Lifestyle changes for hypertension

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Introduction

Cardiovascular disease (CVD) is the leading cause of deaths worldwide, killing 17 million people annually. Hypertension, as an intermediate risk factor for CVD, is responsible for a significant percentage of the high rates of heart disease and stroke in South Africa. The burden is massive, with approximately 6.3 million people being hypertensive. Only 14% are controlled.[1]

Modifiable risk factors, including an unhealthy diet, physical inactivity, tobacco use and the harmful use of alcohol, lead to raised blood pressure, blood glucose and abnormal blood lipid levels, as well as overweight and obese states. Socio-economic modernisation breeds unhealthy lifestyles, and drives the rise in modifiable risk factors, with a parallel increase in hypertension rates.[2,3] Addressing these risk factors can help avoid up to 80% of heart disease and stroke. Furthermore, these four risk factors are common causal factors for four diseases, i.e. CVD, diabetes, cancer, and chronic lung diseases (also termed noncommunicable diseases, or NCDs). Thus, a greater health impact can be achieved by addressing the four risk factors. Up to 80% of premature heart disease and stroke, 80% of type 2 diabetes and 40% of cancers are preventable.[4,5]

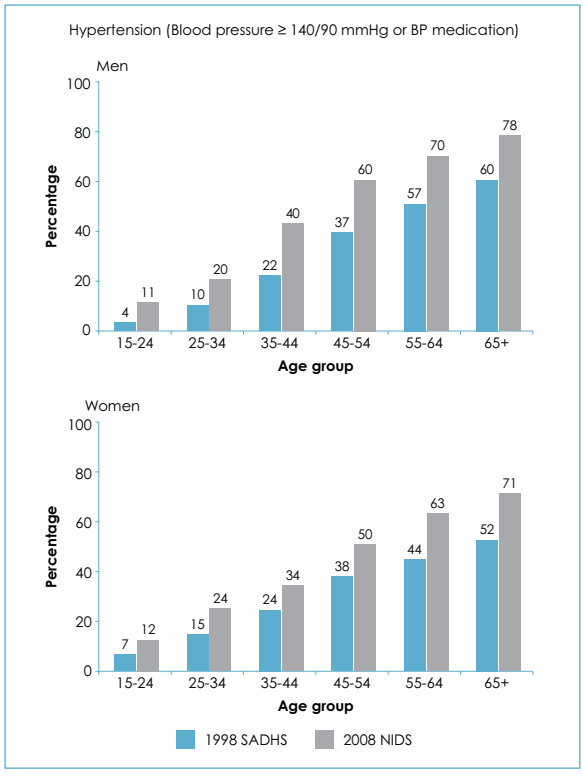

Figure 1: Hypertension trends in South Africa

Lifestyle modification

Health behaviours and choices are influenced by socio-economic and physical environments. Influencers include family, social networks, school, workplace and community, the physical environment, policy, and the commercial environment.[4] Making a healthy choice is not the responsibility of the individual only, nor is it always within his or her power. This causal web of determinants must be taken into consideration by health promoters.

Risk factor trends in South Africa

A policy brief for South Africa presents disturbing trends on risk factors tracked over a period of 10 years.[6] Other than tobacco, all modifiable risk factors increased over this period.

Hypertension incidence increased significantly across all groups (Figure 1).

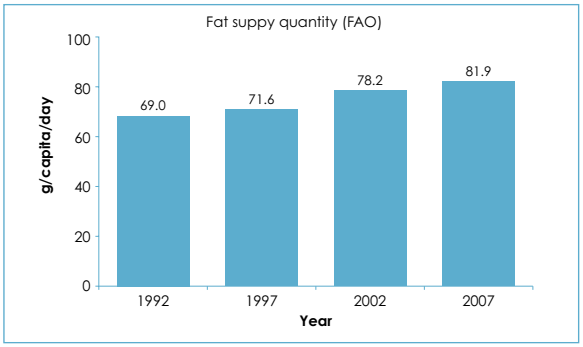

Figure 2: Fat intake in South Africans

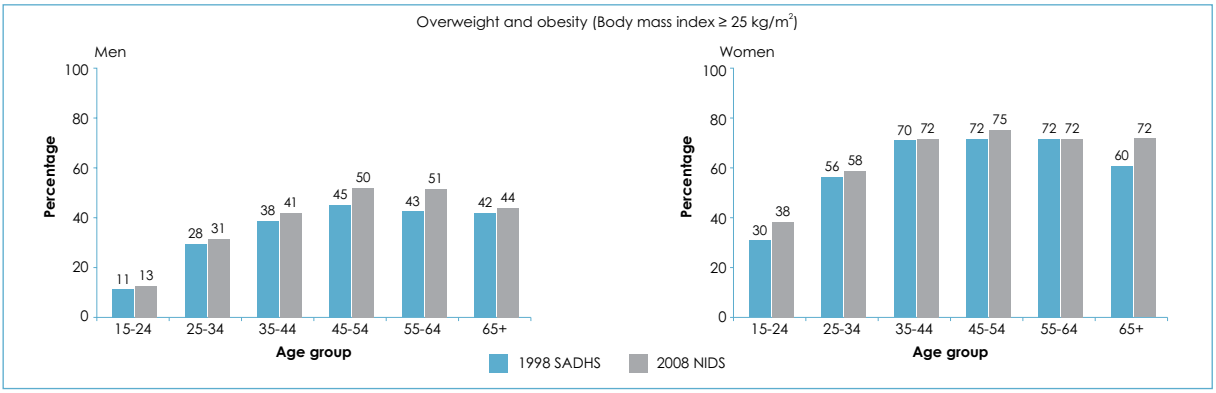

Figure 3: Overweight and obesity trends in South Africans

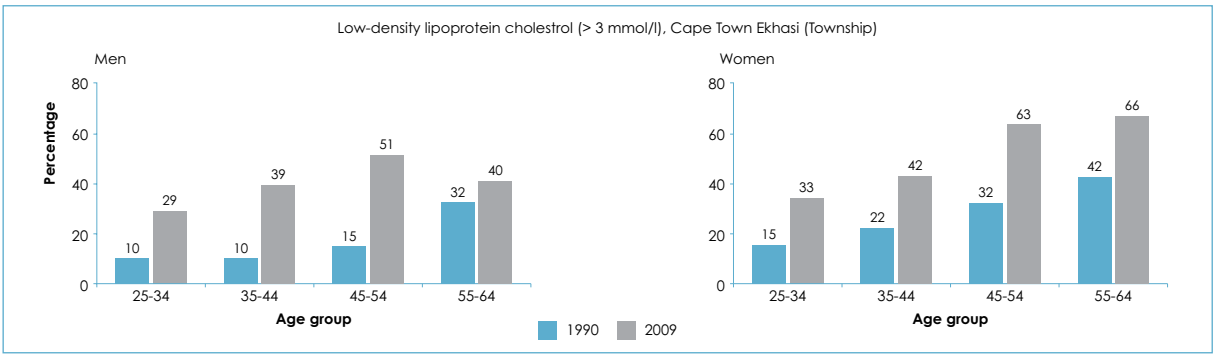

Figure 4: Low-density lipoprotein cholesterol levels in South Africans

Unhealthy diet

South Africans' dietary patterns are worrying, showing an increased intake of calories, saturated fats (Figure 2), salt, sugar and animal protein, and lower unrefined carbohydrates and fibre.

Overweight and obesity states

The increased caloric intake and reduced physical activity track this pattern, with more than 70% of women and 45% of men being overweight or obese, with an increasing trend over time (Figure 3).

High cholesterol

Urban blacks in the Western Cape show an increase in low-density lipoprotein (LDL) cholesterol levels (Figure 4).

Physical inactivity

Physical inactivity remains a problem, with 48% of men and 63% of women being inactive (Figure 5).

Addressing hypertension

"Luckily we know the answers. Unluckily, we often lack the willpower to change our lifestyles." Prof Lionel Opie, *Living longer, living better.*[7]

Prevention must start in the intrauterine stage, and is the most effective way to avoid elevated blood pressure and its precursors.[8] A review of interventions over a period of 10 years revealed the value of physician counselling, with impact achieved sooner, and noted to be significantly higher, than other interventions (Figure 6).[9]

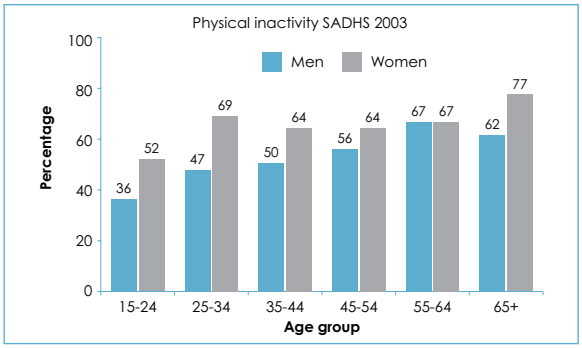

Figure 5: South Africans' physical activity

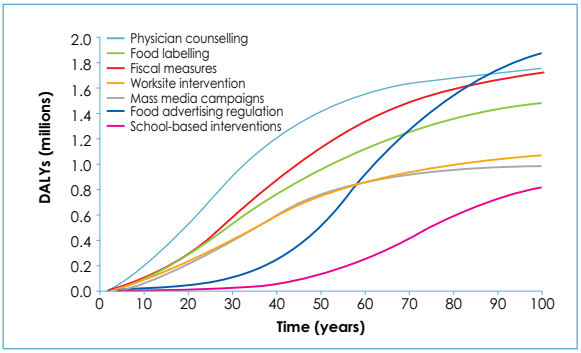

Figure 6: Cumulative disability-adjusted life years (DALYs) gained over time

Tobacco products

South African Hypertension Guideline of 2011[10]

Avoid the use of all tobacco products, including snuff. Nicotine replacement therapy should be used for a patient with hypertension, while under medical supervision.

The objective is to stop all use and exposure to tobacco products and smoke. There is no safe level of exposure, and even secondary smoke can be lethal. Electronic cigarettes also contain nicotine, and expose the smoker to subsequent health problems. Other products that are used in South Africa include hookahs (which provide as much nicotine as 10 cigarettes), cigars, pipes, chewing tobacco, and snuff (which provides as much nicotine as smoking 20 cigarettes a day).[11]

Strategies to quit should include counselling, support, and smoking cessation programmes. Nicotine addiction means multiple attempts are necessary to quit. Medication strategies are contraindicated in pregnant women, smokeless tobacco users and adolescents.[12]

Nicotine replacement therapies increase the chances of stopping smoking by 50-70%.[13] Numerous programmes on how to quit are available, with varying success rates. Many organisations provide information and support on how to quit. These include National Council Against Smoking, Smokenders, Allen Carr Easyway Clinics, Nicorette Kick Butt Programme, and The Heart and Stroke Foundation South Africa.

Inadequate physical activity

South African Hypertension Guideline of 2011[10]

Regular moderate intensity exercise for at least 30 minutes on most (preferably all) days of the week, e.g. brisk walking at 40-60% of peak. Exercise bouts can be continuous, or accumulated in shorter periods, throughout the day. The benefit of exercise is dose responsive. Early adaptations from a sedentary lifestyle to becoming moderately active have the greatest effect. Patients with uncontrolled hypertension should only embark on exercise training after evaluation and initiation of therapy.

Physical activity is protective against the acquisition of chronic diseases. Insufficient physical activity increases the risk of death by 20-30%.[2] The use of a pedometer to track walking is a useful way to monitor personal levels of physical activity.

Additional benefits occur if these levels are exceeded:

- Thirty minutes/day (or 3 x 10 minutes) moderate activity 5 times/week
- Twenty minutes vigorous activity 3 times/week
- One hundred and fifty minutes moderate physical activity each week, or 75 minutes of vigorous-intensity aerobic activity
- Adults should include muscle-strengthening activities involving all major muscle groups for at least 2 days/week
- Children and youth: 60 minutes/day.

Healthcare workers should impart the following information:

- Some activity is better than none, so advise against inactivity.
- Inactive people, and those with limitations due to chronic conditions, should start slowly and gradually increase their activity levels.
- Aerobic activity needs to occur in episodes of at least 10 minutes.
- Older adults with conditions that limit activity should do as much as these conditions allow, in short episodes.
- Walking is one of the safest ways for adults to ensure aerobic physical activity.

Table I details examples of physical activity.

Table 1: Examples of physical activity

Moderate	Vigorous
Brisk walking	Running
Dancing	Jogging
Lifting weights	Cycling at speed
Gardening	Soccer
Housework	Swimming laps
Yoga	Singles tennis
Slow cycling	Aerobic dancing
Hiking	Skipping
Water aerobics	Heavy gardening that increases the heart rate
Ballroom dancing	Uphill hiking
Doubles tennis	

Unhealthy diet

South African Hypertension Guideline of 2011[10]

Follow the nutrition guidelines published by the World Health Organization, which emphasise a diet that is low in total fat, with a high intake of fruit and vegetables (five portions per day), regular low-fat dairy products, a high intake of high-fibre wholegrain foods, fish rather than red meat, products that are low in saturated fat and low in salt, and sparing use of sugar and sugar-containing foods.[8,14,17] Beverages with high caffeine levels should be avoided, but modest use (one to two cups of coffee per day) will not increase blood pressure.

The South African Food Based Dietary Guidelines contain the following recommendations. To achieve a healthy diet:[15]

- Have a healthy balanced diet that is low in fat (saturated fat and trans-fats), high in fibre, and contains limited refined carbohydrates. Include five vegetables and fruit a day. Consume a variety of foods regularly, eaten in small portions.
- Limit salt intake to one teaspoon a day (< 5 g sodium chloride or < 2.4 g sodium). Avoid or limit foods that are top contributors to salt intake in South Africa, including bread, hard margarine, salty snacks, breakfast cereals, soup and gravy powders, viennas, beef sausages and meat pies. Up to 40% of salt consumed is added at the table. Significant cuts are required, as South Africans' salt consumption has increased to 10 g sodium chloride per day![16]
- Include potassium (fruits, vegetables, some milk products and fish), calcium (low-fat dairy products, fish with bones, and dark-green leafy vegetables), and magnesium (wholegrain cereals, wheatgerm, pulses and nuts).
- The Dietary Approaches to Stop Hypertension (DASH) diet is low in sodium and high in potassium, magnesium, calcium and fibre.[7]
- Avoid or limit caffeine (colas, coffee, tea, chocolate, and some energy and weight-loss drinks).
- Read food labels, and choose products that are low in sodium (<120 mg Na/100 g) , low in fat (< 3.0 g/100 g in solid products and < 1.5 g/100 g in liquids), low in saturated fats, and contain no trans-fats.
- Keep total fats to below 15-30% of total energy. Maximum fat intake levels should be: < 70 g/day for females and < 95g/day for males of normal weight, and < 50 g/day for females and < 70 g/day for males who are overweight.

Referral and information resources include public and private sector nutritionists, the Heart and Stroke Foundation SA, Diabetes South Africa and the Cancer Association of South Africa (CANSA).

Overweight and obesity

South African Hypertension Guideline of 2011[10]

To achieve and maintain an ideal weight [body mass index (BMI) of 18.5-24.9 kg/m^2], refer to the two local guidelines for the prevention and management of obesity.

Losing 5-10% total body weight can result in a meaningful reduction in blood pressure.

Basic principles for weight loss include:[2,15]

- Limit caloric intake and increase physical activity.
- A combination of aerobic and resistance exercise for 45-60 minutes of moderate-to-vigorous physical activity for most days of the week.

Body mass index (BMI) is calculated by dividing weight (kg) by height squared (in metres).

Moderate alcohol use

South African Hypertension Guideline of 2011[10]

Limit alcohol intake to two standard drinks per day for men, and one standard drink per day for women and small men. A standard drink (approximately 10 g of ethanol) is equivalent to 25 ml of liqueur or spirits, 125 ml of wine, 340 ml of beer, or 60 ml of sherry.

The level and pattern of alcohol use is important. High levels of consumption or binge drinking (more than 60 g pure alcohol per day) are implicated. Despite evidence of a protective effect of low-alcohol consumption, the World Health Organization and World Heart Federation recommend a conservative approach, as the significant health and social risks far outweigh any health benefits.[2]

Organisations such as the Family and Marriage Association of South Africa, Alcoholics Anonymous and Substance Abuse Medical Centre Drug and Alcohol Addiction are referral options.

South African Hypertension Guideline of 2011[10]

Limit total sodium intake to < 2 400 mg/day (less than one teaspoon of salt). High sodium levels are found in table salt, packet soups, stock cubes, gravies, processed cheese, breakfast cereals, breads, salty snacks, and tinned foods. Reducing the intake of such foods is crucial. The removal of the salt cellar from the table and a gradual reduction in added salt in food preparation is recommended.

Patients must be informed that food may taste bland initially, and that taste adaptation to reduced sodium intake occurs with time. The use of lemon juice, herbs, and spices as alternative seasoning should be encouraged.

Salt content is listed as sodium in food labels:

- "Sodium free" < 5 mg/100 g serving
- "Very low sodium" ≤ 40 mg/100 g serving
- "Low sodium" ≤ 120 mg/100 g serving
- Salt content can be calculated by multiplying sodium content by 2.5.

Conclusion

There is sufficient evidence to support the critical need for health promotion and lifestyle modification interventions in dealing with the rising tide of hypertension and CVD. At the same time, clinicians do not have the resources to single-handedly stem this tide. Therefore, partnerships with lifestyle interventionists are crucial to make a significant impact.

References

1. Charlton KE, Steyn K, Levitt D. Dietary intervention lowers blood pressure in South Africans with hypertension. South African Medical Research Council [homepage on the Internet]. c2012. Available from: http://www.mrc.ac.za/policybriefs/saltpolicy.pdf
2. Mendis S, Puska P, Norrving. Global atlas on cardiovascular disease prevention and control. Geneva: World Health Organization; 2011.
3. Powles J. Changing lifestyles and health background paper for technical discussions at 43rd session of regional committee, September, 1991, World Health Organization, Philippines. Asia Pacific J Clin Nutr [homepage on the Internet]. c2012. [cited 2012 Feb 10]. Available from: http://apjcn.nhri.org.tw/server/apjcn/Volume1/vol1.2/powles.htm
4. Beaglehole R, Bonita R, Horton R, et al. Priority actions for the non-communicable disease crisis. Lancet. 2011;377(9775):1438-1447.
5. Prevention and control of non-communicable diseases: implementation of the global strategy. World Health Organization. [homepage on the Internet]. c2007. [cited 2007 Jun 8]. Available from: http://apps.who.int/gb/ebwha/pdf_files/EB120/b120_22-en.pdf
6. Bradshaw D, Steyn K, Levitt N, et al. Non-communicable diseases: a race against time. South African Medical Research Council [homepage on the Internet]. c2012. Available from: http://www.mrc.ac.za/policybriefs/raceagainst.pdf
7. Opie LH. Living longer, living better: exploring the heart-mind connection. United States: Oxford University Press, 2011; p. 31-54.
8. Primary prevention of hypertension: clinical and public health advisory from the National High Blood Pressure Education Program. National Institute of Health. NIH, 2002.
9. Cecchini M. Chronic diseases and development 3: tackling of unhealthy diets, physical inactivity, and obesity. Lancet. 2010;376(9754):1775-1784.
10. Seedat YK, Rayner BL. South African Hypertension Guideline 2011. S Afr Med J. 2011;102(1):57-84.
11. Tobacco training manual. Provincial Government, Western Cape, Department of Health. Unpublished. 2009.
12. Treating tobacco use and dependence: 2008 update. US Department of Health and Human Services, Public Health Service; 2008.
13. Stead LF, Perera R, Bullen C, et al. Nicotine replacement therapy for smoking cessation. [Cochrane review]. In: The Cochrane Library, Issue 1, 2008.
14. 2008 Physical activity guidelines for Americans. US Department of Health and Human Services. Washington DC: US Department of Health and Human Services; 2008.
15. South African guidelines for healthy eating for adults and children. Department of Health; 2004.
16. Charlton KE, Steyn K, Levitt NS, et al. Diet and blood pressure in South Africa: intake of foods containing sodium, potassium, calcium and magnesium in three ethnic groups. Nutrition. 2005;21(1):39-50.