufficient physical activity and who watched TV for more than 3 hours per day, 2002**

	Insufficient physical activity			Watch TV $\geq$ 3 hours per day		
	Male	Female	Total	Male	Female	Total
<b>Age</b>						
$\leq$ 13	28.1	42.9	37.7	24.8	22.5	23.3
14	29.9	40.5	36.3	26.8	30.3	28.9
15	28.1	42.6	36.8	21.6	28.0	25.4
16	30.7	42.1	36.9	22.2	29.1	25.9
17	29.9	41.3	36.1	19.6	28.3	24.4
18	32.7	49.9	41.6	18.8	30.4	24.7
$\geq$ 19	37.0	45.5	40.9	17.0	17.2	17.1
<b>Province</b>						
Eastern Cape	35.3	45.9	41.5	14.6	19.1	17.2
Free State	24.4	38.4	31.9	22.3	28.1	25.4
Gauteng	23.8	37.9	31.2	28.4	39.1	34.1
KwaZulu-Natal	37.0	46.5	42.3	16.9	28.2	23.2
Limpopo	28.6	40.7	35.5	21.0	21.7	21.4
Mpumalanga	29.0	35.6	32.6	31.0	29.7	30.3
Northern Cape	26.2	58.3	46.2	29.8	23.2	25.6
North West	28.0	37.9	33.2	23.7	22.1	22.9
Western Cape	30.8	49.1	41.7	26.6	34.5	31.2
<b>Population group</b>						
African	31.1	42.4	37.5	21.9	26.9	24.7
Coloured	32.5	56.8	45.6	25.4	33.2	29.6
Indian/Asian	30.1	36.0	33.0	27.6	30.3	29.0
White	19.9	37.0	29.4	20.9	19.9	20.4
<b>South Africa</b>	30.5	43.0	37.5	22.2	27.5	25.2

Source: National Youth Risk Behaviour Survey<sup>22</sup> and updated data from MRC to correct errata

## Alcohol Use

Alcohol use is ranked fifth among the leading causes of death worldwide, and consumption has increased over time, with the greatest increase occurring in developing countries. Worldwide, alcohol is responsible for 3.2% of all deaths per annum (18 million), with a higher percentage for males than for females. Besides the direct effects of intoxication and addiction resulting in alcohol use disorders, alcohol was estimated to have caused 20-30% of oesophageal cancer, liver disease, epilepsy, motor vehicle crashes and homicide worldwide.<sup>1</sup>

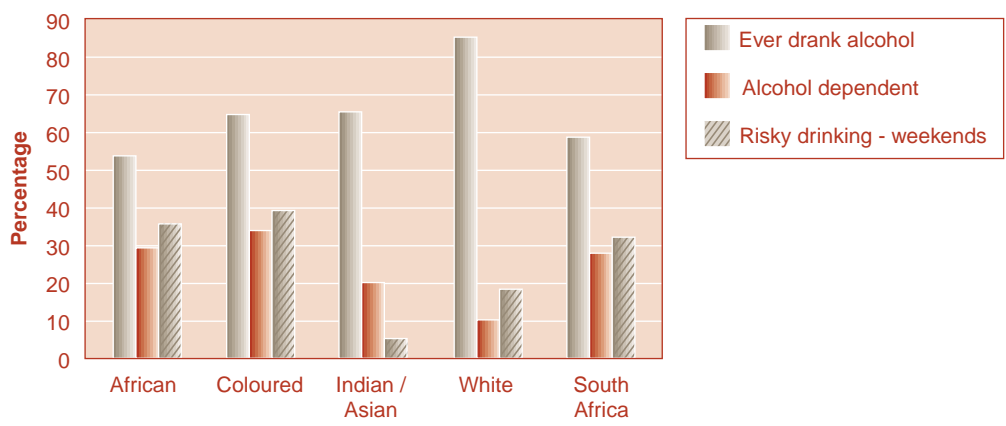
Alcohol is the most commonly used drug by South Africans of all ages. The use of alcohol has been relatively well researched with a variety of studies focusing both on the extent and determinants of use. More than 1 in 4 South Africans (28%) aged 15 years and over acknowledged currently consuming alcohol, with males reporting 45% and females 17%.<sup>17</sup> Among adolescents aged 15-19 years, 11% are current drinkers, with 25.3% of males having ever drunk alcohol and 14.5% being current drinkers, while 15.0% of females have ever drunk alcohol

Table 9: Percentage of men and women  $\geq 15$  years who ever drank alcohol, who show signs of alcohol dependence, and the percentage of current drinkers who engage in risky drinking on weekends, 1998

	Of all men and women				Of current drinkers	
	Ever drank alcohol (%)		Alcohol dependent (%)		Risky drinking - weekends (%)	
	Men	Women	Men	Women	Men	Women
<b>Age</b>						
15-24	35.5	15.9	17.3	5.8	28.7	30.0
25-34	65.7	24.5	34.9	9.7	36.7	33.1
35-44	71.9	29.4	37.9	12.1	38.6	31.7
45-54	72.7	31.6	31.2	13.3	31.4	35.2
55-64	67.2	29.8	27.5	9.5	26.4	30.6
65+	65.3	33.4	22.6	12.0	20.9	29.6
<b>Residence</b>						
Urban	59.9	29.2	27.4	10.3	29.4	29.0
Rural	55.0	20.2	27.9	9.2	37.9	39.0
<b>Province</b>						
Eastern Cape	60.1	22.3	33.7	10.9	30.9	33.0
Free State	66.5	31.6	34.4	11.9	27.2	29.4
Gauteng	59.1	32.4	23.7	10.4	23.3	21.9
KwaZulu-Natal	54.4	17.9	22.5	6.9	31.2	36.2
Limpopo	45.1	15.7	23.7	6.1	40.6	45.4
Mpumalanga	62.1	21.0	38.2	11.5	48.5	46.5
Northern Cape	63.4	34.4	38.6	18.5	36.7	47.6
North West	57.5	23.7	24.8	11.5	42.2	42.1
Western Cape	61.4	40.1	27.6	11.7	33.2	29.6
<b>Education</b>						
No education	70.4	33.5	33.4	16.9	36.0	38.2
Grade 0 – 5	63.2	24.3	35.4	13.1	40.2	44.7
Grade 6 – 7	55.2	20.5	32.0	11.2	43.0	44.9
Grade 8 - 11	51.2	20.7	25.7	7.6	30.0	31.9
Grade 12	59.4	28.9	22.3	6.5	23.4	17.8
Higher	70.4	45.7	17.7	4.9	23.5	12.7
<b>Population group</b>						
African	53.4	18.8	29.4	9.6	35.6	41.9
African, urban	54.1	19.9	30.5	10.8	32.5	40.7
African, rural	52.4	17.6	28.0	8.3	40.0	43.4
Coloured	63.6	40.6	33.6	18.4	39.0	34.0
Indian/Asian	64.7	14.9	20.1	1.7	5.5	0.0
White	84.9	69.8	9.9	6.1	17.6	13.7
<b>South Africa</b>	<b>58.1</b>	<b>25.7</b>	<b>27.6</b>	<b>9.9</b>	<b>32.3</b>	<b>32.0</b>

Source: SADHS 1998

Figure 1: Percentage of men who ever drank, are alcohol dependent, and engage in risky drinking at weekends, 1998



Source: SADHS 1998

and 71% are current drinkers. For White adolescents the rates are much higher, with ever-drinking rates of 70.1% and 65.1% for males and females respectively. Adolescents from Western Cape and Gauteng had the highest rate of ever having used alcohol, while Limpopo had the lowest rate.

The definitions used for population-based data on alcohol consumption vary widely from country to country.<sup>5</sup>

## Conclusions and Recommendations

While much is known about risk factors and the prevention of chronic diseases it must be noted that in order to develop successful health promotion interventions more research needs to be done on the determinants of these risk behaviours and risk factors. Without a clear understanding of the complex interaction between the personal, educational, political, social, economic, cultural, occupational and environmental determinants of the above mentioned risk factors, the prevention of chronic diseases at a population level will be hampered. Determinants are a prerequisite in targeting the points that will bring about a change in the risk behaviours or factors. Additionally it must be noted that the solutions to behaviour like smoking cessation are complex and require multiple interventions operating at different levels. Conceptually therefore, disease prevention and control that simply targets risk factors is likely to be incomplete. An ecological understanding of health promotion recognises that the determinants must be addressed in order to reduce the prevalence of risk factors and thereby reduce the incidence and prevalence of disease.

Chronic diseases are largely preventable if intervention is targeted at risk factors and determinants. The approach for dealing with chronic diseases needs to go beyond medical

treatment for those who are already affected. The health promotion approach suggests a comprehensive and intersectoral solution. It includes primary prevention within a life course perspective i.e. prevention has to start before birth, moving through infancy, childhood, adolescence, adulthood to old age.

This will provide the most cost-effective, affordable and sustainable course of action to cope with the impending epidemic in SA. If the management of chronic diseases focuses on the health system and medical care alone – even if the emphasis is on primary care at the district level – substantial costs will be incurred and the intervention will prove to be relatively ineffective.

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# INFECTIOUS DISEASES

Chapter 14 HIV/AIDS

Chapter 15 Tuberculosis

Chapter 16 Sexually Transmitted Infections

Chapter 17 Malaria

Chapter 18 Cholera

Chapter 19 SARS

